1945-1970

the state of food and agriculture 1970

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

THE STATE OF FOOD AND AGRICULTURE
SPECIAL CHAPTERS

In addition to the usual review of the recent world food and agriculture situation, each issue of this report from 1957 has included one or more special studies of problems of longer term interest. Special chapters in earlier issues have covered the following subjects:

1957	Factors influencing the trend of food consumption
	Postwar changes in some institutional factors affecting agriculture
1958	Food and agricultural developments in Africa south of the Sahara
	The growth of forest industries and their impact on the world's forests
1959	Agricultural incomes and levels of living in countries at different stages of economic development
	Some general problems of agricultural development in less developed countries in the light of postwar experience
1960	Programing for agricultural development
1961	Land reform and institutional change
	Agricultural extension, education and research in Africa, Asia and Latin America
1962	The role of forest industries in the attack on economic underdevelopment
	The livestock industry in less developed countries
1963	Basic factors affecting the growth of productivity in agriculture
	Fertilizer use: spearhead of agricultural development
1964	Protein nutrition: needs and prospects
	Synthetics and their effects on international trade
1966	Agriculture and industrialization
	Rice in the world food economy
1967	Incentives and disincentives for farmers in developing countries
	The management of fishery resources
1968	Raising agricultural productivity in developing countries through technological improvement
	Improved storage and its contribution to world food supplies
1969	Agricultural marketing improvement programmes: some lessons from recent experience
	Modernization of institutions to promote development

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Corrigendum

Page 116. In Table II-54, the names of the countries should appear in the following order (the figures remain unchanged) :

MAIN EXPORTING COUNTRIES

Madagascar . . . . . .
Mali . . . . . .
Mauritania . . . . . .
Niger . . . . . .
Upper Volta . . . . . .
Chad . . . . . .

TOTAL AFRICAN EXPORTS .

MAIN IMPORTING COUNTRIES

Reunion. . . . . .
Ghana. . . . . .
Liberia . . . . . .
Nigeria . . . . . .
Upper Volta . . . . . .
Algeria . . . . . .
Mauritius . . . . . .

TOTAL AFRICAN IMPORTS .

THE STATE OF FOOD AND AGRICULTURE 1970

THE STATE OF FOOD AND AGRICULTURE 1970

WORLD REVIEW

REVIEW BY REGIONS

AGRICULTURE AT THE THRESHOLD OF THE SECOND DEVELOPMENT DECADE

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1970

The statistical material in this publication has been prepared from the information available to FAO up to 1 October 1970

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

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Figures

Annex tables

NOTE

The following symbols are used in statistical tables:

— none or negligible

... not available

1967/68 signifies a crop, marketing or fiscal year running from one calendar year to the next. 1967-68 signifies the average for two calendar years. In the Annex tables an average of split years, for example 1948/49–1950/51, is indicated as follows: 1948/–50/.

Figures in statistical tables may not add up because of rounding. Percent changes from one year to another have been calculated from unrounded figures.

Unless otherwise indicated, the metric system is used throughout. For explanation of the coverage and methods of calculating the FAO index numbers of agricultural production and international trade in agricultural products, see Explanatory Note to the Annex Tables.

FOREWORD

The year 1970 is in several respects a special one for FAO. It is the twenty-fifth anniversary of the Organization, which was founded on 16 October 1945. In June, a very large number of people from all walks of life came together at the Second World Food Congress for a searching discussion of the problems that lie ahead in FAO's field of international responsibility. Not least, 1970 marks the beginning of a concerted attempt to implement an international strategy for the economic and social betterment of mankind during the Second United Nations Development Decade.

Thus, it is a year which calls for an assessment of past performance and of the tasks for the future. A large part of this issue of The state of food and agriculture *is therefore devoted to a chapter which, after a brief backward look at the past quarter of a century, examines some of the main agricultural problems facing the developing countries at the threshold of the Second Development Decade.*

The current review chapters of this report offer further evidence that at long last something of a turning point may have been reached in the difficult struggle of the developing countries to achieve a sufficiently rapid increase in their food production. Not that 1969, the season principally under review, was a good one for agriculture. At the world level, after two years of especially good results, production showed no increase at all. But this was mainly, although not entirely, because of unfavourable growing conditions in 1969 in the well-fed, developed regions of the world.

Food production in the needy, developing regions recorded a further increase in 1969, although at 2 percent it was not only smaller than in each of the two preceding years, but also below the 2.6 percent average increase for the past decade, which barely kept pace with the population growth and resulted in increased food imports by developing countries.

In Latin America there was only a limited recovery and in the Near East the increase was below average. In Africa bad weather kept production at the level of the previous year. But in the Far East, with its immense population, there was the third successive large increase in food production (4 percent in 1969, compared with 6 percent in 1968 and 4 percent in 1967) since the disastrous harvests of 1965 and 1966.

This is cause for satisfaction, not only because it affects such vast numbers of people, but also because it suggests what can be done when governments are firmly committed to agricultural development: it illustrates what can happen when farmers are introduced to improved technology in economic and institutional circumstances that enable them to take full advantage of it.

How to achieve, in this way, the desirable level and pattern of food-crop production is the first of the major agricultural problems of the Second Development Decade discussed in this report. It is necessary to ensure not only that the momentum of the spread of the high-yielding varieties of cereals is maintained in the countries where they have already been introduced but also that the higher level of technology that the new varieties represent is extended to other crops and other countries. It is also necessary to ensure that a number of important side-effects caused by the technological changes in such fields as trade, employment and income distribution are successfully dealt with.

It seems reasonable to hope that the high-yielding varieties of cereals will make it possible to overcome the worst calorie deficiencies in many of the developing countries during the course of the 1970s. They should also help to reduce the scourge of protein deficiency that particularly afflicts so many children, both because cereals are man's main source of protein, and because higher yields of these dominant crops can release land for other purposes, including feed production. But protein deficiencies seem likely to continue much longer than calorie deficiencies, especially because many good sources of protein are comparatively expensive and thus out of reach of the lower income groups in the many developing countries where wide income discrepancies persist.

The most costly sources of protein, livestock products, are greatly sought after in most parts of the world, and livestock production is the second major problem area of the Second Development Decade discussed in this report. It appears inevitable that the relative prices of livestock products will rise very rapidly in the coming years, thus putting them still farther out of reach of the poorest people who most need additional protein. If protein supplies are to be increased at anywhere near a sufficiently fast pace, it will be necessary to take all possible steps to raise the production and consumption of good vegetable sources of protein and of fish and, within the livestock sector, to concentrate on the production of pigs and poultry, which have a shorter reproductive cycle than ruminants.

So far one of the main results of the introduction of the high-yielding varieties of cereals has been a return to greater self-sufficiency in food in a number of developing countries. Some of them already have or may have in the near future a surplus capacity. This is an example both of the side-effects arising from the recent technological breakthroughs and of the adjustment problems to which I have recently been drawing attention. At least for cereals the coming years will necessitate a major reconsideration of production and trade policies by a number of countries, both developed and developing, importing and exporting.

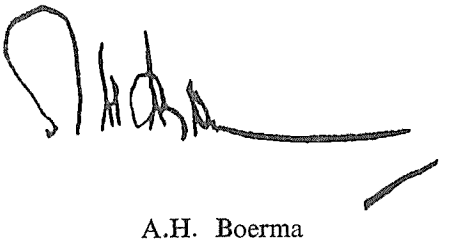
Trade problems, which have loomed large in the world agricultural economy throughout the past 25 years, are the third area discussed in this report in connexion with the Second Development Decade. The almost continuous downward trend in the prices and terms of trade of agricultural exports has done much to frustrate the plans of the developing countries to achieve a better life for their people. Although in 1969, for the first time for some years, there was a small increase in the agricultural export earnings of the developing countries, this only took them back to a level already achieved several years ago. Substantial changes are needed if trade problems are to be any less serious in the future: partly this depends on adjustments in the terms of trade in favour of developing countries, partly on adjustments in production and utilization patterns in these countries.

The fourth and final question discussed here concerns rural employment. Just as there seems at last to be some hope of achieving a better balance between food supplies and population growth, employment is emerging as a further problem whose solution is made infinitely more difficult by the unprecedentedly high rates of population growth in the developing countries. Unemployment and underemployment, in agriculture and in the rest of the economy, seem certain to bring a heavy burden of individual suffering and indignity, of wasted productive resources, and of social dissatisfaction and unrest during the 1970s and beyond.

A glance at the Provisional Indicative World Plan for Agricultural Development (which is now being evolved into a perspective study of world agricultural development) or at the report of the Second World Food Congress will confirm that the four subjects singled out for discussion here far from exhaust the list of the agricultural problems that will beset the world during the Second Development Decade. Yet all is not gloom. Progress has been made in the last 25 years. Although there has not been much improvement in the nutrition and general welfare of many of the world's poorest people, it has at least been possible to cope with an unprecedented rate of population growth without any major breakdowns in food supplies.

In the future, much more than this will be needed, especially since what can be achieved in the agricultural sector will be a major determinant of the overall progress that is possible during the Second Development Decade. But there are grounds for hope in the generally greater awareness of the crucial role of agriculture in economic and social development, in the increased government investment in the agricultural sector in several of the latest national development plans, in the increased assistance for agriculture in spite of the unfortunate slowdown in foreign aid, and in the recent achievements of farmers in many countries. Moreover, as must be very clear to anyone who was at the Second World Food Congress, the energies and enthusiasms of the youth of the world can constitute a new and immensely powerful force for development.

At this anniversary time, I am above all conscious of the need for FAO to play its full part in the difficult period before us. The experience of the last few years has illustrated how quickly the situation and needs of our Member Nations can change. In the light of my assessment of these needs when I took office in 1968, I have given priority in the Organization's work to assisting countries in their planning for economic development, especially to the five areas of concentration: high-yielding varieties, protein, human resources, earning and saving foreign exchange, and war on waste. We are intensifying our work in these areas. At the same time, we shall participate, together with the rest of the international community, in a detailed review and appraisal of progress during the Second United Nations Development Decade and adjust our priorities, if necessary, in the light of that review, so as to continue to make the greatest possible contribution toward the solution of the problems facing us.



A.H. Boerma
Director-General

Chapter I. - WORLD REVIEW

Agricultural production

At first glance, the growth of world [1] agricultural production in 1969, as measured by the preliminary FAO indices, appears somewhat disappointing. The index of combined output of agricultural, fishery and forest products showed no increase at all, compared with a 4 percent rise in 1968 and a longer term (1958-68) average growth of almost 3 percent per year (Table I-1). In the main this stability reflected the very small increase in the preliminary index for agriculture proper, but it also shows to some extent the 2 percent fall in fishery production, which in preceding years had risen rather faster than the other two sectors. In 1969 only forest production showed any significant increase, at about the average longer term rate.

These preliminary overall indicators give, however, an excessively dark picture of the actual situation. For one thing, the smallness of the increase for agricultural products proper was largely due to reduced production in the developed countries, where surpluses rather than shortages are the problem. And while the increase in the combined production of the developing countries was, at 3 percent, somewhat less than in recent years, a breakdown of this figure — which still remains subject to a possible upward adjustment — into its regional and country components reveals a number of encouraging features.

Particularly reassuring is the fact that, as in the previous two years, growth was fastest in the Far East, the region where in the past the food problem has been most serious, and where governments and farmers of many countries have recently made particularly serious efforts to raise agricultural output. Although the increase in food production in the Far East, preliminarily estimated at 4 percent, was below that recorded the year before, it was still above the longer term trend. Even more important was the solid increase, of 4 percent, again achieved by India, and the further good progress shown also in a number of other food-importing countries now making determined efforts to raise their cereal out-

[1] Unless otherwise indicated, world totals shown in this report exclude Mainland China and other Asian centrally planned countries.

TABLE I-1. – INDICES OF WORLD [1] PRODUCTION OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1948-52 average	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68
	1952-56 average = 100													*Percent*	
TOTAL PRODUCTION	...	113	116	119	121	125	128	131	133	137	142	147	147	—	2.7
Agriculture	87	114	116	120	121	126	128	131	133	138	143	147	148	—	2.7
Fishery	86	112	116	121	127	135	138	147	155	163	170	176	173	— 2	4.4
Forestry	...	106	111	112	111	113	115	121	122	123	125	127	130	+ 2	1.7
POPULATION	93	108	110	112	115	117	119	122	124	127	129	132	134	+ 2	2.0
PER CAPUT TOTAL PRODUCTION	...	105	105	106	105	107	107	108	107	109	110	111	109	— 2	0.6
Agriculture	93	105	106	107	106	108	108	108	107	109	111	112	110	— 2	0.7
Fishery	92	103	105	108	111	115	116	120	125	129	132	134	128	— 4	2.4
Forestry	...	98	101	100	97	97	97	99	98	97	97	97	97	+ 1	— 0.3

NOTE: For details of the methodology and coverage of these indices, see the explanatory note to the Annex Tables.
[1] Excluding Mainland China. – [2] Preliminary estimates.

TABLE I-2. – INDICES OF WORLD [1] AND REGIONAL AGRICULTURAL PRODUCTION IN RELATION TO POPULATION

	1948-52 average	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68
	1952-56 average = 100													Percent	
Total production															
ALL AGRICULTURAL PRODUCTS															
Western Europe	84	109	112	118	118	126	127	129	130	133	142	145	146	—	2.8
Eastern Europe and U.S.S.R.	82	128	130	132	135	138	133	145	148	165	167	174	169	— 3	3.5
North America	93	106	107	109	109	112	119	117	119	120	124	126	124	— 1	1.9
Oceania	89	118	119	122	125	133	137	141	135	152	143	166	163	— 2	3.6
Other developed countries [3]	81	117	119	121	125	133	135	139	139	144	166	166	168	+ 1	3.4
ALL DEVELOPED COUNTRIES	87	114	116	119	120	124	126	130	131	138	143	147	146	— 1	2.7
Latin America	87	117	118	120	127	130	132	135	142	139	147	146	149	+ 2	2.6
Far East [1,4]	87	111	117	121	126	128	131	135	133	135	141	148	154	+ 4	2.6
Near East [5]	82	118	122	123	123	135	138	141	143	147	153	158	162	+ 2	3.0
Africa [6]	88	110	113	121	115	124	128	131	134	133	137	141	142	+ 1	2.5
ALL DEVELOPING COUNTRIES	87	114	117	121	124	129	132	135	137	137	143	148	152	+ 3	2.7
World [1]	87	114	116	120	121	126	128	131	133	138	143	147	148	—	2.7
FOOD PRODUCTS ONLY															
Western Europe	84	109	112	119	118	126	128	129	130	134	143	146	147	—	2.9
Eastern Europe and U.S.S.R.	83	129	131	133	137	140	134	146	149	167	168	176	171	— 3	3.5
North America	92	109	109	111	110	114	121	119	122	127	132	133	131	— 1	2.2
Oceania	92	118	115	121	124	135	138	144	136	159	145	174	167	— 4	4.2
Other developed countries [3]	81	117	120	123	127	137	138	141	141	147	172	171	174	+ 2	3.7
ALL DEVELOPED COUNTRIES	87	115	117	120	121	126	128	131	133	142	147	152	150	— 1	2.9
Latin America	87	116	114	117	123	125	131	136	140	141	150	151	152	+ 1	2.8
Far East [1,4]	87	112	118	122	127	128	132	136	133	135	141	149	154	+ 4	2.6
Near East [5]	82	118	121	122	123	133	136	137	139	144	150	155	157	+ 2	2.7
Africa [6]	89	108	111	117	113	120	124	126	128	127	131	136	135	—	2.2
ALL DEVELOPING COUNTRIES	87	113	116	120	123	127	131	134	135	136	143	148	151	+ 2	2.6
World [1]	87	114	117	120	122	126	129	132	134	140	145	150	150	—	2.8
Per caput production															
ALL AGRICULTURAL PRODUCTS															
Western Europe	87	105	107	113	111	117	118	118	118	120	127	129	128	—	1.9
Eastern Europe and U.S.S.R.	87	121	121	120	122	123	117	126	127	141	141	145	140	— 4	2.2
North America	100	98	98	98	96	97	102	99	99	99	101	101	99	— 2	0.3
Oceania	99	107	106	107	107	111	112	113	106	117	108	123	119	— 3	1.4
Other developed countries [3]	86	111	111	112	115	121	121	122	121	124	142	139	139	—	2.1
ALL DEVELOPED COUNTRIES	92	108	108	110	109	112	113	114	114	119	122	125	122	— 2	1.5
Latin America	97	105	102	101	104	104	103	102	104	99	102	99	97	— 1	— 0.3
Far East [1,4]	94	102	104	106	107	106	106	106	103	101	103	105	107	+ 1	0.1
Near East [5]	91	106	107	106	103	109	109	109	108	107	109	110	109	— 1	0.3
Africa [6]	96	100	101	105	97	102	103	103	103	100	100	101	99	— 2	—
ALL DEVELOPING COUNTRIES	94	103	104	105	105	106	106	106	104	102	104	104	104	—	0.1
World [1]	93	105	106	107	106	108	108	108	107	109	111	112	110	— 2	0.7
FOOD PRODUCTS ONLY															
Western Europe	87	106	108	113	112	118	118	118	118	120	127	130	130	—	1.9
Eastern Europe and U.S.S.R.	87	122	122	122	123	124	118	127	128	143	142	148	142	— 4	2.3
North America	99	101	100	100	98	99	104	101	102	104	107	107	105	— 2	0.7
Oceania	102	107	102	106	105	113	113	116	107	122	109	129	122	— 6	2.1
Other developed countries [3]	87	111	112	114	116	124	124	124	123	127	147	143	144	—	2.4
ALL DEVELOPED COUNTRIES	92	109	109	111	110	113	114	115	115	122	125	128	125	— 2	1.7
Latin America	97	104	100	99	101	100	102	103	102	101	104	101	99	— 2	— 0.1
Far East [1,4]	94	103	106	107	108	107	107	107	103	101	103	106	107	+ 1	0.1
Near East [5]	90	107	106	104	103	108	108	106	105	105	107	107	106	— 1	0.1
Africa [6]	97	98	99	102	95	99	100	99	98	96	96	97	94	— 3	— 0.3
ALL DEVELOPING COUNTRIES	94	103	103	104	104	105	105	105	103	101	103	104	104	— 1	—
World [1]	93	106	106	107	106	108	108	109	108	110	113	114	111	— 2	0.8

[1] Excluding Mainland China. – [2] Preliminary estimates. – [3] Japan, South Africa and Israel. – [4] Excluding Japan. – [5] Excluding Israel. – [6] Excluding South Africa.

put, such as Ceylon, Indonesia, the Republic of Korea, West Malaysia and Pakistan. The regional situation is discussed in more detail in Chapter II.[2]

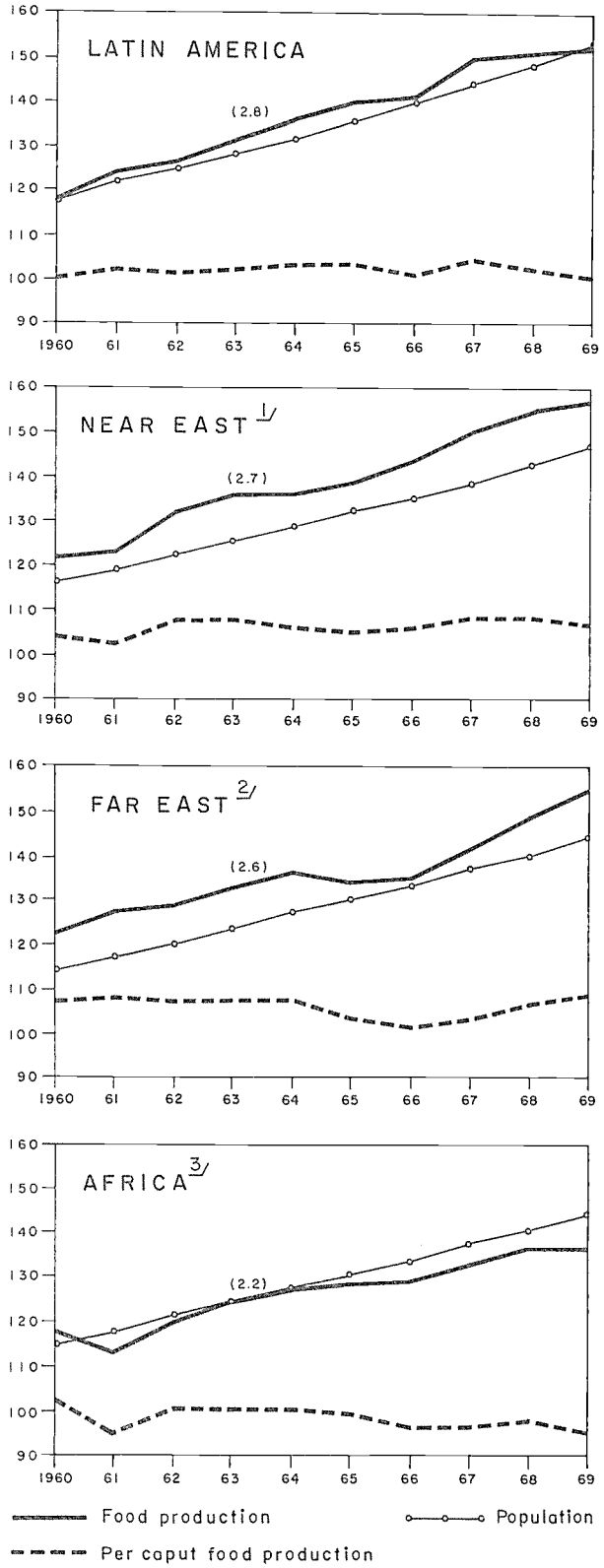
The recovery of output in Latin America, following a setback caused by the drought that has plagued large parts of the region since late 1967, was relatively modest, at some 2 percent, though the situation varied widely as between countries. The output in the developing countries of the Near East also rose by about 2 percent, somewhat less than the longer term rate of growth. Given the instability of agricultural production in the region, too much importance cannot be attached to data for a single year; on the other hand, countries of the region have experienced some difficulty in spreading the use of high-yielding cereal varieties. In Africa the harvest results varied widely as between the different subregions but, reflecting mainly the impact of adverse weather on the cereal and olive crops of the Maghreb countries, the indicator for the overall food production appears to have remained more or less unchanged.

In per caput terms, these changes resulted in a fall in output in each of the developing regions except the Far East. Even in that region successive increases in output since the poor crops of 1965 and 1966 have only meant a recovery of food production per caput to the level of the first half of the 1960s. Though this does not necessarily mean that the per caput food intake in the developing countries has suffered, as shortfalls may have been made up from imports and stocks,[3] the data do stress the stubbornness of the food problem faced by the developing countries, and the importance of unflagging government commitments to efforts to overcome it (Table I-2 and Figure I-1).

Among the developed regions total agricultural production appears to have fallen by between 1 and 3 percent in all cases except in western Europe, where it remained unchanged at the 1968 level. This is in strong contrast with the rising longer term trend in these regions at rates ranging between 1.9 and 3.6 percent a year, and the 3 percent overall increase for developed countries recorded in 1968. The slight increase in the group of the other developed countries reflected mainly a 5 percent rise in output in South Africa.

In part, reductions of output in the developed regions in 1969 were deliberate, following the renewed and geographically more widespread accumulation of surplus stocks that started some three years ago.

FIGURE I.1. – TRENDS IN FOOD PRODUCTION AND POPULATION IN THE DEVELOPING REGIONS



NOTE : The figures in brackets show the food production annual rate of growth in the decade 1956-58 to 1966-68.

[1] Excluding Israel. – [2] Excluding Japan, Mainland China and other Asian centrally planned countries. – [3] Excluding South Africa.

[2] Although no official data have been published for Mainland China, such indications as are available suggest that output there recovered in 1969, following the setbacks associated with the "cultural revolution."

[3] Work now under way on national production/utilization accounts and food balance sheets should enable the presentation in future issues of *The state of food and agriculture* of a clearer picture of trends in consumption than has been possible in the past.

As is discussed in more detail later in this chapter and also in Chapter II, the tendency was countered in 1968 and 1969 by various measures to discourage or limit production and to increase consumption, though many of them will have their impact — and in some cases probably only a limited one — in 1970 and the following years. More commonly, the 1969 shortfall appears to have been due to unfavourable weather, for example in the U.S.S.R. and parts of both eastern and western Europe. Nor do developments in production appear to have been such as to have had any major impact as yet on the size of stocks. Overall, the impression remains that so far most of the adjustments in output of the surplus products have taken place in the developed exporting countries, while the developed importing countries — with few exceptions — have made little contribution toward a better long-term balance in world markets for these products.

Production of main agricultural commodities [4]

Among the principal agricultural commodities, the overall production of wheat declined in 1969 by 6 percent from the record level of 1968 to a total of about 290 million tons. Production decreases were widespread in both developed and centrally planned countries, reflecting acreage cuts in North America (though the effect of these in Canada was offset by higher yields) and unfavourable weather conditions, particularly in the U.S.S.R., Australia, north Africa, and parts of the Near East where widespread rust attacks also affected the crop. Several countries in Asia and Latin America, however, reached record levels of wheat production — in particular India where both the area cultivated and yields were larger, Pakistan, and Argentina where the crop recovered strongly following improved weather conditions.

In contrast, the output of coarse grains increased moderately in 1969. The output of maize was up by about 5 percent, reflecting larger crops in North America, western and eastern Europe, the U.S.S.R. and Asia, which more than offset smaller crops in the Southern Hemisphere for the second year in succession. No significant change was recorded in the total output of barley or millet and sorghums.

Another record was achieved in the production of rice, reflecting both favourable weather conditions in the main rice-producing countries and continuing technological progress, particularly the wider adoption of the new high-yielding varieties. With increases taking place in both the main exporting and importing countries, competition on world markets was expected to become more intense.

Among other major foods, world meat production is estimated to have risen by only about 2 percent compared with an average of just below 4 percent a year during the 1960s. There was hardly any rise in red meat production in the high-income countries, except for the considerable increases in Australia and New Zealand, where severe droughts in some areas caused additional slaughtering. The expansion of poultry meat production was only moderate. In the developing countries meat output is estimated to have increased by about 2 percent thanks to the marked expansion in beef production, particularly in Argentina. Pigmeat production was smaller in western Europe (despite increases in the United Kingdom, Portugal and Spain), in the United States and in Japan, but there was some increase in the U.S.S.R. World production of mutton and lamb fell slightly in spite of increases recorded for New Zealand and Australia. Milk production remained unchanged in 1969. Higher production was recorded in Latin America and in Oceania, where production recovered from a low level in 1968, as well as in the Far East where Japan's output continued to expand rapidly. In the United States production declined further, however, and it also fell in western Europe and in the U.S.S.R.

World production of sugar recovered in 1969 by around 5 percent, following a decline in 1968. Beet sugar production increased only slightly because of the small harvest in eastern Europe and the U.S.S.R. where weather conditions were unusually bad. Total cane sugar production is however estimated at a new record, in spite of another setback in Cuba and a smaller crop in Oceania. As in each of the past 11 years, world output of oilseeds increased again in 1969 by 2 percent. The volume of output was smaller in the developing countries (except in India, where groundnut production was up by 11 percent), and in the centrally planned countries, mainly because of a reduced sunflowerseed harvest in the U.S.S.R. These declines were just about offset by a continuation of the upward trend in the developed countries, mainly the United States which accounts for over one quarter of world production and where the production of soybeans showed a marginal increase in 1969.

Total production of citrus fruit rose again in practically all countries. Apple production also reached a new record while the output of pears was lower. World production of bananas increased slightly in spite of losses in Central America due to adverse climatic factors in the last quarter of the year.

Production of both coffee and cocoa recovered from the low levels of 1968. Larger coffee crops were harvested in all the main producing countries

[4] For a detailed account of the commodity situation, see *FAO commodity review and outlook 1969-1970*. Rome, 1970. Production data for individual commodities are also shown in Annex table IA of this report.

except Uganda. Brazil's crop, though larger than in 1968, was lower than expected because of frost and drought. Cocoa production was higher mainly because of the return of more normal weather conditions in west Africa. World output of tea rose by roughly 2 percent to a new record, with increases in African countries more than making good the smaller crops in India and Ceylon. Tobacco production remained unchanged; output increased in North and Latin America but fell in other areas, particularly in developing countries in Asia.

Among raw materials, world cotton production declined slightly in 1969, with lower yields in several major producing countries and smaller cultivated areas in many minor ones. In the United States the area planted was larger than in 1968, but adverse weather conditions and insect infestation led to the lowest yield per acre since 1957. Lower output was also recorded in Mexico and Central American countries, because of reduced cultivation. Increases were recorded in Australia, Brazil, Colombia, the Sudan and the United Arab Republic as well as in India and Pakistan. World production of wool remained unchanged in 1969, with a rise in the developed countries (to a record level in both Australia and South Africa) offset by a fall in centrally planned economies. No net change took place in developing countries. Natural rubber production rose by more than 8 percent, reflecting a new record in Malaysia as replanted high-yielding trees approached their period of full yield, and more intensive tapping in Thailand. World production of jute, kenaf and allied fibres recovered substantially from the extremely low level in 1968 — particularly in India, Pakistan and Thailand — and the total was only fractionally short of the 1966 peak. Aside from generally favourable weather conditions, this reflected the attractive prices at sowing time that had induced farmers to increase plantings.

TABLE I-3. – EARLY INDICATORS OF AGRICULTURAL PRODUCTION IN 1970

	Change 1969 to 1970
	Percent
DEVELOPED REGIONS	
Western Europe	—
Eastern Europe and U.S.S.R.	+ 1-2
North America	— 1
Oceania	—
TOTAL [1]	—
DEVELOPING REGIONS	
Latin America	+ 4

[1] Including Israel, South Africa and Japan.

Agricultural production in 1970

Early estimates for 1970 suggest that the tendency for total agricultural output in the developed regions to remain stable has continued. Little or no increase is estimated to have taken place in western Europe or Oceania, and production in North America may have fallen slightly. The modest increase in output provisionally estimated for eastern Europe and the U.S.S.R. represents only a partial recovery after the disappointing production results of 1969 (Table I-3).

The situation in 1970 is described in more detail in Chapter II. In western Europe, the stability of output was the combined result of decreases in the production of cereals and, to a lesser extent, sugar beet and milk — all commodities currently in surplus. These decreases were more or less offset by modest increases in the output of a number of other major commodities, including most types of meat, potatoes and olive oil. Countries whose agricultural production showed no increase include Denmark, France, the Federal Republic of Germany, Italy and Spain. Smaller cereal crops were also largely responsible for the stable level of output in North America and Oceania. There were particularly steep reductions in the wheat crops of Canada (where total agricultural production fell by some 7 percent) and Australia, and in North America coarse-grain production was smaller also. In eastern Europe and the U.S.S.R., on the other hand, cereal crops showed a partial recovery, especially wheat, and this, together with larger harvests of potatoes and oilseeds, was mainly responsible for the increase that is estimated to have taken place.

For the developing countries, fewer and less reliable data on the 1970 production were available at the time of writing. In Latin America, however, the indications were for some acceleration in the growth of output, following two years of disappointing overall results. The majority of countries of the region appear to have participated in this improvement, despite steep reductions in the Argentine wheat production and in the Brazilian coffee crop. No quantitative estimate can as yet be made of the change in other developing regions. In the Far East, wheat crops are estimated to be larger in India and Pakistan. For rice, weather conditions have so far been reported to be generally favourable, but no harvest estimate can as yet be hazarded. Data for the Near East and Africa are even fewer. In the former region, the total cereal crop may be down, with reduced crops of wheat and barley in some

major producing countries, and cotton production may also be smaller. For Africa, information is so far limited to some of the major cash crops. Little change is expected to have taken place in coffee and cocoa production; that of tea may have fallen somewhat. Olive oil production has recovered from last year's decline, and that of palm oil continued to increase, but groundnut production is expected to be smaller. Cotton production is thought likely to have risen. Excellent maize crops were reported from Kenya and Tanzania.

As a result of the above-described changes in wheat production, the world total for the crop is expected to have remained slightly below the 1969 level. The same holds true for coarse-grain production, where the main factor is the decline in European crops. In the case of rice, crops in the United States and Japan were smaller in response to policies to reduce output, but if weather remains normal during the rest of the growing season, particularly in the Far East, a world total equal to the 1969 record level is considered possible.

The output of other foods, including meat and fats and oils, was expected to total well above the 1969 level. Meat supplies, in particular, will probably rise markedly, mainly due to the sharp increase anticipated in the production of pigmeat and poultry in western Europe and North America. However, sugar production in 1970/71 was not likely to exceed substantially the 1969/70 record. Milk production during the first nine months of 1970 continued to decrease slightly, as in 1969.

Among nonfood commodities, slight increases in total output were forecast in the production of rubber, cotton, and jute and kenaf. Coffee production, however, was expected to be much lower than in 1969, because of the poor harvest anticipated in Brazil. The output of tea was likely to approximate the record figure of the previous year.

Fishery products

For the first time since 1950, total production of fish suffered a mild setback (Table I-4). Smaller landings of fish used for reduction to fish meal and oil were the main reason for this interruption of the rapid long-term growth, which had raised fish supplies to three times the prewar and immediate postwar levels.

The decline in raw material for the reduction industry results from lower regional totals of landings in Latin America and western Europe, where Peru, Chile and the Scandinavian countries are the leading producers of fish meal and oil, and has also been influenced by the smaller landings of South African and United States fishermen.

Raw material shortages have led to intensified efforts to find substitute resources for such species as the Scandinavian herring and the United States

TABLE I-4. – ESTIMATED WORLD [1] CATCH OF FISH, CRUSTACEA AND MOLLUSCS

	1948-52 average	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68
	Thousand metric tons													*Percent*	
DEVELOPED COUNTRIES	15 650	20 330	21 620	22 050	23 380	24 410	24 930	25 830	28 390	29 220	31 250	32 840	32 520	— 1	4.4
Western Europe	6 360	7 450	7 850	7 720	7 960	8 240	8 500	9 180	10 240	10 870	11 270	10 920	10 350	— 5	3.7
Eastern Europe and U.S.S.R.	1 900	2 910	3 080	3 400	3 630	4 020	4 470	5 050	5 730	6 010	6 530	6 930	7 350	+ 6	8.5
North America	3 470	3 710	3 950	3 750	3 950	4 100	3 970	3 860	3 990	3 890	3 730	3 930	3 910	— 1	—
Oceania	70	90	100	110	110	110	110	120	130	140	150	160	140	— 13	5.2
Other developed countries [3]	3 850	6 170	6 640	7 070	7 730	7 940	7 880	7 620	8 300	8 310	9 570	10 900	10 770	— 1	5.1
DEVELOPING COUNTRIES	4 980	7 970	9 280	11 280	13 390	15 610	16 350	20 110	18 390	21 230	22 940	24 580	23 650	— 4	11.7
Latin America	640	1 870	3 240	4 740	6 620	8 540	8 710	11 440	9 460	11 580	12 750	13 580	11 920	— 12	24.0
Far East [1,4]	3 150	4 290	4 180	4 740	4 890	5 080	5 570	6 270	6 510	7 030	7 460	8 270	8 780	+ 6	5.9
Near East [5]	350	380	380	390	410	430	490	520	500	480	530	510	530	+ 4	2.7
Africa [6]	810	1 370	1 410	1 340	1 380	1 470	1 500	1 790	1 820	2 030	2 100	2 120	2 320	+ 9	4.3
Other developing countries [7]	30	60	70	70	90	90	80	90	100	110	100	100	100	—	6.8
World	20 630	28 300	30 900	33 330	36 770	40 020	41 280	45 940	46 780	50 450	54 190	57 420	56 170	— 2	6.8

[1] Excluding Mainland China and other Asian centrally planned countries. – [2] Preliminary estimates. – [3] Israel, Japan and South Africa. – [4] Excluding Japan. – [5] Excluding Israel. – [6] Excluding South Africa. – [7] Includes developing countries in the North America and Oceania regions.

menhaden, which have been the mainstay of the reduction industries. Limited progress so far along these lines and continuing — in some cases even more stringent — resources management controls make it unlikely, however, that raw material landings will increase in the immediate future. A tendency to upgrade the utilization of scarce resources, such as the Scandinavian herring, by diverting supplies to human consumption, may further aggravate the raw material problems of fish-meal and oil industries. Last year, price increases for fish meal and oil blunted to some extent the economic impact on the industry of short supplies. A continuation of recent price trends would, however, have serious market implications for industries in those countries where reduction products are in price competition with other components of animal feed rations or of food products. Substitution was already a significant phenomenon in 1969 in the United States, where feed compounders took advantage of low soybean meal prices and substantially reduced their purchases of fish meal.

A brighter outlook is justified for food fish production. Although here, too, increasing demand for some high unit-value products in the face of growing supply scarcity will tend to raise prices, so far this has had no appreciable effect on demand, with the exception of some signs of consumer resistance in the United States shrimp market late in 1969. Record supplies of northeast Pacific salmon predicted for 1970, increasing market acceptance of haddock and plaice — partly in substitution of northwest Atlantic cod and other food fish which are becoming more scarce — as well as the accelerated development of fisheries for home market consumption in developing countries, all should contribute toward some expansion of food fish landings in 1970.

Forest products

A further moderate expansion took place in 1969 in world forest production, although the rate of increase varied considerably according to product and region. Roundwood removals are estimated to have risen by about 2 percent; those of fuelwood rose only slightly to 814 million cubic metres, while for industrial roundwood the increase was of about 3 percent, to 1 196 million cubic metres. Within the industrial roundwood total, sawlog and veneer log removals are estimated to have risen by 2 percent to 720 million cubic metres while removals of other industrial wood, of which the chief constituent is pulpwood, expanded by 4 percent to an estimated 476 million cubic metres (Table I-5).

Higher demand for forest products was generated last year by further strong expansion in the economies of the industrialized regions of North America, western Europe and Japan. Many of these countries, however, found it necessary to act to combat mounting inflationary pressures. Severe credit restrictions and high interest rates brought sharp falls in dwelling construction in the United States and the United Kingdom. These developments in the United States had far-reaching effects on international markets for constructional forest products. An extremely tight supply position for sawn softwood and softwood plywood as well as coniferous logs at the end of 1968 and in early 1969 had resulted from a combination of temporary factors (difficult logging conditions, heavy log buying in the United States by Japan and a sharp, but short-lived, housing boom in the United States) and had brought price levels in February/March 1969 to unprecedentedly high levels. However, with the weakening of demand from the con-

TABLE I-5. – INDICES OF WORLD[1] ROUNDWOOD PRODUCTION

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969[2]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68
	1952-56 average = 100												*Percent*	
Saw and veneer logs	108	116	118	116	120	122	130	134	126	128	132	135	+ 2	2.0
Pulpwood and pitprops	107	112	120	121	122	120	129	134	139	145	145	153	+ 6	2.5
Other industrial wood	104	108	99	93	92	97	98	129	132	130	134	140	+ 4	2.1
All industrial wood	107	114	116	114	117	119	126	127	129	132	135	139	+ 3	2.1
Fuelwood	101	102	99	100	100	104	106	106	106	105	105	105	—	0.4
TOTAL ROUNDWOOD	106	111	112	111	113	115	121	122	123	125	127	130	+ 2	1.7

[1] Excluding Mainland China and other Asian centrally planned countries. – [2] Preliminary estimates.

struction sector for wood, from the spring onward, prices subsequently fell back sharply.

Although production of sawn softwood and plywood in North America remained more or less at 1968 levels, world output of these products expanded moderately. In the case of sawn softwood, output of which was in excess of 295 million cubic metres in 1969, the increase was chiefly due to a 5 percent rise in western Europe, where the previous trend for imports from other regions to gain an increasing share of consumption has been reversed since 1965. Hardwood plywood production rose strongly in the main Asian producer countries and, largely as a result of this, world output of plywood (both softwood and hardwood) rose by 4.7 percent, to 31 million cubic metres. North America accounted for a major part of the 4.6 percent increase to 87 million cubic metres in sawn hardwood production in 1969 (to refurnish stocks and to meet demand from the furniture and other industries), but southeast Asia and some Latin American countries also expanded output substantially.

Europe accounted for a large part of the 16 percent growth in particle board production in 1969; on the other hand, world output of fibreboard rose only slightly.

In the pulp and paper sector, the main feature in 1969 was the increasingly tight supply position for chemical pulp. This was a rather sudden development, the turn-round from the previously oversupplied market situation having occurred sooner than had been generally expected. With production capacity almost fully utilized for a number of grades during much of 1969, chemical pulp output is estimated to have risen by 7.5 percent to 71.6 million tons, and mechanical pulp at a similar rate to 24.7 million tons. Production of paper and paperboard in 1969 is provisionally put at 117.7 million tons, or nearly 8 percent more than in 1968, with newsprint sharing fully in overall growth.

High-yielding cereal varieties

The slowdown in 1969 in the growth of the combined food production of the developing regions, about one third of which (in terms of value) consists of cereals, and the failure of regions other than the Far East to accelerate significantly the growth of their food production in the past two years, raise some questions regarding the high-yielding cereal varieties on which so much hope is being placed for a permanent improvement in the food situation of the developing countries. It is being asked whether, in the Far Eastern countries where the adoption of the high-yielding varieties has so far been most rapid and widespread, some of the potential short- and long-term constraints on their use are beginning to influence the rate of progress; and whether countries in other regions are making an effort to adopt the new varieties at a rate commensurate with their needs and potential.

Regarding the first question, Chapter II shows that the general slowing down of food production growth in the Far East did not affect significantly the two major cereals which hitherto have benefited most from the technological improvements associated with the development of high-yielding varieties. As against an overall increase of 4 percent in the region's total food production, the combined paddy crop of the region again expanded by 4 percent, and that of wheat by 9 percent. The total was held back mainly by smaller increases in the output of livestock products and declines in the production of barley and pulses. In many individual countries of the region, moreover, substantially larger increases were achieved in the production of rice and wheat, ranging from 6 to 13 percent for rice in Indonesia, Pakistan and the Philippines to 13 percent for wheat in India and a 28 percent recovery of rice production in the Republic of Korea. And if the 4 percent increase in wheat production in Pakistan appears relatively modest, this should be set against the exceptionally large increase of over 40 percent achieved the year before. Moreover, as in shown in Table II-32, in most major countries of the region the area under high-yielding varieties of rice increased in 1969, and a further expansion was in the offing for 1970.

In the longer run, the principal limit to the use of the existing high-yielding cereal varieties is the area under controlled irrigation, and the competition for it by other crops. Specific data on the share of irrigated area allotted to high-yielding varieties of wheat and rice are not available. As shown in Table II-32, however, by 1969 only about 7 percent of the total rice area in the Far East was under such varieties, and in only one country — the Philippines — was the figure very much higher than the average. For wheat, the corresponding figures in India and Pakistan were 32 and 43 percent respectively, suggesting less room for further expansion.

Before too long, moreover, this constraint on the use of high-yielding cereal varieties may be eased by new developments in plant breeding. Work is proceeding, both in the Far East and elsewhere, on the development of new and improved high-response varieties suited to a wider range of natural conditions, including both rainfed or upland areas, and deep flooded monsoon areas for rice, and of varieties which mature quickly enough to make possible double cropping of rice under controlled irrigation in countries where today this is limited by the short

duration of the dry season. Promising progress in both directions is already reported.

Moreover, in considering the prospects for the further adoption of high-yielding varieties of cereals in various countries of the Far East and elsewhere, note should be taken of the different strategies that have been followed by different countries in pursuit of higher yields and output of rice, depending on land/man ratios, the size structure of holdings, etc., and their effects on the possible future rate of adoption of more advanced techniques. These are discussed in Chapter II.

Finally, recent experience with regard to food production in the Far East draws attention to two factors of importance for the future. First, the continued importance of weather is brought home by the relative failure of yields and output of rice to grow rapidly in the Philippines in the last two years, even with fully one third of the total rice area under high-yielding varieties on irrigated land. Second, the importance of increased research on crops which have not benefited from the kind of effort put into developing wheat and rice varieties — particularly pulses, some coarse grains and oilseeds — is emphasized by the generally poorer recent performance of these crops than of rice and wheat in the Far East region.

As for the second question raised at the beginning of this section — the extent and strength of the commitment to the raising of cereal yields and output in regions other than the Far East — it should be kept in mind that the strength of the factors calling for intensification of cereal output varies widely from country to country and region to region. The particularly heavy stress given to this approach in the Far East is a rational response to a number of pressures affecting that region especially strongly, while in much of Latin America and Africa the pressure of population on land is such as to lend less urgency to the search for higher yields. And even where such pressures do exist — in both of the latter regions there are large pockets of heavy population pressure on land — landownership and tenancy conditions may work against intensification of production.

The region where the pressures most resemble those in the Far East is no doubt the Near East, with its rapid population growth and limited availability of arable land; and, next to the Far East, this is the region where the greatest attention has been given to the new cereal varieties. Somewhat in analogy with Ceylon, China (Taiwan) and West Malaysia in the Far East, the United Arab Republic has for some time based its programmes on a gradual improvement of local varieties, with the result that average cereal yields in that country are in fact well above those in the rest of the region.

Although it is difficult to make exact quantitative comparisons between the regions, it would appear that, even if allowance is made for the later start of the efforts to spread high-yielding varieties in the Near East than in the Far East, the success in the former region has so far been less. As stated in Chapter II, the new varieties have so far failed to make a decisive impact on the cereal output of the Near East. Although imports of cereals are an imperfect indicator, because of the wide fluctuations in output that are characteristic for the region, data for the last several years show no tendency for the rising trend to have levelled off, except in Turkey and the United Arab Republic. And whereas in the major wheat-producing countries of the Far East — India and Pakistan — 30 to 40 percent of the total wheat area was under high-yielding varieties by 1969, in the developing countries of the Near East the share of such varieties ranges (except in the United Arab Republic) from insignificant amounts to a maximum of 6 percent in Afghanistan and 10 percent in Turkey.

The principal factors which appear to have been responsible for both the relatively slower spread of the high-yielding varieties in the Near East, and for the fact that full advantage of their yield potential is not enjoyed everywhere in the region, are discussed in Chapter II. They include an inadequate supply of seeds and fertilizers, a shortage of wheat breeders (except in the United Arab Republic), defects in the distribution mechanism for fertilizers, lack of suitable varieties for rainfed areas, and lack of sufficient mechanization to permit timely land preparation and sowing operations, etc.

Whatever the detailed causes, experience in 1969 would seem to stress once more the importance of a strong and consistent government commitment to efforts to raise yields and output by means of the new technologies now available for developing countries, if full advantage is to be taken of them. The reward will be not only to raise the output of cereals, but also to provide a base for the creation of a generally higher level of agricultural output and a more diversified pattern of production.

Surplus stocks

Attention was drawn in *The state of food and agriculture 1969* to the renewed tendency for surplus accumulation of a number of farm products, particularly wheat, dairy products and rice, and to the fact that these surpluses are now geographically more widespread than in earlier years, including countries with little experience and sometimes without any of the administrative machinery necessary for supply management.

As can be seen from Table I-6, the situation has not shown any improvement in 1969 and 1970.

TABLE I-6. – STOCKS OF SELECTED AGRICULTURAL PRODUCTS

	Date	1960-62 average	1963-65 average	1966	1967	1968	1969	1970 (Estimated)
		Million metric tons						
Wheat								
United States	1 July	36.7	26.4	14.6	11.6	14.7	22.3	23.9
Canada	1 Aug.	14.5	13.2	11.4	15.7	18.1	23.2	27.5
Argentina	1 Dec.	0.7	2.2	0.2	0.4	1.1	0.4	0.6
Australia	1 Dec.	0.9	0.6	0.6	2.3	1.4	7.3	8.0
European Economic Community	1 July	6.0	6.6	6.8	5.4	7.6	[1]8.4	[1]6.5
TOTAL OF ABOVE		58.8	49.0	33.6	35.4	42.9	61.6	66.5
Coarse grains [2]								
United States [3]	1 July	70.2	57.0	38.6	34.2	44.2	45.7	43.2
Canada	1 Aug.	4.0	4.8	4.5	4.9	4.4	6.7	7.5
Argentina	1 Dec.	0.4	0.3	0.1	0.6	1.8	1.9	1.7
Australia	1 Dec.	0.1	0.3	0.6	0.9	0.8	1.2	1.7
European Economic Community	1 July	5.2	5.1	4.9	4 8	6.5	5.9	6.0
TOTAL OF ABOVE		79.9	67.5	48.7	45.4	57.7	61.4	60.1
		Thousand metric tons						
Rice (milled equivalent)								
EXPORTING COUNTRIES								
Pakistan [4]	31 Dec.	...	110	59	[5]17	187	236	...
Thailand [6]	31 Dec.	50	—	40	—	[5]61	[7]295	...
United States [8]	1 Aug.	290	241	259	268	214	517	522
TOTAL OF ABOVE		...	351	358	285	462	1 048	...
IMPORTING COUNTRIES								
India [4]	31 Dec.	840	450	403	...	1 033	1 635	...
Japan	31 Oct.	1 448	1 267	1 828	[9]3 271	[9]4 593	[9]6 553	[9]7 000
TOTAL OF ABOVE		2 288	1 717	2 231	...	5 626	8 188	...
		Million metric tons						
Butter								
Canada and United States		0.15	0.10	0.04	0.11	0.08	0.08	...
European Economic Community [10]		0.08	0.11	0.15	0.20	0.33	0.34	...
Other European countries [11]		0.05	0.06	0.07	0.08	0.10	0.09	...
Australia and New Zealand		0.07	0.06	0.07	0.06	0.07	0.07	...
TOTAL OF ABOVE	31 Dec.	0.35	0.33	0.33	0.45	0.58	0.58	...
Dried skim milk								
United States		0.23	0.12	0.05	0.12	0.13	0.10	...
European Economic Community		...	...	...	0.20	0.31	0.39	...
TOTAL OF ABOVE	31 Dec.	...	...	...	0.32	0.44	0.49	...
Sugar (raw value)								
WORLD TOTAL	1 Sept.	15.1	13.4	19.2	19.1	20.4	19.6	20.6
Coffee								
United States	30 June	0.18	0.22	0.21	0.15	0.20	0.20	0.21
Brazil	30 June	3.05	3.48	3.95	2.96	3.13	2.43	1.74
Cotton (lint)								
United States		1.64	2.74	3.66	2.72	1.39	1.41	1.24
WORLD TOTAL [12]	31 July	4.38	5.58	6.63	5.90	4.81	4.99	4.62
		Thousand metric tons						
Tea								
United Kingdom	31 Dec.	87.9	97.1	98.9	99.5	126.7	100.3	...
India	31 Dec.	50.3	61.3	70.3	65.6	68.6	66.4	...
Ceylon	31 Dec.	34.8	32.6	37.3	23.0	27.5	39.4	...

[1] From 1969, 1 August (except Fed. Rep. of Germany, 1 June). – [2] Barley, oats, maize, sorghum, and rye. – [3] Maize and sorghum, 1 October. – [4] Government (or official agency) stocks only. – [5] November. – [6] Old crop for export. – [7] September. – [8] Converted from paddy to milled rice equivalent at 69.5 percent. – [9] 1 October. – [10] Excluding Italy. – [11] Denmark, Finland, Ireland, Sweden, Switzerland, United Kingdom. – [12] Including estimates of cotton afloat.

Substantial further increases (though smaller than the year before) were expected in 1969/70 in stocks of wheat, and there was a very large expansion in stocks of rice in 1969. The growth of butter stocks was halted, but the stocks of skim milk powder once more increased.

To some extent the increase in rice stocks is a positive development, since carryovers in some major developing importing countries had been reduced to extremely low levels during recent years of scarcity. Of concern, however, are increases in stocks in the developed countries, particularly in the United States and Japan, which have led to larger shipments on concessional terms (now accounting for 20 percent of world trade in rice), and the fact that these shipments, and the increase in the subsidization of exports (from EEC, the United States and Spain) have taken place against a background of falling rice prices and reduced import demand in several developing countries, a trend which is expected to continue.

Total wheat stocks in exporting countries were expected by the end of the 1969/70 season to reach the all-time record level of over 66 million tons, of which probably one half can be considered surplus to normal requirements. The tendency for these stocks to accumulate increasingly outside the United States, which was stressed in *The state of food and agriculture 1969* continued, and more than half of the total end-of-season stocks will probably be held by Canada and Australia. Stocks in the European Economic Community (EEC) were expected to decline slightly, and those of Argentina to remain small.

Various measures have been taken in the producing countries to reduce surpluses, or slow down their growth. In western Europe, these measures have largely taken the form of incentives to increase consumption of the products affected, mainly wheat and dairy products. To a lesser extent they have also been aimed at reducing output. Subsidized exports also increased (EEC was in 1969 the second largest butter exporter in the world after New Zealand), thus contributing to a continued tension in world markets, not only for wheat and butter but also rice. Together with reduced output in the case of milk, measures of this type helped to stop the growth of butter stocks and to reduce those of wheat in western Europe in 1969. Most of the drop in milk output, however, is thought to have been due to unfavourable weather. With increased milk prices to producers in a number of countries and the return of better weather, milk production in western Europe was, in fact, expected to show a slight recovery in 1970.

The measures taken in the traditional exporting countries have, of necessity, been aimed more directly at output itself, generally taking the form of acreage restrictions and price regulations. These countries have not failed to point out that so far they have carried the main burden of adjusting supply to demand. While generally expressing sympathy with the goal of many developing countries to improve their self-sufficiency in basic foods, they have expressed their disappointment at the hitherto limited contribution that developed importing countries have made toward a better market balance. They have therefore continued to call for greater efforts toward achieving a degree of harmonization between national agricultural production policies in the future, particularly among the industrialized countries which depend much less than the developing countries on agricultural production for national income and export earnings, and can far more readily afford to make the necessary adjustments in their economies.

Structural policies in developed countries

It is in the light of this need that particular importance is assumed by the various discussions now under way or about to be launched, for example in the General Agreement on Tariffs and Trade (GATT) with regard to dairy production, in the International Wheat Council on the reconsideration of the international arrangements for grains and in the FAO Group on Rice regarding international action on that commodity. But, if such actions are to provide more than a temporary solution, there will have to be a greater readiness than hitherto demonstrated by the developed countries to implement structural policies which not only speed up the already fairly rapid transfer of marginal farmers out of agriculture, but also bring about a sufficient shift of other resources away from the sector, and a more extensive use of land remaining in agriculture. Only thus will it be possible to ensure that the gains in output per man remaining in agriculture (which result both from continued technological improvement as such and from government measures to modernize farming) will not lead to further rapid increases in output of products which are already in surplus, or for which demand is only growing slowly.

Not that structural policies are new. They are in the arsenal of every developed country in the world today, and the most recent developments in this field are discussed in Chapter II. Their very existence is evidence of a move toward the acceptance on a political level of changes in policy emphasis that have long been advocated, and some of the most recent plans submitted to governments contain elements far more radical than were considered politically

feasible only a few years ago.[5] At the same time, there appears to be little in the policy measures currently implemented to suggest that any serious move is being made toward a reduction of the productive base of agriculture in those developed importing countries which today are plagued by a tendency to produce surpluses. On the contrary, many structural policy measures have been aimed at improving the conditions of production, through provision of improved infrastructure, and this has tended to boost output. The recently introduced premiums for slaughtering dairy cows in a number of European countries affects only a small percent of the total number, and as culling will take place selectively to eliminate the lowest yielding animals, the average productivity per cow will rise. Withdrawal of arable land from cultivation is included among the policy measures of only very few importing countries and only a relatively small portion of the total, much of it consisting of marginal land, is likely to be affected.

The obstacles to structural shifts of a radical nature are well known. In fact, evidence shows that, except where the pull of other opportunities for resource use (particularly labour) is exceptionally strong, they have hitherto been implemented in a decisive manner only where external forces compel a country to do so. In practice, this usually means that most of the adjustment is made by exporters, and the recent measures taken in developed cereal-exporting countries bear eloquent testimony to this.

Nor is the current phase of developments in world agriculture particularly favourable for major decisions in this field. The possible enlargement of EEC and the still very different agricultural policies followed by the present and some major potential new members necessarily make for uncertainty as regards immediate policy developments. The possibility, in particular cases the probability, of some developing countries emerging as potential cereal exporters, and more generally the likely shifts in comparative advantage of cereal production resulting from the technological breakthrough associated with the high-yielding varieties in developing countries are other factors contributing to the uncertainty. A further element is the lack of clarity as regards the strength of the current protectionist mood in the United States.

Since the continuous technological improvements in food production are likely to maintain, at least in the medium term, the present tendency for the production of many commodities to grow faster than the demand for them, the international policy problem narrows essentially to that of how the burden of adjusting output to demand should be shared between countries.

The obvious categories for burden sharing include such broad groupings as exporters versus importers, efficient versus high-cost producers, and developing versus developed countries. Some of these have undisputable merits as criteria — for instance, for the developed countries to deny obligation to assume a greater burden of adjustment than developing countries would be in conflict with the obligation for international development assistance that they have already taken on. For more realistic policy talks, however, it would appear necessary to take account of a more detailed set of circumstances affecting each country's ability to make adjustments. Aside from the varying political strengths of the sectors involved in different countries, these include in particular the current size and various structural features of the agricultural sector, and various dynamic aspects of the countries' economic growth, including the relative and absolute growth and labour absorptive capacity of the nonagricultural sectors. A concrete illustration of both the current limits of the latter and of the importance of free labour markets as a short-term safety valve to ease structural adjustment is the large-scale temporary emigration of rural manpower from Italy to Switzerland and the Federal Republic of Germany, or from Finland to Sweden. Other factors that need to be taken into account in the short term include the balance of payments situation of the various countries, their administrative ability to influence the level of supply, and their proved commitment to supply food aid for developing countries.

In the long run, the adjustment will no doubt be made. The process is probably being accelerated by the rapidly increasing cost of present methods of farm support, either to the treasury or to the consumers, and by the steady diminution of the farm vote as a political factor. In the short and medium term, however, the problem remains acute. Signs of a continued, even intensified search for solutions are to be found, for instance, in the forthcoming consideration by the FAO Committee on Commodity Problems of the role of FAO in more general approaches to international adjustment, and in the opening of the next round of trade negotiations in GATT, announced for 1971 and covering both tariff and non-tariff measures including agricultural price support policies. Studies that should facilitate governments in formulating their policies include that by FAO and the United Nations Economic Commission for Europe on agricultural adjustment policy in developed countries, scheduled to be presented to the sixteenth session of the FAO Conference in 1971, and the integrated study of the economic and technical problems of the meat and milk sector of European

[5] Thus a key recommendation of the Vedel report, requested by the French Minister of Agriculture in 1967, is the reduction in the total cultivated area in France by up to one third by 1985. The report was published early this year, but the Government has so far not indicated official approval of its contents.

agriculture now being conducted by FAO. That serious efforts in this field are necessary is suggested not only by the desirability of a better global use of resources and of giving the developing countries a chance to earn more foreign exhange, but also by consideration of what may well be the alternatives to a failure to bring about adjustments: the recurrence of such "trade wars" as have been witnessed recently between producers of some products now in surplus, or a reversal of the postwar trend toward freer trade into one of ever tighter protectionism, or both.

International trade

According to the FAO preliminary indices [6] the value of world exports of agricultural, fishery and forest products combined rose by some 5 percent in 1969 (Table I-7). As in 1968, a significant contribution to the increase (the largest since 1964) was made by the continued rapid growth in forest exports. The expansion in exports of agricultural and fishery products was smaller, though here too a number of individual commodities showed large increases in value, in particular meat, cocoa and natural rubber.

In overall terms, the 4 percent increase in the value of exports of agricultural products proper was mainly a reflection of higher prices; the total volume of trade remained unchanged. Although the increase is not insignificant in view of the virtual stagnancy in the overall value of agricultural trade over the last few years, it still contrasts sharply with the growth in world trade in all commodities, which in 1969 increased by another 14 percent. [7]

As in most past years, moreover, the developing regions on the whole fared worse than the developed ones: their combined agricultural export earnings are estimated to have risen by about 2 percent, compared with some 5 percent for the developed regions. Although the value of exports from Latin America, the Far East and the Near East was probably higher than in 1968, each of the developing regions, with the exception of the Near East, had registered higher

[6] Data for the developing regions are incomplete, and the estimates presented at this time must be used cautiously, as substantial revisions are often made later. The indices discussed here exclude Mainland China and other Asian centrally planned countries.

[7] It should be noted, however, that except for fishery and forest products, the FAO indices refer essentially to primary commodities and exclude trade in processed products of agricultural origin. This omission results in an underestimation of the agricultural sector's contribution to total export earnings, and is also likely to understate the growth of trade in agricultural products.

TABLE I-7. – INDICES OF THE VOLUME, UNIT VALUE AND TOTAL VALUE OF WORLD [1] TRADE IN AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969
	1957-59 average = 100														*Percent*
VALUE OF EXPORTS	98	103	96	102	108	112	114	126	137	139	145	144	149	156	+ 5
Agricultural products	98	103	96	101	107	111	112	125	134	135	139	138	137	143	+ 4
Fishery products	88	92	100	108	109	115	135	138	156	174	190	189	198	208	+ 5
Forest products	96	101	95	104	115	116	118	129	142	155	163	167	189	210	+ 11
VOLUME OF EXPORTS	94	98	97	105	112	119	122	128	135	139	143	145	152	153	+ 1
Agricultural products	95	98	97	105	111	119	121	126	131	134	137	138	142	142	—
Fishery products	91	92	101	107	113	120	133	137	153	154	156	169	181	175	— 3
Forest products	94	97	96	106	118	122	126	137	153	158	167	171	192	205	+ 7
AVERAGE EXPORT UNIT VALUE	104	106	100	95	98	95	94	99	103	101	101	100	98	102	+ 4
Agricultural products	105	106	100	94	98	95	93	100	104	101	101	99	97	101	+ 4
Fishery products	96	99	99	102	98	100	105	106	109	119	125	121	120	129	+ 7
Forest products	103	104	99	98	97	96	94	94	96	98	98	98	99	102	+ 4
Total value of world trade (agricultural and nonagricultural)	94	101	97	102	114	119	125	136	153	166	182	191	214	243	+ 14

NOTE: For details of the methodology and coverage of these indices, see the explanatory note to the Annex Tables.

[1] Excluding Mainland China and other Asian centrally planned countries. – [2] Preliminary estimates.

export earnings at one time or another in the recent past.

For the developed regions the overall increase more than made up for the decline of the previous two years, but the situation varied widely as between regions. The value of North America's exports again fell steeply, as it has every year since 1966, while the large increase in the value of exports from Oceania represented a recovery from the very poor results of 1968. However, the rapid growth shown by exports from countries of western and eastern Europe over the longer term was maintained in 1969. A more detailed discussion of the trade in individual regions is contained in Chapter II.

Prices in international trade

The increase in the value of agricultural trade in 1969 was the net result of widely differing changes in the trade of different commodities (Table I-8).[8] Overall, however, it owed more to higher prices than to the volume of trade, which remained unchanged. Shipments of cereals, sugar, cocoa, tea and cotton were substantially lower and most other commodities showed smaller reductions or remained unchanged. The only products for which there was any significant increase in volume were rubber and meat, by 22 and 4 percent respectively. In the case of meat this reflected the short supply in a number of importing countries, which coincided with the recovery of exportable supplies in the Southern Hemisphere.[9] The increase in rubber exports was mainly a reflection of the high level of industrial activity in some developed countries, increases in western European stocks and large purchases by Mainland China.

The increase in the overall price level for agricultural products, reflected in the 4 percent rise in the FAO average export unit value index for 1969, marks a reversal of the trend of the past four years. During this period prices had gradually declined, though they generally remained above the low of 1962. Nor did the increase in 1969 represent only higher

[8] For a more detailed discussion of trade in agricultural commodities see *FAO commodity review and outlook 1969-1970.*

[9] The United Kingdom had prohibited meat imports from areas where foot-and-mouth disease was endemic for part of 1968.

TABLE I-8. – INDICES OF THE VALUE OF WORLD [1] EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY MAIN COMMODITY GROUPS

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969
	1957-59 average = 100														*Percent*
Agricultural, fishery and forest products	98	103	96	102	108	112	114	126	137	139	145	144	149	156	+ 5
AGRICULTURAL PRODUCTS	98	103	96	101	107	111	112	125	134	135	139	138	137	143	+ 4
Food and feedstuffs	94	99	96	104	108	118	123	142	153	158	165	167	164	173	+ 5
Cereals	101	102	96	102	108	126	133	151	170	173	187	182	168	163	— 3
Sugar	86	114	98	89	102	118	108	149	151	119	114	119	121	132	+ 8
Vegetable oils and oilseeds	101	100	94	106	112	111	117	130	140	153	161	159	163	168	+ 3
Fruit	87	102	101	98	105	110	121	123	130	144	152	159	157	167	+ 6
Meat	81	89	98	114	113	119	130	153	168	184	197	204	209	237	+ 14
Dairy products	100	97	90	114	109	109	107	117	126	136	137	149	145	155	+ 7
Beverages and tobacco	103	103	101	96	98	97	97	103	114	109	112	114	119	118	—
Coffee	119	110	98	92	91	88	89	94	113	101	112	106	116	111	— 4
Cocoa	85	86	106	108	104	93	91	98	101	96	87	115	125	140	+ 12
Tea	105	99	104	97	99	102	102	105	102	104	94	100	94	82	— 13
Tobacco	91	104	98	98	105	109	107	120	129	124	128	133	129	130	+ 1
Agricultural raw materials	104	113	89	99	111	108	100	108	108	103	102	92	94	96	+ 3
Wool	103	122	83	95	98	104	102	116	119	104	109	91	91	97	+ 8
Cotton	109	118	95	87	115	112	97	107	111	108	104	101	108	95	— 12
Rubber (natural)	99	95	83	122	122	99	98	92	84	84	79	69	70	92	+ 32
Jute and kenaf	95	100	108	92	108	130	114	106	96	145	159	143	118	127	+ 7
FISHERY PRODUCTS	88	92	100	108	109	115	135	138	156	174	190	189	198	208	+ 5
FOREST PRODUCTS	96	101	95	104	115	116	118	129	147	155	163	167	189	210	+ 11
Roundwood (excluding fuel)	95	98	96	106	131	153	156	174	194	216	239	268	321	357	+ 11
Processed wood	97	103	95	102	115	112	115	125	142	144	143	139	162	174	+ 8
Panels	77	88	91	120	117	120	137	157	188	210	228	238	287	331	+ 15
Pulp and paper	99	102	96	102	111	112	110	118	135	142	152	155	166	187	+ 12

[1] Excluding Mainland China and other Asian centrally planned countries. – [2] Preliminary estimates.

prices for a limited number of products; on the contrary, increases were widespread and in many cases substantial. The main exceptions were cereals, coffee, tea, cotton and jute. For all other major commodities or commodity groups the export unit value averaged higher, in some cases by a very wide margin (Table I-9 and Figure I-2).

Particularly large increases were registered by sugar (16 percent), meat (8 percent), cocoa (28 percent), wool (9 percent), and rubber (8 percent). For sugar the rise reflected mainly the recovery of prices on nonpreferential markets which followed the entry into force of the new International Sugar Agreement and the movement toward a closer balance between world production and consumption. The general shortage of red meat in western Europe and North America, in the face of further large increases in consumer demand, raised livestock and meat prices during 1969 well above the levels of a year earlier. Prices for both cocoa and rubber fluctuated considerably during the year, but on average were substantially higher than in 1968. That of cocoa rose for the fourth successive year reflecting the continued shortage of supplies relative to demand. The situation changed toward the end of 1969, however, when it became clear that the 1969/70 crop would be larger, and by June 1970 prices had fallen to about 35 percent below the peak reached in November 1969. In the rubber market the pressure of demand from the developed countries and Mainland China, and the higher stockpile objectives announced by the United States Government, together with the settlement of the dock strike in March 1969, kept prices rising during most of the first three quarters of the year, after which they tended to move downward. The export unit values for vegetable oils and oilseeds averaged slightly higher than in 1968, as the price quotations for soft oils rose steeply late in the year, owing to temporary supply shortages.

Where average unit values fell, the principal reasons were to be found on the side of ample supply rather than an unexpected falloff of demand. Possible exceptions are wheat and rice, where the fall of prices reflects reduced import demand as well as a rise in exportable supplies. In the case of wheat, the pressure of supplies on prices was too great for the International Grains Arrangement

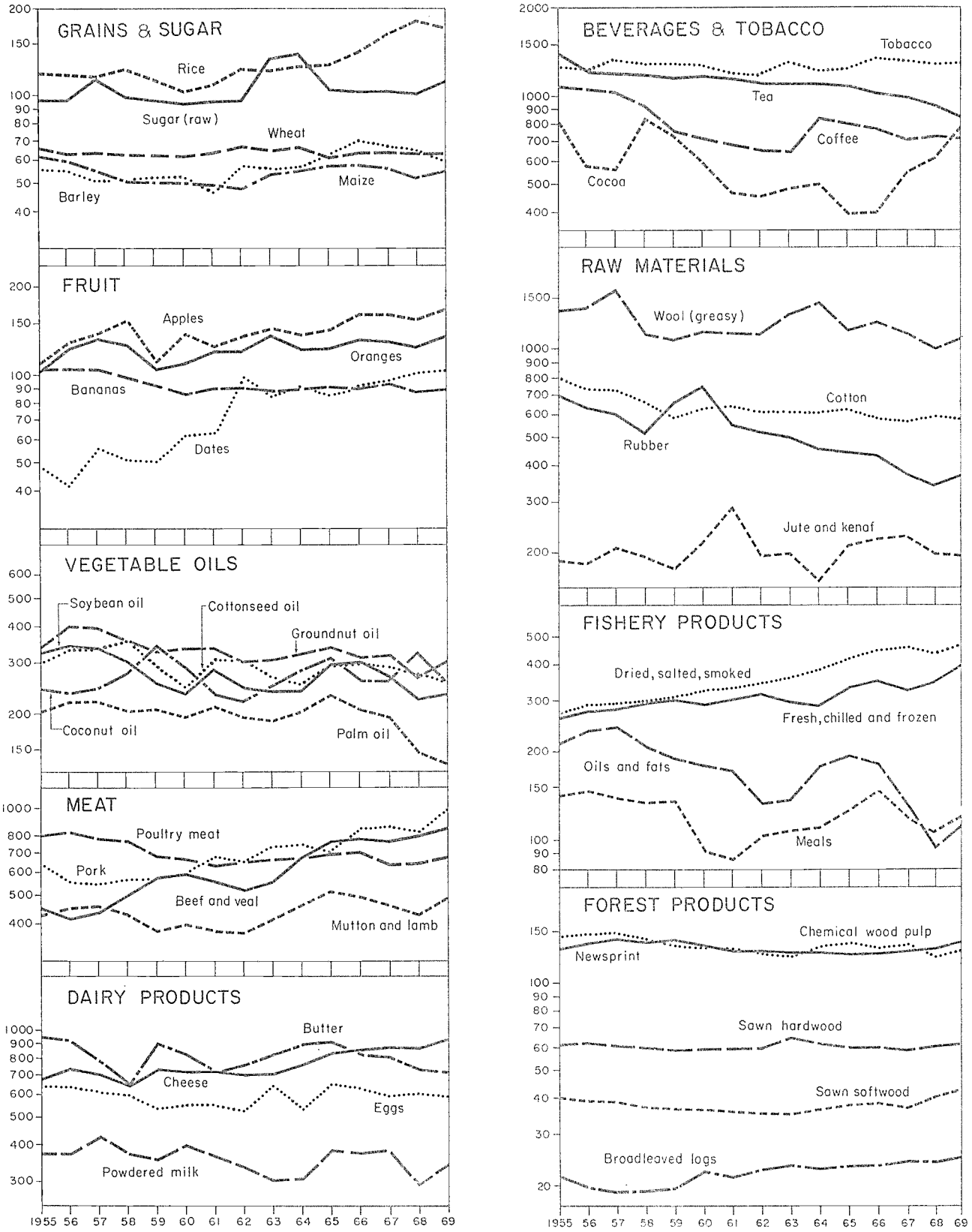
TABLE I-9. – INDICES OF WORLD [1] AVERAGE EXPORT UNIT VALUES OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969
	1957-59 average = 100														*Percent*
Agricultural, fishery and forest products	104	106	100	95	98	95	94	99	103	101	101	100	98	102	+ 4
AGRICULTURAL PRODUCTS	105	106	100	94	98	95	93	100	104	101	101	99	97	101	+ 4
Food and feedstuffs	101	102	99	99	97	96	97	106	109	108	109	109	106	111	+ 4
Cereals	104	102	100	98	96	97	103	103	105	104	109	113	111	110	— 1
Sugar	93	112	96	92	89	88	89	131	136	98	95	93	91	106	+ 16
Vegetable oils and oilseeds	103	101	98	101	97	95	91	97	97	106	104	99	99	100	+ 2
Fruits	101	105	104	90	92	94	96	102	98	100	103	104	102	105	+ 3
Meat	97	95	101	104	107	105	102	106	119	127	132	129	126	137	+ 8
Dairy products	109	104	92	104	103	96	96	102	104	114	109	108	102	104	+ 2
Beverages and tobacco	103	104	104	92	89	84	81	84	93	90	90	90	91	93	+ 3
Coffee	117	114	103	83	80	76	73	72	93	90	86	78	81	78	— 3
Cocoa	81	79	118	103	83	66	63	68	70	53	56	76	85	109	+ 28
Tea	104	102	100	98	100	98	94	95	93	90	86	85	78	71	— 9
Tobacco	94	103	98	99	98	93	92	101	95	96	104	101	98	102	+ 4
Agricultural raw materials	114	118	99	84	108	101	96	101	101	94	92	85	83	85	+ 3
Wool	109	126	89	85	92	90	89	102	113	92	95	86	76	83	+ 9
Cotton	110	110	101	88	94	97	92	92	91	93	85	84	89	87	— 1
Rubber (natural)	106	101	87	112	126	93	89	85	78	75	74	61	58	62	+ 8
Jute and kenaf	96	109	100	91	115	151	101	104	84	112	117	117	105	103	— 2
FISHERY PRODUCTS	96	99	99	102	98	100	105	106	109	119	125	121	120	129	+ 7
FOREST PRODUCTS [3]	103	104	99	97	97	95	94	94	96	98	98	97	98	102	+ 4
Roundwood (excluding fuel)	104	103	100	97	103	106	107	106	108	112	114	114	115	119	+ 4
Processed wood	105	104	98	98	98	96	95	96	99	102	102	99	105	111	+ 6
Panels	103	102	99	99	96	94	96	97	93	95	97	95	95	99	+ 4
Pulp and paper	101	104	99	97	95	93	90	89	92	93	92	93	91	94	+ 3

[1] Excluding centrally planned countries. – [2] Preliminary estimates. – [3] Excluding Mainland China and other Asian centrally planned countries only.

FIGURE I.2. – WORLD : AVERAGE EXPORT UNIT VALUES OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

(U.S. dollars per metric ton [1])



[1] U.S. dollars per cubic metre for sawn softwood, sawn hardwood and broadleaved logs.

(IGA) to cope with successfully, and prices fell considerably below the IGA minimum until late 1969, when the fall was arrested by joint measures taken by the principal exporters participating in the Arrangement. The falling prices of rice reflected a similar situation and, with world market prices well below domestic prices in EEC and the United States, exports from these areas were increasingly aided by subsidies. There was also a considerable expansion of rice exports on concessional and special terms, from the United States, Japan and Spain. For coarse grains, price movements were somewhat divergent, reflecting the supply/demand position of the individual grains: barley, oats and rye continued through the year the decline begun in 1968, whereas maize and sorghum recovered from the very low levels reached in 1968. The continued pressure of supplies against demand and further stock accumulation in London were responsible for a further weakening in the prices of tea during 1969, although the agreement among exporters to limit shipments during 1970 contributed to the recovery in the first months of 1970. Lower prices for synthetics and pressure of stocks in some developing countries caused prices of cotton, particularly medium staples, to fall until late in 1969 when it became evident that the 1969/70 crop would be smaller and when stocks had been drawn down to a low level. Prices of extra-long staples were maintained at high levels throughout the year, reflecting strong demand. The average export unit value of butter remained at the 1968 level, as prices remained low on residual markets where severe competition followed a reduction of the 1969/1970 United Kingdom import quotas.

Data on unit values received for agricultural exports in 1970 are not yet complete, but export price quotations for the first half of the year have, with a few important exceptions, including rice, cocoa, jute, rubber and wool, shown a stable or slightly rising trend. The United Nations Export Prices Index for all agricultural commodities combined averaged during this period 2 percent more than a year earlier.

Value of agricultural exports

As pointed out earlier in this chapter, the incompleteness of the data for developing countries makes the indices for these regions highly tentative.[10] With this reservation in mind, the preliminary indices suggest that the combined value of agricultural exports from developing regions increased by only about 2 percent in 1969. This small recovery, the second in succession, was still insufficient to raise the total back to the level of 1964 and 1965 (Table I-10). The expansion in earnings from forest exports continued to be extremely rapid, though at 12 percent it was less than the exceptional 23 percent growth of 1968.

The 3 percent rise in the value of agricultural exports from the Far East reversed the downward trend which had prevailed for five consecutive years, and occurred despite sharply reduced earnings from a number of major items, namely rice, tea, and vegetable oils and oilseeds. Latin American exports are

[10] Some examples of the subsequent revisions made in past years are cited in Chapter II.

TABLE I-10. – INDICES OF THE VALUE OF AGRICULTURAL EXPORTS BY REGION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969
	1957-59 average = 100														*Percent*
Western Europe	91	101	98	100	111	116	120	139	151	163	168	182	190	219	+ 15
Eastern Europe and U.S.S.R.	71	93	89	118	114	138	145	149	134	153	165	197	186	201	+ 8
North America	102	107	96	97	115	123	119	135	159	153	170	151	146	133	— 9
Oceania	99	110	85	105	102	112	112	133	147	133	132	138	121	142	+ 17
ALL DEVELOPED REGIONS [2]	95	105	93	102	111	121	122	138	151	151	160	163	159	168	+ 5
Latin America	106	105	99	96	99	100	103	112	120	125	123	117	121	125	+ 3
Far East [3]	101	101	93	106	109	103	102	112	111	109	106	101	99	103	+ 3
Near East [4]	101	110	91	99	102	96	101	113	114	123	127	123	129	131	+ 2
Africa [5]	95	96	104	100	100	100	99	107	119	113	113	107	114	110	— 3
ALL DEVELOPING REGIONS	102	102	98	100	102	101	102	111	117	118	116	111	114	116	+ 2
World [6]	98	103	96	101	107	111	112	125	134	135	139	138	137	143	+ 4

[1] Preliminary estimates. – [2] Including Israel, Japan and South Africa. – [3] Excluding Japan, China (Mainland) and other Asian centrally planned countries. – [4] Excluding Israel. – [5] Excluding South Africa. – [6] Excluding China (Mainland) and other Asian centrally planned countries.

estimated to have increased at roughly the same rate as the previous year (3 percent), mainly because of a larger volume of exports. Only in the case of meat and cocoa, among major products, did higher prices also contribute to the increase in the latter region. The value of exports from the Near East also rose, although slightly less than in the other two regions, and the increase was below the annual rate of 3 percent which has prevailed during the past decade. African earnings from agricultural exports are estimated to have fallen, as larger earnings from some vegetable oils and oilseeds, tea, cocoa and rubber failed to offset the lower value received from other commodities.

With the exception of North America, where earnings from cereals and cotton (which together make up a third of the total) fell sharply, there was a substantial increase in the value of the developed regions' agricultural exports. The volume shipped from both western Europe and Oceania was larger, and the prices received, particularly for western European exports, were substantially higher. This was partially due to short supply in the face of strong demand (in the case of meat), but an important factor was also the higher prices received in trade between EEC member countries, which now constitutes a substantial portion of the total trade of the region.

Agricultural imports

On the import side, sufficient data for the calculation of a volume index were available at the time of writing only for the developed regions and for the developing countries of the Far East. The indices for the developed countries show an increase of only 2 percent over the 1968 level, while the partial data for the Far East (excluding Japan) suggest a decline of some 2 percent (Table I-11). Since the developed regions take some 70 to 75 percent of the world's agricultural imports, and the Far East a further 7 percent, the relative stagnancy in the

TABLE I-11. – INDICES OF THE VOLUME AND VALUE OF AGRICULTURAL IMPORTS BY REGION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969[1]	Change 1968 to 1969
	1957-59 average = 100															*Percent*
Volume																
Western Europe	89	96	100	97	103	107	109	114	116	118	122	127	126	128	133	+ 4
Eastern Europe and U.S.S.R.	79	81	94	95	111	117	129	129	137	168	167	162	144	147	142	— 3
North America	92	95	95	97	108	101	106	115	113	104	107	112	113	123	115	— 7
Oceania	101	93	98	102	100	101	104	95	105	110	120	117	110	111	117	+ 5
TOTAL DEVELOPED REGIONS[2]	90	96	99	97	104	107	110	116	118	119	124	130	129	134	137	+ 2
Latin America	92	89	99	102	99	103	108	115	125	140	136	147	143	151	...	...
Far East[3]	71	89	103	98	98	121	117	117	133	143	145	158	172	166	162	— 2
Near East[4]	71	86	95	94	111	124	137	138	141	149	169	171	173	173	...	...
Africa[5]	85	96	100	95	105	119	131	128	112	116	131	136	148	142	...	...
TOTAL DEVELOPING REGIONS	79	89	100	98	102	116	120	122	129	138	144	154	161	159	...	...
World[6]	87	94	99	97	104	109	113	118	121	126	131	136	135	139	...	...
Value																
Western Europe	94	101	106	96	98	104	102	108	117	124	128	133	130	126	...	...
Eastern Europe and U.S.S.R.	83	85	99	94	107	115	122	121	136	175	166	160	140	138	...	...
North America	102	102	101	97	102	95	93	97	102	101	98	104	103	114	...	...
Oceania	114	97	101	99	100	100	97	88	101	111	114	111	102	101	...	...
TOTAL DEVELOPED REGIONS[2]	95	100	105	96	100	104	104	108	118	128	130	135	131	130	...	...
Latin America	101	91	103	102	96	101	101	111	123	143	137	146	146	145	...	...
Far East[3]	74	90	108	98	95	114	111	111	128	149	143	158	175	172	...	...
Near East[4]	77	87	104	92	104	114	125	124	138	160	165	169	161	158	...	...
Africa[5]	87	97	103	97	99	112	120	114	105	118	131	129	136	131	...	...
TOTAL DEVELOPING REGIONS	83	91	105	98	97	110	112	113	124	144	143	152	159	156	...	...
World[6]	93	98	105	96	99	105	105	109	119	131	132	138	135	134	...	...

[1] Preliminary. – [2] Including Israel, Japan and South Africa. – [3] Excluding Japan and Mainland China. – [4] Excluding Israel. – [5] Excluding South Africa. – [6] Excluding Mainland China and other Asian centrally planned countries.

volume of world agricultural trade may in part be attributed to this limited increase. On the other hand, if the preliminary index for total volume of exports (which remained unchanged in 1969) is even approximately correct, the total volume of agricultural imports into the developing and centrally planned countries must have shown a substantial reduction.

The imports of all western European countries combined rose by some 4 percent. A large portion of the increase (though less than in the case of exports) can be attributed to greater trade within the region, and particularly within EEC. Other factors include the recovery of the United Kingdom's meat imports from Argentina, and increased purchases of this commodity throughout the rest of the region. A very large increase of 12 percent was registered for rubber imports, reflecting the rapid growth of industrial production and, toward the end of the year, stock building. North American agricultural imports were reduced sharply, particularly those of beverages and tobacco. In part this represented a decline from the high level of 1968, when there had been an exceptional increase in imports in anticipation of the dock strike in the United States. Imports of coffee and wool, in particular, were considerably lower than the previous year, as coffee stocks were drawn down in the United States, and wool consumption continued to decline reflecting further inroads by man-made fibres into end uses for apparel wools.

For the developing regions, the probable decline in imports in 1969 may be attributed to the improved production of food grains in many of the major deficit countries, which has permitted a further reduction from the peak level reached in 1967. In 1968, their combined cereal imports had fallen some 8 percent, which resulted in a decline in total agricultural imports for the first time in a decade, despite larger imports of most other foodstuffs, beverages and tobacco, and agricultural raw materials. The information available for the Far East, which shows a decline of 10 percent in cereal imports, and the fragmentary data for the other developing regions (see Chapter II), suggest that this trend continued in 1969.

Trade in fishery products

The outstanding development in 1969 was the substantial increase in export prices accounted for by supply shortages of some commodities as well as by a general strengthening of the demand for fishery products. The total value of fishery exports rose by nearly 10 percent in spite of a somewhat lower volume of shipments. Exports of fresh and frozen fish and shellfish (particularly shrimp) increased both in volume and value. Higher fish-meal and fish-oil prices made up for sharply reduced shipments from nearly all the major world suppliers. Trade in dried products continued to be affected by reduced purchases on the part of the traditional importing countries.

The outlook for fishery products markets is healthier than for several years and the chief concern has swung back once more from selling to supply problems. Reduced catches of fish used for production of exports commodities and rising prices are likely to have a greater influence on the future evolution of trade than will trade barriers and demand factors not related to price. The operation of minimum price systems, which have been instituted in a number of the major fish-importing countries, has no direct impact as long as market prices remain above the minimum, although it may lead to the control of export supplies for the purpose of market stabilization.

In the early months of 1970, fish-meal supplies were nearly 20 percent above the level of the preceding year, because of substantial production increases in Peru, Norway and Denmark. The United States continued to reduce fish-meal imports, notwithstanding a decline in domestic production. Prices in the United States declined during the first half of 1970, as compounders of animal rations turned increasingly to other components. In European markets, however, fish meal demand was strong, with imports and prices near record levels.

Shrimp exports of developing countries to the United States and Japan expanded further in early 1970. The high volume of shipments to Japan weakened the market, however, and led to a curtailment of purchases in April. Nearly all major suppliers of shrimp succeeded in increasing their shipments to the United States, and the market there was firm, as earlier fears about adverse consumer reaction to high prices were not borne out. Groundfish markets, too, were characterized by continued health and the supply picture was favourable, because the year classes available to the fishery of some of the more important species were above normal.

Trade in forest products

With an 11 percent increase in the export value, world trade in forest products continued in 1969 the dynamic growth which is characteristic of this sector. Although this trade is still of relatively less importance for developing regions, the growth has recently been particularly rapid. In 1969, the export earnings of the developing countries of the Far East from this source rose by 13 percent and those of the developing African countries by 15 percent, and they accounted for 21 percent and 11 percent

respectively of the combined value of agricultural, fishery and forest exports from these regions.

An important element in the expansion of forest products trade in 1969 was the strong growth in the exports of logs and semiprocessed forest products from the developing regions to North America, Japan, other east Asian countries and western Europe. Hardwood log exports continued to expand strongly from southeast Asia, the main markets being Japan and other east Asian countries. Indonesia's exports rose very strongly and this country joined the Philippines, Sabah and Sarawak as one of the main log exporters in southeast Asia. African log exports also increased strongly, chiefly to western Europe, the Ivory Coast once again accounting for an important part of the increase. After the strong growth of recent years, United States coniferous log exports to Japan fell in 1969, partly as a result of restrictions placed on exports of logs from United States federal lands and partly because of heavy stocking in Japan at the end of 1968.

World trade in sawn softwood remained at about the 1968 level. United States imports, chiefly from Canada, rose in the early months, then fell sharply as demand weakened. For the year as a whole the import volume was just above that in 1968. United Kingdom imports of sawn softwood, as well as those of other constructional forest products, fell appreciably in 1969, but this was more than offset by higher imports in the rest of western Europe. This region also imported substantially increased volumes of sawn hardwood, plywood, particle board and fibreboard. Much of the increase in sawn hardwood imports was from southeast Asia, while for the other products the increase was mainly in the form of intraregional trade. North America also imported substantially higher volumes of sawn hardwood from southeast Asia and Latin America, and hardwood plywood and veneers from southeast Asia and, to a lesser extent, Finland.

The chemical wood-pulp trade in 1969 was notable for the large increase in North American, chiefly Canadian, exports and higher imports by western Europe, the United States and Japan. Net imports in western Europe rose from 250 000 tons in 1965 to 1.4 million tons in 1969. Exports from the Nordic countries rose in 1969, but the proportion of their total production which was exported declined as more was retained for conversion by their strongly expanding paper and paperboard industries. World trade in paper and paperboard continued to grow rapidly in 1969, with western Europe and North America accounting for a major part of both total exports and imports and of the increase gained last year.

Prices for forest products entering trade in 1969 were generally firm, especially for chemical pulp. North American prices for sawn softwood, having risen to unprecedented levels in early 1969, weakened considerably thereafter, but this did not disturb the firmness of the European market. Oversupply of hardwood logs in west Africa in the autumn of 1969 reversed the upward trend of prices at least for some species such as sipo and mahogany, while there was some uncertainty about price levels toward the end of 1969 for "red" plywoods in Africa and Europe and for European imports of some sawn hardwood from southeast Asia. After a long period of relative stability, paper and paperboard prices rose during 1969, reflecting the higher costs of pulp.

In the first half of 1970, contrasting trends in the overall economies of three of the largest consuming regions of wood products brought a corresponding diversity to the international markets for forest products. In the United States, house building continued to be affected by severe credit restrictions and high interest rates, thus depressing the market for constructional forest products, particularly for sawn soft and hardwood. The levelling off in the growth of the country's overall economy was mirrored in the pulp and paper sector, where production did not rise in the first half of 1970 and capacity operating ratios fell.

The weakened demand by the United States market and the drop in North American prices for sawn softwood have enabled Canadian sales to Europe to recover very strongly in 1970. Relatively large increases in prices for sawn softwood offered by the U.S.S.R. can be related to the reduction in its sales to western Europe, but Finland's prices rose far less than those of its main competitors (excluding Canada) and its sales of sawn softwood increased correspondingly.

The continued rapid economic expansion in Japan has stimulated the growth of forest products imports. In western Europe, credit restrictions and high interest rates have prevented dwelling construction from sharing fully in the generally strong economic expansion. Demand for most forest products has nevertheless remained firm during 1970 and prices have in general been rising, partly in line with the overall inflationary trends.

The very tight supply situation for chemical pulp that developed in the international market in 1969 has continued in 1970, with demand still rising strongly in western Europe and Japan. The flattening out of demand expansion in North America has, to some extent, been offset by supply disruptions caused by strikes in British Columbia. The pulpwood market in Europe now appears to be in better balance, with production and trade reacting to strong price increases.

Oversupply has characterized in 1970 the trade in tropical hardwood logs between Africa and Europe.

After the steep rise in exports in 1969, European exporters have followed a cautious forward buying policy, and the west African log export market has consequently been stagnant. For the second year in succession, the rainy season in west Africa this year was shorter than normal, further hampering the efforts of producers to reduce the excess supply of logs.

In southeast Asia, the most significant feature has been the further rapid expansion of log exports from Indonesia. Japan was expected to raise its imports of tropical hardwood logs by 9 percent in 1970, much of the increase coming from Indonesia, while imports from the Philippines may decline. Its imports of coniferous timber from the U.S.S.R. are also reported to be falling in 1970, because the latter's price levels have become relatively less attractive.

International trade policies

The record in the field of international trade policies affecting agricultural products in 1969 and early 1970 was mixed.

As regards the wider aspects of agricultural commodity trade, there was some progress toward a generalized system of preferences in favour of developing countries. Steps were also taken by FAO to strengthen the procedures and machinery for consultation as regards the increasingly widespread non-commercial trade in agricultural products. In the meantime, the Agriculture Committee of GATT proceeded with its fact-finding work on nontariff barriers to agricultural trade, preparatory to the launching of new trade negotiations, which are now scheduled to be initiated in 1971, and which are also intended to cover agricultural support policies.

Some progress was also made with regard to arrangements affecting individual commodities, particularly dairy products. The International Coffee Agreement and the International Sugar Agreement were further developed, although the sharp price increases in August-September 1970 put the former under severe pressure, and there were also some moves toward a possible formulation of a formal international arrangement on tea. In the meantime, continuing or increasing pressures in several commodity markets, including rice and dairy products, brought added urgency to the examination of possible longer term arrangements in the context of FAO study groups and other commodity bodies.

On the negative side, the most significant events were the virtual breakdown of the price provisions of the Wheat Trade Convention of the International Grains Arrangement (IGA) following the drastic change in the world market situation subsequent to the signing of the Arrangement, and the continued failure of cocoa exporting and importing countries to reach an international agreement for that commodity.

The informal arrangements on jute and kenaf and on hard fibres, operated under the auspices of FAO, experienced difficulty in maintaining prices within the agreed ranges in 1969, and lack of agreement on export quotas and prices for sisal means that no arrangement has been in force in 1970. At the same time, the committees concerned have taken a step toward joint international action, by agreeing to promote the establishment of international research institutes to help improve the competitive position of jute and hard fibres *vis-à-vis* synthetic fibres.

General preferences

The question of general preferences for the exports of developing countries has been the subject of continuing discussion both within the framework of Part IV of GATT and in the UNCTAD Committee on Preferences since 1968, when UNCTAD II agreed on their desirability. Following a series of direct negotiations among the industrialized countries within the framework of OECD, the prospects for concrete action improved early in 1970. Although no agreement could be reached on a uniform set of preferential tariffs to be applied by all industrialized countries, a compromise solution was found whereby each country would be free to work out its own arrangements, after which some machinery would be set up to determine whether there was a reasonable sharing of the burden. The preferences to be granted would, moreover, be temporary in nature and would not constitute a binding commitment. Although a number of difficulties remain to be solved — including the treatment of the developing countries which currently receive preferential treatment under the European Economic Community association agreements and the Commonwealth preference scheme — the compromise reached is thought to lay the base for a scheme which could represent a major step forward in the attainment of the objectives of Part IV of GATT. At the time of writing, revised proposals by major developed trading nations were being examined by the UNCTAD Committee on Preferences.

Commodity arrangements

The extensive negotiations held under the auspices of GATT in an attempt to achieve a better balance in dairy markets have also achieved results, although so far limited in scope. An Arrangement Concerning Dairy Products agreed upon by Australia, Canada, Denmark, the EEC countries, Japan, New Zealand, South Africa and the United Kingdom came

into force in May 1970 for an initial period of one year. Under the agreement both exporting and importing countries undertake not to sell or buy skim milk powder below an agreed minimum price. Although the price provisions of the Arrangement apply only to skim milk powder, the possibilities of extending them to cover other dairy products have been under examination.

The newly drawn up International Dairy Development Scheme may be regarded as complementary to the GATT commercial arrangement. Proposed initially at the Committee on Commodity Problems (CCP) in the autumn of 1969, the Scheme was elaborated by an *ad hoc* consultation of 47 countries and 10 intergovernmental organizations in June 1970 and is now awaiting government approval. Under the Scheme FAO would act as an international clearing-house to promote bilateral and multilateral aid in the form of dairy products and animal feedstuffs, technical assistance, equipment and finance, to build up local dairy industries in accordance with integrated plans submitted by the recipient countries. The Scheme would be operated jointly with the World Food Programme, and in close cooperation with the other international agencies concerned.

Although the International Coffee Agreements (ICA) of 1962 and 1968 contributed a measure of stability to world coffee markets, in 1969 and 1970 events and conditions beyond the control of the new Agreement played a major role in the determination of world coffee prices. Early in 1969, sluggish demand — due, to a large extent, to the excess coffee stocks held in the United States — brought prices for most types of coffee to their lowest level in many years. The trend was, however, sharply reversed in mid-1969 as a result of the reports in July of serious frost damage to coffee in Brazil, and prices rose to their highest level in a decade. After considerable difficulty the member countries of ICA agreed in August 1970 to raise the initial quotas to 54 million bags, 8 million more than last year. Depending on how the prices move, 4 million bags may be added, or 3 million withdrawn. The fact that the Agreement weathered this serious crisis, together with the moves made in the latter part of 1969 and in the first half of 1970 to strengthen it — submission by 20 producing countries of their national plans for adjusting coffee production to 1972/73, the decision to review annually the national stock positions in order to ensure sufficient supplies at times of reduced output, and the removal from the list of "new" markets of a number of countries whose imports were considered excessive relative to domestic requirements — suggest that ICA remains the most successful of the existing commodity arrangements.

Progress was also made in implementing the International Sugar Agreement, which came into force in June 1969. In particular, the International Sugar Council adopted rules pertaining to commitments by exporters to make releases from the stipulated minimum stocks when prices rise above a certain level, and to sell certain quantities to their traditional importing members at a higher "supply commitment price" when the market price exceeds it.

For some other commodities, international efforts to deal with market difficulties extending over a considerable period have been less successful. Attempts to conclude an international agreement on cocoa, which have continued off and on since 1963, remain so far unsuccessful; various proposals for further action, presented in the course of consultations arranged by the Secretary-General of UNCTAD in late 1969 and early 1970, were discussed in June 1970, but did not provide a basis for agreement.

More important still, during the period under review it became clear that because of the profound change in the wheat market situation that took place soon after the negotiation of the Arrangement, the Wheat Trade Convention of IGA has failed to maintain world prices within the agreed range. True, the downward movement in prices, which gathered momentum in the early months of 1969, was halted later in the year at a level substantially below the IGA minimum, but this was due less to the Arrangement itself, than to informal cooperation arranged among the main participating exporters. At the June 1970 session of the International Wheat Council (IWC) member governments decided to set up a preparatory committee to examine possible bases for a new arrangement after the expiry of the present IGA at the end of June 1971, and to report to IWC at its October/November 1970 session. The committee's programme of work is intended to terminate in a negotiating conference in January 1971.

In the meantime, the continued or intensified pressure on a number of commodity markets has led to a more active search for possible national and international measures to arrest price falls and/or to stabilize the level of prices in international markets, particularly within the framework of FAO study groups and *ad hoc* consultations. In the case of tea, agreement was reached among main exporters in mid-1969 to restrict and allot among themselves the quantity of black tea to enter world markets in 1970. These measures were welcomed by the importers at the December meeting of the Consultative Committee on Tea, which had been established by CCP in the autumn of 1969, and it was generally agreed that work toward a long-term arrangement should be continued. In the spring of 1970 the Working Party on Long-Term Measures, established for this purpose, noted that despite the helpful temporary measures by exporters, the long-term imbalance between rates of growth of production and consumption had, if

anything, worsened. The working party therefore asked the Director-General of FAO, in association with the Secretary-General of UNCTAD, to appoint one or more conciliators to prepare the ground for subsequent discussions in the Consultative Committee on Tea on a long-term agreement.

Other discussions on international commodity action remain at a less advanced stage. A special session of the Study Group on Oilseeds, Oils and Fats was held early in 1970 to undertake further consultations on the possible establishment of an intergovernmental consultative committee, and to make practical proposals for short-term action and long-term measures for intergovernmental arrangements. The group agreed that its policy functions should be strengthened to enable it to recommend action to coordinate measures — at national, regional and international levels — to deal with specific short-term problems. To provide a basis for this, it decided to set up a statistical subcommittee to prepare evaluations of the current and prospective market situations. The first session of this subcommittee was held in July 1970.

Consideration of possible international measures to prevent instability in world rice trade and prices was revived at the thirteenth session of the FAO Study Group on Rice in March 1969, and the recent deterioration in the situation — discussed earlier in this chapter — led to a more intensive examination at its fourteenth session in May 1970. The group identified the principal problems confronting the world rice economy, both at present and in the medium-term future, and agreed on the importance of concerted action to ensure orderly trading in rice at reasonably remunerative prices. It therefore set up an *ad hoc* working party to examine in detail the technical and economic feasibility of proposals for appropriate national and/or international action, and to draw up concrete recommendations for policy action for consideration by governments at the group's next session.

Other developments

One feature of the current situation in the world rice trade, namely the increasing importance of concessional trade and exports at subsidized prices, also draws attention to the revised procedures and obligations for consultation under the FAO Principles of Surplus Disposal. The need for such revision has arisen from the major changes in the scope of near-commercial or extracommercial transactions which have taken place since the adoption of the FAO Principles in 1954. There has been a sharp increase in "grey area" shipments, which can be classified neither as normal commercial trade nor as food aid. For some commodities, moreover, a part of the supplies shipped as food aid now comes from current production, rather than from surplus stocks. More commodities and countries have recently become affected by surplus problems, while the introduction in 1968 of the Food Aid Convention under IGA multiplied the number of bilateral donors of food aid. All this has tended to increase the fears of governments that trade of this nature would increasingly undermine normal commercial trade, particularly in view of the uncertainty as to which types of noncommercial transactions are subject to the existing international procedures for consultation and reporting.

Following a lengthy study leading to the drawing up of a catalogue of transactions in international trade in agricultural commodities likely to cause interference to normal patterns of production and trade,[11] CCP drew up a new set of detailed procedures for reporting and consultation between interested governments, in certain cases prior to the final negotiation of the deal. The recommendations of CCP were subsequently endorsed by the FAO Council at its fifty-third session in November 1969. By end June 1970, 20 countries — including the United States, EEC and its member states, Australia, Canada, India, Japan, New Zealand, the United Kingdom and a number of other major trading nations — had formally signified their acceptance of the new procedures. At the same time, the terms of reference of the Consultative Subcommittee on Surplus Disposal (CSD) were strengthened to bring them into line with the new obligations, and CSD was requested to draw up revised working methods to implement this new code of behaviour. In the meantime, FAO has established a new Central Information Service on Food Aid, which will assemble data on current trade transactions subject to the new procedures, drawing on reports made to CSD. Information on actual food aid shipments and, as far as possible, on prospective food aid programmes and availabilities will also be assembled.

Finally, attention should be drawn to a further development arising from the informal arrangements for hard fibres and for jute, kenaf and allied fibres operated under the relevant FAO consultative committees. As briefly mentioned earlier, in 1969 both arrangements succeeded in maintaining the prices of the commodities affected within the terms of their respective arrangements, though with some difficulty. In the case of sisal, the pressures became too great in early 1970, the arrangement became inoperative, and prices fell steeply. The producing countries have subsequently been unable to reach agreement on individual quotas and minimum prices, and the sisal market has therefore been a free one since early

[11] The catalogue is shown the Appendix of the *FAO commodity review and outlook 1969-1970.*

1970. In the case of abaca, prices rose significantly beyond the recommended indicative levels, owing to a supply shortage. Those of jute pressed against and even exceeded the ceiling recommended, leading to a recommendation in February 1970 that producing countries should make efforts to increase production sufficiently to reduce prices to the mid-point of the recommended range. By September 1970, prices were back at the top level of the range, thanks to the introduction of an export bonus in Pakistan.

In moves that may be of some importance in the long run, both committees have recently taken steps toward the initiation of international research activities for their fibres. It has long been felt that one of the best means of preventing a rapid loss of markets for these fibres is, on the one hand, improvements in productivity and in the quality of these fibres, thus making them more competitive with synthetic substitutes; and, on the other, the development of new end uses for them. To help achieve these goals the Study Group on Hard Fibres set up an Advisory Working Party on Research, which has begun to implement a programme of end-use research, priority being given to projects of practical application, and has recommended the establishment of an independent International Research Centre for Hard Fibres to supervise international research activities. The setting up of a similar research centre for jute and kenaf had already been proposed by the Study Group for Jute, Kenaf and Allied Fibres, and a detailed feasibility study on this subject, financed by UNDP, is expected to be completed in 1971.

Development assistance

If 1968 was a year of "uncertainty and questioning" in international development assistance, 1969 and 1970 will probably in retrospect be considered a period in which this questioning developed into a more active search for a basis for a relaunching of the aid effort, which has tended to falter over the past several years. Some major reviews of multilateral and bilateral aid programmes, policies and performance were concluded, including the Pearson report,[12] the capacity study of the United Nations Development System (the Jackson report),[13] a report by Raúl Prebisch for the Inter-American Development Bank on the development prospects and problems of Latin America,[14] and a presidential task force review of United States aid policies (the Peterson report); and the broad objectives and lines of policy for the Second Development Decade were approved. There was also evidence, in the form of a more active public debate of the entire development question, that these and other studies had made a positive impact on world opinion. And although at the time of writing few of the conclusions of the different studies had yet been translated into concrete action, the generally favourable reception they received gave some grounds for anticipating a shift toward a better climate for aid.

Several elements, by now well known, were behind the decisions to initiate these studies. As a result of a number of factors — including disillusion in aid-giving countries about the effectiveness of aid, the balance of payments problems of some of them, increasing attention in many countries to the solution of domestic problems, and probably the reduced political tensions among the major powers — the increase in the flow of funds from developed to developing countries slowed down during the past decade, particularly if compared with the growth of the developed countries' economies. At the same time, the share of assistance on concessional terms in the total fell (Table I-12), and the terms of aid tended to harden at a time when the debt service burden of a great many developing countries became increasingly heavy.

Information on the flow of aid in 1969 indicates that the overall picture has not improved. The total amount of aid — public and private — showed virtually no increase at all. Official development assistance (the portion which is significantly concessional in character) increased by almost 4 percent, but this was barely sufficient to offset the declines in other official and private flows. The ratio of both total and official development assistance to the donor countries' gross national product (GNP) thus continued to fall in 1969.

It was against such a background that the President of the World Bank suggested, as far back as 1967, that an experienced group meet to "study the consequences of twenty years of development assistance, assess the results, clarify the errors and propose the policies which will work better in the future." The results of their study — the report of the Commission on International Development (the Pearson report) — were released in September 1969. The report noted that "the climate surrounding foreign aid programmes is heavy with disillusion and dis-

[12] *Partners in development – Report of the Commission on International Development.* New York. Praeger, 1969.
[13] *A study of the capacity of the United Nations Development System.* Geneva. United Nations. 1969.
[14] Prebisch. Raúl. *Transformación y desarrollo.* Report presented to the Inter-American Development Bank. Washington. D.C.. May 1970.

TABLE I-12. – NET FLOW OF FINANCIAL RESOURCES[1] TO DEVELOPING COUNTRIES, 1960-69

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969[2]
	Million U.S. dollars									
Flow from DAC member countries[3]										
OFFICIAL DEVELOPMENT ASSISTANCE[4]										
Bilateral grants	3 716	4 031	4 100	4 032	3 867	3 770	3 802	3 673	3 431	3 350
Bilateral development loans at concessional terms	452	646	910	1 473	1 761	1 723	1 857	2 297	2 306	2 302
Contributions to multilateral institutions	535	521	511	368	387	443	477	717	672	1 030
TOTAL ABOVE	4 703	5 198	5 521	5873	6 015	5 936	6 136	6 687	6 409	6 682
OTHER OFFICIAL FLOWS										
Bilateral	195	715	498	206	— 66	297	331	378	732	575
Multilateral	67	230	15	— 3	— 7	5	53	19	— 3	— 9
TOTAL ABOVE	262	945	513	203	— 73	302	384	397	729	566
TOTAL OFFICIAL FLOWS	4 965	6 143	6 034	6 076	5 942	6 238	6 520	7 084	7 138	7 248
PRIVATE FLOWS										
Direct investment	1 767	1 829	1 495	1 603	1 783	2 489	2 185	2 103	2 895	2 566
Bilateral portfolio	633	614	147	327	416	687	502	809	965	1 334
Multilateral portfolio	204	90	239	— 33	141	248	15	306	605	413
Export credits	546	573	572	660	860	750	1 124	1 006	1 590	1 734
TOTAL ABOVE	3 150	3 106	2 453	2 557	3 200	4 174	3 826	4 224	6 055	6 047
TOTAL OFFICIAL AND PRIVATE	8 115	9 249	8 487	8 632	9 142	10 413	10 346	11 306	13 193	13 297
Estimated flow from non-DAC countries[5]	206	305	406	382	386	334	360	365	345	...
GRAND TOTAL	8 321	9 554	8 893	9 014	9 528	10 747	10 706	11 671	13 538	...

SOURCE: Organization for Economic Co-operation and Development.

[1] For DAC member countries, data refer to gross disbursements minus amortization receipts on earlier lending. – [2] Preliminary estimates. – [3] Australia, Austria, Belgium, Canada, Denmark, France, Federal Republic of Germany Italy. Japan, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom, United States. – [4] Flows which are intended primarily to promote the economic development and welfare of developing countries, and which are intended to be concessional in character. – [5] Finland. New Zealand, South Africa and the centrally planned countries.

trust." It concluded, however, that the record of development is encouraging, and that, although foreign aid has played a relatively minor role in development, "in the principal areas where significant progress has been noted, aid has been a vital element... To overcome the obstacles and take advantage of the opportunities for further growth will require that aid, trade and investment policies are integrated in a single strategy, which rests firmly upon the performance of the developing countries themselves and the sustained commitment of the richer countries."

The Pearson Commission outlines this strategy in 68 recommendations which it addresses to developing countries, industrialized countries, and international organizations. These are summarized in Chapter III. In its most important recommendations, the commission proposes that each developed country increase the total financial resources it provides to developing countries to a minimum of 1 percent of its GNP, and the official development funds to 0.7 percent, by 1975 if possible but no later than 1980. At the same time, it suggests that contributions to multilateral programmes be raised from their present level of 10 percent of official development assistance to 20 percent. Other important recommendations are aimed at increasing the effectiveness of both bilateral and multilateral assistance efforts.

Significant as many of the recommendations of the Pearson report are, most of the topics it discusses have been on the agenda of international bodies for a long time, and many similar recommendations have already been made elsewhere. The deeper significance of the Pearson report lies in the fact that it has placed the problems of development and development assistance in a comprehensive and coherent framework, and in so doing has succeeded in focusing the

attention of donor countries, multilateral institutions and the general public on the need to take concrete action to give renewed impetus to international co-operation for development.

Some evidence of such action has already appeared during the period under review. In many of the smaller donor countries aid is already receiving strong public support and has grown steadily over the past decade. A number of them, in declaring their support of the 1 percent target recommended by the Pearson Commission and before it by the United Nations Conference on Trade and Development (UNCTAD) and the Development Assistance Committee (DAC), have announced specific plans for its attainment. Both Denmark (in 1968) and the Netherlands (in 1969) had already drawn up programmes for reaching this target, the first by 1972/73 and the second by 1971. The Governments of New Zealand and the Federal Republic of Germany have also expressed their intentions in this respect, the latter through an annual increase of 11 percent in official development assistance. Norway will triple government aid during the period 1968-73, and Japan will double it "in the near future." In the United Kingdom one million signatures have been collected supporting the Pearson targets for total and official aid, and the Government announced that it intended to increase economic aid from $526 million in 1969/70 to $720 million in 1973/74, with the expectation of reaching the 1 percent target between 1975 and 1980. Even in the United States, where the climate for foreign assistance has become increasingly unfavourable in recent years, the report of the President's Task Force on International Development — an aim which has been subsequently endorsed in the President's Message to Congress on Foreign Aid — urged that " the downward trend in United States development assistance appropriations be reversed. "

At the same time, multilateral lending has been receiving an even more substantial and immediate impetus. Already in 1968 IBRD announced plans to double the total volume of its lending during the period 1969 to 1973 and, as will be reported below, substantial progress toward that end has already been achieved. Furthermore, by March 1970 it seemed probable that, in line with the Pearson Commission recommendations, the funds of IBRD's soft loan affiliate, the International Development Association (IDA), would be increased to $1 000 million per year between 1972 and 1974, compared to $100 million annually during the early 1960s and $400 million per year during 1969-71. Support for the new target had already been announced by the United States, which contributes 40 percent of all IDA funds. The financial position of IDA may also be helped by the record profits, of around $200 million, expected to be announced by IBRD at the end of 1969/70.

United States support of the expansion in IDA lending is closely in line with one of the principal points of the President's message to Congress, namely that there be a substantial shift in the United States foreign assistance operations from a bilateral to a multilateral basis. The Peterson report had advocated an increase of $500 million in annual contributions to international financial institutions by 1972 (these averaged $224 million during the period 1966-68), and recommended that bilateral programmes be adapted as far as possible to objectives and standards laid down by multilateral agencies.

The problems created by the increasingly heavy debt burden in many developing countries, and hence the need to provide assistance on easier terms, are widely recognized. For several years DAC has been active in attempts to obtain a softening of the terms of assistance, and in February 1969 adopted a supplement to the 1965 recommendation on financial terms and conditions which calls for a further improvement in the terms of lending so as to raise the average concessional element of official development assistance commitments.[15] The Pearson Commission goes even further by recommending that easier terms relate to all development assistance loans.[16] Despite DAC's efforts, which have been instrumental in obtaining an improvement in the terms of lending of several donor countries (for example Canada, Denmark, the Federal Republic of Germany, the Netherlands, Sweden and the United Kingdom) there has been no improvement in the overall situation, primarily because the impact of softer lending by some countries has been overshadowed by the harder terms of others.

During 1969 some limited initiatives were also taken to reduce the degree of aid tying, which the Pearson Commission estimates may reduce the value of aid to developing countries by as much as 20 percent. The Canadian Government reduced the minimum Canadian content of goods supplied from 80 percent to 66 percent, and the Government of the Federal Republic of Germany decided to permit aid-financed procurement (formerly limited to German suppliers) in the developing countries. The United States, reversing the trend of recent years during which virtually all loans under the country's aid programmes have been tied, abolished "addi-

[15] Specifically, it calls for donor countries to provide at least 85 percent of their official development assistance commitments so that each transaction has a minimum concessional element of 61 percent, or to ensure that those commitments contain an average concessional element of at least 85 percent. The concessional element is defined as the face value of the loan, less the discounted present value of required amortization and interest payments (using a 10 percent discount rate).

[16] It calls for a maximum interest rate of 2 percent, a maturity of between 25 and 40 years, and a grace period of 7 to 10 years on all development assistance loans.

tionality" requirements which provide that aid financed exports be "additional" to regular commercial ones. In 1969, loans to Latin American countries were untied to the extent of allowing aid-financed purchases to be made from anywhere in the Western Hemisphere (except Cuba). In September 1970, a similar liberalization to cover aid to all developing countries was announced.

Major efforts are now under way within the United Nations system to improve and coordinate the machinery for multilateral aid, which is thought essential if the system is to absorb effectively a larger portion of the flow of development funds. The problem of coordination has in part — that is, as regards technical assistance and preinvestment surveys — already been examined in considerable detail in the Jackson report, which studies the capacity of the United Nations system to use effectively the present resources of the United Nations Development Programme (UNDP), and to handle a larger programme in the future. Its most important recommendation is that increased emphasis should be placed on the programming of technical assistance and preinvestment activities at country level. The report is now being examined by the various secretariats and governing bodies concerned.

In the same area, IBRD has announced plans for an expanded programme of country economic missions, which would include representatives of UNDP and, where appropriate, of the specialized agencies. These missions would visit the larger developing countries annually and the others every two or three years, to assist governments in drawing up their overall development strategy and to produce current economic reports which would "serve as a profile of the country's progress, and of its overall development plan."

IBRD and the financing of agriculture

The increasing emphasis being paid by IBRD/IDA to agriculture, described in *The state of food and agriculture 1969*, was maintained during 1969/70. Bank loans and IDA credits to this sector, excluding projects for agricultural education and those where the agricultural element is a part of overall multipurpose projects, rose by some 12 percent to $413 million (Table I-13).

An interesting feature of the Bank's lending to the agricultural sector is the emphasis now being put on the provision of funds for general agricultural development projects designed to stimulate the output of cash crops or to diversify production into new crops having export or domestic sales potential. Such projects, which generally aim at assisting smallholders to increase their output and earnings, often require measures of institutional reform or changes in credit, marketing, price or fiscal policies. As a result the preparatory work may be lengthy, but this is justified by the large impact which such projects may have on the economies of the countries concerned, both in terms of the growth in income and in promoting a shift toward a market-oriented agriculture.

In line with the aim, announced in 1968, of attaining a fourfold increase in loans to the agricultural sector by 1972/73, it is anticipated that the emphasis on agricultural projects will continue. From 1972/73 onward it is planned to put forward annually for IBRD/IDA approval some 60 purely agricultural projects. This is expected to result in a volume of lending by the Bank over the next five years equal to the cumulative total Bank loans to the agricultural sector in the entire period before 1969.

TABLE I-13. – IBRD LOANS AND IDA CREDITS FOR AGRICULTURE BY PROJECT TYPE

	1966/67		1967/68		1968/69		1969/70	
	Million U.S. dollars	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*Million U.S. dollars*	*Percent of total*
Livestock development	6.0	6.9	55.3	32.1	86.8	23.7	55.1	13.4
Irrigation	19.0	21.8	75.0	43.5	129.0	35.1	207.7	50.3
Agricultural credit	6.6	7.6	13.0	7.5	69.0	18.8	74.6	18.1
Land settlement and development	41.0	47.1	23.7	13.7	39.0	10.6	13.0	3.1
Tropical crops	—	—	5.5	3.2	32.9	9.0	33.0	8.0
Forestry	—	—	—	—	5.3	1.4	11.1	2.7
Fishery	14.4	16.6	—	—	5.3	1.4	1.3	0.3
Other general agricultural development	—	—	—	—	—	—	17.1	4.1
TOTAL AGRICULTURE	87.0	100	172.5	100	367.3	100	412.9	100
Total all sectors	1 230.3		953.5		1 784.2		2 286.0	
of which agriculture		17.1		18.1		20.6		18.1

If such a flow of approved projects is to be achieved, preparation will have to be started on a much larger number in any one year, to allow for delays and slippage of various kinds. A considerable effort on project preparation is therefore required, not only by IBRD but by the other development banks as well. A number of initiatives have also been taken to ensure that preinvestment activities within the United Nations system lead, where possible, to investment. Investment agencies are, for example, being encouraged to become involved at an early stage in projects which are of interest to them. This could help ensure that the preinvestment studies have the form and content required by the agencies.

Regional banks

The activities of the regional development banks — primarily the Asian Development Bank (ASDB) and the older established Inter-American Development Bank (IDB) — continued to expand, with considerable emphasis being put on agriculture.

Since its inception in 1966, ASDB has committed $163 million for 31 projects in 13 countries, of which approximately 20 percent went to the agricultural sector. In 1969 total commitments amounted to $100 million, with 28 percent for agriculture and related industries. For 1970 ASDB intends to double both its total commitments and the funds going to agriculture. Important for the financing of agriculture has been the increase in the contributions to its soft loan special funds which now amount to some $85 million, of which $23 million have been provided specifically for agriculture, and the liberalization of the recent contributions, in particular as regards the tying of loans and interest rates. This should enable the Bank to finance more agricultural projects, although it is still hampered by its policy of financing only the foreign exchange costs of projects. The policy is now under examination, however, and if changed the volume of loans for agriculture should expand sharply.

A substantial increase in the lending capacity of IDB was announced at its April 1970 meeting. The Bank's ordinary resources (used for relatively low interest, long-term loans repayable in hard currencies) will be increased from $3 200 million to $5 200 million, and its Fund for Special Operations (available for social investment and repayable in the currency of the borrower) from $2 300 million to $3 890 million. In view of the important role which the Bank has played in providing finance to agriculture — its lending to the sector has increased from $75 million in 1968 to $202 million in 1969, and it provided nearly 50 percent of all of the external loan commitments to the Latin American region during the period 1961-68 — the possibility now exists for a substantial increase in agricultural investment in the region during the coming years.

The African Development Bank (AFDB) started lending operations in 1967/68, and by the end of 1969 loans to 20 projects totalling $50 million had been approved. Considerable emphasis is being put on careful screening in order to ensure that the limited available funds go only to top priority, highly remunerative projects. As a result, although project preparation activities are being carried on in some 12 African countries, only one agricultural project has so far been approved.

Food aid

Statistics on food aid disbursements and shipments are incomplete, in part because of insufficient reporting, in part because of uncertainty as to the kinds of shipments which should be thus classified. Improvements in both respects should result from recent action to clarify the concepts of "concessional trade" and to improve the reporting procedures on such transactions through the Consultative Subcommittee on Surplus Disposal of CCP, discussed above, and from the establishment by FAO of the Central Information Service on Food Aid.

For the time being, however, only partial data are available. As indicated below, the food aid provided by the two main donor countries, Canada and the United States, showed diverse movements in 1969. For the United States, concessional shipments declined by some 14 percent, whereas for Canada there has probably been a substantial increase. The initiation of shipments under the Food Aid Convention (FAC) in 1968/69 has meant, however, that in addition to these two countries, nine others and EEC are now providing food aid on a regular basis.

In terms of commodities, special trade in grains is estimated to have declined by some 40 percent between the peak in 1964/65 and 1968/69, from 19.8 to 11.8 million tons, reflecting the smaller overall import requirements of the major recipient countries, notably India and Pakistan. This decrease took place despite the coming into force of FAC under which a minimum of 4.2 million tons of food grains are being shipped annually. Food aid shipments of other commodities probably have fallen less, and although grains are the largest item, the reduction in the total has most likely been rather less than for grains alone.

Of the total shipments under FAC, 6 percent were channelled through the UN/FAO World Food Programme (WFP) in 1968/69. Thanks to growing pledges by governments, as well as to the FAC and other

ad hoc contributions, WFP is becoming an increasingly important source of investment through the food and feed which it provides for economic and social development projects. Total WFP disbursements [17] amounted to $81 million in 1969, an increase of 47 percent over the 1968 level, while the commitments in 1969 were $360 million, compared with only $90 million on average in 1966 and 1967. Of total project aid since the inception of the Programme in 1963, 54 percent has gone to the agricultural sector. Of this, land development, improvement and settlement projects accounted for about one half, livestock and dairy development for slightly less than one third, and forestry, community development and crop production and diversification for the remainder.

Of potential importance for the future of the Programme was the recommendation by the governing body of WFP to the Economic and Social Council (ECOSOC), following a study by an expert group, that WFP could effectively utilize resources up to double or more the target level agreed for pledges in 1971-72 ($ 300 million) without basic changes in the Programme's existing procedures.

[17] All expenditures for projects and emergencies, excluding WFP and FAO administrative expenses.

Fertilizers

First estimates of world consumption of commercial fertilizers in 1968/69 suggest a considerably less rapid increase than for the average between 1963/64 and 1967/68. Although the use of fertilizers rose by 3.8 million tons, to 59.3 million tons (all data in terms of NPK nutrient content), this represented an increase of less than 7 percent, compared with a 10 percent annual rate of growth in the four previous years (Table I-14). In the developed countries, which used 82 percent of the total, the rate of increase fell from 7 to 5 percent, mainly because of a less rapid increase in western Europe and North America.

In the developing countries combined, the increase was only about half that in the two preceding years. In the main, however, this reflected the slower growth

TABLE I-14. – WORLD AND REGIONAL CONSUMPTION AND PRODUCTION OF COMMERCIAL FERTILIZERS,[1] 1952/53-1956/57 AVERAGE, 1967/68 AND 1968/69

	Consumption			Consumption per hectare of arable land, 1968/69	Production		
	1952/53-1956/57 average	1967/68	1968/69		1952/53-1956-57 average	1967/68	1968/69
	Million metric tons			*Kilogrammes*	*Million metric tons*		
DEVELOPED COUNTRIES							
Western Europe	7.5	15.0	15.5	151	8.5	17.6	18.5
Eastern Europe and U.S.S.R.	3.5	12.7	14.0	48	4.0	13.8	15.2
North America	5.9	14.6	14.9	68	5.9	17.7	18.0
Oceania	0.7	1.5	1.6	37	0.6	1.3	1.2
Japan	1.1	2.2	2.3	400	1.0	2.7	2.9
TOTAL [2]	18.8	46.5	48.8	73	20.2	54.0	56.7
DEVELOPING COUNTRIES							
Latin America	0.5	2.0	2.5	21	0.4	0.8	0.9
Far East [3]	0.6	3.5	3.7	14	0.1	1.2	1.7
Near East [4]	0.2	0.8	1.0	[5]23	—	0.3	0.3
Africa [6]	0.1	0.5	0.5	3	0.1	0.3	0.4
TOTAL	1.4	6.8	7.7	13	0.6	2.6	3.3
China (Mainland) [7]	—	2.0	2.5	—	—	1.2	1.3
WORLD TOTAL	20.2	55.5	59.3	44	20.8	58.0	61.3

[1] In terms of nutrient content (N, P_2O_5 and K_2O). – [2] Including Israel, South Africa and Kuwait. – [3] Excluding Japan. – [4] Excluding Israel and Kuwait. – [5] Consumption is calculated per hectare of cropped area, to take account of extensive multiple cropping in the United Arab Republic and fallow in other Near East countries. Consumption per hectare of arable land would be only 13 kilogrammes. – [6] Excluding South Africa. – [7] Excluding K_2O, for which no information is available.

of offtake in India, thought to reflect the imposition of a 10 percent tax on fertilizers, poor weather in some areas of the country, and the relatively high level of fertilizer application already reached by larger farmers using high-yielding cereal varieties. The other developing countries combined more or less maintained or even accelerated their recent growth rates of fertilizer consumption, and 12 major developing countries reported fertilizer consumption in 1968/1969 at 25 percent or more above the year before. These were, by region: Brazil and Cuba; Burma, Ceylon, Indonesia and Pakistan; Afghanistan, Cyprus, Syria and Turkey; and Cameroon and Zambia. A number of these countries have special crop intensification programmes or were carrying out large-scale fertilizer schemes.

World production of fertilizers rose in 1968/69 by nearly 6 percent, to 61.3 million tons. Nitrogen output at 27.4 million tons, and that of potash at 15.9 million tons, increased by nearly 9 and 5 percent respectively, while phosphate production at 18 million tons rose by only 2 percent. The largest increase in combined output is estimated for Europe, followed by Asia and the U.S.S.R. Over 90 percent of all fertilizers was produced in developed countries, but output in developing countries grew nearly 5 times as fast. In particular, the output of nitrogenous fertilizers in developing countries increased by nearly 30 percent. Two thirds of the additional output was produced in India and the Republic of Korea, where large new plants have come on stream. The latter country has become an exporter of nitrogenous fertilizers. Most of the increase in potash production was in Canada. The small increase in phosphate offtake was accompanied by a marginal decline in world phosphate rock output. The principal areas where production of rock phosphate was significantly reduced were the United States and Tunisia. Other rock phosphate-producing countries either maintained or raised their production.

The volume of world trade in all fertilizers in 1968/69 is estimated at more than 17 million tons and represents 29 percent of total world consumption compared with 31 percent in 1967/68. Europe, North America and Central America were the largest net exporters.

Consumption of nitrogen fertilizers rose about 9 percent, to 26.8 million tons in 1968/69. The developing countries increased their use from 5.9 to 6.9 million and the developed countries from 18.5 to 19.9 million tons. The shift to more concentrated materials continued, with the share of urea rising and that of ammonium sulphate and nitrate falling. Exports rose by more than 6 percent, to over 6 million tons, owing to increased shipments from western and eastern European countries and from the United States. Although Japanese exports fell from 1.05 to 0.92 million tons, Japan remained the leading exporter, followed by the United States, the Federal Republic of Germany and the Netherlands. China (Mainland) remained the largest importer of nitrogen fertilizer with 1.3 million tons, followed by India with about 820 000 tons. Other large importers were the United States with over 330 000 tons, Pakistan with about 225 000, Indonesia with 205 000 and Turkey with almost 200 000 tons.

The consumption of both phosphate and potash increased by about 5 percent to 17.8 million and 11.9 million tons, respectively. The largest increase in phosphate consumption took place in Latin America, by over 15 percent to 780 000 tons. Excluding Japan, the use of phosphate fell in Asia and the Far East and showed only small gains in other regions.

For various reasons, the fertilizer industry in Europe, North America and Japan has recently been going through one of its worst periods. During the 1960s massive investments were made in new plants to expand production. Forecasts for effective demand turned out to be overoptimistic, however, with the result of overproduction, increased stocks and depressed prices. Prospects for 1970 are not too bright, but an improvement in the industry's position is expected in the future. Consumption in developing countries is rising, and as it is unlikely that any significant investment in new plant will be made in the developed regions in the near future, the period of overproduction should soon come to an end.

The Indicative World Plan for Agricultural Development (IWP) proposes fast rates of growth for fertilizers, particularly in the period up to 1975, when an overall annual rate of increase of 14.3 percent is envisaged. This compares with an average of 12.7 percent in the study countries in the recent past, under the impact of favourable changes in fertilizer/product price ratios, the wider use of fertilizer-responsive varieties of cereals, and positive action by governments to make fertilizer available. Some developing countries have reached annual increases of 25 percent. Under IWP, the total value of the fertilizer used would rise from $664 million in 1962 to $7 800 million in 1985, comprising 45 percent of the total value of all current inputs in that year. The increase proposed by IWP would result in a world average use of 60 kilogrammes per hectare by 1985, compared with 44 in 1968/69. Even this would be well below levels currently achieved in the agriculturally more advanced countries (see Table I-14), and considerable scope remains both for increasing the area fertilized and levels of use per hectare.

Medium-term forecasts for cereals

Table I-15 summarizes the results of the most recent medium-term forecast of production, consumption and net trade in cereals in 15 selected developing countries and 1 country grouping.[18] As explained in *The state of food and agriculture 1969*, medium-term forecasts for wheat, coarse grains and rice have been prepared on an experimental basis since 1967. Following the decision of the fifteenth session of the FAO Conference in November 1969 to continue the project on a regular basis, the number of countries for which forecasts of production, utilization and net trade are made has been expanded, and it is hoped to broaden country coverage further in future years, subject to the availability of information and resources.

The countries included in Table I-15 account for almost 60 percent of the cereals produced in developing regions, and 65 percent of their combined cereal imports. Regional coverage is uneven, however, ranging from almost 80 percent of production and 90 percent of net imports in the case of the Far East, to only 14 percent of regional production and 27 percent of net imports for developing Africa.

These medium-term forecasts should be viewed within the longer term setting of the world cereals market outlook. The broad forward trends over the next 15 years as suggested by FAO's recent studies, particularly the Indicative World Plan for Agricultural Development, were outlined in *The state of food and agriculture 1969*. Very briefly, they point toward an increasing degree of self-sufficiency in cereals among developing countries. The emergence of more developing countries as net exporters seems possible, although a considerable number appear certain to remain in a heavy deficit position. According to these studies, the overall prospect for the world cereal trade would be one of ample supplies and competitive markets, which would imply the need for a serious reassessment and adjustment of the export and production policies in many developed and developing countries.

The evidence on recent performance and the forecasts for 1973 presented in Table I-15 are broadly in line with these longer range expectations. The main cereal trading countries of the Far East show an impressive overall growth in their aggregate cereal production and consumption, as well as a lessening reliance on food-grain imports. This trend is expected to continue over the next few years. In the Near East, also, the selected countries have moved closer to self-sufficiency since the mid-1960s, and their imports have declined. In Latin America and Africa on the contrary, the progress of cereal production has not been sufficient to meet the rising requirements in the countries under review, and their net imports were marginally bigger in 1969 than in 1964-66.

For individual countries, only tentative conclusions should be drawn from the production figures of a single year like 1969, as varying weather conditions frequently result in exceptionally good or poor harvests. But the probable error is much reduced when the results are aggregated. It therefore appears highly significant that, for all the 14 importing countries combined, aggregate cereal production in 1969 was 24 percent above the 1964-66 average. This made it possible for them to reduce their combined net imports by 25 percent, despite an 18 percent increase in apparent domestic consumption.

Looking forward to 1973, none of the selected countries that were net importers in 1969 is expected to become a net exporter during this period. India is, however, predicted to be virtually self-sufficient by 1973. Brazil is also expected to improve its overall cereal self-sufficiency, with exports of maize and some rice largely offsetting the continuing substantial import requirements of wheat; the country's net import requirements of all cereals are forecast to decline to about 3 percent of total cereal consumption. Among the other countries whose net imports are expected to decline are Ceylon, West Malaysia, Senegal and the United Arab Republic. All the same, they will continue to rely on the world market for a considerable share of their requirements, ranging from 13 percent in the United Arab Republic to 36 percent in Ceylon. Little change is seen over the medium term in the net imports of Pakistan in absolute terms, but its self-sufficiency in cereals may rise to about 95 percent by 1973. Countries where rising net imports are indicated include Chile, the Republic of Korea and Morocco, which seem likely to depend on imports for between 12 and 16 percent of their total domestic cereal requirements in 1973.

For the net importing countries combined, forecasts suggest a fall in net imports of all cereals to 8 million tons. This would be 4 million tons below the 1969 volume, and less than half the average for 1964-66. The most pronounced fall is expected in net imports of wheat — by about 2 million tons — even though lower purchases by India, Brazil and Chile will be partly offset by the larger requirements of other countries such as the Republic of Korea, Morocco and the United Arab Republic. Rice imports are expected to decline by almost 1 million tons, mostly because of the smaller requirements of

[18] Central American republics, that is, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

TABLE I-15. – MEDIUM-TERM (1973) FORECAST FOR CEREAL PRODUCTION, UTILIZATION AND NET TRADE IN SELECTED DEVELOPING COUNTRIES

	Production			Apparent domestic utilization			Net trade		
	Actual		Forecast	Actual		Forecast	Actual		Forecast
	1964-66 average	1969 [1]	1973	1964-66 average	1969 [1]	1973	1964-66 average	1969 [1]	1973
	Thousand metric tons								
Net importers									
LATIN AMERICA									
Brazil	16 050	15 704	20 940	17 766	17 202	21 550	+ 1 716	+ 1 498	+ 610
Chile	1 808	1 577	2 280	2 197	2 276	2 690	+ 389	+ 699	+ 410
Central American republics [2]	1 861	2 142	2 510	2 042	2 364	2 680	+ 181	+ 222	+ 170
TOTAL COUNTRIES LISTED	19 719	19 423	25 730	22 005	21 842	26 920	+ 2 286	+ 2 419	+ 1 190
REGIONAL TOTAL [3]	26 066	31 894	...	32 332	...	...	+ 6 266	...	...
FAR EAST									
Ceylon	658	964	1 320	1 591	1 836	2 070	+ 953	+ 872	+ 750
India	67 600	88 000	108 000	75 600	91 700	109 000	+ 8 000	+ 3 700	+ 1 000
Korea, Republic of	5 866	6 689	8 140	6 466	8 599	9 670	+ 600	+ 1 910	+ 1 530
Malaysia (West)	560	846	1 350	1 242	1 277	1 600	+ 682	+ 431	+ 250
Pakistan	17 152	22 425	26 000	18 472	23 625	27 300	+ 1 320	+ 1 200	+ 1 300
TOTAL COUNTRIES LISTED	91 836	118 924	144 810	103 371	127 037	149 640	+ 11 555	+ 8 113	+ 4 830
REGIONAL TOTAL	123 381	153 038	...	136 319	...	...	+ 12 938	...	...
NEAR EAST									
Iran	4 467	5 459	6 990	4 780	5 682	7 100	+ 313	+ 223	+ 110
Iraq	1 768	2 637	2 690	1 815	2 671	2 790	+ 47	+ 34	+ 100
United Arab Republic	5 681	6 390	7 910	7 596	7 179	9 050	+ 1 915	+ 789	+ 1 140
TOTAL COUNTRIES LISTED	11 916	14 486	17 590	14 191	15 532	18 940	+ 2 275	+ 1 046	+ 1 350
REGIONAL TOTAL	35 119	40 513	...	39 167	...	...	+ 4 048	...	...
AFRICA									
Ghana	476	538	670	576	654	780	+ 100	+ 116	+ 110
Morocco	2 889	3 679	3 750	3 191	3 992	4 250	+ 302	+ 313	+ 500
Senegal	626	678	890	879	1 007	1 090	+ 253	+ 329	+ 200
TOTAL COUNTRIES LISTED	3 991	4 895	5 310	4 646	5 653	6 120	+ 655	+ 758	+ 810
REGIONAL TOTAL [4]	33 429	36 168	...	[4]35 821	...	...	+ 2 392	...	...
Grand total									
Countries listed	127 462	157 728	193 440	144 213	170 064	201 620	+ 16 771	+ 12 336	+ 8 180
Regions [3,4]	217 995	261 613	...	243 639	...	...	+ 25 644	...	...
Net exporters									
Argentina	17 200	18 200	23 300	7 200	9 400	12 400	— 10 000	— 8 300	— 11 000
Kenya	1 656	2 002	2 310	1 722	1 712	2 000	+ 66	— 290	— 310

NOTE: Net imports are indicated by a (+) sign; net exports by a (—) sign.

[1] Preliminary estimates. – [2] Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua. – [3] Excluding Argentina and Mexico. – [4] Excluding Kenya.

the Republic of Korea and India. The decline forecast in aggregate coarse grain imports is about 0.5 million tons, but the rising exportable supplies from countries which have an overall deficit in cereals — such as maize from Brazil and rice from Pakistan and the United Arab Republic — should make possible a further improvement in the net cereal trading position of these countries.

In assessing the significance of these forecasts, the inadequacies of the basic data and the hazards of forecasting basic food crops subject to the uncertainties of weather, especially in semiarid areas, should be kept in mind. As stated in *The state of food and agriculture 1969*, the results represent an informed judgement of the most likely outcome, based on recent trends in yields, acreage and production, the national and international policies affecting cereal production and trade three to four years ahead, and the progress recorded with current government programmes concerning cereals. These, together with

the growth of demand, are the factors which will largely determine the size of the cereal output and trade performance during the forecast period. The margin of uncertainty, particularly where net trade represents a small share of total supplies, is illustrated by the revised forecast for Pakistan. Whereas last year it was stated that "by 1972 Pakistan may already emerge as a net exporter," [19] the current forecast is for net imports of more than 1 million tons (about 5 percent of total consumption) in 1973. The main cause for this reassessment is the shortfall now expected in the production of both rice in East Pakistan and wheat in West Pakistan in 1970, relative to the targets under the country's Food Self-Sufficiency Programme, due to the insufficient availability of fertilizers, and other difficulties.

Of major weight in the overall picture is India, which in 1969 accounted for 56 percent of the total cereal production of the countries covered by the survey and for 30 percent of their combined net imports. While progress in the adoption of high-yielding varieties and the associated techniques has been very rapid in wheat, the advance in rice — which is by far the larger food crop — has been rather slower for reasons discussed elsewhere in this report. The future progress of India's cereal production depends very largely on the extent to which impediments to the spread of high-yielding varieties of rice can be overcome. Though the targets for fertilizer consumption spelled out in the fourth plan may not be reached, some of the other problems — for instance as regards palatability of rice, and its disease resistance — are reported to be well on the way to being solved. On these grounds, India is expected to become virtually self-sufficient by 1973, with total cereal production reaching 108 million tons. The Government of India has recently reaffirmed its policy objective of stopping all concessional imports after 1971. These currently account for five sixths of its total cereal imports.

For the other selected countries, the results of this year's medium-term forecast confirm some of the remaining reasons for caution as regards the success and currently foreseen impact of the "green revolution," given the rapid growth of demand and the various constraints on the adoption of the new technology. Aside from the revision of the forecast for Pakistan, this is illustrated by the fact that a further increase is foreseen in the net imports of cereals into the United Arab Republic despite a relatively rapid growth of output.

Of particular significance are the trade forecasts for West Malaysia and Ceylon — not because of the amounts involved, which are small relative to total trade in cereals, but because of the traditionally low self-sufficiency ratio with regard to cereals in these two countries. Both of them are historically plantation economies based on large-scale food imports and exports of estate products. With limited prospects for their main exports relative to the import needs, higher rates of cereal self-sufficiency have become a major policy goal, and both countries have shown considerable success in moving toward it. As late as in 1964-66, imports still accounted for two thirds of the total cereal supplies of Ceylon, and for half of those of West Malaysia. Thanks to well-supported programmes for raising yields and output, by 1969 this ratio had fallen to about one half in Ceylon and about one third in West Malaysia. Further reductions, to 36 percent and 16 percent respectively, are forecast by 1973. As total requirements are progressively growing, however, the fall in import requirements in absolute terms is more modest.

Finally, Kenya stands out as an example of a developing country which, after having achieved the goal of self-sufficiency in cereals, is experiencing difficulties — like Mexico — in disposing of its excess production. This particularly applies to wheat, the f.o.b. price of which is high relative to prevailing world market prices. No significant increase in wheat or maize exports is in fact forecast, since much of Kenya's additional output (consisting mainly of maize) is expected to be used domestically as animal feed and for industrial uses.

Some increase in exports is foreseen for Argentina, the major grain exporter among the developing countries; this increase is expected to occur mainly in shipments of coarse grains for which export prospects are more promising than for wheat.

[19] In *The state of food and agriculture 1969*. The report went on, however, to point out that "the forecast exportable margin [in 1972] is small in relation to the total anticipated consumption and output, and could thus be either wiped out or increased substantially by deviations in the forecast in either utilization or production." (p. 32).

Chapter II. - REVIEW BY REGIONS

Western Europe

The combined real gross domestic product (GDP) of the countries of the European Economic Community (EEC) and the rest of northwestern Europe rose in 1969 by 6 percent. This was well above the increase in 1968, and even in the five countries where economic growth slowed down — Ireland, Italy, the Netherlands, Norway and the United Kingdom — the increase was generally (except in the United Kingdom) equal to or greater than the longer term trend of about 4 percent a year over the period 1953-67.

Two factors were mainly responsible for this acceleration: a large expansion in capital investment and much larger exports. Trade within the region, in particular, showed a rapid increase, with an expansion of some 20 percent among all European countries and about 30 percent among the EEC countries. There was also a significant rise in private consumption expenditure. The principal factors holding back growth in the five countries just mentioned were deflationary policies, especially in the United Kingdom and Ireland, and labour unrest (in Italy) as well as poor harvests or fishing in the Netherlands and Norway. Virtually everywhere the more rapid economic growth was associated with inflationary pressures in 1969, with the consumer price indices of eight countries showing increases of over 4 percent.

Economic growth in the countries of southern Europe, with the exception of Portugal, recovered in 1969 from the 1968 slowdown. Here, too, an important factor was export growth, which sustained industrial expansion, but a significant contribution was also made by the recovery of agriculture over its virtual stagnation in 1968. In contrast, a decline in agriculture held back growth in Portugal.

Indicators for 1970 generally suggest some slowdown in overall economic growth in the region, though less than had been anticipated earlier. Factors contributing to the slowdown include pressure on productive capacity, including labour supply, reduced investment growth in some countries, and domestic policies to control the inflation evident in most countries, which will hold back the growth of private consumption. Overall, gross domestic product growth is anticipated to fall within the range of 5 to 6 percent in real terms, and to remain for most countries around the longer term trend level.

Agricultural production

Within the overall picture of stable agricultural output, there were widely varying results among individual countries (Table II-1). Substantial gains in production were recorded in Finland, Greece and Yugoslavia; at the other extreme there were sizable decreases in output in Norway, Portugal and Sweden.

The problem of the surplus production of key commodities — cereals, sugar and dairy products — persisted. The total output of cereals in the region increased slightly, with larger crops recorded in Austria, Greece and Yugoslavia. In the EEC countries production remained at about the 1968 level except for Belgium, where production dropped about 7 percent from 1968. The increase was, however, entirely accounted for by coarse grains, the output of which rose by 4 percent, reflecting larger harvests of maize and barley. The wheat crop fell by some 3 percent in EEC, and more sharply in Portugal and especially Spain, though the quality was better on the average, with hard wheat production increasing and soft wheat production declining.

The total production of sugar beet in the region remained at about the 1968 level, but the favourable autumn weather resulted in a high sugar content, and sugar production rose by about 8 percent. Particularly large increases were recorded in the Benelux countries, France, Greece and Yugoslavia, which were only partially offset by declines in some northern countries.

For the other important crops — potatoes, fruit and vegetables — production fell, or increased only moderately. In northwestern countries the potato crop fell substantially, particularly in Austria and the Federal Republic of Germany, mainly due to the low profitability of potato cultivation in recent years. In the EEC countries production declined by 12 percent to its lowest level in 20 years, resulting in record price levels.

Fresh fruit production rose only fractionally in EEC, while in southern Europe the citrus harvest

TABLE II-1. - WESTERN EUROPE : INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
	1952-56 average = 100					Percent		1952-56 average = 100
EEC	128	129	141	145	145	—	2.8	126
Belgium-Luxembourg	111	106	127	130	129	— 1	1.9	118
France	140	135	149	155	151	— 3	3.5	130
Germany, Fed. Rep. of	118	127	140	145	145	—	2.6	123
Italy	126	130	135	132	137	+ 4	2.2	124
Netherlands	120	123	134	141	146	+ 4	2.6	121
OTHER WESTERN EUROPE	132	138	143	145	147	+ 1	2.8	131
Austria	123	134	145	148	151	+ 2	2.4	142
Denmark	123	120	122	127	122	— 4	1.3	109
Finland	140	132	142	144	156	+ 8	3.0	139
Greece	164	171	175	163	176	+ 8	3.6	157
Iceland	142	147	148	138	146	+ 6	1.4	111
Ireland	115	122	136	138	135	— 2	2.1	136
Malta	112	119	135	160	164	+ 2	3.0	160
Norway	103	99	103	117	111	— 5	0.3	98
Portugal	123	110	124	122	111	— 9	1.5	100
Spain	133	146	145	159	161	+ 1	3.6	141
Sweden	103	94	108	112	96	— 14	0.7	87
Switzerland	109	114	122	126	127	+ 1	1.6	101
United Kingdom	143	146	149	146	149	+ 2	3.2	136
Yugoslavia	147	184	181	177	196	+ 11	3.9	166
REGION	130	133	142	145	146	—	2.8	128

[1] Preliminary estimates.

was generally better than in 1968. Vegetable output increased moderately. Wine production decreased by about 3 percent, with large declines in France (20 percent), which accounts for 30 percent of the total, and Portugal. Production rose, however, in Italy and Spain, quality is generally considered to be good, and prices have tended to be high.

The dairy surplus situation did not change much in 1969. The rate of increase of the dairy herd slowed down, mainly due to unfavourable weather in 1969, following the poor pasture conditions of 1968, and to a limited extent also because of government programmes to reduce the output of milk and to increase that of meat, as discussed below. Milk production therefore decreased marginally. Butter production also declined somewhat, particularly in the EEC countries, reflecting increased consumption of liquid milk and cheese. In the Netherlands, the output was down by as much as 6 percent. This, combined with higher consumption, encouraged by subsidies, and larger net exports, resulted in a fall in butter stocks during the latter half of 1969. The end-of-year stocks in EEC were, at 340 000 tons, the same as a year earlier, but 140 000 tons more than at the end of 1967. The recent upward trend in skim milk powder production was sharply reversed in 1969, due to a higher demand for liquid milk and greater feed use, partly encouraged by price policies, and also the resurgence of cheese production in many countries. But as net exports were steeply cut back, stocks in the EEC countries continued to grow, reaching 390 000 tons by the end of the year, compared with 310 000 tons a year earlier. With the return of better weather the growth of milk production was, moreover, expected to be resumed again in 1970, in view of the rising trend of yields, and the limited number of dairy cows so far affected by the slaughter premiums.

The production of meat increased only fractionally in 1969. Output of poultry meat continued to increase (though more slowly than in recent years), but this was largely offset by reductions in output of pigmeat, mutton and lamb, while beef production remained unchanged. In most countries the overall position was about the same as in 1968, with the exception of France, where total meat production fell by 3 percent, and Spain where it was 6 percent higher. The effects of the measures taken in several countries to encourage beef at the expense of dairy production have not yet been reflected in a higher level of meat output. In 1969, in fact, beef production in EEC did not expand because output in France declined, as it did in the United Kingdom.

The most notable increases in pigmeat production took place in the United Kindgom, Portugal and Spain, but output in Denmark fell as did that in EEC. The production of poultry meat expanded by 4 percent, with the most growth in the Netherlands, Spain and the United Kingdom, but the increase remained far below that prevailing during the late 1950s and early 1960s.

The first estimates for 1970 suggest another year of stable overall output. Among the major producing countries little or no increase is estimated to have taken place in Denmark, France, the Federal Republic of Germany, Italy and Spain. In the Netherlands, production rose again substantially, and in Sweden it showed a partial recovery following the steep reduction in 1969. Output in Finland continued to rise, although less rapidly than the year before. The largest decrease, possibly by some 10 percent, is estimated to have taken place in Yugoslavia, from the high record level reached the year before.

Among the principal commodities, the production of wheat is estimated to have declined by some 5 percent, the second successive decrease. There were particularly large decreases in France, Spain and Yugoslavia, but the crop was also smaller in the Federal Republic of Germany, while in the United Kingdom it was up by nearly a fifth. The production of feed grains fell also; maize production was up again, by some 4 percent, with large increases in France and Italy more than offsetting smaller crops in Yugoslavia and Spain; but barley production fell by some 7 percent, with smaller crops in France, Germany, Spain and the United Kingdom. Rice production remained unchanged at the 1969 level, reflecting mainly the stable output in Italy.

Among other major products, there were fractional decreases in the harvest of sugar beets, mainly reflecting smaller crops in France and Belgium, and in the production of milk, again particularly in France and to a lesser extent in Denmark and Finland. Milk output in most other countries increased somewhat. The potato crop showed only a partial recovery from last year's poor results; in particular, both the French and German crops remained virtually unchanged at the 1969 level. The production of olive oil is estimated to have risen by nearly 10 percent, thus more than recovering the previous year's slight setback, despite a smaller output in Italy. Output of all major meats is estimated to have increased in 1970. Beef production, which in 1969 had remained unchanged, expanded in all principal producing countries except France, and the total for the region is estimated to have increased by about 5 percent. Poultry production showed a similar and widespread increase, and that of pigmeat is estimated to have risen by some 2 percent.

Fishery production

With the exception of Iceland and the United Kingdom, the countries of western Europe caught less fish in 1969 and total production was down by about 7 percent.

Improvements in the fisheries for groundfish, shrimp and other high-priced products boosted the value of the Icelandic catch by nearly one quarter. Herring landings, on the other land, continued to decline and the fish-meal industry experienced serious supply problems which were only partially solved by increased landings of capelin. The scarcity of herring encouraged a shift in its utilization from a raw material for the reduction industry to salting or sale as fresh herring. The United Kingdom was able to catch more herring and, together with slightly higher prices for cod, the principal product of the groundfish fishery, this largely accounted for the rise in the volume of the country's fish production.

The Norwegian fishery industry had a better year than in 1968, despite a 14 percent reduction in catch. The value increased; higher value varieties accounted for a larger proportion of the catch, prices of some species were up, and more fish were processed into more valuable products. Record mackerel and good capelin catches were, however, unable to compensate for a further drastic decline in that of herring, and fish-meal production was one fifth below the 1968 figure.

Similar developments took place in Denmark, where results in the herring fishery were disappointing and where there were also smaller catches of some species used primarily for human consumption.

The decrease in landings of the Spanish fishing fleet was attributed mainly to curtailment of freezer ship and cod fishing operations. Demand for cod and hake was weak, prompting some boats to fish for other species. These developments notwithstanding, the total catch value was slightly up because of larger landings of higher priced products by the coastal and near water fleets. Among processed products there was a drop in the output of salted and canned products.

Portugal experienced a reduction in both the volume and value of its catches, which have been adversely affected by the scarcity of sardines off the western coast of the Iberian peninsula. To ensure adequate supplies for the canning industry, Portugal is trying to charter freezer trawlers from Spain for fishing in more distant waters. Rising prices and costs are also affecting the sardine industry by reducing its competitive strength in international markets.

In the EEC countries fish production on the whole changed very little from the preceding year. Landings were slightly lower but higher prices for many products kept catch values up. In France larger production and higher prices of shellfish made up for the reduced production of salted and frozen cod. The economic situation of the fishery industry of the Federal Republic of Germany continued to improve as the result of structural changes and rationalization of operations, although volume and value

of landings were below 1968 levels. In the Netherlands a moderate increase in catch value was due primarily to higher prices.

Forest production

The strong growth in overall economic activity in western Europe in 1969 was accompanied by a marked upturn in industrial roundwood removals and a further expansion in the output of forest products, as well as by a rising trend in prices. Record levels of production were attained for all the main forest products, with rates of growth above the long-term average in the output of sawn softwood (5 percent), wood particle board (22 percent), wood pulp (8 percent), newsprint (7 percent), and other paper and paperboard (10 percent). The upward trend of sawn softwood production since 1966 lends support to the findings of a recent study [1] that western Europe's forests could provide appreciably greater volumes of coniferous sawlog-sized timber than previously estimated, which could be sufficient to produce a major part of the region's steadily rising requirements of sawn softwood.

The increasing importance of particle board in the forest products market is seen from the fact that it accounted for more than 56 percent of western Europe's production of plywood, fibreboard and particle board combined in 1969, compared with 52 percent in 1968 and less than 42 percent in 1965. The expansion in production of all three types between 1967 and 1969 brought an improvement in capacity operating ratios.

Production capacity for wood pulp in western Europe was heavily utilized, especially for certain grades of chemical pulp, almost throughout 1969. Nevertheless, production could barely keep pace with demand, and producers' stocks were reduced during the year. Wood-pulp production in Scandinavia rose more slowly than paper and paperboard output, with the result that the pulp for export, even though continuing to rise, accounted for a smaller proportion of output in 1969 than in 1968. Prices for chemical pulp were very firm in 1969 and in the first half of 1970, and this led to a marked upturn in prices for paper and paperboard after a period during which the latter had been relatively stable.

Trade in agricultural, fishery and forest products

In an acceleration of tendencies which have been evident for several years, and in considerable contrast to most other regions, the combined value of agricultural, fishery and forest exports of western European countries showed a further rapid increase in 1969 (Table II-2). The increase in the value of agricultural exports, preliminarily estimated at 15

[1] FAO, *European timber trends and prospects, 1950 to 1980. An interim review*. Suppl. 7 to Vol. XXI of the FAO/ECE *Timber bulletin for Europe, 1969*.

TABLE II-2. – WESTERN EUROPE: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969[1]	Change 1968 to 1969
	Percent	*1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	65	163	168	182	190	219	+ 15
Food and feedstuffs	57	169	172	188	197	229	+ 16
Cereals	(12)	241	256	277	317	384	+ 21
Fruit	(5)	149	162	164	157	176	+ 12
Meat	(16)	212	228	249	257	290	+ 13
Dairy products	(12)	142	149	161	169	184	+ 9
Beverages and tobacco	6	150	162	180	177	194	+ 10
Tobacco	(1)	136	133	151	121	120	— 1
Wine	(5)	158	179	198	209	237	+ 13
Raw materials	2	102	109	100	102	101	— 2
FISHERY PRODUCTS	8	170	179	176	172	194	+ 13
FOREST PRODUCTS	27	146	147	147	157	177	+ 13
Agricultural, fishery and forest products	100	158	162	171	178	203	+ 14

[1] Preliminary estimates.

percent, appears to reflect both a larger volume of trade (up by 5 percent) and higher average export unit values for the great majority of commodities exported. Particularly large increases in unit values were registered not only for most meats, which account for nearly a quarter of the region's agricultural exports, and the prices of which show a longer term rising trend, but also for wheat and maize. The principal exceptions to this rising tendency were barley, oranges and condensed milk, whose unit values showed little change, and oats, rice and eggs, where there were declines of 4 to 10 percent.

It should be noted, however, that since a large part of the expansion of the region's exports relates, as discussed below, to the growing intra-EEC trade, which for many commodities is valued at the relatively high "internal" prices of the Community, the trade indices for western Europe are no longer strictly comparable with those for other regions. For example, the fact that much expanded quantities of wheat were moved in 1969 between EEC countries at high internal prices resulted in an increase in the regional average export unit value, although the general price level for wheat in international trade was lower than in 1968. The increasing importance of intra-EEC trade, and the virtual completion of the Common Agricultural Policy of the Community, also mean that the trade flow relevant for analytical purposes is increasingly becoming the trade between the Community as a whole and third countries, rather than the trade of its individual member countries. Up-to-date figures of this nature are for the moment not readily available, and efforts will need to be made to construct them in the future so as to make possible a more meaningful analysis of the region's agricultural trade in a world context.

With these reservations in mind, the largest value increase among individual commodities was shown by cereal exports at 21 percent. For wheat the value was up by nearly 47 percent, reflecting the factors just discussed. The large volume of exports was a result of both larger shipments of wheat for feed use (exports to eastern Europe were substantial) and bigger intra-EEC movements at least partly associated with the anticipated change in the par value of the Deutsche Mark. The greatest increases were in shipments from France, Belgium and the Netherlands. Following a 6 percent fall in 1968 the value of maize exports rose again, this time by about 40 percent, as all major exporters in the region (France, Belgium, Luxembourg and the Netherlands) shipped larger quantities and as the average unit value rose by 9 percent. Barley exports, particularly from the United Kingdom, fell back slightly, and a steeper reduction, by around 30 percent in both volume and value, took place for rice exports from France, Italy and Spain.

With both larger quantities exported and generally higher prices, the value of fruit exports from Italy, Spain and France was substantially higher. Meat exports were also larger in value. Most of the 10 percent increase in the value of pigmeat exports was in slaughter pigs and pigmeat from the Netherlands to France, where the pig cycle was at its low phase. Denmark, which had cut back its production after several years of marketing difficulties, could not take advantage of the improved situation, and its exports fell. In the case of beef, the 8 percent increase was due entirely to higher prices since the volume of trade showed no change despite increases in exports from Sweden and the Netherlands. Increased intratrade within the EEC accounted for most of the 13 percent increase in poultry trade; the net imports from outside the Community actually fell. Among dairy products, the increase was due principally to the higher value of exports of cheese and eggs. In the first case there was a considerable increase in intra-EEC trade, and although this was quantitatively offset by reduced shipments from Denmark to both EEC and the United Kingdom, prices were higher. For eggs, on the other hand, the increase was entirely due to a higher volume, as the unit value of exports fell back.

The imports of agricultural products have for some years shown a less rapidly rising trend than exports, though in 1969 the increase was about equal in volume terms (Table II-3). Given the importance of intratrade within the region, most of the changes in 1969 just described were also reflected on the import side, including the large increases in imports of wheat and some meats. Other factors boosting imports in 1969 include the recovery in beef and veal imports both into the United Kingdom, which had banned imports from areas with foot-and-mouth disease for part of 1968, and EEC, which in 1968 had maintained very high levies on imports from third countries. Contributing to the recovery was also a reduction in beef production which coincided with larger export availabilities from the Southern Hemisphere. In contrast to exports, the imports of coarse grains were down, reflecting large domestic wheat crops and consequently increased feed use, as is the case, for example, in the Federal Republic of Germany.

Among nonfood products, coffee imports rose by 6 percent and stocks in a number of countries were enlarged. Tobacco imports recovered after the reduced volume in 1968, but United Kingdom tea imports fell to their lowest level since 1961, following a heavy accumulation of stocks. A very large increase, of 12 percent, was registered for natural rubber for the second year in succession, with imports of the Federal Republic of Germany and France up by about one quarter, and reflecting the rapid

TABLE II-3. – WESTERN EUROPE: INDICES OF THE VOLUME OF IMPORTS OF AGRICULTURAL PRODUCTS

	Share of total agricultural imports in 1969	1965	1966	1967	1968	1969[1]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	100	122	127	126	128	133	+ 4
Food and feedstuffs	62	133	138	138	139	145	+ 5
Cereals	(14)	134	142	133	128	129	+ 1
Fruit	(8)	143	146	144	143	150	+ 5
Oils and oilseeds	(9)	122	136	138	140	145	+ 3
Meat	(11)	142	140	154	154	165	+ 8
Dairy products	(6)	113	115	117	124	126	+ 2
Beverages and tobacco	20	123	126	127	131	135	+ 4
Coffee	(9)	147	155	159	172	182	+ 6
Tobacco	(5)	130	128	138	132	141	+ 7
Raw materials	18	97	102	96	99	103	+ 3
Wool	(7)	95	94	87	95	99	+ 4
Cotton	(6)	91	102	96	92	93	+ 1
Rubber	(3)	116	116	116	125	140	+ 12

[1] Preliminary estimates.

growth of industrial production. Cotton imports recovered slightly from the relatively low level of 1968. This is in keeping with the greater use of synthetic fibres and the gradual long-term shift to imports of textiles and ready-made goods, rather than raw materials.

The broad movements in the region's agricultural trade in 1969 were well in line with the trends that have been observed for some time, in particular a rapid growth in exports based to a large extent on expanding trade within the region, and a relatively much more sluggish growth in imports. Already in 1960-62, 67 percent of the region's agricultural exports, in terms of value, were destined for other western European countries, and by 1968 this share had risen to 74 percent. The share of intratrade in imports is less, since the region as a whole is a large net importer of agricultural products, but it increased even more steeply during the same period, from 36 percent to 45 percent. The effect of the gradual implementation of the EEC Common Agricultural Policy is evident in the particularly rapid expansion of intratrade within the Community, which in 1968 accounted for 28 percent of imports and 45 percent of exports, compared with 18 and 38 percent respectively in 1960-62.

The impact of this increase in intratrade on the world markets has been heightened by the relative stagnancy of the region's total agricultural imports in recent years. Between 1966 and 1968 the total value of the region's agricultural imports from outside actually fell by some $170 million (to $20 445 million) while the imports from other countries in the region continued to increase by a total of nearly $1 000 million.

These trends are a reflection of two broad tendencies. Aside from the sluggish growth of total demand for many products, the overall growth of imports has been influenced by the tendency in the majority of countries in the region — with the principal exception of some southern European countries and Sweden — to produce an increasing portion of their agricultural supplies. In the United Kingdom, whose agricultural imports decreased between 1964 and 1968, this has been the announced policy in recent years. The aim is a selective expansion of production and the self-sufficiency ratio in the United Kingdom is higher today than at the end of the 1950s for most major products, with the main exception of fresh vegetables and fruit, and fats and oils. A similar tendency was already evident within EEC in the early 1960s, and it has accelerated in the last few years as the Common Agricultural Policy has gradually been finalized. The fastest increase in agricultural imports has been into the countries of southern Europe, where the agricultural sector has had difficulty in keeping up with rapidly growing demand. In the overall picture, however, these countries are of relatively less importance — they account for only some 6 to 7 percent of the total for the region. And even they are now making determined efforts to accelerate the growth of their domestic agricultural output.

The main implication of these trends has for long been known: limited prospects for third party exporters of most staple commodities, with few ex-

ceptions such as hard wheat, feed grains and beef. This trend may be further accentuated if the negotiations about to be started lead to an enlargement of EEC, since some of the candidate countries are more efficient producers than certain of the present members. On the other hand, the rapidly rising demand for highly differentiated and sophisticated processed products offers potential export opportunities for countries, both inside and outside the region, which are capable of taking advantage of this demand.

The 13 percent increase in the value of fishery exports was mainly the result of higher prices for most commodities. Exports from Norway, Europe's leading fishing country, increased both in volume and value (the latter by over 7 percent), primarily because of a very substantial boost in shipments of frozen fish fillets. Denmark shipped less (in part because of a voluntary agreement entered into by Canada, Denmark, Norway and Iceland to maintain minimum prices for frozen cod block exports to the United States) but the total value of the country's exports was nevertheless higher. Iceland's earnings from fisheries exports were also greater, with both higher prices and, assisted by devaluation in late 1968, a larger volume of exports of most items. The major exception was the stockfish trade which remained stagnant as a result of the loss of the Nigerian market.

Another country which succeeded in boosting the volume and value of its fishery exports was Spain, despite a smaller total output. The largest gains were achieved by exports of canned products and salted fish, but also exports of frozen fish were significantly higher. In contrast, exports of the Portuguese canned fish industry, which was adversely affected by the sardine raw material shortage, was one fifth down from 1968.

The United Kingdom and the EEC countries, which — with the exception of the Netherlands — have an import balance in their trade in fishery products, imported about the same or slightly reduced quantities of fish. The import value, however, was up in all instances, because of higher prices.

Both exports and imports of forest products increased quite rapidly in 1969, although for most categories this reflected an expansion of trade within the region. There were, nevertheless, some striking changes in the general pattern of trade.

A notable feature was the contrast between the strong increase in the imports of most of the region, and the sharp decline in the imports of sawnwood and panel products into the United Kingdom, where credit restrictions and high interest rates brought about a steep fall in dwelling construction. In the case of sawn softwood, the region's total imports were barely higher in 1969 than 1968. Its exports, however, rose by 8 percent to a record level and net imports, which reached a peak in 1965, declined to the lowest level since 1962.

There were particularly striking increases in imports (except to the United Kingdom) of hardwood logs, chiefly from west Africa but also from the Philippines and Indonesia; of sawn hardwood, notably from Malaysia and Singapore; and of plywood, partly owing to higher intra-EEC trade but also because of increased imports from Finland and the United States.

The strong demand for chemical pulp in western European importing countries led to a further considerable increase in the region's net imports. These amounted to 1.4 million tons in 1969 compared with only 250 000 tons as recently as 1965. The region became increasingly dependent on North America for its additional supplies, despite an increase in production and trade of pulpwood within the region.

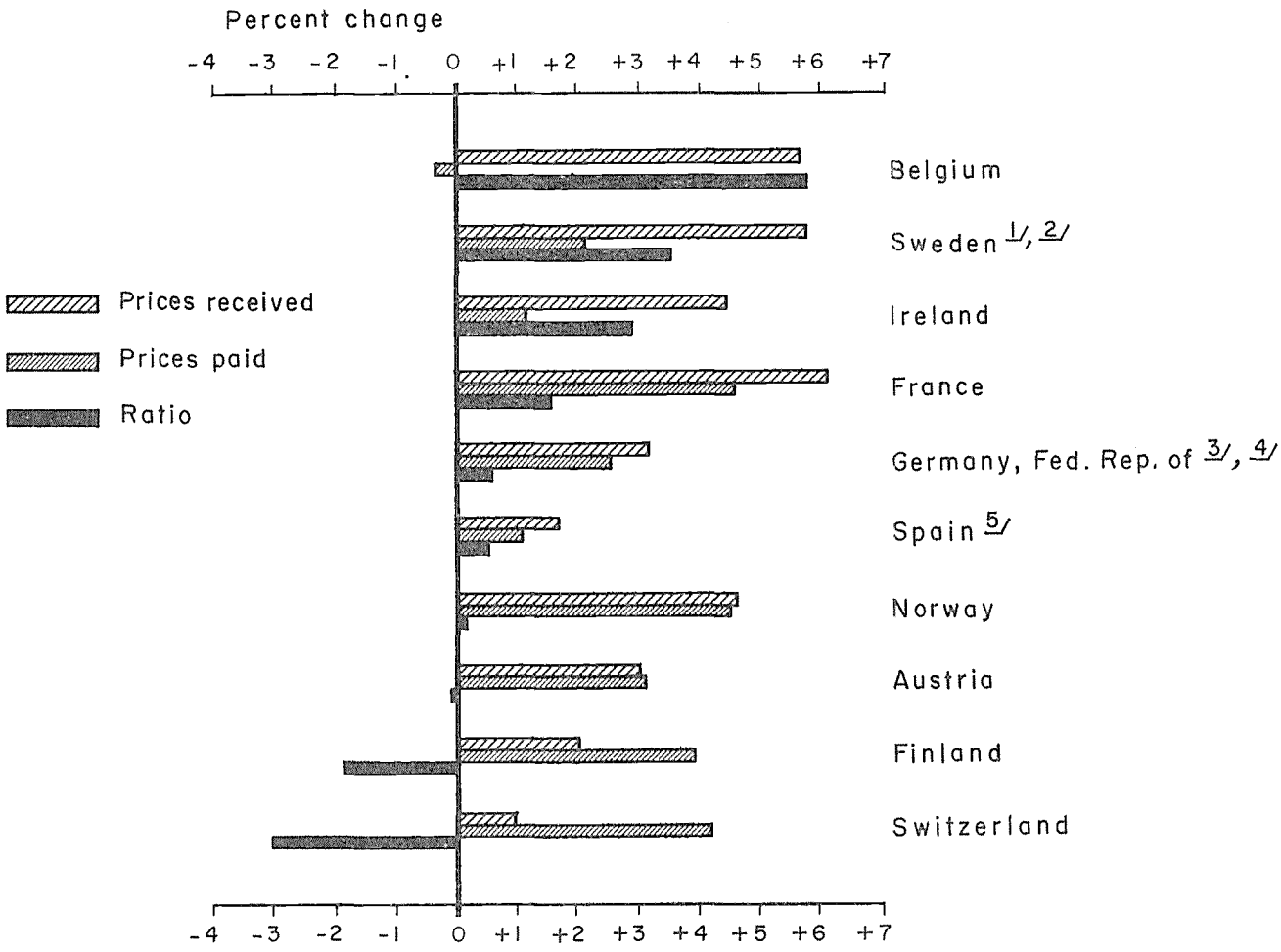
Prices and agricultural incomes

The movements of the principal price indicators related to the food and agricultural situation reflected the generally more pronounced inflationary tendencies in the region. The increase in retail prices of food accelerated in all countries except Denmark, Finland and Spain. Both the prices received and prices paid by farmers were higher in 1969 in all the countries for which such indices are calculated (Figure II-1), and particularly the prices received tended to rise at a faster rate than in 1968, the only exceptions being Finland, Ireland and Spain.

In marked contrast to previous years, when increases in food prices tended to slow down and invariably to be less than those in the overall cost of living index, food prices in 1969 rose rapidly in many countries (Austria, Belgium, Greece, Norway, Sweden, the United Kingdom and Yugoslavia), and in most cases faster than in the cost of living index as a whole.

Evidence available does not suggest that any generalized factors were responsible for this shift. A longer term market factor was the widespread increase in prices of all types of meat except poultry. Short-term market factors include the higher prices of potatoes, following the small crop in a number of countries, and also of vegetables and fruit in several countries. Other price changes were due to government policy measures, such as the introduction of a value-added tax in the Netherlands and Norway. In both countries price controls were introduced subsequently in the course of the year or in early 1970. In the United Kingdom, too, tax increases were largely responsible for a steep rise in consumer food prices. In France the price increase reflected

FIGURE II-1. – WESTERN EUROPE: CHANGES IN INDICES OF PRICES RECEIVED AND PAID BY FARMERS AND THE RATIO BETWEEN THE TWO INDICES (1968 TO 1969)



[1] September-August. – [2] September-January only. – [3] July-June. – [4] July-March only. – [5] February-January.

the higher value-added tax at the end of 1968, pressures arising from the devaluation, and the first postdevaluation adjustment in food prices to the level prevailing in the rest of EEC. In the Federal Republic of Germany the increase in food prices, at less than 3 percent, was lower than elsewhere in the region, though higher than during the past few years. In 1970 prices of products subject to the common agricultural policy were reduced by the amount of the revaluation of the Deutsche Mark. The consumer price of butter was reduced in several countries in an effort to reduce surplus stocks. The stability of food prices in Finland was a reflection of the successful stabilization policies implemented in the country following devaluation in 1967.

More often than not, changes in domestic prices in 1969 tended to favour farmers: among the ten countries for which comparable indices are calculated, there were only three in which prices paid by farmers increased more than prices received and, even then, only by a narrow margin. Aside from the general inflationary trends affecting the prices of inputs, the principal cause of the rise in the index of prices paid was the increase in labour costs.

Reflecting to a large extent the above price movements, net farm incomes were generally higher in western Europe in 1969; and because of the continued decline in the number of persons employed in agriculture, the increase in per caput income was even greater. In Italy the increase is estimated at 3 percent, despite a sharp (8 percent) increase in labour costs. In France the gross product of the sector increased by 6 percent in current prices, but by only 1 percent in real terms. Elsewhere in western Europe net income is reported to have increased by about 8 percent in Greece and by 11 percent in the United Kingdom in 1969/70. In the Federal Republic of Germany losses of revenue from revaluation are being compensated from January 1970 by subsidies and adjustments of the value-added tax system, and this should ensure an increase in net farm income for the 1969/70 season. Declines

are reported in Switzerland and Finland as a result of higher costs of production, although price increases in Finland for beef, pork, milk, eggs and rye, which took effect as of April 1970, should raise incomes during the current year.

Developments in current agricultural policies

A principal short-term goal of agricultural policy remained the alteration of the balance of production between commodities in surplus — wheat, sugar and dairy products — and those for which demand is tending to outrun supply — beef and feed grains. The main instrument of policy has been the adjustment of the relative levels of price guarantees and subsidies. In Norway, for example, the guaranteed price for milk in 1969 was raised less than prices for other agricultural products. In Switzerland milk subsidies were reduced as of 1 November 1969, and producers were required to use excess production in the form of whole milk powder for animal feed. At the same time, subsidies were introduced to encourage the slaughter of dairy cows. In Austria the slaughter of female calves and the fattening of male calves are being encouraged, while in Finland a premium will be paid to farmers agreeing to slaughter milk cows and to cease milk production for a period of three years. Among EEC countries, France has prepared a plan, as part of the 1970 budget, to provide considerably increased credits to stimulate all forms of meat production. As a corollary there should be some curtailment of milk output.

The United Kingdom continued action to reduce the share of imports in total consumption, and to stabilize the domestic market for dairy products, eggs and pork products. Import quotas for butter were reduced and temporary quotas imposed on cheese imports. The bacon import quota system was revised to the disadvantage of foreign sources. Action under consideration includes drastic changes in egg marketing procedures, under which production subsidies would be progressively reduced until eliminated by 1974.

In order to change the composition of cereal production the prices of coarse grains were increased in 1969 in Austria, while guarantees applying to soft wheats were reduced. At the same time, direct attempts are also being made to encourage the use of soft wheat in animal feed. In Finland price guarantees for wheat were reduced as of 1 September 1969 and, as will be outlined below, a new system of production control through the variation of the area under crops has been introduced.

Little national action has been taken so far to deal with sugar, the third main problem commodity of the region. A notable exception is Denmark where a new programme, beginning 1 May 1970 and effective until the 1979/80 crop year, is designed to gradually adapt production to demand through the reduction of quotas to which guaranteed prices apply.

In EEC, the Commission has proposed a reduction in the intervention prices for dairy products, which hitherto have enjoyed particularly favourable relative prices. The intervention price for butter would under this plan fall from 173.5 to 142.25 units of account per 100 kilogrammes. This, the Commission expects, would increase annual consumption by about 100 000 tons. In partial compensation, the intervention price for skim milk powder would be raised from 41.25 to 50.75 units of account per 100 kilogrammes, and subsidies for the use of skim milk powder for calf feeding would be raised from 33 to 36 units of account per 100 kilogrammes.

For 1970/71, the 1969/70 prices will be continued unchanged. A regulation has however been adopted which is aimed at reducing the dairy herd by means of two types of subsidy, the cost being shared equally between the Agricultural Guidance and Guarantee Fund and national budgets. First, farmers with at least two cows, who agreed to slaughter all their cows by 30 April 1970 and to cease milk production completely for not less than five years, are to receive a premium of 200 units of account per cow for the first 10 cows taken out of production, and 130 units of account thereafter. Secondly, farmers with 10 or more cows who agree not to sell milk for five years can receive a premium of 200 units of account per cow, without limit and without the requirement that the cows be slaughtered. The two schemes were intended to cover a maximum of 500 000 cows (2 percent of the total).

In order to reverse the current rising trend of wheat production in the face of decreasing human consumption and a rising demand for animal feed — the latter at a rate of some 2 million tons per year — the EEC Commission has proposed to reduce the price of soft wheat and rye relative to barley, and to increase the price of maize. Hard wheat prices would be left unchanged. Further, due to the emergence of imbalances in some regions under the current system of regionalized intervention prices, it is now proposed to unify intervention prices.

As for sugar, the Commission has recommended that the quantity enjoying maximum guaranteed prices be reduced from 105 percent of estimated human consumption to 100 percent in the 1970/71 crop year. It is also proposed that the cost of sugar support, through the Agricultural Guidance and Guarantee Fund, be entirely covered by producers by means of a supplementary tax equivalent to a maximum of 1 unit of account per ton of sugar beet.

EEC COMMON AGRICULTURAL POLICY

A number of essential decisions for the common agricultural and economic policy of EEC were taken at a conference of the heads of state of the member governments in December 1969. Among the principal decisions were the establishment of definite financial regulations for agriculture, including machinery for adapting them to the requirements of an enlarged common market; and the adoption of principles for closer control over markets for agricultural products within the Community, so as to facilitate the planning of production and in order to minimize budgetary charges arising from production imbalances.

The most important decision regarding financial arrangements was postponement of the complete budgetary autonomy of the Community which is now to be implemented over a five-year period. In 1970 the distribution of charges among members is to remain virtually as before, with 90 percent of the import levies reverting to the common fund. From 1971 to 1974 all agricultural levies and a gradually increasing proportion of the customs duties will go into the common budget. The difference between these and the total budget will be made up from national contributions. Finally, from 1975 onward the common fund will become completely independent of national budgets. The common expenses of the Community will be covered by its own resources, composed of all agricultural levies, that part of customs duties accruing to the common fund, and a part of the value-added tax to a maximum of 1 percent, which by that time will be applied in the Community at a common rate.

Some important progress has also been made in common market arrangements for wine, tobacco, fruit and vegetables. Thus basic regulations for the market control of wine were adopted at the end of April 1970, after a number of years of study and negotiation. Under the agreement, effective from 1 June 1970, trade in table wines within the Community will move freely.[a] The planting of vines is to be freely allowed as in Italy, representing a drastic change in France where the right to plant has been strictly regulated. Prices will be supported according to a system similar to that now in force in France, involving an annually determined orientation price and a threshold price at which intervention will begin. A regular forecast of the market situation will be made, and should the system of unregulated planting appear to be leading to a chronic surplus situation, measures will be taken to control new plantings.

[a] France will, however, be allowed to take measures to limit the imports of Italian wine until the end of 1971, should such imports reach excessive levels.

The common market for wine is to be protected against imports from third countries by prohibiting the mixing of it with imported wines and by applying the common tariff and compensation duties should import prices fall below the reference prices. The protective regulations will not fully apply to associated countries or to Algeria.

Although there are only two tobacco-growing EEC countries, Italy and France, their production is subject to very different regulations. France regulates planting and has a system of guaranteed prices whereas production is uncontrolled in Italy, but in both countries marketing is under state monopolies. Because of the complexity of the situation, a common market for tobacco is to be created in stages.

In February 1970, regulations were adopted abolishing production quotas and providing for an orientation and intervention price each season for the principal tobacco varieties. Marketing will be by means of contracts between producers and processors at prices negotiated at a level somewhere between the target and intervention prices. Processors giving preference to EEC tobacco will receive a subsidy from the Agricultural Guidance and Guarantee Fund to cover the difference between the prices of tobacco in the world markets and Community prices. Although excess production is not anticipated, machinery has been created to prevent its emergence; it includes a reduction in the guaranteed price for the affected variety, an eventual halt of support purchases and, if total tobacco supply exceeds demand, a reduction in the intervention price and in processors' subsidies. Italy and France will be required gradually to relinquish state monopoly rights over tobacco marketing, which will be completely abolished by 1 January 1976. Finally, a common tax system for tobacco will be introduced by 1980.

POLICIES FOR STRUCTURAL REFORM

The rapid increase in the cost of farm income support, together with problems arising from the renewed accumulation of surpluses and the realization that present policies are not solving the income problems of small farmers, continue to result in added emphasis on structural reform everywhere in the region. Stress is increasingly placed on the restructuring of farms to create more viable production units in which modern farming methods can be applied to advantage, so that farm income can be raised more through the reduction of production costs and less through the use of price policy.

Recent policy measures have put emphasis on the consolidation of farm holdings to create larger production units, either through an increase in the

size of individual farms or through the organization of producers into cooperative groups. The means adopted include selective credit systems, direct financial assistance for farm purchase, tax relief, and financial assistance to small farmers willing to sell their holdings.

In France an important policy under the sixth plan is the limitation of government aid only to organized producers, that is, those producing within the framework of producers' organizations or under contract to private firms or cooperatives. In 1969 the indemnities paid to farmers willing to leave the land were increased and easier credit terms were offered to young farmers for the expansion of their holdings. For 1970 budgetary provisions for improvements in depressed rural areas were to be increased by about half, relative to 1969.

In the Federal Republic of Germany structural assistance is being reserved for farms which are basically profitable or which can be developed into more commercially viable units. Assistance takes the form of interest rebates on loans for expansion and improvement, and is also available to part-time farmers who undertake to join producer groups. New measures were adopted in 1969 to increase pensions to elderly farmers, and also to make payments to those farmers willing to sell or lease their land for the creation of larger farms. In problem areas, agriculture is to be developed in the broader context of regional improvement plans, which include measures for land consolidation, road building and water supply, together with nonfarm rural development.

In Italy a bill to replace the 1968 law for the improvement of agriculture in mountain zones is now under discussion. If passed, it would view rural development on an integrated basis, providing some 180 000 million lire for the financing of a comprehensive programme including the creation of combined crop-forest-livestock farms, pasture improvement, the grouping of small livestock units, the expropriation and protection of forest areas, reforestation and soil conservation, improvement of water supplies, electrification, and road construction.

In Austria new legislation has been passed to improve measures for land consolidation to create larger holdings, and a bill with similar aims is under consideration in the United Kingdom as part of an overall plan to raise farm productivity. Structural measures in the Netherlands have concentrated on further land reclamation through the construction of new sea dikes.

In Finland unique measures (for Europe) have been passed to provide some flexibility in the use of land under crops. A soil bank system has been established under which certain classes of land can be withdrawn from production for a period of three years. The system not only gives some control over total land in production, but provides a means whereby the area under individual crops can be varied.

The structural policy proposals of EEC for the reorganization of agriculture within the Community, aimed at turning farming into a viable industry and eliminating surpluses, continue to be associated with the name of Dr Mansholt, the commissioner responsible for agriculture. Following on the original Mansholt Plan, described in *The state of food and agriculture 1969*, a new version was presented in May 1970. It includes a number of new features or changes in emphasis, and may thus be considered more than mere updating.

The use of prices as the main policy instrument is retained, but a distinction has been drawn between "social wages," which should be paid to guarantee a livelihood to small farmers, and market prices which are intended for efficient agricultural producers. The new plan admits that a system of absolute guarantees to purchase cannot be maintained in the long run, but it continues to oppose the introduction of production quotas. While maintaining that centralized decision making is necessary for price policies, the new plan recognizes the need for maximum decentralization in planning for structural changes, which must vary with local conditions. The Council of Ministers will accordingly be asked to adopt a plan which is binding as to the ends, but which leaves governments free to choose the means.

The new proposals no longer specify "modern production units" and "modern agricultural enterprises" as the forms of future holdings, but simply aim at the creation of farms which can be developed into rational production units. Structural changes in the tenure system would be financed by credit, rather than through direct payments, except where special pensions are provided to farmers 55 years and older who are willing to leave the land.

Other related proposals of the EEC Commission include measures to limit the cost of market support, provided for in the guarantee section of the European Agricultural Guidance and Guarantee Fund. As the growth of these costs has shown no signs of levelling off, it has been decided that the Commission will present annual forecasts of expenses by sector for several years ahead. Should marked differences appear between the forecast and actual expenditures, alternative measures for attaining market equilibrium will be studied.

Revised plans for meeting Community expenses for structural reform have also been made. Until 1972 the current system, which limits total outlays to 285 million units of account, will remain in force. After 1972 that limit can be exceeded to finance suitable Community, but not national, projects.

Developments in the meat economy

BEEF AND VEAL

In the 1960s the consumption of beef and veal grew more rapidly than production in all of the region, except for the northwestern countries outside EEC. For the region as a whole consumption increased between 1960-61 and 1968 by 23 percent, compared with a 20 percent rise in output. In southern Europe the rise in consumption over the same period was almost 70 percent, in EEC 24 percent, and in other northwestern countries only some 6 percent. The very rapid increase in consumption in the EEC area is not, however, expected to be maintained in the 1970s.

In EEC countries, over the 1960-61 to 1968 period, the cattle herd increased by about 9 percent, reflecting to a large extent the high prices for milk and dairy products. Consequently, as discussed above, large dairy surpluses developed. The recent measures to limit these are slowly beginning to cause a reduction in cattle numbers. However, the prevailing type of mixed dairy/beef cattle, together with the high value of land and relatively small herds per production unit, make it difficult to build up beef production economically on the basis of purely beef cattle. Although in the longer term it is hoped to bring about an expansion of beef herds with the help of appropriate price policies, in the medium term increases in beef and veal production in much of the northwestern part of the region will depend largely on increasing the meat yield of animals. To this end, measures are being taken to reduce the slaughtering of sucking calves and increase the slaughter weight of animals, although consumer preferences for white meat may cause difficulties.

In southern Europe the demand for beef and veal will probably continue to grow faster than elsewhere in the region, reflecting a rapid increase in incomes per head and the low initial levels of consumption. Cattle numbers in the area have in the past increased at roughly the same rate as in the EEC countries. Since the supply of dairy products in southern Europe is not excessive to demand there is still room for an expansion of the dairy herd, although low productivity in the animal sector in general also calls for measures to raise productivity. In this area, unlike the rest of western Europe, it would seem that feeding and breeding methods still need to be studied before concrete measures for raising productivity can be worked out. In particular, it is necessary to decide whether the best results can be provided by a dual-purpose herd or a regional stratification of production leading to a clear division between purely dairy and purely beef stocks. Official price policies in southern European countries are not yet sufficiently well developed to influence production in a defined direction, and inadequate data on the structure and development of the livestock sector make it difficult to promote more sophisticated policies.

The lag of production behind consumption in western Europe as a whole has led to a rapid growth in the imports of beef and veal into the region, from 552 000 tons in 1961 to 1.2 million tons in 1969. The increase has been particularly rapid in the Federal Republic of Germany and Italy. A large portion of the additional trade has been within EEC, with France and the Netherlands as the main exporters, and Benelux, the Federal Republic of Germany and Italy as the main importers, but imports from outside the area have also risen, particularly to Italy. The prospects for the next 5 to 15 years are for a further increase in the net deficit. Imports into southern Europe are expected to increase particularly rapidly, and the Federal Republic of Germany, Italy and the United Kingdom are also expected to increase their net deficits.

PIGMEAT

The consumption of pigmeat in the region as a whole increased somewhat faster than that of beef and veal, namely by 27 percent between 1960-61 and 1968. The growth of production approximately kept pace with consumption, and varied but little as between the different parts of the region. On the demand side the growth was, as in the case of beef, faster in the southern European countries where total consumption rose during the period 1960-61 to 1968 by some 44 percent, followed by the EEC countries with 31 percent, and the northwestern European countries with about 15 percent.

The demand for pigmeat in western Europe is expected to continue to rise in the 1970s more rapidly than that for beef and veal, and it is thought that production will keep pace with demand. The strong growth in demand for pigmeat is partly related to the development of pigs with considerably less fat, and also to a continuing rise in productivity. There seems to be scope for further gains in meat yields in southern European countries, but elsewhere in the region the future expansion of production will probably depend more on increasing animal numbers. Implicit in these trends is a relative stability of trade in pigmeat, once the current shortages associated with pig cycles in certain countries are overcome, probably after 1971. In the longer run, the United Kingdom is expected to remain the only important deficit country for pigmeat in the region.

Two main questions arise in connexion with the future growth of European pig production. The first relates to the provenance of the additional supply of feed, which may either be imported or measures taken to stimulate domestic production. As discussed in other sections, the latter policy appears generally to have been given priority. Secondly, there is need to improve market information and organization, including vertical integration, to facilitate the adaptation of production to demand and to avoid the recurrence of subregional imbalances of a cyclical nature, such as the current pressures of demand on supply in France and the surpluses in Austria.

Mutton and lamb

After a period of stagnation in consumption between 1960-61 and 1963-65, the demand for mutton and lamb in western Europe as a whole subsequently rose by some 8 percent by 1968. The expansion of demand has been particularly pronounced in the EEC countries, where it has risen some 22 percent since 1960-61. The increase in southern Europe during the same period was about 13 percent, while that in other northwestern European countries was only 1 percent.

Production has lagged behind demand significantly, rising only about 4 percent in the region as a whole. No increase at all was registered in EEC, but in southern Europe output rose by about 9 percent and in the rest of northwestern Europe by 4 percent.

The demand for mutton and lamb is expected to go on rising in western Europe over the next decade. To meet the increase, policies need to give priority to measures aimed at changing the type of sheep raised to a primarily meat-producing animal, a process linked to the greater use of feed concentrates and fattening yards. In southern Europe incentives need to be given to replace goat herds with sheep, though to some extent this should occur automatically as rising demand increases the profitability of sheep farming. Nevertheless, the overall deficit for mutton and lamb is expected to grow, particularly in southern Europe and in EEC. The main importing countries in future are likely to be, aside from the United Kingdom (traditionally the major importer), France, Greece and Yugoslavia.

Eastern Europe and the U.S.S.R.

Although economic growth in the region is reported to have proceeded at a fairly rapid rate in 1969, some of the vigour of a year earlier was lost. With the exception of Poland, the growth rate of national income (net material product) exceeded 5 percent everywhere. Higher rates than in 1968 were witnessed in Bulgaria, Hungary and Romania, but there were declines in the growth rates of Czechoslovakia, Poland, the U.S.S.R. and, to a lesser degree, Eastern Germany.

To some extent the observed changes in the growth rates reflect the important role that agriculture still plays in the short-term fluctuations of aggregate output, particularly in the less industrialized countries of the region. The lower overall growth in the U.S.S.R., Poland and Eastern Germany in 1969 was a direct consequence of the poor performance of the farm sector, with a particularly strong impact in Poland where agriculture accounts for some 20 percent of the net material product. In Bulgaria, Hungary and Romania, where in 1969 the growth of national income accelerated, this was to a considerable extent due to the recovery of agricultural output from the drought-reduced levels of 1968.

Agricultural production

On the whole, 1969 was not favourable to agriculture in the region. Total output is estimated to have fallen by about 3 percent, compared with a 4 percent increase in 1968 (Table II-4). The southeastern countries fared better than in 1968 (Table II-5), when drought had affected the results, and

Table II-4. – Eastern Europe and the U.S.S.R.: Indices of agricultural production

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68
	... *1952-56 average = 100* ...					... *Percent* ...	
TOTAL							
All products . .	148	165	167	174	169	— 3	3.5
Food only . . .	149	167	168	176	171	— 3	3.5
PER CAPUT							
All products . .	127	141	141	145	140	— 4	2.2
Food only . . .	128	143	142	148	142	— 4	2.3

[1] Preliminary estimates.

Hungary in particular showed a very large increase in the crop sector. In most of the region, however, particularly in Poland and Eastern Germany, as well as in the larger part of the U.S.S.R., weather was bad. Crops and pastures suffered heavily from a dry and windy winter, spring frosts and a subsequent severe drought. Total output in the U.S.S.R. was smaller by some 4 percent and in Poland and Eastern Germany by 3 and 6 percent respectively. Production in Czechoslovakia remained virtually unchanged at the record level achieved in 1968.

In the U.S.S.R. output of cereals (including pulses) declined by about 5 percent to 161 million tons, thus virtually dooming the chances of the target under the current (1966-70) five-year plan being reached. There were increases in the harvests of maize and rice, but those of rye and particularly wheat suffered heavily, the latter falling by an estimated 12 percent. Ukraine and Byelorussia had good harvests, achieved in part by increases in the area at the expense of some other crops, but this could not offset losses incurred in other parts of the huge territory of the U.S.S.R. State collections of cereals fell even more, by nearly 20 percent, to 55.5 million tons. The sugar-beet crop was about 17 percent below the 1968 record level, and the lowest since 1963. Production of potatoes and sunflowerseed was reduced by 10 percent and 6 percent respectively. The cotton crop was smaller, and the output of vegetables fell for the second successive year.

TABLE II-5. – EASTERN EUROPE AND THE U.S.S.R.: ANNUAL CHANGE IN AGRICULTURAL PRODUCTION, 1955-69, AND 1970 TARGETS

	1955-59 to 1960-64	1965	1966	1967	1968	1969 [1]	1970 target
	..... Percent						
ALBANIA							
Total	...	— 4.0	12.5	12	2.5	10	17
Crop output	...	— 6.8	...	...	...	...	...
Animal output	...	— 5.4	...	...	...	...	...
BULGARIA							
Total	5.3	1.8	14.3	3.5	— 8.7	2.4	12
Crop output	5.4	— 1.5	19.0	1.8	—15.4	6.4	...
Animal output	5.1	8.3	5.8	6.9	— 3.1	—4.7	...
CZECHOSLOVAKIA							
Total	0.9	— 5.4	11.1	5.5	5.6	0.9	0.6
Crop output	0.2	—14.4	21.4	5.3	6.3	1.1	...
Animal output	1.5	3.2	3.0	5.8	5.0	0.8	...
HUNGARY							
Total	1.4	— 5	8	4	1	5.5	1
Crop output	0.8	— 6	12	4	— 1	10	0
Animal output	2.7	— 4	4	5	5	—(1.5)	2.5
POLAND							
Total	2.8	7.7	5.4	2.5	4.5	—4.7	3
Crop output	2.9	8.4	5.5	3.9	5.4	—8.0	4
Animal output	2.7	6.6	5.4	0.3	2.9	0.5	1
ROMANIA							
Total	2.5	6.7	14.0	1.8	— 3.7	4.8	16
Crop output	...	6.4	16.6	—1.9	— 3.9	...	...
Animal output	...	4.5	12.3	7.7	— 3.0	...	...
U.S.S.R.							
Total	3.0	1.8	8.9	1.6	3.2	—3.2	8.5
Crop output	2.8	— 8.3	12.7	0.1	4.8	—5.3	...
Animal output	3.2	17.0	3.4	3.3	1.6	—	...

[1] Preliminary estimates.

In contrast to the U.S.S.R., the combined production of cereals in the eastern European countries increased by some 3 percent. The harvest in Eastern Germany was about 1 million tons short of the 7.8 million tons reached in 1968, while output in Romania increased fractionally and a record cereal harvest was gathered in Hungary, with large increases in output of wheat and maize. Gains of 37 percent and 10 percent respectively were also reported in Bulgaria (maize) and Czechoslovakia (wheat and barley). In Poland, where weather conditions were at their worst and where total crop production was reduced by about 3 percent, output of cereals remained unchanged.

Altogether, the 1969 experience confirms the impression that the grain economy in eastern Europe has made substantial progress. The large-scale introduction of improved wheat varieties and hybrid maize seeds, the increased use of fertilizers, and the expansion of irrigation and land improvement work have greatly contributed toward higher yields and have made production less dependent on weather conditions. Cereal yields in most countries have risen steadily throughout the period covered by the 1966-70 plans, and the difference in yields between the more and the less industrialized countries has tended to diminish.

The situation of other crops in eastern Europe was less favourable in 1969. Potato and sugar-beet crops in Poland were hit hard by the prolonged summer heat, and in other countries, also, harvests were generally poorer than a year ago. Notable exceptions were the record sugar-beet crop in Bulgaria and the very good results achieved in the vegetable sector (especially tomatoes) in Hungary.

The livestock sector performed rather poorly throughout eastern Europe and the U.S.S.R., production in the majority of countries being only just maintained at 1968 levels. In some cases lack of progress was directly associated with an acute shortage in fodder supplies due to generally poor weather, but it also reflected some basic weaknesses of the sector, as discussed below.

In the U.S.S.R., where total livestock numbers have been declining since 1967, output of the sector showed no increase in 1969. Meat production was

maintained at the 1968 level, but the amounts marketed were reduced.

Output of milk declined slightly and there was also a drop in wool production caused by a severe reduction in flocks of sheep on the frostbitten pastures in the eastern territories. Eggs were the only major item where progress was recorded in 1969.

In Bulgaria and in Poland where animal production rose only marginally, fodder supplies were inadequate. In both countries the Government had to step in with large assistance programmes in order to alleviate the strain on the farms' own resources. No such problems were reported in Czechoslovakia, Hungary and Romania. Cattle, sheep and pig numbers continued to rise and, as also in Bulgaria, further progress was made in poultry production.

First, largely unofficial estimates for 1970 suggest that output in the region may have staged a partial recovery from the losses of the previous year. Overall, output appears to have risen by some 1 to 2 percent. Wheat production is estimated to have increased by perhaps 6 percent, and by somewhat more in the U.S.S.R., Eastern Germany and Bulgaria, although both the regional total and the figure for the U.S.S.R. will have remained below the 1968 level. The U.S.S.R. maize crop is also estimated to be substantially larger, but for the region as a whole the increase probably will have been held back by smaller crops in Bulgaria and especially Romania. Potato harvests were larger in all countries of the region except Bulgaria, Poland and Hungary, and also the rice crop (mainly grown in the U.S.S.R.) may be slightly larger than in 1969. Little change is expected in sugar production as smaller output in Bulgaria, Czechoslovakia, Eastern Germany and Hungary will have largely offset the increases elsewhere in the region. Oilseed crops, on the other hand, are thought to have been generally larger.

Meat production in the region as a whole is thought to have risen but little, with substantial increases shown only by Bulgaria and Czechoslovakia, and a reduction by perhaps 8 to 10 percent in Hungary. The regional milk production remained more or less unchanged, and it may have fallen slightly in Eastern Germany, Romania and the U.S.S.R.

Forest production

From statistics which exclude removals from state farms, it appears that roundwood removals in the U.S.S.R. rose by about 3 percent in 1969. Removals of sawlogs were barely higher than in 1968, but those of other industrial wood increased substantially, partly for domestic use and partly for export. The pattern was similar in eastern Europe, except that the removals of sawlogs are estimated to have fallen slightly. In both the U.S.S.R. and eastern Europe, fuelwood removals are estimated to have declined further.

Sawn softwood and hardwood output in the U.S.S.R. remained at about the 1968 level but, in eastern Europe, sawn softwood production fell for the third year in succession. Official policy is to reduce the production and use of sawn softwood and to promote that of wood-based panel products in order to make optimum use of the limited raw material resources. The centre of production of roundwood and forest products in the U.S.S.R. is gradually moving eastward, as new capacity in the form of large "combinats" is installed in Siberia. In western U.S.S.R. the possibilities of expanding roundwood production are believed to be limited, and the planned expansion in the output of wood pulp and panel products in those areas will be based to a large extent on greater use of residues, and possibly on a reduction in the volume of roundwood exports, which are still substantial.

Compared with the slow growth of fibreboard production in western Europe, that in eastern Europe continued to expand strongly. Bulgaria began output in 1968 and further increased it in 1969; Romania is in the midst of a major new phase of fibreboard capacity expansion.

Trade in agricultural products

The volume of the region's agricultural exports has remained virtually unchanged for two years, following a rise of more than 20 percent in 1967. In 1969, the volume of exports of wheat, barley, fruit and sunflowerseed was larger, but that of maize, sugar, meat, cotton and wool was smaller. Agricultural imports declined slightly. Imports of wheat, coarse grains and sugar were reduced substantially, and were larger for a few products only — principally rice, coffee, tea and wine.

Interest continues to be centred on the region's grains trade and particularly that of the U.S.S.R. For the third consecutive year, this country maintained a net export balance in grains. The very good crop of 1968 has permitted exports of wheat to be increased from 4.4 million tons in 1968 to almost 6 million tons in 1969, while imports were reduced from 1.3 million to 38 000 tons in the same years. The net export balance was thus almost doubled. In 1970, however, there is likely to be a considerable weakening of the U.S.S.R.'s export position. The 1969 crop was estimated to be about 12 percent smaller, and state grain deliveries are reported to be only sufficient to cover domestic requirements for 1970, leaving little scope for exports.

Among the country's other major exports, those of meat declined sharply — by more than one quarter — as a result of the difficulties encountered in the livestock sector in 1967 and 1968. Exports of refined sugar were reduced by more than 200 000 tons (17 percent), reflecting a 25 percent drop in imports of raw sugar (primarily from Cuba), which are now only about half as large as those of 1967. Trade is expected to rise in 1970 in view of the small U.S.S.R. beet crop and the shortfalls in Cuban deliveries against the 1965-70 trade agreement. Cotton exports were down by 20 percent, and cottonseed and cottonseed oil by 5 and 10 percent, respectively.

On the import side, the increase in the U.S.S.R.'s purchases of a variety of products outside of the basic food items group is worth noting. The volume of coffee imports rose by more than half, following a 27 percent increase in 1968; imports of fruit were almost 40 percent larger; and wine imports continued their upward trend from 279 000 tons in 1968 to 688 000 tons in 1969, compared with only about 50 000 tons a decade ago.

In eastern Europe, the progress being made in the grain economy mentioned earlier is in a few cases already having a visible effect on trade. In Hungary, for example, wheat exports have more than trebled and imports reduced slightly, resulting in a net export surplus in wheat. The country's imports of other grains have also declined, and maize exports have been increased from 19 000 tons in 1967 and 1968 to almost 100 000 tons, as in 1965. Bulgaria's export surplus of maize has increased from 85 000 tons to over 200 000 tons.

Eastern European sugar imports were slightly higher in 1969: those of raw sugar (by Czechoslovakia and Eastern Germany) by 3 percent, and of refined sugar by some 6 percent. The volume of exports was smaller, and only the two smallest exporting countries — Hungary and Bulgaria — managed to achieve an increase. Czechoslovakia, Poland and Eastern Germany, which account for 99 percent of the area's exports, shipped substantially less.

Agricultural policies and programmes

In line with the recent changes in growth strategy, agriculture continued to attract increased attention by the authorities in all countries of the region. In many, there is evidence that investment in the sector has been increased. In the U.S.S.R., state and collective farms (sovkhozes and kolkhozes) raised their investment by 5 percent in 1969, and it equalled 20 percent of the gross value of total agricultural production, or nearly twice the average value in 1961-65. The increase was probably most pronounced in Hungary — more than 30 percent higher than in 1968 — where a large part of the outlay was devoted to farm buildings. On the other hand, it has been pointed out in the U.S.S.R. that production growth has not been concomitant with that of investment, and the attention of sovkhozes and kolkhozes has therefore been drawn to the importance of making more rational investment.

The mechanization of farm operations is proceeding, but progress continues to be held up by the frequent inability of the industrial sector to meet the effective demand of farms or the specifications of machinery required.

The application of fertilizers also continued to rise in the majority of countries, with the major exception of Bulgaria, where the "big leap" between 1967 and 1968 had apparently not produced the desired results (Table II-6). In the U.S.S.R., agriculture received 39 million tons of mineral fertilizers, slightly more than targeted, and the 1970 figure is expected to reach 46 million tons. The quantity of fertilizers used per hectare of arable land still varies greatly : from 313 kilogrammes in Eastern Germany to 60 kilogrammes in Romania, and some 35 kilogrammes in the U.S.S.R. but, in relative terms, progress in recent years has been fast in most countries.

The expansion of irrigation and land improvement works continued in 1969, especially in the Danubian countries where irrigation is considered crucial for the stabilization of yields. At the end of 1969 the total irrigated area in Romania amounted to some 670 000 hectares to which another 200 000 will be added in 1970. By 1975 the irrigation network is planned to cover 2.5 million hectares — about 25 percent of the arable area. In the U.S.S.R. 94 percent of the overall target for land improvement programmes was attained.

The long-term policy toward specialization and concentration of production was also actively pursued. Cultivation of the various basic crops is gradually being shifted to areas where soil and climatic

TABLE II-6. – EASTERN EUROPE AND THE U.S.S.R.: FERTILIZER CONSUMPTION [1]

	1966	1967	1968	1969
	Kilogrammes per hectare			
Bulgaria	99	126	175	148
Czechoslovakia	175	183	185	220
Eastern Germany	279	297	301	313
Hungary	63	112	120	132
Poland	88	101	116	135
Romania	34	45	50	60
U.S.S.R.	28	31	33	35

[1] In terms of nutrient content (N, P_2O_5 and K_2O), and per hectare of arable land.

conditions are the most suitable, and large-scale production units are being established. In the livestock sector, this has resulted in some disturbances, probably of a short-term nature, which are discussed below.

The debate on pricing systems and price structures continues in many countries, particularly Czechoslovakia where the present system of grants, differentiated prices and direct financial support is being criticized as not having given adequate stimulus to production in the agricultural sector; it is being suggested that this be replaced by an integrated system within the framework of a general price reform. Much of the original impetus of the reform seems to have been lost recently, however, and action is being limited to minor readjustments that do not tangibly affect the existing price structure.

Recent information on the draft five-year plan of the U.S.S.R. (1971-75), [3] which is scheduled to be approved early in 1971 by the 24th Congress of the Communist Party, suggests that the recent emphasis on accelerating agricultural growth in the country will be continued. The principal goal under the draft plan is to achieve a five-year average level of cereal production of 195 million tons, 15 percent more than the target under the current plan, and 20 percent more than the 1966-69 average of 162 million tons. The new target implies a production level in 1975 of some 205-210 million tons. Large increases are also planned for most other products. The total output of meat, at 15.6 million tons, would be 34 percent higher than the actual production in 1969, that of milk 20 percent more, and of eggs 38 percent.

In order to achieve these increases, it is planned that the State will invest in agriculture a total of 77 600 million roubles over the five-year period, an increase of 70 percent over the period 1966-70, while the collective farms plan to raise their investment by 50 percent to 43 000 million roubles. A major investment objective is irrigation (3 million additional hectares), and the sector is to receive 1.7 million tractors. The production of mineral fertilizers too is to rise rapidly, reaching by 1975 the level of 90 million tons in conventional units (21 million tons in terms of nutrient content). Recent decisions to raise the prices of a number of farm products are expected to provide added incentives to expand output.

Institutional changes

The new model kolkhoz statute — the draft was described briefly in *The state of food and agriculture 1969* — which replaces the statute of 1935, was approved with few additions at the end of November 1969 by the Third Kolkhozian Congress. [4] The major changes reflect the desire to extend cultivation to avoid the waste of land, and to hold back the rise in the cost of production. To this end, the kolkhozes will be required to put into production all land suitable for agriculture and to implement crop rotation systems. The statute also states that henceforth wages may be increased only at a lower rate than the growth of labour productivity. As regards the organization of labour, the final text has retained the draft provision authorizing kolkhozes to create small autonomous mechanized teams consisting of 8 to 10 persons (the *zveno* system) outside the production brigades. Such teams have in many cases shown higher labour productivity than the larger groups. The expansion of the zveno system, coupled with increased mechanization, may well represent the emergence of a new structure in the organization of agricultural labour in the U.S.S.R.

The new statute has also confirmed the right of the kolkhoz to create small industries to provide an occupation for its members during the winter months and to produce additional income for the farm, although their establishment is conditional on their not damaging agricultural production.

An important decision of the Third Kolkhozian Congress was the return to a kolkhozian federative system which existed until 1930, but was suppressed by the statute of 1935. Under this system the kolkhozes will elect councils by districts, by provinces and by republics, with a central kolkhozian council of 125 members at the top of the pyramid. The creation of this new set of institutions implies at the same time both an increased centralization of the kolkhozian system, and a greater autonomy of the kolkhozes in their relations with various state institutions, especially at the regional level, which until now have controlled the activities of the kolkhoz.

Important organizational measures were also decided upon in 1969 in Romania. They aim at improving planning and management in the collective farm sector, which at present comprises about 60 percent of the farmland, and place strong emphasis on the concentration and specialization of production. Until now, Romania was the only country in eastern Europe still maintaining a system of state-owned machine and tractor stations; the latter will now be integrated with the farm units. New regulations concerning the definition of work norms and the calculation of labour remuneration have also been

[3] Statement by L.I. Brezhnev, reported in *Izvestia*, 3 July 1970.

[4] The new statute is described in an article by A.N. Sakoff, Soviet agriculture and the new model constitution of the kolkhoz, in *Monthly Bulletin of Agricultural Economics and Statistics*, 19:9, September 1970, FAO, Rome.

worked out. In addition, as in the majority of countries in the region, farming cooperatives will be permitted to engage in certain activies within the food processing and other industrial fields. At the central level, the Agricultural Council has been replaced by a Ministry of Agriculture.

Livestock development

Trends in supply

As can be seen from Table II-7, the past decade has witnessed a steady rise in the consumption of livestock products as higher incomes have brought a shift in demand from basic staples to higher value animal products. Both the rate of increase and the absolute levels of consumption vary between countries of the region, reflecting differences in per caput incomes. Thus in the lower income countries — Bulgaria and Romania — the rate of increase has tended to be faster and the absolute levels lower than in Czechoslovakia and Eastern Germany. Some variation may also be observed between the different types of meat consumed: per caput pigmeat consumption in most countries (except Bulgaria and the U.S.S.R.) compares more favourably with western European levels than does per caput consumption of beef and veal.

Table II-7 would also seem to indicate that, for the period from 1960 to 1968 as a whole, the increases in meat production have been more than sufficient to keep up with the growth of consumption. For the earlier part of the period this appears to have been true. Shortages have, however, appeared since 1966, and in 1969 the situation was aggravated by bad weather in several countries. In part these shortages seem to be the result of the accelerated income growth that has been the recent policy in much of the region, especially in the rural sector, but in part also of a slowing down in the relatively satisfactory production growth rates achieved earlier. The latter, in turn, is to some extent associated with difficulties encountered in setting the livestock sector of the countries of the region on a more efficient long-term basis. This has been reflected in falling livestock numbers in several countries, particularly of beef cattle in countries such as Hungary and Czechoslovakia where the average output of meat per animal is already relatively high.

The recent problems have manifested themselves in a spate of official pronouncements on the unsatisfactory state of the livestock sector in virtually every country of the region and, in some of them, in reduced exports of meat and in a failure to increase or even maintain current levels of per caput consumption. The meat exports of the U.S.S.R. in 1968 were 30 percent below the level of the previous year and, although trade data are not yet complete for 1969, it is likely that those of many eastern European exporters were also smaller. Reduced supplies have led to larger purchases outside the region. Early in 1970 it was reported that the U.S.S.R. had placed orders with Australia and New Zealand, and that some eastern European countries (including Czechoslovakia, Hungary and Poland) would also require additional supplies.

Prospects for increasing production

The achievement of a substantial increase in livestock production is a primary target in most countries. In the U.S.S.R., the 20-year plan published in 1961

Table II-7. – Eastern Europe and the U.S.S.R.: Growth of production and consumption of meat, 1960 to 1968

	Production					Consumption	
	Beef and veal	Mutton and lamb	Pigmeat	Poultry	All meats	All meats	Per caput all meats in 1968
	Percent per year					*Percent per year*	*Kilogrammes*
Albania	2.8	—	5.2	—	1.3	...	...
Bulgaria	13.9	8.7	4.7	8.7	7.7	5.5	41.9
Czechoslovakia	5.8	— 6.2	2.7	7.0	4.0	[1]2.1	[2]61.6
Eastern Germany	3.7	— 3.1	3.3	4.3	3.3	1.6	63.0
Hungary	3.3	5.2	3.8	5.1	4.0	1.9	53.8
Poland	6.3	— 2.6	1.1	7.9	2.6	3.6	52.2
Romania	3.1	4.1	4.6	6.1	4.3	[3]4.3	[3]9.8
U.S.S.R.	6.6	—	2.8	—	3.9	[4]3.6	[4]48.0

[1] 1960-66 only. – [2] 1966. – [3] Marketed meat only. – [4] Including lard.

included targets for 1980 of 163 million head of cattle (compared to an actual figure of 95 million in 1969), 91 million of pigs (56 million in 1969), and 270 million of sheep (140 million in 1968). No figures were given for poultry, but egg production was to be increased to 116 000 million in 1980 (in 1969 production was 37 000 million).

Although the information on the draft 1971-75 plan suggests that the attainment of such production levels has been postponed, these data do provide some indication of the scope which is thought possible for the livestock sector. This is also suggested by the available grazing area: 3.32 hectares of permanent meadows and pastures per conventional livestock unit compared to 0.61 in Europe, 1.84 in Latin America and 2.45 in North America. In eastern Europe, also, an increase in livestock production is planned. In Poland in September 1969 it was announced that extra measures would be taken to ensure increased production of milk, meat and dairy products.

Principal problems and policies

To obtain the required increases in production, however, it will be necessary to solve a number of major problems which are generally blamed for the recent unsatisfactory performance of the sector. Although each country has its particular difficulties, in virtually all of them complaints are heard about the inadequate farm structure, the unsatisfactory state of farm buildings, insufficient mechanization, obsolete feeding methods and, in more general terms, the slow adoption by farmers of improved techniques. These deficiencies result in the high costs of production and low level of labour productivity which constitute the key problems of the region.

The solution is largely being sought through specialization of production in the large-scale kolkhozes and sovkhozes.[5] Specialized units would rear large numbers of a single type of livestock, as opposed to the mixed livestock, or livestock and crops, on most existing farms. A kolkhoz specializing in veal husbandry, for example, should rear some 10 000 animals, while a dairy kolkhoz should have a minimum of 1 200 to 1 600 cows. In 1968 only 3.4 percent of the kolkhozes and 20.1 percent of the sovkhozes in the U.S.S.R. had more than 3 000 head of cattle, and only 3.7 percent and 25.2 percent respectively more than 1 000 cows. The specialized units would be highly mechanized and labour would be organized on an industrial basis in order to bring down the cost of production. Reductions in labour costs by as much as one third have been reported on specialized livestock kolkhozes in some areas.

The planned emphasis on specialization was evident in the last five-year plan (1966-70) of the U.S.S.R. By 1969 there was evidence, however, especially in Hungary and the U.S.S.R., that the shift of production to specialized units was resulting in a decline in total output. While the establishment of specialized farms was progressing slowly, in the U.S.S.R. the elimination of livestock from units not specializing in animal production was proceeding relatively more rapidly. Thus, while in 1961 only 6.5 percent of the kolkhozes did not rear pigs and 8 percent did not rear sheep, by 1969 the proportion had grown to 25 and 30 percent. A similar development — from 20 to 50 percent for pigs, and from 52 to 65 percent for sheep — occurred on the sovkhozes. This trend has contributed to the failure of livestock numbers to expand, and has resulted in official emphasis now being placed on the dangers of the kolkhozes and sovkhozes going out of animal production before the output of the specialized units is assured.

For the same reason, there is also evidence of increased official encouragement of production on family plots. Their output of animals and animal products has shown some decline over the past years in many countries of the region, with increasing urbanization and with the improvement of the income levels of kolkhozian workers. Also important in some countries in eastern Europe is the increasing tendency for collective farms to pay members in cash rather than kind. Under the latter system, workers would tend to use payments in feedstuffs to raise their own livestock, whereas cash payments would reduce the incentive to do so. This shift has contributed to an increased awareness of the shortcomings of the prevailing tax systems and price structures which do not provide sufficient incentives to livestock development. There is some evidence of official action to encourage private production through the improvement of price relationships, although the impact may be limited by the possibility of obtaining higher prices on the unofficial market.

Considerable emphasis is also being placed on improving supplies of forage and feed, which are too costly and inadequate to support large increases in animal numbers. In some countries shortages of feed have resulted in premature slaughterings and disrupted plans for increasing herds. The assurance of a reliable and timely supply of feed and of other production inputs is particularly important under a system which relies upon specialized production units. Shortages of concentrates specifically blended for different types of livestock are reported

[5] In Poland the situation is somewhat different for, although much of the blame for the current problems of the sector is put on the inadequately equipped private holdings, they still account for some 85 percent of the output of livestock and livestock products.

to make fattening periods unnecessarily long and costly.

Greater stress is also being put on the application of price incentives and related measures. Their planning is made difficult, however, by the lack of statistical information of the type required — for example on the impact of feed/meat price ratios on output — since (except for Poland) little use has hitherto been made of such tools. Hungary introduced higher prices for livestock at the beginning of the year, and in the U.S.S.R. there are reports of upward price changes favouring pigs and poultry, since they can provide the most rapid increases in meat production. In the U.S.S.R. there is also evidence that larger amounts of credit are being provided to the sector: long-term credits for livestock buildings and technical improvements on collective farms increased from 196 million roubles in 1960 to an average of 547 million roubles in 1966-68.

North America

The level of agricultural production in North America in 1969 is estimated to have been about the same as in the two preceding years. The value of agricultural exports was lower for the third consecutive year, and stocks, particularly those of wheat, rose. Agricultural prices and incomes for the region as a whole were higher; the increases were however unevenly distributed, both as between the two countries and as between crop and livestock products. Meat prices rose sharply as available supplies failed to keep pace with enlarged demand, and per caput consumption levelled off. Except for the establishment of a cropland diversion programme in Canada, agricultural policies and programmes continued generally unchanged although the subject of intensive discussion and review in both countries.

As during 1968, the general level of economic activity in North America continued in 1969 to exceed expectations. Both consumption and investment demands have continued unexpectedly strong as national income has increased, wages and salaries have risen and interest rates continued at or near record levels. The rate of economic growth, as measured by GDP at constant prices, has nevertheless been slowed by anti-inflationary measures, with some increase in unemployment. Upward pressures on prices have persisted, however, with the indices of consumer prices rising at an annual rate of about 6 percent. Demand for imports continued strong in 1969 and, despite further expansion of exports, the balances on current account deteriorated for both countries. Capital inflows, largely short-term into the United States and long-term into Canada, were sufficient, however, to relieve the impact of these balances, and the liquidity reserves of both countries rose. Little if any overall increase was expected in the real GNP of the United States in 1970, although in quarterly terms an upswing probably took place in the second half of the year. In Canada, a somewhat reduced rate of growth appeared likely.

Agricultural production

Total agricultural output in the United States is estimated to have declined marginally in 1969 (Table II-8). The stabilization of output since 1967 reflects primarily the continued government efforts to restrain production. As compared with the 1968 level, the wheat harvest was lower by about 7 per-

TABLE II-8. – NORTH AMERICA: INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
	1952-56 average = 100					*Percent*		*1952-56 average = 100*
Canada	131	144	123	134	140	+ 4	3.1	102
United States	118	118	124	125	123	— 2	1.7	99
REGION	119	120	124	126	124	— 1	1.9	99

[1] Preliminary estimates.

cent; the acreage allotment had been further reduced because of increased stocks (see below). The rice harvest was also lower by about 12 percent, the first decrease since 1961; the acreage allotment had also been reduced because of stock accumulations. The maize crop was larger despite a slight reduction in acreage, but the output of other feed grains showed little net change. Production of soybeans, for which the price support level was reduced, rose nevertheless to exceed slightly the record 1968 level. Unfavourable weather conditions in some areas reduced cotton production by almost 9 percent, despite a 9 percent increase in acreage. Sugar production fell by 6 percent, with a smaller output of both cane and beet sugar. The tobacco harvest was about 6 percent larger, reflecting the continued favourable export demand.

The total output of livestock products in the United States in 1969 showed little change from the 1968 level. Milk production is estimated to have continued the slightly downward trend of recent years. Total meat output is also reported to have been slightly lower, despite continued strong consumer demand and sharply rising meat prices (see below). Although beef and veal production is estimated to have risen slightly, that of pork was lower and that of mutton and lamb continued to drop.

The scale of the price support operations of the United States Commodity Credit Corporation (CCC) was further enlarged during 1969, the value of the stocks involved increasing by about 15 percent (Table II-9). In contrast to the 1968 increase which consisted largely of nonrecourse [6] loans, that in 1969 consisted almost entirely of additions to CCC inventories. The value of CCC inventories of dairy products was however reduced by almost one half during the year.

In Canada total agricultural production in 1969 exceeded the 1968 level by an estimated 4 percent and approached the record level of 1966. Despite a 16 percent reduction in wheat acreage, generally excellent growing and harvesting weather brought near record yields; the harvest was almost 5 percent above the 1968 level and there was a further increase in the already excessive stocks. Total feedgrain production was higher by an estimated 7 percent as acreages were increased. Oilseed production showed a very large increase, with a sharp expansion of rapeseed and flaxseed acreages in the western provinces. Because of unfavourable weather in Ontario, however, both the maize and soybean harvests were lower.

[6] Under the terms of a nonrecourse loan, the borrower has the option of repaying the loan in full by delivery to CCC of the commodity that served as security for the loan, even though the market value of that volume of the commodity may, at the time of its delivery, be less than the amount of the loan.

TABLE II-9. – UNITED STATES: STOCKS INVOLVED IN COMMODITY CREDIT CORPORATION PRICE SUPPORT OPERATIONS STATUS 31 DECEMBER 1968 AND 1969

	1968	1969	Portion held in CCC inventories [1]	
			1968	1969
	Thousand metric tons		.... *Percent*	
Wheat	17 324	23 816	16	19
Rice	804	1 136	[2]	25
Maize	22 704	21 942	29	34
Other feed grains	12 536	13 911	45	49
Soybeans	10 431	11 842	14	41
Other oilseeds and vegetable oils	422	752	29	46
Cotton	522	1 060	6	48
Tobacco	500	516	—	—
Butter [3]	56	33	100	100
Cheese	30	[4]	100	100
Dried milk	122	96	100	100
	Million dollars			
Above commodities	4 606	5 358	23	33
Other commodities	56	53	23	30
TOTAL	4 662	5 411	23	33

[1] The remainder is covered by CCC nonrecourse loans to farmers. – [2] Less than 0.5 percent. – [3] Includes butter oil. – [4] Less than 500 metric tons.

The total output of livestock products in Canada is estimated to have been slightly below the 1968 level. There was again a small increase in milk production. However, pork production was lower by about 4 percent and beef and veal by about 2 percent.

In line with the measures taken to restrict output in both Canada and the United States (see below), the first estimates for 1970 suggest another year of stable production in the region. Output in the United States will probably show no change, and that in Canada may remain about 7 percent below the high 1969 level. In the main the situation reflects the reduced production of cereals. The region's wheat harvest was estimated to be 20 percent lower, the Canadian crop being only half as large as in 1969, and the United States harvest being also somewhat smaller. The sorghum and rice crops in the latter country were also down, by 7 and 10 percent respectively, and that of maize, affected by leaf blight, was in September estimated to be smaller by some 4 percent. Among other major crops, there were small increases in production of soybeans (to a new record level), tobacco, and cane sugar, and a more substantial one in the case of cotton, mainly because of higher yields. No rise was registered in the re-

gional production of milk, despite a small increase in Canada, and meat production was only fractionally greater than in 1969.

Fishery production

North American fish production in 1969 remained at about the same level as the previous year. United States catches were slightly higher, but in Canada the strong growth trend of the past few years was halted and turned into a moderate decline.

The United States catch was about 2.5 million tons, and the country regained the fifth place among the leading fishing nations. The value of the catch was estimated at $518 million, the highest on record.

Increased landings of fish for human consumption were registered in the anchovy, cod, halibut, jack mackerel and tuna fisheries. Shrimp, the most valuable catch for the United States fisherman, also was caught in slightly larger quantities, following the expansion of fishing off the New England and Pacific northeast coasts. Results in the fisheries in the Gulf of Mexico and the North Atlantic, which have been the most important sources of domestic supply for many years, were disappointing.

Food fisheries which fared less well than in 1968 were those for haddock, sea herring, red hake, whiting, and sea scallop meats. The Pacific Northwest salmon fishery was the smallest recorded this century.

Raw material landings for the fish reduction industry were sufficiently higher to enable the United States to increase fish-meal output by 8 percent.

The reduction in Canadian production resulted from smaller catches of herring, scallops, some groundfish species, and especially Pacific Coast salmon, which were only partially offset by increased landings of halibut, flatfish and lobster.

Forest production

In 1969 the North American forest products market was influenced mainly by a slump in United States dwelling construction, after a short-lived increase in late 1968 and early 1969, and the overall inflationary trend of the economy. In the United States demand for constructional forest products, after rising in the early months of 1969 accompanied by an almost unprecedented surge in prices, contracted throughout the remainder of the year, with a particularly marked effect on sawn softwood and plywood and fibreboard production in North America. Demand for sawn softwood was slightly below 1968, and for plywood and fibreboard about the same as in 1968. On the other hand, sawn hardwood output rose very strongly in 1969 to a new record level following a downward trend between 1966 and 1968. End-1968 stocks were very low and the increase in production was partly for stock rebuilding and partly in response to demand from the furniture industry.

North American production of pulp and paper rose strongly, and capacity operating ratios were higher than for a number of years. Output of chemical pulp rose somewhat faster than that of paper and paperboard other than newsprint, enabling exports to be increased by approximately 800 000 tons. Nevertheless, delays in bringing new capacity into full operation, notably in British Columbia where there has been very heavy capital expenditure in the sulphate pulp sector in recent years, contributed to the tight supply position for chemical pulp. This is being aggravated by recent strikes in the wood transportation and construction sectors.

Trade in agricultural, fishery and forest products

The value of North America's exports of agricultural, fishery and forest products fell in 1969 by 2 percent, back to the 1967 level. This reflected a steep decline — by 9 percent — in the value of agricultural exports, which was only partly offset by considerably higher export earnings from forest and particularly fishery products.

The reduction in the value of agricultural exports from the North American countries was the third one in succession and brought the total — including concessional exports — to its lowest level since 1962 (Table II-10). Export unit values averaged 2 percent higher than in 1968, but the volume was lower by 11 percent, with particularly sharp drops in exports of wheat and cotton. This more than offset increases in the value of exports of a number of other commodities (including meat, oilseeds and vegetable oils, fruit, oilseed cake and meal, tobacco and animal fats). Although the United States dock strike during the early part of 1969 was a factor, in the main the drop reflected the general weakness of export demand for the commodities in question and the further reduction in concessional exports, mainly from the United States.

Among food grains, the volume of wheat exports was 26 percent below the 1968 level and the lowest since 1959, reflecting reduced import demand and highly competitive conditions in world markets. Exports of feed grains (largely maize) were also lower, from both Canada and the United States, by a total of 8 percent in volume and 4 percent in value.

This was due in part to reduced demand in commercial markets, in part to smaller PL 480 shipments of sorghum to India. Rice exports, although 3 percent below the 1968 level, remained nevertheless

TABLE II-10. – NORTH AMERICA: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	60	153	170	151	146	133	— 9
Food and feedstuffs	50	180	202	174	165	152	— 8
Cereals	(27)	178	217	176	161	133	— 18
Soybeans and oil	(10)	235	247	255	260	263	+ 1
Beverages and tobacco	6	110	137	144	153	158	+ 3
Tobacco	(6)	110	137	144	153	158	+ 3
Raw materials	4	69	65	66	67	45	— 33
Cotton	(3)	68	60	65	64	39	— 39
FISHERY PRODUCTS	4	142	151	158	159	183	+ 15
FOREST PRODUCTS	36	138	148	154	179	194	+ 9
Agricultural, fishery and forest products	100	148	164	152	155	151	— 2

[1] Preliminary estimates.

significantly above the pre-1967 level, as concessional shipments increased from the United States to the Republic of Korea and to the Republic of Viet-Nam. Exports of oilseeds (largely soybeans), vegetable oils, and oilseed cake and meal showed a 4 percent increase in value. The volume of cotton exports was smaller by almost 40 percent and the value the lowest since 1945; United States stocks were relatively small, especially of the shorter staples, and exports of these were the most seriously affected. Despite a small reduction in the volume of tobacco exports, the value increased slightly as export unit values rose. Exports of meat (particularly pigmeat) and animal fats increased significantly but continued to account for a relatively small part of the value of total agricultural exports.

The value of the United States exports of agricultural commodities on concessional terms showed a further decrease in 1969 (Table II-11) to the lowest level since 1955. Major commodities include wheat and wheat flour, rice and cotton which accounted for 33, 18 and 11 percent respectively of the total in 1969. The share of rice has tended to increase in recent years. The value of local currency sales was again reduced in 1969, accounting for only 33 percent of the total concessional exports, as compared with 46 percent in 1968 and 59 percent in 1967. Comparable data are not available for Canada. Wheat aid (gifts) is, however, reported to have doubled in 1968/69 (July-June) to about 850 000 tons (including wheat flour), and the incomplete data on the total value of the country's food aid disbursements in 1969/70 (April-March) suggest a substantial increase over 1968/69.

In 1969, the volume of agricultural imports into the North American countries fell by 7 percent

TABLE II-11. – UNITED STATES: AGRICULTURAL EXPORTS, CONCESSIONAL AND COMMERCIAL

	1961-65 average	1966	1967	1968	1969
	..... *Million U.S. dollars*				
CONCESSIONAL EXPORTS					
Public Law 480					
Foreign currency sales	1 036	815	736	539	335
Dollar credit sales	69	239	201	384	427
Donations	252	211	287	251	256
Barter [1]	179	241	13	3	...
TOTAL EXPORTS UNDER PL 480	1 436	1 306	1 237	1 177	1 018
MUTUAL SECURITY AID	55	47	33	25	...
TOTAL CONCESSIONAL	1 491	1 353	1 270	1 182	1 018
COMMERCIAL EXPORTS [2]	4 153	5 528	5 110	5 046	4 919
TOTAL AGRICULTURAL EXPORTS	5 644	6 881	6 380	6 228	5 936
	..... *Percent*				
Concessional as percentage of total	20	20	20	19	17

[1] Excludes barter for overseas procurement for United States Government agencies. – [2] Commercial exports include in addition to unassisted commercial transactions shipments of some commodities with government assistance in the form of short- and medium-term credit, export payments or sales of government-owned commodities at less than domestic market prices.

TABLE II-12. – NORTH AMERICA: INDICES OF THE VOLUME OF IMPORTS OF AGRICULTURAL PRODUCTS

	Share of total agricultural imports in 1969	1965	1966	1967	1968	1969[1]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	100	107	112	113	124	115	— 7
Food and feedstuffs	48	110	123	130	139	141	+ 2
Sugar	(14)	91	97	108	113	110	— 2
Meat	(15)	152	187	203	224	247	+ 11
Beverages and tobacco	39	111	111	110	123	104	— 16
Coffee	(28)	101	104	102	120	97	— 19
Raw materials	14	90	86	83	92	88	— 5
Wool	(3)	90	91	63	83	63	— 24
Rubber	(9)	25	84	88	103	107	+ 3

[1] Preliminary estimates.

(Table II-12). Imports of all types of meat, except pigmeat and poultry, and of natural rubber reached record levels in terms of both volume and value. These increases were, however, more than offset by a sharp drop in coffee imports and by declines in those of sugar, fruits, cocoa, tea, tobacco, cotton and wool.

The region's trade in fishery products continued to expand, showing an increase in the total value of exports by 21 percent. Exports from Canada were up by about 6 percent, in part because of larger imports into the United States, the world's largest importer of fishery products, and although some traditional Canadian export products were shipped in reduced quantities, higher prices largely offset the impact on export earnings. Shipments from the United States, though smaller in total, were up by a third in value. Products of which more were exported in 1969 include frozen and canned salmon, fresh and frozen shrimp, and menhaden oil.

The total imports of fishery products into the United States rose by only some 2 to 3 percent. Larger quantities of various food fish were purchased from abroad, but the imports of fish meal were drastically lower.

Export earnings from forest products continued to increase rapidly in 1969 although the remarkable growth in shipments of coniferous logs, which has taken place over the last decade, primarily from the United States to Japan, was reversed, chiefly as a result of the restriction imposed on log exports from United States federal lands from 1 January 1969, and in part also because of the strong stock position of Japanese importers in anticipation of this control.

Canadian exports of sawn softwood to the United States, which amount to more than one quarter of the world trade in this product, were slightly higher despite a sharp fall in the second half of the year. Exports to the United Kingdom and Japan, however, fell steeply, since the very high North American prices in early 1969 had seriously reduced Canadian exporters' competitivity in the British market during the main buying season. Canada's exports of plywood fell, chiefly to the United Kingdom, but against this the United States strongly increased its as yet relatively small volume of exports, as substantial capacity expansion for southern pine plywood coincided with the levelling off in domestic demand.

North American pulp and paper exports rose appreciably in 1969, notably those of chemical pulp from Canada to western Europe and Japan, as well as to the United States. Newsprint exports, mainly from Canada to the United States, also increased to record levels.

On the import side, 1969 was notable for the strong growth of sawn hardwood imports by the United States after two years of decline, the main suppliers being southeast Asia, notably Malaysia and Singapore, and also a number of Latin American countries. There was a striking expansion in North American imports of hardwood plywood and veneer, with China (Taiwan), the Republic of Korea and, to a lesser extent, Finland supplying increased quantities.

Agricultural incomes and prices

The 1969 gross farm income in Canada is estimated to have been slightly below the 1968 level despite the increase in total agricultural output, and the net farm income lower by about 9 percent

(Table II-13). In the United States, on the other hand, where total agricultural output was slightly below the 1968 level, it is estimated that gross farm income was higher by about 7 percent and net farm income by about 10 percent. Farm inventories increased in both countries with, however, much more seriously adverse effects on the level of realized farm income in Canada, where the estimated increase in farm inventories (largely wheat and other grains) accounted for almost 15 percent of the total Canadian net farm income.

The overall index of prices received by farmers rose in both countries in 1969, by about 1 percent in Canada and 6 percent in the United States. As a reflection of current supply situations and longer term trends, livestock products (particularly meat animals) accounted in both cases for most of the increase, with prices for field crops (particularly wheat and other grains) being generally lower. Production expenses also increased in both countries, by an estimated 4 percent in Canada and 5 percent in the United States.

The persistence of inflationary pressures has continued to push prices upward at near record rates. In the United States, between 1968 and 1969 the GNP deflator rose by almost 5 percent, and the consumer price index (CPI) by 5.5 percent, the sharpest annual rise in CPI since 1951. Between January 1969 and January 1970 the food component of CPI rose by 7.1 percent, as compared with an increase of 5.5 percent in the nonfood component and of 4.2 percent in commodities other than food. Retail meat prices rose by more than 10 percent and accounted for a large share of the total increase, thus contributing to the further intensification of persistent inflationary pressures.

Developments during the past year have tended to reinforce major features of recent trends in prices paid and received by farmers. In the United States the index of prices paid by farmers for family living items continued, for the third consecutive year, to rise more rapidly than that for production items; the difference in the rates of increase narrowed, however, to about 1 percent. Whereas the index of prices received by United States farmers for crop products continued to decline at an average annual rate of about 1 percent, that for meat animals, which during the preceding five-year period had risen at an average annual rate of about 4 percent, rose by more than 20 percent. The farmers' share of the "food dollar" rose in 1969 to 41 percent, as compared with 39 percent in 1968 and 38 percent in 1967.

TABLE II-13. – NORTH AMERICA: ESTIMATED FARM INCOME

	Canada			United States		
	1967	1968	1969 [1]	1967	1968	1969 [1]
	Thousand million Can. dollars			*Thousand million U.S. dollars*		
Cash receipts from farm marketings	4.3	4.3	4.2	42.8	44.4	47.4
Government payments	0.1	0.1	0.1	3.1	3.5	3.8
Income in kind	0.5	0.5	0.6	3.2	3.3	3.4
Net change in farm inventories	—0.2	+0.2	+ 0.2	+0.4	—0.1	+ 0.2
GROSS FARM INCOME	4.7	5.1	5.1	49.5	51.1	54.8
Production expenses	3.2	3.3	3.5	34.8	36.4	38.6
NET FARM INCOME	1.5	1.8	1.6	14.7	14.7	16.2
NET REALIZED FARM INCOME	1.6	1.6	1.4	14.3	14.8	16.0

[1] Preliminary estimates.

Problems, policies and programmes

WHEAT PRODUCTION AND STOCKS

Large market surpluses of wheat and the persistent weakness of world export demand (see also Chapter I) continue to pose priority problems for both North American countries. Their combined carryover of wheat from the 1968/69 season approximated 45 million tons, divided almost equally between them (Table II-14). Acreage for the 1969 harvest was reduced in both countries. However, weather was exceptionally favourable and yields reached a record level in the United States and nearly so in Canada. As a consequence, the 1969 harvest was only 2.3 million tons (less than 4 percent) below the record level of 1968. Although exports during the 1969/70 season are expected to exceed the 1968/1969 level, the region's carryover into the 1970/71 season seems likely to be about 51 million tons (27 million in Canada and 24 in the United States).

TABLE II-14. – NORTH AMERICA: SUPPLY AND UTILIZATION OF WHEAT [1]

	Canada			United States		
	1967/68	1968/69	1969/70 [2]	1967/68	1968/69	1969/70 [2]
	Million metric tons					
Beginning stocks	15.7	18.1	23.1	11.6	14.7	22.3
Production	16.1	17.7	18.6	41.4	42.9	39.7
Domestic use	4.5	4.4	4.5	17.6	20.5	21.5
Exports [3]	9.1	8.3	9.9	20.7	14.8	16.6
Ending stocks	18.1	23.1	27.3	14.7	22.3	23.9

[1] August-July season for Canada; July-June season for the United States. – [2] Preliminary estimates. – [3] Includes wheat equivalent of wheat flour.

In view of these stocks and the continued unfavourable prospects for exports, both governments have sought further reductions in wheat acreages for the 1970 harvest. The United States wheat acreage allotment has been reduced for the third consecutive year, to 45.5 million acres or approximately two thirds of the allotment for 1967. It is intended that, with normal yields, production in 1970 will be in adjustment with market demand and that, especially if exports can be increased, there can be some reduction of United States wheat stocks in the 1970/71 season. The 1971 wheat programme will depend on legislation enacted during the present session of the United States Congress.

For the 1970 crop the Canadian Wheat Board established a cropland diversion programme, Operation LIFT (Lower Inventory For Tomorrow). Under this programme, producers in the Prairie Provinces who reduced their wheat acreage below the 1969 level and increased summer fallow or perennial forage by the same amount received federal compensation payments of $6 per acre for additions to summer fallow and $10 per acre for additions to perennial forage acreage. Compensation payments were available on a maximum of 22 million acres of additional summer fallow and 2 million acres of additional perennial forage,[7] with a maximum of 1 000 acres for any individual producer eligible for compensation payments. As a further incentive to reduce 1970 wheat acreage, wheat delivery quotas for the 1970/71 crop year are based on the total acreage of summer fallow and the net addition to perennial forage, not on the acreage seeded to wheat. Thus, producers who may have seeded no wheat in 1970 may nevertheless receive delivery quotas that can be fulfilled with wheat from previous harvests that they have in storage on their farms. In announcing this programme, the Minister Responsible for the Wheat Board added that, with its successful completion, " market forecasts indicate that Canada will be able to return to a level of production of approximately 20 million acres. Additional measures will be required in 1971 to assure that production does not exceed acceptable levels. " As a result of the programme, the wheat area in 1970 is estimated to have been reduced by about half, to its lowest level since 1914, and although some of the area was diverted to other crops, the operation is generally considered to have been successful.

MEAT SUPPLY AND DEMAND PROSPECTS

Consumption of meat, particularly beef and veal, has markedly increased in North America during the last two decades (Table II-15). Domestic production has expanded and net imports have increased. Meat prices have however risen sharply, suggesting that the actual level of meat consumption is in fact being restrained by lack of supplies. In any case, the prospective further increase in regional demand, projected on the basis of population growth and higher per caput incomes, indicates an important potential for further expansion of meat imports, particularly of beef and veal.

TABLE II-15. – NORTH AMERICA: CONSUMPTION OF MEAT[1]

	1948-52	1958-62	1967	Change 1948-52 to 1958-62	Change 1958-62 to 1967
	.... *Kilogrammes*			... *Percent* ...	
PER CAPUT					
Beef and veal	31.3	40.5	48.8	+ 29	+ 20
Mutton and lamb	1.8	2.1	1.7	+ 17	— 19
Pork	31.2	28.3	28.6	— 9	+ 1
ALL MEATS	64.3	70.9	79.1	+ 10	+ 12
	Thousand metric tons				
TOTAL					
Beef and veal	5 122	7 934	10 555	+ 55	+ 33
Mutton and lamb	297	415	377	+ 40	— 9
Pork	5 106	5 552	6 171	+ 9	+ 11
ALL MEATS	10 525	13 901	17 103	+ 32	+ 23

[1] Carcass weight equivalent.

Trends in meat consumption in North America during the last two decades are summarized in Table II-15. The demand for red meat (beef, veal, mutton, lamb and pigmeat) has increased notably as population has grown and per caput incomes have risen. During the 1950s consumption increased more rapidly than did domestic production and the region's aggregate foreign trade in fresh, chilled or frozen meat shifted from a small net export to a net import of more than 250 000 tons (Table II-16). Beef and veal accounted for most of the increase; although imports of mutton and lamb rose by much greater proportions, the actual volume remained relatively small, and the region remained a small net exporter of pork.

The rising level of meat imports caused mounting concern in the United States during the early 1960s and led to enactment of the Meat Import Act of 1964. Under this Act, the Secretary of Agriculture was directed to establish annually the aggregate quantity of fresh, chilled or frozen meat from cattle, goats and sheep (except lamb) that may be imported

[7] Thus, the maximum acreage for which compensation payments are available under this 1970 cropland diversion programme is less than 1 million acres below the total 1969 Canadian wheat acreage (24.9 million acres).

TABLE II-16. – NORTH AMERICA: MEAT PRODUCTION AND TRADE[1] IN FRESH, CHILLED OR FROZEN MEAT

	Average			Change	
	1948-52	1958-62	1968	1948-52 to 1958-62	1958-62 to 1968
	Thousand metric tons.			*Percent*	
PRODUCTION[2]					
Beef and veal	5 222	7 661	10 707	+ 47	+ 40
Mutton and lamb[3]	299	363	282	+ 21	— 22
Pork	5 312	5 662	6 458	+ 7	+ 14
TOTAL	10 833	13 686	17 447	+ 26	+ 27
IMPORTS					
Beef and veal	36	256	439	+ 611	+ 71
Mutton and lamb[3]	3	36	71	+1 100	+ 97
Pork	4	25	35	+ 525	+ 40
TOTAL	43	317	545	+ 637	+ 71
EXPORTS					
Beef and veal	43	17	30	— 40	+ 67
Mutton and lamb[3]	2	1	1	— 39	— 7
Pork	6	31	52	+ 417	+ 68
TOTAL	51	49	83	— 4	+ 69

[1] Includes intraregional trade. – [2] Production from animals slaughtered within national boundaries, irrespective of their origin. – [3] Includes goat's meat.

into the United States.[8] He was also directed to estimate quarterly the aggregate quantity of these meats that would be imported into the United States were it not for these provisions.

If the aggregate quantity exceeds 110 percent of the volume of imports permitted under the provisions of the Act, import quotas are to be imposed. Since enactment of this legislation, major exporting sources have exercised "voluntary restraints" on their meat exports to the United States with the result that the Secretary's estimate has each year fallen short of the level that would have required the imposition of formal import quotas.[9]

Following enactment of this legislation, imports of fresh, chilled or frozen meat into the North

[8] The Act provides that the aggregate quantity of these meats "which may be imported into the United States in any calendar year beginning after December 31, 1964, should not exceed 725 400 000 pounds, except that this quantity shall be increased or decreased for any calendar year by the same percentage that estimated average annual domestic commercial production of these articles in that calendar year and the two preceding calendar years increases or decreases in comparison with the average annual domestic commercial production of these articles during the years 1959 through 1963, inclusive."

[9] For 1970, 110 percent of the aggregate quantity of imports permitted under the provisions of the Act amounts to 498 000 tons and the estimated level of imports (on the basis of continued "voluntary restraints" by exporters) to 482 000 tons.

TABLE II-17. – UNITED STATES: PRICES FOR MEAT ANIMALS AND MEATS

	1962-64	1965-67	1969	Change		
				1962-64 to 1965-67	1965-67 to 1969	Dec. 1968 to Dec. 1969
	1910-14 average = 100			*Percent*		
INDEX OF PRICES RECEIVED BY FARMERS						
All farm products	241	256	277	+ 6	+ 8	+ 9
All meat animals	290	337	399	+ 16	+ 18	+ 20
	1957-59 average = 100					
INDEX OF CONSUMER PRICES						
All food items	105	113	126	+ 8	+ 12	+ 7
Beef and veal	104	111	130	+ 7	+ 17	+ 10
Pork	97	116	125	+ 20	+ 8	+ 16

American region dropped sharply, from 570 000 tons in 1963 to 337 000 tons in 1965. Although these imports have since risen steadily, in 1969 they only approached the 1963 level. As the increase in consumer demand for meat has outpaced the increase in available supplies, prices for meat and meat animals have risen sharply (Table II-17), especially during 1969, while per caput meat consumption has levelled off, and may in fact have declined slightly in 1969.

The demand for meat in North America is expected to continue to rise as population grows and per caput incomes increase. Demand projections prepared by FAO (Table II-18) indicate that the 1985 demand will exceed the 1961-63 level by more than 50 percent, or by about 8 million tons (carcass weight). Although the region has technical production possibilities sufficient to fulfil this prospective increase, it is not evident on the basis of current trends that

TABLE II-18. – NORTH AMERICA: PROJECTED INCREASE IN DEMAND FOR MEATS

	Per caput		Total	
	1975[1]	1985[2]	1975[1]	1985[2]
	1961-63 average = 100			
Beef and veal	114	127	138	170
Mutton and lamb	100	100	122	137
Pigmeat	100	100	120	133
ALL MEATS	108	114	131	154

SOURCE: FAO. *Agricultural commodities: projections for 1975 and 1985.*

[1] On basis of high growth rate assumptions for GDP. – [2] On basis of high growth rate assumptions for GDP and low population assumptions.

the domestic livestock industry will be able to compete for the labour and capital required even to maintain the present level of self-sufficiency in meat, except at prices that would impose further burdens on the population as consumers and/or taxpayers.

General policies and programmes

Except for the establishment of the cropland diversion programme in Canada described above, agricultural policies and programmes in North America have continued generally unchanged. They remain however the subject of wide-ranging discussion and review in both countries.

This process has not led to major specific modifications, although significant shifts seem to be emerging in the terms in which agricultural problems are being formulated and in the emphasis of the related programmes. The general direction of these suggests a more broadly based approach, with a notably greater concern for people (rather than for land) and for incomes (rather than for agricultural commodity price levels).

In Canada the review of agricultural policies and programmes has been led by the Task Force for Agriculture, established by the Government in 1967. The challenge facing Canadian agriculture in the 1970s is seen by the Government as " long-term adjustment to ensure a commercially viable agricultural industry." [10] This adjustment is viewed as acceleration of the process that has been under way, at least since the 1930s, in order to bring about the organization of a major portion of Canada's agricultural resources into " the viable farms of the future and the successful transfer of the remaining resources into suitable non-farm employment." A report to the Canadian Agricultural Outlook Conference in November 1969 [11] estimated that continuation of recent trends would reduce the number of Canadian farms from 431 000 in 1966 to approximately 315 000 by 1980, but that this nevertheless would be almost three times as many farms as the anticipated gross value of production could support.[12]

Concerning the array of present policies and measures, this report adds that these " were initiated for a variety of social, economic and political reasons. Few of them were designed specifically to increase the rate of adjustment on Canadian farms . . . It can be argued that some of these policies have had an important effect on increasing the rate of adjustment. It can also be argued that some other policies tended to keep Canadian agriculture divided into small units, freezing the pattern of production and trapping people into low income situations in agriculture."

In the United States the newly appointed Secretary of Agriculture indicated[13] certain shifts in emphasis that were to be expected in the general problems and activities with which his Department would be concerned: " .. it is quite evident that the Department of Agriculture is going to continue to be involved, as it has been through all the years, with farm programmes and all of the activities associated therewith. But I think there are two new emphases that are clearly manifesting themselves ... One is the effort to remove malnutrition from our land ... parallel with this, and more long term, we are going to be increasingly involved in the whole area of things that we call rural America ... activities outside the metropolitan areas ... how we may be able to improve the quality of living in rural America." These shifts in emphasis provide an important part of the context within which the Food and Agriculture Act of 1965, the Agricultural Trade and Development Act of 1954 (PL 480), and the Food Stamp Act of 1964 (all extended, in 1968, to expire at the end of 1970) are being reconsidered by the present Congress.

Concerning the Food and Agriculture Act of 1965, major points at issue include the levels at which agricultural commodity prices are to be supported both as these relate to " parity " and, in view of the importance attached to agricultural commodity exports, to world market prices; the establishment of upper limits for the total of government payments to individual farmers (or farms) under the commodity programmes; and the advantages and disadvantages of alternative means for converting excess cropland to other uses. Retirement of cropland on a long-term basis would be likely to be associated with an accelerated programme of tree-planting to extend the area of private forest lands.

Extension of the food stamp legislation is being considered within the context of mounting concern about the existence of hunger and malnutrition in the United States[14] and dissatisfaction with present welfare assistance programmes.[15] In September 1969 the Secretary of Health, Education and Welfare stated[16] " that over the years cash assistance should

[10] Statement to press conference by Canadian Minister of Agriculture Olson. 27 February 1970.

[11] *Canadian Agricultural Outlook Conference 1969*. Vol. I. (Background papers prepared by interdepartmental committees under the leadership of the Canada Department of Agriculture.)

[12] On the assumption that farm production is to be the only source of an operator's income, and that this income is to provide at least a $4 000 return to labour and management and a 6 percent return on the owner's equity in the farm business.

[13] In his statement to the National Agricultural Outlook Conference. February 1969.

[14] The White House Conference on Food. Nutrition and Health. 2-4 December 1969. highlighted this concern and resulted in a wide-ranging series of recommendations for action.

[15] In August 1969. the President proposed a new approach to welfare problems that would largely replace traditional forms of welfare assistance with a new Family Assistance Plan that would "assure an income foundation throughout every section of America for all parents who cannot adequately support themselves and their children."

[16] During his appearance before the Select Committee on Nutrition and Human Needs. United States Senate. 15 September 1969.

eventually be substituted (in welfare assistance programmes) for food stamp programmes," but that, during the period of transition, a notable extension and expansion of present food assistance programmes are necessary. Under existing legislation, the food stamp programme has been expanded and its coverage enlarged; appropriations for the fiscal year 1970 were increased to $610 million, as compared with expenditures of $251 million during the previous fiscal year. Extending legislation, under consideration by the Congress in October 1970, would authorize further increases to $2 500 million during the fiscal year 1972.

It is not possible to foresee the effects which greater emphasis on nutrition and welfare and on rural area development may have on the form and content of future agricultural commodity programmes in the United States. It is clear, however, that the proposed food assistance and welfare programmes cannot be expected to increase total domestic food requirements by more than a few percentage points, or to absorb more than a small portion of the present excess food production capacity. By distinguishing more clearly between the welfare problems associated with rural poverty[17] and the economic and financial problems that confront commercial agricultural producers, the proposed new approach may, however, significantly alter the terms in which the "farm problem" has traditionally been presented, and lead the search for solutions to take somewhat different directions.

In the welfare context, the serious need for additional and improved housing has distinct implications for many forest products. In the United States, a goal of 26.2 million new housing units has been set for the period 1969 to 1978. Realization of this goal will require a doubling of the 1968 level of construction, 1.5 million new units per year. In the longer term, demand for forest products is expected to rise more rapidly than supplies; hence, better utilization in construction and manufacturing practices, technological improvements in harvesting and processing, greater use of small-sized, low-quality timber, and greater intensification in forest management are aimed at in order to narrow the demand-supply gap in the United States and keep prices close to those prevailing in 1967. A National Task Force for Private Non-Industrial Forest Lands has been established to improve the more than 3 million small private forest holdings which make up 59 percent of United States commercial forest land.

The widespread concern about pollution and deterioration of the environment is also likely to have important longer term implications for the agricultural sectors, including forestry and fisheries. Reduced tolerance levels and restrictions on the use of chemicals (as pesticides, herbicides, food and feed additives, etc.) may require modification of some production techniques and possibly involve additional production costs. In at least some areas, additional requirements for recreational purposes, together with the proposed retirement of excess cropland, may significantly alter present patterns of land use for agricultural and forestry purposes; Canada plans to establish 40 to 60 additional national parks before 1985 and the United States has included 8 rivers in its National System of Wild and Scenic Rivers (created by legislative action in 1968) and is studying another 27 rivers for possible designation. Reduced pollution of streams and coastal areas may add to fishery potentials in some localities.

[17] On the basis of 1964 data, the President's National Advisory Commission on Rural Poverty reported in 1967 that the rural population (on farms and in small towns and villages) accounted for approximately 40 percent of the "nation's poor"; that 25 percent of the rural population had incomes below the "poverty line" as compared with only 15 percent of the urban population.

Oceania

Agricultural production in Oceania during 1969 is estimated as slightly below the record 1968 level, with the small increase in New Zealand more than offset by a decrease of similar proportions in Australia. The value of agricultural exports increased by 17 percent, recovering from the abnormally low level of the previous year. Gross farm income for the region was apparently higher in 1969. However, since production costs were also higher in both countries and Australian farm inventories of wheat rose sharply, realized net farm income is estimated to have shown only a modest increase. Major objectives of agricultural policies and programmes in both countries continue to be the diversification of production and the expansion of exports.

Economic activity continued at a high level throughout 1969 in both Australia and New Zealand. In New Zealand GDP at constant prices is estimated to have increased by about 5 percent and in Australia, with its minerals-based boom, by about 10 percent. Prices continued to rise, but at a lesser rate than during 1968. Both investment and consumption demand continued strong; wages and salaries rose and interest rates remained high. Unemployment continued at a low level while in New Zealand labour shortages appeared evident because

of the continued excess of emigration over immigration.

The value of Australia's total exports rose by 20 percent, to provide an export surplus for the first year since 1964; capital inflow, however, dropped sharply from the very high 1968 level and there was a small reduction in the country's liquidity reserves. New Zealand's exports showed a comparable increase and its trade balance improved to allow an increase in its liquidity reserves.

Some slowing down of economic expansion in Australia was thought probable in 1970, mainly in response to restrictive monetary policies. In New Zealand, the growth was expected to continue at about the same rate as in 1969, despite fiscal measures taken to ease the pressure of the tight labour situation on wages and prices.

Agricultural production

In Australia harvests of most field crops were lower in 1969 and, despite the continued increase in livestock production, total agricultural production is estimated to have been slightly below the record 1968 level (Table II-19). The wheat harvest, although still larger than normal, was about 25 percent smaller than the previous year, a rather welcome reduction in view of the large export surplus already accumulated (see below). However, the rice harvest was again larger, by about 15 percent, as acreage was further increased. Barley production was higher by about 6 percent, but the sorghum harvest was sharply reduced, and total feed-grain production was lower. Sugar production was off by 25 percent, mostly as the result of lower yields, although the acreage was also somewhat smaller. Further important increases in the output of all categories of livestock products during the 1969/70 livestock season (July-June) are reported, with another record wool clip, with milk production up by about 8 percent and total meat production by about 10 percent.

In New Zealand the steady upward trend of recent years continued with a further small increase in total agricultural production in 1969. Most of the expansion was accounted for by increases of about 5 percent in the output of milk and of beef and veal. The wool clip again reached a record level, although the increase was slight, and harvests of wheat and of feed grains were also slightly higher last year.

First estimates for 1970 suggest that agricultural production remained virtually unchanged at the 1969 level. In the case of Australia, this reflected overwhelmingly the further steep fall in wheat production (by almost one quarter to some 8.3 million tons), in response to the heavy stock position and reduced delivery quotas. Coarse-grain production was slightly up from 1969, because of a larger maize harvest, but rice production showed no change. Sugarcane production recovered partially. Among animal products, meat production expanded again steeply, and milk output was also up substantially, but the wool clip increased only fractionally. In New Zealand, neither the production of milk nor of wool showed much change, and both wheat and feed-grain harvests were smaller. Meat production, however, increased by an estimated 5 percent.

Trade in agricultural and fishery products

In 1969 the value of agricultural, fisheries and forestry exports from Oceania recovered by 17 percent from the 1968 level, which had been abnormally low because of the 1967 drought in Australia, and approached the record level of 1964 (Table II-20). The total volume of agricultural exports was larger by about 7 percent and export unit values averaged higher by about 8 percent. Larger exports of meat and wool accounted for about three quarters of the net increase in value; the volume of meat exports was up by 14 percent and those of wool by 4 percent, and export unit values averaged higher for

TABLE II-19. – OCEANIA: INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
	1952-56 average = 100					*Percent*		*1952-56 average = 100*
Australia	133	154	141	170	165	— 3	3.7	122
New Zealand	141	145	150	156	159	+ 2	3.3	120
REGION	135	152	143	166	163	— 2	3.6	119

[1] Preliminary estimates.

TABLE II-20. – OCEANIA: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969[1]	Change 1968 to 1969
	Percent	*1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	95	134	132	138	121	142	+ 17
Food and feedstuffs	58	164	154	185	152	180	+ 18
Cereals	(14)	268	189	348	202	260	+ 29
Sugar	(5)	149	151	162	183	193	+ 6
Meat	(24)	162	174	169	171	217	+ 27
Dairy products	(10)	125	122	143	106	112	+ 5
Raw materials	36	104	110	93	90	104	+ 15
Wool	(36)	104	110	93	90	103	+ 15
FISHERY PRODUCTS	2	203	257	274	369	410	+ 11
FOREST PRODUCTS	3	160	173	213	283	305	+ 8
Agricultural, fishery and forest products	100	134	133	140	125	145	+ 17

[1] Preliminary estimates.

both. The increase in the value of cereal exports was due almost entirely to larger sales of wheat, barley and oats. An 8 percent increase in the volume of dairy products exported was partially offset by lower export unit values. In contrast, a 24 percent reduction in the volume of sugar exports was more than compensated by higher export unit values, as was also a 14 percent reduction in the volume of fruit exports.

Fishery exports from the region, mainly from Australia, continued their rapid expansion with a further increase of 11 percent, but imports grew at virtually the same rate and approximately balanced the total value of exports. Frozen shellfish are Australia's most important fishery export product; Japan, western Europe and the United States are the leading markets.

Agricultural prices and incomes

As usual, the indices of prices received by farmers in this region reflected primarily the state of world export demand for the region's major agricultural products (see Chapter I). In 1969, the New Zealand index increased by an estimated 6 percent, while that for Australia declined. The volume of agricultural products marketed during the calendar year 1969 came largely from the high level of output of the 1968 season, and gross farm income in the region was apparently higher in 1969, particularly in Australia. Production costs, however, continued to rise in both countries, and Australian farm inventories of wheat rose sharply. The increase in realized net farm income during 1969 was therefore somewhat less than that suggested by the production indices for 1968 and the indices of prices received by farmers in 1969.

Forest production and trade

It is estimated that industrial roundwood removals increased slightly in Oceania in 1969. There was a further moderate rise in sawn softwood and chemical pulp output, but production of other products is estimated to have shown little change. There was a further increase in New Zealand's exports of coniferous logs to Japan. Exports of other forest products remained relatively small, although New Zealand's exports to Australia of sawn softwood and chemical pulp continue to increase under the Free Trade Agreement between the two countries.

Problems, policies and programmes

WHEAT PRODUCTION AND STOCKS

As a result of the 1968 record harvest, Australian wheat stocks (Table II-21) at the end of the 1968/69 season (30 November 1969) amounted to 7.3 million tons, a record level. The possibility of another bumper harvest in 1969 gave rise to serious concern. As a direct measure to induce growers to lower their wheat acreage, the Australian Wheat Growers' Federation agreed to a system of quotas that limited deliveries during the 1969/70 season to a maximum of 9.8 million tons (357 million bushels).

The 1969 harvest fell short of early expectations because of drought and of unfavourably wet weath-

TABLE II-21. – AUSTRALIA: SUPPLY AND UTILIZATION OF WHEAT

	1967/68	1968/69	1969/70 [1]
	..... *Million metric tons*		
Beginning stocks (1 Dec.) . .	2.3	1.4	7.3
Production	7.5	14.8	10.8
Domestic use	2.7	2.5	2.4
Exports [2]	5.7	6.4	7.6
Ending stocks (30 Nov.) . .	1.4	7.3	8.0

[1] Preliminary estimates. – [2] Includes wheat equivalent of wheat flour.

er at harvest time, which also contributed to an unusually large proportion of offgrade grain. The crop nevertheless exceeded the total of the delivery quotas by about 5 million tons, and on-farm stocks rose sharply. Although Australian exports increased during the early part of the 1969/70 season, a further significant increase in wheat stocks seems likely during the course of the 1969/70 season. The delivery quotas proposed for the 1970/71 season have therefore been reduced to 8.7 million tons (318 million bushels).

The system of dual price guarantees remains in effect with the guaranteed price of A$ 1.459 per bushel for 200 million bushels of exports and A$ 1.725 per bushel for wheat sold for domestic consumption. Use of wheat domestically for feed purposes is reported to have increased, as have exports of offgrade grain for feed purposes.

MEAT PRODUCTION AND SUPPLY

Meat production in the region has risen to a level about 70 percent above that of the early 1960s (Table II-22). The increase has been closely associated with the strong export demand for meat; exports from the region have more than doubled in volume, and the value has increased even more as export prices have trended upward.

Despite this increase, there remain important potentials in both Australia and New Zealand for further expansion of meat production. Although Australian production tends to be subject to setbacks owing to recurrent droughts, continued expansion of the region's meat production appears mainly dependent on increased access to export markets. Per caput meat consumption in both countries has long been among the highest in the world, and any projected increase in domestic consumption must realistically be related entirely to population growth. In neither country can this be expected to be sufficient to permit reasonably full exploitation of the existing technological and economic potential for expansion of meat production.

TABLE II-22. – OCEANIA: MEAT PRODUCTION AND EXPORTS OF FRESH, CHILLED OR FROZEN MEAT

	Production			Change	
	1948-52	1958-62	1968	1948-52 to 1958-62	1958-62 to 1968
	Thousand metric tons			... *Percent* ...	
PRODUCTION [1]					
Beef and veal	815	1 068	1 285	+ 31	+ 20
Mutton and lamb [2] . . .	655	1 006	1 244	+ 54	+ 24
Pork	128	151	200	+ 18	+ 32
TOTAL	1 599	2 225	2 729	+ 39	+ 23
EXPORTS					
Beef and veal	128	281	377	+ 120	+ 34
Mutton and lamb [2] . . .	303	392	553	+ 29	+ 41
Pork	14	4	2	— 71	— 50
TOTAL	445	677	932	+ 52	+ 38

[1] Australian years ending 30 June combined with New Zealand years ending 30 September. – [2] Includes goat's meat.

The region's meat exports at present consist almost entirely of beef, veal, mutton and lamb. The possibility of developing pork production for export would seem, however, to warrant consideration, particularly in view of the prospective increase in incomes and demand in those Far Eastern countries where pork is traditionally a favoured meat.

The cost-price relationship of meat production in Australia and New Zealand promises to remain internationally competitive. Moreover, the export organizations in both countries have gained valuable experience during recent years in the development of export markets and in the merchandizing of their products. Thus, expansion of meat production for export appears to offer the most inviting means for the further diversification of agricultural production, as appears particularly to be desired in New Zealand, and reduction of the region's dependence on the export of other agricultural commodities for which market growth prospects are distinctly more limited (dairy products, wheat, wool, etc.). A major obstacle to this expansion, however, remains the limitations on access to export markets, which result from the protectionist policies and restrictive measures of some major meat-importing countries.

GENERAL POLICIES AND PROGRAMMES

Rapidly expanding exports of minerals and manufactured goods are reducing Australia's dependence on agricultural exports as a source of foreign exchange earnings. It nevertheless remains heavily de-

pendent upon export markets as outlets for a major part of its agricultural production (particularly of wool, wheat, rice, sugar, beef and veal). The rapidly changing structure of its economy has not brought important changes in Australia's agricultural policies.

The expansion and further diversification of export markets for its traditional agricultural products remain a major objective of the Government and of the various agricultural commodity boards. Domestically, the array of programmes and measures designed to increase efficiency of production and to ensure competitive pricing of exports continues generally unchanged. The Australian Wool Marketing Corporation, a statutory body established in 1970 to serve as the exclusive wool marketing agency, is scheduled to start its operations in the 1971/72 season. The long-proposed programme for rationalization of the dairy industry continues to be discussed between the federal and state governments; it is reported likely to come into operation during the 1970/71 fiscal year.

The major agricultural problems confronting New Zealand continue also to be linked closely to changing patterns in foreign demand for its traditional export products (meat, wool, dairy products, fruit, etc.). The renewed prospect of United Kingdom membership in the European Economic Community gives rise to serious interest in arrangements to provide New Zealand products (particularly butter, cheese and lamb) with continued access to the United Kingdom market. In any case, diversification of its export markets continues to be a major objective of government policies, and programmes and measures for this purpose continue to constitute an important part of the activities of the various agricultural commodity boards.

The National Development Conference, which held its second plenary session in May 1969, again stressed the need for further diversification of the New Zealand economy, particularly for industrialization, and emphasized development of the forestry sector. The output of forest products is expected to increase from 6.8 million cubic metres roundwood equivalent in 1968 to 9.6 million cubic metres by 1973. Even greater reliance will be placed on exotic softwood plantations, which already provide 80 percent of the timber consumed; it is planned to increase the annual planting rate from the present 15 000 hectares to more than 18 000 hectares. Systems of loans to private individuals and companies have been established to facilitate the proposed increase in planting activity. Forest industries are playing an increasingly important role and already generate 12 percent of the income from industries in New Zealand, provide 41 percent of all manufactured exports, employ 10 percent of the industrial labour force and generate 4 percent of the GNP.

Efforts by the Agricultural Production Council to promote production adjustments to conform to changes in export demand appear to be receiving somewhat greater relative emphasis than in the past. Such adjustments include shifts from dairy to beef production, selective culling of flocks to improve the fineness of the wool produced, expansion of handling and processing facilities for meat and fruit, etc. Credits, concessional interest rates and tax advantages are the main incentives offered; however, the 1969/70 national budget provided funds for grants as incentives for shifting from dairy to beef. Establishment of a grower-controlled wool marketing authority, recommended in 1967 by a government-sponsored wool marketing study group, continues to be discussed.

Latin America

Early GDP estimates showed an increase for the region as a whole of between 5 and 6 percent at constant prices, compared with 5.5 percent in 1968 and an average rate of 4.8 percent a year in 1961-67. Because of the very rapid growth of population, however, this was equal to an increase in per caput income of only some 2 percent. Agriculture remains the lagging sector: production increased only slightly, and was insufficient to keep up with the rate of growth of population.

Among the 20 countries for which 1969 data are available, there were 7 which showed increases in GDP of more than 6 percent (Argentina, Brazil, Colombia, Costa Rica, Mexico, Panama, and Trinidad and Tobago), generally implying increases in per caput terms of between 2 and 3 percent. In 6 other countries (Bolivia, Ecuador, Guatemala, Nicaragua, Paraguay and Venezuela) increases of between 4 and 6 percent were recorded, while in the remaining 7 countries the GDP remained at levels which allowed little, if any, growth in the per caput level.

Though manufacturing accounts for the greatest share of GDP in a few countries, particularly Argentina, Brazil, Chile and Mexico, the contribution of this sector has on the whole risen slowly, and agriculture remains vital for the region's economy, particularly in terms of employment. Some 45 percent

of the economically active population remains engaged in agriculture and, in a number of countries, the proportion reaches 60 percent. Furthermore, the majority of the Latin American countries earn over half of their foreign exchange from agricultural products; only in Bolivia, Chile, Jamaica, Trinidad and Tobago, and Venezuela are agricultural exports less important.

Efforts to stabilize prices continued to bear fruit in a number of Latin American countries, and price increases were generally smaller in 1968 than had been the rule until a few years ago. In Argentina effective wage and price policies restricted the rise in food and other consumer prices to 6-7 percent compared with increases of 25-30 percent in 1966 and 1967, and in Peru the price rise was limited to 6 percent. In Uruguay a wage and price freeze reduced the increase in food prices from over 130 percent in 1968 to only 12 percent in 1969. Inflation was stronger in Brazil, where overall consumer prices increased by some 25 percent; this was about the same rate as in 1968, but much below that prevailing in the period of rapid inflation during the earlier 1960s. In some countries the lower farm output in 1968 tended to raise food prices. In Chile above-average increases in food prices reflected not only drought-induced shortages, but also the devaluation of the escudo in 1969 and the institution of higher guaranteed producer prices for a number of products.

Vulnerability of agricultural exports to price and volume changes in world markets, resulting from the heavy concentration of exports in terms of both commodity composition and destination, continues to be one of the basic problems confronting Latin American trade. Some 30 percent of the region's total shipments go to the United States, and in most countries exports continue to be dominated by a few primary products, such as coffee in Colombia (65 percent of total exports), bananas in Ecuador (57 percent), and sugar in Barbados (68 percent).

Growing unemployment is among the most pressing economic and social problems the governments in the region are confronted with. This problem and suggestions to overcome it are a central topic of a study presented by Raúl Prebisch to the Inter-American Development Bank in 1970.

In it he calls for the achievement of an annual rate of economic growth of 8 percent by the end of the current decade. To attain this rate, which compares with an average annual increase in the GNP of 5.2 percent over the past two decades, the share of the region's GNP devoted to investment would have to increase from 18 percent at present to almost 27 percent by 1980. In addition the demand for consumer goods would have to be restructured in favour of the low-income groups, exports would have to be increased significantly to obtain the foreign exchange necessary for the heavy capital goods imports required, and a major impetus should be given to regional economic integration.

Agricultural production

Although production in many countries recovered from the adverse weather conditions of 1967 and 1968, the overall output increased only slightly in 1969 (Table II-23). Among individual countries Argentina, the Dominican Republic, Ecuador, El Salvador and Guyana showed increases well above average, but in a number of others, including Bolivia, Brazil, Colombia and Uruguay, production increased less or even decreased as in Barbados, Chile, Cuba, Guatemala, Jamaica and Mexico.

The total wheat harvest of the region, at over 12 million tons, was 16 percent larger than in 1968. Output in Argentina, the main producing country, was up by 22 percent, and there was an increase of 36 percent in Brazil, due to greater government efforts and in particular to unusually dry weather favouring wheat production. Some other countries, however, experienced significant losses, in particular Colombia and Uruguay. Maize production in the region, at 32 million tons, was 6 percent lower than in the previous year. Strong demand led to another expansion of the feed-grain area in Argentina and a moderate recovery in production. Better harvests were also reported from El Salvador, Guatemala and Uruguay. In Brazil, however, depressed prices at planting time encouraged farmers to shift from maize to other crops, and drought at midyear reduced yields. Bad weather also caused losses in Mexico and especially in Chile, where the crop fell by one half. Regional rice production, at 9 million tons, was 11 percent less than in 1968, primarily because of sharp declines in Chile and Brazil. Among other producers, steep increases — of about one fifth — were recorded in Argentina and Uruguay, but the crops in Mexico and Colombia were smaller, mainly because of adverse weather.

The production of centrifugal sugar in the region is estimated at 18.3 million tons, slightly less than in 1968. Output declined by 18 percent to 4.4 million tons in Cuba, usually the largest producer of the region, and in Peru reduced supplies of irrigation water resulted in the lowest crop recorded in recent years. An increase in cane production in the northeast of Brazil, on the other hand, more than offset the drought-caused reduction in the harvest in the south, and overall production increased by 7 percent to 4.6 million tons. Also in Central America production recovered, and in Ecuador it continued to expand.

TABLE II-23. – LATIN AMERICA: INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969 [1]
	1952-56 average = 100					Percent		1952-56 average = 100
Production in selected countries (all products)								
CENTRAL AMERICA	177	182	189	195	192	— 2	4.4	117
Costa Rica	158	161	181	196	199	+ 1	4.8	118
El Salvador	155	158	166	162	173	+ 7	3.2	106
Guatemala	194	176	196	198	189	— 5	5.1	120
Honduras	169	154	175	183	182	—	4.1	112
Nicaragua	209	212	213	211	190	— 10	5.9	117
Mexico	177	183	188	194	192	— 1	4.2	116
Panama	158	161	168	175	174	—	4.0	110
CARIBBEAN	114	103	116	108	105	— 6	0.4	72
Barbados	118	106	121	100	90	— 10	0.8	79
Cuba	111	92	114	104	93	— 11	—	68
Dominican Republic	112	130	126	121	131	+ 9	1.1	77
Haiti	105	102	99	101	101	—	—	76
Jamaica	141	143	135	133	125	— 6	2.6	94
SOUTH AMERICA	141	139	146	145	149	+ 2	2.6	99
Argentina	110	119	126	117	127	+ 8	1.1	99
Bolivia	181	183	190	193	196	+ 2	3.6	135
Brazil	171	154	164	166	167	+ 1	3.4	108
Chile	120	133	130	136	129	— 5	2.0	90
Colombia	134	137	143	151	152	+ 1	3.2	95
Ecuador	208	205	214	210	221	+ 6	4.7	137
Guyana	153	143	149	150	161	+ 8	2.6	103
Paraguay	136	133	140	142	144	+ 2	2.7	96
Peru	136	141	142	140	143	+ 3	3.1	94
Uruguay	102	97	86	100	104	+ 4	0.1	85
Venezuela	185	194	205	215	216	—	6.1	124
Regional production								
TOTAL								
All products	142	139	147	146	149	+ 2	2.6	—
Food only	140	141	150	151	152	+ 1	2.8	—
PER CAPUT								
All products	104	99	102	99	97	— 1	— 0.3	—
Food only	102	101	104	101	99	— 2	— 0.1	—

[1] Preliminary estimates.

The production of bananas remained unchanged, mainly reflecting the situation in Ecuador and Colombia. The 1969 coffee crop exceeded the small 1968 harvest by 19 percent in Brazil, and also in Central America and Mexico producers recovered from previous losses. Production declined slightly only in Paraguay and Haiti. The total for the region increased by 12 percent.

The 1969 cotton production went down slightly. In Brazil, the largest producer, farmers in the south continued to expand the cotton area and unusually favourable weather contributed to a harvest which exceeded the 1968 record by 21 percent. This was more than offset, however, by lower output in Mexico and several other producing countries. Wool output remained largely unchanged: there was some increase in Argentina but drought reduced production in Uruguay.

Regional production of beef and veal is estimated to have grown by some 4 percent in 1969, almost entirely on account of the expansion in Argentina, where output at 2.8 million tons reached a record level. There was little change in the production of pig and poultry meat and mutton, but milk production increased considerably in a number of countries, particularly in Chile and Mexico.

The first, incomplete indications for 1970 suggest some acceleration in the recovery of production in the region, following two years of disappointing results. The majority of the countries of the region are expected to show an increase in their total agricultural output, in some cases (e.g., Chile, Cuba,

Dominican Republic and Uruguay) by a substantial margin. In terms of principal commodities, wheat production is estimated to be smaller because of a steep reduction in Argentina in response to drought at midyear and stable support prices, but the Brazilian crop is estimated to have expanded steeply again. Substantial increases are also expected for maize in all principal producing countries (Argentina, where prices were favourable, Brazil and Mexico), for rice (especially in Brazil, where the 1969 harvest had been down and growing conditions in 1970 were favourable), and for sugar, of which the Cuban harvest is estimated at nearly double the 1969 level while smaller gains are reported from a number of other important producing countries. Coffee production is down steeply, mainly because of the nearly one-third reduction in Brazil caused by frost. Little overall change is estimated in the output of other major products. Cotton production is thought to have remained stable, mainly because of reductions in Mexico, as area was diverted to other crops, and Colombia, and the cocoa production may be slightly lower, mainly because of a smaller crop in Brazil. Milk production is estimated to have continued to rise slowly. Output of meat may have been only fractionally higher than in 1969 because of drought-reduced cattle numbers in a number of countries, but some limited gains were made in Argentina and Brazil. Banana production remained virtually unchanged.

Fishery production

The region's total catch, the bulk of which is utilized for export industries, is estimated to have fallen in 1969 by some 12 to 13 percent to about 11.8 million tons.

Following a good season in 1968/69 in Peru, the largest producer, the 1969/70 season started very poorly, and the total catch of the country in the calendar year 1969 fell by 12 percent to 9.25 million tons. Fish-meal production was consequently about one sixth less than the record level of 1968 though still, at 1.6 million, about equal to the average output in 1964-68. Fish-oil production was also substantially lower than in 1968. Peru's food fish production was in the neighbourhood of 180 000 tons, and is being expanded. In Chile catches in the raw material fishery were smaller, and total landings were down by 30 percent to 960 000 tons.

Among the other countries of the region, Mexico, traditionally one of the leading shrimp producers in the world, continued to experience difficulty with its fisheries, having to deal with unfavourable weather and oceanographic conditions, the obsolescence of a part of its fishing fleet, and lack of managerial staff and experience. A substantial improvement was registered in the first quarter of 1970, although it is too early to judge whether the recovery is merely a temporary phenomenon.

Latin American countries which have made special efforts in the past few years to expand their fishery operations to cover animal protein requirements and to boost export earnings include Cuba and Brazil. The Government of Cuba is purchasing offshore fishing vessels from overseas, organizing large-scale training programmes and contributing in other ways to the transformation of its fisheries into a major industry. Brazil's efforts to increase private investment in fisheries through the provision of special incentives are bearing fruit, and production for export and domestic markets has been on the rise since the new legislation came into force in 1967.

Forest production

The slowly rising trend in industrial roundwood removals continued in most countries in Latin America, although they remain very low in comparison with the available resources. Removals of fuelwood also continued to rise in most parts of the region.

Pulp and paper production, which already in 1968 had expanded relatively fast in the major producing countries, continued to rise and comprised an increasingly diversified range of paper grades and qualities. The construction of new plants and the expansion of existing ones, which was undertaken in 1968/69 particularly in Brazil, Chile, Mexico and Argentina, has not yet, however, been reflected in the regional production level, which remains relatively modest. Increases in the production of wood-based panels for the region as a whole have been limited, although noteworthy expansions occurred in several countries, especially in Brazil. Sawmill production for the region as a whole remained virtually unchanged.

Trade in agricultural, fishery and forest products

The data on Latin American agricultural exports in 1969 are still very incomplete; the estimates of changes in value of exports presented in Table II-24 must therefore be viewed with caution. An illustration of the possible alterations which may need to be made once more complete data are available is provided by the revision of the growth in export earnings in 1968. Whereas the figures presented in *The state of food and agriculture 1969* suggested only a marginal increase in the region's agricultural export earnings, the recalculated indices show that they probably rose by some 3 percent.

TABLE II-24. – LATIN AMERICA: INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	91	125	123	117	121	125	+ 3
Food and feedstuffs	48	146	144	144	141	146	+ 3
Cereals	(9)	256	231	188	167	179	+ 7
Sugar	(18)	114	109	125	121	121	—
Bananas	(6)	105	120	132	138	134	— 3
Meat	(9)	149	152	143	157	173	+ 11
Beverages and tobacco	31	96	98	90	100	102	+ 3
Coffee	(26)	98	100	91	100	99	— 1
Cocoa	(3)	50	69	82	85	126	+ 47
Raw materials	13	145	128	105	117	123	+ 5
Cotton	(8)	159	140	108	130	141	+ 9
Wool	(3)	114	117	97	106	86	— 19
FISHERY PRODUCTS	6	333	388	380	429	400	— 7
FOREST PRODUCTS	3	126	136	126	153	153	—
Agricultural, fishery and forest products	100	129	128	122	127	131	+ 3

[1] Preliminary estimates.

In the main this is the result of upward revisions of the estimates for meat and cotton.

Keeping these reservations in mind, the data available suggest that the combined value of the region's exports of agricultural, fishery and forest products may have risen in 1969 at roughly the same rate as in 1968. The contribution of agricultural products proper, however, was probably somewhat greater than the year before since, in contrast with 1968 when the value of both fishery and forest products rose steeply, earnings from fishery exports are estimated to have declined, and those from forest products to have remained unchanged.

For agricultural products proper, the increase was due more to a greater volume of shipments than higher unit values. In fact, in contrast to the 4 percent increase in the average unit value of world agricultural trade in 1969, the average price level for Latin America's farm exports showed no increase at all. There were substantial increases in the volume of exports of cereals, beef and veal, cotton and cocoa, as well as of some minor products, but only in the case of meat and cocoa among major products did higher prices contribute to the increase in value.

In part, the stability of the average unit value of the region's exports was a reflection of the commodity composition of the region's agricultural exports, such as the importance in the total of wheat, bananas, coffee and cotton, the prices of which in the world markets were down or failed to increase. Specific factors contributing to the same tendency include the large share in the region's sugar exports to the preferential markets (notably the United States) where prices, though higher in absolute terms, rose but little compared with the "free" markets; and the increasing share in total cereal exports of lower value coarse grains.

The increase in cereal exports, consisting mainly of larger maize and sorghum shipments from Argentina, was in the nature of a recovery and, although the total volume surpassed the 1967 level, it was still considerably below that reached in 1965 and 1966 when supplies on world markets were short. For beef and veal as well the increase largely represented a recovery of Argentine exports, which had been banned from the United Kingdom market for part of 1968, though shipments from Brazil, Nicaragua and Uruguay were also higher. Brazil's cocoa exports benefited from the largest Temporão crop since 1953/54 and from higher prices than in 1968. Cotton exports from most of the major exporters were also substantially larger but, as prices for this commodity on world markets were generally lower, the increase in earnings was less.

Larger earnings from the above-mentioned commodities were partially offset by a reduction in the value of exports of bananas and wool. Exports of bananas were reduced by severe hurricane losses in Honduras in September 1969, some flood losses in Panama and by smaller exports from Ecuador, which were only partially made good by larger shipments from Costa Rica where extensive new plantings in the Atlantic zone have come into production.

Earnings from two major commodities, sugar and coffee, remained largely unchanged. The application of export quotas under the International Sugar

Agreement and the nonredistribution of the quota shortfalls caused a slight drop in the volume of sugar shipments, but this was offset by the higher prices received under the agreement. Cuba is reported to have exported about 4.8 million tons, slightly more than in 1968, increasing its shipments to free market destinations, particularly Japan; its exports to the U.S.S.R. were the smallest since 1963.

The growth in the volume of coffee exports was also held down by quota restrictions under the International Coffee Agreement and, although the falling trend of prices was reversed at midyear particularly for Latin American (as contrasted with African) coffees, the effect on the average price for the year was not very marked.

The information on Latin American 1969 imports is too incomplete to permit a detailed examination, as there are still no official data for most major importing countries. On the whole it would seem, however, that cereal imports have probably fallen below the peak level of 1968, when they had risen to 8 million tons, following several years of drought. The wheat purchases of many major importing countries are reported to have declined in 1969. Brazil's imports were reduced by about 10 percent — to below the 1966 level — and following the improvement in agricultural production the wheat and wheat flour imports of the Caribbean countries probably levelled off, and perhaps even declined, following the rise in 1968.

Following the sharp increase of the previous year, Latin American earnings from exports of fishery products declined by 7 percent in 1969, mainly reflecting the sharp drop in fish-meal exports from Chile and Peru. Export prices for Peruvian fish meal were about 20 percent above the level of the previous year, but partly because production was reduced and partly because of the substitution of soybean meal for fish meal in feed rations in the United States, the volume of exports declined sharply. This reduction more than offset the continued increase in Peruvian exports to European countries, where competition with other feed components is of less importance. Exports to the Federal Republic of Germany, Peru's most important fish-meal market in 1969, were encouraged by a provision (rescinded, however, in December) which required that mixed feeds include a fixed proportion of fish meal.

Peru's exports of fishery products for human consumption were characterized by mixed trends, with frozen fish and shrimp sales increasing and canned fish (bonito) decreasing. Trends in Chilean exports of fish meal followed a pattern similar to that of Peru, and recently initiated attempts to sell fresh hake in United States markets have had only modest success, although longer term prospects should be more favourable.

Shrimp exports to the United States are the dominant element in the trade of the other countries of the region. India threatened to displace Mexico as the leading supplier in this market, as Mexican exports continued to decline because of disappointing results in the fishery sector. Reduced quantities of shrimp were also shipped to the United States from the Caribbean area, while Central American exports remained at about the same level as in 1968. South American suppliers, in contrast, succeeded in increasing their shrimp sales to the United States.

Earnings from forest products are estimated to have remained unchanged in 1969, largely reflecting the stable level of sawnwood exports which account for 70 percent of the total. Paraná pine sawnwood exports from Brazil to the United Kingdom fell sharply, but this was partly offset by higher exports to other western European countries. Exports of sawn hardwood to the United States from the main suppliers in the region — Brazil, Colombia and Ecuador — expanded appreciably.

Livestock development

The contribution of livestock to the economies of Latin America varies widely as between Argentina, Brazil, Mexico, Paraguay and Uruguay, where it is a major agricultural activity, and the rest of the region, where its contribution is less important (Table II-25).

Meat accounts for about 65 percent of the total value of animal production in the region; milk and dairy products 20 percent; and eggs, wool, hides and skins 15 percent. The most important animals, cattle, increased in number from 213 million in 1962/63 to 248 million in 1968/69 and account for about 70 percent of the region's meat production and nearly all its milk. Pigmeat accounts for a further 17 percent of the total meat output, the num-

TABLE II-25. – LATIN AMERICA: CONTRIBUTION OF TOTAL AGRICULTURE AND LIVESTOCK TO GDP AND OF LIVESTOCK TO AGRICULTURAL GDP IN SELECTED COUNTRIES, 1968

	Total agriculture, as percent of GDP	Livestock production, as percent of	
		Total GDP	Agricultural GDP
	..... *Percent*		
Argentina	15	7	48
Brazil	27	7	25
Mexico	16	5	30
Paraguay	33	10	35
Uruguay	13	8	70

ber of pigs increasing by 16 percent to 99 million; mutton and poultry meat each contribute 6 percent.

Beef and veal are not only important livestock products on a regional level, but their output at 7.2 million tons accounted for about 20 percent of the world total in 1969. The importance of other animal products, whether at regional or world level, is much smaller (Table II-26).

Production

Argentina and Brazil continue to be the largest beef producers in Latin America. In 1968, their herds of 51 million and 90 million head respectively accounted for about 70 percent of the regional total, and Argentina's cattle population almost equalled in number those of all Central America, Mexico and the Caribbean countries. Although the herd in Argentina is smaller, at 2.7 million tons its total output of beef and veal accounted for almost half the regional production in 1969, compared with 1.8 million tons in Brazil. Of the remainder, Colombia, Mexico and Uruguay account for about 5 percent each.

Pigs, which account for about one fifth of total volume of meat production, are as a rule produced in an extensive manner. In Argentina pig raising is based on a system of alfalfa pasture for about ten months and rye or barley pasture for about two months, supplemented by maize and sometimes skim milk or whey. In Central America, most pigs feed as scavengers. Very small amounts of maize are believed to be fed and the scarcity of feed grains is undoubtedly a major obstacle to developing pigmeat production. The pig population has been increasing at an annual rate of 2.4 percent during the last decade, and there is little indication that production methods have changed. As long as emphasis is given to beef production, most available pasture in the subregion will be used for cattle raising.

Regional production of mutton and lamb is of very limited importance. Wool, on the other hand, is a major foreign exchange earner for Uruguay, and to a lesser extent also for Argentina, Chile and Paraguay. The total output of poultry meat equals that of mutton. Modern techniques have recently been introduced into poultry and egg production, and the contribution of these sectors to total livestock production is growing. As might be expected, there is a strong dualism between the traditional small flocks of poultry for subsistence production, and the modern broiler installations with several thousand birds.

TABLE II-26. – WORLD[1] AND LATIN AMERICA: MEAT PRODUCTION, 1963-65 AVERAGE AND 1969

	World production		Latin America			
			Production		Share in world total	
	1963-65 average	1969	1963-65 average	1969	1963-65 average	1969
	Million tons				*Percent*	
Beef and veal	30.8	36.5	6.1	7.2	20	20
Pigmeat	21.7	24.8	1.4	1.6	6	7
Mutton and lamb	5.6	6.0	0.4	0.5	7	8
Poultry	9.7	12.4	0.4	0.5	4	4
TOTAL	67.8	79.5	8.3	9.8	12	12

[1] Excluding centrally planned countries in Asia.

Consumption

In South America the annual per caput consumption of animal products in 1961-63 was estimated at an average of 46 kilogrammes of meat, 3 kilogrammes of eggs and 84 kilogrammes of milk and milk products (in terms of liquid milk). The intake varies widely, however, between countries. In Argentina and Uruguay, per caput annual consumption of beef and veal is at present estimated at about 90 kilogrammes, while in the rest of the region total meat consumption per caput ranges between 10 kilogrammes a year in Bolivia, Ecuador and most of the Central American and Caribbean countries, and 20 to 30 kilogrammes a year in the rest of the region. For all animal proteins, per caput intake ranged in 1961-63 from more than 70 grammes a day in Uruguay ot less than 15 grammes a day in Ecuador and Bolivia. Since food production has barely kept pace with population growth during the last decade, these figures are unlikely to have changed significantly.

Trade

Although Latin America remains a major supplier of meat to world markets, the absolute volume and value of the region's meat exports, and especially its share in the world total of meat trade, have fallen in recent years and the recovery in 1969 was only partial. Of the regional total of beef exports, Argentina accounted in 1968 for about 55 percent in terms of volume and value. Uruguay, the second largest exporter, was responsible for some 20 percent of the total, and most of the remainder was divided among Brazil, Colombia, Paraguay and the Central American countries (Tables II-27 and II-28).

TABLE II-27. – WORLD AND LATIN AMERICA: VOLUME AND VALUE OF BEEF AND VEAL EXPORTS, 1963-65 AVERAGE AND 1968

	Volume				Value			
	1963-65 average		1968		1963-65 average		1968	
	Thousand tons	*Percent*	*Thousand tons*	*Percent*	*Million U.S. dollars*	*Percent*	*Million U.S. dollars*	*Percent*
WORLD TOTAL .	1 469	100	1 545	100	976	100	1 222	100
of which:								
Latin America .	599	41	481	31	300	31	268	22
TOTAL LATIN AMERICA	599	100	481	100	300	100	268	100
of which:								
Argentina . . .	434	72	255	55	219	73	150	56
Uruguay	84	14	96	20	39	13	45	17

Chilled beef has traditionally accounted for the largest part of Argentina's meat exports, but in the 1960s the share of frozen beef has increased and recently there has been a shift to boneless cuts. After a disrupted year in 1968, Argentina beef exports have again increased; in 1969 they were estimated at 350 000 tons compared with only 255 000 tons the year before. Exports from Uruguay also recovered slightly in 1969, to 100 000 tons. Brazil's beef and veal exports are small in comparison with the domestic importance of the cattle industry, but they are now expanding rapidly because of low domestic cattle and meat prices. The total for 1969, at 5 000 tons, was well above the 1968 level, and the outlook for 1970 is for continued good sales.

TABLE II-28. – LATIN AMERICA: VALUE OF EXPORTS OF TOTAL AGRICULTURAL PRODUCTS AND OF LIVESTOCK PRODUCTS, SELECTED COUNTRIES, 1968

	All agricultural products	Livestock and livestock products				Exports of livestock and livestock products as percent of total agricultural exports
		Live animals	Meat and meat preparations	Dairy products and eggs	Total	
	..... *Million U.S. dollars*					*Percent*
Argentina	1 180	35	334	4	374	32
Brazil	1 490	1	48	—	49	3
Colombia. . . .	433	2	1	—	4	1
Costa Rica . . .	137	1	12	1	13	10
Guatemala . . .	166	—	10	1	11	7
Honduras [1] . . .	124	3	5	—	8	7
Mexico	604	26	36	—	62	10
Nicaragua . . .	134	—	16	1	17	13
Paraguay	...	—	29	—	29	...
Uruguay [2] . . .	...	1	45	1	47	...

[1] 1967. – [2] 1966.

TABLE II-29. – LATIN AMERICA: VALUE OF IMPORTS OF TOTAL AGRICULTURAL PRODUCTS AND OF LIVESTOCK PRODUCTS IN SELECTED COUNTRIES, 1968

	All agricultural products	Livestock and livestock products				Imports of livestock and livestock products as percent of total agricultural imports
		Live animals	Meat and meat preparations	Dairy products and eggs	Total	
	..... *Million U.S. dollars*					*Percent*
Barbados . . .	23	—	5	3	8	36
Brazil	365	3	—	11	14	4
Chile [1]	157	27	9	10	46	29
Guatemala . . .	30	3	—	2	6	19
Jamaica	78	1	10	10	21	26
Mexico	114	9	3	6	18	16
Peru [1]	141	18	13	18	49	35
Venezuela . . .	163	2	4	3	9	6

[1] 1967.

Since the late 1950s Central America has emerged as a growing exporter, particularly to the North American market which offers remunerative prices for low-grade beef. These exports, however, are expected to increase more slowly than in the last decade because of quota restrictions in the United States. The major importers of meat and livestock products in the region are Peru and Chile (Table II-29).

PRINCIPAL PROBLEMS

Although the land under permanent pasture represents about 80 percent of the total agricultural area of the region and although several countries, including Argentina, Brazil, Mexico, Uruguay and Venezuela, possess highly developed livestock areas, most pasture is completely unattended, and natural vegetation is the sole source of feed for cattle. Hence major difficulties of feeding livestock result from seasonal forage shortages which bring carrying capacity down during part of the year, particularly in times of drought. Other difficulties stem from poor grazing systems, the inadequate fencing of pasture land, single crop pasture and the absence of weed control. Reflecting the commonly prevailing feed/meat price ratio, moreover, there is also a widespread lack of interest in the cultivation of forage crops and consequently an insufficient supply of supplementary feed, ensilage and concentrated by-products.

In Brazil, for example, only a limited number of ranchers supplement grass with protein concentrates

or other feeds. There are no large-scale feedlots for fattening cattle, although the country produces large quantities of feed items, including molasses, cottonseed meal, cassava and maize. In Central American countries supplementary feeding of beef cattle is just beginning and most manufactured feeds are now imported because of the scarcity of domestically produced grains.

Another major problem is the prevalence of animal diseases and pests which, besides causing a large number of deaths, reduce yields of meat, milk and wool. For Brazil, it was estimated in the mid-1960s that infections and parasitic diseases, together with insufficient feed with an inadequate mineral content, are annually responsible for the death of slightly over 3 million cattle, 10 million pigs and some 2 million sheep and goats, valued at approximately 55 000 million cruzeiros (at 1960 prices), equal to one quarter of the total value of livestock production. Foot-and-mouth disease control in Latin America suffers from serious deficiencies in the quality control of vaccines. The identification of field strains of virus and the general management of field control campaigns also leave much to be desired. Over the entire region there are not enough well-qualified veterinarians specialized in meat hygiene, and in most countries meat hygiene regulations require revision. It should be noted, however, that Latin America is so far free from rinderpest, African horse sickness, African swine fever and many of the arthropoid-borne diseases which exist in other continents.

Breeding limitations also militate against an increase in animal productivity. Although new breeds are being introduced in all countries, most of the cattle, particularly in Central America and in the Andean countries, are of native breeds that have existed since colonial times and which yield relatively little meat. The expansion of milk production is in many cases hampered by the lack of dairy cattle suited to tropical conditions, the shortage of good bulls and an inadequate breeding policy in the genetic programmes followed by stock farmers, as well as by an inadequate supply of feedstuffs suitable for improved stock.

Policies and programmes

Since the mid-1960s significant efforts have been made to support livestock development in the majority of the Latin American countries. Although some countries, including Chile and Uruguay, have included comprehensive livestock development programmes in their general agricultural development plans, most activities in this field have resulted from specific livestock programmes and projects, mainly for beef and dairy cattle and poultry.

Argentina has recently formulated a general development plan to cover the period 1970-74. It puts major emphasis on the livestock sector, including adequate price policies and a scheme for export promotion. Bolivia aims at pushing up beef production in the area of El Chaco and Santa Cruz by 20 000 tons over the next 10 years. The Agricultural Bank of Bolivia is planning to spend $7 million on it, including a $5 million loan from the Inter-American Development Bank (IDB).

The Brazilian Government is now stepping up credit programmes that permit ranchers to borrow money for pasture improvement, construction of water facilities, etc. IBRD has lent Brazil $40 million to be matched with an equal amount of Brazilian funds for a livestock development programme in certain areas of Minas Gerais, Mato Grosso, São Paulo and Rio Grande do Sul. In March 1969, IDB approved a loan of $26 million, also to be matched with local funds, for a credit programme to expand beef production in the States of Bahia, Minas Gerais and Espírito Santo. Both programmes involve supervised credit and their short-range goals include increasing pasture-carrying capacity, improving weaning rates and reducing the time required to bring steers to slaughter weight.

In Chile the production of poultry, pigmeat and especially milk reached record figures in 1969. The 10 percent increase in milk production is said to be mainly due to the more production-oriented price policy of recent years and a loan for dairy development from IBRD. The current system of prohibiting the sale of beef for 11 days of each month, however, will be maintained throughout 1970 in order to promote the consumption of locally produced meat such as pigmeat, poultry and fish, and to reduce beef imports.

With the assistance of IDB, IBRD and bilateral aid, Colombia is promoting beef production on its Atlantic coast and dairy farming close to consumption areas. According to its livestock development plan and assisted by a dairy loan from IBRD, Ecuador intends to utilize some 480 000 hectares near the coast for beef and dairy production. Guyana also intends to go in for beef production with the help of an IBRD loan, and the Caribbean Free Trade Association (CARIFTA) area is considered as a major potential market.

In Mexico, which gets financial assistance from IBRD for its agricultural sector, livestock production receives greater attention now from both public and private investors. In 1969 an allocation of 110 million pesos was made to the National Bank for Agricultural Credit, to provide loans to farmers for the acquisition of breeding animals, livestock installations, agricultural machinery and equipment for small-scale irrigation. In September 1969 the Govern-

ment of Paraguay established a livestock fund to be administered by the Central Bank. This fund will have resources of $8.3 million, provided by IBRD and United States bilateral assistance, and will grant loans through the National Development Bank, mainly for the expansion of livestock advisory services, including pasture improvement and eradication of foot-and-mouth disease. During the last nine years Uruguay improved more than 1 million hectares of pasture land under its livestock development plan. The overall target will probably be increased by applying improvement measures at the rate of 250 000 hectares annually during the period 1970-75. Meat exports are expected to increase by 80 percent within the next five years.

In Central America, Guatemala is promoting beef production through the operation of livestock stations, the import of breeding stock and an artificial insemination programme. The National Agricultural Bank is operating beef production in Alba Verapraz and the National Enterprise of Economic Development of Petén is encouraging beef production in the development of this zone. The recent construction of a cattle feed manufacturing plant is expected to contribute toward improving the quality of export beef as well as helping to feed animals during the dry season. Honduras obtained a 50-year $2.6 million interest-free loan from IDA to be used for extending long-term finance for ranch development. Nicaraguan beef production is being encouraged by a joint venture of IDB and the Nicaraguan National Bank aimed at increasing the rate of reproduction, reducing mortality rates, achieving higher meat yields and lowering the slaughtering age of animals. IDB has also loaned the National Development Institute money for importing cattle which are to be distributed on credit to farmers throughout the country. Panama is introducing new breeds of animals and a national campaign to fight disease as part of its livestock programme. Similar schemes are under way in Costa Rica and El Salvador.

Meat producers meeting at Montevideo in October 1969 under the aegis of the Latin American Free Trade Association (LAFTA) agreed on a 3-point programme of joint action on exports. It includes provisions for concerted action on access to markets, obtaining better prices, and coordinating action on meat with that on other agricultural exports.

Livestock development in the region is also assisted by a number of projects financed by the Special Fund of the United Nations Development Programme (UNDP/SF) and executed by FAO. As of November 1969, there were 15 projects in operation, with the help of a UNDP contribution of $15 million. Two thirds of the projects deal with research and training, including the Faculty of Veterinary Medicine and Animal Husbandry in Colombia, the Institute for Tropical and High Altitude Research in Peru and veterinary education in Mexico. Others emphasize production aspects, as in the case of the projects on the intensification of animal production in Argentina and dairy and beef productivity in Venezuela.

FUTURE OUTLOOK

Biological and technical problems inherent in animal production, the relatively low level of capital input, including that for pasture improvement, feed, fertilizers and other agricultural requisites, as well as institutional problems stemming from a defective agrarian structure, will continue to hamper the growth of the livestock sector in the region. Natural factors are also certain to create setbacks in some years, as was the case in 1968 and early 1969 when a prolonged drought affected a large part of Latin America. However, the emphasis currently being placed on livestock production gives ground for hope that these problems can be gradually overcome. Cattle raising, particularly for beef cattle, is considered to have the potential of becoming a significant enterprise in a growing number of countries in the region.

Judging from past trends, most beef trade is likely to remain extraregional. In addition to the traditional beef exporters, Argentina and Uruguay, several countries, including Brazil, Colombia and Paraguay, are expected to become major exporters of beef.

Development plans and policies

In 1969 and in early 1970 development plans were started in Argentina, Barbados, Colombia, Costa Rica, Honduras, Jamaica, Nicaragua, Panama and Paraguay, and the current plan of Ecuador was revised. For the principal characteristics of these and other plans being implemented in the region see Table II-30.

In an effort to improve the formulation and implementation of plans, several countries in the region have recently made changes in their institutions for plan formulation and execution. In Bolivia a Rural Development Corporation has been created to assist the agrarian reform programme, particularly in granting land titles. Panama set up a Ministry of Agriculture and Livestock, and established a Committee on Agricultural Policies, composed of members of the Institute of Economic Development, the National Bank, the Commission of Agrarian Reform, the Planning Office, the Livestock Institute and the Faculty of Agriculture, to coordinate and execute the 1969-74 development plan. Peru continues with the revision of its rural institutions started in December 1968; the functions of all the semiautono-

TABLE II-30. – LATIN AMERICA: MAIN FEATURES OF CURRENT DEVELOPMENT PLANS

	Currency	Duration of plan	Scope [1]	Investment		Foreign exchange component of total investment	Share of agriculture		Planned growth rate of:						
									GNP	Agricultural products		Export earnings		Employment	
				Total	Public		Total investment	Public investment		Total	Cereals	Total	Agricultural	Total	Agricultural
				Million currency units		*Percent*			*Percent per year*						
Argentina	Pesos	1965–69	C	1 329 200	427 000	...	17.0	2.0	5.9	4.2	...	...	...	...	...
Barbados	EC $	1969–72	PS	—	46.0	35	—	11.0	8.0	2.6	...	...	...	...	— 2.7
Bolivia	Bolivianos	1962–71	C	12 289 324	...	...	...	11.0	7.0	6.3	...	...	...	...	...
Chile	Escudos	1961–70	C	10 149	5 074	...	9.0	6.0	5.5	5.0	...	...	...	...	...
Colombia [2]	Pesos	1969–72	PS	28 399	7 675	11.8	...	52.7	6.0	...	...	...	...	...	...
Costa Rica	Colones	1969–72	C	...	1 426	...	...	...	7.7	...	...	...	...	...	...
Ecuador	Sucres	1964–73	C	41 007	17 713	...	16.0	7.0	6.2	6.6	...	...	...	...	...
El Salvador	Colones	1965–69	C	...	...	...	...	...	6.5	...	...	...	...	...	...
Guatemala	Quetzales	1965–69	PS	—	...	...	—	20.0	5.6	...	...	...	...	...	...
Guyana	Guy £	1966–72	PS	294	...	...	...	32.0	5.6	...	...	...	...	...	...
Haiti	Gourdes	1968–69	PS	—	3	35	—	12.0	...	...	...	...	...	...	...
Honduras	Lempiras	1965–69	C	...	...	...	...	13.0	6.6	4.6	...	...	...	...	...
Jamaica	Jamaica £	1969–74	C	...	...	...	...	...	...	...	...	...	...	...	...
Nicaragua	Córdobas	1965–69	C	...	...	...	...	...	7.0	6.4	...	...	...	...	...
Panama	Balboas	1969–72	C	...	...	53	...	...	8.0	...	...	...	...	...	...
Paraguay	Guaranis	1969–73	PS	—	...	...	—	...	7.0	...	...	...	...	...	...
Surinam	Sur. guilders	1965–74	C	...	...	...	...	...	...	7.7	...	...	...	...	...
Trinidad and Tobago	TT $	1969–73	PS	1 016	380	39	...	16	[3]4.5	5.0	—	...	...	2.9	...
Uruguay	Pesos	1965–74	PS	56 144	18 057	...	14.0	...	4.7	4.2	...	...	...	...	...

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plans, and data may refer to gross investment or may include some elements of recurrent expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

[1] PS, public sector; C, comprehensive. – [2] The plan includes four different growth alternatives. The figures given here correspond to Alternative I (the lowest) with an annual GDP growth rate of 6 percent. – [3] GDP.

mous and autonomous entities concerned with agriculture have been centralized within the Ministry of Agriculture; fisheries institutions were separated from those for the rest of the agricultural sector and a Ministry of Fisheries was created.

Venezuela has been divided into eight administrative regions, and regional offices for coordination and planning are now being created. A new Agricultural Development Bank has been established to serve commercial agriculture, whereas the existing Agricultural Bank will concentrate its attention on financing the small and medium sized farms created under the land reform programme. In Guatemala and Uruguay, also, the planning institutions for the agricultural sector have been revised in an effort to improve the coordination of the implementation of projects, particularly those which involve external financing.

Agrarian reform continues to be an important part of agricultural policy in the region, though its impact on the overall agrarian structure remains limited. The total number of peasant families in the region who have benefited from land distribution, settlement and land title confirmation programmes during the 1962-69 period can be estimated at between 800 000 and 1 million. Large as these figures are, they nevertheless represent only a small portion of the 10 million families of small farmers, tenant workers and landless peasants identified by the Inter-American Committee for Agricultural Development (CIDA) as potential beneficiaries. Moreover, activity in this field has been unevenly distributed over the region, with three quarters of the total number of beneficiaries in Mexico, Bolivia and Venezuela. On the positive side, a systematic beginning has been made in many countries in classifying and registering land, while the most obvious abuses of semifeudal landholding systems and indentured worker arrangements are generally being eliminated. There have also been some significant initiatives in the field of peasants' organizations, either as labour unions or as cooperatives. Development plans and programmes are increasingly oriented toward improving the economic and social situation of the small farmers.

Substantial progress has also been achieved in coordinating colonization and agrarian reform programmes with forestry development, which is important because forests cover about half the region's land area. At an international seminar held in November 1968 in Brasilia, principles were elaborated for harmonizing forestry and agrarian reform pro-

grammes in the legal, institutional, administrative and technical fields.

Among recent actions, mention should be made of the distribution in Mexico of 3.7 million hectares of land to 63 000 peasant families in 1968/69. This brings the total for the last six years to 16 million hectares, distributed to over 300 000 smallholders. The emphasis is now shifting from land distribution to development efforts and the production of marketable surpluses on the new holdings.

The latest reform decree in Peru, enacted in June 1969, swept aside most constraints that stood in the way of more drastic reform, greatly simplifying administrative and legal proceedings. Under the new law the valuation of expropriated land is based solely on the value declared by the original owner for tax purposes during previous years, and extensive litigation over expropriation can no longer delay the reform process as it has done previously. Another policy change is that cash compensation for farm inventories and buildings is no longer granted. Simultaneously a new comprehensive water code was adopted, which will facilitate the application of water development policies in the public interest, especially in the arid Costa region. Under the new legislation, land will be distributed to 100 000 *campesinos* in 1970-71, primarly in the intensive coastal plantation areas rather than, as in the past, in the highlands. In line with this policy, nine large sugarcane estates in the Costa region were expropriated during 1969 and titles were granted to 4 200 families in agrarian reform zones.

Forest policies

There is a growing awareness of the role that the forestry sector can play in the economic development of the region, in view of the large forest resources and the rapid growth of demand for forest products, especially in Japan, the United States and western Europe. Inventories of the tropical forests of Latin America, in many cases made with FAO help, show that their economic potential is often better than had been expected. Efforts continue to strengthen the forest services and to coordinate the development of the forestry and forest industry sectors.[19]

In October 1969 Argentina proclaimed the 1970s the forestry development decade, with the objective of changing the country from a heavy net importer of forest products to one with a balanced trade in these commodities. The Brazilian Institute of Forestry Development, founded in 1968, has strengthened its relations with the country's regional planning bodies so as to stimulate coordinated forestry and forest industries development. The response to a law which provides up to 50 percent tax relief for investments in reforestation designed specifically to assist in forest industries development is reported to be very positive. In Chile the Forestry Division is establishing a pilot scheme for forestry development in the Bio-Bio river area, thus strengthening the field structure of its forest service, a traditionally weak area in Latin America. The country is also planning to afforest 300 000 hectares with *Pinus radiata* to provide the required raw material for expanding the pulp and paper industry. Under a recent law, Costa Rica has established a General Directorate of Forestry in the Ministry of Agriculture, a National Forestry Council and a National Forestry Fund. In Paraguay plans are being drawn up for the establishment of integrated forest industries, which will allow fuller use of the forest resources of the eastern part of the country.

[19] For a detailed discussion of the role of institutions in forestry development, see "Modernizing institutions to promote forestry development" in FAO, *The state of food and agriculture 1969*, Rome, 1969.

Regional economic integration

Economic integration schemes continue to be more far-reaching in Latin America than in other developing regions, in terms of both their scope and their geographical coverage. The three major groupings — the Latin American Free Trade Association (LAFTA), the Central American Common Market (CACM), and the Caribbean Free Trade Association (CARIFTA) — cover all countries of the region except British Honduras, Panama, Surinam and some of the Caribbean countries, including the Bahamas, Cuba, the Dominican Republic, Haiti and the British Virgin Islands. Two other schemes — the Andean Group and the Eastern Caribbean Common Market — link smaller groups within LAFTA and CARIFTA. The first is concerned with the promotion of other forms of economic integration, particularly integrated industrial development, in addition to free trade arrangements which are the principal concern of LAFTA. The Eastern Caribbean Common Market is a union of smaller CARIFTA countries, including St Lucia and Dominica, for the purpose of strengthening their position *vis-à-vis* the larger members of the grouping, such as Guyana, Jamaica, and Trinidad and Tobago.

Of the various schemes, CACM has had by far the greatest impact on the trade of the member countries. While their total exports more than doubled between 1961 and 1968 to $954 million, there was almost a sevenfold increase in intratrade, which rose from $38 million in 1961 to $259 million in 1968. This achievement is particularly striking if compared with the slower growth of intratrade in Latin America as a whole (by 124 percent to $1 495 million) or within

LAFTA (by about 100 percent to $998 million), the latter increase, in turn, being more than twice the growth of the total exports of the LAFTA countries to all destinations. CARIFTA has only completed its first full year of operations, but preliminary data indicate that trade between the member countries has already expanded considerably.

A further slowing down of the expansion of intra-trade within the LAFTA area is likely to result from the failure of member countries to reach agreement on the "common list," on which the elimination of intraregional tariffs and the establishment of a genuine free trade area depend. This failure necessitated the postponement in December 1969 of the deadline for the full operation of the free trade area from the end of 1973 to the end of 1980. At the same time 31 December 1974 was set as the final date for the adoption of new procedures applicable to the working out of the common list. In the meantime the meeting recommended that each member grant the other contracting parties an annual 2.9 percent tariff reduction on the goods listed in their respective national schedules.

The Andean Group pact was also approved by LAFTA as being compatible with the Treaty of Montevideo. In October 1969 the heads of the national planning units of the Andean Group countries adopted a resolution relating to joint planning in the field of industrial development, and suggested that the Economic Commission for Latin America (ECLA) and the Latin American Planning Institute (ILPES) be asked for assistance. The Group also proposed that LAFTA extend its interests beyond the field of trade and take action by 1973 in the broader field of economic integration. This should include the coordination of development programmes and the planning of joint new investment; the reduction of export taxes and of other barriers to intraregional trade; the establishment of a common external tariff; the speeding up of rural development; the improvement of the physical infrastructure; preferential treatment for less developed members; and an institutional system which would ensure the realization of integration goals and the equitable distribution of its benefits.

The aftereffects of the hostilities in July 1969 between El Salvador and Honduras continue to upset normal trade patterns, and it is expected that overall trade expansion in 1969 within CACM will have been much less than in previous years. At a meeting held in early December 1969 the foreign ministers of the member countries established tripartite machinery to solve the problems related to the conflict between the two countries and created an *ad hoc* committee for the reorganization of the CACM institutional system.

The Caribbean Development Bank, inaugurated on 31 January 1970 and to be located in Bridgetown, Barbados, began operations with capital contributions of $30 million from member countries in the Caribbean and $10 million each from Canada and the United Kingdom. The United States has offered to provide a soft loan fund. British Honduras has joined the new bank and negotiations have been started with a view to formulating terms for the country's entry into CARIFTA.

Far East

Developing countries

Most developing countries of the region achieved a growth rate of real GNP between 5 and 7 percent in 1969, and those with a more developed industrial base, such as China (Taiwan) and the Republic of Korea, attained an even higher rate of expansion.[20] Malaysia, too, recorded a 9 percent growth, mainly as a result of the increased production and higher prices of its tin and rubber exports and its new industries. Indonesia appears to have successfully overcome the inflationary pressures which at one time had reached a rate of over 600 percent a year, and recorded an estimated 5 percent growth in GNP. In India growth returned to the more normal level of 6 percent, following the rapid increase in 1968 after the poor harvests of the previous year.

While the total growth performance of most of the developing countries of the region thus fully matched that of most high-income countries, the continuing high rate of population increase, estimated at an average of 2.6 percent,[21] absorbed a far greater share of the increase in GNP than in the developed countries, and resulted in a much more moderate growth in per caput terms.

Although the rate of industrial growth was in many cases higher than that of agriculture, the latter, because of its broad base, nevertheless continued to provide the main ground for growth. The major push in that sector is currently coming from the high-yielding cereal varieties, which have both raised the

[20] China (Taiwan) 8 percent, and the Republic of Korea 14 percent.

[21] Excluding Japan and Mainland China.

marketable output of the commercial sectors and stimulated the predominantly subsistence sectors not only with additional income and employment, but also with heightened aspirations and motivations. In 1969, it is true, food production in the developing countries of the region increased by 4 percent, somewhat less rapidly than in the previous two years. But, taking the last few years together, a turning point appears to have been reached in the majority of countries of the region, with increases in basic food production overtaking the rate of population growth, and thus holding out prospects of self-sufficiency in cereals in a number of countries by 1975-80. A substantial contribution to growth is also being made by the forestry and fishery sectors in several countries of the region, with rates of growth generally higher than those for the agricultural sector. Although these higher growth rates are on a smaller base than that of the agricultural sector, their faster growth, and the shorter gestation periods for certain stages and types of fishery and forestry development might merit for them a higher investment priority than hitherto accorded.

Favourable also was the improved performance of the agricultural export sector, where earnings appear to have risen after five years of decline. Moreover, although many economies remain heavily dependent on primary agricultural exports as a source of foreign exchange, in some other countries lagging agricultural exports are increasingly being made up by expanding exports of processed and manufactured goods. The trade situation of several countries has also been eased by their ability to further reduce their cereal imports.

Although the higher prices of certain primary exports (such as rubber and tin) led to an improvement in the balance of payments position of some countries, the fall in prices of other exports (such as rice and tea), together with the steeply rising debt-service obligations of most countries, generally aggravated the already tight balance of payments position. The ratio of debt repayments to the value of exports rose in 1969 to 9 percent in Ceylon and 10 percent in the Philippines and to no less than 28 percent in India and 20 percent in Pakistan, [22] thus stressing the urgency of easing the terms of foreign aid in future.

Agricultural production

According to preliminary FAO indices, agricultural production in the developing countries of the region increased in 1969 by 4 percent (Table II-31). If confirmed by final data, [23] this would represent a slight falloff from the growth of 5 percent of the preceding year, though still substantially greater than in the early 1960s. Particularly large increases were registered in West Malaysia, where the coming into production of newly planted areas of high-yielding rubber and oil palm led to an expansion of 13 percent in the total output, and in the Republic of Korea, where production recovered by 14 percent after the two drought years of 1967 and 1968.

Food production, which still remains the focus of attention of most developing countries in the region, also registered an increase of 4 percent. Aside from the Republic of Korea, above-average increases in food production were also achieved in India, Nepal, Thailand and Malaysia. Weather conditions were fairly favourable, but other important factors were the sustained policy and institutional measures which provided continued incentives and support for the adoption of high-yielding varieties of cereals.

Rice production continued to expand rapidly, especially in the importing countries. Within a total increase of 4 percent in 1969, the share of importing countries rose from 58.5 percent of regional production in 1968 to 60.3 percent in 1969. Aside from a 24 percent recovery in the Republic of Korea, significant increases were also registered in Indonesia (6 percent), Nepal (7 percent), Pakistan (6 percent) and the Philippines (12 percent).

Wheat production in the developing countries of the region increased by 10 percent. Output in India, which accounts for 70 percent of the total, increased by 13 percent. Pakistan's growth rate declined by 4 percent, following the extremely large increase of 47 percent in 1968.

The production of barley in 1969 declined in the region as a whole, while maize production rose by 6 percent, with larger increases in India, Indonesia, Nepal and Thailand. There was a 7 percent increase in the production of millets and sorghum. The recent development of hybrid maize and new varieties of millets and sorghum holds prospects of higher yields in respect of these cereals in future. The production of oilseeds rose by 6 percent, reflecting a large increase in groundnut production, but that of pulses fell by 10 percent, mainly in India, the major producer.

Livestock production is estimated to contribute only some 4 percent of the total GDP of the region. Growth rates for this commodity group tend to be misleading because the largest increases are mainly taking place in the smaller countries from a relatively low initial level, while little change is taking place in some major countries because of religious food taboos. Over the longer period from 1963 to 1969, pigmeat, poultry meat and eggs have shown relative rapid annual rates of increase, of around 6 to 8 percent, mainly due to the growth of intensive pro-

[22] Estimate for 1970.
[23] The preliminary indices tend, however, toward an underestimation of increases in output.

TABLE II-31. – FAR EAST:[1] INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969[2]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
Production in selected countries (all products)	*1952-56 average = 100*					*Percent*		*1952-56 average = 100*
SOUTH ASIA	124	123	133	140	145	+ 4	2.1	102
Ceylon	141	140	147	152	152	—	3.4	106
India	122	121	131	137	142	+ 4	1.9	101
Nepal	96	91	97	101	108	+ 6	— 0.4	82
Pakistan	134	134	145	153	159	+ 4	2.9	103
EAST AND SOUTHEAST ASIA	143	149	147	155	162	+ 5	3.2	110
Burma	133	116	131	136	136	—	2.3	101
Cambodia	150	142	149	179	157	— 13	3.3	105
China (Taiwan)	158	163	171	174	170	— 2	3.8	106
Indonesia	119	122	123	128	131	+ 2	1.7	92
Korea, Rep. of	171	184	168	167	191	+ 14	4.2	129
Malaysia								
Sabah	141	139	147	158	164	+ 3	3.1	100
Sarawak	147	139	121	122	158	+ 30	— 0.7	108
West Malaysia	148	157	161	178	201	+ 13	4.4	129
Philippines	146	156	151	162	170	+ 5	3.4	105
Thailand	167	202	170	183	201	+ 10	5.9	128
JAPAN	135	139	155	162	162	—	2.9	139
Production in developing countries[3]								
TOTAL								
All products	133	135	141	148	154	+ 4	2.6	—
Food only	133	135	141	149	154	+ 4	2.6	—
PER CAPUT								
All products	103	101	103	105	107	+ 1	0.1	—
Food only	103	101	103	106	107	+ 1	0.1	—
Regional production[4]								
TOTAL								
All products	133	135	142	149	154	+ 4	2.7	—
Food only	134	135	142	151	156	+ 3	2.7	—
PER CAPUT								
All products	104	103	106	108	110	+ 1	0.3	—
Food only	105	103	106	110	110	+ 1	0.3	—

[1] Excluding Mainland China. – [2] Preliminary estimates. – [3] Excluding Japan. – [4] Including Japan.

duction of pigs and poultry in medium- and large-scale units in the more industrialized countries of the region. The problems of livestock development in the region are discussed in greater detail below.

The production of nonfood crops varied widely in 1969. Tea prices remained low and the regional production fell marginally. Coconut production declined by 2 to 3 percent, due to a shortfall in the Philippines, the main producer. Regional production of palm oil, on the other hand, rose by 6 percent, reflecting larger output from new areas coming into bearing in Malaysia, which is responsible for over 60 percent of the region's production. Rubber output rose by 8 percent, with an increase of about 15 percent in Malaysia. Output of cotton remained virtually unchanged, but production of jute and kenaf, which had fallen drastically in 1968, recovered by 50 percent.

No quantitative estimate can as yet be made of the growth of overall agricultural production in the region in 1970, especially because the rice crop, which dominates in particular the food production, was still in the fields at the time of writing. However, weather conditions are so far reported to have been generally favourable. A further substantial increase in wheat production appears to be in the offing, as both India and Pakistan report larger crops. The Indian pulse and barley crops are also reported to be substantially up. For most oilseeds and oils, including groundnuts, palm kernels, palm oil, cottonseed, copra and sesame seed, a larger output is expected, especially in the case of palm kernels and palm oil in West Malaysia, groundnuts and cottonseed in India, cottonseed in Pakistan, and copra in the Philippines. Among other cash crops, a slight increase is anticipated for tea, an increase in India more than offsetting a decrease in Ceylon. Larger

cotton crops are expected in both India and Pakistan, and a very much larger jute harvest in India, which, together with a smaller increase in Thailand's kenaf production, should amply offset the slight reduction expected in Pakistan. Rubber production is expected to increase only little, especially if compared with last year's very large expansion.

HIGH-YIELDING CEREAL VARIETIES

Although the three years since the more widespread adoption of high-yielding varieties of cereals began is rather too short to draw firm conclusions, relative success in some countries of the region, together with the emergence of a number of concomitant problems, warrant closer examination. Attention is drawn, in particular, to two features: the different strategies for increasing rice yields and/or output that have been followed in different countries; and the question of whether, and if so to what extent, the various constraints may inhibit or retard the further expansion of area under high-yielding varieties. For reasons of space and also because a far greater number of countries in the region produce rice than wheat,[24] the discussion is limited to rice.

Information on high-yielding varieties of rice is deficient in several ways, including the period covered, the definitions employed, the contribution of high-yielding varieties to total production, their use in double-cropped areas, and the degrees to which the other necessary inputs have been combined with improved seeds. The only reasonably consistent information for the region is the area under what are generally referred to as high-yielding varieties in individual countries. This is presented in Table II-32.

According to these figures, only 7 percent of the total rice area in the developing countries of the Far East was under high-yielding varieties in 1968/69 with the ratio varying in individual countries from less than 1 percent to about 30 percent. The rate and extent of their adoption have been influenced by a number of factors, including physical, ecological, institutional and structural constraints, economic pressures and consumer preferences. Between them they have determined the national strategies by which higher yields and output are sought. In broad terms, three different groups of countries may be distinguished.

The first group, consisting of India, West Pakistan and the Philippines, shows the highest percentage of area under high-yielding varieties as commonly defined, and the highest yields per hectare in the areas planted to these varieties. These are rice-deficit countries which, alongside a large number of smallholdings, also possess a fairly substantial sector of comparatively large holdings on which the use of the high-yielding varieties has apparently been mainly

[24] India and Pakistan accounted in 1969 for 97 percent of the total wheat production in the developing countries of the region.

TABLE II-32. – FAR EAST: AREA IN DEVELOPING COUNTRIES ESTIMATED TO BE UNDER HIGH-YIELDING VARIETIES OF RICE IN SELECTED COUNTRIES, 1967/68 TO 1969/70

	1967/68			1968/69			1969/70		
	Total rice area	Area under high-yielding varieties	Percent of total area	Total rice area	Area under high-yielding varieties	Percent of total area	Total rice area	Area under high-yielding varieties	Percent of total area
	.. *Thousand hectares* ..		*Percent*	.. *Thousand hectares* ..		*Percent*	.. *Thousand hectares* ..		*Percent*
Burma	4 706	3	—	4 763	190	4	4 980	405	8
Ceylon	539	—	—	562	—	0.5	577	...	...
India	36 437	1 784	5	36 966	2 631	7	37 000	3 238	9
Indonesia	7 523	—	—	7 964	169	2	8 000	...	...
Laos	960	1	—	960	2	—	960	...	...
Malaysia	468	42	9	[2]560	64	11	582	91	16
Nepal	1 119	—	—	1 200	42	4	1 173	...	3
Pakistan	11 309	71	1	11 297	462	4	11 558	607	5
Philippines	3 166	701	21	3 332	1 012	30	3 499	...	...
Viet-Nam, Rep. of	2 296	1	—	2 396	44	2	2 430	200	8
TOTAL	68 523	2 603	4	70 000	4 616	7	70 759	...	...

SOURCE: Modified from a table published in FAO, Document CCP: RI 70/6, originally derived from U.S. Department of Agriculture, *Imports and plantings of high-yielding varieties of wheat and rice in the less developed nations.*

NOTE: The following varieties appear to be included: IR8, IR5, ADT-27 (India), the Indian semidwarf varieties, Taichung (Native) I (India), BPI-76 and C4-63 (Philippines). The local improved varieties such as H4 and H8 in Ceylon are not included. This illustrates the difficulty of comparison between countries when there is no agreed definition of the term "high-yielding variety."

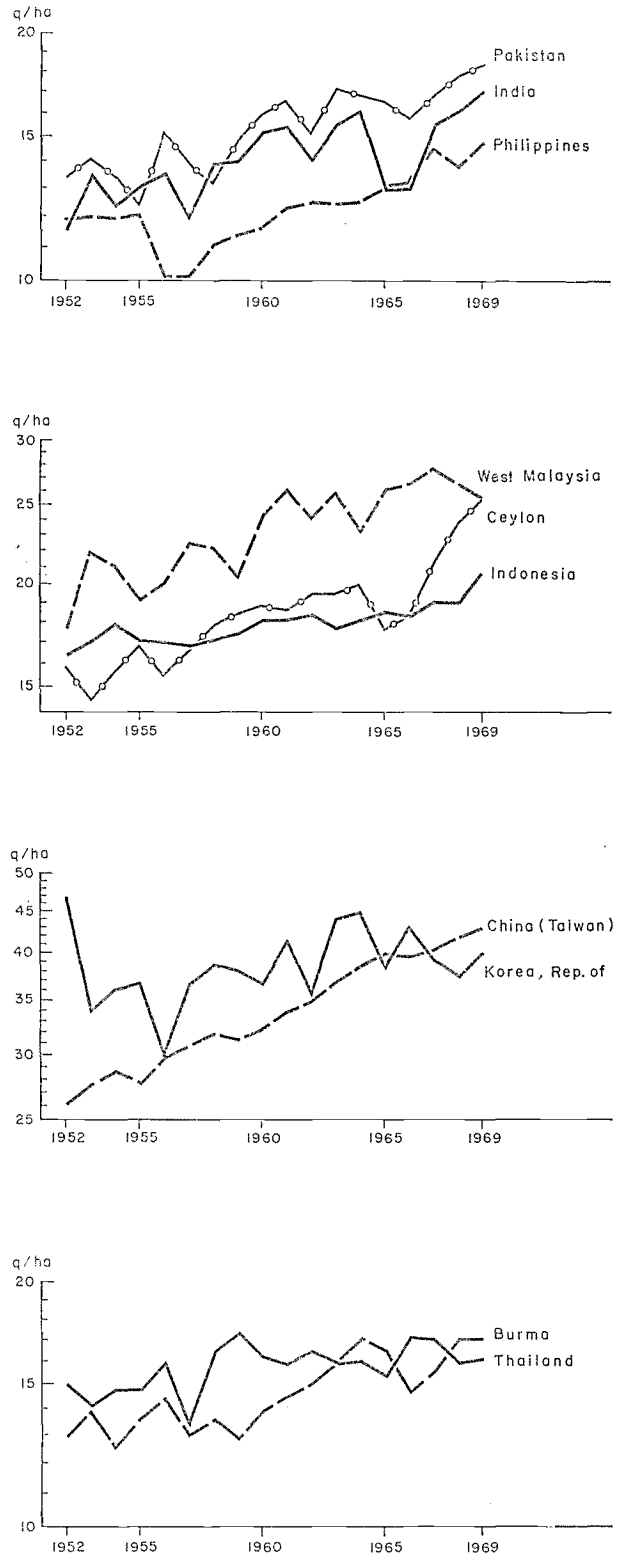
concentrated.[25] This approach is frequently justified as being the quickest and cheapest way of increasing output and reaching self-sufficiency. The achievement of some states in India, and particularly of West Pakistan which showed an increase in production of 22 percent from 1967 to 1969, shows the success of this strategy in areas where ecological, irrigation, structural and institutional factors are favourable. Once the large farmers who have greater access to the required resources have adopted the new varieties to the extent that ecological factors and irrigation availabilities allow, further expansion would depend on the extent to which the necessary institutional support and incentives are provided to induce the smaller farmers to accept the higher cost, greater risk, more complicated management and more labour-intensive practices associated with the high-yielding varieties. Since the large-holding sector in these countries is quite substantial, it appears possible that self-sufficiency in rice can be achieved in a few years' time by following this strategy.

There are a number of other countries in the region, however, where smallholdings dominate to such an extent that any substantial expansion of production can be achieved only through concentration on the large base of smallholdings. Apart from the Japonica producing countries — China (Taiwan), Japan and the Republic of Korea — where yields are already high, these include Ceylon, where the average size of holdings is only half a hectare, and West Malaysia and Indonesia, where the average size is about 1 hectare.[26] All of them are rice-deficit countries with a heavy pressure of population on paddy land and a fairly labour-intensive system of cultivation. These countries generally had a higher average yield than those in the first group even before the advent of the high-yielding varieties of rice, and their yields have subsequently shown further increases. Ceylon is a particularly striking example, in that it has recorded the most rapid increase in yields and output of all Indica producers since 1965, although it has the smallest area under high-yielding varieties (about 0.5 percent of its paddy area in 1968/69) as defined in Table II-32 (see also Figure II-2). Indonesia also has only a very small proportion of its paddy area covered by high-yielding varieties. Malaysia reports a greater portion under high-yielding varieties, but had already reached a high average yield (higher than those of other countries using the high-yielding varieties) even before the latter came into use.

[25] The term "holding" refers to an operational unit, rather than a unit of ownership. However, some 75 percent of the total paddy area in West Pakistan and 62 percent in the Philippines are covered by holdings of more than 3 hectares. Comparable data for India indicating crop by size of holding is not available.

[26] 71 percent of the paddy area in Malaysia and 79 percent of the paddy area in Indonesia are on holdings of less than 3 hectares in extent, while 75 percent of the paddy area in Ceylon is comprised of holdings of less than 4 hectares, and 95 percent of the paddy holdings in Ceylon are less than 2 hectares.

FIGURE II.2. – FAR EAST: RICE (PADDY) YIELDS IN SELECTED COUNTRIES. 1952-69



The essence of the strategy followed in these countries has been the adoption of a local improved variety of rice which, because it demands an intermediate level of technology requiring less cost, less

risk and less labour discipline than the new high-yielding varieties, is assimilable by a wide base of smallholdings. This strategy, however, requires relatively more in the line of an integrated set of incentives, institutions and services. In Ceylon as much as 72 percent of the paddy land in the main crop season 1969 was planted to the local improved varieties, H4 and H8, and yields have risen extremely rapidly since 1965. Those favouring this strategy suggest that, where the necessary institutional framework is provided, it gives rise to a broader, quicker and more sustained increase in productivity, as has been demonstrated earlier by Japan and China (Taiwan). They also point out that the initial adoption of an intermediate level of technology can pave the way for a more sophisticated technology at a later stage. The rationale of this approach is that, as a national strategy to obtain the highest increase in production, the aim need not necessarily be the attainment of the highest possible yields on individual holdings or in parts of the country, but may also be the achievement of the highest possible average yield on a country-wide basis. The wider production base inherent in the latter strategy may also have social and political advantages over a strategy based on concentration of the efforts to raise yields on only the larger or technically more advanced farms.

Finally, a third group of countries can be distinguished, which have a relatively low pressure of population on paddy land and, consequently, by Asian standards, a predominance of large or medium-sized holdings. These are the traditional rice-exporting countries of the region — Thailand, Burma, Cambodia — which have today virtually the lowest yields per hectare, depending for their export surplus on an extensive system of agriculture.[27] The high-yielding varieties have so far gained little foothold in these countries, due to adverse ecological conditions (flooding), lack of adequate incentives, in particular low prices and low institutional support to farmers, as well as the poor consumer appeal of the new varieties. The scarcity of labour in relation to the size of farms and to the intensive labour requirements of the high-yielding varieties has proved another inhibiting factor.

While it is thus possible to distinguish three broad lines of strategy, each arising from different conditions and leading to different results, it is important to recognize that these strategies are neither universally followed in each country, nor mutually exclusive. For instance in the first group of countries, India and Pakistan have, in addition to an intensive high-yielding varieties programme in areas with well-controlled irrigation facilities, an extensive programme for the spread of locally improved varieties. In the second group of countries, basically following a strategy of intermediate technology, areas with optimum irrigation and suitable ecological conditions are now beginning to be planted to IR5 and IR8 or to their successors. In the third group of countries, Thailand has recently announced its intention to spread a locally adapted improved variety, while Burma has already sown at least 4 percent of its rice area with high-yielding varieties. The purpose of drawing attention to the differences in the broad strategies is merely to illustrate, in a concrete way, the influence of the ecological, economic and other factors on the extent to which the new high-yielding and improved varieties have been adapted, in conformity with the special requirements and conditions of each country.

Whether expansion of the high-yielding varieties and the new technology will enable most rice-deficit countries to achieve self-sufficiency by 1975-80 will depend on the degree to which the various known constraints will become critical impediments. An important potential constraint is the limited availability of further irrigated land. Generally speaking, however, the potential of existing irrigation works[28] and the possibility of supplementary irrigation to meet the needs of the high-yielding varieties[29] have not yet been exhausted, except possibly in China (Taiwan).

A major ecological constraint in many countries is that most of the known high-yielding varieties of rice are not ideally suited to the irregular rainfall or flooding of the main monsoonal sowing. And, although the present varieties can grow ideally under the controlled irrigation of the dry season, the latter in some countries is too short for a second crop to be had from the existing varieties. The development of a shorter maturing variety has recently been announced in Ceylon and, if it proves successful, it may provide for a very rapid increase in production within the next few years.

The poor milling properties and lesser consumer appeal of IR5 and IR8 than of traditional varieties have hitherto inhibited their adoption in the main exporting countries, and have tended to depress their prices. The recent introduction of new varieties such as IR20 and IR22 with superior milling quality, better palatability and greater resistance to stem-borer disease may well ensure the wider adoption of high-yielding rice.

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[27] This is reflected in the low level of fertilizer utilization per hectare (nutrient tons) in Burma and Thailand on rice lands, which is one third of that in India and Pakistan, and 5 percent of that in Malaysia and Ceylon. The use of insecticides and of labour-intensive practices such as weeding, transplanting, etc., are also low.

[28] For example, there is still scope for the expansion of the crop area under the high-yielding varieties in major irrigation schemes, through double cropping in Ceylon and Malaysia.

[29] India, Pakistan and the Philippines have shown the feasibility of rapidly increasing minor or supplementary irrigation through surface, pump and tube-well irrigation.

As regards possible institutional constraints, the majority of countries have now introduced various production incentives and institutional support measures. High internal prices and purchasing arrangements for rice,[30] together with the supply and subsidization of necessary inputs such as fertilizer and pesticides,[31] have been introduced in most countries, while Pakistan is subsidizing the installation of tube wells. Almost all countries are providing farmers with credit at lower than market rates, in many cases through organizations such as cooperatives or farmers' associations, while many have established special lending institutions for this purpose.[32] Many countries are expanding, retraining and reorganizing their agricultural extension staff to disseminate the new technology more effectively. Arrangements for supervised credit have been made in some countries.[33] Few, however, have gone further in regard to adequate or effective tenurial incentives or risk protection measures such as crop insurance. Moreover in many countries, although measures of institutional reform have been introduced, the incentives, supporting institutions, services and inputs are not in practice available in a coordinated manner at farm level to provide the farmers with the motivation, means and risk-bearing ability required to sustain them in the innovation and investment associated with high-yielding varieties.

Fishery production

Fishery production in the region increased by about 3 percent. Gains were made by all major fish-producing countries, with the increase in two countries — Thailand and the Republic of Viet-Nam — being in excess of 10 percent.

The four largest fish producers — India, Indonesia, Thailand, and the Philippines — catch fish primarily for the home market, although shipments of high unit-value finfish and shrimp to foreign markets have rapidly expanded in recent years. Production for export is of even greater importance in the Republic of Korea and in China (Taiwan) which rank next among the fish-producing countries of the region. To be able to compete in production and marketing, these two countries have had to establish modern offshore fishing fleets and shore installations. In contrast, countries producing primarily for the home market are giving emphasis to improvements in inshore operations, and also assistance to subsistence fisheries which are important to local food supply and employment.

In several of the leading fish-producing countries of the region, rapidly declining catch rates on traditional fishing grounds and the need to protect the stocks are necessitating the introduction of fishing controls and encouraging exploration of offshore waters for new resources. Until exploratory activities produce significant results, the landings of these countries are not likely to expand in line with recent trends. Growing caution in the authorization of new investments which would tend to increase the fishing pressure on easily depleted resources is evident from Indonesia's recent nonacceptance of foreign investment in shrimping. In the gulf of Thailand and in Manila bay, where the most alarming declines in catch rates have taken place, proposals for the control of trawling are currently under consideration.

Forest production

The forest resources of the region are primarily the substantial but underutilized natural forest reserves of Indonesia, eastern Malaysia, Cambodia and Laos, and the still extensive but dwindling forest areas of Burma, Thailand and West Malaysia. Shifting cultivation and the accompanying destruction of natural forests are continuing fairly generally throughout the region at the rate of an estimated 8.5 million hectares annually. In an endeavour to reduce this encroachment the Republic of Korea, for example, has resettled tribal populations, while other developing countries are endeavouring to establish more effective control and management of their national forest reserves.

In several developing countries — notably China (Taiwan), India, the Republic of Korea, Pakistan, the Philippines and Thailand — increased effort is now being directed toward the establishment of man-made forests. In addition to meeting prospective internal demand for timber, fuel and other forest products, the afforestation policies of these developing countries indicate growing official recognition of the need for much more effective soil and water conservation programmes in the region as well as the importance of closer cooperation in the future between agriculture and forest services.

Primary forest production, as measured by the removal of industrial roundwood, rose by some 6 percent in 1969 with notable increases in Indonesia, the Philippines and Malaysia. Production of most forest products also rose appreciably in 1969. Among the more noteworthy features was the increase in sawn hardwood production in Malaysia and Singapore, and of hardwood plywood production in the Republic of Korea and China (Taiwan) as well

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[30] In Ceylon, China (Taiwan), India, Indonesia, Japan, the Republic of Korea, Malaysia, Pakistan and the Philippines (floor price).

[31] In Ceylon, Indonesia, Malaysia and Pakistan. However, Pakistan has recently reduced its fertilizer subsidy from 50 percent to 35 percent of cost, while India has introduced a 10 percent tax on fertilizer once farmer acceptance and demand for fertilizer have been established.

[32] This applies to Ceylon, China (Taiwan), India, Indonesia, Japan, the Republic of Korea, Pakistan, Philippines and Thailand.

[33] These include Philippines and Hong Kong (on a limited scale).

as in Malaysia and Singapore where, however, the volumes involved are still relatively small. While relatively little increase occurred in the region's output of sawn softwood during the year, considerable gains were recorded in the production of pulp, paper and paperboard. The rapid growth potential of the forestry sector in some countries and the increasing trend toward the processing of forest products can be seen from the fact that during the period 1962-69 the output of industrial roundwood and sawn wood increased by 6 percent annually, while pulp and plywood production grew by 10 percent and 12 percent respectively in the developing countries of the region.

In Indonesia (especially in Kalimantan), Thailand and Malaysia, investment is being accelerated to expand systematic timber extraction from national forests and to develop sawmilling and wood products industries. In Indonesia, there are at present about 300 sawmills in operation, while in Thailand the number has risen to 500, most of them being small units operating at a fairly low level of efficiency.

Trade in agricultural, fishery and forest products

The region's earnings from exports of agricultural, fishery and forest products increased by about 5 percent in 1969. There was a sharp rise in earnings from forest products and a smaller one from fishery products, and also the value of exports of agricultural products proper, which had registered a steady decline for the five preceding years, is estimated to have risen by some 3 percent (Table II-33).

Although agriculture still accounts for nearly half of the total value of the exports from the developing countries of the region, and in some countries for much more, the period 1963-69 has witnessed a steady diminution in its relative importance, from almost 60 percent of the total to less than 45 percent. Data for 1963-68 covering ten individual countries which are responsible for nearly 90 percent of the region's total exports are shown in Table II-34. In eight of them there was a marked decline in the importance of the agricultural sector in total trade. For the other two, Cambodia and Ceylon, there was no change.

The increase in earnings from agricultural exports was obtained in 1969 despite sharply reduced values received for several important commodities, including rice, most edible oils and oilseeds, and tea. These were more than offset by higher earnings from exports of raw materials, coffee, sugar and palm oil. In the case of raw materials, this reflected a substantial increase in prices. Rubber prices moved upward during most of the year and, although they were depressed during the last quarter, the average for the year was some 24 percent higher than in 1968. The largest gain was in Malaysia where, in line with the trend of recent years, shipments continued to

Table II-33. – Far East:[1] Indices of value of exports of agricultural, fishery and forest products

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969[2]	Change 1968 to 1969
	Percent	*1957-59 average = 100*					*Percent*
Agricultural products	77	109	106	101	99	103	+ 3
Food and feedstuffs	29	139	140	127	126	120	— 5
Rice	(6)	126	113	106	88	72	— 18
Sugar	(7)	123	118	104	102	123	+ 20
Oil and oilseeds	(8)	125	131	113	132	111	— 16
Beverages and tobacco	16	105	98	109	101	94	— 7
Coffee	(3)	107	128	192	170	190	+ 12
Tea	(9)	97	85	91	83	69	— 17
Raw materials	32	90	86	80	80	95	+ 19
Jute and kenaf	(5)	144	159	144	118	126	+ 7
Rubber	(24)	82	77	68	69	91	+ 32
Fishery products	3	195	238	267	294	300	+ 2
Forest products	20	...	...	338	432	488	+ 13
Agricultural, fishery and forest products	100	...	...	116	119	125	+ 5

[1] Excluding Japan, China (Mainland) and other Asian centrally planned countries. – [2] Preliminary estimates.

TABLE II-34. – FAR EAST: SHARE OF AGRICULTURE IN TOTAL TRADE, SELECTED COUNTRIES, 1963 AND 1968

	Share in total exports of region, 1968	Share of agriculture in total exports	
		1963	1968
	..... *Percent*		
Cambodia	1	97	[1]97
Ceylon	3	97	95
China (Taiwan)	7	57	31
Hong Kong	16	13	6
India	16	47	37
Korea, Rep. of	[1]4	36	[1]18
West Malaysia	9	59	[1]53
Pakistan	6	74	[1]49
Philippines	8	70	52
Singapore	11	49	42
Thailand	6	83	74
TOTAL REGION [2]	100	59	46

[1] 1967. – [2] Excluding Japan, China (Mainland) and other Asian centrally planned countries.

rise (by 15 percent in 1969) contributing to a 50 percent increase in total value. Thailand and Indonesia also exported more rubber, but shipments from Ceylon remained virtually static. Prices of jute and kenaf were higher, remaining for most of the 1969/70 season at or marginally above the indicative range set by the Consultative Committee on Jute, Kenaf and Allied Fibres; both Pakistan and Thailand were able to increase their earnings. The value of coffee exports was also higher, with recoveries in shipments from India and Indonesia more than compensating for lower prices. Although the volume of sugar exports was no higher than in 1968, the greater concentration of shipments to preferential markets led to a rise in value.

These increases were only partly offset by the sharply lower earnings from some other important commodities, including rice, most edible oils and oilseeds, and tea. The value of rice exports declined for the fourth consecutive year. Production continued to increase and imports to decline in most major importing countries in the region, causing a sharp fall in international prices. Although Burma and Pakistan were able to increase their sales, shipments from Cambodia were reduced by more than one half, partly as a consequence of the poor harvest, while the loss of the Japanese market was the major reason for a 30 percent reduction in exports from China (Taiwan).

The value accruing from the exports of edible oils and oilseeds, particularly copra and coconut oil, fell sharply in 1969, as both the quantity exported and the average prices for these two products were lower. Exports from the Philippines, in particular, were sharply reduced, with low yields due to a long period of below average rainfall more than offsetting the increase in the number of bearing trees. The only important increase was in Malaysian shipments of palm oil and palm kernels.

Export earnings from tea dropped by a further 18 percent in 1969 due to a further deterioration of prices, smaller imports into the United Kingdom and increased competition from east African producers. Shipments from Ceylon gradually recovered in the course of the year, but the total remained fractionally smaller than in 1968. Exports from India fell by almost 20 percent due to the smaller crop and increased domestic consumption. The annual average price of tea sold at the London auctions was 44.11 pence per pound, which was 3.34 pence per pound below that of 1968 and the lowest since 1953.

Exports of forest products continue to prove an increasingly inportant source of foreign exchange for the developing countries of the Far East. Shipments of hardwood logs rose by an estimated 2.5 million cubic metres in 1969 to 22.8 million. The major portion of this increase was contributed by the three main exporters, the Philippines, Sabah and Sarawak (whose main market was Japan), while Indonesia increased its exports (especially to the Republic of Korea) to 3 million cubic metres in 1969. The region's exports of sawn hardwood, plywood and veneer also showed substantial growth, particularly the sawn hardwood shipments from Malaysia and Singapore to the United States and western Europe, and the plywood exports from the Republic of Korea and China (Taiwan) to North America.

The volume of agricultural imports of the developing countries of the Far East are estimated to have declined again in 1969, for the second year in succession. The fall, of some 2 percent, was only slightly less than in 1968. In both years, the decline reflected mainly the sharp reductions in cereal imports — 17 percent in 1968 and 10 percent in 1969 — from the peak reached in 1967, when massive purchases were required to compensate for the poor crops of the preceding two years. In 1969 wheat imports fell by 17 percent, to their lowest level since 1963, and rice imports by 9 percent. The biggest reduction occurred in India, where total cereal imports were 30 percent smaller, and those of wheat were down by 40 percent to the lowest level in a decade. In Pakistan, too, wheat imports fell sharply, from 1.5 million tons in 1968 to 326 000 tons in 1969. Among the other major importing countries, there was an even larger drop in Indonesia, where rice imports were halved, and smaller declines in Ceylon and Malaysia. As in 1968, the Philippines imported no rice, but its purchases of wheat were

increased by about a third. China (Taiwan) and the Republic of Korea continued to increase their cereal imports in line with the trend of recent years. The wheat imports of China (Taiwan) were up by more than 50 percent. The Republic of Korea increased its purchases even more — wheat by 65 percent, while those of rice were two and a half times larger than in 1968 — reflecting the smaller crops of 1967 and 1968.

Among other food imports, those of sugar and meat fell (by 20 and 6 percent, respectively) below the peak levels of 1968, when they had increased by some 40-45 percent. The rising trend in imports of dairy products and fruit continued.

Livestock development

Role of livestock in agriculture

Published statistics indicate that livestock plays a relatively minor role in farm production and in the economies of the developing countries of Asia and the Far East. In 1969 its contribution to the total GDP of the region was estimated at only 4 percent, equal to 12 percent of the agricultural component of GDP.[34] The apparently widespread underrecording of domestic backyard production for family subsistence and local village use, however, deflates the livestock production statistics, while the underutilization of cattle, particularly in India, tends to depress the recorded aggregates and trends.

Existing statistical data also omit some of the less obvious but economically important contributions made by livestock. More than half the total energy employed in farming in the region is provided by draught cattle and buffalo. The heavy dependence of peasant farmers on their livestock is unlikely to be appreciably reduced in the foreseeable future by any acceleration in mechanization. And, as the traditional source of organic fertilizer in the region, farmyard manure continues to play an important part in maintaining soil fertility and productivity.

Although livestock production statistics in the region convey a somewhat misleading impression of the importance of livestock in most countries, recent trade returns nevertheless tend to confirm that progress in animal husbandry generally lags behind the region's requirements. Steadily increasing imports of livestock products have been recorded by most countries in the region. Including interregional trade, but excluding Japan's trade and that of Mainland China, total imports of pork increased from 5 340 tons in 1963 to more than 24 000 tons in 1968, while during the same period poultry meat imports increased 225 percent to 27 695 tons. Much more moderate increases occurred in the imports of other meats, with beef and veal recording a 14 percent advance to 12 900 tons, and mutton and lamb increasing by 22 percent to 7 000 tons. Compared with the overall production and consumption of meat in the region, these imports are marginal. Moreover, the overall picture is heavily dominated by the increasing imports of Singapore and Hong Kong; currently about 97 percent of the region's total imports of pork, mutton and lamb, about 80 percent of beef and veal, and over 90 percent of poultry meat are accounted for by these two city states, both of which are building up their entrepôt trade in meat products. The imports of dairy produce, however, are much more evenly spread, with Ceylon, China (Taiwan), the Republic of Korea, Malaysia, Pakistan and the Philippines, for example, each taking substantial portions of the steady increase in this trade.

Increasing livestock production in the region would curb the growth of food imports and make for a significant savings in foreign currency. Given, however, the current heavy concentration of the imports in these two city states, an even more compelling reason for greater emphasis on livestock production lies in the existing nutritional deficiencies of rapidly increasing populations relying on rice and wheat for their staple food supplies. At present only 10 percent of the protein intake of the region's population is supplied by livestock products, a proportion significantly lower than that of any other region.

Greater emphasis on livestock development is also one of the preconditions for more balanced progress in agricultural and industrial development generally. The introduction and spread of leguminous and grain fodder crops, especially in rotations for continuous cropping in irrigated areas, would not only support highly advantageous types of farming diversification and new agro-industries, but would also improve standards of efficiency in soil and water management. The current trend toward self-sufficiency in food-grain production in most countries of Asia, moreover, points to the emergence in some countries of surpluses of rice and wheat of qualities and in quantities difficult to export, while also releasing lands for production of green fodder and pasture legumes. The systematic utilization of such grain surpluses and fodder for stock feeding could provide the basis for new intensive livestock farming programmes in several countries. The way Thailand was able to develop a substantial maize export industry to supply feed for Japan's livestock indicates that, in several Asian countries, there is scope for developing feed production, mainly from highly productive hybrid maize and sorghum varieties.

[34] Compared with an average of 7 percent of total GDP for the 64 countries covered by IWP studies and 22 percent of the agricultural component of GDP in those countries.

Trends in production

The total annual value of livestock production for sale in the region is estimated to be about $3 500 million. Some 40 percent of recorded livestock production in the region is currently provided by the milk and dairy products of India, and a further 20 percent by Pakistan. Milk production in India has increased very slowly, from 19.7 million tons annually in 1952-56 to about 24 million tons in 1969. During the same period recorded production of beef and veal in that country actually declined, from the already low level of 173 000 tons to 164 000 tons in 1969. In Pakistan a recorded 60 percent increase in milk production from 8.3 million tons annually in 1948-52 to 13.3 million in 1969 was nearly paralleled by a 50 percent growth in the country's beef and veal output.

The Indicative World Plan for Agricultural Development (IWP) estimates that the annual excess of demand for meat products over prospective production in the region by 1985 would be approximately 3.3 million tons. [35] Similarly IWP expects a deficit of 26.2 million tons between the supply and demand of milk by 1985, with annual growth rates of demand outstripping production by 2.1 percent in the case of meat, 2.6 percent in the case of milk and 0.5 in the case of eggs. In view of the constraints on a rapid development of beef, veal, mutton and lamb production (largely due to the longer genetic cycle of these animals and the shortage of land and capital for large-scale operation), the increasing demand for meat would, in the short run, have to be met by a greater increase in pig and poultry production, which is likely to be less limited by the above production constraints.

Output of these products has in fact risen much faster than that of beef and mutton during the period 1963-69: 42 percent for pigmeat and 24 percent for poultry meat as compared with 8 percent for beef and 6 percent for mutton (Table II-35). The increases in pig and poultry production came mainly from medium- and large-scale units operating under more or less industrial conditions in countries such as China (Taiwan), Hong Kong, the Philippines and Singapore in respect of pork, and from China (Taiwan), the Republic of Korea, West Malaysia, the Philippines and Thailand in respect of poultry.

Problems and prospects

To an important extent livestock farming developments have been hampered in the region by a variety of socio-religious restraints and restrictive regulations. They range from virtually complete prohibition on pig raising and pork consumption in Muslim communities, and socio-religious taboos against the consumption of beef or in favour of vegetarianism, to legal sanctions against the slaughter of draught cattle and buffalo, as in parts of India and Ceylon.

In the more heavily populated areas shortage of land together with a heavy bias toward cereal culti-

[35] FAO. *Provisional Indicative World Plan for Agricultural Development*. Volume 1, Table 3, p. 246.

TABLE II-35. – FAR EAST: MEAT AND MILK PRODUCTION IN SELECTED COUNTRIES

	Beef and veal			Mutton and lamb			Pigmeat			Poultry and other			Milk		
	1963	1969 [1]	Increase	1963	1969 [1]	Increase	1963	1969 [1]	Increase	1963	1969 [1]	Increase	1963	1969 [1]	Increase
	Thousand metric tons		*Percent*	*Thousand metric tons*		*Percent*	*Thousand metric tons*		*Percent*	*Thousand metric tons*		*Percent*	*Thousand metric tons*		*Percent*
Ceylon	15	16	7	2	2	—	1	1	—	25	32	28	155	175	13
China (Taiwan)	9	9	—	1	1	—	189	300	59	446	625	40	28	38	36
India	160	164	2	357	368	3	24	35	46	1 568	1 620	3	20 610	24 000	17
Indonesia	282	295	5	44	43	—	88	98	11	196	260	33	[2] 33	[2] 54	64
Korea, Rep. of	31	36	16	—	—	—	58	64	10	155	255	65	[2] 7	[2] 36	414
Malaysia, West	11	13	18	—	—	—	45	50	11	188	274	46	24	30	25
Pakistan	264	300	14	87	105	21	—	—	—	322	350	9	11 383	13 340	17
Philippines	32	35	9	2	3	—	158	295	87	302	473	57	23	33	43
Thailand	43	48	12	—	—	—	130	142	9	290	428	48	6	7	17
TOTAL (nine countries)	847	916	8	493	522	6	693	985	42	3 492	4 317	24	32 269	37 713	17
Japan	186	234	26	2	3	—	279	570	104	2 068	3 916	89	2 769	4 420	59
GRAND TOTAL	1 033	1 150	11	495	525	6	972	1 555	60	5 560	8 233	48	35 038	42 133	20

[1] Preliminary estimates. – [2] Includes buffalo and goat milk where applicable.

vation leaves little scope for pasture or fodder crops on smallholdings. General preoccupation with cereal production in official food sector programmes, parallel with a monoculture of tree crops in the plantation sector in some Asian countries, has aggravated the problem. Since open grazing land is generally scarce, and since more than 80 percent of the livestock industry at present consists of backyard or smallholding production, the types of animal husbandry most practicable and profitable are those based on a highly intensive land use. Remarkable results have been achieved in this way, for instance in China (Taiwan) and Hong Kong.

This does not mean that all land potentially useful for livestock rearing has been so utilized. Areas with potential for grazing include parts of the outer islands of Indonesia and the Philippines, and marginal hill country in China (Taiwan), the Republic of Korea and Thailand. These countries are now considering or are already implementing programmes for pasture development. Considerable advances would also be possible through greater integration of cattle with coconut farming on existing coconut plantations in Ceylon and the Philippines, and the development of dairying on these lands is now being initiated. By and large, however, the shortage of land will continue to act as a general constraint on the development of cattle grazing and sheep farming in the region.

In view of this limitation, efforts could logically be channelled in two directions. In the short run an expansion of livestock production could be achieved on the broad base of the existing backyard farming methods, where output could be increased by the addition of one or two animals per unit, with little practical increase in the cost of inputs since the animals are fed on forage and crop or domestic waste. While not adding much to the marketed output, such an expansion would nevertheless make possible a much needed increase in the home consumption of animal proteins.

Longer term development of animal husbandry in areas lacking scope for pasture development lies in promoting intensive dairying and beef fattening based on the stall-feeding of concentrates and pasture crops as well as intensive pig and poultry operations. Essential for such a development, however, is that a more appropriate relationship be established between the prices of feed grains and of livestock products. One of the factors so far inhibiting progress in the livestock industries of several Asian countries has been the provision of high prices for cereals, which may at times be combined with controlled, uneconomically low prices for livestock products imposed to restrain the rising cost of living in urban communities. Prospective increases in wheat and rice production may, however, result in cereal surpluses in several countries in the coming years. Increased yields and higher cropping intensity will enable the diversification of land to pasture (even if only within a crop rotation pattern) while lower cereal prices may make economic the stall-feeding of grain to livestock.

A further factor limiting meat output in Asian countries is the low rate of conversion of feed to body weight. This is partly a function of the genetic qualities of the animals, which cannot be improved rapidly except in the case of pigs and poultry. In the interim, improved nutrition and better stock management would ensure higher ratios of carcass to live weight than currently apply, while improvements in slaughtering, finishing, processing and marketing could ensure more profitable production. Success in this field requires appropriate government action for the establishment of the necessary veterinary and slaughtering facilities, and for the initiation of efficient services for meat inspection and control.

Technical and institutional requirements

The predominance of small-size production units with inadequately developed supporting services (such as credit, extension and marketing) has tended to retard livestock production. Even to expand production on small- and medium-scale units, substantially increased technical and institutional support from governments would be necessary, including credit for livestock production, extension education, marketing, the supply of inputs and veterinary facilities — more or less as has been done with considerable success in the case of cereals. Considerable technical and institutional support will also be required by the medium- or large-scale commercial livestock farming projects which will have to meet the greater part of the mounting consumer demand in future.

The provision of technical advice and breeding material has contributed substantially to the upgrading of stock on smallholdings in countries such as Burma, Ceylon, Malaysia, the Philippines and Thailand, where improved breeding stock may be exchanged for local stock on a weight to weight basis. The intensive cattle development projects in India, through their "key village" schemes, provide stud services and artificial insemination in well-defined breeding areas. In Pakistan, too, government stud farms and the provision of breeding stock and land to breeders have played an important part in upgrading local herds. Day-old chicks and weaner pigs of improved breeds have also been distributed to small farmers and rural households for egg production, breeding, or fattening for market. Quality breeding is thus combined with inexpensive rearing on domestic waste or low-cost feed, while repurchas-

ing and marketing by a large-scale cooperative or distributing agency make production on a small scale commercially viable. Such attempts to overcome the limitations of scale in production have proved economically viable in, for instance, Ceylon, China (Taiwan), the Philippines and Thailand.

Animal health services, necessary in any case, are even more important to small farmers because of the congested conditions under which livestock are often raised in the region. Most countries have strengthened their animal health services recently, emphasis being put as much on the prevention of disease as on its cure.

Incentives through better prices or reduced costs (including subsidized inputs) are practical ways in which governments foster additional production on smallholdings. Although it has appeared to be politically inexpedient for most governments to allow significant price increases in livestock products, some have been willing to subsidize the cost of feed which can constitute as much as 70 percent of total input costs. Such subsidies have been provided in Ceylon, China (Taiwan), Japan, the Republic of Korea, Pakistan and the Philippines. In India, under the intensive cattle development projects, fodder banks are being created in various areas to sustain dairy herds in the periurban areas.

A planned programme of short-term agricultural credit for current inputs as well as for medium and longer term loans for the purchase of stock and construction of housing facilities is also required. Such credit has not been available to livestock producers (especially to small operators) as it has been to cereal producers, and this has not only made marketing difficult but has also inhibited long-term investment in livestock development. Medium and longer term credit is required especially for medium and larger scale poultry, pig or dairy development, while special programmes are necessary for the smaller producer who may be the owner of milk cattle but, being landless, is otherwise denied access to credit. At present, credit for these purposes is being made available in China (Taiwan), India, Japan, the Republic of Korea and the Philippines.

In the extension field, also, animal husbandry has not received the same attention as crop production. The type of technical training and services available in the livestock sector in several of the former colonial countries continues to emphasize the veterinary rather than the production aspects of husbandry and so lacks the integrated approach necessary for profitable livestock production. The Intensive Cattle Development programme in India is an example of such an integrated approach combining veterinary extension with support in breeding services and in the supply of credit and inputs, as well as in marketing.

Given the still largely small-scale basis of the livestock industry in Asia, marketing improvements provide a key factor in development. Several countries — including Ceylon, Malaysia, Thailand and the Philippines — have established government-sponsored marketing arrangements for the collection and marketing of milk and eggs. Other countries have progressed in the same direction through cooperative marketing arrangements. The dairy development cooperatives in India, as in the case of the Anand project, and the farmers' associations and cooperatives in China (Taiwan) and Japan respectively, are among the better known examples.

Development planning

Among the many problems that planners continuously face, two have attracted particular attention in the current plan periods in the region. One is the problem of the appropriate allocation of resources as between long and short gestation period investment. There are instances where an inappropriate choice or combination has led to a disproportionately low increase in GNP relative to the investment. It is now being increasingly recognized both in theoretical and practical planning approaches that for economies in early stages of development which are aiming at a rapidly rising rate of investment, it is advantageous to lay stress on short gestation period investment. At the same time, the demands for infrastructure investment, where usually the gestation period is long, tend to be particularly pressing at the earlier stages of growth. To arrive at a suitable combination of the two types of investment in order to obtain the specific growth, accumulation and consumption targets are a challenge to the technical skills and ingenuity of planners.

The second problem is that of implementation. Shortfalls in this regard remain the rule rather than the exception. Various causes can be cited, such as limited absorptive capacity in some sectors, decline in domestic savings, reduced foreign aid or export earnings, organizational and institutional bottlenecks, and sometimes too high targets relative to known constraints.

Current development plans ended in 1969 in Burma, Nepal, Pakistan and the Philippines. Available data on plan performance illustrate both of the problems described above. As Table II-36 indicates, both total GNP and GNP in agriculture lagged behind targets in these countries with the exception of the Philippines. In Pakistan there was a slight shortfall in export earnings in relation to targets, and a more sizable setback in investment; only just over 70 percent of the total planned outlay was actually spent, and in the agricultural sector (excluding water development) only 68 percent. These shortfalls, in turn,

TABLE II-36. – FAR EAST: PLAN TARGETS AND ACHIEVEMENT IN SELECTED COUNTRIES

		Burma 1966/67-1969/70	Nepal 1965/66-1969/70	Pakistan 1965/66-1969/70	Philippines 1966/67-1969/70
		..... Percent growth per year			
Total GNP	T	8.0	3.5	6.5	6.2
	A	2.9	2.5	5.7	6.0
Agricultural GNP . .	T	6.0	3.6	5.7	5.5
	A	2.3	1.9	4.2	7.3
Total investment . .	T	15.0	[1]8.5	—	—
	A	9.5	[1, 2]25.0	—	—
		..... Percent of GNP			
Total investment . .	T	13.7	6.2	20.2	—
	A	12.8	8.7	14.4	21.0
	B	10.6	4.6	18.3	19.4
Gross domestic saving	T	—	—	13.6	—
	A	—	—	10.2	18.0
	B	—	—	11.7	22.5
		..... Percent of plan outlay			
Net foreign assistance	T	—	[3]60	32.0	—
	A	—	57	29.4	—

NOTE: T = target figure, A = actual achievement, B = figure in the year before the plan came into operation.
[1] Public sector. – [2] Calculated on least square trend for investment over the five years. – [3] Gross inflow.

seem to have been caused by a number of factors. For instance, the 20 percent shortfall in the gross inflow of foreign aid into the country and the steeply increasing debt servicing liabilities (which increased from 9 percent of gross foreign aid inflow in the previous plan period to 20 percent in the one just ended) meant that the availability of imports was less than targeted.

Although income growth in Pakistan fell short of target, the lag was less than in the case of investment. In the main this is attributed to the steady increase in agricultural production in West Pakistan, reflecting in turn the rapid increase in the adoption of high-yielding varieties of cereals, fuller utilization of existing irrigation potential, and emphasis on quick-yielding investments like tube wells.

The record of Nepal is particularly illustrative of the problem of investment allocation between fast and slow yielding projects. The plan targets for investment were surpassed during the 1965/66-1969/70 period, but the growth of GNP remained below target. This is in line with the observed heavy concentration on investments with a long gestation period. Reflecting in part the difficult terrain and the early stage of development of the country, 60 percent of the planned outlay went to transport and communications. Agriculture, which accounts for 68 percent of GDP, was allocated only 21 percent of the plan outlay. Whereas total plan outlay was 8.7 percent of GNP, the outlay in agriculture represented only 2.5 percent of the agricultural GNP. Another factor which is thought to have influenced Nepal's investment pattern is the large portion of the total investment that has come from foreign sources; this substantially reduces the Government's control over allocations, and some projects are considered to have reflected more the donor's bias than a valid assessment of the country's priorities. There are also reported to be institutional and organizational obstacles to smooth plan formulation and implementation among the planning commission, ministries, departments and other public bodies.

In Burma the situation was somewhat similar, in that the shortfall in respect of income growth targets was greater than the shortfall in investment outlay, although detailed information on plan performance is not available. The limited increase in GNP per caput in Burma was absorbed by the savings required to sustain the rapid growth of investment, so that there appears to have been a slight fall in per caput consumption during the plan period. In Nepal, too, despite more than half of the investment being financed by external sources, there was for the same reason hardly any increase in per caput consumption.

The rather greater success of the Philippines is attributed largely to the technological breakthrough in rice production which, despite typhoons and drought during the plan period, contributed significantly to the performance of the agricultural sector. The rates of growth of agricultural production in the first three years of the plan period (1966-69) were 6.6, 7.5 and 7.6 percent respectively, compared with the plan target of 5.5 percent a year.

Some of the lessons learned from experience in the previous plan period are evident in the new plans which have been announced in Nepal, Pakistan and the Philippines (Table II-37).

Nepal's fourth plan (1970-75) aims at increasing investment by more than 50 percent over achievements of the third plan. The 1970-75 plan priorities are transport and communications, agriculture (including irrigation), industry and trade, and social services — in that order — and the share of agriculture in the public sector investment has been put at 26 percent. In the new plan, an effort has been made to strike a balance between the two objectives of increasing income per caput through low capital coefficient and short gestation period projects, and of building necessary overheads for long-term development.

Although the perspective plan of Pakistan (1965-85) had envisaged a growth of 7.2 percent for the fourth plan period, the 1970-75 plan (launched on 1 July 1970) targets a more modest GNP growth of 6.5 percent per year. In part, this reflects a reassessment of the possibilities following the below-target performance of the third plan; in part, it results from increased emphasis on social welfare

TABLE II-37. – FAR EAST: MAIN FEATURES OF CURRENT DEVELOPMENT PLANS

	Currency	Duration of plan	Scope [1]	Investment		Foreign exchange component of total investment	Share of agriculture		Planned growth rate of:						
									GNP	Agricultural production		Export earnings		Employment	
				Total	Public		Total investment	Public investment		Total	Cereals	Total	Agriculture	Total	Agriculture
				Million currency units		*Percent*			*Percent per year*						
Bhutan	B rupees	1966/67–70/71	PS	...	212	...	...	21	...	...	...	...	...	...	...
Cambodia	Riels	1968–72	C	32 000	12 240	...	250	...	7.0	4.5	...	...	...	...	...
China (Taiwan)	NT $	1969–72	C	156 460	48 687	43.0	11.8	43.6	7.0	4.4	3.4	7.2	...	3.6	1.2
India	Rupees	1969/70–73/74	C	248 820	159 020	21.8	[2]15.3	[2]24.0	5.5	4.5	5.0	7.0	...	...	...
Indonesia	Rupiahs	1969/70–73/74	C	1 420 000	1 059 000	...	26.0	35.0	5.0	...	...	...	...	...	...
Korea, Rep. of	Wons	1967–71	C	980 070	401 090	30.9	16.3	23.3	7.0	5.0	6.7	28.0	13.0	5.3	2.0
Laos	Kips	1969/70–73/74	C	20 579	5 729	...	...	...	...	...	...	...	...	...	...
Malaysia	M $	1966–70	C	10 500	4 839	...	...	24.0	5.5	5.5	...	...	...	...	...
Mongolia	Tugriks	1966–70	CP	...	4 700	...	...	...	7.0	6.0	...	...	...	...	...
Nepal	N rupees	1970–75	C	2 930	2 280	65.0	32.9	26.1	4.0	...	3.0	...	...	...	...
Pakistan	P rupees	1970–75	C	75 000	45 000	23.0	19.0	31.0	6.5	5.3	6.7	8.5	...	2.0	2.2
Philippines	Pesos	1971–74	C	31 440	5 243	10.0	—	[3]16.7	5.5	6.2	6.2	9.8	—	—	0.1
Singapore	Sgp $	1966–70	C	2 820	1 520	...	5.0	9.0	5.0	...	...	...	...	...	...
Thailand	Bahts	1966/67–70/71	C	130 700	37 900	...	...	20.0	8.5	4.3	...	...	...	...	...

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plan, and data may refer to gross investment or may include some elements of recurring expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

[1] PS, public sector; C, comprehensive; CP, centrally planned economy. – [2] Includes flood control expenditure. – [3] Water-resource development only.

objectives and a shift of investment to East Pakistan where immediate growth potential is relatively lower. Agriculture will take up 31 percent of the public sector outlay. The greater part of this, 65 percent (that is, 20 percent of the total plan outlay), is allocated to water development, while 3.5 percent of allocation to agriculture (excluding water development) is assigned to livestock development, 4.5 percent to forestry, and 2.5 percent to fisheries. Total investment is planned to grow at 11 percent per year, rising from 13.5 percent of GNP in 1969/70 to 15.6 percent in 1974/75. Net foreign aid is expected to fall to 23.4 percent of investment, compared with 29.4 percent in the last plan. Considerable effort will therefore be needed to increase the marginal rate of saving, from 8 percent during the third plan period to 20 percent during the fourth plan. Assuming this marginal saving rate and a population increase of about 3 percent, per caput consumption is expected to increase by 2.2 percent per year.

The new Philippines plan (1971-74), influenced largely by the lower performance in 1969/70, targets a lower GNP growth of 5.5 percent as against the 6 percent growth actually achieved in the last plan period. A major plan objective is to sustain the momentum achieved in agriculture through the use of the higher-yielding varieties, and a higher growth rate of 6.2 percent has been targeted for production.

India's fourth plan (1969-74) was approved by the National Development Council (NDC) in early 1970. The total public sector outlay has been revised upward by 10 percent over the draft plan figure. The share of agriculture in the plan outlay has been increased to 17 percent (as compared with 15 percent in the draft plan), while the share of irrigation and flood control remains at 7 percent. Despite approval by NDC, some states have raised various objections to the plan.

REGIONAL ECONOMIC COOPERATION

Probably reflecting the variety of historical experience and the cultural, linguistic and political divergencies in the region, economic cooperation in the Far East remains at an embryonic stage. These difficulties have not, however, prevented the countries of the region from continuing an active search for viable forms of regional and subregional cooperation, and there were signs of increased activity in 1969 and 1970.

In particular, following the adoption in principle of the broad lines of a strategy for integrated development of regional cooperation in Asia by the third Ministerial Meeting of Asian Economic Coopera-

tion (now called the Council of Ministers for Asian Economic Cooperation) at the end of 1968, specific work on the content and implications of such a strategy was started in 1969. The first phase of the programme of work, carried out by a task force set up within the secretariat of the Economic Commission for Asia and the Far East (ECAFE) and by national units, includes a "commodity flow exercise" (commodity and country profiles), and studies of techniques of trade liberalization, of possible payments mechanisms to support them, and of a commercial infrastructure for trade.

A preliminary draft programme on Asian trade development and liberalization has already been drawn up. Under it participating countries would, among other things, endeavour to increase their intraregional trade by an agreed annual target during an initial preparatory phase. Possible trade developments and payments arrangements were considered at expert consultations in March 1970 and further meetings on this subject are expected to take place during the year to finalize proposals for a trade liberalization programme in late 1970 or early 1971, and its adoption later that year.

At subregional level, the member countries of the Association of South-East Asian Nations (ASEAN) have set up an intergovernmental advisory committee which has commissioned certain studies (currently being carried out by the United Nations and its specialized agencies) to ascertain the extent, specific areas and means by which economic cooperation in agriculture, industry and trade can be fostered among themselves. Although the economies of most of the countries are not complementary (Singapore, for example, is the only country not producing raw materials), there seems to be adequate room for a greater exchange of goods through tariff cuts, payments agreements and the removal of exchange control restrictions.

Little progress has been made in promoting regional cooperation on a commodity-by-commodity basis. The Asian Coconut Community (ACC) held its first two meetings in 1969 and 1970, and has requested assistance in the identification and formulation of projects from the United Nations Development Programme and the specialized agencies. The intergovernmental consultations conducted in early 1970 on the possibilities of regional cooperation in respect of rice proved abortive. There has also been only limited progress toward the establishment of the proposed Rubber Producers' Association (which would include Ceylon, Indonesia, Malaysia, the Philippines and Thailand) which would aim at stabilizing rubber prices. This is due partly to higher world prices for natural rubber and partly to technical disagreements over the mechanism to be adopted for the arrangement. The Indo-Ceylon tea agreement on collaboration in the packaging and export promotion of tea may have received a setback as a result of India's decision to remove the export taxes on tea.

Japan

The Japanese economy continued its rapid expansion, with a rise in real GNP of 13 percent in 1969, resulting in a per caput national income of $1 270 — an increase of 12 percent over 1968. In 1970, the growth is estimated to have continued virtually at the same rate.

Agricultural production remained at the same level as in 1968. To a large extent this reflects the structural adjustments now being implemented in the farm sector. Faced with an increasing rice surplus the Government decided to freeze the purchase price of rice, which hitherto had risen rapidly, and output fell from 18.8 million tons in 1968 to 18.2 million tons in 1969. The production of barley declined by 52 percent in 1969 and that of wheat by 25 percent. However, in line with the recent shift toward higher value products, milk production increased by 10 percent in 1969 and that of beef, pigmeat and poultry meat by 4 percent.

In 1970, output may have risen fractionally, despite a further fall, to about 17 million tons, in the rice crop. There was some recovery in wheat and barley production, and meat and milk output continued to rise.

Japan's agricultural exports have long since been completely dwarfed by its imports. In 1969 their total value (excluding fishery and forest products) was only $407 million compared with an agricultural import bill of about $3 700 million, an increase of nearly 8 percent compared with 1968. The main increase in imports arose from larger value of imports of raw sugar, meat products (especially pigmeat) and natural rubber. Also the value of soybeans registered an increase in 1969 and those of wheat and maize, the principal cereal imports, reached peak levels. Although nearly 20 percent less cotton was imported than in 1968, it remained the largest agricultural import in value terms.

Fishery production declined somewhat below the 1968 level, but was characterized by an increase in the proportion of the catch used for industrial purposes. Although Japan retains its position as the world's second largest producer of fish, the volume and value of imports have been increasing and imports now account for some 10 percent of domestic consumption. Given the continued strong preference for fish in the diet, this trend is expected to continue. A significant change in the pattern of trade in 1969 was the decline in tuna ex-

ports, hitherto an important source of raw material to United States canneries, and an increase by one quarter in tuna imports. To forestall a further deterioration in the country's position in the United States markets, investigations have been started of possible ways to improve the efficiency of Japan's tuna fishing operations.

Despite a drop in removals of nearly all categories of domestic roundwood, Japanese wood processing industries appreciably expanded their output of sawnwood and plywood and of pulp and paper products. This was made possible by continued expansion in imports of hardwood logs from southeast Asia, and of pulpwood chips from North America, as well as by partly offsetting the 1 million cubic metre reduction of coniferous log imports from the United States by increased coniferous supplies from the U.S.S.R. and New Zealand. Facilities were being set up to ship hardwood chips from southeast Asia and Australia, and possibilities of a further supply from Brazil were being investigated. Imports of chemical pulp also increased substantially. Japan dominates industrial forest production in the region, accounting for three quarters or more of the output of most processed categories.

In line with the general buoyancy of the economy, average farm household incomes in 1968/69 rose by 10 percent to the equivalent of $3 135. However, the greater part of farm household income comes from nonfarm sources and in 1968/69 this component increased by 17 percent, while the agricultural component rose by only 3 percent.

Principal problems and policies

Reflecting the continued increase in rice production (until 1968) in the face of a steady reduction in per caput consumption (at an annual rate of about 2 percent), the stocks of old crop rice have grown rapidly in recent years. In 1969 they rose by 16 percent to 5.5 million tons (milled), and a further increase to about 8 million tons was expected by 31 October 1970.

To counter this tendency the Government recently announced a policy under which rice production would be reduced by 1.36 million tons, equal to about 11 percent of the 1969 crop. Some 354 000 hectares or 11 percent of the 1969 paddy area were to be switched from rice to other uses during 1970-71 by means of the disincentive of freezing the purchase price of rice and by the incentive of the payment of premiums for the diversification of paddy land to other crops or to nonagricultural uses.

The second major problem in Japan's agriculture arises from the fact that the growth of productivity of Japanese agriculture appears to be reaching its limits under the present farm size structure, dominated by small farms. The need for structural change is accentuated by the increasing shortage of labour in agriculture, and the further spread of part-time farming.[36]

Various measures aiming at the creation of larger farming units and a shift from rice to other crops and livestock production have been taken under the Basic Directives of Structural Policy published in 1961. Existing legal restrictions, however, in particular those arising from some features of the post-war land reform, now appear to have outlived their purpose and are hindering changes in the scale and flexibility of Japanese agriculture. In April 1970 the Diet therefore abolished the existing limitations on the maximum size of tenancy holdings and on the levels of rents, and approved measures which will allow the ownership and management of land by nonfarming landlords and agricultural cooperatives. It is hoped that these measures will enable the Government to achieve its 1977 target of a minimum holding of 4 to 5 hectares on rice land (compared with the present average of 0.7 hectare) and to expand the average herd of dairy farms from the present 4.4 cows to 20 cows. Thereby it is also expected to increase the average farm household income to $5 500, which would equal the projected nonfarm household income by 1977.

Mainland China

By the end of 1969, Mainland China's economy seemed well on the way to recovery after the three years of upheavals associated with the "cultural revolution." Reports on agriculture suggest a significant increase in production over 1968. Food grains are estimated to have occupied 80 percent of the total planted area, and FAO estimates cereal production (including potatoes and sweet potatoes at food-grain equivalent) to have amounted to 222 million tons against some 214 million tons in 1967 and 212 million tons in 1968.[37] The production of paddy, which accounts for 50 percent of the total, is estimated at 95 million tons, 4 million tons more than in 1968. Increases are also reported in other crops such as sugarcane, soybeans, tea, silk and vegetables. However, production of cotton, the major industrial crop, barely maintained the 1968 level, while tobacco production declined. Cattle and sheep production is thought to have responded to favourable weather conditions in the pastoral regions, and pig production is reported to have increased in both the

[36] In 1969, 80 percent of farm householders were part-time farmers. Only 5 percent of the 3.5 million farm households which sell paddy to the Government owned more than 2 hectares of paddy land, and only 3.4 percent of dairy-producing households owned more than 15 cows.

[37] The FAO method of estimating cereal production in Mainland China is explained in *The state of food and agriculture 1968*, page 14.

collectives and the limited private holdings. Although some farm products still continue to be rationed, the general increase of production in 1969 appears to have done away with many of the shortages of the past few years.

Earlier efforts to expand the area under cultivation by large-scale land reclamation are no longer being actively pursued, since the uncultivated land, although extensive, is known to be of poor quality.[38] There appears to have been little or no increase in area sown in 1969, and the increases in production appear, therefore, to have been achieved through higher yields and agricultural intensification. This, in turn, has necessitated the use of greater quantities of fertilizer and other inputs. No data regarding total fertilizer supplies are available since 1966, when they are reported to have reached 8.5 million tons, compared with 2.2 million tons in 1961. More than half of the 1966 figure is said to have been imported, but local fertilizer production is also reported to have been increased substantially, on the basis of small-scale rural plants.[39] A shortage of overall supplies is suggested, however, by the call on farmers in 1968 to increase the collection and application of organic manure.

October 1969 saw the official announcement of the outline of a new economic development plan for Mainland China. This was the first overall economic policy statement since the commencement of the cultural revolution in 1966. It enunciates a comparatively balanced concept of economic development, moving away from the former concentration on heavy industries toward relatively greater investment in light industries and especially in agriculture. It also envisages a more dispersed growth, including rural development programmes geared to local needs, with rural industrialization through small factories for the manufacture of chemical fertilizers and farm machinery.

As regards agrarian structure, 1969 witnessed some limited moves toward decentralization. The management of rural credit and trade was handed over to communes and brigades, as were also the tractors from the disbanded tractor stations. Some decentralization of the administration was also carried out. Despite announcements to the contrary in 1968, farmers are still reported to be allowed to continue production on their intensively cultivated private lots, and to continue with subsidiary sideline occupations. At the other end of the scale, experimental mergers of production teams and brigades into larger units were tried out on a limited scale, as in the previous year.

Mainland China's foreign trade, which had declined in 1967-68, improved markedly in the latter half of 1969. The value of food exports exceeded that of food imports for the fourth consecutive year, mainly because of reduced wheat imports. There was a further increase of trade with the non-Communist world; Hong Kong, Japan and Singapore were the main trade partners, and rice, soybeans, livestock products, sugar and vegetables the main exports. On the other hand, Mainland China's trade with other centrally planned countries probably reached an all-time low.

[38] Only 12 percent of the national land area is now cultivated; only a further 3 percent is classified as "cultivable wasteland," which it would be slow and costly to reclaim.

[39] Large fertilizer plants exist in Hopei and Shensi, the latter being reported to be the first modern plant using a noncarbonization process.

Near East

Despite the political tension in the region, there has been marked progress in the overall economic growth in a number of countries. In 1969 GDP grew by more than 10 percent in Iran, Israel and Libya, by about 10 percent in Cyprus and by 7 percent in Turkey. Oil production in the region as a whole rose considerably (by 11.5 percent), with the heaviest gains secured by Iran, Libya and Saudi Arabia. The contribution of agriculture to GDP growth was generally low, reflecting the effect on agricultural output of adverse climatic conditions, although there were also exceptions as in the case of Cyprus where the overall growth rate was positively affected by a 14 percent increase in agricultural production. Good progress in the adoption of high-yielding varieties of cereals continued to be sustained in Afghanistan, Iran, Iraq, Turkey and the United Arab Republic. In the institutional field, the completion of the land redistribution stage of agrarian reform in Syria has left the Government free to concentrate on establishing cooperatives, while in the United Arab Republic the limitation of land ownership to 50 feddans (20 hectares) per person has led to an increase in the number benefiting from land reform.

Agricultural production

Over the decade from 1956-58 to 1966-68, agricultural production in the Near East region grew at a rate of 3.1 percent a year — the highest for all

developing regions. There were wide variations as between countries, ranging from around 8 percent a year for Cyprus and Israel to only about 2 percent a year for Syria (Table II-38), although in a region as exposed to fluctuation due to weather conditions as the Near East, these growth rates tend to be influenced by the choice of the terminal periods.

Preliminary estimates for 1969 indicate a below average increase of about 2 percent for the agricultural production in the region as a whole; with population growing at an annual rate of 2.6 percent, this meant some decline in per caput agricultural production. At 107, the FAO index of per caput food production in the developing countries of the region stood no higher than it had been a decade earlier. The small increases in per caput food production which have been obtained so far contrasted with rising levels of income, and largely explain the increasing food prices in many countries and the rising food imports into the region.

The rise in the index of agricultural production in 1969 was the composite result of differing short-term changes in individual countries. Marked increases in output took place in Cyprus, the Sudan, Syria, and the United Arab Republic. Apart from better weather conditions in 1969 than in 1968, they reflected increases in areas planted, expansion of irrigation facilities and a more widespread use of improved seeds, fertilizers and other purchased inputs. In Cyprus early and timely rainfall in December 1968 and early 1969 resulted in excellent crops of wheat and barley as well as good harvests of most other commodities. The Sudan had an excellent cotton crop in 1969, with an increase of 41 000 tons of lint over the good crop of 1968. In particular, efforts are being made to increase the production of medium and short staple varieties which are becoming more and more competitive with extra-long staple varieties in major world markets. Grain production was up 87 percent over the 1968 harvest. In Syria wheat and barley outputs were substantially higher. In the United Arab Republic, substantial gains were recorded for maize, while rice production remained at the all-time high of 2.6 million tons. With the availability of water from the High Aswan Dam, not only is rice being planted over a larger area but the year-to-year fluctuations in planted area are being overcome. Similarly, it has been possible to plant maize as early as May and this has increased yields by 20 to 25 percent. Cotton production in the United Arab Republic increased by 17 percent. Production of onions, sugar and citrus fruit also showed improvement.

Unfavourable weather and outbreaks of rust led to smaller harvests in Iran, Iraq, Lebanon and Libya, while output in Turkey remained about unchanged. In Iran, where grains account for about half of the total value of crop production, wheat sowing operations were delayed by heavy rainfall during late autumn and winter. Spring rains were good, but the crop was subsequently affected by rust. Unfavourable weather at planting time reduced the area

TABLE II-38. – NEAR EAST: INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
	1952-56 average = 100					*Percent*		*1952-56 average = 100*
PRODUCTION IN SELECTED COUNTRIES (all products)								
Afghanistan	130	126	135	139	142	+ 2	1.9	107
Cyprus	174	172	213	213	244	+ 14	7.4	202
Iran	145	144	156	175	168	— 4	3.2	109
Iraq	134	134	141	167	163	— 2	2.8	100
Israel	255	256	298	314	315	—	8.2	190
Lebanon	186	193	214	211	196	— 7	6.3	127
Libya	173	174	179	202	176	— 13	4.5	105
Saudi Arabia	153	160	161	159	163	+ 3	4.1	103
Sudan, The	158	167	197	173	211	+ 22	4.0	138
Syria	162	125	149	147	159	+ 9	1.8	104
Turkey	141	157	160	167	165	— 1	3.7	111
United Arab Republic	144	144	140	149	157	+ 5	2.6	109
REGIONAL PRODUCTION								
Total								
All products	145	148	155	160	164	+ 2	3.1	—
Food only	141	145	152	157	159	+ 2	2.8	—
Per caput								
All products	109	108	110	111	110	— 1	0.4	—
Food only	106	106	108	109	107	— 1	0.2	—

[1] Preliminary estimates.

under barley. The total grain output was consequently down by 16 percent. Cotton production was up by some 3 percent. By contrast, rice production increased significantly, in line with the longer term upward trend, primarily because of an expansion in crop area and better cultural practices.

In Iraq adverse weather and an attack of rust reduced the wheat crop to 1.2 million tons, from the record crop of 1.4 million tons in 1968. Of the other main cereals, rice also registered a significant decline, but a record crop of nearly 1.3 million tons of barley was harvested. Adverse weather conditions in Iraq were also responsible for a substantial decline in horticultural production.

In Turkey a cool spring and a sudden dry spell in May kept wheat production far below the expected level. This, together with lower production of cotton, olives, oilseeds, fruit and nuts, contributed to the decline of the index of agricultural production in 1969, which the increases in production of barley, maize, vegetables, pulses and livestock products were insufficient to offset.

The 7 percent decrease in Lebanon reflected mainly the steep fall in the production of eggs, the export markets for which are shrinking, and of fruit, particularly apples, which was affected by the bad weather.

In terms of principal commodities, the limited growth of agricultural production in the region in 1969 was mainly attributable to increases in production of cereals, particularly barley and to a lesser extent wheat, and of cotton, which reached a record level of nearly 1.5 million tons, mainly reflecting the increases in the Sudan and the United Arab Republic. These increases more than outweighed the effect on the index of the fall in production of vegetable oils, sugar and horticultural crops. In line with the very slow rate of growth of the past, production of meat and of other livestock products is estimated to have increased only marginally in 1969.

Data on production in 1970 are too scarce to permit any quantitative estimation of the overall output in the region. Cereal production may, however, be down, with smaller crops of wheat in Syria and Turkey, and barley in Turkey and Iraq. Little change was expected in the production of rice and maize or of vegetables and fruit. Cotton production, however, was thought likely to be smaller in some of the major producing countries, except the United Arab Republic.

High-yielding varieties of cereals

There was some further progress in the adoption of high-yielding varieties of cereals, particularly in Afghanistan, Iran, Iraq, Turkey and the United Arab Republic but so far they have failed to make a decisive impact on production. In Afghanistan areas with irrigation and mild winters appear very suitable for the semidwarf wheats such as Lerma Rojo 64 and Mexipak. An area slightly exceeding 120 000 hectares, or 6 percent of the total wheat area, was sown with these varieties in 1969, and this is reported to have contributed to the somewhat higher production obtained in the past season.

Under the impact programme for wheat in Iran, Mexican and Russian seed varieties are supplied to contracting farmers, who are also provided with fertilizers on credit, and the relevant extension services. The Russian winter varieties are reported to give high yields under rainfed conditions in areas with more than 400 millimetres of annual precipitation. About 100 000 hectares were sown with Mexican seed in 1969/70, as against a target of 124 000 hectares. The target for 1970/71 is 130 000 hectares, which would constitute about 3 percent of the total wheat area. Apart from those farmers who have obtained seed from official sources, others have obtained it from contracting farmers, so that there has been some spread effect especially for Mexican varieties. In addition to the wheat programme, a rice project has recently been initiated which includes distribution of improved seeds, a credit programme (partly in cash and partly in kind) and extension services. In 1969, an initial 18 000 hectares were brought under improved rice varieties, and recently imported high-yielding rice varieties from China (Taiwan) are being tested.

In Iraq about 10 000 hectares were seeded with Mexipak wheat in 1969, and the estimate for 1970 is about 70 000 hectares. For the 1969 rice crop 100 tons of IR8 seed were imported from the Philippines, of which about 60 tons were sown over an area of about 600 hectares. Systematic production, certification and distribution of high-yielding seeds of wheat, barley and rice are contributing to increased production in the country.

In Turkey there was a rapid spread of the area under Mexican varieties in 1969, the total area covered being about 800 000 hectares, but yields were disappointing due to rust and inadequate and late application of fertilizer. In 1970 slightly under 700 000 hectares, or approximately 11 percent of the total wheat area, were sown to high-yielding varieties.

In the United Arab Republic, where seed distribution has reached an advanced level, the locally developed high-yielding and disease-resistant variety Giza 155 is expected to cover about three quarters of the wheat area in 1970/71, compared with less than 15 percent in 1968/69. In fact, 60 000 tons of seeds were distributed for the 1969/70 season, enough to plant 430 000 hectares. To increase the return from wheat growing, the producer price of wheat has been increased by £E. 6.6 per ton (26 percent) for the 1970 crop.

In Syria high-yielding varieties are available, but the Government has not yet developed a programme to multiply or distribute seed, or to supply the required fertilizer.

A faster rate of expansion in the adoption of high-yielding varieties of cereals in the region remains unattainable until some of the major constraints are overcome. Aside from the limited area under irrigation, and the competition for it by other crops, these include the shortage (except in the United Arab Republic) of well-trained and experienced wheat breeders who could plan and execute breeding programmes to meet future needs.

There are also problems related to the supply of fertilizers and their distribution. In Turkey the insufficient distribution of fertilizers in 1969 reflected an overall shortage of supplies. Because of the heavy dependence on imports and shortage of foreign exchange, Turkey is not likely to have an adequate and stable supply of fertilizer until local manufacture can satisfy the entire demand. Although three new factories are scheduled to begin production in 1970, demand will still outrun production capacity. There is also the need to develop varieties suited to the higher rainfall areas in the region, for example those with over 350 millimetres of annual precipitation, as well as varieties with intermediate winter habit for cooler areas in Afghanistan, Iran and Turkey. In Iran, such a breeding programme has been initiated and is currently being intensified. Apart from the availability of suitable varieties, there are also problems in rainfed areas connected with fertilizer application, and with mechanization to prepare the land and sow the crop in the more limited time available. This latter problem requires the closest collaboration between the plant breeder and the agronomist.

Role of economic incentive measures

To bring about a more rapid increase in agricultural production in the region, stress is being laid on the provision of economic incentives to farmers. Although the specific considerations dictating their provision vary, a common objective in many countries has been to protect the farmer from the instability of farm prices, the main risk to which he is exposed. In Lebanon and Libya stress is also laid on helping farmers to reduce production costs and thereby improve their profit margin. In Cyprus a system of differential producer prices is being applied with a view to encouraging the production of hard wheat (durum) at the expense of soft wheat and barley, and to concentrating wheat production in the most favourable areas, while the remaining areas currently cropped to wheat will hopefully be converted to barley.[40] In Turkey one of the objectives of incentive measures is, in line with the practice in the developed countries, to secure an income to farmers comparable to that in other sectors. This consideration is also prominent in oil-rich Libya, where incentive policies have been deliberately used as a means of transferring income from the oil sector to the agricultural sector. The role of economic incentives in encouraging the adoption of improved technology is also being increasingly recognized in many countries of the region, particularly in relation to the adoption of high-yielding varieties of cereals.

Main incentive measures

The most common forms of incentives provided to farmers are price supports and input subsidies. Most countries have some form of price guarantees for the main cereals grown, reinforced by state control of cereal imports and exports. As Table II-39 shows, the support prices for wheat are maintained above the import prices (except in the United Arab Republic), although not by as wide a margin as in many countries in other regions.[41] All the

[40] Between 1964 and 1968 the barley area expanded by 12 percent, while the wheat area contracted to an almost exactly corresponding extent.

[41] For the 1969/70 season, also, the wheat support price in the United Arab Republic was raised to a level above the prevailing world market level.

TABLE II-39. – NEAR EAST: LEVELS OF STABILIZED OR SUPPORTED PRODUCER PRICES FOR CEREALS IN 1968/69 IN SELECTED COUNTRIES

	Type	Guaranteed price	Average import price (1968)
		U.S.$ per 100 kilogrammes	
WHEAT			
Cyprus	Soft	9.3	7.0
Iran	—	7.9	7.0
Jordan	Grade II	9.0	7.6
Lebanon	Soft	8.9	6.4
Libya	Soft	14.0	8.0
Syria	Soft	6.3	6.2
Turkey	Soft	8.9	7.7
United Arab Republic	—	6.0	6.3
BARLEY			
Cyprus	—	6.0	[1]6.6
Iran	—	4.0	—
Lebanon	—	5.9	5.2
Libya	Grade I	11.2	[1]8.3
Syria	Black	3.8	8.8
Turkey	Dark	4.4	—
RICE (PADDY)			
Iran	Standard	25-28	[2]15.1
Turkey	—	15.8	—
United Arab Republic	—	6.9	—

[1] 1967. – [2] Refers to polished rice.

countries (except Syria in years of good crops) have been importers to a greater or lesser extent, and the principal purpose of keeping support prices relatively high is that of expanding domestic production. In the United Arab Republic the policy has been to ensure a price which, while remunerative to the producer, is reasonable to the consumer as well; price supports for wheat are therefore accompanied by regulations which require that at least 40 percent of the land be put under wheat. In Libya, for reasons mentioned above, a very high level of support price is combined with subsidies on consumer prices.

The guaranteed prices for barley are on the whole more in line with the international market prices, except in Libya and to a lesser extent in Lebanon. Turkey has ceased to be an importer since 1955, and Iran since 1966. The generally low support prices reflect a policy of encouraging the use of barley as livestock feed.

Other important crops for which guaranteed prices have been established in some countries of the region are sugar beet (Iran, Lebanon and Turkey) and cotton (Afghanistan, Syria, Turkey and the United Arab Republic). For sugar beet, the practice has generally been to fix the price the factories have to pay to the producer. With regard to cotton, the main export crop of the region, the scope for price intervention by governments is limited by the need to maintain a competitive position in world markets. The main objective is therefore the seasonal stabilization of prices.

Since the prices of purchased inputs in the region are generally high relative to the more developed countries and in relation to farm product prices, their use, particularly of fertilizers and improved seeds, is subsidized in some countries. Thus, the Cereals Office in Lebanon distributes certified wheat and hybrid maize seeds at low prices. Fertilizer prices have been lowered and made uniform throughout Syria, and in Iraq the price of ammonium sulphate has been reduced by as much as 30 percent. In line with the policy emphasis already described, Libya operates a particularly comprehensive programme of input subsidies, with most purchased inputs made available at prices reduced by 50 or 25 percent, and with subsidies offered also to meet a substantial part of the cost of connexion of farms with electric power supplies, the drilling of wells and construction of water reservoirs.

Input subsidies, however, have not generally been favoured to the same extent as price supports, both because of the burden they impose on the national budget and because experience shows that they are difficult to abolish or reduce even after the use of the inputs has become widespread.

In addition to state control over imports of cereals, tariffs and other trade policies are used in some countries to supplement input subsidies and as direct price supports of some other commodities. Thus in Lebanon restrictions are imposed on imports of certain products, including olives, potatoes, onions and skim milk, to protect local producers, while agricultural inputs such as farm machinery, insecticides and pesticides, selected and certified seeds, and feed have been exempt from import duties.

Effectiveness of incentive measures

It is difficult to assess the effectiveness of incentive measures at the farm level. Judging by the increased use of such inputs as fertilizers, improved seeds and farm machinery in many countries of the region, however, the farmers' response has been generally favourable. Fertilizer consumption in Libya has more than doubled since subsidies were introduced in 1966; the lowering of fertilizer prices in Syria resulted in a 30 percent expansion of consumption between 1968 and 1969, although the extension service also played an important role in this. The same is true about Iran where, under the impact programme for wheat discussed above, the distribution of high-yielding varieties of wheat seeds at low prices was part of an input package including credit and extension services.

Implementation of price guarantees for basic foods has generally been found to be more difficult than for commercial crops such as cotton and sugar beet. While the commercial crops are produced in well-defined areas and by a limited number of farmers, a large proportion of cereal farmers live too far from official purchasing points to take advantage of the guaranteed price. The principal exception in the region is the United Arab Republic, where there is a network of cooperative societies, where a fixed quota of wheat has to be delivered to the Government and where the Government is the sole buyer of rice. Insufficient storage facilities also often limit the effectiveness of price supports. This is a major problem in grain price stabilization in Syria, especially in the high-producing Gezira area.

Trade in agricultural, fishery and forest products

The value of agricultural exports from the developing countries of the Near East increased only slightly in 1969 over the level of the previous year, when they had risen by 5 percent (Table II-40). The volume of shipments fell by 2 percent, reflecting reduced exports of all major commodities except rice, which maintained the steady upward trend of recent years. There was a substantial rise in the prices of some commodities, notably cotton and citrus fruit, but only for the latter were earnings higher. The ex-

TABLE II-40. – NEAR EAST:[1] INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969 [2]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	98	123	127	123	129	131	+ 2
Food and feedstuffs	37	156	145	150	170	188	+ 10
Rice	(10)	184	185	252	377	462	+ 23
Fruit	(9)	140	161	175	183	187	+ 3
Vegetables	(3)	194	165	191	154	161	+ 4
Beverages and tobacco	8	85	97	114	95	84	— 12
Tobacco	(7)	84	99	112	90	79	— 12
Raw materials	53	117	125	114	118	117	— 1
Cotton	(52)	120	128	117	123	121	— 1
FISHERY PRODUCTS	1	152	163	182	134	150	+ 12
FOREST PRODUCTS	1	...	...	343	418	438	+ 5
Agricultural, fishery and forest products	100	...	...	124	129	132	+ 2

[1] Excluding Israel. – [2] Preliminary estimates.

pansion in the value of agricultural trade was thus not only less than in 1968, but also below the trend of the past decade during which it has risen at an annual rate of 3 percent.

The higher prices received for the long staple varieties exported from the region were offset by a 7 percent decline in the volume of cotton exports, due to smaller shipments from the Sudan, Turkey and the United Arab Republic. The value of shipments from Syria, the United Arab Republic and to a less extent the Sudan were higher, but those from Iran and Turkey were lower. The better performance of the first three countries is largely to be attributed to the good quality of their crops and, particularly in the case of the United Arab Republic, to favourable trade agreements with the U.S.S.R. and eastern European countries. Syria was able to arrest the decline in cotton exports perceptible since 1967, and expand the volume shipped by nearly 25 percent. The quantity shipped by Iran remained at the level of the previous year.

The volume of rice exports was up by about one third, which more than offset the decline in prices. The United Arab Republic, which accounts for 98 percent of total shipments from the region, emerged as the world's fourth largest exporter in 1969, despite difficult market conditions. From an average of 220 000 tons in 1959-63, this country has steadily increased its exports to 670 000 tons in 1968 and 770 000 tons in 1969, primarily as a result of the government decision to expand rice production and the recent strengthening of trade links with the centrally planned countries. Export availabilities of rice will probably increase further in the coming years, but it remains to be seen whether additional markets can be found.

The steady expansion in export volume, which in recent years had characterized the region's fruit trade, was interrupted in 1969 mainly because of a marked drop in shipments of apples from Lebanon where, owing to adverse weather, the 1969 crop was nearly halved. Raisin prices fell sharply, and there was a decline in the volume of exports. Lower earnings from these two commodities were barely offset by the larger value of citrus exports. The decline in the value of tobacco exports, by about 12 percent, was due mainly to smaller shipments from Turkey, the leading producer and exporter of "oriental" tobacco. Besides the setback to production in 1969, Turkey has been faced with weak international demand and strong competition from other exporting countries.

Data on imports in 1969 remain fragmentary. Cereal imports by the United Arab Republic were reduced by one third, those of wheat and flour by a similar proportion, and those of maize by about two thirds. This was the second successive decline after a period of steadily increasing imports, and resulted from the good crops of 1968 and 1969. Syrian grain imports were also smaller: only 40 000 tons of wheat were purchased, compared to 284 000 tons in 1968. Increases in production in Iran and Iraq in 1968 may also have permitted some decline from the high import levels of that year.

Livestock development

THE LIVESTOCK SECTOR IN THE ECONOMY OF THE REGION

A key feature of animal husbandry in most of the Near East is that it is not only a productive activity but also a way of life. This is particularly the case in Afghanistan, where it constitutes the traditional way of life of about 80 percent of the population, and in Somalia, where at least two thirds of the population are nomads or seminomads for whom animal husbandry forms the basis of their existence. Under these conditions livestock is raised according to a system of migratory grazing, and the transition from a subsistence to a full market economy has not yet been achieved.

The livestock sector plays an important role in the national economy of the countries of the region. While it makes a major contribution to total GDP only in Somalia (see Table II-41), its contribution to agricultural GDP is significant in most countries. Seldom, however, is it commensurate with the size of the herd, because of its low productivity.

Livestock and livestock products also constitute an important source of export earnings for some countries in the region, particularly Somalia and Afghanistan (Table II-42) but, again, the contribution is not usually commensurate with the size of the livestock population. Exports are, however, difficult to estimate accurately as there is unrecorded movement of livestock across national borders.

Although intraregional trade occupies a minor place in the total trade in the Near East, it accounts for most of the exports of live animals from Somalia, the Sudan and Syria and of eggs from Lebanon (Table II-43). The principal importers are the oil-exporting countries in the Arabian peninsula and the United Arab Republic.

TABLE II-41. – NEAR EAST: SHARE OF THE LIVESTOCK SECTOR IN TOTAL GDP AND AGRICULTURAL GDP [1]

	Total GDP	Agricultural GDP
	..... *Percent*	
Afghanistan (1966/67)	7	14
Cyprus (1966)	6	29
Iran (1966)	7	34
Iraq (1966)	12	48
Jordan (1965/66)	7	36
Lebanon (1965/66)	5	32
Libya (1967)	2	43
Somalia (1966)	33	50
Sudan, The (1966)	9	16
Syria (1966/67)	7	28
Turkey (1967)	9	26
United Arab Republic (1966)	8	28

[1] Estimates of livestock and livestock products are not very reliable in most of the countries; the percentage share should therefore be regarded as representing an approximate order of magnitude.

TABLE II-42. – NEAR EAST: VALUE OF EXPORTS OF LIVESTOCK AND LIVESTOCK PRODUCTS AS A PERCENTAGE OF THE VALUE OF TOTAL EXPORTS AND AGRICULTURAL EXPORTS IN 1968

	Total exports	Agricultural exports
	..... *Percent*	
Afghanistan	38.0	40.0
Lebanon	60.0	62.0
Somalia	2.6	3.0
Sudan, The	17.0	21.0
Syria	2.4	2.6
Turkey	4.2	12.5

CURRENT PRODUCTION AND CONSUMPTION

Despite the importance of the livestock sector to the economy of many countries of the region, livestock production has been growing very slowly averaging (except in Cyprus and the Sudan) about 1 to 2 percent per year, and generally substantially less than the growth of population (Table II-44).

The remarkable expansion of poultry production in Lebanon, particularly since 1959 has, however, been encouraging. It is supported by a protective tariff and organized mainly by private enterprise. Production of poultry meat increased tenfold between 1954-56 and 1967, from 1 600 tons to about 16 000 tons, and that of eggs from about 2 000 tons to about 32 000 tons, representing growth rates of 21 and 25 percent per year respectively. By 1964 Lebanon had ceased to be an importer of broilers and had developed an export surplus.

TABLE II-43. – NEAR EAST: VALUE OF INTRAREGIONAL TRADE IN LIVESTOCK AND LIVESTOCK PRODUCTS, 1964-66 AVERAGE

Destination	Origin			
	Live animals			Eggs
	Somalia	The Sudan	Syria	Lebanon
	..... *Thousand U.S. dollars*			
Afghanistan	—	—	—	1
Gulf States	—	—	8	45
Iran	—	—	—	93
Iraq	—	—	2	1 238
Jordan	—	—	1 345	149
Kuwait	4	—	514	667
Lebanon	—	1	12 248	—
Libya	—	76	318	28
Saudi Arabia	3 478	3 419	35	590
Southern Yemen	—	—	—	46
United Arab Republic	933	—	—	—
Yemen	—	769	—	—
Other Arab countries	1 222	—	—	110
TOTAL REGION	5 637	4 265	14 470	2 967
TOTAL EXPORTS	5 640	4 481	14 642	3 041
	..... *Percent*			
Exports to the region as percent of total exports	99	95	99	98

TABLE II-44. – NEAR EAST: RATE OF GROWTH OF LIVESTOCK PRODUCTION IN SELECTED COUNTRIES, 1961-63 TO 1966-68

	Annual rate of growth
	Percent
Afghanistan	1.8
Cyprus	12.6
Iran	0.8
Iraq	2.2
Sudan, The	7.1
Syria	3.2
Turkey	1.1
United Arab Republic	1.7

While the growth in livestock production in most countries has been disappointing, demand has been increasing rapidly due to population growth and increases in incomes. Imports of livestock products into the countries of the region therefore rose from about $150 million in 1964-66 to $195 million in 1968, or by 30 percent in three years. The main importers have been Iraq, Iran, Jordan, Kuwait, Lebanon, Libya, Saudi Arabia and the United Arab Republic. For countries other than the oil exporters, these imports have imposed a strain on the foreign exchange resources. Nevertheless, the total intake of animal protein remains low and, while the total protein requirements are met at least as a national average in most countries, the bulk of the protein continues to be derived from cereals. This is particularly the case in Afghanistan, Iran, Jordan, Libya, Saudi Arabia, Syria and the United Arab Republic. The averages, moreover, mask the uneven distribution of animal protein intake between different social and economic groups.

PROSPECTS FOR PRODUCTION AND CONSUMPTION

Demand for livestock products will tend to increase more rapidly than for most foods as income and living standards rise. In the provisional Near East study of the Indicative World Plan for Agricultural Development,[42] the demand at constant prices was projected to rise between 1962 and 1985 at an annual rate of 4.7 percent in the case of meat, 4.9 percent for eggs and 4.4 percent for milk. Considering the low rate of growth in production in the past it would seem impossible to meet the growing demand from domestic output, while imports to meet the full deficit would impose an excessive strain on the balance of payments of most countries. Consequently, consumption targets for livestock products were set by IWP below the demand projection, except in the oil-rich countries. Even so, a significant acceleration would be required in both domestic production and in imports, except for eggs where the gap would be relatively narrow.

The import bill for livestock products would thus rise (except in the Sudan) from a total of about $100 million in 1961-63 to approximately $545 million in 1985. And as supplies would still remain below the potential demand at constant prices, IWP expects livestock products prices to rise by at least 20 to 25 percent. While this would equate supply and demand, it would impose a greater hardship on the low-income groups in the population, thus accentuating inequalities in consumption patterns. On the other hand, such price rises would seem to be essential for achieving the production levels envisaged by IWP.

Because of the rapid population growth, even such increases in output and demand would not lead to any striking change in the level of animal protein intake: these would increase by only 2 to 6 grammes per caput per day by 1985, as compared with the level of 1962.

In view of the feasibility of extremely rapid growth in poultry production, provided the necessary investments are made and that feed is available, an alternative way of meeting the deficit in meat postulated by IWP is to expand poultry production at a rapid rate. The growth rate required for this purpose would be about 11 percent per year compared to the annual growth rate of about 7 percent for poultry production postulated in the IWP Near East study.

PRINCIPAL PROBLEMS FACING THE DEVELOPMENT OF LIVESTOCK PRODUCTION

The main condition for a more rapid production growth than that envisaged by IWP is the provision of more and better feed. The extension of cultivation to marginal lands in many countries of the region has been mostly at the expense of grazing land. This has not only increased the pressure on the remaining natural pastures but has forced livestock to encroach on afforested land, thus creating problems of soil erosion. In Afghanistan, for instance, about 8 million hectares of range carry about 19 million sheep and goats, or an intensity of 2.4 sheep units per hectare, compared with 0.5 to 1 sheep unit per hectare in other countries of similar environment. The range in Afghanistan is consequently seriously overgrazed.

In most other countries of the region, controlled grazing and pasture improvement are practically nonexistent. The problem is difficult to solve because of the unrestricted grazing traditionally practis-

[42] Twelve countries were included in the study: Afghanistan, Iran, Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Southern Yemen, Syria, the Sudan, the United Arab Republic and Yemen. GDP was assumed to increase at rates ranging from about 4 to 6.4 percent a year, and to average 5.8 percent for the study countries.

ed by the nomads. To reduce overgrazing, not only is it necessary to restrict stock numbers, but to improve rangeland management by the large-scale reseeding of marginal lands. Syria is one of the few countries in the Near East which has taken concrete steps in such a direction through the establishment of a Steppe Department, working closely with the Department of Animal Husbandry and the Department of Veterinary Services, and a Steppe Research Station to work on grazing and management studies. The station has been conducting reseeding trials and demonstrating the effect of good management on both the natural grazing lands and on the economy of the bedouin.

Quick results cannot be expected, however, as improvement of the range is by its nature a long-term task. In the short run, therefore, stress has to be laid on the expansion of intensive feeding and fattening with concentrate feeds, and increasing feed and fodder production from irrigated and good rainfed land. In Turkey a large-scale programme has been proposed for finishing or fattening livestock with sugar-beet pulp; about 2 million tons of wet sugar-beet pulp are available from the sugar factories. Studies undertaken in the Ghab in Syria [43] on the fattening of lambs and calves indicate that fattening with green fodder can profitably be pursued in areas of low yields of cotton (1.5 tons and less) and sugar beet (18 to 20 tons and less).

Hitherto returns from feed crops have been insufficient to induce farmers to grow them on irrigated land. Although the choice is not easy, governments in the region will have to weigh the benefits from short-term and possibly more remunerative returns from cash crops against the long-term benefits arising from an increase in livestock production. With the progressive adoption of high-yielding cereal varieties, and as the requirements for direct human consumption become increasingly satisfied from domestic production, the possibilities for producing more feed grains at lower prices should improve.

Especially in areas where annual rainfall exceeds 350 to 400 millimetres, the only way to overcome the feed shortage would seem to be to grow fodder crops in rotation with cereals, thus integrating animal husbandry with crop production. This would necessitate the encouragement of mechanization to sow both cereals and additional fodder, a reduction in the burden of rent on small cultivators and the provision of adequate credit for the purchase of necessary inputs.

Although modern poultry production has proved to be one of the quickest and most economic ways of producing badly needed animal protein, only Lebanon has so far had an intensive and rapid development in this sector. Efforts are now being made to introduce modern production methods particularly in Iraq, Jordan, Kuwait, Saudi Arabia and the United Arab Republic. Some of the constraints on rapid development are: inadequacy of feed (major importers of feed are Lebanon, Jordan, Kuwait and Saudi Arabia), insufficient incentive for private investment in some countries, lack of poultry technicians and knowledge of housing and management for various size units, and health and disease problems. The Near East Animal Health Institute headquarters in Lebanon, set up with the assistance of UNDP/SF, has been devoting attention to the study and control of poultry diseases and has been providing training and consultancy services to the Near East countries in this field.

In all these efforts, however, it is essential to keep in mind the basic importance of an appropriate feed/livestock product price ratio. The excessive level of feed prices relative to prices paid for animal products is, in fact, one of the major constraints on increasing livestock production in the region (Table II-45).

In many countries of the region, a principal reason for the high prices of feed and roughage is the low average productivity resulting from uncertain rainfall. Some reduction in feed-grain prices should be feasible if high-yielding varieties of cereals are adopted more widely. If sufficient incentive is to be provided for livestock production, however, it would also appear necessary to allow livestock prices to rise in response to market forces. Experience in Turkey, where the lifting of municipal retail price control on livestock products has given better incentive to producers to feed high quality rations, would seem to confirm this.

In countries like Jordan and Syria which are particularly affected by drought, the feasibility of building a buffer stock of livestock feed needs to be considered. This would not only have a stabilizing influence on livestock and meat prices, but also on prices and incomes from feed grains.

TABLE II-45. – RATIOS BETWEEN WHOLESALE PRICES OF BEEF AND FEED GRAINS IN SELECTED COUNTRIES IN 1967

	Beef	Feed grains	Ratio
	U.S.$/100 kg		
Sudan, The [1]	24.9	[2]4.7	5.3
Iraq	102.2	[3]11.1	9.2
Turkey	94.9	[3]8.9	10.7
Syria	79.9	[3]7.3	10.9
United Kingdom	80.5	[3]6.1	13.2
United States	90.8	[4]4.4	20.6

[1] 1964-65 average. – [2] Maize. – [3] Barley. – [4] Sorghum.

[43] Under the UNDP/SF project: Planning the integrated development of the Ghab region.

Improvements in the animal health service for the control of diseases are also essential. It is estimated that between 25 and 30 percent of potential animal production is lost in Jordan on account of enzootic and epizootic diseases. To conduct research and provide diagnostic facilities in connexion with animal health problems, a chain of animal health institutes has been set up in the region, with the aid of UNDP/SF. A Near East Animal Production and Health Commission has also been established recently by FAO in an effort to coordinate animal production and health activities throughout the region, and to collect and disseminate relevant information.

Control of mortality rates also depends on the provision of water supplies in the arid and semiarid areas where shortage of water limits the use of the rangeland and leads to an excessive concentration of cattle in areas where water is available, to the detriment of the grass cover and hence of animal nutrition. This has created a particularly difficult problem in Afghanistan, Somalia and the Sudan.

Together with improved feeding and disease control it is also necessary to provide improved marketing services. Recent efforts in this direction include the establishment of 14 karakul cooperatives in Afghanistan to purchase pelts directly from the producers. A shortage of credit has, however, led to the failure of many of them, as members have been forced to sell at lower prices to private dealers.

Perhaps most important of all, if livestock production in the region is to grow at a faster rate than in the past, it is essential to view all these various measures as parts of a process of integration among feed production, animal breeding, husbandry and marketing.

PROGRAMMES FOR THE EXPANSION OF LIVESTOCK PRODUCTION

The countries of the Near East are now more than ever aware of the need for a rapid expansion of livestock production, both to satisfy the growing domestic demand and to increase export earnings. Although no target has been set for livestock production in Somalia's short-term development programme for 1968-70, about 45 percent of the total allocation to agriculture is for livestock development. Syria's second five-year plan (1966-70) aims at increasing numbers of sheep by 19 percent, production of milk and wool by 24 percent, production of poultry by 28 percent, and of eggs by 36 percent from the 1965 base year. Similarly in Iran, under the fourth national development plan (1968-72), meat production is envisaged to increase by about 50 percent, milk by 25 percent and eggs by 50 percent from the 1965 base year. The target for livestock production in Turkey according to the second five-year plan (1967-72) is 4.3 percent per year, and the possibility of subsequently increasing livestock output and exports even more rapidly is also being explored. Given the relatively modest past achievements in this field in Syria, Iran and Turkey, greatly intensified efforts will be required if the planned rates of growth are to be reached. In Cyprus the annual growth rate in livestock production envisaged under the second five-year plan (1967-72) is 9.6 percent, which is in line with that achieved in past years.

Development programmes centre mainly on the control of animal disease by strengthening the veterinary services, improving pastures, increasing fodder production, expanding concentrate feeding practices in order to increase carcass weight, developing improved breeds and providing training facilities for personnel. In Somalia an autonomous Livestock Development Agency was set up in 1966 to assist programmes for the control of animal diseases and establish watering points, stock routes and holding grounds, improve and extend domestic and export marketing facilities, and ensure reasonable prices to the producer by the direct purchase of livestock. In view of the Government's financial difficulties, however, the agency is hard pressed to find funds for livestock development. Intensive animal husbandry programmes in Turkey place emphasis on increasing the productivity per animal by concentrate feeding. It is also planned to develop improved breeds and to import a number of purebred dairy cows. In Afghanistan there is a programme to develop sheep industries by providing watering points, lambing shelters, and supplementary winter feed, and by the improvement of veterinary facilities. In the United Arab Republic the Poultry Organization has been promoting the accelerated production of broilers and the distribution of young chicks to farmers.

Hitherto the livestock sector has attracted little or no investment funds from external sources. Apart from difficulties in identifying and formulating projects, there has been the problem of demonstrating high economic returns for such projects under the conditions commonly encountered in the Near East. The FAO/IBRD Cooperative Programme has assisted Turkey in the preparation of projects related to intensive dairy production, dairy breed improvement, livestock development on sugar-beet farms, and abattoir development. The projects have been submitted to IBRD and currently the Government and IBRD are completing negotiations for an IDA credit for the first phase of the dairy project. The FAO/IBRD Cooperative Programme is also assisting Turkey in the preparation of the first phase of a comprehensive farm development project concerned with improving communal pastures, developing fodder crops, improving herds and flocks and the standards for farm

buildings, and improving infrastructure facilities such as roads and markets. The Agricultural Development Fund of Iran has been granted an IBRD loan of $6.5 million, the bulk of which is to be used for livestock development.

Livestock development has also been greatly assisted by the United Nations Development Programme (UNDP), including the Special Fund, and the World Food Programme. By end-1969 UNDP had contributed about $13 million for pasture and livestock development through 16 Special Fund projects in the region. This is the largest contribution to any region except Latin America.

The projects deal with various facets of animal production, such as pasture and fodder crops; animal husbandry and animal health; education, research and training; livestock marketing; and the utilization of hides and skins. There is also a comprehensive programme for research into animal diseases, vaccine production, personnel training, and the repair and maintenance of equipment, which is under the aegis of the Near East Animal Health Institutes' Coordinating Unit located in Beirut.

World Food Programme aid to Near East countries in the fields of animal production and dairy development has been substantial; as of January 1970, it amounted to about $62 million. Assistance in the form of feed (barley, oats and maize) has been supplied to enable the bedouin to cooperate with their government in renewing natural pastures, fattening livestock and reducing mortality in times of drought, developing and expanding the feed industry, and improving conditions in the livestock industry as a whole.

According to the findings of a mission sent to evaluate WFP-assisted bedouin settlement and nomadic livestock development projects in the Near East, the results of WFP assistance toward the stabilization and improvement of livestock and range management have not come up to expectations.[44] More effective use has been made of WFP food aid for bedouin settlement schemes because specific work programmes such as land and water development and conservation works have been identified and executed easily, whereas livestock and pasture improvement schemes, being spread over vast areas of rangeland, have been difficult to implement. The evaluation mission also pointed out that, by reducing livestock mortality during years of drought, WFP aid has led to increases in stock numbers, thereby contributing to the problem of overgrazing, for example in the northwest coastal area of the United Arab Republic. The mission has therefore stressed the need for devising a marketing system for the offtake of livestock from range.

[44] Submitted to the sixteenth session of the Intergovernmental Committee of the Word Food Programme in October 1969.

The findings of the evaluation mission thus emphasize the difficulty of providing a solution to the fundamental problem of limiting stock numbers to the carrying capacity of the range. This is in fact the crux of the problem of livestock development. Measures which are not geared in this direction cannot provide a final solution to the problems of the arid and semarid areas of the region, and the people who inhabit them.

Development planning

In 1970 new plans are being initiated by Iraq, Israel, Saudi Arabia, the Sudan and the United Arab Republic (Table II-46). Under Iraq's five-year development plan (1970-74) total expenditure will amount to 1 144 million dinars, 40 percent above the total planned investment in the previous plan. Oil revenues will finance about 80 percent of government expenditures, and foreign loans about 11 percent. The share of agriculture in total public investment will remain approximately the same as in the previous plan. Of the investment in this sector, 42 percent is destined for irrigation and drainage projects, 22 percent for agricultural services, 15 percent for water storage, 13 percent for agricultural production, 5.5 percent for agricultural marketing and 2.5 percent for underground water projects. The envisaged annual rate of growth of gross national product (7.1 percent) falls between the 8 percent growth targeted for 1965-69 and the 5 percent actually achieved. The target for the agricultural sector has been set at 7 percent, compared with 7.5 percent under the previous plan and the 4.5 percent achieved. Actual outlays during the period 1965-69 have averaged 55 percent of programmed development expenditures for the economy as a whole, and 32 percent of that in the agricultural sector. The speeding up of growth toward the rates now targeted for 1970-75 will require a substantial acceleration in project implementation.

A new section for economic studies and planning has been established in the Agricultural Division of the Ministry of Planning. This section will be in charge of project appraisal and studies relevant to land reclamation, farm management, mechanization, and foreign trade in agricultural commodities.

Israel's new development plan (1971-75) provides for a gross investment of I£ 24 000 million. About 40 percent of this total investment will be financed by domestic savings, and the remainder by external aid. Exports are expected to expand at a rate of 14 percent per year, whereas imports will increase by only 7.9 percent. Interest payments on the external debt will rise at a rate of 4.8 percent yearly.

TABLE II-46. – NEAR EAST: MAIN FEATURES OF CURRENT DEVELOPMENT PLANS

	Currency	Duration of plan	Scope [1]	Investment		Foreign exchange component of public investment	Share of agriculture in:		Planned growth rate of:						
									GNP	Agricultural production		Export earnings		Employment	
				Total	Public		Total investment	Public investment		Total	Cereals	Total	Agriculture	Total	Agriculture
				Million currency units		..... *Percent*			..... *Percent per year*						
Afghanistan .	Afghanis	1969–71	PS	...	17 000	...	...	28	4.3	3.5	...	...	...	...	...
Cyprus . . .	£C	1967–71	C	186	66.6	...	12.9	29	6.8	8.5	...	8.9	14.1	1.6	0.1
Iran	Ir rials	1968/69-1972/73	C	810 000	443 000	...	14	17	9.0	5.0	5.7	14.7	...	2.7	1.3
Iraq	I dinars	1969/70-1974/75	C	1 144	859	...	19.7	24.5	7.1	7.0	...	2.7	...	4.5	4.1
Saudi Arabia	S riyals	1970/71-1975/76	...	...	...	...	...	...	9.3	5.0	...	...	...	...	...
Somalia . . .	So shillings	1968–70	PS	...	698.2	609.7	...	14.8	...	...	...	...	...	...	...
Sudan, The. .	Sd pounds	1970/71-1974/75	C	370	200	95	27.9	38.3	[2]8.1	12.1	...	11.0	...	2.0	1.6
Syria	S pounds	1966–70	C	4 955	3 454	1 124	28.0	27.0	7.2	6.7	6.7	3.9	...	3.5	...
Turkey . . .	T liras	1968–72	C	111 500	58 600	...	15.2	...	7.0	4.4	4.4	5.3	4.5	3.3	3.7

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plan, and data may refer to gross investment or may include some elements of recurrent expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

[1] PS = public sector, C = comprehensive. – [2] GDP.

To achieve these targets the plan stresses the necessity of decelerating the construction of housing and of public institutions, decreasing the rate of growth of total private consumption, reducing the public sector's deficit, and promoting the expansion of exports and import substitution. Investment in the export sector is expected to raise total exports from $1 510 million in 1970 to $2 190 million in 1975, and import prices would be raised relative to the prices of local products.

Saudi Arabia is attempting for the first time to formulate a development plan, which would cover the period 1970/71 to 1975/76. It envisages the achievement of an average annual growth rate of GNP of 9.3 percent, and emphasizes the need to develop human resources and diversify the country's sources of revenue.

Total GNP in Saudi Arabia is expected to increase from its present level of 16 700 million riyals to 26 200 million riyals in 1975/76. The structure of the economy, in terms of the contribution of various sectors to GNP, would however be largely maintained. The share of agriculture as a percentage of GNP is expected to decline during the plan period from about 6.8 to about 5.4 percent. The planned rate of growth of the agricultural sector, 5 percent a year, is well below the annual growth rate of 9 to 11 percent achieved in the past, and, in view of the ongoing investment projects in irrigation, may prove to be an underestimate.

In the Sudan a new five-year plan (1970/71-1974/75) has recently been approved by the Revolutionary Council and the Council of Ministers. Total expenditures under this plan are estimated at LSd 370 million (or about $1 000 million) as compared to a gross fixed investment of LSd 565 million during the previous ten-year plan 1961/62 to 1970/71), and to LSd 264 million during the 1964/65-1969/70 period. About 54 percent of the proposed expenditures are allocated to the public sector, with priority to be given to agriculture. The hard currency requirements of the plan would necessitate foreign loans to the public sector of LSd 95 million. The 8.1 percent growth rate envisaged for the GDP compares with 4.7 percent a year achieved in 1965/66-1969/70.

In the United Arab Republic, the emphasis in investment allocations under the economic development plan for 1970-71 will be placed on strengthening the basic, auxiliary and extractive industries. In the food industry, LE3 million will be allocated for sugar projects to increase sugar output from 532 000 tons to 835 000 tons. A sum of LE 3.5 million will be allocated to rice and flour mills. The textile industry will also be expanded. The plan aims at increasing the value of the national output by about 3.5 percent between 1969/70 and 1970/71.

Regional integration

Although intratrade within the Arab Common Market (ACM) still constitutes only about 3 percent of the total trade of its member countries, data for

the years up to 1968 indicate that some modest acceleration may be taking place, mainly in exports from Iraq, Jordan and the United Arab Republic. Whereas intratrade declined up to 1965, when the decision to implement the free trade area was taken, it subsequently expanded by 4 percent in 1966, 8 percent in 1967 and by 20 percent in 1968, the latest year for which data are available. In 1967 and 1968, moreover, intratrade grew more rapidly than the total exports of the area.

It is difficult to determine, however, to what extent these increases can be attributed to trade liberalization measures. Although liberalization has proceeded rapidly, numerous constraints still exist which prevent the more rapid growth of intratrade. Tariffs are still applied on a number of important products, and in many cases administrative restrictions prevent the movement of competitive products even where tariffs have been removed. In contrast to Jordan and Kuwait, foreign trade in Iraq, Syria and the United Arab Republic is controlled by the Government. On the whole, it would seem that the impact of ACM will remain limited until some wider form of economic integration is achieved.

Some of the measures taken by ACM in 1969 may represent such a move, for instance toward transforming the Common Market, at present functioning as a free trade area, into a customs union. The nomenclature for customs tariffs has been standardized and it has been proposed that an average of the tariffs applied by member countries in November 1968 be used for the uniform external tariff. The establishment of a central customs organization to implement the unified tariff system is under consideration. Proposals have also been made regarding the application of a system of multilateral investment insurance against noncommercial risks, the mobilization of Arab capital, and the coordination of plans, particularly in the agricultural and industrial sectors. Work is also proceeding on the establishment of an Arab Payments Union, which would serve as a clearinghouse for member countries and extend short-term credit facilities to them. Present plans call for capital of 15 million Arab dinars ($42 million).

The Kuwait Fund for Arab Economic Development has continued to expand its lending activities within the limitations of the present political situation. The fund is now in its ninth year of operation and has provided 19 loans totalling $201 million to 9 Arab countries of which one third is to be used in the agricultural sector. About two thirds of the loans have already been disbursed and 10 projects completed.

Increased economic cooperation is taking place between Libya, the Sudan and the United Arab Republic. Technical and economic agreements among the three countries aim at the expansion of agricultural trade, the formation of joint agricultural companies and projects, and the encouragement of technical exchanges.

Regional Cooperation for Development (RCD) continues to concentrate on the establishment of joint industrial projects rather than on the liberalization of trade. By January 1970 13 such projects were operating, while 4 others will be in production by end 1970. The RCD regional planning council has called for the provision of more incentives to the private sector to boost the establishment of joint industrial enterprises.

Africa

In 1969 most of the region experienced average conditions for agriculture. Overall, agricultural production is estimated to have remained at the 1968 level, with food crops possibly showing a slight reduction. This decrease was, however, largely due to a 3 percent fall in cereal production, mainly in the Maghreb countries, where yields fell back steeply from the unusually high levels of 1968. Food crop production showed a satisfactory recovery in west Africa following the 1968 drought conditions. In contrast with the somewhat disappointing overall performance of the food crops, production of the main export crops, except olive oil, recorded substantial increases over 1968.

General economic growth in the region as a whole may have been somewhat higher than the 4 percent achieved in 1968. The Democratic Republic of the Congo and Zambia enjoyed very high prices for copper, while mineral exports from several other countries continued to grow; and the ending of hostilities in Nigeria was followed by speedy rehabilitation of the oil industry and a resumption of oil exports. Favourable international markets, notably for coffee and cocoa, were reflected in the economic performance of Ghana, Ivory Coast and Kenya.

As reported below, development of the region's livestock potential is slowly gaining impetus. There is also encouraging evidence of the growing adoption of modern agricultural technology in most of the developing countries of Africa. Overall the use of such inputs as fertilizers, improved seeds, tractors, etc., remains low, but improved varieties are already widely used in the production of export crops such as cotton, sugarcane and oil palm. Mechanized

large-scale commercial and specialized farming is well established in a number of African countries, and considerable progress has recently been made in improving hand tools as well as in expanding the use of work oxen for cultivation and transport. The buildup of institutional support to take this new technology to the farmers has gathered momentum during the 1960s.

While for most of the developing countries of Africa agriculture constitutes the major economic resource and provides employment for most of the population, increasing attention is inevitably being given to developing other natural resources and establishing local industries. This is reflected in the comparatively larger proportion of investment allocated in national plans for the development of industries, many of which are based on agricultural and forest production. The estimated 5 percent annual growth of Africa's urban population, accompanied by rising incomes, is providing an expanding local market, particularly for food crops, cotton, textiles, and processed and preserved food.

Agricultural production

According to the preliminary FAO indices, the overall agricultural production in the region showed virtually no increase in 1969. This was, however, more a reflection of the widely varying changes in different parts of the continent than to any general tendency (Table II-47). In particular, the overall stability reflected the steep reduction of output in the Maghreb countries, where cereal yields and output fell back from the unusually high level of 1968 [45] and the olive crop was much reduced; and the failure of output to rise in central Africa, following a 6 percent increase the year before. Of the other four subregions, three showed above average increases, though in the case of west Africa the rise was in the nature of a recovery following drought in 1968.

Among individual countries, Mauritania experienced exceptionally favourable weather and joined Gabon, Ivory Coast, Togo and Upper Volta whose agricultural production in 1969 was more than double the 1952-56 level. Ten other countries have achieved an average growth rate of around 4 percent over the past 10 years (Cameroon, The Gambia, Ghana, Kenya, Malawi, Niger, Senegal, Tanzania, Uganda and Zambia), although both Tanzania and Uganda suffered a setback in 1969 due to unfavourable weather and output in Zambia declined in the past two years.

Largely because of smaller cereal crops in the Maghreb — by almost 30 percent in both Algeria

[45] However, the longer term trend of cereal yields in northwest Africa is rising.

TABLE II-47. – AFRICA: INDICES OF AGRICULTURAL PRODUCTION

	1965	1966	1967	1968	1969 [1]	Change 1968 to 1969	Annual rate of growth 1956-58 to 1966-68	Per caput agricultural production in 1969
	1952-56 average = 100					*Percent*		*1952-56 average = 100*
PRODUCTION IN THE SUBREGIONS (all products)								
Northwest Africa	108	87	99	129	109	— 15	0.5	76
West Africa	151	150	152	147	155	+ 5	3.1	103
Central Africa	118	124	126	131	134	+ 2	1.7	101
East Africa [2]	139	145	147	148	153	+ 3	3.1	108
Southern Africa	117	125	122	124	124	—	2.0	82
South Africa	138	147	183	160	169	+ 5	3.9	118
PRODUCTION IN DEVELOPING COUNTRIES [2]								
Total								
All products	134	133	137	141	142	+ 1	2.5	—
Food only	128	127	131	136	135	—	2.2	—
Per caput								
All products	103	100	100	101	99	— 2	—	—
Food only	98	96	96	97	94	— 3	— 0.3	—
REGIONAL PRODUCTION [3]								
Total								
All products	134	134	142	143	145	+ 1	2.7	—
Food only	129	130	137	139	140	—	2.4	—
Per caput								
All products	103	101	104	102	101	— 1	0.2	—
Food only	99	98	100	99	97	— 2	—	—

[1] Preliminary estimates. – [2] Excluding South Africa. – [3] Including South Africa.

and Morocco — the region's total cereal crop fell by about 3 percent (Table II-48). Growing conditions were also unfavourable in parts of east and southern Africa — including Tanzania and Zambia — and in some areas shortages and inflated retail prices were noticeable by the end of the year.

All major export crops showed notable increases in output, and these benefited most of the main producing countries (Table II-49), although in most cases it was a question of a recovery, rather than a longer term increase. Coffee production in Ivory Coast recovered steeply to 258 000 tons, although still well short of the record 1967 crop, and output in Uganda was 13 percent below the peak level of the previous year. Ghana, Ivory Coast and Nigeria all shared in the 16 percent recovery in African cocoa production. Tea production increased by 19 percent, with a particularly good crop in Kenya, and cotton output expanded by 21 percent, with very large increases in Nigeria and Tanzania. Of the major vegetable oils and seeds, olive oil alone showed a decline of about one half, due largely to the poor Tunisian crop. Palm oil and kernels continued to recover, with higher output in Nigeria and other west African producing countries. Groundnut production showed a recovery of 5 percent over the poor crops of 1968, but still remained below the earlier levels.

Information on production in 1970 is so far limited mainly to export crops. Coffee production is estimated to have risen only slightly, because of a reduced crop in the Ivory Coast. Virtually no change is estimated to have taken place in production of cocoa, and that of tea may have fallen somewhat. Olive oil production, on the other hand, appears to have recovered fully from the very low level of 1968, and the production of palm oil continued to increase in most major producing countries. Groundnut production will probably be smaller, reflecting a second successive reduction in Nigeria. Cotton output is likely to have increased, particularly in west Africa. Excellent maize crops are reported from Kenya and Tanzania.

TABLE II-48. – AFRICA: CEREAL PRODUCTION

	1965	1966	1967	1968	1969 [1]
	..... *Thousand metric tons*				
DEVELOPING COUNTRIES					
Total cereals	38 583	37 550	39 709	43 703	42 333
of which:					
Wheat	4 459	3 006	3 976	5 617	4 214
Rice	3 681	3 946	4 618	4 674	4 951
Millet and sorghum	17 849	17 421	17 446	17 568	18 197
Maize	9 117	10 875	10 413	10 334	10 791
Barley	3 382	2 242	3 176	5 397	4 106
SOUTH AFRICA					
Total cereals	5 755	6 110	11 809	6 994	7 090
REGION					
Total cereals	44 338	43 664	51 518	50 697	49 423

[1] Preliminary estimates.

TABLE II-49. – AFRICA (DEVELOPING COUNTRIES): PRODUCTION OF MAJOR EXPORT CROPS

	1965	1966	1967	1968	1969 [1]
	..... *Thousand metric tons*				
Coffee	1 189	1 024	1 272	1 200	1 211
Cocoa	864	968	983	856	991
Tea	66	84	87	98	117
Cotton	352	411	409	443	536
Palm oil	996	973	857	940	993
Palm kernels	809	761	576	628	689
Groundnuts	4 742	4 625	4 310	4 158	4 165
Olive oil	120	59	91	137	67

[1] Preliminary estimates.

Fishery production

Fish landings in the developing areas of the region were somewhat higher than in 1968. Angola led the field with a production gain of about one sixth. The major proportion of the landings continues to be processed into fish meal and salted dried fish for export. Recently efforts have been made to build up the freezing sector and to improve fish canning operations, with the aims of upgrading utilization and increasing export earnings.

Progress in other major fish-producing countries was on a more modest scale. Morocco's production was about 3 percent higher but well below the 1967 record and the 1964-68 average. Since the bulk of this country's catch is processed into canned sardines and fish meal for export, production efforts are closely tied to sales prospects in foreign markets. Gains in production of up to 10 percent were achieved in Senegal, Nigeria, Mali, the Democratic Republic of the Congo and Ghana as well as in the countries of east Africa. In Nigeria efforts to cope with nutritional problems — aggravated by the hostilities — have resulted in greater emphasis on fishery development. In the Democratic Republic of the Congo improved processing and transport are making it possible to increase the fish harvest from inland waters and a pelagic fishery is being introduced to supplement the marine fish catch which until now has been taken almost entirely by trawlers.

Additional sources of fish protein are being developed and exploited to an increasing extent as a consequence of the implementation of man-made lakes projects, notably in Ghana and Zambia. In addition to bringing supplies to protein-poor inland areas, these projects have created new employment opportunities in fisheries. An increasing number of countries of the region, especially those bordering the Gulf of Guinea, are building up shrimping operations with a view to increasing their export earnings from this industry.

In contrast to the developing countries of the region, South Africa (including Namibia) produced less fish than the year before. Controls of the fishing for reduction industry raw material were a major factor and fish-meal production was down by 13 percent.

Forest production

Although precise data are still lacking, it is estimated that removals of industrial roundwood in Africa (which account for some 15 percent of the total) rose appreciably in 1969, mainly because of greater removal of hardwood logs for export. Due to an unusually mild rainy season in mid-1969, exploitation and transport were less disrupted than usual, with the result that stocks rose at export harbours in some west African countries in the latter part of the year. This, combined with more cautious buying by European importers, caused a check to the price increases over the previous 18 months, and for some species prices weakened. Fuelwood, the major part of total removals, probably continued to increase moderately. Sawn hardwood and plywood production is estimated to have remained more or less unchanged in 1969 compared with 1968.

Trade in agricultural, fishery and forest products

The value of exports of agricultural, fishery and forest products from the region is estimated to have fallen by some 2 percent in 1969, reflecting a drop in earnings from the agricultural component. Forestry — which is now estimated to contribute more than 10 percent to the earnings from the three sectors combined — continued to expand at a rapid rate (Table II-50).

Among agricultural products, larger earnings from some vegetable oils and oilseeds, tea, cocoa and rubber failed to offset the lower value of exports of other agricultural commodities.

The value of cocoa exports increased for the third successive year as rising world market prices continued to make up for the smaller volume of exports. The latter has, in fact, been declining steadily since

TABLE II-50. – AFRICA:[1] INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	Share of total agricultural exports in 1969	1965	1966	1967	1968	1969[2]	Change 1968 to 1969
	Percent	..... *1957-59 average = 100*					*Percent*
AGRICULTURAL PRODUCTS	86	113	113	107	114	110	— 3
Food and feedstuffs	32	116	116	103	112	110	— 2
Cereals	(2)	48	54	62	78	68	— 13
Sugar	(4)	114	126	112	116	110	— 5
Citrus fruit	(3)	150	148	139	156	123	— 21
Oil and oilseeds	(15)	107	109	85	93	95	+ 2
Beverages and tobacco	46	113	113	114	123	117	— 5
Coffee	(20)	132	158	149	165	144	— 13
Cocoa	(17)	113	94	127	138	143	+ 4
Tea	(3)	178	229	215	241	259	+ 8
Raw materials	9	104	104	96	88	88	—
Cotton	(5)	99	104	109	101	95	— 7
Rubber	(2)	102	103	83	80	97	+ 23
FISHERY PRODUCTS	2	102	124	118	122	122	—
FOREST PRODUCTS	11	...	...	240	269	310	+ 15
Agricultural, fishery and forest products	100	...	...	113	121	119	— 2

[1] Excluding South Africa. – [2] Preliminary estimates.

1965, and in 1969 was 35 percent below the level of that year. Lower production in west Africa has been responsible for this decline, and in 1969 excessive rain added to the longer term problems of deterioration in maintenance and disease. In Ghana, which accounts for more than one third of regional cocoa earnings, the 1968/69 crop was the smallest since 1959/60.

The volume of coffee exports also declined in 1969, as smaller shipments from Angola, Cameroon, Ivory Coast and Madagascar more than offset increases from Ethiopia, Kenya and Uganda. There was, however, no offsetting increase in the average export unit value; prices rose in the second half of the year, but not enough to make up for the earlier decline. The value of coffee exports was therefore some 13 percent smaller than in 1968.

Shipments of oils and oilseeds were lower, reflecting primarily poor groundnut crops throughout the region, but the shortage brought higher prices and the value of exports was higher. The volume of palm kernel exports again registered a modest increase, reflecting the continued recovery of Nigerian production, but prices were lower and earnings decreased.

The continued growth of tea production in the region, by nearly 50 percent over the past five years, brought a further increase in tea exports in 1969, both for the region as a whole and for all the main producing countries. This more than offset the decline in prices, and earnings were up by some 8 percent.

Despite higher production of cotton, the volume of exports from the region remained unchanged and, with lower prices, the value of exports declined. Sisal exports were also smaller (by about 8 percent) but this was partly compensated by increased exports of manufactured goods. Prices were somewhat above the very depressed level of 1968, partly due to the voluntary price and quota arrangement between producing countries and the principal users, but not enough to raise the total value received.

Information on the agricultural imports of the region in 1969 are still incomplete. Available data suggest, however, that there was a further reduction in cereal imports from the peak level of 1967. In 1968, wheat imports had been reduced slightly, and those of coarse grains halved, primarily as a result of the recovery of output in North Africa and the growing production of maize in Kenya. This trend generally seems to have continued in 1968. Thanks to good harvests in 1967 and 1968, Morocco's grain imports, which amounted to some 906 000 tons in 1967, were reduced to 622 000 tons in 1968 and to 142 000 tons in 1969. For the same reason, Algerian imports, which had reached their peak in 1966, are reported to have declined in 1969. In Tunisia, however, wheat imports are estimated to have risen to over 300 000 tons from 260 000 tons in 1968. Zambia's wheat imports were reduced from 59 000 to 46 000 tons.

There was no change in the value of trade in fishery products in 1969 for the developing countries of the region as a whole, but the sector did make a growing contribution to the earnings of a number of countries involved in the exploitation of shrimp fishing in the Gulf of Guinea. The value of exports of fishery products from Morocco, the region's leading exporter, recovered in the second half of 1969, and for the year as a whole the total was virtually the same as in 1968. Angola's exports recovered remarkably from the slump of recent years primarily because of the doubling of fish-meal exports. Mali's exports of dried fish to neighbouring countries has continued to grow, and is currently the third largest export commodity.

While the region continues to be dependent on a very limited number of agricultural export commodities, the continued rapid growth in export earnings from forestry is noteworthy. There was a major expansion of exports of tropical hardwood logs in 1969 mainly from west Africa. The volume is estimated at 7.2 million cubic metres, some 18 percent more than in 1968.[46] Exports of sawn hardwood, plywood and veneers are estimated to have increased only slightly, despite the strong growth of western European imports of these products. In the case of sawn hardwood, it may be that the prices and specifications of southeast Asian utility hardwoods made them more competitive, though it should also be noted that in 1969 there was an appreciable drop in the total imports of the United Kingdom, the largest single buyer of tropical sawn hardwood and plywood from Africa.

Technological progress

Although the level of agricultural technology remains low in most of the region, there are encouraging signs of a progressive introduction and adaptation of more modern techniques to the varied farming, forestry and fishery systems of Africa. Thus the region is increasingly expanding its own production of fertilizers and pesticides and the manufacture of farming equipment to meet local needs. Production of fertilizers increased by 14 percent to 390 000 tons in 1968/69, almost entirely phosphate produced mainly in Morocco and Tunisia. A considerable part of the total continued to be exported. Fertilizer use in the developing countries of the region also rose by 13 percent to some 544 000 tons following a 16 percent increase in 1968. All

[46] The 1968 figures exclude transfers of logs from Equatorial Guinea (formerly Spanish Guinea) to Spain, which in recent years have amounted to about 400 000 cubic metres a year.

countries, with the exception of Algeria, Senegal and Madagascar, participated, the largest increases being in Cameroon, Chad, Congo (Brazzaville), the Democratic Republic of the Congo, Ivory Coast, Mali, Senegal and Tunisia.

The number of tractors in the African developing countries again increased by 7 percent, to 119 000 in 1968. One third of the new machines, however, went to the northwestern countries where almost half of all tractors in the region are located. During 1969 two more tractor and agricultural machinery plants were set up in Algeria, to cater for the 2.8 million hectares now cultivated mechanically. More tractors were also required in Morocco because of the development of irrigated agriculture and to implement the Fertilizer and Ploughing Programme covering 300 000 hectares of cereals. Tractor numbers increased by 6 percent in Tunisia, but this was insufficient to raise agricultural production to the plan target.

Some increase in mechanization has also taken place in central African countries. Although the overall use of machinery is still limited, implementation of some intensive agricultural and forestry schemes brought about a doubling of the tractor numbers in Gabon. In the Democratic Republic of the Congo, however, the recently established tractor plants have not yet made a great impact on farm mechanization. In the coastal zones of west Africa and in east Africa expansion of machine utilization is continuing, notably in Ivory Coast which had a 14 percent increase in 1968 due to the implementation of some large farming operations (for example the cultivation of oil palms and of coffee). Tanzania and Malawi also increased the use of mechanical power for farming, by 21 percent and 38 percent respectively, and Malawi has established a tractor hire system.

Mechanization of forestry through the use of power saws in logging operations is increasing rapidly. This is resulting both in higher productivity per man and in higher yields. Progress has been made in methods of transporting timber through the expanded use of articulated four-wheeled skidders in some countries, for instance in Gabon where 140 of them are now in use.

Use of improved planting material remains for the moment restricted mainly to export crops, and considerable progress has been made in that sector. Most of the cotton now grown in Africa is from selected seed; the new plantations of oil palms, notably in Ivory Coast, use carefully bred high-yielding varieties; and the rehabilitation and extension of cocoa are largely based on early maturing, high-yielding clonal strains. The new International Institute for Tropical Agriculture established at Ibadan, Nigeria, by the Ford and Rockefeller Foundations is a major new research resource for developing African agriculture.

However, attention is increasingly focusing on the need to expand cereal production to counter the region's growing dependence on imports. Special attention is being given to Mexican wheat in northwest Africa and to high-yielding strains of rice in west Africa and also in the Democratic Republic of the Congo, where satisfactory plant breeding results have already been achieved with upland rainfed varieties yielding more than 2 tons per hectare. On the west coast, from The Gambia to Sierra Leone, swamp rice is gaining importance and at Rokupr in Sierra Leone yields of up to 5 tons per hectare have already been reported with improved varieties. Further research work is being conducted in Nigeria, Guinea and Niger, and in Mali, at the Office of the Niger Area, rice varieties have been selected for varying water levels. Rice seed production schemes are reported to be operating in the Central African Republic, the Democratic Republic of the Congo and The Gambia, but seed certification and distribution both need to be improved.

Maize breeding in Kenya continues to show good results. New hybrids developed from Mexican and Colombian lines yield 40 percent more than local improved varieties. Maize breeding programmes are also under way in Nigeria and Rhodesia. In Malawi, in the Lunzu-Liranguru settlement scheme, maize hybrids have increased the average yield fourfold. Sorghum breeding programmes are reported to be under way in Ghana, northern Nigeria, Zambia, Senegal and Tanzania.

Forestry is also benefiting from high-yielding varieties and, with the increasing importance of man-made forests, the identification and breeding of suitable high-yielding varieties are becoming of greater importance. FAO has given financial support to several tropical pine seed collection expeditions (two in 1969) organized by the Forest Research Institute, Canberra, Australia, and the Commonwealth Forestry Institute, Oxford, England. In Nigeria and Zambia, work was intensified in 1969 on the production of eucalyptus hybrids, some of which show great promise of combining the high yield and good form of one parent with the drought resistance of the other.

Desert locust control

After the alarm in 1968 and the subsequent successful antilocust campaigns, 1969 was a comparatively calm year. In early January 1969 scattered swarms were again reported in Morocco, Algeria, Mauritania, Mali, Niger and Chad. Mature swarms and newly hatched hoppers were also reported in the countries on both sides of the Red Sea. Pre-

ventive action was therefore undertaken. Sponsored by national and regional locust control organizations and with the help of USAID, insecticide was sprayed over about 500 000 hectares along the Red Sea coasts, while rapid action taken by the Organisation commune de lutte antiacridienne et de lutte antiaviaire (OCLALAV) in Mauritania succeeded in maintaining the local locust population at a low level. The plague which had started in 1968 could therefore be considered as being completely under control by 1969. In early 1970 remnant populations in Mauritania began to move toward the Spanish Sahara where they bred and formed a few small swarms. However, as a safeguard, continuous vigil is kept on their movements.

The FAO Desert Locust Control Committee, at its thirteenth session held at Rome in October 1969, recommended that the present fortunate situation should be fully exploited and all possible measures should be taken under an effective control strategy to maintain the state of recession. The FAO Emergency Fund for the Control of Livestock Diseases was extended by the fifteenth session of the FAO Conference in November 1969 to cover "initial control activities against the desert locust," but so far it has not been necessary to use this additional resource.

Livestock development

The Africa region contains about 10 percent of the world's livestock population. It is very unevenly distributed mainly due to ecological factors. Cattle are predominant, although in some areas sheep and goats are important and contribute significantly to local diets (Table II-51). The main parameters determining distribution are rainfall and the presence of the tsetse fly.

Cattle tend to be concentrated in the savanna zone of west and central Africa, with the density increasing southward from the drier to the less dry areas, the southern limit being the tsetse-infested tropical rainforest zone. In east Africa the main concentration is in the Ethiopian highlands and parts of Kenya and Tanzania. Breeds of tsetse-resistant cattle are also kept in the coastal savanna belt of west Africa. While the most important livestock region of the continent is the Sahelian savanna zone, where animal husbandry is the only important agricultural activity, the density of cattle per hectare is relatively low due to lack of rainfall. The main producing areas for sheep and goats are in Morocco and the Mediterranean coastal countries, the northern arid area of the Sahelian zone of west Africa, Ethiopia and the drier northern districts of Kenya.

Pigs have little commercial importance, due largely to religious sanctions or consumer habits. Poultry meat is a part of the diet and of increasing importance especially in the urban centres of west Africa. While poultry and pigs are mainly kept for subsistence purposes, more recently efforts have been made to develop modern pig and poultry industries based on pen breeding and feeding to supply the growing urban markets.

Less use is made of work animals in Africa than other regions, except in north Africa and Ethiopia,

TABLE II-51. – AFRICA:[1] SUBREGIONAL DISTRIBUTION OF LIVESTOCK POPULATION

	Cattle		Sheep		Goats		Pigs		Poultry	
	1948-52	1964-67	1948-52	1964-67	1948-52	1964-67	1948-52	1964-67	1948-52	1964-67
	Million head									
Northwest Africa	3.4	4.0	18.2	22.9	13.9	10.2	0.3	0.1	24.0	26.6
West Africa	14.0	26.1	13.1	20.5	21.3	40.2	1.0	1.8	[2]13.1	81.2
Central Africa	5.8	7.9	2.2	3.2	5.6	7.2	0.5	0.7	2.7	6.4
East Africa	51.2	70.2	30.4	33.1	28.6	35.4	1.2	1.5	76.9	92.7
TOTAL AFRICA[1]	74.4	108.2	63.9	79.7	69.4	93.0	3.0	4.1	116.7	206.9
	Percent									
Northwest Africa	5	4	28	29	20	11	9	2	21	13
West Africa	18	24	20	25	31	43	37	44	11	39
Central Africa	8	7	4	4	8	8	15	18	2	3
East Africa	69	65	48	42	41	38	39	36	66	45
TOTAL AFRICA[1]	100	100	100	100	100	100	100	100	100	100

NOTE: Estimates of livestock numbers are not very reliable in most countries and the data should therefore be regarded as representing only approximate orders of magnitude.

[1] Excluding South Africa. – [2] Excludes Nigeria, for which data are not available.

due to the widespread incidence of animal disease, the relatively recent development of settled arable farming in a large part of the continent, and the traditional separation of livestock owners from crop cultivators. As a result, much of the operations are carried on without the use of animal power; increased productivity is expected to result from the introduction of mechanization rather than from greater use of work animals.

The African livestock industry is characterized by a low level of productivity; for example, the world average beef production per animal is about two and a half times greater than in Africa. Factors responsible for this include: lack of good management, prevalence of disease, the prestige given to livestock ownership, poor grazing conditions with reliance mainly on natural herbage, seasonality of water supplies, failure to integrate livestock and crop production, and the poor marketing infrastructure. Nomadism is in some areas the only viable method of animal husbandry due to grazing conditions and water availability. It is the norm of the Sahelian zone. Ethiopia, Kenya and Uganda are somewhat exceptional. In Ethiopia cattle are widely used as draught animals, and in Kenya and Uganda dairy farming has recently become more important on smaller mixed farms, with a concomitant improvement in husbandry.

TABLE II-52. – AFRICA: SHARE OF THE LIVESTOCK SECTOR IN TOTAL GDP, AGRICULTURAL GDP AND TOTAL EXPORTS, 1965/66

	Share of livestock and livestock products		
	Total GDP	Agricultural GDP	Total exports
	Percent		
CENTRAL AFRICA	2.3	8.0	0.5
Chad	11.3	27.0	13.0
Central African Republic	3.1	10.5	—
WEST AFRICA	4.9	10.0	2.1
Mali	29.4	70.0	34.0
Mauritania	11.3	24.0	7.4
Niger	23.6	40.0	15.7
Upper Volta	10.1	19.0	66.9
EAST AFRICA [1]	8.8	18.8	...
Kenya	8.8	25.0	8.3
Tanzania	...	10.5	...

[1] 1961-63.

ROLE OF LIVESTOCK IN THE ECONOMY

The relative importance of livestock production in the African economy can only be crudely assessed, owing to inadequacy of data. The Indicative World Plan for Agricultural Development (IWP) roughly estimates the region's annual value of livestock production at about $800 million in the early part of the 1960s, representing about 12 percent of the gross value of agricultural production. Because of the uneven distribution of livestock in the region, the share of livestock production in the total varies widely, from an estimated 8 percent for central Africa and 10 percent for west Africa (26 percent in the savanna zone) to 19 percent for east Africa (Table II-52).

In the total volume of animal products in Africa, meat is the most important item, and cattle are the most important livestock. Meat production approximates two thirds of the total value of output from livestock, of which some 50 percent comes from cattle.

Within the west African subregion the contribution of animal production to GDP and exports tends to be high in the countries of savanna areas, whereas in the coastal and forest areas it is low. In east Africa animal products make an important contribution to the economies of Ethiopia, Kenya, Tanzania and Madagascar. As in west Africa, beef and veal production is far the most important.

Livestock production and marketing in Kenya have reached a relatively advanced state of technical efficiency. Gross output of livestock products contributed approximately 8 percent of the country's GDP in 1968, and is expected to increase by 30 percent by the end of the 1970-74 development plan. In Tanzania, which rivals Kenya as the region's leading meat exporter, the main item is beef, though mutton and lamb are also important. Although cattle herds in Uganda have recently been increasing, livestock production still plays a relatively small part in the country's economy. Increasing domestic output is, however, reducing the country's dependence on imports of meat and milk from Kenya.

CONSUMPTION

A corollary of the production pattern just outlined is the relatively small part meat plays in the diet of most African populations. Average annual per caput consumption in developing Africa is about 12 kilogrammes compared with 35.6 kilogrammes in South Africa, though these data probably do not take full account of subsistence production in rural areas. The level of consumption varies widely both between and within the subregions, mainly reflecting the different conditions prevailing for animal husbandry.

Thus in east Africa annual per caput meat consumption at 16 kilogrammes is about double that in west Africa, with a large variation not only

between individual countries, but also between different areas of the same country. The level of meat consumption in the northwest and central subregions falls about midway between that of the east and west subregions, but again with wide variations between countries. There are also great divergencies between urban and rural meat consumption levels and, for a number of west African countries, it is estimated that urban consumption is about double the rural. In terms of nutrition IWP estimates that in 1962 livestock and livestock products contributed about 14 percent of total protein consumption in Africa.

TRADE

Due in part to increasing imports of dairy products, the region has a net deficit on external trade in livestock products (Table II-53). Exports of livestock and livestock products account for only about 4 percent of total agricultural exports.

Live animals are mainly exported to neighbouring countries and, owing to poorly developed infrastructure and to the preferences of importing countries, the bulk of the trade is in cattle. The principal flow is from the savanna zones to the deficit zones of the coastal regions. Available data indicate that there has been little growth in this trade in the past decade, although unofficial estimates suggest that it may be considerably higher than is shown in Table II-54, due to inadequate reporting and smuggling. Exports of meat products, on the other hand, have risen rapidly and now exceed in value exports of live animals. This includes both fresh and processed meats, over 80 percent of which are beef.

The bulk of African meat exports originates in only a few countries, mainly Chad, Ethiopia, Kenya, Madagascar, Tanzania and Upper Volta. In the west African subregion exports of meat have developed slowly, except for Chad and Upper Volta, due mainly to lack of slaughterhouses and cold storage capacity and the tradition within the subregion of trading in live animals. In contrast, the main markets for east African exports are offshore.

Except for shipments from Kenya to other members of the East African Common Market, there are no significant exports of dairy products. In contrast, milk and cream account for some 60 percent of the total value of imports of livestock products of the region, excluding South Africa.

By value, hides and skins are the single most important component of livestock exports, representing about 50 percent of the total value of extra-regional livestock product exports of developing Africa. They are of particular importance to Ethiopia, Kenya, Madagascar, Nigeria, Tanzania and Uganda.

The growth of exports of livestock products indicates the potential for beef cattle in the region, if the constraints on expansion of supply can be removed with improvement in sanitary conditions to meet the health regulations of the chief importing countries.

TABLE II-53. – AFRICA:[1] EXPORTS AND IMPORTS OF LIVESTOCK PRODUCTS

	Exports		Imports	
	1962/63	1966/67	1962/63	1966/67
	Thousand U.S. dollars			
Live animals	22 035	24 290	27 344	21 502
Fresh, chilled, frozen meat	12 380	25 250	30 470	32 555
Dried, salted, smoked meat	1 023	1 459	3 208	3 259
Canned meat and meat preparations	19 299	24 700	18 145	18 492
Milk and cream	581	1 341	61 766	85 960
Hides and skins	42 214	52 243	700	900
TOTAL	97 532	129 283	141 633	162 668

[1] Excluding South Africa.

TABLE II-54. – AFRICA:[1] TRADE IN LIVE CATTLE, INCLUDING BUFFALO, IN SELECTED COUNTRIES

	1962	1963	1964	1965	1966	1967
	Thousand head					
MAIN EXPORTING COUNTRIES						
Mali	11	11	13	11	15	20
Mauritania	47	66	81	49	44	43
Niger	31	35	55	33	28	19
Upper Volta	69	62	57	67	61	—
Chad	85	56	41	80	84	85
Madagascar	54	77	65	74	83	55
TOTAL AFRICAN EXPORTS	329	327	355	339	338	304
MAIN IMPORTING COUNTRIES						
Ghana	4	6	7	3	5	...
Liberia	97	84	78	56	62	62
Nigeria	7	5	3	5	7	6
Upper Volta	106	114	92	72	126	115
Algeria	—	—	—	28	24	14
Mauritius	20	33	25	23	9	7
Reunion	6	5	8	7	9	12
TOTAL AFRICAN IMPORTS	249	303	249	209	267	252

[1] Excluding South Africa.

PROSPECTS FOR PRODUCTION, CONSUMPTION AND TRADE

The IWP study of future supply and demand relationships in African livestock development indicates only modest growth in meat production, and a consequent gap between domestic supply and demand. The production objectives shown in Table II-55 are based on an average annual growth rate of only 3.4 percent between the base year (1962) and 1985.

TABLE II-55. – AFRICA: IWP PRODUCTION TARGETS FOR LIVESTOCK PRODUCTS

	Production		Annual rate of growth
	1962	1985 (target)	
	Thousand metric tons		*Percent*
MEAT [1]	1 997	4 279	3.4
Beef	846	1 781	3.3
Mutton and goat	405	764	2.8
Pigmeat	101	247	4.0
Poultry	153	624	6.3
Other, including offal	492	863	2.4
MILK	3 726	5 250	2.5
EGGS	171	519	4.9
HIDES AND SKINS [1]	107	222	3.2
WOOL	1	2	3.1

[1] Including equivalent of live exports.

The targeted growth rate in beef supply is marginally lower, at 3.3 percent annually, on the assumption of some substitution of pigmeat and poultry for beef. Within the plan period, a closing of the supply/demand gap is not anticipated as exports of processed beef, which are expected to expand in east Africa, would be matched by increased offshore imports into west Africa. Offshore imports beyond this level, as a contribution to closing the gross supply deficit, are not foreseen. As a consequence, only marginal increases in per caput consumption of livestock products are anticipated. In the face of limited possibilities for developing cattle production in the short term, some of the deficit countries, particularly in west Africa, are actively encouraging the development of poultry production. Rapid development of pig and poultry production would presuppose, to some extent, overcoming dietary prejudices and reduction in composite feed prices. In a number of countries poultry development has been assisted by PL 480 maize supplies, but in future it will have to depend on locally produced feed. The overall effect, however, of the expected supply/demand gap will probably be increased beef prices, benefiting the surplus countries.

PROBLEMS OF LIVESTOCK DEVELOPMENT

Although the Africa region has considerable potential for livestock development, there are formidable constraints which limit the speed of expansion, particularly in beef and dairy output. The causes of supply inelasticity are to be found throughout the livestock economy, including the system of husbandry, marketing methods and facilities, and the underlying problem of animal disease.

Beef cattle, sheep and goat raising is almost totally dependent for feed on natural herbage. The associated productivity problems vary according to the climatic zone, the most serious occurring in the drier north Sahelian zone where water availability is uncertain.

Fluctuations in grazing conditions and water availability mean that animal numbers tend to vary from year to year and from season to season. A further consequence is that standards of animal nutrition tend to be poor and uneven, and meat yields low. The prevalent system of marketing on the hoof, with an inadequate system of rest and recuperation stations on long stock routes, also leads to further deterioration of animals prior to slaughter.

But probably the major limit to the expansion of animal production is the problem of disease, in particular trypanosomiasis, which effectively excludes many areas, such as the coastal and tropical countries of west Africa, from maintaining a livestock industry at all. The traditional pastoral system of animal husbandry and related marketing systems, with largely uncontrolled stock routes lacking inspection and quarantine facilities, contribute to the spread of disease.

Expansion of the cattle industry in Africa is therefore essentially a long-term process, not only for biological reasons but also because of the need to create the necessary organization, to improve husbandry methods and marketing, and to control disease. The problem can only be approached through an integrated programme combining disease control, animal health measures, the development of water supplies, the improvement of cattle routes and breeding. Only in this way will conditions be provided under which herds can be increased in numbers and the average meat yield per animal raised.

LIVESTOCK PROGRAMMES AND POLICIES

The possibilities for developing the region's livestock potential, particularly through improved techniques for animal husbandry, are well recognized. At the Second African Conference on Animal Production and Health held at Kinshasa in 1969 it was decided to undertake a survey of animal diseases as a basis for regionwide control programmes. Also, at the international level, the members of OCAMM [47] during their sixth Summit Conference at Yaoundé on 28 January 1970 requested Niger to convene a meeting of experts to prepare the African and Malagasy Meat Plan to promote production, stabilize and rationalize meat trade arrangements between member states, set incentive prices for

[47] Formerly OCAM; see under "Regional economic cooperation" on page 123.

farmers and ensure supplies to meet the requirements of importing member countries. The Entente Group in coordination with OCAMM is setting up an Interstate Meat Board with the same aims as OCAMM. The continuing regionwide JP 15 anti-rinderpest eradication programme, which has been under way for several years, has demonstrated the success of coordinated multinational action to control animal disease.

At the national level the priority must continue to be given to animal health measures, notably prophylactic inoculations against pleuropneumonia and dipping and spraying programmes for the control of tick-borne diseases. A relatively advanced veterinary programme is operating in Kenya, which has well-established animal health and husbandry services. Most of the major cattle-keeping African countries have established institutions providing veterinary training to a subprofessional level, while Kenya has a university faculty of veterinary science. Generally there is a severe shortage of professional veterinarians and technically trained cadres, and this is currently being offset as far as possible by the large numbers of foreign veterinary personnel provided under multinational and bilateral assistance.

While pilot activities are being undertaken in several countries, notably Zambia, to make tsetse-infested areas safe for cattle raising, it is unfortunately apparent that, with existing technology, the eradication of the tsetse fly will be very costly. During the 1970s it is likely that resources and priorities will only allow tsetse clearance in selected limited areas. However, a sustained programme of research, using techniques ranging from male fly sterilization to prophylactic immunization, should continue to be given the highest priority. A breakthrough in tsetse eradication would have as great an effect on Africa as the "green revolution" is having on Asia.

All countries where pastoral cattle keeping is important are undertaking programmes to improve their husbandry techniques and to increase offtake. In the Sahelian zone of west Africa better range utilization is dependent on the provision of water supplies and the development plans of Chad, Mali, Mauritania and Upper Volta include programmes for well boring in order to utilize groundwater.

In the east African subregion more attention is being given to range management, together with some stratification of the cattle industry by drawing off store cattle from the more extensive and less productive pastoral areas for finishing with more intensive feeding. The development of the ranch system is noteworthy in Ethiopia, Kenya, Madagascar, Tanzania, Uganda and Zambia, and has involved considerable investment, including IBRD assistance. In addition to providing very considerable increases in beef supply, these schemes will tend to convert a largely nomadic society into settled communities.

The expansion of dairy production, particularly to supply urban centres, has been initiated with a number of schemes benefiting from the United Nations Children's Fund (UNICEF) and World Food Programme (WFP) assistance. Schemes to collect milk from accessible producers for central treatment or processing and orderly marketing are well established in Kenya, Tanzania and Uganda under national dairy boards, while in Ethiopia a similar scheme is operating to supply milk to Addis Ababa.

Cattle breeds and types are being improved both through selection from local stock, such as the Boran of Kenya-Ethiopia, and grading up ranch herds with Hereford blood, while increased use is being made of exotic dairy breeds such as the Friesian in more intensive dairy operations in east Africa. Considerable use is also being made of artificial insemination in a number of east African countries; deep-frozen semen of improved stock is being made available in Kenya and Madagascar.

The development of more intensive cattle-raising techniques involves both farm specialization and the integration of food and feed crops and animal husbandry. In Kenya, where one of the side effects of the use of high-yielding cereals has been a sudden surplus of maize, a pilot cattle-fattening project to determine the feasibility and relative advantage of utilizing this surplus for beef production instead of for export may indicate very interesting prospects for an intensive beef cattle industry. Feasibility studies for a number of irrigation projects — at Sokoto (Nigeria), Awash valley (Ethiopia), Mubuku (Uganda) and Pangani-Wami (Tanzania) — have shown that intensive fodder crop production in a high output value rotation may be profitable.

Where conditions for expanding the cattle industry are less favourable, particularly in the coastal and tropical zones of west Africa, more attention has been given to promoting the consumption of eggs and poultry meat. Modern commercial poultry production using exotic hybrid stock has enabled many African countries to meet increased urban demand. In Ghana and the Western State of Nigeria the greatly expanded and regular supply of eggs from the new modern poultry system has resulted in some reduction in market prices from their originally high levels. A similar development exists in Zambia where poultry and egg production increased from 625 000 dressed birds and 1 800 000 dozen eggs in 1964 to 7 700 000 dressed birds and 7 800 000 dozen eggs in 1969.

The development of more intensive livestock husbandry for fattening beef cattle and improving dairy, pig and poultry production is generally limited by inadequate feed supplies. A great deal of crop

residues and processing by-products suitable for animal feed are wasted or not fully utilized. The growth of agricultural processing industries in a number of African countries, for example pressing of groundnuts and other oilseeds and cereal milling, is enabling associated livestock feed industries to be set up. While experiments continue toward the creation of feed mixes incorporating locally available by-products such as molasses, increased WFP supplies would allow earlier trials and the pilot development of intensive husbandry systems.

Cattle marketing is generally less well developed, particularly for domestic trade. Considerable funds are being spent on slaughterhouse and cold storage development. In west Africa, where the traditional marketing flows consist of live animals being driven from north to south, the main slaughterhouse development is in the importing coastal countries. Ivory Coast is planning relatively large modern slaughterhouses and storage plants in the main consuming areas, with a system of small regional slaughterhouses. Ghana has two large modern slaughterhouses and refrigeration plants, one of which is currently working at only some 10 percent of capacity, and the other at only about 2 percent. More efficient use of these plants, perhaps tied in with ranch development, would not only increase local meat supplies but significantly affect retail prices.

In the eastern subregion, slaughterhouse development is partially linked to the development of exports. Because of sanitary regulations in the importing countries, the emphasis at present is on processing plants for the production of canned meats and extracts rather than on freezing facilities. In an endeavour to break into the higher price fresh meat export market, Kenya is considering the establishment of quarantine areas through which cattle would pass prior to slaughter and export, which would satisfy the regulations of the importing countries.

For a number of countries, particularly in the east African subregion, development of the cattle industry offers an important means of agricultural diversification. Schemes to expand milk and meat production in Mauritius are aimed at reducing the island's heavy dependence on imports. For Ethiopia, Kenya, Madagascar and Tanzania, increased exports of canned meat are making a significant contribution to foreign exchange earnings.

The importance given to increased meat production in the African region is reflected in the level of resources devoted to it. Multilateral assistance is currently approaching $30 million. IBRD and IDA credits currently amount to $14.4 million, with a further $17.0 million of projects being formulated. Current UNDP/FAO Special Fund projects in the region amount to over $12 million, while the African Development Bank has some $16 million in loan applications for livestock development under consideration.

Resources obtained from UNDP have tended to be heavily weighted toward animal health projects, but range management and development are getting increasing attention. The main concentration has been in east Africa, particularly Kenya, accounting for some 25 percent of UNDP contributions. Out of the $14.4 million in current IBRD and IDA loans and credits, all but $1.2 million are committed to east Africa, and nothing as yet to the western subregion, although a number of projects are currently being studied. However, recent livestock identification missions have provisionally recommended a number of projects in west Africa suitable for IBRD loans, particularly for the development of water resources, ranching schemes and the improvement of marketing infrastructure. Some emphasis is also being given to livestock development in bilateral aid programmes. The United States Agency for International Development (USAID) has given particular attention to cattle development. France and the European Economic Community (EEC) have provided funds mainly for countries in west Africa.

Wildlife utilization

The value of African wildlife, as a basis for the tourist industry and as a source of protein food, is being increasingly recognized, and there is a growing desire to undertake improved conservation measures to protect and enhance this valuable resource. There is a perceptible movement toward the practice of modern wildlife management, improved harvesting methods and the marketing of wild animal products. Much of the potential still remains untapped; but within the last five years many encouraging developments have taken place. A number of countries have improved legislation, formed organizations or government departments responsible for wildlife, created new national parks and reserves, given professional training to specialized staff and constructed tourist facilities.

Proper planning for the use of this resource is made difficult by lack of data on the contribution of wildlife to the economy (as food, employment, export earnings, etc.) and its costs (in terms of competition for grazing, damage to crops, spread of disease, etc.). That the value is considerable is, however, indisputable. In east Africa, where wildlife attractions are best known and commercially developed, foreign exchange earnings from tourism already make a significant contribution to the economy. For Kenya they were estimated at about $40 million in 1968, 10 percent of the total export earnings, and are expected to grow by 15 percent annually to $100 million (17 percent of the total) by the end of the

new development plan in 1974. Associated local benefits include a wide variety of employment opportunities, small village industries for tourist trade, and the sale of higher value food items required by the tourist hotels.

In east Africa, in particular, a considerable investment is being made in the tourist industry. In Kenya alone these investments will amount to $18 million during the current plan period. Some progress has also been made in west Africa, for instance in Cameroon, but in most cases improved management of wildlife populations and their habitat is required in order to develop the potential of this resource.

Considerable foreign exchange is also earned by the export of hides and skins and other animal products, and of animals for zoos and for experimental purposes. For example, the East African Community ivory exports annually exceed $1 million. Some of these products are poorly handled and could easily realize more income under proper management.

In the meantime, the domestic use of wild animals and their products remains quite considerable, although poorly documented. In Botswana and the rural areas of Ghana, about 60 percent of the animal protein consumed annually is estimated to be derived from wildlife. In southern Nigeria the estimated value of game meat sold in 1966 was not less than $50 million. These statistics from west Africa are surprising considering that many of the larger mammals have been virtually eliminated. The intensive use of wildlife is largely sustained by several smaller species with a high fecundity rate. In several countries game meat is preferred to that of domestic animals.

For the successful development of wildlife resources for tourism a multinational approach is required. Game docs not recognize international boundaries; and protection from excessive hunting and from poachers requires coordinated action by neighbouring countries. Tourist programmes, too, require planning to cover wildlife attractions in adjoining countries. Another multinational aspect is in the training of personnel. The East African College of Wildlife Management at Mweka, Tanzania, has for the past six years produced competent staffs for the game departments and national parks administrations of the east African and most other English-speaking African countries. A similar wildlife training institution, to cater for French-speaking personnel, has recently been opened at Garoua, Cameroon.

The systematic utilization of wildlife for meat and other products involves the harvesting of wildlife on a basis comparable to that for domestic stock. This type of wildlife utilization has been in progress in east and central Africa and it seems to offer good economic possibilities, particularly in the arid and semiarid areas not now used by, or unsuitable for, domestic stock.

Game farming of wildlife in semidomesticated conditions is also of potential value, as demonstrated by the Sambar deer of Mauritius, the hippopotami of Uganda and eland in a number of countries. UNDP assistance is now being sought to examine the feasibility of husbanding mixed herds of livestock and certain selected species of wildlife. Problems arise, however, from the ever-increasing pressure on the land. Fortunately wildlife areas can often be allocated on land that is not very productive from an agricultural or forestry point of view, including areas which are at present infested with the tsetse fly or otherwise unsuitable for domestic livestock. Experience in North America indicates that national parks and other wildlife areas can be a sound investment. This is already true in certain parts of Africa, for example Nairobi park, and will undoubtedly be more so as increasing numbers of tourists visit wildlife areas.

Development plans and policies

During 1969, 8 African countries (Algeria, Kenya, Madagascar, Malawi, Niger, Senegal, Swaziland and Tanzania) announced new plans for economic development (see Table II-56) and 15 other countries [48] are reported to be either revising their plans or formulating new ones. The share of agriculture in total planned investment under the new plans varies widely, though most commonly it is of the order of 20 to 25 percent. Most of them show not only absolute increases in planned investment funds allocated to agriculture, but also in the relative share of agriculture in total and public development expenditure. An exception is Kenya, where the share has dropped from 26 to 21 percent. A particularly large increase in the share of agricultural investment in the total was reported in Madagascar, where it doubled to 24 percent. In Tanzania, while public sector finance for agriculture is increased from 14.5 to 23 percent, gross fixed agricultural capital formation is planned at 13.8 percent compared with 15.8 percent in the first plan. A much smaller proportion of annual budgets is generally allocated for recurrent expenditure on agriculture; it rarely exceeds 10 percent, accounting more generally for 3 to 6 percent of the total. In the case of one major agricultural country, the share is as low as 2.6 percent.

[48] Cameroon. Central African Republic. Chad. Dahomey. Gabon. Ghana. Ivory Coast. Lesotho. Mauritius. Niger. Sierra Leone. Togo. Uganda. Upper Volta and Zambia.

TABLE II-56. – AFRICA: MAIN FEATURES OF CURRENT DEVELOPMENT PLANS

	Currency	Duration of plan	Scope [1]	Investment		Foreign exchange component of total investment	Share of agriculture		Planned growth rate of:						
				Total	Public		Total investment	Public investment	GNP	Agricultural production		Export earnings		Employment	
										Total	Cereals	Total	Agricultural	Total	Agricultural
				Million currency units		..... *Percent*			..... *Percent per year*						
Algeria	Dinars	1970-73	PS	—	27 740	—	—	18	9	4.5	...	9.5	...	...	...
Botswana	Rands	1968-73	PS	—	70	—	—	8	6.0	...	...	...	...	..	...
Cameroon	CFAF	1966-70	C	165 100	97 400	63	20	...	5.8	3.5	...	7.0	...	...	...
Central African Rep.	CFAF	1967-70	C	36 876	26 678	58	39	51	7.0	6.0	...	11.0	9.0	...	...
Chad	CFAF	1966-70	C	46 900	42 200	55	28	...	5.8	...	...	5.4	...	...	...
Dahomey	CFAF	1966-70	C	35 100	25 000	69	35	...	4.0	4.6	...	7.8	...	...	...
Ethiopia	Eth. $	1968/69-1972/73	C	2 865	1 484	...	10.9	7	6.0	3.1	...	...	...	...	...
Gabon	CFAF	1966-70	C	92 000	36 800	70	27	...	7.5	3.7	...	11.1	...	...	...
Gambia, The	£ Ga	1967-71	PS	—	5	—	—	13	...	...	...	...	...	...	...
Ghana	Cedis	1968-70	C	222	...	...	...	...	...	...	...	...	...	...	...
Ivory Coast	CFAF	1967-70	PS	224 000	116 000	30	16	...	7.7	3.8	...	8.8	...	...	...
Kenya	K £	1970-74	PS	—	192	—	—	21	6.7	4.5	...	...	...	5.0	4.5
Malawi	M £	1969-71	C	70	...	...	17	...	...	...	...	...	...	...	...
Mauritania	CFAF	1967-70	C	36 000	20 000	...	28	...	5.5	4.9	...	4.0	...	...	...
Morocco	Dirhams	1968-72	PS	5 050	3 000	...	46.0	...	5.0	...	...	...	...	...	...
Niger	CFAF	1967-70	C	27 700	25 300	76	28	...	4.7	3.4	...	13.0	...	...	...
Rwanda	RBF	1966-70	C	5 651 000	4 272 000	69	36	...	5.0	3.8	...	14.0	...	...	...
Senegal	CFAF	1969-73	C	145 400	124 900	65	29	32	5.4	5.9	...	3.6	...	...	...
Swaziland	Rands	1969-74	PS	—	23	...	...	14	...	...	...	...	...	...	...
Tanzania	T £	1969-74	C	404	296	...	13.5	23	6.7	4.5	...	...	...	5.0	0
Togo	CFAF	1966-70	C	28 600	20 000	58	21	...	5.6	3.3	...	3.3	...	...	...
Tunisia	Dinars	1969-72	C	617	449	58	21	19	6.1	5.1	...	14	13.5	...	...
Uganda	U £	1966-71	C	230	80	35	9	19	6.3	5.1	...	4.4	...	...	...

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plan, and data may refer to gross investment or may include some elements of recurrent expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

[1] PS = Public Sector; C = Comprehensive.

An important objective of planning in Africa remains self-sufficiency in food and fibres. Examples include the rice policy in west Africa and the policies for maize, wheat and livestock products in east Africa. Countries which are very heavily dependent on a few export crops — such as Ethiopia, Kenya and Tanzania on coffee and Senegal on groundnuts — continue to plan for diversification. The results to date have been limited, however, because of difficulties in finding profitable alternative crops and of adjusting to new farming systems.

Integration of agriculture with industrial development — for which agriculture constitutes a major source of raw material — also continues to be an important feature of planning in the region. Kenya's second plan aims at an expansion of industrial output by 70 percent by the end of 1974, while Algeria, Senegal and Zambia are each giving greater emphasis to industrialization in their plans than in the past. Prominence is increasingly being given to agro-allied industries such as the processing of food and also of fibre and forest products. The planned K£ 12.5 million pulp and paper complex at Broderick Falls in Kenya is an example of this endeavour. Madagascar's 1970-74 plan aims at increased production of semiprocessed and processed products such as coffee, wood and meat products. Other agro-industrial activities in Madagascar include nut and pineapple processing.

Due to the lack of both capital and planning expertise, several countries continue to have difficulties in achieving their plan targets. Some countries, including Tanzania, have fallen somewhat short of the overall planned growth, while others, although achieving overall growth targets, did not achieve those for certain subsectors, as in the case of cotton production in Kenya. African countries are becoming increasingly aware of the limitations and difficulties inherent in planning the development of agriculture, and are attempting to overcome these by an improvement in their methods of data collection, analysis of statistics and planning techniques, as well as by constant review and even revision of plans. Chad has had to revise downward by 44 percent its initial 1966-70 investment target of 47 013 million CFA francs. In making projections for its new second plan, Kenya has had to improve and revise the statistical base, including a complete revision of national accounts. This has involved remeasuring the size and the growth rate of each industry and sector of the economy, of the GDP and capital formation measured at constant prices, and an estimation of the use of the resources available in the country. The central African member countries of the Union douanière économique de l'Afrique centrale (UDEAC) are also reported to be paying more attention to data collection and analysis as a prerequisite to improving plans. Throughout

the region, however, there is still a need to strengthen planning institutions. A move in this direction is the setting up of economic planning units in at least six ministries of agriculture, while several other countries are considering doing so.

Regional planning has become an important technique for spreading national wealth more evenly within a country. Tanzania has devised regional planning units, and a plan for the social and economic development of the Mwanza region has been formulated as part of the second plan, to make the implementation of the latter more effective. Kenya has also established regional planning units for the formulation and implementation of regional projects within the national plan, while Ivory Coast has established a development commission for the central region. These are only a few of the many examples of endeavours to decentralize planning in order to promote wider participation and particularly to secure more effective implementation.

For many African countries first priority is still given to the development of economic and social infrastructure which continues to receive the major share of development financing, and provides major indirect benefits also for agriculture. A survey of infrastructure requirements of the Shashi complex in Botswana is an example, and the dam construction at Inga in the Democratic Republic of the Congo is another. The Kossou dam in Ivory Coast is another venture that will affect agricultural development, including animal husbandry and fishing, as well as providing hydroelectric power. A major aim of Madagascar's 1970-74 plan is the improvement of the country's infrastructure, emphasis being given to production zones.

Basic infrastructural services such as roads, railways, harbours and airways have been allocated 46 percent of the total development expenditure in Kenya. Tanzania is undertaking the development of an extensive system of trunk and network roads (including the Tanzania railway project being undertaken by Mainland China), while Senegal and Algeria are also investing heavily in roads, harbours and airports. The planned construction in Algeria of a road from El Golea to In Salah (which will take most of the 300 million dinars allocated to road building) will establish a link between Algeria and Africa south of the Sahara and promote intra-regional trade and facilities for tourism. Malawi's new plan also emphasizes infrastructure development, and M£ 31 million (44 percent) are to be spent on rail and road development. Most of this will be used to build a 270-kilometre road from Zomba to Lilongwe, and a 200-kilometre road from Mau to near Monkey Bay; M£ 14.3 million are to be allocated to the development of railways and rolling stock.

While tackling the postwar problems of rehabilitating the damaged areas of the country, Nigeria has commenced longer term development planning to establish a national framework which will take into account the varying priorities of each state and ensure that their programmes are properly coordinated and integrated within one national reconstruction and development plan. It is estimated that Nigeria will need a total fixed investment of £N 1 825 million during the next five-year plan period, of which about 60 percent will be invested in the public sector. This investment is expected to produce an overall growth rate of 6 percent in the GDP which, based upon a population growth rate not exceeding 2.5 percent, should ensure an increase in per caput annual income from £N 25 in 1970 to £N 98 by the end of the next five-year plan. These assumptions rely upon a projected investment coefficient of 18 percent of GDP and a capital/output ratio of 3:0.

Forest policies

Africa's natural forest resources, although still large, are rapidly dwindling. Uncontrolled shifting cultivation continues to destroy forests at the annual rate of 8 million hectares, and, with the growth of population, the problem is continually getting worse.

Forest fires pose a serious problem especially in the dry savanna and steppe areas. Some further steps — such as the delineation of forest areas reinforced with appropriate legal instruments — have been taken by a number of countries, including Ethiopia, Ivory Coast, Mali and Senegal, to preserve and protect areas most suited to forest production and to replenish stocks by regeneration and afforestation. Mauritania and some other countries have devoted special attention to forest fires, but in most countries the high cost of fire control is a handicap. In 1969 approximately 80 000 hectares were added to the existing 1.3 million hectares of forest plantations in east Africa. Such man-made forests in that area usually enjoy good fire protection through an effective system of firebreaks and warning, and the application of modern equipment.

In a number of west African countries increasing attention is also being given to ensuring the availability of logs over the longer term, and the supply of raw materials to domestic industries. The need to increase exports of processed forest products of a higher unit value and to utilize more fully the lesser known species are also increasingly recognized. To this end, Ivory Coast announced its intention to limit the annual cut of a number of species and to raise export taxes on logs on 1 January 1970. Cameroon will also tax log exports more heavily,

while the Democratic Republic of the Congo intends to divert logs from export to its own processing industries. It will be some time, however, before the effects of these measures on total African log availability can be gauged.

Regional economic cooperation

Political interest in subregional cooperation continues. In general, however, efforts are characterized more by a search for economically meaningful and politically cohesive groupings and forms of organization than by the implementation of concrete measures. At the end of 1969 there were at least 40 official bodies set up to promote multinational interests in widely varying fields and — excluding the 3 major river basin commissions which have continued their fruitful work — at least 9 of these can be considered as having broad economic and political integration goals. Studies of the possibilities for promoting subregional trade and cooperation are being undertaken by the United Nations Economic Commission for Africa, and reports covering each of the four major subregions are expected to be published in 1970.

One of the most cohesive groupings within the region is the former Organization of African and Malagasy States (OCAM), renamed at the conference held in January 1970 after the joining of Mauritius the Joint Afro-Malagasy and Mauritian Organization (OCAMM). Two of the decisions taken at the conference are of particular interest because they offer further evidence of the search for forms of regional cooperation on the basis of individual commodities, pending the completion of more comprehensive arrangements. Thus, the member countries of OCAMM agreed that Niger should convene a meeting of experts to draw up arrangements for the launching in 1971 of the African and Malagasy Meat Plan, with the objectives, *inter alia*, of boosting meat production, stabilizing and rationalizing the meat trade among member countries, establishing price levels to encourage production, and ensuring the availability of supplies to meet the needs of the meat-importing member countries. Some important changes were also made in the Organization's sugar agreement established in 1966. In particular, it was decided that the importing members would henceforth purchase 80 percent of their sugar from other OCAMM countries, rather than 70 percent as hitherto.

Another example of regional cooperation on a commodity basis was the meeting in September 1969 of 13 west African countries interested in expanding their rice production, to discuss possibilities for cooperation in research and development activities. The meeting was supported by UNDP, FAO, countries interested in providing bilateral assistance, and foundations. At this meeting it was agreed that a West Africa Rice Development Association (WARDA) should be established following a preliminary study and recommendations to be made with UNDP/FAO assistance.

The new customs union agreements of Botswana, Lesotho and Swaziland with South Africa came into operation in March 1970, but were backdated to April 1969. Taking recent trade patterns as a guide, the agreement will mean that Botswana, Lesotho and Swaziland will receive a much larger, and South Africa a smaller, share of the duty revenues than they did under the old agreement. Under the new agreement Botswana, Lesotho and Swaziland — but not South Africa — may levy additional duties on imports to meet competition from other manufacturers in the common customs area in order to protect infant industries.

In the meantime, cooperation between various African groupings and EEC is being further strengthened. It is true that the Arusha Convention between the East African Community and EEC, signed in September 1969, is still awaiting ratification. But negotiations have already started for the progressive utilization of the $918 million of financial assistance to be made available for the OCAMM countries by the European Development Fund and the European Investment Bank under the renewed Yaoundé Convention of May 1969. Moreover, a partial association agreement between Tunisia and Morocco and EEC, signed in March 1969, came into effect the following September, permitting Tunisian and Moroccan industrial products imported into EEC countries to receive certain advantages, such as tax exemption and reduced import duty.

Chapter III. - AGRICULTURE AT THE THRESHOLD OF THE SECOND DEVELOPMENT DECADE

The year 1970 provides an appropriate opportunity to take stock of the past performance of agriculture and look at future prospects. It is now a quarter of a century since FAO was founded at the end of the second world war. The Second United Nations Development Decade is about to be launched. Agriculture in the developing countries appears to have reached a crucial turning point. Moreover, a wealth of new material is at hand for the examination of future prospects, especially through the Provisional Indicative World Plan for Agricultural Development (IWP), published at the end of 1969, and the work being done on the strategy for the Second Development Decade. The situation and prospects for world agriculture have just been discussed in the very wide forum of the Second World Food Congress, held at The Hague in June 1970.

During such a long period as 25 years there have naturally been numerous changes in the food and agriculture situation. On the broadest plane, there have been at least two major swings in the general prospects for the future. At the end of the war there was widespread confidence that the intensive application of modern technology could quickly solve the food and agricultural problems of the developing countries. Indeed, for a few years the recovery from wartime devastation brought a very rapid increase in agricultural production in these countries. But this was soon succeeded by a long period of disappointingly slow progress. Not only did the increase in agricultural production slow down, but there was a sharp acceleration in population growth to rates unknown before anywhere in the world. In many developing countries the increase in food production failed to match the growth of population and in still more it fell behind the demand for food at constant prices, which resulted in a combination of increased prices and increased imports. At the same time, nutritional studies increasingly revealed the extent to which the effective demand for food failed to cover the nutritional needs of the poorer population groups.

This period of slow progress lasted a long time, culminating in the very poor harvests of 1965 and 1966, when in several countries disaster was only narrowly averted by massive food aid. Since then there has been a rapid recovery, which seems to hold out the possibility of a more adequate and sustained growth of food production in the developing countries. In a number of them, mostly in Asia, a major transformation of food production is under way, mainly as a result of the introduction of the new high-yielding varieties of cereals, coinciding with an enhanced government commitment to agriculture and with the emergence of a progressive class of farmers in response to the long years of development effort. The main questions now are whether and how soon this transformation can be extended to other countries and other crops, whether the "second generation" problems inevitably stemming from a major innovation can be satisfactorily dealt with, and whether the protein supplies that are so vital for the development of young children can be increased at a rate not too far behind the increase in calorie supplies.

The problems of agricultural development have been studied more closely than ever before during the past 25 years. To a greater or lesser degree agricultural development is now "planned" in almost all of the developing countries, as part of an overall planning of the national economy. Much has been learned both about the crucial role of agriculture in the process of development and about the special difficulties of achieving rapid progress in this tradition-bound sector.

Greater appreciation of the essential contributions of agriculture has in the last few years brought a more balanced approach to economic development in some of those countries which had hitherto thought that rapid industrialization could be achieved without a sound agricultural base. It seems likely that in these countries the agricultural sector will now be able to come nearer to playing its full potential role in their development.

In at least one of agriculture's essential contributions, the earning of foreign exchange, such increased commitment by the domestic government, however, is not sufficient by itself. Better access to the main import markets in high-income countries and the organization of world commodity markets, two of the main needs, obviously depend on intergovernmental agreement and cooperation. This is an area

in which progress has been distressingly slow, especially in relation to the high hopes entertained at the time of the Havana Charter negotiations just after the end of the war.

A major lesson of agricultural development during the postwar period is that technology by itself is not enough. It is first of all necessary that input supplies, credit and extension advice are available to give farmers the knowledge and the physical possibility to make use of a given technological improvement. This is difficult enough, especially in view of the limited resources of finance and of administrative as well as technical skills in developing countries. But the second essential is even more difficult to provide. In addition to the physical possibility of increasing production, farmers need the incentive to do so. This has implications for such complex fields as land tenure, marketing, and price and taxation policy.

While the need for a suitable economic, social and institutional environment for farmers is now generally well recognized, it remains very difficult to achieve in practice. Institution-building is a very slow process — it is probable that the recent upsurge in agricultural production in some of the countries of the Far East is in large part due to the cumulative effect of many years of institution-building, which ensured that sufficient farmers were both able and willing to make good use of the new high-yielding seeds when they became available. As already mentioned, it makes heavy demands on scarce government resources. Some aspects, such as land reform, come up against powerful vested interests, so that there are few examples of their fully successful implementation during the postwar period.

In addition to these factors in the sphere of domestic governments, there are perhaps three principal features of the wider scene that have particularly influenced agricultural development during the past quarter century, and will continue to do so during the Second Development Decade and most likely beyond. These are the unparalleled growth of population in the developing countries, the equally unparalleled rate of technological change, and the postwar phenomenon of development assistance.

The population of the developing countries is now rising by 2.6 percent a year, which means it doubles in 27 years, and in a number of countries, especially in Central America, the annual growth is not much less than 4 percent. In recent years the failure of food production in so many developing countries to forge steadily ahead of population growth has been the main reason for the increasingly widespread conviction of the need for population control, and for making family planning information and facilities available for those who wish to make use of them. During the Second Development Decade and for some time after that, if the hoped for easing of the food situation is accomplished, problems of unemployment and underemployment are likely to become the main difficulties caused by the rapid population growth in the developing countries. These new problems could even place in jeopardy the achievement of the recently improved food production possibilities.

Another lesson of the last few years is that problems such as employment are not necessarily taken care of simply by maximizing the growth of the national income. More attention is now being paid to the need to secure a more equitable distribution of income-earning and employment opportunities. This is particularly important in the agricultural sector, where modern technology can easily widen the gap between large and small farmers.

Although, as already noted, technological improvements have to be strongly backed up by improvements in the economic, social and institutional fields, it is nevertheless further technological progress that offers the main hope of coping with the problems posed by rapid population growth. Indeed, it is mainly the technological breakthrough represented by the high-yielding varieties of cereals which is responsible for the present welcome breathing space in the long-standing food crisis.

Most of the remarkable technological progress of the past 25 years, and much of that accumulated before then, has still had its principal or even its only application in the industrialized countries. Many improvements in agricultural technology are tailored to the labour-scarce economies of these countries, or are otherwise unsuitable for use by small farmers in developing countries. A major need during the Second Development Decade is to follow up the highly successful example of the high-yielding cereal varieties with a massive research effort specifically directed to the problems of the developing countries.

It is the use and abuse of modern technology, combined with the population explosion, that have mainly given rise to the worsening pollution and degradation of the human environment which have begun to arouse considerable concern in the last few years. This is an area where the developing countries can learn much from the mistakes made by the industrialized countries.

Finally, development assistance has been a unique product of the postwar period. A sizable network of bilateral and multilateral programmes has grown up for the provision of technical, financial and material assistance to the developing countries. The food surpluses of the developed countries have given rise to a new form of aid. The spectrum of aid donors has also been broadened to include voluntary groups as well as governments and intergovernmental organizations, for example through the Freedom

from Hunger Campaign. Developing countries are making stronger efforts to help one another, especially through subregional schemes for economic cooperation. Many recommendations to improve the effectiveness of the whole international development effort have recently been made in the Pearson and Jackson reports, and the Second United Nations Development Decade will be a crucial test for this international effort.

The purpose of this chapter is to examine some of the main aspects, as summarized above, of the position and problems of agriculture in the developing countries at the threshold of the Second Development Decade. Although the developed countries have their own agricultural problems, the chapter is confined to the developing countries, which are the focus of the Development Decade. After a brief review of postwar trends, four problem areas (food crop production, livestock production, agricultural export earnings, and rural employment) are discussed in some detail. A concluding section looks at some of the principal implications of these problems for domestic policies and also for international cooperation.

POSTWAR TRENDS

A full-scale historical review of agricultural development since the second world war is beyond the scope of a single chapter in *The state of food and agriculture*, especially if it is to leave room for a look at the future as well. Moreover, much of the postwar period has already been reviewed at length in previous issues of this report.[1] Only a brief account is therefore presented here: first of the performance of agriculture in developing countries in respect of production, trade, incomes and nutrition, second of the progress of agricultural technology, and third of some of the main policy approaches that have determined the development efforts of national governments and the international community.

Performance of agriculture in developing countries

When the performance of agriculture in the developing countries is considered, stress is most commonly placed on aspects suggesting relative failure. Indeed, many facts can be marshalled to support such a view. In per caput terms, there has been little increase in food production in the developing countries as a whole. Their food imports have therefore risen steeply, and their previous net export of cereals has turned into a large net import. Even so, there has been only limited improvement in food consumption and nutrition, and rising food prices have been a source of inflation in many countries, or have necessitated stringent controls. Although a large part of the increase in food imports has been on concessional terms, involving the use of little or no foreign exchange, at least until recently commercial food imports have grown at such a rate as to affect the ability of the developing countries to import other urgently needed goods. This has been made all the more serious by the failure of their agricultural export earnings to rise rapidly. Agriculture has thus in many cases acted as a distinct brake on development. While the technical level of farming has steadily improved, the long-awaited technological breakthrough, which would fundamentally alter production prospects, has started only recently and so far in only a few countries. Moreover, the developing countries remain unable to cope with the major harvest failures that occur from time to time as a result of bad weather, and these have thus led to severe food emergencies, calling for massive international assistance.

Agricultural production

In view of such trends, it is hardly surprising that so much of the postwar discussion of the agricultural situation in developing countries has been coloured by pessimism. Yet a look at the record of production growth suggests that not all has been failure. Taking all the developing countries together, total agricultural production has expanded over the past two decades or so (1952-54 to 1967-69) at an annual average rate of 2.9 percent. This has been a creditable performance both historically (no other period is known when such a rapid growth of agricultural production was shown by any large number of countries) and in comparison with the developed countries, whose agricultural production rose no faster.

Moreover, these figures refer only to crop and livestock production; the performance of the smaller but nonetheless important fishery and forestry sec-

[1] The first postwar decade was reviewed in *The state of food and agriculture 1955*, and the second in *The state of food and agriculture 1965* (FAO, Rome, 1955 and 1965).

tors has been particularly impressive. Fish production has increased by some 9 percent a year for two decades (1948-52 to 1967-69) although, especially in Latin America and Africa, much of the expansion has been for industrial uses and so contributes only indirectly to the food supply. As regards the growth of forestry production in the developing countries, there has been a very rapid increase in their output of high-value products such as plywood (9 percent a year between 1954-56 and 1967-69), pulp (16 percent), and newsprint (18 percent).

There are a number of reasons why the overall picture is nevertheless one of relative failure. One is the uneven performance as between individual countries — in a number of countries, including some of the larger ones, agricultural production has increased very slowly. Another is the uneven performance over time — while production increased rapidly in the recovery period immediately after the second world war and has done so again with the recovery from the widespread bad harvests of 1965 and 1966, there was a long period in between when overall progress was extremely slow. Most important of all is the rapid and in many countries still accelerating growth of population, which in per caput terms has often largely wiped out the production gains.

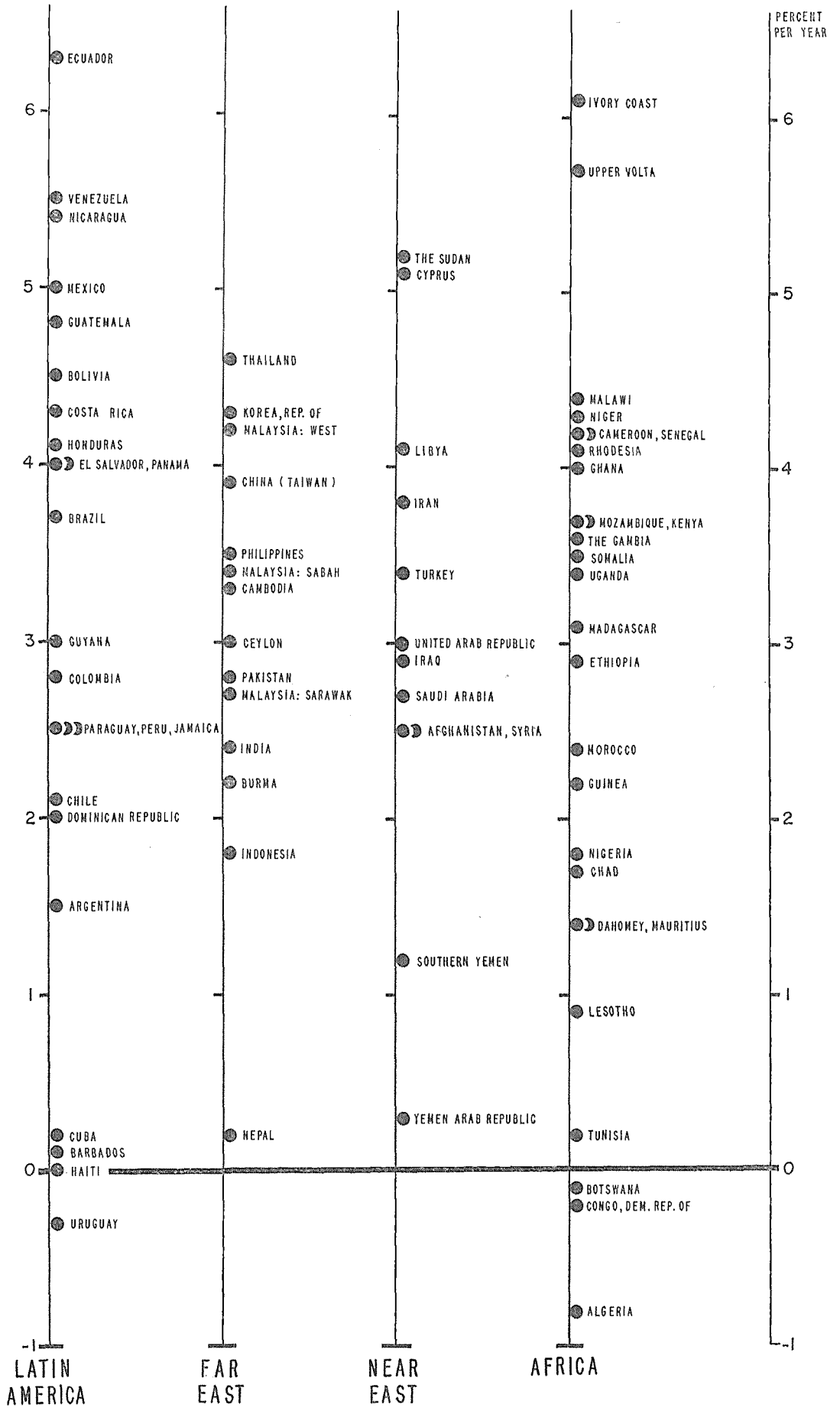
The basic long-term trends are evident from Figure III-1, which shows the postwar (1952-54 to

TABLE III-1. – AVERAGE ANNUAL GROWTH OF AGRICULTURAL PRODUCTION IN 75 DEVELOPING COUNTRIES COMPARED WITH THE LEVEL OF GDP PER CAPUT AND WITH THE RATE OF GROWTH OF GDP

	Average annual growth of agricultural production, 1952-54 to 1967-69	Per caput GDP at factor cost in 1967	Average annual growth of GDP, 1955-67
	Percent per year	*U.S. dollars*	*Percent per year*
Ecuador	6.3	218	4.5
Ivory Coast	6.1	[1]223	...
Upper Volta	5.7	[1]44	...
Venezuela	5.5	935	...
Nicaragua	5.4	339	5.4
Sudan, The	5.2	[2]91	[3]4.3
Cyprus	5.1	670	[4]5.5
Mexico	5.0	520	6.3
Guatemala	4.8	285	5.1
Thailand	4.6	140	6.2
Bolivia	4.5	176	[5]4.2
Malawi	4.4	50	[6]3.2
Costa Rica	4.3	394	...
Korea, Rep. of	4.3	146	6.3
Niger	4.3	[2]82	...
Malaysia: West	4.2	[1]283	[3]5.2
Cameroon	4.2	[3]126	...
Senegal	4.2	[1]195	...
Honduras	4.1	226	5.1
Libya	4.1	1 062	...
Rhodesia	4.1	222	4.6
El Salvador	4.0	261	...
Panama	4.0	553	7.0
Ghana	4.0	231	...
China (Taiwan)	3.9	238	8.5
Iran	3.8	287	...
Brazil	3.7	[1]273	[3]5.0
Kenya	3.7	111	...
Mozambique	3.7	[7]68	...
Gambia, The	3.6	[8]85	...
Philippines	3.5	259	[4]4.4
Somalia	3.5	[7]65	...
Turkey	3.4	315	5.8
Malaysia: Sabah	3.4	[1]287	...
Uganda	3.4	87	3.7
Cambodia	3.3	[1]127	...
Madagascar	3.1	103	...
Guyana	3.0	[1]309	...
United Arab Republic	3.0	[1]167	[5]5.7
Ceylon	3.0	140	3.6
Iraq	2.9	[1]390	[6]6.8
Ethiopia	2.9	[1]61	...
COUNTRIES ABOVE AVERAGE RATE OF GROWTH OF AGRICULTURAL PRODUCTION	4.1	[9]221	5.3
Average	**2.9**	**[9]212**	**4.6**
COUNTRIES BELOW AVERAGE RATE OF GROWTH OF AGRICULTURAL PRODUCTION	1.5	200	3.5
Colombia	2.8	[1]313	4.4
Pakistan	2.8	123	4.8
Saudi Arabia	2.7	[7]227	...
Malaysia: Sarawak	2.7	[1]251	...
Paraguay	2.5	211	3.7
Peru	2.5	263	[10]6.0
Jamaica	2.5	493	...
Afghanistan	2.5	[7]55	...
Syria	2.5	212	...
Morocco	2.4	172	2.0
India	2.4	[1]81	[3]3.4
Burma	2.2	63	3.9
Guinea	2.2	[7]96	...
Chile	2.1	539	4.5
Dominican Republic	2.0	251	3.9
Indonesia	1.8	[1]94	[4]1.8
Nigeria	1.8	[1]75	[11]5.6
Chad	1.7	[3]69	...
Argentina	1.5	[1]758	3.0
Dahomey	1.4	[7]69	...
Mauritius	1.4	225	...
Southern Yemen	1.2	[7]194	...
Lesotho	0.9	[1]78	...
Yemen	0.3	...	...
Cuba	0.2	...	...
Nepal	0.2	94	...
Tunisia	0.2	186	...
Barbados	0.1	[1]383	...
Haiti	—	79	[12]1.6
Botswana	— 0.1	[1]94	...
Congo, Dem. Rep. of the	— 0.2	[1]96	...
Uruguay	— 0.3	[1]551	[3]0.6
Algeria	— 0.8	[3]203	...

[1] 1966. – [2] 1965. – [3] 1955-66. – [4] 1958-67. – [5] 1958-65. – [6] 1955-63. – [7] 1963. – [8] 1957-66. – [9] Excluding Libya and Venezuela. – [10] 1958-1963. – [11] 1958-66. – [12] 1955-64.

FIGURE III-1. – AVERAGE ANNUAL GROWTH OF AGRICULTURAL PRODUCTION IN 75 DEVELOPING COUNTRIES, 1952-54 TO 1967-69



1967-69) annual rate of growth of total agricultural production in the 75 developing countries for which FAO now calculates production indices.[2] While 19 countries, containing 50 percent of the population of the developing countries, showed rates of increase between 2.1 and 3.0 percent a year, in 37 countries the rate of growth exceeded 3 percent, including 7 countries with 5 to 6 percent a year. At the other extreme, 11 countries showed an increase of less than 1 percent, or even a negative rate.

A factor favouring a high rate of growth of agricultural production might be expected to be the level of economic development already achieved, because of the greater flexibility of resources use, and better education, supporting services and infrastructure. The data in Table III-1, which shows the same growth rates as in Figure III-1 in descending order together with the level of per caput national income, suggest, however, that this is far from being a decisive factor. If Libya and Venezuela, whose per caput income largely reflects oil exports, are excluded, there is little difference in the unweighted average level of per caput national income between the group of countries with a rate of growth of agricultural production above the average and those with a below-average rate of growth. A comparison between columns 1 and 3 of Table III-1 suggests that the growth of agricultural output is rather more closely associated with another general economic factor, namely the growth of demand as roughly indicated by the rate of growth of real gross domestic product (GDP). The countries showing above-average rates of growth of agricultural production also tend to show higher rates of growth of GDP, and vice versa.

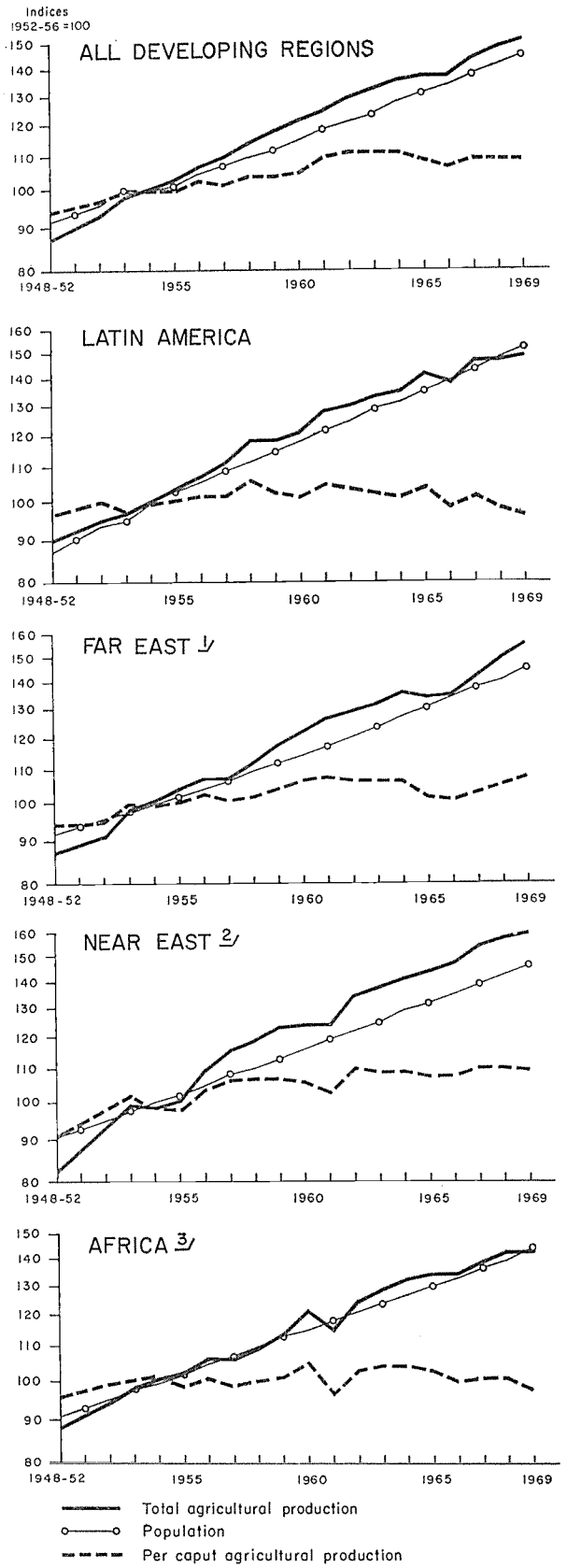
The question that in fact requires particular explanation is: what are the factors which favour or retard the growth of agricultural output relative to the growth of demand? A number of studies have been made in recent years with a view to providing answers to this question.[3] They suffer from the difficulty of quantifying some of the factors involved (for example those having to do with features of arable land potential, the nature of the various institutions, the educational levels and social values of the population), of isolating in an unequivocal way the influence of the various factors considered, and of establishing the direction of causal links between them and the rate of agricultural growth.

The principal finding of all these studies would seem to be that there is no single, or even no small

[2] The country indices exclude fishery and forestry production. The trends for food production were similar to those for agricultural production, although in about half of the countries food production increased slightly more rapidly.

[3] See, for example, FAO. *The state of food and agriculture 1963*. Rome. 1963. p. 93-134; United States Department of Agriculture. *Changes in agriculture in 26 developing nations*. Foreign Agricultural Economic Report No. 27. Washington D.C.. 1965; United States Department of Agriculture. *Economic progress of agriculture in developing nations. 1950-68*. Foreign Agricultural Economic Report No. 59. Washington D.C.. 1970.

FIGURE III-2. – GROWTH OF AGRICULTURAL PRODUCTION AND POPULATION IN THE DEVELOPING REGIONS



[1] Excluding Japan. – [2] Excluding Israel. – [3] Excluding South Africa.

group of critical features or policies which determine the rate of growth of agricultural output. In some countries, high rates of growth of production have been achieved through improvements in a large number of factors, for example the area under crops, the fixed and working capital invested per hectare, the level of technology, and the size of the agricultural labour force. In others, progress may have been achieved primarily through one factor, particularly the expansion of land under cultivation. In fact all the evidence suggests that, far more than the objective conditions themselves, it is the response and adaptation to them that determine a country's success in increasing agricultural output and productivity. This, in turn, while ultimately depending on the actions of individual farmers, is most successfully achieved in countries where government or, less commonly, other group action is taken to increase agricultural production.

The importance of government commitment to agricultural development is also evident in the changes that have taken place in the longer term rates of growth of production. As can be seen from Figure III-2, in each of the developing regions a rapid recovery of agricultural production in the immediate postwar years, when efforts were made to repair wartime damage and neglect, was followed by a slower rate of growth. The long period of slow growth culminated in the widespread poor harvests of 1965 and 1966. These have been followed by a renewed period of more rapid growth, reflecting not only better weather but also the introduction of the high-yielding varieties of cereals in a number of countries, especially in Asia, and a more resolute commitment by certain governments to assist the agricultural sector.

Figure III-2 also indicates that the earlier slackening in the rate of growth was even more marked for per caput production than for total production. For the rate of population growth in the developing countries has accelerated from 2.2 percent per year in 1950-55 to 2.6 percent per year in 1965-69 (in the 1930s it was only 1.2 percent). Table III-2 brings out even more clearly the key significance of population growth, in particular by contrasting the course of per caput production in the developed countries, where population growth has been so much slower. In each of the developing regions, except the Near East, a slow annual increase in per caput production in 1952-54 to 1959-61 turned into a stagnant or falling trend in 1959-61 to 1967-69.

The data for the main regions of the world in Table III-2 are shown in Annex table 10A for each of the 75 developing countries covered by FAO's agricultural production indices. Comparing the two periods, 1952-54 to 1959-61 and 1959-61 to 1967-69, the rate of growth of agricultural production accelerated in 27 countries and slowed down in 38 countries (by a substantial margin in such major producing countries as Brazil, India, Mexico and Nigeria). The rate of population growth remained stable or declined in 35 countries and accelerated further in 40. In 9 out of the 75 countries, the falling trend in per caput

TABLE III-2. – AVERAGE ANNUAL GROWTH OF AGRICULTURAL PRODUCTION AND POPULATION BY REGION

	Agricultural production			Food production			Population			Per caput agricultural production			Per caput food production		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
	Percent per year														
Western Europe	2.4	2.7	2.6	2.4	2.8	2.6	0.8	0.9	0.9	1.6	1.8	1.7	1.6	1.9	1.8
Eastern Europe and U.S.S.R.	5.1	3.2	4.1	5.2	3.2	4.1	1.5	1.1	1.3	3.5	2.0	2.7	3.7	2.1	2.8
North America	1.4	1.8	1.6	1.7	2.3	2.0	1.8	1.4	1.6	— 0.4	0.4	—	— 0.1	0.9	0.4
Oceania	3.3	3.2	3.3	2.8	3.8	3.4	2.3	2.1	2.2	1.0	1.1	1.1	0.5	1.7	1.1
DEVELOPED COUNTRIES [1]	2.9	2.6	2.7	3.0	2.8	2.9	1.3	1.1	1.2	1.5	1.5	1.5	1.7	1.7	1.7
Latin America	3.4	2.4	2.9	3.1	3.0	3.1	2.8	2.9	2.9	0.6	— 0.5	—	0.3	0.1	0.2
Far East [2,3]	3.3	2.5	2.9	3.4	2.4	2.9	3.0	1.9	2.4	1.0	— 0.1	0.4	1.1	— 0.1	0.5
Near East [4]	3.4	3.1	3.2	3.3	2.9	3.1	2.5	2.6	2.5	0.9	0.5	0.7	0.8	0.3	0.5
Africa [5]	2.6	2.4	2.5	2.1	2.1	2.1	3.1	1.9	2.4	0.2	— 0.1	0.1	— 0.2	— 0.4	— 0.3
DEVELOPING COUNTRIES	3.2	2.5	2.9	3.1	2.6	2.8	2.4	2.6	2.5	0.8	— 0.1	0.3	0.7	—	0.3
World [3]	3.0	2.6	2.8	3.1	2.8	2.9	1.9	2.0	2.0	1.0	0.6	0.8	1.1	0.7	0.9

NOTE: I. 1952-54 to 1959-61; II. 1959-61 to 1967-69; III. 1952-54 to 1967-69.

[1] Including Israel, Japan, South Africa. – [2] Excluding Mainland China. – [3] Excluding Japan. – [4] Excluding Israel. – [5] Excluding South Africa.

production accelerated, and in another 16 a rising trend was turned into a falling one. In a further 19 countries the increase in per caput production slowed down. In only 29 countries was the course of per caput production more favourable in the second period than in the first.

Food production failed to keep up with population growth in 30 of the 75 countries during the first period and in 27 countries during the second. In many more countries it will have lagged behind total demand at constant prices, reflecting rising per caput incomes as well as population growth.

International trade in agricultural products

The longer term lag of food production behind the growth of demand in a number of developing countries has brought some major changes in the pattern of their international trade in food. Between 1955 and 1966 their total food imports approximately doubled in volume. Even more striking has been the rapid growth in imports of cereals, the basic food in most countries. Compared with the prewar period, the developing countries as a whole have shifted from a net export position for cereals to one of large net imports. Between 1949-51 and 1966-68 their gross imports of cereals rose from 12.4 million tons to 34.4 million tons.

Domestic production has also expanded, and in the majority of developing countries imports are only a relatively small portion of the total cereal supply, but the ratio of domestic production to total supply of cereals nevertheless tended to decrease in the majority of cereal-importing developing countries, particularly during the 1950s (Table III-3). It is only in the last few years that there has been any noticeable reduction in imports, or increase in the ratio of domestic production to total supply.

In value terms, the gross imports of cereals of the developing countries are estimated to have risen from U.S.$996 million in 1955 [4] to some $3 000 million in 1967. The effect of this increase on the development possibilities of the food-deficit countries has been greatly mitigated by the availability since the mid-1950s of large amounts of food aid, mainly in the form of imports on concessional terms from the United States and, to a smaller extent, from other bilateral sources. Multilateral food aid has been available since 1963 through the United Nations/FAO World Food Programme (WFP), and since 1968 under the Food Aid Convention of the International Grains Arrangement of 1967.

[4] Consistent value figures are not available for earlier periods.

TABLE III-3. – SHARE OF DOMESTIC PRODUCTION IN TOTAL CEREAL SUPPLY IN SELECTED DEVELOPING COUNTRIES

	1949-51	1959-61	1966-68
	..... *Percent*		
LATIN AMERICA			
Brazil	89	87	91
Chile	99	93	76
Costa Rica	77	70	65
Ecuador	97	93	91
El Salvador	93	81	84
Guatemala	94	91	91
Mexico	92	101	111
Nicaragua	103	81	84
Paraguay	80	71	74
Peru	75	71	68
Venezuela	63	55	54
FAR EAST			
Ceylon	33	42	43
India	92	94	92
Indonesia	95	91	99
Korea, Rep. of	97	92	86
Malaysia: West	24	47	52
Pakistan	101	93	93
Philippines	87	91	86
NEAR EAST			
Afghanistan	100	98	97
Iran	97	100	99
Iraq	148	85	97
Syria	119	77	83
Turkey	99	100	100
United Arab Republic	88	80	82
AFRICA			
Algeria	111	80	69
Ivory Coast	...	88	83
Kenya	104	98	106
Morocco	118	98	84
Tunisia	157	89	61

Data on this trade are insufficient to permit a detailed presentation, but the broad magnitude of the food aid flows can be gauged from the partial data shown in Table III-4.[5] Since 1954, food aid shipments have ranged between 30 and 45 percent of the total imports of food and feedstuffs of the developing countries. In some individual countries, particularly at times of poor harvests, the proportion has been very much higher.

Large food aid transfers have provided the recipient countries with significant additional elbow room for development, by enabling them to save foreign exchange for other imports, by assisting governments to maintain price stability in the face of insufficient domestic production, and by helping to finance individual development projects. Although only a small part of the total food aid has been made available under longer term commitments, the supply situation in the aid-giving countries has tended to give the recipients some confidence in its continuance. Reliance on food aid for a portion of imports may therefore have been an element in the medium-term

[5] A small part of the total has gone to what are normally considered developed countries, particularly in the earlier years of the United States programmes.

TABLE III-4. – FOOD AID SHIPMENTS

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
	Million U.S. dollars									
COUNTRY PROGRAMMES [1]										
United States	1 461	1 483	1 480	1 522	1 635	1 335	1 353	1 270	1 182	1 018
Canada [2,3]	—	12	4	4	19	30	65	69	59	74
Japan [2,4]	—	—	—	—	—	—	—	—	13	13
Other countries [2,5]	—	—	1	—	11	12	11	14	21	...
MULTILATERAL PROGRAMMES										
World Food Programme (WFP)	—	—	—	7	14	18	36	38	55	81
Food Aid Convention (FAC) [2,6]	—	—	—	—	—	—	—	—	241	241

[1] Including shipments through WFP and FAC. – [2] Data refer to split years beginning in year shown. – [3] Data for 1964, 1965 and 1966 refer to commitments. – [4] Shipments of rice under FAC. – [5] Gifts of wheat and wheat flour only, valued at average world export unit value. – [6] Shipments under the Food Aid Convention of the International Grains Arrangement reported in "grain equivalent," valued here at $1.73 per bushel; in 1968/69 6 percent of these shipments were channelled through WFP.

development strategy of some countries, in the form of a deliberate postponement of attention to agriculture in favour of some other investment objectives.

Such reliance, however, has obvious dangers for the longer term development of a country's agriculture and general economy. This danger was realized from the start, but the voices stressing it have gradually become stronger. In part, the increased concern has probably resulted from a search for explanations of the frequently slow growth of agricultural production in the developing countries, and in part it reflects a generally improved understanding of the role of agriculture in economic development. Recent successes in cereal production have made it possible for a number of countries to reduce their food aid imports, and the Government of India has recently confirmed its decision to terminate concessional imports after 1971. Nor has this concern been limited to the recipient countries. It was also a basic element in the legislation of 1966 on which the present United States food aid operations are based. This change of attitude has meant at least a partial shift from the earlier, somewhat indiscriminate "bulk disposal" of food aid toward a closer examination of the requests in the context of the recipient country's development plans, prospects and needs (the "programme approach") or relating them to the implementation of specific projects ("project approach"). WFP has been instrumental in developing the project approach.

EXPORT EARNINGS

The emergence of the "food gap" has been even more of a burden for the developing countries because it has coincided with adverse trends in their agricultural exports, in most cases the mainstay of their foreign exchange earnings. During the period 1955-1959, the combined agricultural export earnings of the developing countries (including fishery and forest products) have risen at an annual average rate of only about 2 percent, compared with nearly 5 percent for the developed countries, causing their share in the world total to fall from 47 to 38 percent (Table III-5). Within the agricultural sector, exports of forest products have been something of an exception, the earnings of the developing countries from exports of processed and unprocessed forest products rising by 8.5 percent per year between 1955 and 1969.

Although the nonagricultural exports of the developing countries have risen faster than their agricultural exports — at a rate of 7.4 percent a year — their total export earnings have lagged behind their foreign exchange requirements.

The factors behind these developments are well known and need to be only briefly recapitulated here. An important one is the saturation or near-saturation level of consumption for the majority of agricultural products imported by the developed countries, the main importers. The impact of this has been accentuated by the increasing product differentiation in the import demand of the latter, to which most developing countries are not as yet able to cater; by the agricultural protectionism practised by most developed countries; by the application of purely fiscal tariffs and internal taxes on other noncompetitive products, such as tropical beverages and fruit; and by low foreign exchange allocations for agricultural imports, relative to the income levels and potential domestic demand, in centrally planned countries. Exports of

TABLE III-5. – AGRICULTURAL EXPORT EARNINGS[1]

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
	1957-59 average = 100														
Developed countries	89	98	105	95	101	111	117	118	132	148	149	157	157	160	170
Developing countries	100	101	102	98	101	104	103	105	115	122	123	124	119	125	129
WORLD[2]	94	99	103	96	101	108	110	112	124	136	137	142	140	144	151
	Percent														
Share of developing countries in total	47	45	44	45	44	43	41	41	41	40	40	38	38	38	38

[1] Including fishery and forest products. – [2] Excluding Mainland China.

raw materials of agricultural origin have in addition suffered from the steadily increasing competition from synthetic materials which substitute natural raw materials in an increasingly wide range of end uses. In the case of some commodities and countries the growth of domestic production has been insufficient to provide both for the rising domestic demand and for export markets. The same factors which have led to the protection of agriculture in developed countries have also tended to result in the subsidization of their exports on world markets, in some cases in direct competition with developing countries which cannot afford subsidies. Finally, the growth of trade between developing countries has been hampered by the insufficient development of the trading mechanisms between them — payments arrangements, commercial contacts and intelligence, shipping services, etc. — and the continued strength of the traditional trading links between former colonial and metropolitan countries.

In part, these impediments have been reflected in a slow growth in the volume of agricultural exports. Even more, however, they have been expressed in falling prices, as individual countries have competed in world markets in an effort to maximize their exports, and in the face of difficulties in the way of the organization of international markets. Leaving out the Korean war boom and the subsequent return to a lower level of prices, the tendency of agricultural prices to fall was particularly notable between the mid-1950s and 1962, when the world index of average agricultural export unit values fell at a rate of 2 percent a year. The subsequent overall recovery was modest and brief, and since 1964 the average level has again tended to fall. Moreover, the import purchasing power of the export earnings of the developing countries has been further eroded by a slow but steady increase in the average prices of their imports. Taking all developing countries together, the one-third increase in the volume of their agricultural exports between 1955 and 1968 was sufficient to pay for an increase of only about one tenth in the volume of their imports (Table III-6).

All these vicissitudes have, of course, affected individual countries to a different extent, depending on the commodity composition of their agricultural exports, and particularly on their relative success or failure in competing with other exporters of the same commodities. According to a recent calculation covering 70 developing countries, the rate of growth of agricultural export earnings between 1955 and 1967 ranged all the way from increases of over 8 percent per year in 11 countries to decreases at varying rates in 13 countries.[6] This widely varying experience is summarized in Table III-7, which shows the distribution of the growth rates, classified as "fast," "medium" and "slow," by region and for all the 70 countries combined.

Data presented in the same study suggest that the growth of a country's agricultural exports is only to a limited extent determined by the composition of its agricultural exports, as between products for which world trade is rising rapidly and those for which the total trade is rising slowly. In the words of the study, "the rate of growth of agricultural exports (as a whole) of individual countries was more influenced by the totality of factors other than the mix of commodities which they happened to sell." [7] These factors include the growth of production of the commodities in question, the size of the country's agricultural export earnings (countries with smaller exports generally showing relatively

[6] *FAO commodity review and outlook 1969-1970*. FAO, Rome, 1970, p. 150-151. The growth rates were calculated by means of the least square estimate of the exponential trend.
[7] *Ibid*, p. 153.

TABLE III-6. – VOLUME AND IMPORT PURCHASING POWER OF AGRICULTURAL EXPORTS OF DEVELOPING REGIONS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
	1957-59 average = 100														
VOLUME															
Latin America	92	98	95	99	106	110	112	118	119	113	125	129	127	130	132
Far East	99	101	100	98	102	101	108	110	118	118	118	115	116	118	124
Near East	92	91	99	89	111	109	106	119	125	123	132	143	136	135	133
Africa	92	96	98	97	105	108	114	119	118	126	130	128	118	125	118
DEVELOPING REGIONS	94	98	97	98	105	107	111	116	119	118	125	126	123	126	127
IMPORT PURCHASING POWER [1]															
Latin America	103	103	100	97	97	99	100	100	112	118	118	118	112	...	...
Far East	109	102	96	93	110	109	103	104	112	110	107	105	101	...	...
Near East	95	96	108	94	104	104	97	102	113	110	119	122	118	...	...
Africa	94	93	94	105	106	104	104	101	107	117	110	109	101	...	...
DEVELOPING REGIONS	101	100	97	97	102	104	102	102	111	116	115	114	107	112	...

[1] Indices of the value of agricultural exports deflated by indices of the average unit value of imports.

greater increases), the diversity of its production and export pattern, the nature of its trade links with importing countries and, perhaps most important of all, its ability to compete both in terms of price and quality and in terms of imaginative and aggressive export marketing. As a result of these factors, "the countries with fast rates of growth of agricultural exports tended to expand quickly in almost *all the markets* in which they competed" and conversely "if by chance a country happens to export mainly products which are in sound demand on world markets, this is no guarantee that it will have a good export performance." [8]

TABLE III-7. – RATES OF GROWTH OF AGRICULTURAL EXPORT EARNINGS OF DEVELOPING COUNTRIES, 1955-67

	Fast [1]	Medium [2]	Slow [3]	Total
	Number of countries			
Latin America	7	10	5	22
Far East	4	1	11	16
Africa	7	8	6	21
Near East	5	4	2	11
TOTAL	23	23	24	70

SOURCE: *FAO commodity review and outlook 1969-1970.* FAO. Rome. 1970. p. 149.

[1] Over 5 percent per year. – [2] 1.5 to 5 percent per year. – [3] Less than 1.5 percent per year.

[8] *Ibid.* p. 154.

Agricultural incomes and levels of living

The effect of the above developments on agricultural incomes and levels of living, the improvement of which is an even more fundamental objective of agricultural development than the growth of production and trade, is difficult to estimate specifically. Few developing countries have any farm income statistics, to say nothing of data on the distribution of income within the agricultural sector. Some idea of trends in the total income in agriculture can, however, be gained from Table III-8, which shows the rates of growth of total and agricultural GDP in 36 countries in two periods roughly corresponding to the 1950s and 1960s.

For all the countries combined, the unweighted average rate of increase in real agricultural GDP in the 1960s was about 3.0 percent per year — not very different from the rate of growth of production as measured by the FAO index number of agricultural production and shown in Table III-1. The rate of growth of total GDP in the same countries averaged 4.7 percent per year.

The total population of the developing countries increased during the 1960s at a rate of 2.6 percent per year, and the agricultural population probably only slightly more slowly. Although it cannot be stated with certainty that the experience of the 36 countries was fully representative of developing countries as a whole, in very broad terms the data do suggest that there could have been only very limited progress in per caput incomes in the agricul-

TABLE III-8. – ANNUAL RATE OF GROWTH OF GROSS DOMESTIC PRODUCT IN 36 COUNTRIES

	Total GDP		GDP in agriculture	
	1960-67	1950-60	1960-67	1950-60
	..... Percent per year			
Panama	8.2	...	6.4	...
Korea, Rep. of	7.8	5.0	5.0	2.7
Thailand	7.6	...	4.0	...
Iran	7.6	...	3.2	...
Mexico	6.7	6.3	4.0	4.8
Iraq	6.7	5.6	6.1	2.7
Peru	6.1	4.7	2.3	3.8
Malaysia, West	5.8	3.6	4.2	2.9
Pakistan	5.6	2.5	3.3	1.4
Honduras	5.5	3.4	1.7	2.2
Chile	5.5	2.9	2.0	1.6
Bolivia	5.4	...	2.7	...
Guatemala	5.4	4.2	3.9	3.0
Syria	5.2	...	2.4	...
Philippines	5.1	6.8	4.6	5.1
Venezuela	5.0	8.5	6.6	5.0
Jamaica	4.9	9.6	3.3	4.0
United Arab Republic	4.9	...	2.5	...
Ethiopia	4.8	...	2.3	...
Ecuador	4.7	4.8	2.9	3.4
Colombia	4.7	4.6	2.9	3.4
Uganda	4.5	4.0	3.8	4.1
Nigeria	4.5	10.5	2.0	9.1
Paraguay	4.4	3.2	3.0	2.2
Tanzania	4.3	...	3.9	...
Brazil	3.9	5.7	4.5	4.6
Tunisia	3.7	...	— 3.0	...
Ceylon	3.7	3.2	2.6	2.8
Burma	3.4	5.8	4.3	2.3
Morocco	3.2	0.5	2.9	0.7
Argentina	2.9	3.4	2.8	2.3
Indonesia	2.2	...	1.7	...
Dominican Republic	1.5	...	0.8	...
Guyana	1.5	...	— 0.6	...
Uruguay	1.0	1.2	2.1	— 0.2
India	1.0	3.5	— 0.4	2.8
AVERAGE OF ABOVE COUNTRIES	4.7	4.7	3.0	3.2

tural sector. However, the experience varied widely as between countries, with the growth of agricultural GDP ranging from over 6 percent per year in Iraq, Panama and Venezuela to a negative rate in Guyana, India and Tunisia.

The data also suggest that the growth of agricultural incomes in the developing countries may have slowed down in the 1960s compared with the preceding decade, for which the average rate of growth (for 24 countries) was 3.2 percent.

For 33 countries, data are available for certain years in the past two decades on the share of agriculture both in GDP and in the total labour force (Table III-9) which permit an examination of the changes in the relative levels of per caput income in the agricultural and nonagricultural sectors. Because of the differences in definitions between countries, particularly as regards labour force statistics, too much importance must not be attached to small differences between the share of agriculture in GDP and in the labour force. Nevertheless, the data clearly demonstrate the well-known tendency for incomes to be lower in agriculture than in other sectors. For only two of the countries shown (Barbados, and Ceylon in 1955) do the data suggest that per caput incomes in agriculture may have been higher than in the other sectors combined. In three others (Argentina, Ghana and Guyana) they may have reached a level only moderately less (20 percent) than in other sectors. At the other extreme there are nine countries where agricultural income in the most recent year for which data are available (generally 1965) appears to be less than half the average level in other sectors.

The data on the changes in relative income levels in agriculture may be considered more reliable than the estimates of the levels themselves. Here it appears that per caput incomes in agriculture have on the whole tended to deteriorate as a share of total GDP. This was the case in 21 of the 33 countries in Table III-9, and in at least 10 of them the fall was substantial. In only three countries, each with a small agricultural sector (Argentina, Jordan and Venezuela), does the relative income level in agriculture appear to have shown any marked increase. This general tendency for agricultural incomes to fall behind those in other sectors has usually taken place despite a reduction in the share of the labour force in the agricultural sector.

To a great extent such income disparities are part and parcel of the process of economic growth, and serve the function of attracting labour from lower to higher productivity sectors. However, they nevertheless constitute a social and political problem which governments in developing countries can ill afford to ignore. Together with the increasing difficulties caused by rural unemployment and underemployment, and the growing pressure for greater emphasis in development efforts on social considerations, they call for greater attention to measures to bring about a more even distribution of incomes both between and within the various economic sectors.

TABLE III-9. – SHARE OF AGRICULTURE IN GDP AND LABOUR FORCE IN DEVELOPING COUNTRIES

	Period	Share of agriculture in		Per caput income level in agriculture relative to non-agricultural sectors [1]
		GDP	Labour force	
		..... *Percent*		
Algeria	1953	30	[2]75	40
	1964	17	60	28
Argentina	1950	14	[3]25	56
	1960	17	19	89
	1965	17	18	94
Barbados	1960	28	24	117
	1965	26	24	108
Brazil	1950	29	59	49
	1960	28	55	51
	1965	30	52	58
Ceylon	1955	54	[4]53	102
	1965	42	[5]49	86
Chile	1950	14	[6]30	47
	1960	12	28	43
	1965	10	26	38
China (Taiwan)	1955	32	[7]50	64
	1965	27	47	57
Colombia	1950	39	[8]54	72
	1965	32	47	68
Dominican Republic	1960	27	61	44
	1965	26	57	46
Ecuador	1950	39	53	74
	1960	37	[9]56	66
	1965	34	52	65
Ghana	1960	51	58	88
	1965	51	56	91
Guatemala	1950	33	68	49
	1965	29	[10]65	45
Guyana	1960	27	34	79
	1965	25	30	83
Honduras	1950	56	83	67
	1960	44	[11]67	66
	1965	42	65	65
India	1960	50	[11]73	68
	1965	47	70	67
Indonesia	1960	49	[11]68	72
	1965	48	66	73
Iraq	1955	17	[12]48	35
	1965	19	50	38
Jamaica	1955	19	[4]49	39
	1960	12	36	33
	1965	12	34	35
Jordan	1960	16	[11]35	46
	1965	23	33	70
Korea, Rep. of	1960	40	62	65
	1965	41	54	76
Malawi	1960	56	[11]79	71
	1965	52	81	64
Mexico	1950	23	58	40
	1960	19	54	35
	1965	17	52	33
Pakistan	1960	53	[11]75	71
	1965	48	74	65
Panama	1950	28	50	56
	1960	25	46	54
	1965	24	43	56
Paraguay	1950	42	54	78
	1955	42	[7]54	78
	1960	36	[9]55	65
	1965	36	51	71
Philippines	1950	41	[13]66	62
	1960	32	60	53
	1965	32	57	56
Sudan, The	1955	61	[7]86	71
	1965	54	78	69
Syria	1960	29	47	62
	1965	37	56	66
Thailand	1960	39	82	48
	1965	33	78	42
Trinidad and Tobago	1955	17	[7]25	68
	1960	12	20	60
	1965	11	19	58
Uganda	1960	61	[14]87	70
	1965	60	89	67
United Arab Republic	1950	41	[3]64	64
	1960	31	57	54
	1965	30	55	55
Venezuela	1960	7	32	22
	1965	8	29	28

[1] Ratio of share of agriculture in GDP to its share in the labour force. – [2] 1954. – [3] 1947. – [4] 1953. – [5] 1963. – [6] 1952. – [7] 1956. – [8] 1951. – [9] 1962. – [10] 1964. – [11] 1961. – [12] 1957. – [13] 1948. – [14] 1959.

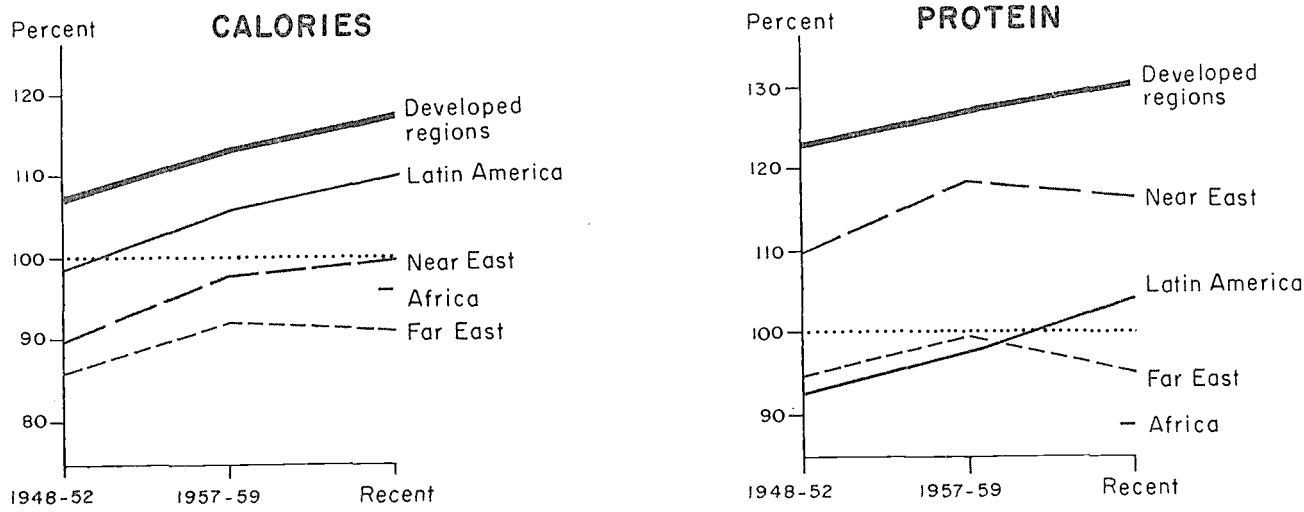
Food consumption and nutrition

Postwar trends in calorie and protein supplies in relation to estimated requirements in the various regions are shown in Figure III-3. For both calories and proteins the gap between the developed and developing countries has not only continued but has even widened in recent years. In the developed regions calorie supplies have exceeded requirements during the entire 25-year period and the excess has tended to increase. In the developing regions, however, there has been an increase of only about 5 percent from the low levels (90 percent of requirements) in the immediate postwar years, most of the improvement coming during the mid-1950s.

Among the developing regions supplies have exceeded calorie requirements only in Latin America (by almost 10 percent in recent years). However, in this region there are substantial inequalities in food supplies between and within countries. The average calorie intake ranges from approximately 1 900 calories per caput per day in countries like Bolivia and El Salvador to about 3 000 calories in Argentina and Uruguay. The average calorie intake for Brazil is 2 690 per caput per day, but the discrepancies in intake levels between the northeast and other regions of this vast country are well known.

Average calorie supplies in recent years in the Near East, Africa and the Far East are still below

FIGURE III-3. – CALORIE AND PROTEIN SUPPLIES AS PERCENTAGES OF REQUIREMENTS



estimated requirements, indicating food shortages and considerable undernourishment among certain population groups, particularly the lower socio-economic classes.

Postwar protein supplies in the developed countries have exceeded requirements by as much as 25 percent, and the trend shows a continuing increase. Total protein supplies in the Near East have been better than in the other developing regions, owing to the high consumption of cereals, although in this region too there has been a fall in recent years. In Latin America total protein supplies have been increasing and have exceeded requirements by about 5 percent in recent years. In the Far East there was a slight increase during the 1950s but there has been a declining trend during the last ten years. In Africa total protein supplies in recent years are estimated to have been short of requirements by as much as 10 percent. Even where average requirements for protein appear to have been met on a regional or national basis, however, there is considerable maldistribution among the individual members of the population. Moreover, where calories are deficient, part of the protein intake has to be used to supply energy and thus is not available as protein.

Aggravating the problem of low protein supplies in the developing countries is their usually inferior quality; the proportion of animal protein is generally low (Figure III-4). In the developed countries

FIGURE III-4. – ANIMAL PROTEIN AS A PERCENTAGE OF TOTAL PROTEIN

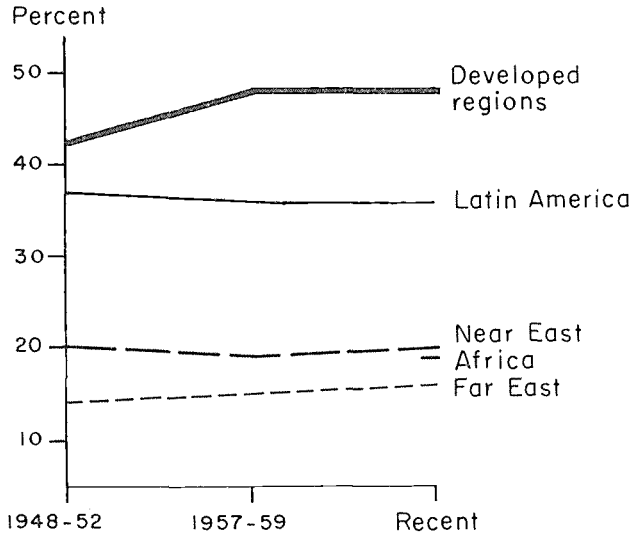
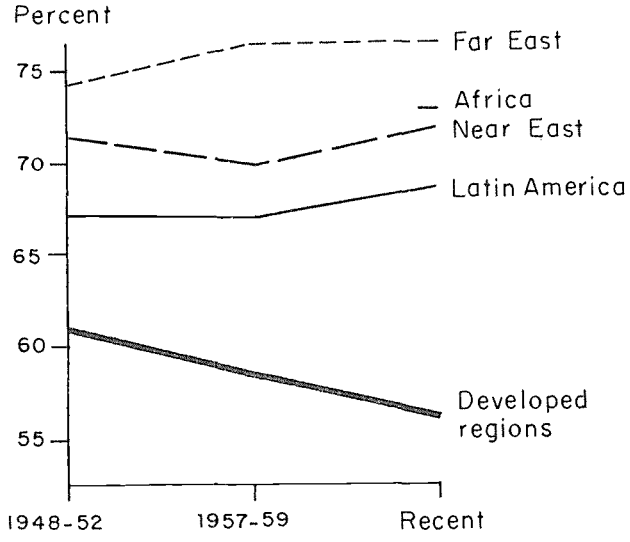


FIGURE III-5. – PERCENTAGE OF CALORIES FROM CARBOHYDRATES



it was over 40 percent during the immediate post-war years and has subsequently increased to almost 50 percent. Average diets in Latin America rank next in quality, with over a third of the protein derived from animal sources, but (as with calories) there are considerable differences between countries. Average animal protein supplies in the Near East, Far East and Africa remain only 15 to 20 percent of total protein supplies.

Another indicator of the quality of the diet is the proportion of calories derived from carbohydrates. Figure III-5 shows the declining trend in this ratio and the consequent improvement in the quality of the average diets in developed countries. In the developing countries, however, the high proportion in Latin America and the Near East (about 70 percent) has remained about the same, while in the Far East there has been a deteriorating trend.

Technological progress

Rapid technological progress has been one of the most striking features of the postwar period. Many of the developments have been highly spectacular, expecially in atomic science, space technology and computer technology, and in genetics and the understanding of the basic processes of life. Each of these more spectacular fields has brought important advances in food and agricultural technology, although many of them have so far contributed much more to potential than to actual achievement. In addition there have been innumerable more prosaic developments that have already contributed enormously to agricultural production and should do so to an even greater extent in future. Here it is possible only to give some idea of the broad scope of technological progress by briefly cataloguing some of the highlights of the past 25 years.

Plant breeding is the aspect of agricultural technology that has recently been most in the public eye. In the developing countries in the past, varieties of plants bred to give high yields have been chiefly export crops such as oil palm, cocoa and rubber. Work on the food plants of these countries was mainly aimed at obtaining some yield under adverse conditions, through resistance to drought and diseases, rather than high yields in favourable conditions.

Cereal production was held back as a result of the ceiling placed on yields, even under the most favourable conditions, by the constitutional inability of traditional varieties to respond profitably to irrigation and the application of modern technology, and especially to high doses of nitrogen fertilizer. As is now well known, determined national and international research work, most notably at the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico and the International Rice Research Institute (IRRI) in the Philippines, has finally resulted in the development of wheat, rice and maize varieties [9] which are not only more responsive to irrigation and fertilizers but also have a much higher yield ceiling when used in proper combination with these and other complementary inputs than those hitherto available. Because these high-yielding varieties mature relatively quickly and (in the case of rice) are not strongly season-bound, two and even three harvests can be obtained in a year where water supply is adequate and there is no serious frost hazard. Recently very short-stemmed wheats, known as "triple dwarf," have been developed which are even more responsive to fertilizer.

Generally speaking, plants (and animals) now seem genetically much more manipulable than was previously imagined to be possible. Two other recent advances in plant breeding further illustrate this genetic plasticity. Very good results have been achieved, especially with the high-lysine mutant maize genes opaque-2 and floury-2, in enhancing the protein content of cereals in both quantity and quality. The problem of partial sterility in interspecies crosses has been overcome, and the production of *Triticale* (wheat × rye) has become a commercial proposition. Very much less progress in plant breeding, however, has so far been made with food crops other than cereals.

Crop protection methods have changed considerably. In the mid-1940s they were mainly mechanical, physical, biological and cultural, with chemical methods (at that time generally costly and relatively inefficient) adopted only to supplement them. Soon afterwards, however, a wide range of synthetic organic chemicals of high potency came into general use and chemical methods tended to displace the others. Weed control came to rely increasingly on the use of synthetic hormones. More recently the persistence of some of these chemicals and their toxicity to animals have caused

[9] A few countries have developed promising new millet and sorghum varieties, but these are not yet widely used.

widespread fears, as part of the growing concern at the worsening pollution of the environment. The development of resistance in pests has also caused problems. Thus there has been an intensified search for new and safer methods of pest control, including a revival of interest in biological control and much attention to systems of integrated control, involving the balanced use of a combination of methods so as to maximize benefits and minimize harmful effects.

Fertilizer technology has made great strides. Manufacturing costs have been reduced, particularly through the use of natural gas in the synthesis of ammonia. Costs of application have been reduced through the development of liquid fertilizers, bulk-blended fertilizers, and materials for multiple-hopper truck spreading. The increased concentration of fertilizers has reduced the heavy transport costs of such bulky materials — the most highly concentrated fertilizer now available contains 60 percent phosphoric acid and 15 percent nitrogen. Slow-working fertilizers, which eliminate the need for more than one application, are increasingly being developed. Micronutrient fertilizers are being produced. Considerable progress has been made in determining the requirements for nutrients and micronutrients, and the optimum timing and placement for fertilizer applications.

The last 25 years have seen a substantial expansion and improvement in the use of aerial photography for soil survey and assessment. In water use and irrigation a number of spectacular developments in which high hopes were originally placed, including the artificial inducement of rainfall, the control of evaporation from reservoirs and the desalinization of seawater, have proved somewhat disappointing. While desalinization has become feasible for urban and industrial use, it is still far too costly for agriculture. Good progress has been made in other areas, however, such as watershed management, the inventory of water resources, and the development and operation of systems to optimize water utilization. Techniques for reclaiming saline and waterlogged land remain costly, but there has been good progress in the prevention of such conditions. There has been important progress in the exploration and economic exploitation of groundwater resources, while refinements in the techniques of sprinkler irrigation and such new inventions as trickling irrigation have brought substantial reductions in the water requirements for crop production.

Most of the advances in farm machinery have been of main interest to the developed countries, with their overriding need to economize in the use of costly labour. Power units have increased in size and versatility. Particularly spectacular advances have been made in horticultural and fruit harvesting equipment, and in the almost complete mechanization of the feeding and care of animals. Much less progress has been made with the improvement of the hand and animal-drawn implements chiefly of interest to small farmers in developing countries.

Animal breeding has relied increasingly on artificial insemination, combined with improved techniques for the long-term preservation of semen. Much progress has been made in the production of balanced livestock feeds, including the use of protein supplements such as urea and synthetic amino acids. Intensive management systems have been evolved, particularly for large-scale broiler poultry and egg production, and these are now spreading to the developing countries.

Veterinary science has made substantial progress. It is now technically possible to control most of the more important animal diseases, although logistical and other problems still generally make this very difficult in practice. An especially promising achievement in developing countries has been with the JP 15 Rinderpest Programme in Africa. New techniques, such as the use of tissue culture mediums, have made possible the rapid bulk production of better and cheaper vaccines. Combined or polyvalent vaccines are increasingly being produced.

As regards fisheries, improvements in design and construction have resulted in more versatile and efficient fishing craft. Large stern trawlers have been developed which freeze and process at sea and can thus fish in distant waters for long periods. In many developing countries engines have increasingly been installed in small craft. Progress in the design, construction and operation of fishing gear and auxiliary equipment, and the application of electronics to fish detection have made possible substantial increases in productivity. An important development has been the almost complete switch to synthetic fibres for net materials.

Some of the main advances in forest technology have concerned plantations of quick-growing species, including improvements in tree breeding, with special emphasis on very fast-growing poplar hybrids, making intensive forestry possible on an increasingly widespread basis. Important advances have been made in the utilization of tropical forest resources, for example for pulpwood. Improvements in equipment have included the rapid spread of petrol-powered saws. New logging techniques and equipment are resulting in more conversion at the raw material source. Aerial photography has increasingly been used in forest inventory work.

Methods and equipment for the processing of agricultural products have developed rapidly. While much of the new equipment has tended to be increasingly labour saving, a trend of particular importance to the developing countries has been the construction of smaller equipment. Advances in processing

have made it possible to utilize new or formerly neglected raw materials, for example fibres extracted from banana stems. In dairy technology, the toning of milk (reducing the fat content of cow or buffalo milk by the addition of imported dried skim milk and water) has proved useful in a number of developing countries.

In forest industry technology, major advances have been the development of a totally new product, particle board; the increased use of small-size timber, wood waste and nonwood products as pulping raw materials; and the development of semichemical pulping methods, which have increased the number of alternative processes available for pulp and paper manufacture.

Improved techniques of food preservation, especially by drying, canning and freezing, have transformed the retail food trade in developed countries and are beginning to have an impact in the urban areas of developing countries as well. Advances in plant protection have also extended to the specialized field of storage pest control. Storage construction engineering has developed rapidly, and much work has been done on small-scale structures for farm storage in developing countries.

Progress in nutritional science has permitted the more accurate estimation of human dietary requirements. The need to develop cheap sources of protein has stimulated much useful work on the production of protein concentrates from such materials as oilseed meals and presscakes, and fish flour. Unconventional sources of protein that have been developed include leaf protein, the culture of algae such as Chlorella, and the culture of various microorganisms on petroleum by-products. None of these yet seems likely to revolutionize human eating habits, and their most immediate application will probably be in livestock feeding.

The production of these unconventional foods is one of the areas that has been stimulated by space technology. But the most striking agricultural benefit from space technology may ultimately be through "remote sensing," which uses observations obtained from orbiting satellites and other high-altitude craft in the survey and appraisal of the earth's resources. Potential applications include estimating crop yields, studying cropping patterns, detecting previsual symptoms of pest and disease infestations, mapping and classifying soils, measuring soil moisture, and surveying forest, fishery and water resources.

Applications of atomic science include plant breeding, pest control and food preservation, as well as various types of agricultural research such as the use of radio-tracer techniques in investigating fertilizer uptake. In some areas atomic energy may provide the cheapest source of power for the desalinization of seawater. Equally, computerization has opened up new horizons in agricultural development, not only in the storage and rapid processing of data but also in such operational fields as the planning and management of complex irrigation systems.

Thus the last quarter century has seen enormous advances in technology. Many of the developments, when exploited on the vast scale demanded by the rapid growth of population, have widespread effects on the human environment. In the last few years, therefore, both the scientific community and the general public have become increasingly concerned at the steadily worsening pollution and degradation of the environment. In agriculture this mainly concerns the use of fertilizers and pesticides, land and water management practices, the exploitation of fishery and forest resources, and some processing (for example pulp and paper). In future the costs and benefits of such activities will undoubtedly have to be scrutinized in a much broader context than before.

Application of technology in developing countries

Although some of its effects are already worldwide, the pollution of the environment is so far a problem

TABLE III-10. – CONSUMPTION OF FERTILIZERS (NPK, NUTRIENT CONTENT)

	Total consumption			Increase in consumption			Consumption per hectare of arable land		
	Averages			1949-51 to 1959-61	1959-61 to 1966-68	1949-51 to 1966-68	Averages		
	1949-51	1959-61	1966-68				1949-51	1959-61	1966-68
	Thousand metric tons			*Percent per year*			*Kilogrammes/hectare*		
Latin America	279	880	2 079	12	13	13	3.1	8.2	17.5
Far East [1,2]	326	1 212	3 331	14	15	15	1.6	4.7	12.7
Near East [3]	117	332	798	11	13	12	2.4	4.2	10.7
Africa [4]	91	228	480	10	11	10	0.4	1.0	2.4
DEVELOPING COUNTRIES	814	2 652	6 689	12	14	13	1.4	4.0	10.2
DEVELOPED COUNTRIES	14 182	25 926	46 073	6	9	7	22.3	39.5	68.5
World [1]	14 996	28 578	52 763	7	9	8	12.4	21.6	39.7

[1] Excluding Mainland China. – [2] Excluding Japan. – [3] Excluding Israel. – [4] Excluding South Africa.

mainly for the industrialized countries. Mainly because the developing countries are only now entering upon the large-scale application of modern technology, they still have time to avoid some of the worst mistakes made in this sphere by the industrialized countries.

At the end of the second world war, high hopes were placed in the power of modern technology, and especially mechanization, to transform the agriculture of the developing countries. An extreme example of this attitude was the United Kingdom's disastrous East African Groundnut Scheme. Subsequently (and painfully) it has been learned not only that many of the technological advances made in the developed countries are not suitable for application in the developing countries, but also that even for suitable technological advances to be widely adopted a considerable number of economic and institutional measures are needed to back them up.

Most of the technological progress catalogued above has so far had its main application in developed countries. Some aspects, with their emphasis on labour-saving, are hardly appropriate for the dangerous employment situation in developing countries discussed later in this chapter.[10] Still more cannot be applied by poor farmers with very small holdings. Nevertheless, especially in the last few years, modern technology has begun to take hold with remarkable speed on the agricultures of at least some of the developing countries.

Table III-10 shows the very rapid increase in fertilizer consumption in the developing countries, which has averaged 13 percent a year during the past two decades. In the last few years, for which complete data are not yet available, the rate of increase has

[10] One aspect of technological progress, the development of synthetic substitutes for agricultural products, is positively inimical to at least the short-term interests of the developing countries.

TABLE III-11. – NUMBER OF TRACTORS USED IN AGRICULTURE

	Total numbers			Increase in numbers		
	Averages			1949-1951 to 1959-1961	1959-1961 to 1966-1968	1949-1951 to 1966-1968
	1949-1951	1959-1961	1966-1968			
	.... *Thousands*			. *Percent per year* .		
Latin America . . .	121	335	525	11	7	9
Far East [1,2]	12	60	126	17	11	15
Near East [3]	26	77	141	11	9	11
Africa [4]	38	82	114	8	5	7
DEVELOPING COUNTRIES	197	554	906	11	7	9
DEVELOPED COUNTRIES	5 816	10 302	13 348	6	4	5
World [1]	6 013	10 856	14 254	6	4	5

[1] Excluding Mainland China. – [2] Excluding Japan. – [3] Excluding Israel. – [4] Excluding South Africa.

TABLE III-12. – CHANGES IN REGIONAL PRODUCTION, AREA, AND COMBINED AVERAGE YIELD PER HECTARE OF 12 MAJOR CROPS [1]

	Production [2]		Area		Yield [2] per hectare		Contribution of change in yield to change in production [3]	
	I	II	I	II	I	II	I	II
	..... *Percentage change*						.. *Percentage of total* ..	
Western Europe	23	22	4	— 4	19	26	84	116
Eastern Europe and U.S.S.R.	37	27	13	— 2	21	29	64	108
North America	25	32	— 13	— 2	43	35	151	106
Oceania	10	109	10	85	1	13	51	22
DEVELOPED REGIONS [4]	29	28	2	— 1	26	29	92	102
Latin America	46	28	26	23	16	4	43	19
Far East [5]	29	30	19	13	9	15	36	57
Near East [6]	47	27	35	10	8	15	24	62
Africa [7]	31	36	21	14	9	20	35	62
DEVELOPING REGIONS [8]	35	30	22	14	11	13	37	51
World [8]	30	29	10	6	19	22	68	80

NOTE: I. 1948-52 to 1957-59; II. 1957-59 to 1966-68.

[1] Wheat, rye, barley, oats, maize, rice, potatoes, groundnuts, soybeans, tobacco, cotton, jute. – [2] Price weighted. – [3] Percentages over 100 indicate that production has increased despite a reduction in area. – [4] Including Israel, Japan and South Africa. – [5] Excluding Japan. – [6] Excluding Israel. – [7] Excluding South Africa. – [8] Excluding Mainland China.

accelerated substantially in a number of countries, particularly in the Far East. Fertilizer consumption per hectare of arable land in the developing countries as a whole was seven times as great in 1966-68 as in 1949-51, although still only one seventh of that in the developed countries.

Tractor numbers have increased almost as rapidly (Table III-11). For pesticides, irrigated area, tube wells and other inputs, comprehensive data are not available, but here too there have been very rapid increases. In general the farmers of the developing countries are coming to rely more and more on the use of purchased inputs, and this, together with the growing proportion of their output that is marketed, is bringing them further into the monetary economy.

Another indication of the increasing role of modern technology is the growing contribution of rising yields, as opposed to the extension of area, in the expansion of production (Table III-12).

Agricultural development policies

Partly conditioning the trends discussed above, partly in response to them, there have been a series of changes during the past 25 years in the policies, approaches and attitudes to development of governments and the international community.

The present section examines some of the principal policy areas. It begins with an account of agricultural planning, which is now a major tool of development in almost all of the developing countries. The need for changes in the rural institutional framework is one of the main postwar lessons in agricultural development, and this is the second topic to be taken up. Population policy is next discussed, since attitudes to this crucial subject are so closely tied to those on agricultural development. Finally, there is some discussion of the two main areas that involve the developed as well as the developing countries: international trade policies and development assistance.

Agricultural planning

A principal feature of the postwar period has been the adoption of national planning by developing countries. While the early example of planning in the U.S.S.R. and the efforts of the developed countries to mobilize resources for the war effort and postwar reconstruction were no doubt influential, the impelling force has been the urge to overcome economic backwardness and promote social advance, especially in countries that have recently achieved political independence.

By the second half of the 1950s, the formulation of plans, generally for five years, had become established practice through much of the Far East, and was rapidly spreading in the Near East and Africa. The last to enter the field, on the whole, were the countries of Latin America, most of which drew up their first plans only in the first half of the 1960s. An important stimulus to the widespread adoption of planning has come from the economic survey missions of the International Bank for Reconstruction and Development (IBRD), which in some countries (for example Iraq and Tanzania) provided the first elements for national plans. Bilateral aid agencies, anxious to ensure that the resources made available by them are used efficiently, have been another stimulus. The spread of planning in Latin America in particular owes much to the insistence of the United States on national development plans as a condition for participation in the Alliance for Progress, established in 1961.

Many of the earlier plans tended to neglect agriculture in comparison with other sectors of the economy. One reason was the special difficulties of planning for the agricultural sector. Because of the biological nature of agricultural production, it is difficult to predict the level of output from a given level of input; the output is affected by exogenous factors such as weather, and pests and diseases. Because of the large number of small production units, it is necessary to influence the production decisions of many individual farmers in order to reach planned targets.

Another reason for the neglect of agriculture was the concentration on rapid industrialization as the most obvious means of modernizing the economy, and the failure to realize the extent to which this could be jeopardized by the absence of a sound agricultural base. One of the more promising features of the 1960s was a growing realization, generally through painful experience, of the crucial role of agriculture in overall economic development. In many countries lagging agricultural production brought rising food prices (and thus an inflation of industrial wages) and rising food imports (which diverted scarce foreign exchange from the purchase of the capital goods needed for industrialization).

TABLE III-13. – SHARE OF AGRICULTURE IN PLANNED PUBLIC INVESTMENT, SELECTED COUNTRIES

Country	Plan period	Share of agriculture in planned investment
		Percent
Indonesia	1956–60	26
	1961–68	10
	1969/70–1973/74	35
Ivory Coast	1962–63	15
	1967–70	30
Kenya	1957–60	32
	1964–70	14
	1966–70	26
Korea, Rep. of	1962–66	17
	1967–71	23
Malaysia: West	1956–60	23
	1961–65	19
	1966–70	24
Senegal	1948–53	20
	1953–58	27
	1961–64	19
	1969/70–1972/73	60
Thailand	1961/62–1966/67	14
	1966/67–1970/71	20
Tunisia	1962–64	15
	1965–71	33
Uganda	1961/62–1965/66	19
	1966-71	27

Moreover, toward the end of the period under review it appeared likely that supplies of food aid, on which many countries had come to rely heavily, would be less abundant in the future.

Thus in a number of countries the more recent plans have shown an increase in the share of planned public investment devoted to the agricultural sector. Table III-13 shows data for a number of the countries where this trend has been most marked, while more complete details of the successive development plans in each of the developing countries are shown in Annex table 10B.

In the early stages, many agricultural plans, and equally many of the national plans as a whole, consisted of no more than "bundles of projects" selected on an *ad hoc* basis with little attention to the connexion between them. Nor was the programme for the agricultural sector coordinated with the overall development plan. Now, however, the agricultural plan is increasingly one for the sector as a whole, formulated within the framework of an overall development plan. This has helped to focus attention on the linkages between agriculture and other sectors, and to ensure the consistency of the planned agricultural growth rate with the growth rates envisaged for other sectors. Moreover, planning is now increasingly on a comprehensive basis, involving estimates for the private sector of the economy as well as the public sector.

Since projects like large-scale irrigation, afforestation, land reclamation, soil conservation, changes in land-use patterns, institution-building, and the improvement of nutrition take a considerable time to come to fruition and have to be planned well ahead, long-term perspective planning is of particular importance for agriculture. In a perspective covering 15 to 20 years, it is easier to define the desirable general strategy for agricultural development and then to formulate medium-term plans in the light of this strategy. A world framework for the preparation of perspective plans for agriculture has been provided by the FAO Indicative World Plan for Agricultural Development (IWP), with a time horizon up to 1985.

Great stress has been laid in the agricultural development plans of many countries on investment in economic infrastructure such as irrigation and land reclamation. Projects in this category have accounted for as much as 70 to 90 percent of total investment in agriculture in the Near East region. Of late there has been a shift in emphasis in some countries from such large, capital-intensive projects with a long gestation period toward less capital-intensive, quick-maturing projects such as minor irrigation works (India and Ceylon), low lift pumps (East Pakistan) and tube-well irrigation (West Pakistan and Nepal). One of the reasons for the earlier concentration on large-scale projects has been the greater ease of obtaining foreign financing for them. A major achievement of the FAO/IBRD Cooperative Programme has been to pioneer IBRD loans for small-scale agriculture, generally through domestic credit institutions.

There has been a noticeable trend toward decentralization in agricultural development planning. Whereas central planning agencies in such countries as Iran and Jordan used not only to formulate agricultural development projects but also to execute them, both formulation and execution are now increasingly left to ministries of agriculture. This has been due to the realization that a central planning agency cannot have sufficient knowledge of all factors involved in sectoral plans, and that no operating ministry will be willing or able to implement programmes and projects in the formulation of which it has not been closely associated. A consequence of this decentralization of planning has been the encouragement given to the establishment or strengthening of planning units in the ministries of agriculture, although many of these units remain understaffed or weak.

A basic problem has been how to relate planning "from above" with planning "from below" (the plans of the farmers themselves). Although village and district planning has been attempted in some countries, there has rarely been sufficient trained personnel or the necessary organization for drawing up plans from below. There is also a growing realization that the national agricultural plan cannot be a mere aggregation of local plans; while local

plans should be reflected in the national plan, they must be consistent with the overall objectives and subject to the availability of investment resources.

While some improvements in the techniques and organization of agricultural development planning have taken place over the years, the record of plan implementation in most developing countries has been unsatisfactory. Actual achievements have frequently fallen short of the targets set, sometimes because the targets themselves were unrealistic, but more often because of ineffective implementation. In a number of countries the realized investment has not reached the planned targets, either because of the slow pace of implementation or because of inability to raise the necessary funds. In others, the investment targets have been more or less achieved but not the output targets, since the complementary investments needed have not taken place or the required inputs have not been provided. This has been particularly noticeable in respect of large-scale irrigation, the disappointing results of which in a number of countries have mainly been due to failure to provide adequate drainage and land levelling for satisfactory water use, or to encourage the intensive use of irrigated land.

Nor has there been a close coordination between the development plan and the annual budget, through which the necessary financial resources are made available to implement the plan. In the majority of developing countries insufficient attention has been paid to using the budget as the financial counterpart of the plan, both providing for the planned public capital and current expenditures and showing the total financial resources available for the public sector of the plan.

The gap between sectoral planning and the preparation of projects has also been responsible for weaknesses in implementation. While ambitious targets have been set for the agricultural sector, they have seldom been translated into viable projects, with the result that the targets have not been realized. The current state of project identification, preparation, selection and appraisal in the developing countries is still far from satisfactory, although improvements are gradually taking place, due especially to pressure from bilateral and multilateral aid agencies as well as from national planning organizations.

Closely linked to these difficulties has been the shortage of trained personnel for the preparation and execution of projects, which has often been insufficiently considered when targets have been set. The lack of such personnel has been one of the reasons why actual expenditures on programmes and projects have fallen short of planned allocations.

A major weakness in the implementation of most agricultural plans has been the lack of appropriate policies and measures in such fields as extension, credit, marketing and prices, to ensure the effective implementation of investment projects and the achievement of planned targets. In many countries no attempt has been made to relate the targets to the policies and measures needed to achieve them, although in recent years, as discussed in the following section, there have been some improvements in this regard.

There seems to be increasing recognition, both in the developing countries themselves and among the international and bilateral aid agencies, that different countries require very different approaches to planning. There is a wide variety of situations as regards experience with planning and the availability of the necessary administrative, organizational and statistical bases for it. While a few countries have reached a level where plans can be formulated on the basis of sophisticated techniques and implemented with reasonable efficiency, many others are at a stage where only the most rudimentary planning is possible. The great majority of developing countries probably fall somewhere between these extremes. There is now greater awareness than before of the need for improving statistical information and administrative structure, and training additional personnel to undertake the various tasks of planning.

The harmonization of plans, on a regional or subregional basis, is increasingly seen as a means of creating wider markets and making more rational use of resources. The number of economic cooperation or integration schemes in varying degrees of progress in the developing world has increased steadily. Until recently, however, there had been some tendency to neglect the agricultural aspects of such intra-regional cooperation.

Rural institutions

Not only did many of the earlier development plans pay insufficient attention to the policies and measures needed to secure the achievement of planned targets but there was also a tendency, especially in the immediate postwar years, to try to introduce technological improvements without the institutional measures needed to back them up.

In recent years the need for changes in the economic, social and institutional environment in which farmers live and work has been increasingly recognized. However, success in this field has proved particularly difficult to achieve. It is highly demanding not only on the financial resources of governments but also on their administrative skills, which are sometimes even scarcer. It is a difficult field for foreign assistance, because rural institutions must fit very closely the particular circumstances of each country. Progress in some aspects is bound to be too slow to have much attraction for politicians.

The crucial field of land reform comes up against powerful vested interests.

In spite of these difficulties, some progress has been achieved. There has been, for example, a considerable expansion in facilities for training farmers, and for the training and education of the personnel required to staff government agricultural services. Generally speaking, however, the education systems in developing countries are still modelled much too closely on those that have been evolved in the developed countries, with their vastly different resources and needs.

This is particularly reflected in the difficulty of obtaining well-qualified staff to work in the agricultural field services, and especially in the all-important extension services. Even when suitable staff can be attracted, the effectiveness of the extension services is often seriously reduced by insufficient equipment, transport and other facilities. Only a few developing countries have so far made a beginning in using modern methods of farm broadcasting and television to reach the millions of scattered farmers, though the development of increasingly cheap transistor radios suggests that, in future, this will be an important method in most countries.

One of the principal changes in the agriculture of the developing countries during the past 25 years has been the steady transition from production mainly for the subsistence of the farmer and his family to more market-oriented production. The increasing purchase of production requisites has also brought farmers further into the money economy. Consumers have increasingly been concentrated in large towns, and their consumption has been diversified as their incomes have risen. All these trends have meant increasing demands on the marketing sector, in the supply of farm inputs as well as the distribution of the output.

In most countries the private sector has provided most of the additional marketing facilities and services required, although governments have had to furnish them in such areas as price stabilization, market regulations, grades and standards, research, extension, market information, and the provision of infrastructure and certain facilities. Some governments have attempted to take over large sections of the marketing chain, often with poor results in terms of efficiency. In fact, a fairly general lesson of the past 25 years has been that governments would do well to make use of existing facilities and services as far as possible, working through the market mechanism and correcting it when necessary, and reserving their own limited resources for the activities that only they can undertake.

There have been substantial changes in government price policies for agricultural products. In the earlier postwar years these were mainly aimed in developing countries at securing low food prices for consumers. Governments were generally wary of the cost of incentive farm price policies, while there was also a widespread belief that small semi-subsistence producers did not increase their production in response to price changes. However, the persistent lag in domestic food production, combined with increasing evidence of producers' response to prices, has caused more and more countries, especially in the Far East, in the last few years to adopt or strengthen incentive price policies, or at least price stabilization schemes to remove the major disincentive of highly fluctuating prices. Incentive prices appear to have made an important contribution to the recent upsurge of food production in a number of Far Eastern countries.

Most developing countries still have considerable difficulty in implementing price stabilization schemes in such a way as to reach the great mass of small farmers. This becomes even more important in view of the delicate problems of price policy posed by the high-yielding varieties of cereals, as discussed later in this chapter. Another indication of the changing situation is that, whereas many governments have found subsidies on inputs such as fertilizers helpful in promoting their more widespread use, some of them are now considering the taxation of inputs as a means of mobilizing some of the proceeds of the newly profitable cereal production. India, for example, introduced a 10 percent tax on fertilizers in 1969. Some countries, especially in Latin America, have recently been experimenting with systems of land taxation designed to encourage maximum productivity and penalize the unproductive use of land.

Farmers' needs for credit have increased steadily as their production has become more dependent on the use of purchased inputs. Many new sources of institutional credit have been set up during the past 25 years, although noninstitutional sources such as private traders, moneylenders and relatives still predominate heavily. In most countries it has proved difficult for institutional sources, in spite of their much lower interest rates, to compete with the speed, lack of formalities, and additional services furnished by noninstitutional sources. Moreover, in general, the banking system has not so far been very effective in mobilizing the savings of the rural population, and has thus had to rely heavily on financial support from the government for its agricultural lending operations.

Supervised credit has enjoyed a vogue in many countries, especially in Latin America. While its usefulness is now generally accepted, it is however, usually too costly for widespread application.

Most governments have attempted to develop viable farmers' organizations suited to the circum-

stances of the country. Cooperatives were initially chosen, especially in newly independent countries, as a promising approach to the creation of a more democratic and equitable society. Mainly because of the lack of trained cooperative managers, however, it is now generally recognized that, at least for some time to come, these organizations are more likely to be associations operated cooperatively by the government and local farmers than true cooperatives. Much attention has been devoted to emulating the highly successful farmers' associations of China (Taiwan) and Japan, which combine a number of important functions, including marketing, input supply, storage, credit, savings, extension, and the provision of a focal point for farmers' active participation in development. Cooperative farming, sometimes including the pooling of land and other resources, is finding increasing favour in some countries, notwithstanding serious setbacks due primarily to inexperience and lack of managerial competence.

Many attempts have been made to alter the outmoded systems of land tenure which in many countries not only hamper production but are also an offence to human justice. Many well-prepared land reform schemes have come to nothing because of lack of the necessary political will to implement them effectively. Equally, in some cases when the political will has been there, land reform has failed to have its proper impact because its technical aspects were ill prepared. An important lesson that has been learned is that the redistribution of holdings is only the beginning of land reform, and that this must be followed up by a variety of measures to help the new landowners increase their production.

Especially in Africa the gradual process of modernization and commercialization of production has itself brought changes in land tenure. Some success has also been achieved in the less spectacular fields of land tenure improvement, such as the regulation of tenancy and sharecropping. These regulations have, however, proved very difficult to enforce in many countries. They are particularly important in areas where cereal production has become newly profitable with the high-yielding varieties and some erstwhile noncultivating landlords are seeking to recover land from their tenants.

There has been much study of how best to deploy the limited resources of the government for providing farmers with essential facilities and services. An important problem is the need to advance on all fronts at once, because of the complementarity of the different elements in the "package" of inputs, services and policies. A frequent solution, used most notably in India and Pakistan, has been to concentrate the scarce government resources in limited favourable areas, instead of spreading them thinly over the whole country.

Government services to agriculture have generally tended to be unduly concentrated at headquarters level in the national and provincial capitals and in district centres. All too few resources are available at field level, in the market towns and villages that are in close touch with farmers and their problems.

Population policy

Just as the so-called population explosion in the developing countries has been one of the most influential phenomena of the past quarter century, on the plane of policies and attitudes a major development of the latter part of this period has been an increasingly widespread recognition of the need in most of these countries for governments to encourage and assist family planning.

This change in attitudes has been particularly marked within the international community. Population problems have been an important field of activity for the United Nations from its very inception (the Population Commission was established in 1946 to advise the Economic and Social Council), but it was only in the 1960s that the widespread need for active population policies in the developing countries became sufficiently urgently felt to bring about a shift in the international approach from study to action.

Many factors have contributed to the gradual acceptance of the necessity to act. These include the acceleration of the population growth rates themselves, and the increasing flow of information and studies about population problems and prospects emanating over the years from the United Nations and other bodies. A major influence has been the gradual realization that economic development is likely to be a slower process than was thought in the earlier postwar years, and that the limited progress being made is all too often largely nullified by rapid population growth. In particular, great concern has been felt at the disappointingly slow growth of agricultural production in many developing countries, which seemed seriously to raise doubts as to whether these countries (or even the world as a whole) would be able to feed themselves properly in the long run. Increasingly, however, the argument has shifted from rather academic discussions of the ultimate carrying capacity of the world or of individual countries to the practical effects of rapid rates of population growth in sparsely and densely populated countries alike.

The recent evidence of a technological breakthrough in agriculture in some of the developing countries may have somewhat reduced the fears of an imminent food crisis. But in the meantime other adverse consequences of high rates of population

growth have become better understood and more widely known, giving continued urgency to activities in this field. These include the problems of unemployment and underemployment discussed later in this chapter.

Parallel with the development of international policies in this field, family planning has emerged as a policy instrument in an increasing number of developing countries. India and Pakistan had already established national family planning programmes in 1951 and 1955 respectively, but it was not until the 1960s that a significant number of other governments undertook such programmes. Family planning received its initial stimulus in Asia, where by mid-1969 the majority of governments had adopted such policies. In Africa only a small number of countries have family planning programmes, and a major need is to develop basic data and to analyse population trends in relation to resources. Family planning facilities are being promoted in an increasing number of countries in Latin America, where there are very high rates of population growth but where low population densities for a long time kept policies focused on the colonization of empty areas. Activities in this region are still, however, based mainly on health considerations and run by nongovernmental organizations.

International trade policies

Considerable international efforts have been made to expand the rate of growth of world trade in agricultural products (especially that of the developing countries) in the face of the numerous obstacles discussed earlier in this chapter and to reduce the fluctuations in the volume and value of this trade. So far, however, these efforts have met with only limited success.

To some extent, the limited progress reflects the economic and technological inevitability of some of the forces that have shaped postwar trends in trade, in particular the saturation level of the consumption of many products in the developed countries, and the development of new chemical processes that have led to a host of synthetic substitutes for agricultural raw materials. But a major reason has also been the political and economic intractability of the problems of domestic agricultural adjustment in many developed countries, which has led to the maintenance and even the expansion of agricultural protectionism.

The first attempt to create comprehensive international machinery to deal with the world's trade problems was the drawing up in 1947 of the Havana Charter, which was to serve as the basis of an International Trade Organization. Following the failure of a sufficient number of countries to ratify the charter, efforts to solve trade problems have been pursued under the complex network of institutional arrangements that has gradually evolved in line with changing requirements and pressures. Broadly, these efforts have fallen into three categories: measures to liberalize trade through negotiations on tariffs, quotas and other obstacles to trade; international commodity agreements and arrangements; and commodity consultations. More recently, there have been renewed attempts to search for broader solutions, as in the two United Nations Conferences on Trade and Development (1964 and 1968), through the granting of generalized preferences by developed countries, and through a call for policy discussions among governments aimed at the "international adjustment" of production and trade policies; but these have not so far led to much concrete progress.

The principal instrument of tariff and trade negotiations has been the General Agreement on Tariffs and Trade (GATT). Concluded in 1947 after the failure to ratify the Havana Charter, it covers those parts of the charter which set out a general "code of conduct" in international trade relations: the principle of nondiscrimination in trade relations, the "most-favoured nation" clause, the spirit and methods of tariff cutting (negotiations with principal suppliers product by product, based on reciprocity of concessions), and the prohibition in principle of quantitative restrictions.

These principles have been implemented through a series of tariff and trade negotiations, culminating with the Kennedy Round that concluded in 1967. While progress has been made over the years in lowering tariffs and eliminating quotas on trade in manufactured products, success with regard to agricultural products has been limited either because protection has taken forms not considered to come under the competence of GATT or because countries have continued to maintain restrictions through various waivers permitted under GATT, or in plain contradiction of it.

Equally important, it has become increasingly clear that many of the principles of GATT are not well suited to the needs of the developing countries. Thus the developing countries pointed out that the rule of reciprocity in trade negotiations soon left them with little to offer in return for concessions, and their participation in the successive tariff negotiations in fact gradually diminished. More fundamentally, they objected that formal reciprocity between two economically unequal partners was not a guarantee of equal treatment.

The developing countries also objected to the prohibition of quantitative restrictions, because of their greater flexibility as compared with tariffs. At the same time, tariffs generally remain an important

source of revenue for the developing countries, and are frequently maintained even while quotas are imposed. In practice, however, the various exceptions to the prohibition of quotas, mainly on the basis of balance of payments difficulties, have enabled developing countries to maintain their structure of quotas largely intact.

Finally, developing countries have objected to the principle of nondiscrimination in trade relations, because by preventing them from discriminating in favour of each other (except through the creation of free trade areas and customs unions) it has, in their view, hindered them from expanding trade with other developing countries.

Under the pressure of events and the growing numerical and political weight of the developing countries in international forums, the work of GATT has increasingly taken these objections into account. In particular, following the first United Nations Conference on Trade and Development (UNCTAD) in 1964, the Contracting Parties of GATT approved in early 1965 a new chapter of the agreement dealing with trade and development, and the establishment of a permanent committee to take action under it. And following the clear failure of the developing countries (and agricultural exporters in general) to benefit in any significant measure from the protracted Kennedy Round of trade negotiations, the Contracting Parties took new initiatives to liberalize and expand trade in farm products in 1967, by reactivating the Special Group on Tropical Products and by establishing a new Agricultural Committee. The latter has been active in collecting and analysing information on national production and trade policies for a wide range of products, with a view to extending trade liberalization to them.

Similar changes have taken place with regard to the philosophy and techniques of commodity agreements. The principles originally included under Chapter VI of the Havana Charter were taken over as guidelines for action in this field by ECOSOC and by its Interim Co-ordinating Committee on International Commodity Agreements (ICCICA), established in March 1947. In keeping with prewar experience, the charter envisaged the conclusion of commodity agreements principally in situations where either "a burdensome surplus of a primary commodity" or "widespread unemployment or underemployment in connexion with a primary commodity ... has developed or is expected to develop" and which "would not be corrected by normal market forces in time to prevent ... hardship."

The success of commodity arrangements under this philosophy has, as far as developing countries are concerned, been limited. The International Sugar Agreement, first negotiated in 1953, proved unable to cope with really large changes in the balance of supply and demand. It became inoperative in 1961, though it has recently been renegotiated on a somewhat different basis.

Even the basic principles of the Havana Charter are no longer considered adequate to meet the trade problems of the developing countries. As the downward trend of the prices of many primary products has continued and as the export earnings of the developing countries have failed to increase concomitantly with their import needs, these countries have increasingly realized the necessity for commodity agreements to guarantee not only the short-term stability of prices but also a predictable growth of export earnings, and requested such agreements as preventive action rather than only as a means of rescuing exporters from emergency situations.

The new, development-oriented philosophy of commodity arrangements found coherent expression for the first time in the Final Act of the first UNCTAD. This specified, in addition, that commodity arrangements should be made more comprehensive in scope and include provisions not only on prices and quantities but also on the "coordination of national production and consumption policies, ... realistic guarantees to developing countries of terms of access to markets of developed countries ensuring a fair and reasonable share of the market and of market growth," and on market promotion and improvement.

Application of the new principles has been slow. Even in the case of commodities for which the implementation of an arrangement depends only in part on the importing countries, it is hard to arrive at a workable agreement. The only concrete application so far is the International Coffee Agreement, first negotiated in 1962, and even here progress has been slow. Not until 1968, following a detailed study of the production potential and possible policies for diversification away from coffee in a number of countries, were specific production goals set and an internationally financed Coffee Diversification Fund established to assist in achieving them. The latest agreement gives the council the power to refuse increases in export quotas to countries which are not moving toward agreed production goals.

The new International Sugar Agreement, renegotiated in 1968, contains some provisions which include an element of preference in favour of developing countries, for example in the distribution of quota increases. However, neither this agreement nor the bilateral agreements covering the other half of the world sugar trade make much contribution to a longer term equilibrium.

The Food Aid Convention of the International Grains Arrangement of 1967 includes a new feature favouring developing countries. This provides that

at least 25 percent of the cash contributions under the convention should be used for purchases from developing countries, which should amount to a minimum of 200 000 tons of grain per year (or 4.7 percent of the total).

The postwar history of commodity consultations can also be traced back to the Havana Charter, which envisaged their function as to "investigate the production, consumption and trade situation in regard to the commodity" in connexion with "special difficulties which exist or may be expected to arise" (Article 58). Aside from commodity councils administering commodity arrangements, there are now a total of 14 commodity consultative or study groups, 3 of them dating from before 1939 (rubber; cotton; and wool) and 11 (bananas; citrus fruit; cocoa; grains; hard fibres; jute, kenaf and allied fibres; meat; oilseeds, oils and fats; rice; tea; wine and wine products) set up by the FAO Committee on Commodity Problems (CCP).

None of the commodity study groups has so far led to the negotiation of a formal commodity arrangement, but work done in the group on cocoa and in the *ad hoc* consultations on tea and earlier on olive oil has provided a valuable basis for further negotiations. Studies and consultations under the commodity groups, together with intergovernmental discussions in the broader groups such as the CCP itself and the Committee on International Commodity Trade (CICT), have also contributed to the stability of commodity markets by the exchange of statistical and other information, and by developing a better understanding of the problems involved.

Two recent developments suggest that the role of such groups may acquire additional significance in the future. First, although the CCP principles governing the establishment of study groups basically reflect the Havana Charter's philosophy of action in response to a crisis, the considerations which prompted the recent establishment of a Study Group on Meat, as well as the discussions in recent years in the groups dealing with rice and fats and oils, suggest that here too the pressures from the developing countries are tending to transform them increasingly into development-oriented instruments for the expansion of trade.

Secondly, some study groups have recently found a new dimension for their activities in the promotion of informal understandings between producing and consuming countries on appropriate price levels and marketed quantities. The FAO groups on jute and allied fibres and on hard fibres have made useful progress in this regard in the complex situation created by the increasingly heavy competition from synthetic products in a widening range of end uses. Tea exporters have also agreed on an informal quota arrangement for 1970. Such informal understandings may have a growing role in the future, either as an alternative to a formal and binding commodity arrangement or as an intermediate stage.

The search for broader solutions to the trade problems of the developing countries has been a feature of the international scene throughout the past 25 years — witness the early attempts to set up an International Trade Organization and the successive efforts within FAO at about the same time to establish a World Food Board and an International Commodity Clearing House. The principal recent initiative of this kind is the establishment of UNCTAD as a blanket organization under which such policies can be pursued. Specific attempts include those within GATT and UNCTAD to draw up a generalized system of preference in favour of developing countries.

Efforts have also been made to mitigate the impact of fluctuating export earnings on the economies of the developing countries. The first concrete step in this direction was taken by the International Monetary Fund (IMF) in 1963 with the introduction of machinery for compensatory financing. Though expanded and liberalized in 1966, this is confined to the provision of short-term balance of payments support to reduce the impact of fluctuations in export earnings. It has become increasingly clear that such support is inadequate to deal with cases where development plans are jeopardized by adverse trends in export proceeds. The IBRD proposals for providing supplementary financing now being considered by an intergovernmental group set up by UNCTAD would go a considerable way toward guaranteeing the projected export earnings of individual developing countries at the level required for the implementation of agreed development.

Development assistance

Except for the limited efforts made by the colonial powers and by the League of Nations and the International Labour Office (ILO) in the 1930s, development assistance is a postwar phenomenon. The purchase of the capital goods needed for accelerated economic and social development has involved substantial financial loans and grants to augment the foreign exchange earned by exports, especially in view of the adverse trends in these earnings discussed earlier. Another main need of the developing countries has been for technical assistance to augment their supplies of trained manpower.

The bulk of international assistance remains bilateral. Although the share of multilateral aid has increased, even today it accounts for no more than 10 percent of the total.

In quantitative terms, the flow of finance to developing countries initially grew rapidly, from an average

of some U.S.$3 500 million during 1950-55 to $9 200 million in 1961, equivalent to 0.96 percent of the gross national product (GNP) of the contributing countries in the latter year. Its expansion has subsequently tended to slow down, particularly if compared with the economic growth of the developed countries. In 1969, the total flow amounted to $13 300 million, only 0.72 percent of the combined GNP of the donor countries. The most important part of the flow, referred to in Figure III-6 as "official development assistance," [11] has increased even more slowly. As a share of the GNP of the donor countries, it has consequently fallen from 0.54 percent in 1961 to 0.36 percent in 1969, and in the latter year it accounted for barely half of the total.

At the same time, there has been a tendency for the terms of aid to harden. There has been a steady shift away from grants, which currently account for about half of official commitments (compared with 60 percent in 1964), while the "grant element" [12] of loans has fallen from 54 percent to 49 percent. Moreover, aid has been increasingly tied to purchases in donor countries, and by 1967 only 16 percent of official aid flows remained untied. This has been estimated to reduce the value of the aid by 20 percent.[13]

The slackening in the growth of aid and the deterioration in its terms have come at a time when it is widely felt that many developing countries have greatly increased their capacity to utilize additional external resources effectively.[14] Recent studies indicate that the aid target of 1 percent of the donor countries' GNP, if reached by 1975, "is not incon-

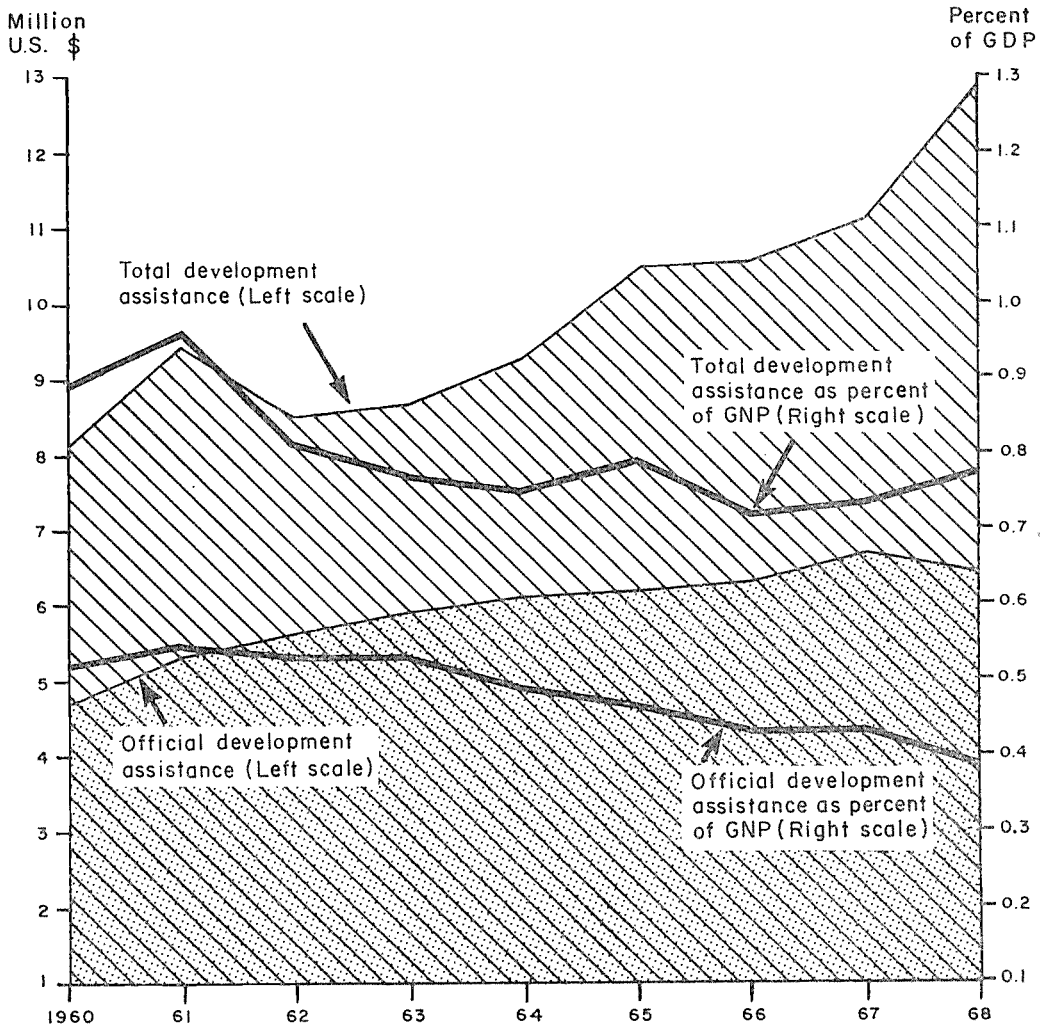
[11] Those funds which are available on concessional terms and have a clear development orientation.

[12] The grant element is a numerical approximation of the degree to which a loan is concessional: the lower the interest rate and the longer the maturity and grace period, the higher is the grant element. It is defined as the face value of the loan, less the discounted present value of the required amortization and interest payments (using a 10 percent discount rate).

[13] *Partners in development*, Report of the Commission on International Development, New York, Praeger, 1969, p. 77.

[14] *Ibid*, p. 14.

FIGURE III-6. – TOTAL AND OFFICIAL FLOW OF DEVELOPMENT ASSISTANCE IN RELATION TO THE GROSS NATIONAL PRODUCT OF DONOR COUNTRIES



sistent with some not wholly unreasonable guesses about possible growth rates, exports and/or savings performance of developing countries and consequential external resource requirements." [15] Moreover, the recent technological breakthroughs in the agriculture of some of the developing countries make aid to this sector more likely to lead to concrete results than in the past.

At the same time, the rapid rise in the foreign indebtedness of the developing countries has made it essential that a larger portion of financial assistance be provided on concessional terms. The total external public debt outstanding for 79 developing countries rose from $21 600 million at the end of 1961 to $47 500 million in mid-1968. During the same period, their annual debt service payments rose from $2 300 million to slightly more than $4 000 million. In several countries the ratio of public debt service to export earnings exceeds 15 percent, and for the years 1965-67 debt service was equal to 73 percent of all public and private lending from abroad in Africa and 87 percent in Latin America.[16]

A more positive element has been a gradual increase in the share of international assistance directed to agricultural development. United States assistance to the agricultural sector was doubled between 1965 and 1967, rising from $250 million to $504 million, and is estimated to have reached $800 million in 1969. In 1968 IBRD announced that, while its total lending activities were to be doubled over a period of five years, the financing of agriculture was to increase fourfold. The three regional development banks have also given priority to providing finance to the agricultural sector.

Despite the increased attention to agriculture by both bilateral and multilateral aid programmes, exact data on the total flow of assistance to this sector do not exist. Estimates made by the Development Assistance Committee (DAC) for a period covering roughly 1962-66 indicated that of the major aid-giving countries' official bilateral commitments, about 12 percent, or $3 303 million, was for agricultural development.[17] The share of IBRD loans and credits to agriculture was roughly similar up to 1966/67, when it totalled $87 million. Subsequently, however, it has increased strikingly to $367 million in 1968/69, accounting for 21 percent of the total to all sectors. The oldest of the regional development banks, the Inter-American Development Bank (IDB), provided $834 million in loans to agriculture during the period 1961-69, almost a quarter of the total (in 1969 as much as one third of the total, or $632 million). Of the total loans of the Asian Development Bank (ASDB) 20 percent has gone to agriculture and related industries since operations began in 1966, and almost 30 percent in 1969, while the bank has announced its intention to double the funds going to agriculture in 1970.

In contrast to the flow of financial aid, technical assistance has expanded during the past decade by more than 10 percent a year, and now represents more than 20 percent of the total aid to developing countries. Most of the technical assistance is bilateral, the United States providing about 40 percent of the total, France 30 percent, and the United Nations system 12 percent.

United Nations technical assistance activities were given the financial possibilities for substantial expansion when the United States, following the famous "Point Four" declaration by President Truman in his inaugural address in 1949, offered to contribute to what after 1950 became known as the Expanded Technical Assistance Programme. In 1959, the United Nations Special Fund (UNSF) was established to finance preinvestment projects — surveys, feasibility studies, training and research — required to encourage the subsequent investment of private or public capital for development projects. Expenditures on projects under the technical assistance programme expanded from an average of $38.2 million during 1959-63 to $60.5 million during 1964-68, while funds earmarked under UNSF grew from $57 million to $129 million during the same period. Throughout, FAO has been the most important single executing agency for these operations, accounting for some 24 percent of technical assistance project expenditures and for 37 percent of the Special Fund project expenditures during the past decade.

Although over the past 20 years the flow of development assistance has equalled only about 2 percent of the total income of the developing countries,[18] this contribution has in many ways been crucial for their development efforts. Aid has accounted for about 10 percent of their overall investment, and for very much more in some individual countries. It has financed about 20 percent of their total imports.

Two major reexaminations of aid policies and practices were launched in 1968-69: that undertaken by the Pearson Commission on behalf of the World Bank, and the Capacity Study [19] conducted by Sir Robert Jackson, which deals specifically with the development assistance activities of the United Nations system.

The starting point of the Pearson Report is that "international support for development is now flagging; in some of the rich countries its feasibility, even its very purpose, is in question. The climate surrounding foreign aid programmes is heavy with

[15] OECD. *Development assistance, 1969 review*, Paris, 1969, p. 123.
[16] *Partners in development*, *op. cit.*, p. 73-74.
[17] OECD, *Aid to agriculture in developing countries*, Paris, 1968, p. 11.
[18] *Partners in development*, *op. cit.*, p. 49.
[19] *A study of the capacity of the United Nations development system*. United Nations, Geneva, 1969.

disillusion and distrust. This is not true everywhere. Indeed, there are countries in which the opposite is true. Nevertheless, we have reached a point of crisis." [20] After reviewing the past record and achievements of international development aid, the Pearson Commission presents a wide-ranging prescription for a new effort at creating a partnership for development. In addition to matters directly concerned with aid, its 68 recommendations cover such important related fields as international trade policies, policies for private foreign investment, and population policy.

The commission recommends that each industrialized country raise its resource transfers to low-income countries to the level recommended by UNCTAD in 1968, that is to a minimum of 1 percent of its GNP, as soon as possible and in no case later than 1975. Such a level, the report points out, is consistent with the external resource requirements of the developing countries' present development objectives. However, it also stresses that there is an even greater need to increase the flow of aid in the sense of concessional transfers. After pointing out that transfers of this nature have recently fallen to less than 0.4 percent of the rich countries' GNP, the commission recommends that they be raised, in net terms, to 0.7 percent of GNP by 1975 or shortly thereafter. To reached this target would require an average increase in net disbursements of 14 percent a year — a return to the rate of growth of official development assistance witnessed in 1956-61.

At the same time, the commission recommends that the donor countries increase their contributions to multilateral programmes from the present 10 percent of the total flow of official development assistance to 20 percent. This would require an increase of 23 percent a year, from just over $600 million to $3 200 million in 1975. Considerations which led the commission to make this recommendation include the conviction that multilateral assistance is free of the tones of "charity and interventionism" which have sometimes in the past embittered the aid process, and that an increase in the importance of multilateral flows will ensure that all developing countries whose performance warrants the receipt of assistance will receive it.

Finally, the report contains a number of important recommendations aimed at making both bilateral and multilateral assistance more efficient. Thus it calls for a review of procedures and regulations affecting the granting and use of aid, in both donor and recipient countries, with a view to making them more effective and uniform. It also stresses the importance of a reasonable continuity of aid, and that its forms should be adapted to the needs and level of development of the recipient country. Suggestions are made for ways of untying aid — a problem of particular importance if, as is foreseen by the commission, there is a shift from food aid to other forms of aid. An important recommendation concerning the multilateral programmes relates to the need for improved machinery for aid coordination "capable of relating aid and development policies to other relevant areas of foreign economic policy, towards standardized assessments of development performance, making clear, regular and reasonably authoritative estimates of aid requirements, and providing balanced impartial reviews of donor aid policies and programs." [21]

These recommendations are closely related to the principal proposals of the Capacity Study on the capacity of the United Nations system to use effectively the present resources of the United Nations Development Programme, and to handle a much enlarged programme in the future. The most important recommendation of the study is probably the introduction of the "country programming" of technical assistance and preinvestment activities, integrating as far as possible all the inputs from the various components of the United Nations development system, and gearing them closely with the development plans and objectives of each country.

[20] *Partners in development, op. cit.*, p. 4.

[21] *Ibid*, p. 230.

SOME AGRICULTURAL PROBLEMS IN THE SECOND DEVELOPMENT DECADE

The above account of agricultural development in the past quarter century and more particularly during the 1960s, which were designated as the First United Nations Development Decade, provides the setting for the role and problems of the agricultural sector during the Second Development Decade, due to begin in January 1971.

The target set for the First Development Decade was the achievement of a minimum annual rate of growth of national income of 5 percent by all the developing countries combined by the end of the period. Although some efforts were made in the course of the decade to examine the implications of this target for the various other principal magnitudes

concerned — the growth rates of the main sectors of the economy, of exports, imports, employment, savings, investment, etc. — the only other specific target called for an increase in the flow of resources to developing countries to a level of "approximately 1 percent of the combined national incomes of the economically advanced countries."[22] The absence of any other specific targets, and of a clear set of policy directives and national and international measures supported concretely by both developed and developing countries, meant that the First Development Decade served only as the starting point for the formulation of an international development strategy.

When preparations for the Second Development Decade were begun, much stress was therefore placed from the start on the need to formulate in a more comprehensive way both the strategy itself and the targets or norms which would constitute its objectives and against which progress would be measured. The preliminary framework, prepared between 1966 and 1970 under the auspices of the Preparatory Committee for the Second United Nations Development Decade, in consultation with the various United Nations agencies and with the help of the Committee for Development Planning, accordingly constitutes a comprehensive statement of the principal objectives of the decade, and of the national and international policies and measures required for their attainment. Specific arrangements are also proposed for the review and appraisal of progress, and for the mobilization of public opinion.

The basic objective of the Second Development Decade is the acceleration of development. It aims at a minimum annual rate of growth of 6 percent in the GDP of the developing countries as a whole over the decade (about 3.5 percent per caput), with the possibility of some acceleration during the second half of the decade.

The proposed strategy also stresses the importance of moving away from a narrowly economic and quantitative view of development. In the words of the most recent report of the Committee for Development Planning: "It cannot be overemphasized that what development implies for the developing countries is not simply an increase in productive capacity but major transformations in their economic and social structures. Their economies are characterized by dualism which has often the effect of making technological and economic advances sharpen the contrast between their modern and backward sectors and widen social and economic disparities ... It is not merely a question of how to evaluate the progress made ... The issue it raises is of the whole approach to development itself ... While it is evident that high rates of growth of output and income have to be realized ... in order to eliminate mass poverty, to generate fuller opportunities all round and to finance some of the social measures, the process of development has itself to be viewed in terms of fundamental structural changes and as much with reference to concepts and methods appropriate to planned social transformation as those customary to economic analysis and policy-making. Indeed, for this reason, the distinction often made between economic and social objectives is not a very meaningful one to draw."[23]

Final decisions on the overall strategy are to be taken by the United Nations General Assembly at its twenty-fifth session in September-December 1970. If the proposals of the Committee for Development Planning are followed, the decade will be launched with a General Declaration of Intent and Commitment, in which various commitments will be accepted by both developed and developing countries; this would be supplemented by a unilateral statement by each country in which it would define more precisely what it undertook to do. In the meantime, the various agencies concerned have been giving the proposed strategy a more concrete form, working out as far as possible the quantitative and policy implications for both developing and developed countries of the basic objectives.

FAO's proposals for the agricultural sector are to be elaborated in full detail by the middle of 1971. They will be based to a large extent on the Indicative World Plan for Agricultural Development (IWP), which was submitted in provisional form to the fifteenth session of the FAO Conference in November 1969 and subsequently discussed by the Second World Food Congress in June 1970.

The terminal date of IWP is 1985 rather than 1980. Moreover, additional work is to be done on a number of special problems such as employment, and the country coverage is to be expanded for the purpose of the Second Development Decade. Nevertheless, it is already possible to present a general review of the task of the agricultural sector during the Second Development Decade, and of what are likely to be some of the main problems of agricultural development in this period.

The average annual rate of growth of at least 6 percent in the GDP of the developing countries implies an average annual expansion of 4 percent in agricultural output.[24] The Committee for Development Planning states: "Particularly important will

[22] United Nations General Assembly resolution 1711 (XVI).

[23] United Nations, Department of Economic and Social Affairs, *Towards accelerated development: proposals for the Second United Nations Development Decade*. Report of the Committee for Development Planning, United Nations, New York, ST/ECA/128, 1970, p. 5.

[24] The aggregate demand (domestic and export) for agricultural products associated with a 6 percent growth rate of GDP is not more than 3.8 percent a year. The figure of 4 percent a year includes an element of compensation for the recent lags in agricultural production.

be the contribution of agriculture, by far the dominant activity in most developing countries. The suggested target of average annual expansion in the total gross product implies an annual increase in the demand for agricultural goods of around 4 percent in developing countries. An annual increase in agricultural output of this magnitude is, in any case, needed to feed growing populations and improve the people's intake of food, to ensure growing supplies of raw materials for industry and, concomitantly, to insulate pressures on domestic prices and to ease strains on the balance of payments. On the other hand, since the incomes of a majority of the peoples of the developing world are derived from agriculture which constitutes the bulk of the gross product, the objectives of both overall growth and equitable distribution of income require an increase in agricultural productivity. The committee considers that agricultural output can be increased by 4 percent per year on the average in developing countries."[25]

The main determinant of the task of agriculture is the continued rapid growth of population. The proposed strategy assumes a rate of 2.5 percent a year during the 1970s, which is in fact lower than the projected rate and presupposes a substantial measure of success in family planning programmes. Even at this rate, however, the population of the developing countries will increase by almost 500 million during the decade.

Population growth is the major component of the growth of demand for food in the developing countries. IWP estimates that between 1962 and 1985 about 70 percent of the increase in demand for food will come from population growth and only 30 percent from higher income per head (Table III-14).

TABLE III-14. – PROJECTED INCREASE IN THE DEMAND FOR FOOD, DEVELOPING REGIONS, 1962-85

	Total increase	Increase due to growth in		Proportion of increase due to	
		Population	Income per head	Population	Income per head
	..... Percent				
Far East	154	78	43	64	36
Near East and northwest Africa	143	87	30	74	26
Africa south of Sahara	122	80	24	77	23
Latin America	120	94	13	88	12
ALL DEVELOPING REGIONS	142	82	33	71	29

SOURCE: FAO. *Provisional Indicative World Plan for Agricultural Development*, Rome, 1969, Volume I, p. 15.

[25] United Nations, Department of Economic and Social Affairs, *op. cit.*, p. 8-9.

Population growth alone would require an increase of 80 percent in food supplies between 1962 and 1985, without any improvement in the quality or quantity of individual diets. Success in raising purchasing power in line with the high variant of the economic model used in IWP would increase the total demand for food by a further third. The somewhat higher growth now being postulated for the Second Development Decade would raise demand still more.[26]

The continuation of past trends in agricultural production in the developing countries would result in a gap between demand and supply for food-crop and livestock products, which, if it had to be filled by imports from other parts of the world, would by 1985 cost the developing countries approximately $43 000 million a year (at 1962 prices) compared to around $3 000 million in 1962.

Failure to achieve a faster rate of growth of staple food supplies and an improvement in the composition of the diet (particularly as regards protein content and quality) could not only have serious repercussions on the health and working ability of the adult population but incalculable long-term effects on the physical and perhaps also the mental status of future generations. Serious economic consequences would also follow. Food imports would tend to rise more rapidly, even though the developing countries would be unable to support imports of the magnitudes indicated above. Scarcity would drive up food prices, overall economic growth would slacken and demand would fall. Not only would real incomes fail to grow as desired, but there would be severe hardship among the poorer sections of the community.

Table III-15 shows the increases in food-crop production needed to avoid such a situation and proposed as objectives in IWP. Some of the difficulties involved in reaching these targets for the main food crops and in maintaining the desirable rate of growth and composition of food-crop production are discussed below as the first group of problems facing agriculture in the developing countries during the 1970s.

The second group of problems discussed here concerns the livestock sector, for which some similar data are presented in Table III-16. Here a principal problem is that meat from ruminant livestock (the main source of world meat supplies), mainly because of their long gestation period, cannot possibly be increased fast enough to keep pace with demand. Greatly increased emphasis is therefore essential on the potentially much faster growing pig and poultry sectors.

[26] FAO is preparing revised commodity projections in the light of the objectives proposed for the Second Development Decade.

TABLE III-15. – AVERAGE PRODUCTION OF MAJOR FOOD CROPS IN 1961-63 AND IWP OBJECTIVES FOR 1985

	Area		Percent of total area		Production		Annual growth of production 1961-63 to 1985	Percent of production increase from area increase
	1961-63	1985	1961-63	1985	1961-63	1985		
	Thousand hectares		*Percent*		*Thousand metric tons*		*Percent*	
FAR EAST								
Cereals	124 540	143 298	69	65	132 935	304 069	3.7	17
Starchy roots	1 763	3 104	1	2	15 464	37 442	3.9	64
Pulses (dry)	26 018	33 633	15	15	13 265	27 963	3.3	33
Groundnuts	6 962	12 753	4	6	5 125	19 611	6.0	45
Other oil crops	8 975	12 887	5	6	2 942	7 420	4.1	39
Vegetables	6 509	9 506	4	4	33 530	82 919	4.0	42
Fruits	2 937	5 274	2	2	17 093	46 676	4.5	58
AFRICA SOUTH OF SAHARA [1]								
Cereals	35 111	53 980	63	61	25 122	50 902	3.1	60
Starchy roots	7 784	12 020	14	14	44 782	80 300	2.6	73
Pulses (dry)	7 339	12 372	13	14	2 701	5 749	3.3	70
Groundnuts	4 414	6 984	8	8	3 454	7 122	3.2	62
Other oil crops	—	—	—	—	1 806	3 242	2.6	...
Vegetables	1 228	2 679	2	3	3 152	7 040	3.6	94
Fruits	—	—	—	—	10 455	17 314	2.2	...
LATIN AMERICA								
Cereals	36 861	53 748	72	70	50 987	99 508	2.9	59
Starchy roots	3 215	4 304	6	6	32 626	54 400	2.2	59
Pulses (dry)	5 775	8 018	11	11	3 382	6 860	3.1	45
Groundnuts	801	1 408	2	2	1 072	1 988	2.7	92
Other oil crops	1 019	2 552	2	3	2 655	7 534	4.6	89
Vegetables	858	1 518	2	2	7 413	16 867	3.6	69
Fruits	2 616	4 669	5	6	29 172	62 645	3.4	76
NEAR EAST AND NORTH AFRICA [2]								
Cereals	27 450	31 613	82	76	24 714	49 000	3.0	20
Starchy roots	152	232	—	—	1 486	2 939	3.0	63
Pulses (dry)	1 472	2 422	4	7	1 234	2 908	3.6	61
Groundnuts	1	8	—	—	—	12	—	...
Other oil crops	2 220	3 404	6	8	1 355	3 106	3.7	51
Vegetables	1 037	1 437	3	3	9 664	23 166	3.9	36
Fruits	1 761	2 402	5	6	7 807	17 973	3.7	38

[1] Total area refers to identified area. – [2] Data for north Africa are relative to 1965.

Increasing agricultural export earnings is the third problem area discussed. The overall growth target of at least 6 percent per year in the developing countries implies an increase of somewhat more than 7 percent per year in their exports during the Second Development Decade. International trade is the subject of by far the largest number of proposed policy measures in the draft strategy for the decade that is to be discussed by the United Nations General Assembly.

Trends in the export earnings of the developing countries in the 1960s and projections for the 1970s

TABLE III-16. – RATE OF GROWTH OF OUTPUT OF LIVESTOCK PRODUCTS [1] PROPOSED IN IWP, 1961-63 TO 1985

	Meat from ruminants	Pigmeat	Poultry meat	Total meat [2]	Milk	Eggs	Total livestock production [3]
	Percent per year						
Africa south of Sahara	3.1	4.1	6.3	3.4	2.4	4.9	3.9
Far East	2.2	4.4	5.6	3.5	2.8	5.9	3.3
Latin America	2.9	3.5	4.7	3.1	3.1	4.1	3.6
Near East and northwest Africa	2.9	— 1.8	7.0	3.2	2.6	4.4	3.1
TOTAL	2.9	3.9	5.6	3.2	2.8	4.8	3.5

SOURCE: FAO. *Provisional Indicative World Plan for Agricultural Development*, Rome, 1969, Volume 1, p. 245.
[1] Excluding retention of stock to build up inventories. – [2] Excluding offal. – [3] Farmgate value.

are shown in Table III-17. Even if nonagricultural exports grow at the high rate projected in the table and even if the net flow of resources from the developed countries reaches the target of 1 percent of GNP, a United Nations study still indicates the likelihood of a foreign exchange gap of up to $6 000 million a year by 1980.[27] In these circumstances, it is imperative to make every effort both to reduce the import demand of developing countries by expanding domestic production, and to raise exports beyond the levels projected on the assumption of the continuation of current trade policies.

Population growth is not only the major determinant of the demand for food and many other goods, but it also determines the size of the labour force for whom employment has to be found. Most of the problems of the Second Development Decade are very much the same as those of the first. The main exceptions are some crop production problems that arise from the very success achieved in accelerating the increase in production, and the problem of employment. In the last few years the population explosion in the developing countries, which in the 1960s still chiefly meant additional mouths to feed, has increasingly meant additional hands to be employed as well. The draft strategy for the Second Development Decade therefore stresses employment problems and states: "As part of their employment strategy, developing countries will put as much emphasis as possible on rural employment, and will also consider undertaking public works that harness manpower which would otherwise remain underutilized.[28]

It is now well known that, although the agricultural labour force declines steadily as a proportion of the total, the need to find employment for increasing numbers in the agricultural sector continues until a comparatively late stage in the process of economic development. There are three major variables which determine the speed at which the employment structure of the population is transformed, and the moment when the agricultural labour force finally begins to decline in absolute numbers: the rate of increase in the total labour force, the rate of increase in the nonagricultural labour force, and the initial share of the nonagricultural labour force in the total. During the 1960s the total labour force in the developing countries increased by 2.1 percent per year and the nonagricultural labour force by 3.4 percent, while the share of the nonagricultural labour force may be estimated as 39 percent in 1970. If these rates of growth continued, then the point where the agricultural labour force starts declining in absolute numbers would be reached only after 37 years (in the year 2007), at a level of 507 millions, compared to 383 millions in 1970. While the time span is particularly sensitive to changes in the rate of growth of the total population (labour force), the labour force at the end of the Second Development Decade has already been born. While, theoret-

[27] United Nations Economic and Social Council. *Preparation of guidelines and proposals for the Second United Nations Development Decade.* United Nations, New York, E/AC.54/L.29/Rev. 1, June 1968, p. 39-40.

[28] United Nations General Assembly. *Report of the Preparatory Committee for the Second United Nations Development Decade on its sixth session.* United Nations, New York, A/7982, June 1970, p. 15-16.

TABLE III-17. – GDP AND EXPORT EARNINGS OF DEVELOPING COUNTRIES, 1960-70, AND PROJECTIONS TO 1980

	GDP [1]			Total exports of goods and services [1]			Agricultural exports			Other exports (goods and services) [2]			Share of agricultural exports in total exports		
	Thousand million U.S. dollars at 1960 prices												*Percent*		
1960 [3]		182.8			31.1			[4]14.2			16.9			45.7	
1970 [5]		294.9			54.8			[6]16.8			38.0			30.7	
	Low		*High*	*Low*		*High*	*Low* [2]		*High* [7]	*Low*		*High*	*Low*		*High*
1980 [8]	524.5		547.2	101.6		[9]111.8	18.0		20.1	83.6		91.7	17.7		18.0
	Percent of GDP														
1960		100			17.0			7.8			9.2				
1970		100			18.6			5.7			12.9				
1980		100		19.4		20.4	3.4		3.7	15.9		16.8			
	Average annual growth rates (percent)														
1960-70		4.9			5.8			1.7			8.4				
1970-80	5.9		6.4	6.4		7.4	0.7		1.8	8.2		[10]9.2			

[1] United Nations Economic and Social Council: *Preparation of guidelines and proposals for the Second United Nations Development Decade.* E/AC.54/L.29/Rev. 1. 14 June 1968. "Low" projections are based on the assumption of 6 percent per year as the terminal (1980) target rate of growth of GDP in developing countries and 4.2 percent per year in developed countries in 1970-80. "High" projections are based on the assumption of 7 percent per year as the terminal (1980) target rate of growth of GDP in developing countries and 4.7 percent per year in developed countries in 1970-80. – [2] Data obtained as residuals. – [3] Actual data. – [4] UNCTAD: *Handbook of international trade and development statistics.* 1969. – [5] Estimates. – [6] FAO data. – [7] $109 700 million according to UNCTAD projections (*Trade projections for 1975 and 1980.* TD/B/264, 7 August 1969). – [8] Projections. – [9] Estimates corresponding to FAO *Agricultural commodities projections for 1975 and 1985.* Volume I. Table 15, p. 58. – [10] The same rate as in UNCTAD projections (*op. cit.*).

ically, the rate at which nonagricultural employment is created can be increased, there are definite limitations on this in practice, the most important being the effective demand for nonagricultural products and the high capital cost of job creation with modern technology.

This indicates the magnitude of the rural employment problem, the fourth main problem of the 1970s discussed below. A final section of the chapter deals with some of the overall implications of these four problem areas, first for domestic policies and second for international cooperation.

Food crop production

Table III-15 above showed the increases in crop production required to avoid a mounting food crisis. It also illustrates vividly the dominance of cereals in the crop sector, where they occupy (depending on the region) 60 to 75 percent of cultivated area. They supply 40 to 70 percent of both calories and protein in the diet, and represent 20 to 25 percent of the gross value of agricultural production. A rapid expansion of cereal output is therefore basic to providing an adequate level of staple food supplies in most developing countries.

It is also the key to the achievement of many other agricultural objectives. Not only has the area under cereals tended to increase, often at the expense of other crops, natural grazings, and forests, but the urge to be self-sufficient in food grains — or at least to reduce escalating imports — has led to a major share of technical effort and financial resources being channelled toward cereals. This has tended to be to the detriment of progress in other sectors of agriculture, but in the last few years it appears to have resulted in a breakthrough in cereal production technology in a number of food-deficit countries. If this breakthrough is properly exploited it could make possible the diversion of land and other resources to other agricultural priorities. Thus, despite the apparent paradox, a faster growth of cereal production must be the priority short-term objective for most developing countries.

Cereal production prospects

Progress in cereal production will depend much more than in the past on an increase in yields and cropping intensities rather than on utilizing additional land. Success will depend heavily on the use of modern production methods appropriately modified to local needs, and a major factor is expected to be the wider use of high-yielding varieties.

Table III-18 shows the latest information available to FAO from a number of sources concerning the area under high-yielding varieties of wheat and rice in those countries of the Far East and Near East which are actively pursuing their adoption — excluding China (Taiwan) and the United Arab Republic, which already have practically all their cereal area planted to them. It should be emphasized that these and some other developing countries have made substantial progress in breeding varieties better adapted to intensive farming than their traditional ones, independent of the work done under international auspices on wheat and maize breeding in Mexico and on rice in the Philippines. Ceylon and Malaysia are examples of countries which have put a major effort into the improvement of Indica rice, and this is reflected in average irrigated yields well above those in most countries of Asia and in rapid increases in production.

There is in fact a problem of definition here, since the cereal varieties now being grown in a number of countries as a result of local effort are definitely superior in terms of yield to their traditional varieties, but nevertheless have a yield ceiling considerably below that theoretically attainable from the use of those bred under the international programmes or from their local derivatives now being developed in

TABLE III-18. – ESTIMATED AREA UNDER HIGH-YIELDING WHEAT AND RICE VARIETIES,[1] 1968/69, SELECTED DEVELOPING COUNTRIES

	Wheat area	Percent of total area	Rice area	Percent of total area
	1 000 ha		*1 000 ha*	
Afghanistan	150	6	...	—
Ceylon	—	—	375	68
India	5 700	36	3 440	10
Indonesia	—	—	800	11
Iran	55	1	some	...
Iraq	10	0.5	some	...
Korea. Rep. of	some	...	950	85
Nepal	75	40	...	...
Pakistan	2 600	40	640	6
Philippines	—	—	1 000	32
Turkey	770	9	...	—
Viet-Nam. Rep. of	—	—	200	9

SOURCE: *Proceedings of Third FAO Wheat Seminar*. Ankara 1970; United States Department of Agriculture reports and other reports available to FAO.

[1] Including locally bred improved varieties.

some countries. The critical factor is probably response to nitrogen fertilizer, in terms both of the amount that can be applied before the variety falls over and of the economic response in kilogrammes of grain per kilogramme of nutrient applied Some traditional, and most locally-bred improved varieties respond economically to up to 60 kilogrammes of nitrogen per hectare; high-yielding ones up to 120 kilogrammes per hectare. While this is a somewhat oversimplified definition, it is essential to emphasize that there are many parts of the world where varieties in the last category cannot be grown for ecological reasons, and others where they need not be grown for economic reasons, so that the fact that a country has not yet adopted high-yielding varieties on a large scale is not necessarily indicative of lack of initiative by either farmers or national planners.

An overall estimate would be that wheat varieties with a potential justifying the label "high-yielding" under the above definition now cover about 40 around of the total wheat area in the Far East and 8 percent of that in the Near East.[29] The latter, however, includes the United Arab Republic where wheat is mainly irrigated; the area sown to high-yielding varieties in the remaining 10 million hectares of largely rainfed wheat in the region is at present only about 2 percent. In addition Turkey has some 800 000 hectares (roughly 10 percent of its total area) under such varieties, principally in the warmer zones. In the case of rice the estimates vary more widely, but in the Far East (including Indonesia and the Republic of Viet-Nam), about 11 percent of the total area is now believed to be under intermediate- to high-yielding varieties disseminated since 1965/66, with (again excepting the United Arab Republic) a relatively insignificant area in the Near East and northwest Africa.

In addition the use of high-yielding varieties of coarse grains, especially maize, is gaining momentum in the Far East. In order to overcome seed production bottlenecks and farmers' objections to having to renew hybrid seed every year, countries are tending to concentrate on developing improved open-pollinated or "composite" rather than hybrid varieties, accepting a slightly lower yield in exchange for a more rapid rate of adoption. Except in the United Arab Republic, where hybrid maize is widely grown, they seem so far to be hardly used at all in the Near East.

In Africa and Latin America progress in the adoption of high-yielding varieties has been patchy (although here again there are problems of definition). Mexico now has the bulk of its wheatland under dwarf varieties, and the area in Brazil is expanding rapidly. Mexico and some other Latin American countries are moving forward with hybrid maize, which, in Africa, has been outstandingly successful in Kenya and is increasingly being used in Malawi and Zambia. Madagascar has about half its rice area under improved varieties, and there has been encouraging progress in breeding swamp rice in west Africa with yields up to 4 tons per hectare. In irrigated areas of western Latin America and in Rio Grande do Sul in Brazil, modern techniques of rice production are being used and high average yields obtained. These, however, are islands in a sea of generally backward farming methods. At the same time it must be recognized that pressure on land is generally less severe in these regions, and that an additional disincentive to intensifying production in Latin America is the inequitable distribution of land and income, which also places a constraint on the demand for food.

It is difficult to calculate precisely the contribution of high-yielding varieties to additional production because of the rapidity of their spread over a short period, weather fluctuations, interactions with irrigation, fertilizer and other inputs, and expansion of area (including double cropping). Some provisional estimates for south and southeast Asia suggest additions of the order of 9 and 20 percent respectively to rice and wheat production in that region in 1968/69 (equivalent to around 22 million tons of food grains).[30] The cumulative value of rice production increases resulting from the development of new varieties in Asia since 1966 has been put at $1 500 million.[31] For India the additional gross value of wheat production over three years (mainly attributed to high-yielding varieties and related inputs) may be about $1 850 million at current prices.[32]

Although these are certainly no mean achievements, a generous estimate of the addition to overall food-grain output in the developing world arising in 1969/70 from the area sown to varieties deserving the label "high-yielding" would not exceed 10 percent. This hardly seems the massive breakthrough in food production pictured in many reports. However, it must be remembered that the area sown to these varieties outside Mexico, the United Arab Republic, and the Japonica rice countries of east Asia and the Mediterranean totalled only 15 000 hectares in 1965/66, and that it has now risen to around 17 million hectares. This is equal to almost a quarter of the total cereal area in western Europe or the United States, and has been achieved by the so-called developing countries in four years, largely by their own efforts following the initial injection of seed from the

[29] See countries included in Table III-19 for definition.

[30] J. W. Willett. The impact of new varieties of rice and wheat in Asia. *AID Spring Review*. Washington. May 1969.

[31] *Symposium on science and foreign policy – the Green Revolution*. United States Government Printing Office. Washington, 1970, p. 22.

[32] R. G. Anderson. *Wheat improvement and production in India*. FAO Wheat Breeding Seminar, Ankara, 1970.

ders in 1965. The expansion of area under dwarf wheat in Mexico and hybrid maize in the United States took 15 years; the agricultural revolution in western Europe took considerably longer.

Moreover, the psychological impact of the high-yielding varieties on both governments and farmers in the developing world may outweigh their immediate material benefits. To governments they have given renewed hope and shown that investment in agriculture (and particularly in properly conducted research) can pay handsomely. To farmers they have given new incentives and motivations, providing a market orientation even to the smaller cultivator, and proving that food crops can also be highly profitable cash crops. Most important of all, they have made them more receptive to innovation, and this should accelerate the adoption of new technology for cereals (given adequate institutional support), and also permit its later use as an important tool toward diversification.

From what has been said above it will be seen that, while the evolution of the high-yielding varieties and related improvements in other cereal production techniques offer the means of achieving a more adequate level of consumption of staple foods and some stabilization of urban food prices, their significance lies mainly in their future potential. Given a continuation of current rates of growth in production over a protracted period, large cereal surpluses could be generated, particularly by some Asian countries which are now net importers. This could cause difficult economic problems, not only for established exporters but also for the new countries trying to break into the market.

Prediction or projection is always hazardous, but particularly so in a highly dynamic situation. In the case of south Asia (the major deficit area) there was a sharp drop in cereal production as a result of two disastrous years in 1965 and 1966, which has exaggerated the growth rates since 1966 — the period of adoption of the high-yielding varieties. Table III-19 shows that a continuation of 1964-66 to 1967-69 growth rates in these countries would result by 1975 not merely in self-sufficiency but in a massive surplus of 26 millions tons, which would be mainly of rice and wheat. This would be far in excess of that considered likely even on optimistic technical assumptions by IWP, and clearly could be absorbed neither by exports nor by increases in domestic demand as a result of lower prices.

On the other hand, analysis over a longer period which includes 1965 and 1966 may undervalue the change in the situation. On this basis the Far East region as a whole would remain a net deficit area, and only Thailand (a traditional exporter) and possibly Pakistan would have more to export. Nevertheless, self-sufficiency ratios in most countries would rise, and 1975 cereal imports would be below their 1966 peak of 14.5 million tons despite the large increase in the population. The extent to which this would cause difficulties for the established rice exporters of the region is uncertain since although prices are beginning to fall, there is evidence that, with more and cheaper rice, consumers tend to shift from other cereals, while income elasticity is high among the poorer classes and in rural areas.[33] Actual consumption of rice in 1975 may therefore be higher than that projected by FAO, which used a constant price assumption and did not take income distribution into account.

The situation in the Near East appears somewhat parallel. The growth of cereal production has accelerated since 1964-66, and a continuation of the recent rapid growth, particularly in Iran and Iraq, would lead to a 6.5 million ton net surplus by 1975, again mainly of wheat and rice. Extrapolation of the 1961-63 to 1967-69 growth rates would result in an import requirement of 3 million tons by 1975, although the annual increase in imports would be slower than the 10 percent registered between 1955 and 1965.

The rapid expansion of wheat and rice production in the Near East has been partly due to increased area (over 1 million hectares in the case of wheat) but, as in the Far East, yield improvement has also contributed much more than in the past. Since the area under high-yielding varieties is insignificant in the Near East (except in the United Arab Republic), it seems probable that high prices for food grains have induced farmers to use improved techniques and especially fertilizers on existing varieties, particularly in the case of wheat, where there has been considerable varietal improvement at the national level. In contrast, the area and yield of feed grains, for which relative prices are generally lower than for wheat, have virtually stagnated, and it will be difficult to expand their output to meet the objectives of livestock programmes in the absence of higher yielding varieties of barley and sorghum, and in the face of the fixation on food-grain self-sufficiency which biases government price support policies in favour of wheat and rice. Food-grain surplus countries might have to consider using a greater proportion of wheat for feed, and at least for poultry this would be very suitable; but even deficit countries might find it economically sound to import cheap grain rather than expensive livestock products.

To generate surpluses of the magnitude shown in column 8 of Table III-19 would require that growth rates of around 6 percent be sustained in the major cereal-producing countries of the Far East and Near

[33] *Recent trends and patterns in rice trade, and possible lines of action.* FAO Committee on Commodity Problems. Study Group on Rice. CCP : RI 70/6, April 1970.

TABLE III-19. – CEREAL PRODUCTION 1961-63 AND 1967-69 IN THE FAR EAST AND NEAR EAST, PROPOSED 1975 UTILIZATION AND EFFECTS OF CERTAIN GROWTH RATE ASSUMPTIONS[1]

	Production		Domestic utilization IWP postulate 1975	Production growth rates			Net trade[2] on IWP postulate of 1975 domestic utilization assuming continuation of		Net trade[2] on proposed 1962-75 IWP production and utilization growth
	1961-63	1967-69		Actual 1961-63 to 1967-69	Actual 1964-66 to 1967-69	Required 1968-75 to meet IWP utilization	1962-68 production growth	1965-68 production growth	
	Thousand metric tons			*Percent per year*			*Thousand metric tons*		
FAR EAST									
Ceylon	1 030	1 355	3 120	4.7	12.5	13.0	+ 1 250	+ 30	+ 965
China (Taiwan)	2 262	3 297	4 290	3.6	1.8	3.7	+ 70	+ 560	+ 560
India	86 116	102 246	132 110	2.9	6.6	3.6	+ 7 210	— 27 830	— 1 419
Korea, Rep. of	6 420	7 331	11 180	2.2	— 0.2	6.3	+ 2 820	+ 3 850	+ 1 634
Malaysia: West	839	986	2 660	2.7	4.7	15.5	+ 1 470	+ 1 290	+ [3]1 043
Pakistan	21 547	27 067	36 180	3.9	5.7	4.3	+ 800	— 3 720	— 2 426
Philippines	5 184	5 872	9 872	2.1	2.7	7.3	+ 2 930	+ 2 640	+ 598
Thailand	9 137	11 888	10 700	4.5	1.8	Nil	— 5 480	— 2 950	— 4 717
TOTAL 8 COUNTRIES	132 935	159 948	209 960	3.1	5.5	4.1	+[4]11 070	— 26 130	— 3 756
NEAR EAST									
Afghanistan	3 569	3 775	5 132	0.9	1.1	5.3	+ 1 152	— 285	— 234
Iran	4 572	6 660	8 561	6.5	12.0	3.7	— 1 762	— 6 148	— 511
Iraq	1 871	2 501	3 176	4.9	11.0	3.5	— 318	— 2 016	— 230
Jordan	156	177	564	2.2	— 10.0	18.0	+ 358	+ 358	+ 378
Lebanon	100	75	561	— 4.5	— 5.0	20.0	+ 486	+ 486	+ 447
Southern Yemen	37	48	197	4.4	7.2	20.0	+ 132	+ 119	+ 135
Saudi Arabia	230	248	909	1.3	0.8	20.5	+ 639	+ 646	+ 498
Sudan, The	1 690	1 755	2 880	0.6	7.9	7.3	+ 1 052	— 108	— 124
Syria	1 805	1 512	2 049	— 2.9	1.3	4.4	+ 537	+ 393	— 218
United Arab Republic	5 947	7 152	9 169	3.1	4.1	3.6	+ 315	— 307	— 291
Yemen	1 003	742	1 384	— 5.1	4.7	9.3	+ 642	+ 361	+ 31
TOTAL 11 COUNTRIES	20 980	24 645	34 582	2.7	5.9	5.0	+ [5]3 233	— 6 501	— 119

[1] Negative trends have not been projected; an arbitrary assumption has been made in these cases that 1975 production would be as in 1967-69. – [2] Net imports (+), net exports (—). – [3] Revised. – [4] Net imports 6 182 million tons in 1962. – [5] Net imports 3 128 million tons in 1962.

East more or less for the decade 1965-75. While this cannot be completely discounted, it seems unlikely not only on economic grounds but also because physical barriers could not be removed fast enough, and because (as mentioned below) there may be an increasing institutional constraint. Since the medium-term outlook for other developing regions does not indicate a major change in the cereal situation, there does not seem a serious danger of additional massive supplies of cereals being released onto world markets by 1975, although the possibility from time to time of weather-induced surpluses from countries on the verge of self-sufficiency cannot be excluded. The situation therefore may be much as postulated by IWP.

As for the longer term, from surveys of national plans and natural resources IWP estimated that (excluding land required for other crops) some 75 million hectares could be utilized for high-yielding varieties of cereals in the Far East (around five times the current area) and 7.5 million hectares in the Near East and north Africa (over 10 times the present area). Given continued high cereal prices, the progressive expansion of area under high-yielding varieties and controlled irrigation, and the use of modern techniques of production, IWP shows

that much larger "export availabilities" of wheat, rice, and possibly feed grains are technically feasible by 1985. In the light of the future prospects for trade in rice and wheat, however, export markets are unlikely to be available for supplies of this magnitude, even assuming restricted domestic production of cereals in developed countries.

Thus the outlook for staple food supplies in the developing countries, while in many respects more hopeful, gives no grounds for complacency. Any slackening of current efforts to increase cereal production could lead to a further increase in imports; any major "overshoot," once approximate self-sufficiency had been achieved in deficit countries, could be almost as expensive to those countries and perhaps even more disastrous to traditional cereal exporters.

Social dilemma of the high-yielding varieties

The problems of cereal production, however, are not concerned solely with the level of supplies. The high prices which have provided a major incentive to farmers to invest in high-yielding varieties and other yield-increasing inputs will have to be reduced to prevent overproduction and distortions of the land-use pattern in countries with the physical and technical potential to develop surpluses. This will also be necessary if the increased levels of concentrate feeding required to achieve the rapid growth of livestock production needed to meet future demand are to be economic.

This poses a most difficult dilemma since, while from an examination of input-output relationships it appears feasible gradually to reduce cereal prices in areas where high-yielding varieties can be grown successfully by, say, 20 percent without creating a disincentive large enough for farmers to abandon the use of modern technology, these varieties can probably be grown on no more than one third of the total cereal area. Moreover, although in theory the high-yielding varieties are neutral with respect to scale, this appears not to be true in practice. Certainly small farmers can use these varieties successfully and (relative to nonusers) can get high yields with appropriate complementary irrigation, fertilizer and pesticide applications — with or without mechanization. Experience in east Asia has proved this. Nevertheless, efficient and timely sowing at proper depths and spacing with the aid of mechanical equipment, and efficient and timely harvesting, threshing and drying would probably raise yields still further. Tractors and other equipment have been specially designed for work on small farms, but even so there are economies of scale and effectiveness where holdings are larger and unfragmented — a rare phenomenon in many countries of the Far East, Near East and north Africa. Finally, all purchased inputs require capital from the farmer, and even if fertilizer and pesticides do not represent a major cost comparable to a tractor, they do require that the farmer spends more money and thus incurs more risk. Many smaller farmers do not have ready access to money, and tenant farmers are often not considered creditworthy where institutional credit does exist. Risks of loss can be reduced by private investment in irrigation where this is not provided by government, and by efficient mechanization and pest control, but this only completes the vicious circle by which those with capital (which generally means the larger farmers) can benefit relatively more than others from the high-yielding varieties.

Experience in the Philippines suggests that as an increasing number of farmers adopt high-yielding varieties the average level of yields from these varieties declines, as does the use of inputs.[34] If this were to prove generally true, it could lead to a gradual reduction in the impact of the high-yielding varieties and other improved techniques, with a corresponding decline in the rate of expansion of output. In order to prevent this, high priority must be given to building integrated institutional services in which all farmers can participate, irrespective of size of ownership, as well as to practical mesasures to provide some of the benefits of scale to the smaller farmers by means of structural changes. This, along with courageous taxation measures to redistribute excessive profits and prevent unnecessary labour displacement by mechanization, would do much to enable all farmers in areas of high potential to share in and benefit from the green revolution. It would also help to cushion the effects of a decline in cereal prices, and to avert the gloomier prophecies of social upheaval.

An equally tough problem lies in the low potential areas where high-yielding varieties cannot be grown, but which nevertheless are predominantly devoted to cereal culture. Farmers here have very little flexibility for absorbing price cuts — either by attempting to raise yields by increasing efficiency, or by retrenching on nonfixed costs. Their possibilities and incomes are rigidly fixed by the harsh realities of nature. Any fall in cereal prices would bear especially severely on them, and although some system of two-tier price support such as was introduced in Mexico might prove a palliative, a major priority for future development policy — both at the national level and for international aid — should be to find means of improving their lot without sacrificing the overall objectives of faster economic growth and an adequate level of food supply for the bulk of the population.

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[34] R.W. Barker. *Economic aspects of high-yielding varieties of rice.* IRRI Report. FAO Study Group on Rice, thirteenth session, CCP:RI 69/12, March 1969.

Priorities and future policies for major food crops

The main policy implications to be drawn from this analysis are three. First, three must be no slackening of current efforts to expand the area under high-yielding varieties, and to adopt any other measures to increase cereal output as rapidly as possible (particularly by the smaller farmers). Second, even while this is being done, a greatly intensified research effort is needed on the production of other crops, which although necessary to meet the changing priorties of an increasingly market-oriented economy in the longer term, cannot easily be realized until the basic problem of cereal supplies is solved. Finally, attempts must be made to find solutions to the problems of agriculture in difficult environments in order to mitigate poverty and the dangers of social upheaval.

Maintaining the impetus of the high-yielding cereal variety programmes

In reporting on the experience of the International Rice Research Institute, Barker [35] has identified nine factors influencing the dissemination of new varieties, the weight of which will vary both between and within countries: water control; efficiency of plant protection services or alternatively of varietal resistance to insects, rodents, and diseases; availability of complementary inputs and credit; relative advantages of new over existing varieties, particularly in economic terms; acceptability of grain quality; quality of farm management; farm institutional structure; availability of adequate marketing resources, including drying facilities, storage and milling equipment; and government institutional structure, incentive, and initiative. He selected five critical factors, whose impact on the adoption of new Indica rice varieties in selected Asian countries is shown in Table III-20.

Experience with wheat and maize in general confirms the validity of these points. IWP adopted basically the same criteria in its proposals for a strategy to increase cereal output, stressing the need for a continuing research effort to overcome the second and fifth of the problems listed above, and specified much improved seed multiplication services as an essential supporting measure. The importance of this still seems to be underestimated. Plant breeders are rapidly evolving new varieties which could provide adequate insurance against the risk of a devastating epiphytotic resulting from having vast areas under varieties derived from a very narrow spectrum of genetic material. Unfortunately, machinery for the widespread and rapid introduction of new disease-resistant varieties does not exist in many countries. Farmer-to-farmer spread of new seeds has played an important role in several countries where the new seeds were imported in bulk from Mexico (e.g., India and Pakistan). But this is no substitute for a properly organized seed production service when large quantities of breeders' seeds of a domestically produced variety have to be multiplied and distributed urgently. The private sector could

[35] R.W. Barker, *op. cit.*, p. 15.

TABLE III-20. – COUNTRIES IN A MORE FAVOURABLE OR LESS FAVOURABLE SITUATION WITH RESPECT TO FIVE FACTORS INFLUENCING DISSEMINATION OF NEW INDICA VARIETIES IN SOUTH AND SOUTHEAST ASIA, 1968 [1]

	Water control	Availability of inputs	Yield advantage over existing varieties	Disease resistance	Quality acceptability of new rice grain
MORE FAVOURABLE					
India	average	good	*high*	average	average
Malaysia	*good*	good	high	high	poor
Philippines	average	good	*high*	average	average
Pakistan, West	good	good	*high*	high	average
Viet-Nam, Rep. of	average	average	*high*	average	average
AVERAGE					
Ceylon	good	good	low	average	average
Indonesia	average	poor	medium	average	average
LESS FAVOURABLE					
Burma	poor	poor	high	average	poor
Pakistan, East	*poor*	average	high	*low*	average
Thailand	*poor*	average	medium	average	*poor*

SOURCE: R.W. Barker. *Economic aspects of high-yielding varieties of rice.* IRRI Report. FAO Study Group on Rice, CCP: RI 69/12, March 1969.
[1] Those factors thought to be particularly important in influencing the initial rapid or slow rate of adoption are in italics.

play an important role here, as it does in the developed countries, with the government acting mainly in a supervisory capacity. Experience in the developing countries has not so far been encouraging, private enterprise often being expected to operate on too small profit margins, but a reexamination of potential benefits in the light of opportunity costs for other uses of scarce government resources could justify allowing more favourable terms to firms willing to invest.

Results so far achieved with the three crops for which major international research centres have been set up (wheat, maize, and rice) have demonstrated that a major multidisciplinary effort can yield substantial benefits. Although cost-benefit ratios cannot easily be estimated in this type of work, the economic results of the Mexican wheat breeding and United States hybrid maize and sorghum programmes, as well as the more recent work on rice and wheat in Asia, all suggest that the payoff at the national level can be extremely high.[36]

Nevertheless, the development of the new varieties has not been an unmitigated success story, and to consolidate, improve on, and extend the progress made so far is a precondition of continued agricultural expansion in many developing countries. Quite apart from the marked regional disparities in their adoption referred to earlier, existing varieties of wheat, maize and, especially, of rice are far from perfect. Plant genetic improvement is a process of continuing evolution. While initial problems of palatability and consumer acceptance appear well on the way to solution, an unremitting effort will be required to overcome pest, disease and environmental problems in order to raise cropping intensities and to extend their coverage to new areas. Even where the new varieties are in wide use by farmers, much adaptive research remains to be done to determine the optimum rates of water and fertilizer use, crop protection requirements, suitability for intensive rotations, and the possibilities of new techniques such as ratooning which give promise of very high rates of feed-grain production per year. This implies not only "outreach" programmes from major international or regional research centres, but also in many cases strengthened and better coordinated national research.

In addition there are important gaps in breeding programmes which remain to be covered by research. Comparatively little has yet been done to improve varieties of barley or of the winter hardy or durum wheats which are grown under rainfed conditions in large areas of the Near East and north Africa. Only about 20 percent of world rice output now comes from land adequately equipped with controlled irrigation and protected from deep flooding, which are prerequisites for the successful use of the dwarf Indica varieties. This area will increase, as development programmes are implemented, but there will remain a large area under upland, swamp, and deep water rice varieties to which little research and extension effort have so far been directed. Perhaps the highest priority of all is to increase yields of sorghum and millet, which occupy 30 million hectares (over half of the total cereal area) in Africa south of the Sahara and also large parts of Asia and Latin America. In many areas it is not feasible to substitute these by other cereals for ecological reasons, nor is it nutritionally or economically desirable.

One further priority must be stressed in respect of cereals. Since for full success the high-yielding varieties require a suitable physical environment, with freedom from drought or deep flooding and an assured and adequate supply of water, their use is closely linked to programmes for land and water development. In many developing countries new land is so scarce that practically the only way of expanding production is through irrigation, drainage, terracing and similar investments designed to facilitate more intensive use of existing areas of cultivated land.

Improving Yields of Roots and Tubers

While so much attention has been concentrated on cereals, it is essential not to overlook the significant role of roots, tubers, and other starchy products such as plantains, in the diet of many people. Almost the entire world production of cassava, yams and plantains, and 80 percent of sweet potatoes, is produced and consumed in the developing countries, approximately half of it in Africa, where 80 million people in the humid tropical zone depend almost entirely on cassava and yams for their staple food. Hitherto such crops have been largely neglected in research and development programmes, and accelerated and better coordinated effort is a major priority, particularly for Africa. Fortunately, there are promising indications that yield and possibly also protein content could be increased significantly over present low levels by the selection of better planting material and the improvement of cultural practices.

Cassava has generally been reckoned to be of poor nutritive value, despite its ability to produce more calories per hectare than any other crop in the humid tropics and its good keeping qualities. However, the young leaves can contain up to 18 percent pro-

[36] See T.W. Schultz. *The allocation of resources to research.* University of Chicago, Agricultural Economics Paper No. 68:16, 1969. This shows the social rate of return on a discounted cash flow analysis above a 10 percent discount rate to be 700 on hybrid maize research and 360 on hybrid sorghum research in the United States, and 750 and 300 respectively on the hybrid wheat and maize research programmes in Mexico. The International Rice Research Institute estimates a return of $400 million in 1968 alone on a total research expenditure of $20 million.

tein, and plant collection work has isolated roots with up to 6 percent protein which could form the basis for a clonal propagation programme. Where land remains plentiful and it is difficult to find suitable alternative food crops (as in equatorial Africa), cassava will probably continue to be grown as a main subsistence crop under extensive conditions, and priority must be given to the diffusion of improved clones resistant to cassava mosaic and other diseases, and with higher protein content. In areas with strong population pressure, on the other hand, the objective should be to attain very high yields, possibly involving the systematic use of fertilizer. Numerous experiments have shown that average annual yields of about 30 tons per hectare (five times present national averages) can be achieved, but more study of the economics of fertilizer use under African conditions is required.

Yams and sweet potatoes also offer considerable opportunities for intensive market gardening type production, as well as for improvements in tuber quality. The main problem with the former is high wastage in storage. Sweet potatoes offer a particularly promising field of work for Asian countries, as they fit well into multiple cropping systems, have limited susceptibility to insect pests and diseases, a relatively low water requirement, and can give good yields even in soils of medium fertility. Emphasis should be given to the improvement of the existing yellow varieties with relatively high protein and carotene content. Further study is also required to investigate the potential and identify the constraints on the wider use of cocoyams, which are resistant to disease, store well, and have a higher dry-matter, crude protein and amino-acid content than cassava, yams or sweet potatoes, but which at present are only cultivated on a limited scale.

Improving protein supplies

While the recent technical progress in respect of cereals holds out the hope that it may be feasible to meet both economic demand and nutritional requirements for calories in many developing countries, the task appears much more formidable in the case of protein. This is not merely due to inequalities of distribution — although these are much more pronounced in the case of protein-rich foods than of those supplying mainly calories — but also because the gap between available protein and nutritional needs is often much larger than that between supplies and effective demand.

Despite arguments that cultivated land should be used to produce food for direct human consumption rather than processing it relatively inefficiently through livestock, most people have a preference for animal protein. However, their ability to express this desire is constrained by ecological factors and by price, income distribution, and marketing channels. Although demand at constant prices is projected to rise rapidly, this is unlikely to be met because of the timelag involved in increasing livestock output, particularly from ruminants, and because of a resource barrier to rapidly expanding catches of conventional fish species. Prices of animal protein are therefore likely to rise sharply during the Second Development Decade, and unless supplies of high-quality vegetable protein can be increased and concurrent measures taken to promote its consumption, severe malnutrition could well increase despite the improvement anticipated in calorie supplies. A rapid expansion of output of vegetable protein is particularly crucial among the lower income groups and vulnerable classes in countries such as India where over 40 percent of the population is vegetarian for religious reasons, and in rural areas of predominantly subsistence agriculture where the weight of ecological constraints is greatest and income-generated improvements in the diet likely to be slowest.

There is, of course, the possibility of manufacturing nonconventional proteins or synthetic amino acids, to which a good deal of industrial research is being devoted in developed countries. Some processes have now reached the commercial production stage, but because of uncertainty as to the effects on human health as well as problems of taste and consumer acceptance, their application in the immediate future is expected to be mainly as livestock feed. This could have particular attractions for developing countries with petroleum industries, but there are clearly long-term implications for agricultural producers both on the credit and debit side which so far appear to have received little attention.

Two concurrent lines of attack are required with vegetable protein: first, to attempt to increase the total protein content and quality of cereals; and second, to increase the area, yield, and protein quality of protein-rich crops, including both grain legumes and leguminous oilseeds such as groundnuts and soybeans.

In the case of cereals, research on maize has already resulted in relatively high-yielding varieties richer in essential amino acids (via backcrossing from the high-lysine mutants opaque-2 and floury-2). It has also been shown that total protein per hectare can be increased substantially with high levels of nitrogen fertilizer. This could solve the problems of protein malnutrition associated with maize-based diets. It may also eventually lead to a reduced demand for high-protein concentrates such as soybean meal in livestock feeds. Progress with other cereals has been more limited in respect of protein quality, although total protein content has been increased

significantly by wheat breeding, and the range of genetic variation in both protein content and quality in most cereals appears wide enough to offer hope of further improvement. For wheat, millet and sorghum, research should aim first at developing high-lysine varieties because of the wide gap between the primary and secondary limiting amino acids. This could significantly increase the protein intake of poorer people who do not have access to the 20 to 25 percent of pulses or animal products needed to offset the lysine deficit in their staple food. The quest for varieties with a higher total protein content is less urgent because diets based largely on these crops are generally adequate as far as the protein-calorie ratio is concerned.

For rice, the research priorities in respect of protein are reversed. Increasing the lysine content will afford only a limited gain in protein value because the gap between the primary and secondary limiting amino acids is narrower. Conversely, therefore, selective breeding should aim at raising the total protein content in order to augment the protein-calorie ratio of rice diets without altering the present amino-acid pattern. For example, the replacement by 1985 of half the rice consumed in Asia by a new variety with good consumer acceptability and a protein content of 11 percent would raise the per caput protein intake by some 10 percent.

A further interesting possibility is "genetic engineering" to create stable intergeneric hybrids, of which Triticale (wheat × rye) is the most promising example so far. Work on this has reached the stage where there is a distinct probability of being able to release commercially within the current decade a plant with high-yielding capacity, short straw, excellent resistance to wheat rusts, good drought and cold tolerance, and a protein content of 20 percent with a quality equivalent to that of skim milk. Strains of Triticale are already under trial in the FAO Near East wheat and barley nurseries, with initially a view to their introduction as hardy feed grains, and further breeding work is in progress.

As regards the leguminous crops, research on grain legumes in most developing countries is still extremely inadequate, with the result that their yields have hardly increased since the mid-1950s. High priority needs to be given to chick-peas and lentils (mainly in drier areas of the Near East and south Asia), to cowpeas (mainly in tropical latitudes and predominantly in Africa), and to haricot beans (genus *Phaseolus*). Significant progress in groundnut production has been made as a result of research and extension programmes in some countries of Africa, but yields in Asia (the largest producing region) have long remained static; nor have average yields in the main soybean-producing countries of the developing world shown much improvement. These two crops are of particular importance, not only because of their direct contribution to the diet, the value of their oil for exports or import substitution, and the indirect value of protein-rich cake to livestock nutrition, but also because of their potential significance as sources of formulated protein foods and dietary supplements, including weaning foods.

Improved and often simple cultural practices (that is, optimum sowing dates, planting distances and seed rates, weed control, and better harvesting techniques) could do much to improve yields of many of the food legumes in the immediate future, as could moderate levels of fertilizer application combined with better crop protection practices. Experience in a number of countries suggests that reasonably high-yielding varieties of certain high-protein crops (peas, *Phaseolus* species, groundnuts and soybeans) already exist, but that their potential is not being achieved because their agronomy is not properly understood by the farmers, and because so many research workers are obsessed by the "philosopher's stone" of breeding new varieties. An imaginative national programme of collaboration between research and extension workers to test and demonstrate better cultural methods could often double yields over a relatively short period at low cost to the farmer and to the economy. A further avenue of approach showing promise is the development of quick-maturing varieties suitable for inclusion in rotations with cereals and other crops in the irrigated and higher rainfall areas.

A long-term international programme to explore the genetic potential and develop better varieties nevertheless appears essential for chick-peas and lentils, the subtropical grain legumes grown most widely in south Asia and the Near East, where disease limits the potential for irrigation and fertilizer use, and also for the wide range of annual and perennial species native to the tropics on which little improvement has so far been attempted.

FRUIT AND VEGETABLE PRODUCTION

Demand for fruit and vegetables will rise more rapidly during the next decade than for any other food crops. The main stimulus will come from urbanization, which implies more systematic marketing and higher quality standards.

Despite significant progress in recent years in commercial vegetable production in parts of Asia and north Africa, and in developing fruit exports from Africa and Latin America, the bulk of horticultural production in developing countries is still grown mainly for subsistence, and the use of modern techniques is exceptional. Many of the varieties grown are unsuitable or low-yielding, vegetable seeds import-

ed from abroad without adequate trial have often given poor results, and research to develop adapted varieties and cultural practices is generally inadequate. Farmers' attitudes also require changing if significant progress is to be made; in most cases fruit and vegetables are regarded as backyard crops rather than a potentially important source of income.

A main problem is how best to select well-adapted high-yielding varieties from among the very wide range of species, and demonstrate the results to the farmers. In this connexion it may be important to examine the potential not only of existing cultivated plants, but also of "unconventional" species. In Africa, for example, it has been found that over a thousand native species are eaten as vegetables, and much more work needs to be done to determine the nutritive value of such species and their role in the diet. In order to achieve maximum impact, technical effort and improved planting material should be concentrated initially on key zones (for example irrigation projects or areas close to urban centres).

What has been said concerning vegetables is also to a large extent true of fruit and nuts which (except where an export trade has been developed and in areas that serve main population centres) are also largely grown on a haphazard basis. Fruit are a cheap natural source of minerals and vitamins, and tropical Africa is, on the whole, particularly poor in this sector of agriculture. Higher priority needs to be given to diversifying the range of species for domestic consumption, if necessary by introduction of exotic species from comparable ecological areas in other continents.

Intensification through multiple-cropping systems

A wider spectrum for increasing output even than that created by the high-yielding varieties has been opened up by the concept of maximum production per unit area per unit of time through multiple cropping, based on an almost continuous cycle of crops, each needing the land for a comparatively short period. Research workers in Asia have been obtaining 20 tons of dry matter per hectare by the use of this technique, whereas the most which could be expected from a conventional double-crop rotation based largely on cereals would be around 10 tons.[37] Quite apart from the much better nutritional balance obtainable from the varied range of crops which can be fitted into a multiple-cropping system, economic studies have shown that significant increases in income and employment are also possible through the introduction of intensive systems. As long as adequate credit and institutional support can be provided, these systems appear best suited to adoption by the smaller family-sized farmers who can give the close supervision and year-round care essential to success.

So far, however, really intensive multiple cropping, as practiced in Hong Kong and experimentally in India, China (Taiwan) and the Philippines, has received little attention in international and national research programmes, and only the fringe of the apparent potential has been explored. Not only do the correct combinations of crops and cultural techniques which would optimize water and fertilizer use, minimize pest and disease problems, and yield the highest income from the system need to be determined, but many of the techniques involved will be novel to the average farmer and will have to be incorporated into management practices. Considerable skill and judgement are required in soil and water use, choice of crops, use of the appropriate inputs, timing of cultivations, and selective mechanization, and these will not be learned easily. Requirements for both fixed and working capital are high, and while the net returns from well-managed small farms making full use of resources, including the use of by-products for livestock, are also high,[38] the risk factor could deter many farmers unless they are well trained and well supported by government services.

Not only is successful multiple cropping exacting for farmers and supporting services, but it cannot be adopted in areas without adequate water supply and drainage, or where there is a pronounced cold season. While it is therefore no general panacea, the potential for increasing food supplies and improving nutrition over the long term is still very large. If significant progress toward its realization is to be made before the end of the Second Development Decade, accelerated research and extension work will be essential, with strong emphasis on management advice, input supply, credit and the provision of marketing channels designed to cope with a varied flow of produce.

Strategy for the modernization of production

In many developing countries the use of modern agricultural technology has until recently been confined largely to production for export or industrial use, and has hardly touched domestic food production. The impact of population and income growth has raised the demand for most foodstuffs to a level which can only be matched by the transformation

[37] As is noted later, even higher yields of dry matter have been obtained with forage crops grown for animal feed and harvested 8 to 12 times a year.

[38] The annual net income from farms covered in a sample survey made in Hong Kong for 1961-65 varied between $800 and $1 000 per hectare.

of traditional production techniques through the use of high-yielding varieties, quality seeds, improved cultivation methods, and purchased inputs such as fertilizer, pesticides, and improved equipment (whether hand or mechanical). Farmers in Asia have already exploded the myth that they are not responsive to the use of varieties or other improvements which give clearly demonstrable benefits, provided that price relationships are satisfactory and other major disincentives do not prevent them from innovating. A very rapid growth both in capital investments and in the use of purchased inputs is clearly essential for the achievement of the food production objectives of the Second Development Decade. Measures to assist farmers in adopting efficient methods appropriate to their local conditions therefore represent a major priority. This is also necessary if adequate returns are to be obtained on the capital invested in development.

The improvement of traditional agriculture does not, however, imply a single giant leap from the sickle to the combine harvester. It should in most cases be one of progressive modernization, involving a number of relatively simple improvements in technology which do not depart too radically from tradition or require large units of new investment, and which can be introduced quickly and effectively to farmers by intermediate-level field extension workers. The opportunity costs of their use in relation to foreign exchange requirements and the employment situation are important considerations, as well as the use of labour wherever feasible as a substitute for material inputs.[39]

In broad terms low-cost inputs such as quality seeds and improved tools should be emphasized in countries with relatively ample reserves of land and labour, as in much of Africa and Latin America (except where there is a need to intensify more rapidly in relation to a specific project), or where technical services are still in an early stage, farming standards primitive, and production largely for subsistence. High transport and marketing costs bear severely on land-locked countries with a limited cropping range, such as the west African savanna countries (particularly for bulky commodities such as fertilizers and fuels), and on the use of purchased inputs on the lower priced crops. Under these circumstances, because of relatively low transport costs per unit applied per hectare, chemical crop protection may well be a more economic means of obtaining increased production than fertilizer application or mechanization.

[39] The increase in the labour force was until recently the main factor contributing to increased output in India, and has also been of major importance in the achievement of high yields and cropping intensities in the United Arab Republic and in eastern Asia. Substitutability becomes less, however, as production grows more intensive, and labour and cash inputs interact to raise productivity per worker and per hectare.

Mechanization should be directed wherever possible toward creating additional jobs by opening up new land and raising yields and cropping intensities rather than toward economizing in labour. In the past there has been a tendency for developing countries to adopt techniques and machines much along the lines followed in industrialized countries where the reasons for mechanizing were different. In the future attention needs to be focused much more on adapting both systems of agriculture and production technology to the specific needs of the developing countries, for most of which a labour-intensive approach is mandatory.

Provisional estimates for identified costs of purchased inputs revised from IWP calculations suggest that, by the end of the present decade, annual expenditure on seed, fertilizer, pesticides, and fuel and spares for machinery in the crop sector would have to rise to $15 000 million — over three times the level of 1962 — to meet the Plan's proposed targets. While these estimates cover not only food but also plantation and industrial crops, about half of the cumulative estimated costs of inputs during the Second Development Decade would be expended on raising cereal production. This arises from the basic concept underlying the development of the high-yielding varieties, which was to produce a plant type responsive to higher standards of farming (and particularly to irrigation and fertilizers), instead of accepting the tacit assumption, which had coloured most earlier plant breeding work, that farmers in developing countries required only varieties suited to traditional low-input levels or a limiting environment. Eloquent testimony to the success of this concept comes from the rapid rise in private tube-well investment and input use in countries now using high-yielding cereal varieties on a large scale. Fertilizer consumption in the 16 major rice producers among developing countries rose at 11 percent per year between 1960 and 1964, but at over 16 percent per year between 1964 and 1968. In India and Pakistan the 1965-68 growth rate was 31 percent per year, and in Turkey consumption on wheat rose from 286 000 tons to 1.15 million tons between 1966 and 1969. A rapid rise in pesticide use has also been reported from several Asian countries.

The sharp increase in the use of agricultural chemicals in some developing countries has begun to arouse fears of environmental pollution of the type already evident in developed countries. This, however, does not seem a hazard for many years to come, especially in comparison with that arising from industry, automobiles and aircraft, concerning which the developed world has so far been unable to put its own house in order. For one thing, the use of chemicals on other major food crops in developing countries is expected to rise much less rapidly than

their use on cereals in the period up to 1980, because of the lack of high-yielding varieties of most of these crops, the lack of special government programmes, and the primitive conditions under which they are often grown. Even for cereals the present use per hectare is still very low, while the current rapid rates of increase for fertilizer and pesticides are expected to slacken somewhat because of institutional and structural constraints.

Even if the high levels postulated by IWP were to be attained, overall consumption per hectare in the developing countries by 1985 would be well below that current today in most developed countries. The hazard should therefore be regarded as a long-term one which can be solved gradually by cooperation in research and manufacture between the industrialized and developing countries. It should not give rise to panicky short-run palliatives such as banning DDT in developing countries, which can only set back their efforts to raise output without touching the real core of the overall pollution problem which very largely lies elsewhere.

Improving productivity in difficult environments

Most research work, as well as the allocation of extension, credit, inputs and other scarce resources, is now concentrated on developing high-yielding varieties and on the adoption of modern technology suited mainly to areas of relatively high agricultural potential with the object of raising productivity as rapidly as possible. This is understandable, and probably correct priority setting in the light of the desperate need for food and foreign exchange earnings in many developing countries. But it is leading to a widening income gap between farmers in areas of high potential and those elsewhere, with explosive social and political implications. These problems can no longer be safely ignored, and specific programmes need to be launched to tackle the admittedly difficult problems of the poorer areas, which mainly affect three broad zones: the semiarid to subhumid zones, the mountain areas, and the humid tropics.

The semiarid to subhumid zones with 250 to 750 millimetres of erratic rainfall per year are marginal for cultivation at the lower end of the scale and have a strongly cereal-fallow dominated farming pattern throughout the arable area. This includes the northwest Indo-Gangetic plain, most of the Near East and the Mediterranean basin, and Africa immediately north and south of the Sahara. Part of the area is upland, with cold winters which do not permit the use of existing nonwinter-hardy high-yielding cereal varieties even where precipitation is adequate, although certain varieties of U.S.S.R. and North American origin now under test in areas of continental climate in Iran and Turkey are showing considerable promise. Developments in commercial rainfed farming in South Australia and experimental evidence in north Africa and parts of the Near East call into question the whole system of agriculture currently practised in these zones, and in particular the economics of the cereal-fallow rotation with a crop only once in two years, and the almost complete divorce of crop and livestock husbandry. As noted in the following discussion of livestock production, the aim should be to develop a "stratified" system of rearing animals on the range (particularly sheep, since there is a marked consumer preference for mutton in many arid-zone countries), and finishing them to better weights on leguminous fodders grown instead of a fallow in rotation with cereals on rainfed or even irrigated land. Technically this seems perfectly feasible, economically it has been shown to be profitable, and it has beneficial effects on soil structure, fertility and crop yields. The fact that it has not yet become standard farm practice suggests that structural, institutional and marketing problems may be the main constraints.

The mountain areas have been largely neglected by research programmes (except in parts of Latin America), possibly because the problems are localized and the total population affected is not very great. Despite the poverty stricken nature of many mountain areas under traditional systems of mismanagement, there is evidence that they often represent an underutilized resource, capable of supporting a more productive forest/farming/grazing association under rational exploitation. In such areas a basically similar approach might have to be adopted to that proposed above, the difference being that "stratification" would be from higher to lower altitudes, with forest or grazing at higher altitudes, fodders and fruit trees in terraced agriculture on lower slopes, and arable cropping in the valleys.

Much of the world's unutilized land resources lies in the humid tropics. Development of these resources is difficult, partly because of climatic conditions and partly because of the chemical and physical nature of their soils. With increasing population pressures, shifting cultivation (the basic system in these areas) is becoming inadequate from both the social and the economic viewpoint. Solutions must be found to the management problems of fertility, erodability and waterholding capacity of these soils before they can be brought under permanent cultivation for annual crops on any large scale. Permanent tree crops can offer a partial solution, but the food needs of the local population and the absorptive capacity of the world market set limits to this.

Although the environmental constraints differ, all three of these zones have a number of features in common, including an "unsettled" type of agriculture (nomadism, transhumance, or shifting culti-

vation), problems arising from social customs and misuse of physical resources, and levels of living and education which are some of the lowest in the world. It must be faced from the outset that any research and development programmes will have to be system- and problem-oriented rather than on a narrow technical basis, and multidisciplinary and long-term in their character. Because of the long-term nature of the problems of attempting to mitigate income disparities arising from differences in agricultural potential within countries, it is difficult to accept arguments that efforts to exploit the immediate potential for increasing food supply should be cut back while solutions to these problems are found. Inequalities have always existed between areas of high and low potential, and there have been some spectacular failures in both developing and developed countries in trying to iron them out. What is required is a strategy which attempts to maximize comparative advantages within any given environment, as well as to exploit complementarities between and within countries, rather than trying to equalize the unequalizable.

In terms of planning future food production, this implies concentrating cereal production in the short term to the fullest extent possible into the more promising areas where the full genetic potential of the high-yielding varieties can be realized. There are a number of other important crops for which high-yielding varieties have not yet been adapted for use in developing countries and which therefore cannot profit to the same extent from conditions of high fertility, including most grain legumes, oilseeds, and many fruit and nuts. These generally have higher unit prices than cereals, and under limiting conditions where the high-yielding cereal varieties cannot be grown could possibly yield a larger net return to the farmer. Efforts might therefore be directed to shifting land use away from cereals toward those crops in such areas, or alternatively toward productive forestry or livestock rearing along the lines indicated earlier.

This puts a premium on sound land-use planning based on ecological and economic studies to determine the type of thrust required and, once this has been decided, on policies to encourage farmers to cooperate. These should probably involve not merely technical measures, but works programmes to construct terraces and watering points, plant trees, and build roads, as well as grants or loans to tide the farmers over while trees came into bearing, or to purchase animals. The establishment of appropriate agro-allied industries could be an important growth stimulant, and food aid might be directed to supporting specific objectives within the programme.

In time a reversal of this process can be envisaged, at least as far as annual crops are concerned, as a result of pressures from the changing pattern of demand for food, and through continued research. The latter could result in the development of high-yielding varieties of other annual crops which would compete effectively with cereals in the better areas. Conversely, the evolution of more efficient rainfed cereal-fodder farming systems, and of cereal varieties more tolerant of cold and drought and more responsive to fertilizers, would raise the profitability of cereals in areas of lower potential and enable those areas to increase their contribution to national cereal output. In many countries the area suited to really high-yielding cereal varieties is limited, but the scope for raising cereal yields in other areas has not been fully exploited, and they will be unable to meet long-term demand unless means can be found of raising the productivity of rainfed land.

Livestock production

Nearly a decade ago a chapter in *The state of food and agriculture* was devoted to the livestock industry of the less developed countries.[40] This concluded by looking ahead to the next decade, and it is hardly encouraging to find that almost all of the problems identified at that time are still important today.

In fact, the livestock situation in the developing countries seems to have worsened: the increase in animal production in the 1960s was less than the growth of population, and in each of the developing regions except Latin America it dropped below the rate achieved during the previous decade. Improved per caput incomes widened the gap still further between domestic production and demand at constant prices, resulting in higher prices and increased imports of livestock products in many developing countries.

Although there is some uncertainty as to the exact rate of growth of demand for livestock products, there is no doubt that it will continue to rise rapidly, especially in urban areas. To meet this demand, as well as to improve protein intakes, it will be necessary to expand livestock production much faster than in the past.

[40] FAO, *The state of food and agriculture 1962*. Rome, 1962, p. 129-160.

That there is still considerable scope for increasing production is suggested by the rough comparisons in Table III-21 of levels of cattle productivity in the different regions of the world. The production of beef per head of the cattle population in Asia is only one eighth of that in North America, and production of milk in Africa and Asia one thirteenth that in Europe. Although ecological and technical factors severely limit the production potential in many areas, there is abundant evidence that, given good management and adequate feed supply, livestock productivity can be substantially raised in the developing regions as a whole.

Most past efforts to increase livestock production in developing countries have concentrated on the introduction of modern technology. While for the production of pigmeat and poultry the techniques of large-scale industrialized production are largely transferable, in the case of ruminants these techniques have been beset by a number of nontechnical problems. In particular, in contrast to pigs and poultry, the ownership and utilization of cattle in many developing countries are closely tied to a number of social customs, usages and institutions. To bring about an increase in output and productivity often means the creation of a new market-oriented institutional and social structure which must be acceptable to farmers. Those responsible for the planning and implementation of livestock development programmes have often failed to understand this, partly because of an outlook geared to the very different conditions of developed countries.

All this makes livestock development a particularly difficult task. But such is the magnitude of the livestock sector, including the feed production required to support it, and such is its economic and nutritional significance in many developing countries, that a major effort to accelerate production is necessary if the overall goals of the Second Development Decade are to be reached.

TABLE III-21. – PRODUCTION OF BEEF AND MILK PER HEAD OF CATTLE POPULATION, 1966/67

	Beef	Milk
	Kilogrammes per head per year	
North America	87	520
Europe [1]	59	1 016
Oceania	47	512
Latin America	27	89
Africa	14	76
Asia [2]	11	80

[1] Including U.S.S.R. – [2] Including Mainland China.

Meat from ruminants

In the past, ruminant meat production, especially beef, has received the main thrust of the development effort in the livestock sector. There is little doubt that the developed countries are going to have a demand for beef well in excess of their own production potential. In the developing countries beef and mutton production appears to have kept pace with the growth of domestic demand until the 1950s by enlarging the herds, coupled with an extension of production into new areas. However, in many countries scope for further expansion of this type has diminished. Domestic demand has nevertheless continued to increase, so that the per caput availability of local beef and mutton has tended to decline in a number of developing countries. The possibilities for rapidly reversing this trend are constrained both by a number of biological factors, such as the long generation interval and the small number of progeny, and by the fact that the livestock industry is increasingly being forced into land of marginal productive capacity. Moreover, the growth of production and especially of exports is hindered by some major disease problems.

All these factors suggest that, if the growth of beef and mutton production is to be accelerated, its organization will need to be changed. From the standpoint of raising productivity rapidly, especially in African countries with large cattle populations, the primary effort needs to be devoted to raising offtakes. This is not a simple matter, since it involves social considerations. Among the most important of these is that much of the livestock of the developing world is owned by small farmers, many of whom hold a major part of their assets in this form. They are therefore understandably conservative about any major changes in the use of these assets, particularly where additional risk or uncertainty is introduced. There is, however, considerable evidence that, as economic development takes place and consumer goods and services become available, social traditions can change, including the role of cattle as an indicator of a person's worth. [41] Once unproductive animals retained as capital are disposed of, the feed that they consume ceases to be used for nonproductive maintenance and becomes available for increasing the productivity of the remaining stock. Under conditions of feed shortage a reduction in stock numbers can therefore lead to a significant increase in productivity.

The removal of unproductive stock has another important effect in that it changes the structural composition of the herd. The availability of addi-

[41] J.C. de Wilde. *Agricultural development in tropical Africa.* Baltimore, Johns Hopkins, 1967, Vol. 1, p. 57, 62.

tional feed enables fattening animals to be finished at an earlier stage, thus reducing the grazing pressure still further. This permits the breeding herd to be enlarged in size and, provided the expansion in cow numbers is carefully controlled, a new herd equilibrium can arise with a much higher productivity per head of stock.

From the long-term standpoint this measure alone will not suffice and a major increase in production, especially in Latin America, will necessitate an expansion in livestock inventories. In many countries this will be difficult to achieve in the face of a strong market demand for livestock products and a low current return on capital invested in stock. However, a study of some recent credit programmes for livestock development in Latin America indicates that the introduction of new technology can result in an attractive return on new investment in the livestock sector. Because this return takes some years to be realized, a critical factor in stimulating investment in livestock production is the need to generate greater confidence among farmers in the long-term future of the beef industry. It will therefore be essential to put beef production on an economic basis by eliminating controls on prices and allowing them to rise. Apart from such an increase in red meat prices, it may require direct incentives from governments, such as a subsidy on breeding stock or a long-term market guarantee, as well as the provision of development credit, before farmers will agree to build up their breeding herds.

Another important problem in this connexion arises from the fact that in the early stages of ruminant development a great deal of emphasis is commonly given to genetic improvement, frequently in isolation from parallel environmental and managerial changes. Yet, if advanced techniques are used and sufficient feed of adequate quality is made available, the most rapid progress is often made (except in very severe environments) by upgrading with exotic breeds, rather than by concentrating solely on the use of genotypes historically adapted to the environment. While every effort should be made to preserve unique germ plasm for long-term work, in the short run the prospects for increasing productivity through its use in the developing countries are often vastly overrated in relation to the potential for improvement from environmental and husbandry changes. Genetic progress can seldom result in increases in output of more than 1 percent per year. Using modern managerial practices over a period of four to six years, on the other hand, progressive farmers in a number of developing countries have achieved improvements such as increasing the crop of weaned calves from 40-50 percent to 70-80 percent per year, raising average weaning weights by 40 to 50 kilogrammes and reducing the age of slaughter from 5 to 2½ years.

Progress of this nature has, in the main, been associated with increased feed supplies, improved feed quality, and more efficient feed utilization. It encompasses not only simple improvements in fencing and watering facilities on undeveloped rangelands, but also the provision of more sophisticated inputs (such as certified seeds and fertilizers) on intensive, rotationally grazed improved pastures. The value of these inputs is often underestimated, although both tropical and temperate grasses have been shown to be generally more efficient converters of solar energy into harvestable material than are cultivated crops. *Pennisetum purpureum* even outperforms sugarcane in this respect, with over 80 tons of dry matter per hectare reported from Central America and the Caribbean. Yields of over 40 tons have been recorded in a number of tropical countries from *Panicum maximum* and *Digitaria decumbens*.

In practice, however, most intensive tropical grassland production has been associated with controlled, rather than zero grazing. Nevertheless meat yields as high as 1 ton of meat per hectare per year have been recorded under grazing conditions on commercial farms. This level is many times that encountered on most improved tropical pastures (and is well in excess of the best reported yields from temperate zones) so that there is obviously a great deal of scope for revolutionizing grassland farming in the wet tropics. The future seems to hold considerable possibilities for high-nitrogen zero-grazing systems for intensive beef or dairy production in irrigated or high-rainfall areas where price relationships make the use of nitrogen fertilizer economic. In those areas where such highly intensive practices are not economic, there are good possibilities for the expanded use of pasture legumes. An outstanding example of success with a tropical legume concerns the introduction of Townsville lucerne (*Stylosanthes humilis*), which, in conjunction with light phosphate dressings, has both raised carrying capacities and increased liveweight gains per unit area in the spear grass country which covers large areas of subtropical Queensland, Australia.

Cultivated fodder crops grown on irrigated land at present provide a very small part of the total feed intake of ruminants in developing countries, and it is not uncommon to see intensive cereal production side by side with primitive livestock husbandry on small farms in irrigated areas. For such areas there is an urgent need to develop a "systems" approach covering the farm as a whole, which clearly distinguishes between operations such as dairying and fattening that may be economically feasible on irrigated pastures and operations such as breeding beef cattle that are not financially viable under such conditions.

For the time being, however, most of the feed intake in the arid zones of the world comes from crop residues and from rangelands. During periodic droughts on these lands, large numbers of stock fight for survival on a submaintenance ration and their productivity is very low. In fact, in spite of improved disease control, the development of stock watering points, and the establishment of feed reserves and supplementary feeding (sometimes with food aid), animal production is actually declining in many such areas as stock numbers have been built up so fast that the natural vegetation has become overgrazed. The problem is associated with the unrestricted grazing traditionally practised by nomads and villagers, the dichotomy between farmers and graziers, and the almost total lack of government organization to cope with it.

A fundamental solution for improving productivity from such arid rangelands lies in limiting stock numbers. Difficult though it may be to achieve improved control of rangeland grazing, the cheapness of range feed and the vastness of this resource make it imperative that they are rationally exploited. A major constraint, however, is inadequate knowledge of the range feed resources, which must be mapped and evaluated in order to guide management changes.

Among the more promising activities that could ease the pressure on the range is the development of the feedlot fattening of ruminants. This could provide the means and the incentive to get animals off the range at an earlier age, and also to reduce the losses associated with seasonal migrations. However, the practicality of such a measure is highly dependent on meat/feed-grain price ratios, and usually involves recognition that the higher quality meat produced in this way will necessitate a premium price. Work on the feedlot fattening of cattle is showing interesting results in Kenya and Malawi, and similar work on sheep is under way in Iran and Syria. The Malawi scheme is of particular interest in that it involves smallholders and relies heavily on the use of maize bran, one of the by-products referred to later.

Planning for improved rangeland utilization is complicated by land-tenure problems, since it is difficult to attain a correct relationship between feed resources and livestock numbers on communally owned lands. Aside from the development of feedlots, an approach to which a number of African countries have recently been devoting some attention is the establishment of cattle ranching enterprises. A particular attraction is that the structure of large ranching-type operations (whether private groups or communally owned) makes it easier for them to obtain access to credit for their development. In Africa such ranches as are under consideration at present often appear to be public or semipublic enterprises with little relationship to the current activities of most livestock owners. However, by the establishment of group, communal and cooperative types of ranching enterprises certain governments, particularly in east Africa, are attempting both to change the structure of traditional rangeland utilization and to spread more widely the income created by newer farming systems.

The ranch development work in Kenya is of particular interest in that it involves a rationalization of land use designed to maximize productivity. This is leading to a stratification of the beef industry as well as changing the land-tenure structure on the range. The pattern of production beginning to emerge is of intensive fattening in feedlots on the better lands, and the use of the less productive rangelands for rearing weaners. Such rationalization of ruminant production seems to have a promising potential in many parts of the world. In west Africa, for example, the presence of the tsetse fly restricts the possibilities for raising cattle in some of the areas of high grassland potential but not for finishing them (with the aid of prophylactic drugs), whereas feed shortages limit the finishing possibilities in the drier sub-Sahelian rearing areas.

Such stratification also offers the possibility of rationalizing ruminant production under agrarian reform programmes. This is particularly important in Latin America, where the breakup of latifundia can lead to the creation of new farms without sufficient grazing resources to continue the traditional pattern of both rearing and fattening on the same farm.

In many parts of the Far East (except for areas such as parts of West Pakistan, northeast Thailand, the dry zone of Ceylon and the island of Mindanao in the Philippines) the prospects for stratification seem more limited, since the primary role of the bovine during the 1970s is likely to remain the provision of energy for agriculture. In addition to better feeding, a good deal could be done to increase the productivity and working efficiency of these animals by improvements in the design of animal-drawn equipment. There are, however, important cost and psychological barriers which limit the speed at which such improved equipment can be introduced. The situation will be rendered more difficult by the increasing subdivisions of holdings likely to result from the continued growth of the rural population. In the long run the only solution seems to be a drastic programme to enlarge the effective size of operational units. This would both increase the efficiency of use of working animals (which are currently often kept on holdings of uneconomic size) and improve the opportunities for mechanization.

So far little mention has been made of animal disease, although its importance as a constraint on

production is well recognized. As described earlier in this chapter, encouraging progress in disease control has been made in certain fields in the 1960s. Apart from continuing existing programmes, there are two animal health problems which warrant much more attention in future. The first is foot-and-mouth disease, which prevents a number of potential beef exporters from gaining entry to the expanding markets of the high-income countries. In addition to the technical problems involved, effective control of this disease is likely to be difficult unless some form of international understanding can be reached to ensure that market access is not impeded once satisfactory health levels have been attained. This question is taken up again in the final section of the chapter.

The second animal health problem concerns the progressive elimination of the tsetse fly, which covers vast areas of the African continent. Elimination of the fly, although probably a long-term task, could open the way for a more rational land-use pattern and facilitate the stratification of livestock production. This in turn, particularly in west Africa, could provide a model for a new land-tenure structure and open up new opportunities for increasing income and employment in areas where they are badly needed.

A final factor of importance for the beef production and export policies of the developing countries is the price of beef. This has been rising in international markets at about 6 percent per year during the 1960s. In many developing countries prices have been maintained as a matter of consumer price policy below the world market price, and their low level has been insufficient to provide the necessary incentive for additional investment in raising production. In these circumstances, if developing countries are to take advantage of the available export markets, they will have little alternative to allowing beef prices in domestic markets to rise. Although data are not available on the price elasticity of demand for beef in developing countries, such evidence as there is on related products suggests that it is high. Efforts to raise beef production and exports with the help of higher prices are thus likely to put beef out of the reach of all but the highest income groups in these countries.

Since pig and poultry production can be increased more rapidly and at lower cost than beef production, many developing countries may find it desirable to make the deliberate policy decision of deriving a larger share of their expanding meat supplies for domestic use from the pig and poultry sectors, while orienting their ruminant sector, particularly beef, increasingly toward export markets. The expansion of pig and poultry production, however, also has its problems.

Pigs and poultry

Since the highest conversion rates for grain utilization are obtained in pig and poultry production, and since these species also offer the best opportunity for a rapid growth of production, IWP has proposed that they should be given very heavy emphasis during the 1970s.[42] Certain countries have already achieved remarkable progress in pig and poultry production in recent years. In Spain fresh poultry meat intake rose from 0.4 kilogramme per head per year (under 3 percent of total meat consumption) in the mid-1950s to 8.1 kilogrammes (22 percent of meat intake) by 1967. In Lebanon poultry meat intake per head rose from 1 kilogramme per year in 1956 to 9 kilogrammes in 1966, or from 5 percent to 26 percent of the total. In Japan poultry meat production increased almost fortyfold between 1948 and 1968, an annual growth rate of nearly 20 percent, while egg production grew thirtyfold.

These countries have been able to assist the development of their poultry industries by shopping for feed in the world market. This is an approach which most developing countries, suffering from shortages of foreign exchange and often having significant cereal production potential of their own, are unlikely to choose. As discussed earlier in this chapter, the prospect of cereal self-sufficiency and possible exportable surpluses, caused by the increasing adoption of the high-yielding varieties, is bringing with it a number of problems. Because of the anticipated ample supply situation, the prospects for the developing countries to dispose of their cereal surpluses in the world market are not very good. Given the need for increasing amounts of livestock products in most developing countries, an obvious alternative in many cases will be to divert excess production capacity into coarse grains, which are more suitable for animal feed than are wheat and rice.

The feed supplies for pig and poultry production could be further expanded by making greater use of the large quantities of various agricultural by-products suitable for animal feeding which are currently wasted. Not only are there large quantities of products such as rice bran and molasses, but better use could also be made of several less known by-products (for example citrus, olive and grape waste, and certain oilseed residues) whose value is often underappreciated as a result of poor processing techniques and the inadequate compounding of rations.

[42] IWP developed a theoretical model to indicate that the cereal targets of the plan could provide enough coarse grains to raise pig and poultry production in the developing countries to the level required to satisfy the projected demand of the plan for all meat. In order to do this, poultry production would need to grow at about 10 percent per year and pig production at 5 percent per year. By 1980 pig and poultry meat in all developing countries combined would comprise over 40 percent of meat intake, as compared with only 24 percent in 1962.

There are a number of problems and dangers in attempting a rapid expansion of the pig and poultry industries, particularly when the availability of feedstuffs rises rather suddenly as the result of cereal production surplus to human requirements. Thus there will be little knowledge of the likely magnitude of future year-to-year variations in the availability and price of feed grains, particularly as there is likely to be a shortage of storage facilities which would enable buffer stocks to be maintained. Experience suggests that it may take a long time to regain the confidence of farmers who have suffered economic losses for such reasons. It is therefore important that livestock development programmes based on the use of cereal surpluses emerging from home production should be very carefully planned and closely integrated with national cereal programmes.

A key factor determining whether or not an expanding pig and poultry sector can be built on such a basis will be the relationship between the prices for livestock products and those for feed supplies. The frequent combination of price controls on livestock products and high support prices for cereals hits the pig and poultry sector particularly hard. Likewise, in those parts of Africa and Latin America where feed grains are not produced and ruminant products fetch a low price on the open market, it is hardly practical to advocate the promotion of pigs and poultry. The main determining factor will obviously be the price levels for ruminant products, since these vary from country to country much more than the prices of pig and poultry meats produced under modern systems.

Studies of price interrelationships between the cereal and livestock sectors are so far extremely limited in developing countries. However, since feed costs represent about 70 percent of current costs in pig and poultry production, while in modern enterprises the proportion of cereal amounts to about 60 to 70 percent of total feed costs, it may be estimated that a possible fall of 20 percent in farm prices of cereals could result in an 8 to 10 percent reduction of current costs in the production of pig and poultry products. The lowering of feed prices would clearly accelerate the substitution of pork and poultry products for beef. It would also be a factor of some importance in determining national research priorities for increasing livestock production — for example in deciding on the relative emphasis to be given to genetic research on maize, as opposed to fertilizer trials on pasture with the object of increasing beef or milk production.

A disturbing feature of the likely development of poultry production is that successful poultry industry development, whether in the public or in the private sector, is mainly taking place in large-scale units practising modern technology and subject to economies of scale. Indeed large poultry units (and also very large pig units), whether in developing or developed countries, are essentially industrial and capital-intensive in nature. This tends to limit the prospects for a significant growth in egg production from small units, except under subcontract and for on-farm consumption. Nevertheless, small units can also profit from using improved technology. However, the impact of very small units of 10 to 20 laying birds is likely to be mainly on the nutrition of the farm family rather than on the flow of urban egg supplies. Larger units of 50 to 500 birds can have a greater impact in this respect, but only if both feed supplies and egg marketing are organized efficiently. For small broiler units the prospects are more limited, since it seems essential to integrate production into a hatchery/processing complex. Pig production is less industrialized, and (provided there are suitable marketing facilities) this sector may be expected to channel more cash income directly to small production units, especially in the Far East.

Dairy development

The demand for milk and milk products seems to be growing fairly rapidly in many developing countries, especially in urban areas. Since milk production is labour-intensive and has a high growth potential on small farms (unlike beef, pig and poultry production), it could help to alleviate problems of rural unemployment and uneven income distribution. In addition, meat from dairy cattle can meet an important part of the domestic demand, permitting the specialized beef farmer to concentrate on producing higher quality stock for the more remunerative urban and export markets.

However, the results achieved in dairy development programmes have often been disappointing. This type of development not only needs a complex integrated package of inputs but is also highly dependent upon the existence of adequate processing and distribution systems. The most successful programmes seem to have been those in which early efforts have concentrated on strengthening the marketing system in areas possessing a good production potential. Strong incentives and ease in marketing are necessary to encourage the exploitation of this potential, which necessitates developing a system of farming involving twice-daily milking seven days a week. Nevertheless, unless these changes can be induced, a major capital asset of the small farmer will continue to be underutilized and a major opportunity to reduce rural underemployment and improve income distribution will remain untapped.

The difficulties of getting an indigenous milk industry off the ground have in many countries neces-

sitated the establishment of milk plants with foreign assistance, producing mainly reconstituted milk from imported raw materials. Unfortunately this approach may ignore the need to develop domestic milk production simultaneously. Indeed, a basic problem for many developing countries remains how to coordinate the growth of domestic milk production and of a dairy industry using imported raw materials with the growth of demand, in such a manner that excessive import requirements are not built up and domestic production is not discouraged. This is made particularly difficult by the fact that domestically produced milk may initially cost far more than imported and reconstituted milk.

The need to combine good marketing arrangements with the concentration of production in ecologically suited areas suggests that the future of the dairy industry in developing countries lies not so much in a general expansion as in the establishment of carefully planned production projects in the vicinity of consumption centres or around strategically sited processing plants in areas particularly suited for milk production. This type of programme must have strong government support in such fields as veterinary services, dairy husbandry extension, milk processing and the training of supporting technical staff. At the same time, it requires a change in the criteria hitherto frequently applied by the developed countries in assisting the establishment of dairy plants, so that these are seen as part of an effort to get viable domestic industries off the ground. There are too many examples of badly located and uneconomic donated milk plants which operate only at partial capacity, and this mainly by using butterfat and milk powder provided by food aid.

Livestock on the small farm

Unfortunately, the livestock sector in general does not lend itself well to labour-intensive operations. Indeed, in the developed countries the labour input per head of stock tends to be reduced on larger units, and there has been a strong tendency in recent years for livestock farms to fall in number although productivity per unit has improved due to increases in both farm size and productivity per animal. While such a change may be inevitable in a highly industrialized society where employment in agriculture is constantly declining, it is far from desirable in most developing countries, where the majority of the farms are very small in size. By their very nature, these farms are mixed, often growing subsistence and cash crops, and using animals that serve as suppliers of draught, milk and ultimately beef. Especially in Asia and parts of Latin America and Africa, these animals account for the overwhelming majority of the livestock population because they are so numerous and because, without livestock for draught, the farmer cannot grow enough food to feed his family. Because of the complex interrelationship between animal and crop production, the modernization of their production is an immensely complicated task.

The transition from the traditional pattern to a more modern type of farming probably lies through the commencement of specialized production, implying the development of an economy with a marketing structure able to handle the disposal of the products of this type of agriculture. Where such marketing involves a large number of small units there are clearly advantages in establishing some type of cooperative approach. This has sometimes been successfully achieved, as with milk in India and beef in Hungary and Yugoslavia, although in many other countries livestock cooperatives have failed. The conventional cooperative is, however, not the only approach to this problem and there seems to be a great deal of scope for the more flexible type of integration represented by a contractual relationship. This has achieved considerable success in the poultry sector of many countries and has also been successfully introduced in the beef and veal sector in Yugoslavia. Considering the particularly strong interest that many developing countries have in agrarian reform, such an approach, with the establishment of small but industrialized ruminant production units, would seem to be worth considering on a much wider scale especially for resettled farms which may be too small to contain economic grazing units.

Agricultural export earnings

As was pointed out earlier, the agricultural export earnings of the developing countries have grown slowly during the past decade or more, whether compared with those of the developed countries or with the growth of nonagricultural trade, as well as relative to the expanding import needs of the developing countries. As a result, the share of developing countries in world agricultural trade has fallen steeply, as has the contribution of agricultural primary exports to the total foreign exchange earnings of the developing countries (see Table III-17 above).

The reasons for this sluggish performance were briefly reviewed in an earlier part of the chapter. There are no signs that any major changes in the

factors fundamentally responsible for it are likely in the near future, except for the improvement in the grain trade position of the developing countries that should result from the accelerated expansion of their domestic production. On the contrary, all the available quantitative projections and outlook studies suggest that, unless major changes are made in existing policies, past trends are likely to continue or even worsen. According to the FAO commodity projections, the primary agricultural export earnings of developing countries are likely to grow up to 1975 at a rate of 0.7 to 1.8 percent per year,[43] compared with 1.7 percent in the decade of the 1960s. This is in strong contrast to the United Nations projections for the nonagricultural exports of these countries, which range between 8.2 and 9.2 percent per year, or roughly in line with the past trend (8.4 percent per year).[44] At these rates, by 1980 agricultural primary products would account for no more than about 20 percent of the total value of developing countries' exports, compared with 46 percent in 1960 and over 30 percent today — though in many individual countries the share of agricultural exports would remain very much higher. Moreover, as noted above, even if foreign aid were to reach the recommended target, the developing countries would still be left with a foreign exchange gap of up to U.S.$6 000 million per year by 1980.

The very approximate nature of these projections, which vary in coverage, methodology and assumptions, must be stressed. Nevertheless, they give a broad indication of the magnitude of the challenge facing developing countries in their efforts to secure the foreign exchange necessary for their growth during the Second Development Decade. Essentially, they will need to aim at raising their total export earnings, both agricultural and nonagricultural, well beyond the projected rates.

That the developing countries, taken together, have the productive capacity to make available substantially larger exportable supplies of agricultural products is clear from IWP, according to which the export availability of primary agricultural products in developing countries could increase during the next 10 years at a rate of 3.3 percent per year.[45] Although the two exercises are not strictly comparable, the excess of this figure over the demand projection of 0.7 to 1.8 percent already cited at least suggests that growth at such a rate would make a substantial contribution toward closing the anticipated foreign exchange gap. Broadly, therefore, the problem facing the international community is how to facilitate the absorption by importing countries of agricultural primary products at a rate significantly in excess of that projected on the basis of the continuation of present policies.

Because of the very different nature of the factors affecting trade in various agricultural primary products, it may help an orderly discussion of the various policy problems if they are divided into the following broad areas:

1. *Agricultural commodities produced in direct competition by both developed and developing countries.* These include mainly basic foodstuffs, such as wheat, coarse grains, rice, meat, fish, sugar, oilseeds and oils, some fruit, as well as tobacco and pulp and paper.

2. *Agricultural raw materials.* The competition here is not only with identical or close substitute commodities produced in the developed countries (wool, cotton, hides and skins, some primary forest products) but even more with synthetic substitutes for these products and for rubber.

3. *Tropical products.* In the markets for tropical beverages (cocoa, tea, coffee), spices, some fruit and some tropical timbers, there is little or no competition with producers in developed countries, and the developing countries as a group enjoy, in theory, a monopoly position.

4. *Minor agricultural products.* Little is known either statistically or analytically about the great number of nonstaple primary exports, except that as a group they are significant and that their exports are probably expanding more rapidly than most staple exports. Because such products tend to cater to specialized demand, or depend for their success on export promotion and marketing skill, many of the usual market constraints do not apply to them.

5. *Trade between the developing countries themselves.* This is a separate problem area. In terms of total potential market demand, it is no doubt a fast rising sector, but the growth of trade is hampered by lack of trade infrastructure, foreign exchange shortages, and other reasons for promoting national self-sufficiency.

6. *Processed agricultural products.* Finally, there are strong reasons for efforts to increase trade in processed agricultural products. The obstacles are considerable, however, and policy formulation is particularly difficult because of the absence of basic economic intelligence.

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[43] FAO. *Agricultural commodities: projections for 1975 and 1985.* Rome 1967. Volume I, p. 58. Since these figures refer to the net import demand of high-income countries, larger increases might result from the expansion of trade between developing countries, which is examined later. All demand projections cited are at constant prices.

[44] United Nations Economic and Social Council. *Preparation of guidelines and proposals for the Second United Nations Development Decade.* (United Nations, New York. E/AC.54/L.29/Rev.1 June 1968)

[45] FAO. *Provisional Indicative World Plan for Agricultural Development,* Rome 1969. Volume 2, p. 626.

TABLE III-22. – COMPOSITION OF AGRICULTURAL EXPORT EARNINGS OF DEVELOPING COUNTRIES, 1955-70, AND PROJECTIONS TO 1980

	Competing products			Non-competing tropical products[3]	Total
	Basic foods[1]	Raw materials[2]	Subtotal		
	Percent of total				
1955	36.5	31.2	67.7	32.3	100
1960-62[4]	43.0	29.5	72.5	27.5	100
1965-67[4]	47.1	26.2	73.3	26.7	100
1970[5]	50.5	23.5	74.0	26.0	100
	Thousand million U.S. dollars at 1960 prices				
1955	4.6	3.9	8.5	4.0	12.5
1970	8.5	3.9	12.4	4.4	16.8
	Percent per year				
1955-70[6]	4.2	—	2.5	0.6	2.0

[1] Including cereals, meat, dairy products, fish, feedstuffs, sugar, oilseeds and oils, tobacco, citrus and dried fruit. – [2] Including fibres, rubber, hides and skins, primary forest products. – [3] Including coffee, cocoa, tea, bananas, spices. – [4] Average. – [5] Estimates. – [6] Growth rates.

The quantitative importance of some of these groups, and of the different types of competition, can be gauged from Table III-22. Almost three quarters of the total primary agricultural exports from developing countries consist of commodities which are in direct or indirect competition (through synthetics) with developed countries. This share has risen from about two thirds in 1955, because of the relatively rapid increase in the group referred to as "basic foods." The other major competing group, agricultural raw materials, has remained unchanged in value, and its share in the total has therefore diminished. The reduction would have been even greater but for a steep increase in the value of exports of primary forest products. The share of noncompeting tropical products has also fallen, though less than that of agricultural raw materials, since their exports have risen in value by more than 3 percent a year.

Basic foods

Because of the predominance of the basic foods group (which actually contains some nonfood products such as tobacco) among the agricultural exports of developing countries, as well as the considerable increase in supply potential suggested by IWP, these products are bound to remain at the centre of controversy regarding international agricultural policies, especially since a number of developed countries are traditionally major exporters of commodities in this group.

Although the basic competitive situation is the same, the detailed prospects for demand and supply vary from commodity to commodity. The discrepancy between the possible growth of exportable supplies (as suggested by IWP) on the one hand, and the projected growth of demand in the high-income countries on the other, is widest in the case of cereals. As against prospective increases in supply in developing countries at the rate of over 6 percent per year for wheat and coarse grains and 8 percent for rice, the demand is projected to grow by no more than 2.5 percent per year.[46] A fairly wide hypothetical excess of supply potential is also apparent for sugar (a growth rate of about 3 percent in exportable supply, as against import requirements growing possibly less than 0.5 percent per year). The anticipated balance is somewhat closer in the case of fats and oils. For meat the growth of exportable supplies from developing countries promises to be lower than that of import demand. For fish and fish products, too, particularly fish meal and shrimps, import demand is unlikely to prove a barrier to export growth.

Hitherto international action with regard to this group of commodities has concentrated mainly on efforts to regulate the markets for wheat, which with only one exception among the major suppliers (Argentina) is exported by developed countries, and sugar, of which, however, the greater part moves under preferential arrangements between countries.

The rapid increase in world wheat supplies in recent years in both exporting and importing countries, including some developing countries, has made market stabilization even more difficult than in the past, and the price provisions of the International Grains Arrangement of 1967 in fact proved inadequate in the face of the large change in the underlying supply and demand balance soon after the arrangement had been concluded. Negotiations for a new grains arrangement to succeed the present one which will expire in mid-1971 are tentatively scheduled to start on 1 January 1971. They are not expected to be easy, because of the record-size surpluses of wheat and large stocks of coarse grains which overhang the market, and because of uncertainties arising from the possible enlargement of the European Economic Community.

At the same time, added urgency is lent to international action in this field by the rapid increases taking place in the cereal self-sufficiency ratios of many developing countries, and in their competitive position in international cereal markets as a result of the expanding use of high-yielding cereal varieties.

[46] The supply estimates cited here and later are from FAO. *Provisional Indicative World Plan for Agricultural Development*, Rome 1969. Volume 2: the demand projections from FAO. *Agricultural commodities: projections for 1975 and 1985*. Volume I.

This change is affecting not only wheat — where some additional developing countries are likely to emerge as exporters — but also rice, which is traditionally exported mainly by developing countries.

Space does not permit a detailed examination of the various possible forms of international action for the basic foods that have been or are being considered in different forums. In addition to commodity arrangements, they include trade liberalization, compensatory payments for the benefit of developing country exporters, internationally financed food aid and buffer stock operations for fats and oils; the extension of bilateral arrangements for sugar along the lines followed by the United Kingdom and the United States; and a combination of measures to upgrade disease control and slaughterhouse hygiene in developing countries with some form of guaranteed access to high-income markets for meat exports from the developing countries.[47]

From the nature of the competition for this group of commodities it follows, however, that most of the measures for increasing the export earnings of the developing countries would entail some curtailment in the output or in the degree of self-sufficiency of the high-income countries. Experience with commodity arrangements suggests, moreover, that price arrangements without stockholding obligations and, ultimately, provisions for production control will not be sufficient to guarantee remunerative and stable prices in the face of major changes in the international supply and demand balance. In the final analysis, the longer term success of international action in this area will therefore depend on the readiness of the countries concerned to make appropriate adjustments in production and trade at the national levels.

As for action by individual developing countries, this will depend essentially on whether they are able to offer goods of acceptable quality at competitive prices. The example of Thailand, which within a short span of years has emerged as a major exporter of maize, mainly to Japan, indicates what can be done, especially in expanding markets like those for coarse grains. With the improving level of agricultural technology in developing countries, particularly in cereal production, other countries may be able to emulate this example, even though the overall cereal market situation is likely to remain highly competitive. A general lesson in this regard may be drawn from the results of the study of the export performance of developing countries quoted earlier in this chapter, namely that an individual country's agricultural export performance is likely to depend just as much on its general competitive ability as on the trends for its principal export commodities in the world market.

[47] Possible forms of international action on grains are examined in detail in a forthcoming FAO study: *The stabilization of international trade in grains - an assessment of problems and possible solutions.* International action on rice has been discussed at the recent sessions of the FAO Study Group on Rice (FAO documents CCP:RI 70/6, CCP 69/5 and CCP 70/7), and on oilseeds, oils and fats in the FAO study group concerned with that group of commodities (FAO documents CCP:OF 68/5/1-5, CCP:OF 70/3 and 4, and CCP 70/5).

Agricultural raw materials

With the significant exception of primary forest products, the demand for which is rising rapidly and making an ever-increasing contribution to the developing countries' export earnings, this is the agricultural commodity group which faces the most serious competition in international markets. Overall, IWP suggests that the export availability of commodities in this group might rise between now and 1980 at a rate of some 2.5 percent per year, while the import demand is projected to shrink by 0.7 to 1.9 percent per year.

For one major commodity in this group, namely cotton, considerations of international adjustment somewhat akin to those discussed above might apply, though it should be noted that the United States, the principal high-income exporting country, already tends to have assumed the position of a "residual supplier" in the world markets. More generally, however, the competitive picture is dominated by the need for the natural products to compete with man-made substitutes. Nor is this competition limited to the markets in developed countries, since many developing countries are also increasingly replacing imports of agricultural raw materials with domestically produced or imported synthetics.

It would appear unrealistic to expect major national or international action to restrict the development of technology — at least beyond the UNCTAD recommendation that developed countries should not deliberately subsidize the development of man-made substitutes which will replace imports of natural products from developing countries. The hopes for developing countries to slow down or reverse the falling trend of earnings from this group of products would therefore seem to lie in two main directions.

In the first place, attempts can be continued to reach the kind of informal arrangements regarding minimum prices and export quotas that have been operated under FAO auspices for hard fibres and for jute, kenaf and allied fibres. While these arrangements have contributed to market stability in recent years, they remain subject to the basic dilemma of how to make them sufficiently binding to withstand major market shifts, while maintaining the flexibility that is one of their essential features.

Secondly, the producers of natural raw materials can make continued efforts to improve the competitive position of their products through technological improvements in cultivation and processing, so as to

make the natural product cheaper and more suitable for its industrial uses, and through more research into new end uses and into production and marketing. Perhaps the best example of the success of such policies is natural rubber, the output of which has continued to expand steadily despite continued challenge by synthetic substitutes. The main element here has been the replanting of large areas with high-yielding clonal varieties, but an important contribution has also been made by research which has made it possible to develop processed forms of natural rubber more directly competitive with synthetics in specific end uses. Much progress has also been made in the treatment of cotton and wool to give them some of the characteristics which originally gave advantages to synthetic fibres.[48] That the importance of such action is being increasingly recognized is suggested by the decision of governments participating in the two informal FAO arrangements just mentioned to request UNDP assistance for feasibility studies on the establishment of international research institutes for the two groups of fibres.

Processed agricultural products

Perhaps most important of all, the developing countries must be enabled to raise continuously the degree of processing at which their products — whether agricultural raw materials or other commodities — are exported. This will not only enable them to obtain a greater part of the value of the final product, but will also make a significant contribution to their industrialization. It is of course already taking place and, to the extent that the stagnant past trend and anticipated reduction in raw material exports reflect a shift to exports of processed and manufactured goods, it gives a misleading picture of the true economic trend. With aggressive marketing techniques and good end-use research, it should be possible to accelerate this change, and for an increasing number of developing countries to produce processed and manufactured goods that closely match the sophisticated and varied demands of the developed countries that are the major markets. The recent major successes in this field of some Far Eastern countries, such as Hong Kong and the Republic of Korea, and the establishment of forest products industries of the more advanced type in a number of countries, bear eloquent testimony to the potential, even in the face of often heavy protection in the high-income countries.

For a widespread and rapid change in this regard, however, it is essential that importing countries lower the barriers which most of them still maintain to protect their own frequently antiquated and low-productivity industries. Hitherto, progress in this area has not been very encouraging. Even the Arrangement Regarding International Trade in Cotton Textiles, negotiated under the General Agreement on Tariffs and Trade (GATT) and possibly about to be extended, while conceding the developing countries an agreed share of the market growth, is frequently criticized for the slowness of the increase in imports it permits, relative to the growth of the manufacturing and export capacity of the developing countries. Recent progress toward the granting of generalized preferences by developed countries for imports from developing countries is an encouraging sign in this area, though the real chances for rapid progress still remain uncertain.

To speed up the process two national measures may be worth consideration. For one thing, a closer examination in developed countries of the costs and benefits of a more deliberate policy of industrial adjustment, away from areas where developing countries are becoming relatively more competitive into more modern, internationally oriented and high productivity fields, might reveal that in many areas they stand to gain as regards both foreign exchange and national income, and that most of the costs would be purely temporary budgetary outlays for facilitating the adjustments required.

Developing countries themselves, on the other hand, might find it opportune to take a still more aggressive marketing approach, both singly and jointly, including the mounting of export promotion campaigns, publicity campaigns to inform the consumers in high-income countries of the benefits which would accrue to them from the reduction of trade barriers, and the financing or preparation and dissemination of studies of the extent and nature of adjustments that would be required in the developed countries.[49] It would also appear worth examining closely to what extent it might be possible to find a confluence of interests in this area between developing country producers and governments on the one hand and large multinational corporations or national distribution chains on the other.

Tropical beverages

The growth of export demand for tropical beverages is restricted by the already high levels of per caput consumption of many of them in a number of countries, the large role of habit in determining the level of consumption, and the slow population

[48] An example of successful market promotion is the use of the Woolmark to differentiate wool from its lower-priced synthetic competitors.

[49] This type of activity would help developing countries to boost their exports of primary as well as processed agricultural products to the developed countries.

growth in the high-income countries. Overall export demand is projected to grow in the 1970s by only some 2 to 2.3 percent per year. Given, however, the virtual monopoly position of the developing countries as a group as suppliers of these commodities, and the low price elasticity of demand relative to the import price of tea and especially coffee (but not cocoa), in theory it should be possible for the developing countries to bring about an organization of the markets for these products in such a way as to maximize their export earnings.

That this is much more difficult in practice than in theory is amply demonstrated by the recent history of commodity arrangements in this field. Only for coffee has it been possible to negotiate and implement an international agreement. The International Coffee Agreement has not only been relatively successful in maintaining prices at the agreed level, but has in many ways (such as control of imports from nonmember countries and the planning of production in exporting member countries) gone much further toward genuine market control than any previous international commodity agreement. Even this agreement, however, came under great strain in 1969/70 when frost damage to the Brazilian crop caused prices to rise even after the maximum upward adjustments in export quotas had been made.

The principal reasons for the difficulty in arriving at agreements for such commodities, despite the apparent monopoly position of exporters, would seem to be three. First of all, the widely varying costs of production among exporting countries and the natural tendency for the lower cost producers to expand their share of the market, combined with government encouragement of smallholder production on social rather than economic grounds, constitute built-in factors tending to push total supply beyond the market demand. They also make it difficult to agree on the distribution of export quotas among participants, and on a procedure for periodic quota adjustments that satisfies both the older and the newer exporters. A long-term remedy for this problem could be a determined effort by the higher cost producers either to make their output more efficient, or to find alternative uses for the land and labour now engaged in the industry, especially in the marginally productive areas. Neither of these alternatives will be easy, because of the congested state of world markets for most products and the limited alternative uses for the freed resources. However, the fact that international financial assistance may be available for such diversification, as well as for buffer stock operations that may be required as a part of a commodity agreement, should make them somewhat easier.

Secondly, recent experience with regard to cocoa suggests that the exporting countries may in certain instances be tempted to take an excessively short-term view of the need for commodity arrangements, with their interest in reaching an agreement fluctuating in inverse proportion to the current and short-term prospective world market prices. Though perhaps understandable, vacillation of this nature tends to undermine the long-term confidence of the potential importing country participants in the seriousness of the exporting countries' interest in an agreement.

This is important because the participation of importing countries is needed for the discipline essential to the successful operation of a commodity agreement. Clearly, the nonparticipation of importers would place under serious strain the discipline of exporting countries agreeing to join in a monopolistic arrangement. Even when virtually all the exporting countries are participants, as in the International Coffee Agreement, it has proved necessary to enlist the importing countries to police the arrangement by the operation of a "stamp" system. But the fact that the participation of importing countries is thus required automatically weakens the bargaining position of the exporting countries. The better the discipline among the exporters, therefore, the better their bargaining position as regards prices and other elements of an agreement.

Finally, whereas importing countries participating in or negotiating commodity arrangements tend to count only the additional foreign exchange cost and other immediate consequences that would result from a higher — and more stable — price, a more realistic assessment of the impact of such arrangements should also take account of the effect of the spending of the additional export earnings by the exporting countries themselves, which in the present world situation will soon result in larger exports from the high-income countries.

Minor agricultural exports

Most of the above discussion has dealt with specified major agricultural exports, broadly grouped according to the nature of the competition they face in world markets. In addition to these major products there is a substantial trade in a wide variety of minor products, which has never been systematically studied, but which appears to be expanding rapidly.[50] A comparison between the data shown in Table III-22 and the total value of agricultural exports (including forestry and fisheries) from developing countries suggests that minor exports which are not individually covered by FAO statistics account for about 15 percent of the total. The standard

[50] A study of the trade in these products is about to be undertaken by FAO.

coverage of FAO's commodity analysis is even narrower, leaving some $4 500 million worth of minor exports unstudied.[51]

The problem is not confined to agricultural trade, but is of a more general nature. According to one recent study,[52] in 1960-63 minor [53] exports — both agricultural and nonagricultural — accounted for 34 percent of the total exports of 29 developing countries. They were, moreover, responsible for most of the export growth of these countries between 1950-53 and 1960-63. About two thirds of the minor exports were estimated to consist of miscellaneous agricultural items such as mushrooms from China (Taiwan) or tomatoes from Mexico.[54]

Trade between developing countries

Compared to their trade with developed countries, the trade in agricultural products among developing countries remains small. Up-to-date statistical data on these trade flows are not available, but data for 1961-63 calculated by FAO estimated the share at about 17 percent of the total agricultural trade of the developing countries.

There are reasons to believe that this trade offers important opportunities for future growth. First, it is in the developing countries that the most rapid growth of the total demand for agricultural products is to be expected in future and, although the greater part of this increase will no doubt be met by domestic production, some could well be met by imports. Given the small share of imports in the total supply of agricultural products in the developing countries, even small increases in the part of demand met through imports would mean substantial expansion in the value of the intratrade. Secondly, where regional cooperation and integration among developing countries have been developed furthest, as in particular among the countries of the Central American Common Market, the exchange of agricultural products has accelerated rapidly.

Reasons for the hitherto limited extent and apparently slow growth of this trade are fairly clear, and provide guidance for national and international action to accelerate its growth. A principal factor is the traditional direction and composition of the trade between the developing former colonies and the developed metropolitan countries, which have dictated the form of the infrastructure so necessary for trade — shipping and railway lines, trading contacts, payments arrangements, market intelligence, etc. This would seem to apply particularly to the growth of trade between different developing regions.

As for trade within developing regions, while it too can be improved in this way, a more potent measure is likely to be the promotion of regional integration arrangements. The possibilities they offer for increased trade between participating countries are demonstrated by the experience of the Central American Common Market countries whose total intratrade rose (admittedly from a small base) sevenfold between 1961 and 1968.

[51] Estimate based on *FAO commodity review 1968*, p. 5, supplemented by fish and forest exports.
[52] B.A. De Vries, *The export experience of developing countries*. World Bank Occasional Papers, No. 3, 1967, p. 18.
[53] Minor to the country concerned.
[54] B.A. De Vries, *op. cit.* p. 26.

Rural employment

It is clear from the data quoted earlier that the majority of developing countries will unavoidably have an increasing agricultural labour force during the Second Development Decade and for some time beyond that. This necessitates close attention to the employment-creating effects of the policies and measures chosen for the agricultural sector. People are the main productive resource which is at a low level of utilization in most developing countries, and low levels of productivity and per caput income are a direct reflection of the underutilization or misuse of this major resource.

Income distribution will also closely follow the distribution of opportunities for employment in productive work. Given the great importance of a wide income distribution for the creation of internal demand to act as a motor for development, measures to improve the distribution of employment opportunities are as important as measures for their creation.

Recent very rapid rates of urban growth have given the impression that this will help to relieve the pressure on rural employment. In reality, much of the swelling of the urban population has come through the influx of rural people who remain just as unemployed or underemployed as they were in the rural areas. Thus it is estimated that in certain Latin American cities the number of unemployed or underemployed has been growing considerably faster than the total urban population. This volatile and easily visible problem group created by a premature rural exodus is drawing increasing attention to the need to ensure sufficient employment opportunities and adequate levels of income and welfare to provide the incentive for people to remain in rural areas.

Difficulties in increasing agricultural employment

Especially in those countries where the growth of the total labour force is rapid and the share of the agricultural sector is large, the need to pursue an agricultural development policy oriented to employment creation is imperative. In overall terms, the developing world will have to increase agricultural employment during the Second Development Decade by about 13 percent, equal to an addition of 48 million jobs to the 1970 level. If past trends prevail, nonagricultural employment will increase during this period by 40 percent, or 98 million jobs. The crux of the problem is that the expansion in agricultural employment has to take place at the same time as this large expansion in nonagricultural employment, so that the two sectors compete for political support and resources. In addition to this competition, the growth of agricultural employment is hampered by a number of other factors.

The eventual solution to the agricultural employment problem is to transform the structure of the economy and thereby reduce the share of the agricultural sector in total employment. This, however, requires large investments in the nonagricultural sectors, where the average cost of creating new jobs is relatively high, especially in the modern segment of industry which spearheads the increase in productivity. This has tended to starve agriculture of resources, especially of investment funds, in the hope that the nature of the agricultural production process would permit both the absorption of an increasing labour force and an increase in production without substantial use of such resources as domestic savings, foreign exchange and skilled manpower, of which the economy is in short supply.

In those countries where the cultivated area could be substantially expanded with traditional technology, this involved no great technical difficulty. The natural increase in the rural population could be accommodated by expansion of the cultivated area, without the need to raise yields through the use of purchased inputs or to turn to methods of extending the area which required more than hand tools and fire for bush clearing.

However, in those countries where land and water resources are already utilized to a high degree, this has become a much more difficult problem. There has been a rapid lowering of the land/man ratio, not only for the population as a whole but also for the agricultural population.[55] The resulting pressures for intensification call in turn for much higher levels of investments and inputs, which often need to come in a form which has high opportunity costs. Modern irrigation schemes, fertilizers, plant protection, agricultural research and administration all consume resources in direct competition with the other sectors of the economy.

In other situations the expansion of the cultivated area is not limited by shortages of new land and water resources, but by antiquated and unsuitable institutional structures, including land-tenure conditions. These not only hamper the development of new agricultural land, but they also often keep land under extensive uses with very low employment potential, such as extensive grazing on land which could economically support intensive crop production.

Just as in industrial production, much of the new technology for agriculture is labour saving, or at best neutral with respect to employment creation. On the one hand, improved technology increases labour requirements per hectare because of the additional activities to be performed (such as fertilizer application) and because of multiple cropping. On the other hand, the tremendous yield increases tend to reduce labour requirements per unit of output. Thus the net effect on employment depends on whether the relative increase in total output outweighs the relative fall in labour requirements per unit of output.

The effects of mechanization may be complex. Mechanization is often cited as the main technological development which tends to replace labour. While this is true in many instances, in others, as discussed later, carefully applied mechanization can create additional employment instead of reducing it.

However, even if all the technical and institutional barriers can be overcome, the expansion of agricultural employment is restricted by the ceiling which effective demand sets for agricultural production. Recent work on IWP confirms that at the aggregate level the long-term growth of agricultural production in the developing countries suffers from a definite demand ceiling. The analysis also shows that the recent, often unsatisfactory, growth rates which have led in many countries to increasing unemployment (both in agriculture and in the rest of the economy) and to increasing imports of foodstuffs, are only about 0.5 to 1 percent below the ceiling on growth rates imposed over the longer run by demand constraints. Income redistribution to the low-income groups is one of the main ways of lifting the demand ceiling, and the close interrelationships of such policies with employment policies will be discussed later.

Another difficulty is that much has still to be learned about the exact nature of the rural employment problem before answers can be found. Many past failures to come to grips with the problem stem partly from an insufficient understanding of the complex of relationships which need to be accommodated or altered to achieve success. Not least is the present

[55] IWP findings for the Far East indicate that between 1950 and 1965 arable land per person declined from 0.36 to 0.30 hectare, and that even with the large land development proposals in IWP the ratio would drop to 0.19 hectare per person by 1985.

inability even to measure meaningfully the phenomenon which it is desired to change. Although the magnitude of the task can easily be shown in approximate fashion, and is increasingly accepted as one of the important facets of development, definitions of employment, unemployment, underemployment and labour force are still hazy. This makes it difficult to use existing information in analysing the problem. Other areas where better information is urgently required include elasticities of labour supply and demand to wage changes, the factors influencing labour mobility, and the labour-saving or creating effects of technological changes and of different agricultural policies.

Labour-intensive agricultural production techniques

The difficulty and the magnitude of the problem are such that all possible avenues must obviously be explored for its solution. However, the main focus of this effort must be on influencing the amount of labour used in crop production, since this is the source of the overwhelming bulk of agricultural employment. The case study of six Asian countries made for IWP showed that crop production generated as much as 81 percent of total GDP from agriculture in 1962.

Two major lines of action need to be followed in attempting to maximize employment in crop production. One may be termed a defensive action, focused on preventing less labour-intensive technologies from substituting other inputs for labour in the production process. The other consists in actually intensifying labour use through modern agricultural technology.

The main defensive actions relate to mechanization. The employment estimates in the IWP case study already include an estimate of the substitution of labour through mechanization. This would raise the substituted portion of total labour requirements from 0.9 percent in 1962 (when mechanization was negligible in the countries studied, with the exception of Ceylon and Malaysia) to 5.3 percent in 1985. While this is a sixfold increase in mechanization, it still represents only a minute proportion of the total labour requirements for crop production.

The crucial question is whether the needed agricultural production could be obtained without the substitution of labour by machines. To answer it therefore involves specifying the functions which mechanization is expected to perform. In some operations the substitution between human labour, draught animals and machines is only a question of cost. If high shadow prices are used for foreign exchange, then this comparison will often favour an agriculture powered by men and draught animals. However, if the timeliness and quality of many operations, especially in soil preparation and seeding, are considered, then it appears that machines have important advantages which are often crucial in achieving the high production targets which most developing countries need to meet. In areas of low and unreliable rainfall, the timeliness and speed of operations can determine success or failure in crop production. The whole question of power inputs becomes even more vital when multiple cropping is introduced, with only a short time available between the harvest of one crop and preparations for the next. By making possible in this way the intensification of production, mechanization can have a very positive effect on labour requirements. Moreover, in many parts of the developing world, especially where climate or shortage of feed does not permit the keeping of draught animals, mechanization can strongly affect the total area harvested by reducing fallows and enlarging the arable area.

This already takes the argument into the consideration of those production techniques which have a positive effect on labour use. In the developed countries modern agriculture is nearly always identified with a technology which aims predominantly at the substitution of capital (including new technology) for labour, thus raising the productivity of agricultural labour and bringing it closer to that in the other sectors of the economy. In developing countries the role of modern technology should more often be to make possible the more intensive use of labour and at the same time raise its productivity, although admittedly not at the rate that could be achieved through labour-saving technology.

In this respect, a basic issue is whether the high-yielding varieties of cereals have a positive or negative influence on labour use. Those who take the view that the negative side is stronger argue that, by enabling farmers in the irrigated areas with better soils to supply the market to a degree which will depress prices, the high-yielding varieties will in fact penalize farmers in marginal areas where land and labour represent an overwhelming share of total inputs. This in turn will reduce total labour use in the production of the same volume of product. It is also claimed that, by providing higher incomes for the innovating group, the high-yielding varieties create incentives for them to mechanize, and will thus depress the demand for labour and increase rural inequalities.

The opposite view holds that the greatly increasing demand for agricultural products will require the full productive potential both of areas under high-yielding varieties and of other areas in order to reach production targets. This argument gains further support from the opportunities opened up by rising incomes for the production of other food and feed crops to satisfy the growing demand for a higher quality and more diversified diet.

It is also necessary to remember that, because of the highly labour-intensive nature of harvesting and threshing operations in nearly all parts of the developing world (especially in Asia), the demand for labour will be increased by greater yields. Higher labour requirements also arise from improved operations such as line sowing or planting, and better crop care. The new varieties produce their greatly superior yields only if supported by an optimal soil and water environment, but this very same environment is also optimal for weed growth, which in turn will require a greatly increased labour input for its control.

Very little exact quantitative information is available at present on the differences between labour requirements for traditional technologies and those using high-yielding varieties. In the IWP study some very tentative estimates were made for the relation between yield levels and labour requirements. The elasticity of labour to yields averaged 0.37, ranging from 0.25 to 0.60 for the different crops, depending mainly on the weight of harvest labour in total labour requirements. The average additional labour resulting from the proposed higher yields came to 30 labour days per harvested hectare, representing a 40 percent increase over the 76 labour days/hectare average for 1962. This rate, however, also included increases in labour use arising out of the changes proposed in the cropping pattern, which for 1985 contained a smaller proportion of those cereals with low labour requirements.

As regards livestock the employment implications of modernized production are rather gloomy, with the main exception of the dairy sector, the future growth of which, however, suffers from many limitations, as discussed earlier in the chapter. The commercialized forms of livestock production, such as cattle ranching and modern large-scale pig, poultry and egg production, use little labour, although there is some scope for the use of labour-intensive practices such as manual feeding and egg collection. In addition, the pig and poultry enterprises may be located away from rural areas, while because of their large scale they have little beneficial income distribution effects. Small-scale livestock production, on the other hand, when carried out as an integral part of the general farming operations, yields a better labour distribution both seasonally and between members of the family and is the source of additional income, but it fails to create sufficient employment opportunities to retain additional people in the agricultural sector.

Employment in forest production, especially in man-made forests, can create substantial employment potential in forest areas, the more so if the use of machinery is limited to those operations where its efficiency is greatly superior to human labour. An important side-effect of forestry in employment creation is its support for pioneer settlement in forested areas, through the provision of a flow of income in the early stages of settlement before returns are available from crop or livestock production.

Man-made forests, whether established for soil and water conservation or for production, or for both purposes, can play an important supplementary role in the provision of employment. Often they offer work in the off-season periods of crop production, requiring labour not only in their establishment but also in their care and harvesting.

Present labour intensities in logging operations in tropical high forests cover an extremely wide range, with examples ranging from fully manual patterns to full mechanization, and with the manpower needs of the latter possibly ranging from 800 to 1 000 man-days per 1 000 cubic metres logged volume to a quarter of this. There are some examples of misplaced emphasis on efficiency of operations, when from the point of view of the national economy true efficiency might consist in a better use of resources of low opportunity cost, such as labour.

While the effect of technological change on employment in the fishing industry is similar to that in crop, livestock and forest production, fisheries offer the possibility of a rapid jump from a simple, peasant-type canoe fishery to a modern industrialized deep-sea fishery. The fisheries of a number of developing countries now exhibit this sharp dichotomy, although several countries are following the more gradual policy used in developing the Japanese fishing industry. The effects on employment, however, are unlikely in most cases to be significant, since the canoe fishery and the industrial deep-sea fishery represent different enterprises relying on different resource bases. Although on the market there may be some competition between these two sectors, the rapidly growing demand for fish gives ample opportunity for a dynamic deep-sea fishery development without encroaching on the markets of the traditional sector, or reducing the total labour employed in fishing.

But the most dynamic employment-creating sector in the fishery industry is fish culture, whether in inland, brackish or marine waters. In these enterprises production operations are an important labour-intensive addition to the traditional harvesting operations of fisheries. The cultivation of molluscs in marine waters is particularly labour-intensive and is already well established in a number of countries. Given the markets, these activities are capable of expansion on a significant scale. It should be remembered, however, that the livestock, forestry and fishery sectors are extremely small as compared with crop production.

The most important question remaining is what methods to use to influence the use of modern pro-

duction technology so that, while contributing to increased production, it will not replace labour. Taxation is a widely used method, especially through duties on imported materials. Import duty policy is generally influenced by the need to protect domestic industries, to minimize the costs of production for export crops, and to save foreign exchange. Employment should be added as an important consideration to this list of policy criteria. A special problem arises, however, when there is too little information on the employment effects of the new technology, and the choice is made on a purely political basis under the influence of pressure groups. Equally, there is too little information on the effects on labour supply and demand of changes in wage rates and in the prices of other factors of production.

Legislation for the discouragement or prohibition of labour-replacing technology has been attempted in a number of situations, but the results have usually been disappointing. In most countries the most important need is probably to avoid factor price distortion, whereby an overvalued exchange rate has stimulated technologies based on imported capital equipment.

Direct incentives may be the most useful policy tool for achieving a labour-intensive pattern of agricultural production. These may take the form of subsidizing those modern inputs and investments which have a positive labour-creating effect, for example fertilizers, plant protection, and land improvements such as irrigation, drainage and flood control. The question is complex for there is even evidence from some areas that fertilizers, for example, may actually be substituted for labour. Especially where the demand for labour is depressed by minimum wage legislation, there may even be a need for a direct subsidy on the employment of labour.

In addition to direct subsidies, the necessary measures may also include the building up of institutions which will help to bring about the wider use of labour-intensive production processes. Such institutions are even more important in achieving any substantial increases in the employment opportunities in rural areas through public works programmes or through rural industrialization.

Nonagricultural employment opportunities in rural areas

A widely advocated avenue for reducing rural unemployment and underemployment is to provide opportunities for nonagricultural jobs in rural areas, either part-time or full-time. Part-time farming is already widespread in developed countries and is becoming important in a number of developing ones. It is likely to become increasingly the pattern in developing countries, especially where there is heavy population pressure, as it enables families with subsistence-size holdings to enjoy more than subsistence levels of living.

Many hopes have been raised concerning nonagricultural employment in rural areas, and many failures have attested to the difficulty of this approach. The major means for creating these jobs are public works, rural industrialization, and rural services. Many of them, although strictly nonagricultural, are very closely allied to agricultural production.

Public works programmes have already been used for a long time in attempting to relieve rural unemployment and low incomes. The famine relief work programmes of India are early examples, and many of the present food-aid supported projects are in this field. There are some well-known successful examples, which prompt one to ask why they have not grown faster, and what are the factors which limit them.[56]

The most fundamental difficulty is the competition with other development projects for certain resources. Although with careful planning this competition can be lessened, it cannot be fully eliminated. It concerns not only financial resources and administrative capacity, but also voluntary effort.

The difficulties encountered in food-aid assisted projects include problems of strain on the administrative and food distribution systems, which show themselves most frequently in delays, losses, and increased costs. Another problem is the general tendency of rural people to prefer cash wages to food, and the increasing proportion of wages provided in food-for-work projects attests to the wider realization of this fact. The composition or quality of the food available may not be attractive or acceptable to the workers. These difficulties are, however, to some extent outweighed by the advantages, in particular the ready availability of food aid even when other types of aid are declining.

The competition for administrative capacity is a complex issue, and has given rise to controversial views. Some maintain that food-for-work projects need only a minimum administrative resource because they are simple and can be kept close to the local community level where solutions are found in an informal manner.[57] This view ignores the fact that there may be a very large number of small projects, whose administrative needs will increase because of geographical dispersal and because of the relatively difficult management problems when many small projects are involved. These problems are

[56] Even one of the most successful examples of this kind of programme, the Moroccan Promotion nationale, has provided less than 5 percent of the total agricultural employment, although in some areas its impact was sufficient to halve the unemployment rates in agriculture.

[57] G. Ardant, A plan for full employment. *International Labour Review*, 88 (1), July 1963.

often compounded by the assumption that the imposition of this extra workload will not impair the performance of the administrative machinery in its existing functions, or in functions with a higher development priority than labour-intensive projects.

A further resource competed for is the willingness of people to work for the common good either voluntarily or at wages below market rates. This willingness has definite limits, and in most countries so many calls have been made on it, often for misplaced goals or projects, that rural people are both weary and wary of exhortations to further voluntary effort. On the other hand, where such effort has brought visible returns this may often reinforce people's willingness to make additional voluntary efforts.

One problem is the difficulty of finding projects which are suitable vehicles for the creation of employment and at the same time conform to other development criteria, especially with respect to economic returns. In addition to being economically attractive, these projects need to have features which make the people in the local community feel identified with their goals.

High on the list of suitable projects are those concerned with the building of infrastructures, especially roads, irrigation, land improvement, and soil and water conservation. The labour component in this type of project is high, the distribution of benefits is wide, and the results are visible and easy to understand. It is also important that they increase employment not so much through the labour required for their implementation as through the demand for labour in the greatly intensified agriculture they make possible. In India, for example, the building of 1 hectare of irrigation capacity may create demand for 800 days of labour; the intensification permitted by the irrigation will raise labour requirements to such an extent that in approximately 10 years an equivalent number of additional labour days will be required on this area for agricultural production and for the upkeep and management of the irrigation system.[58]

The factors limiting the widespread use of public works programmes also include the lack of suitable institutions. Undoubtedly the public works type of investment is economically attractive only if the facilities built are efficiently utilized and kept up. This requires sound and widely accepted institutions through which individuals will be able to participate in the community effort both for constructing and using the improved infrastructure. The level of development and stage of social organization are also crucial in defining the kind of public works which can be built for a useful purpose and the support which can be marshalled for their construction. Educational efforts are necessary to support such programmes.

Rural industrialization is another major avenue advocated for increasing nonagricultural rural employment. An important distinction needs to be made between the part-time, seasonal, artisan type of industry, and the type of industrialization which creates full-time industrial workers residing and working in rural areas. While the first alternative has often been upheld as an important opportunity for creating employment through part-time cottage-industry type occupations, its effects are greatly limited by its very low productivity as compared with industrial production, with which it often has to compete. Thus in the final analysis it has to be limited to the type of industrial production where the label "hand-made" is an advantage. Successful examples are cottage weaving, as in India, and the silk weaving revival in Thailand. It is not to be overlooked that this type of employment is truly supplementary to agriculture so that, once labour utilization in agriculture itself is better organized, much of the cottage industry declines because it cannot even reach the productivity levels of labour used in agriculture.

Thus it appears that in the longer run industrialization in rural areas must be based on combining more modern technology and capital with labour. The industries which are attractive from this point of view are those based on agricultural raw materials, for example sugar manufacture, cotton ginning, oil extraction, feed mixing, canning and other food processing. However, most of these industries are highly seasonal so that their capital/labour ratio may still be relatively high.

Government action to support rural industrialization will largely define its location. It is the provision of infrastructural services, together with tax concessions and direct subsidies, which are the main weapons in the government's armoury for creating incentives for rural industrialization.

During the Second Development Decade the industries and services ancillary to agriculture may be of particular importance in increasing employment in rural areas. Major features of agricultural development in the stage it has now reached in most developing countries are rapid increases in sales of agricultural products and in purchases of inputs. These will give rise to substantially increased employment in the marketing of agricultural products, and in

[58] The following assumptions were made for this calculation: construction costs per hectare, $1 000, of which $400 for labour at the rate of 50 cents per day for a total of 800 days; preirrigation labour requirements 35 days per hectare with a cropping intensity of 95 percent and total annual labour requirements 32 days/hectare; under irrigation labour use per cropped hectare to rise to 60 days and cropping intensity to 150 percent, with a total labour requirement of 90 days per year; upkeep and management of the irrigation system calculated at 50 percent of 2 percent of the original investment costs, equal to $10/hectare or 20 labour days; total additional labour days per hectare, 78.

the marketing and in many cases also the manufacture of the inputs required for improved technology. Many of the most important employment effects of the high-yielding varieties will be of this indirect kind.

Another potentially substantial source of rural employment is in the construction of the housing and other infrastructure required for the development of decentralized rural towns, which would be a welcome alternative to the continued sprawl of existing cities. It has recently been suggested that such construction might be financed by internationally guaranteed mortgages,[59] and the urgent need to increase rural employment in developing countries would seem to provide a powerful additional justification for such a course. Such decentralized rural towns would not only provide markets for the agricultural produce of surrounding areas, but also centres from which to furnish the various necessary government services for farmers.

Overall policy considerations in increasing rural employment

Measures to increase employment opportunities do not necessarily contribute to the improvement of income distribution. For example, most of the measures discussed earlier apply only to farmers who have some link with the market economy. Subsistence farmers, who produce almost entirely for consumption within their own family, cannot be reached in this way. They must first be brought into some contact with the market economy. Although it can usually be assumed that most of these isolated communities have a reasonable food base, they are some of the worst examples of underemployment. Unless they can increase their productivity, usually through an increased input of labour, they cannot produce a surplus for sale and thereby increase their incomes and levels of living.

In other cases the problems of providing increased employment opportunities become very difficult because of the poor resource base of areas such as those discussed earlier in connexion with crop production. In these situations the main thrust of an employment policy must of necessity be oriented toward giving skills to people to enable them to migrate to other areas. Sometimes there are opportunities for rural industrialization, but in general even these are less attractive than in areas with a good agricultural potential, and thus a higher income and bigger local market, together usually with a better communications infrastructure.

To conclude, it must be stressed that optimal choices between development policies involving different employment effects require that the costs and benefits of the alternatives are reasonably well known. There is far too little information on the trade-off between production and employment objectives.

The benefits and costs have to be looked at from three angles, namely economic, social welfare and political. There is a close relationship between these, which is sometimes complementary but more often than not competitive. The complementarity of economic and welfare considerations for an employment-oriented development policy is clear if it results in an improved income distribution which both satisfies social welfare goals and helps development by increasing internal demand for many consumption goods. The social welfare and political goals of employment policies may also strongly reinforce each other.

Just as in a cost/benefit analysis for multipurpose river development, some of the major problems of rural unemployment arise from the difficulty of measuring some of the costs and some of the benefits, which forces the decision-maker to use well-informed judgement both in estimating the benefits and costs and in the final decision. Because of this need for judgement, and because of the strong emotional implications of unemployment, these decisions are difficult and controversial. One of the most important tasks in future is to narrow down the range of variables which need to be based on judgement, thus creating a more objective framework for decisions. This requires the development of improved concepts and an increased availability of reliable information.

[59] Barbara Ward. The poor world's cities. *The Economist*, 6 December 1969, p. 56-70.

Some policy implications

As was stressed at the outset, the above review of some of the main agricultural problems of the 1970s is far from complete. It does make it possible, however, to distinguish some of the main priorities both for domestic agricultural policies in the developing countries and for international cooperation and assistance during the Second Development Decade.

Agricultural policies in developing countries

As regards domestic policies, the first essential is for governments to continue to give high priority to agricultural development. Agricultural production possibilities are now greatly improved in a number of countries, but these possibilities will never be

realized if, in the mistaken belief that the food production problem is already all but solved, agriculture is once again starved of resources.

The provision of the necessary support for agricultural development will severely strain government resources of finance, trained manpower, and administrative infrastructure. Imports of essential inputs such as fertilizers and pesticides will make heavy calls on foreign exchange budgets. A resolute government commitment is therefore indispensable.

The agricultural production of most of the developing countries is either already passing through or is about to enter a highly dynamic stage. It is therefore essential to maintain an equally dynamic attitude in future planning. This implies the avoidance of fixed concepts of location or the acceptance of the status quo as defined bypr esent technology, environmental limitations, land use, factor availability or land tenure. The need for flexibility and imagination cannot be overemphasized. If the proposed procedures for the review and appraisal of progress during the Second Development Decade prove effective, it should be easier to foresee the policy adjustments that are needed and apply them in good time.

Agricultural policies in developing countries during the Second Development Decade should have two main aims. First, they will need to be designed to keep up the impetus of the so-called green revolution or, in those countries where it has not yet begun, to lay the foundations for it. Second, they will have to take care of the side-effects of rapid agricultural change that could react back and slow down its impetus. In both cases, economic and institutional measures are of paramount importance.

Concerning the first aspect, institutions and services must be modernized and developed in order to support technological advance and the intensification of agriculture. The institutional framework embraces the entire economic and social climate in which the farmer lives and works. But in the present context some of the most important individual institutions are those concerned with extension and education, prices and marketing, credit, land tenure and farmers' associations. All of the technological improvements on which such high hopes are now pinned are of no avail if extension services are inadequate to assist farmers with the problems of modernizing their production, if credit is not available to enable them to purchase the fertilizers and other inputs on which a modern productive agriculture depends or if, as a result of inappropriate price policies, inefficient marketing and outmoded systems of land tenure, they do not have the incentive to increase their production.

The methods required to obtain optimum benefits from the use of high-yielding varieties are still unfamiliar to most farmers, and the effective use of irrigation water or of newly cultivated land is outside the experience of many others. Such techniques must be learned quickly, if there is to be an adequate return at the national level to the investments in land and water development required to meet future needs for agricultural growth in developing countries.[60] This implies both a massive farmer training programme to spread the results of adaptive research and adequate institutional backstopping. These are at present lacking in many developing countries, where their absence has led to the failure of many settlement and irrigation schemes and the consequent disillusionment of both individual farmers and national planners.

The continued rapid increase in the use of purchased inputs in the agricultural production of the developing countries will require a vast expansion in the supply of institutional credit, especially if the smaller farmers are not to be left behind. Rural banking institutions will need considerable adaptation if they are to play their full role in the mobilization of the savings accruing to farmers who have benefited from innovation. Marketing institutions and storage facilities must keep up with the growing volume and diversity of marketed supplies.

Price policies (and related subsidy and taxation policies) are a particularly crucial area, and form an important link between the measures needed to keep up the impetus of change and those needed to mitigate its less desirable consequences. On the one hand, especially for cereals, they must ensure that farmers continue to have the incentive to use the fertilizers and other purchased inputs that are the mainspring of the recent more encouraging progress in production. At the same time, however, they must provide for gradual reductions in cereal prices, so that consumers may benefit from the production improvements, and so that cereals may economically be used for livestock feed and (in some cases) exported.

It is clear that the expansion of opportunities for productive employment must increasingly become a specific goal of government policies. Moreover, there must also be a dramatic improvement in rural amenities if there is to be any chance of stemming the premature flow of rural people to urban areas before jobs are available for them. Ways must be found of using the enthusiasm and energy of young people for productive purposes, instead of allowing them merely to become prone to dissatisfaction and frustration.

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[60] Estimated by FAO at about $30 000 million, or 40 percent of all investment in agriculture, forestry and fisheries proposed for the Second Development Decade.

Governments must seriously examine whether the looming problems of unemployment and underemployment can ever be solved without a reduction in the present rapid rates of population growth, and whether such a reduction can be obtained in time without their assistance through the provision of information and facilities for those wishing to practise family planning.

Deliberate policies will also be needed to limit the inequalities that seem likely to widen in rural areas, as a result of the high-yielding varieties and related improvements. These could have important consequences for the overall strategy of agricultural development in certain countries.

In order to stimulate the rapid expansion of input use required to achieve production objectives, to simplify the task of extension workers and to obtain maximum benefit from the complementarity of inputs, a number of countries have found it useful to launch special programmes. These provide an appropriate "package" of inputs and cultivation practices as a spearhead for development in certain key crops and areas, supported by reinforced credit and marketing services. While it is not suggested that such strategies of concentration should be abandoned in favour of thinly spreading scarce resources over the whole country, it does seem important to consider very carefully their likely effects on rural inequalities. Above all, every effort should be made to see that a package programme is accessible to all producers in a given area and not just to the larger ones or those who are otherwise more favourably placed.

In many countries the most powerful tool for reducing rural inequalities lies in land reform, which not only enables the mass of the population to participate more fully in development but also stimulates the higher consumption levels needed for more rapid development. Even in countries where a substantial redistribution of landed property is not considered necessary, tenancy reforms will often be needed in order to remove some of the disadvantages of the smaller producers.

A central problem in most developing countries will continue to be to make the most effective use of the limited resources available. Improvements in national planning and in the identification and preparation of specific projects will therefore be essential. Short- and medium-term planning for the agricultural sector will increasingly need to be developed within the framework of longer term perspective plans, so as to take account of the long-term nature of many agricultural projects and of the longer run changes that are occurring in the domestic and international demand for agricultural products. The harmonization of national plans with those of other countries will be a major need, especially where multinational approaches are being developed.

International cooperation and assistance

Just as the governments of the developing countries must give high priority to agricultural development, so must the donors of foreign assistance.

High on the list of the main priority areas for international action must come the intensification and broadening of the international cooperation in agricultural research that has proved so successful in developing the high-yielding varieties of cereals. This striking success has made national and international financing bodies more receptive to requests for assistance to research. Moreover, the United Nations Advisory Committee on the Application of Science and Technology to Development has recently recommended that developed countries should devote 5 percent of their nonmilitary research expenditure to the problems of the developing countries.

A major task is to increase the yields of those cereal species not adequately covered by existing international-cum-national research programmes. It appears that a good deal of the need could be met by giving additional support to existing international centres and regional programmes, for example to the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico for work on winter and durum wheats and barley, in cooperation with FAO's Near East wheat and barley programme. Similarly, the International Rice Research Institute (IRRI) in the Philippines might extend its coverage to deepwater, upland and swamp rice, cooperating with the International Centre for Tropical Agriculture (CIAT) in Colombia, and with the West African Rice Development Association (WARDA). Some of the high-yielding varieties developed in Asia and America have already shown promise under African conditions, but much remains to be done and WARDA appears of great potential importance as a guideline for regional action in tackling key food production problems. A similar cooperative approach might be considered for sorghum and millet, possibly centred on the newly established International Institute of Tropical Agriculture (IITA) in Nigeria, or alternatively on the expansion of an existing regional or national station.

It will probably be necessary to establish an international centre to focus a major part of its attention on tropical roots and tubers, in order to supplement the work of national stations. Africa should receive first priority, and coordinated research between IITA and national stations such as the Institut national pour l'étude agronomique du Congo (INEAC), where considerable progress has already been made with cassava breeding, could result in a major breakthrough in improving dietary levels and health in the region, especially if it were linked to a programme to provide supplementary protein through the improvement of grain legumes and their introduction

into rotations with starchy roots. For tropical legumes international research might be centred on CIAT or IITA, but for Mediterranean and subtropical species a special centre might have to be set up in Africa or Asia. It is also necessary to establish regional or subregional horticultural research programmes with international support.

To ensure the rapid exploitation of the vast potential of multiple cropping, both international and national research centres working on the major food crops should strengthen their activities in relation to intensive cropping systems wherever the environment makes their introduction feasible. This will need to be supported by economically-oriented pilot projects. FAO could make a major contribution rere, both through the adaptation of existing UNDP projects and through establishing new ones specifically aimed at fostering multiple cropping. Care should be taken to ensure that inputs are available together with supporting credits and advice on management when required, and that marketing arrangements are adequate to cope with a varied flow of produce throughout the year.

The exploration, conservation and ecological adaptation of genetic resources are other areas where international collaboration is highly desirable. At present only about 1 percent of the genetic potential of cultivated plants has been employed in plant breeding, the raw material of which is found in the numerous crop races unconsciously created over centuries of cultivation by primitive man. These are rapidly becoming extinct under the pressure of modern improved varieties and no substitute source of genetic raw materials exists.[61] It is therefore essential that a systematic approach be adopted to the conservation, exploration and rational exploitation of existing resources. Evaluations of collections of primitive cultivars which have revealed highly desirable features (such as high protein, changes in amino-acid balance, disease resistance, and suitability for processing) suggest that the Mexican wheat-breeding experience is not a fortunate accident unlikely to be repeated, but rather a pattern that can be pursued through the systematic use of genetic resources. This will depend, however, on the coordinated exchange of plant material and information on a large scale, and presupposes a standardized approach to data storage and retrieval, as through FAO's Genetic Resources Information Centre. A number of regional gene banks are already in the course of establishment, and the promotion of further effort along these lines will be required.

Considerable international assistance will be needed if the developing countries are to be able to obtain the vast quantities of inputs on which the modernization of their agriculture depends. At present most of the fertilizers, pesticides and machinery they require have to be imported from the developed countries, and these imports may well constitute an even greater drain on their scarce foreign exchange resources during the Second Development Decade than did the rising imports of cereals, much of them available on concessional terms, that characterized the First Development Decade. The Second World Food Congress has therefore recommended that an increasing proportion of foreign assistance should be in the form of food production resources, and has revived the earlier proposal for a multilateral programme of this kind. Assistance in the development of appropriate techniques for input manufacture, formulation or assembly, which might be less capital intensive than those used in highly industrialized countries but would still provide inputs to farmers at reasonable prices, could be a major objective of aid programmes for the Second Development Decade. Where a number of countries are cooperating in a development programme (such as WARDA) economies of scale could be achieved through the cooperative purchase or manufacture of inputs.

IWP has suggested that, with the decline in food aid in the form of food grains that may be expected as a result of increased production in developing countries, milk products might replace food grains as the main item in food-aid programmes. This seems logical, not only because of the developing countries' need for protein and the difficulty of building up their own dairy industries, but also because milk products are heavily in surplus in the developed countries, owing to structural characteristics of their agriculture which can be changed only gradually. Stepping up food aid in the form of milk products would, however, be a complex matter for both donors and recipients. From the long-term point of view it would seem desirable to link the production policies of the major dairy countries to the opportunities for assisting developing countries in their efforts to set up a viable dairy industry. The International Dairy Development Scheme proposed by FAO sets out to do this. Such an approach would also offer opportunities for certain centrally planned countries to increase their aid flows without encountering hard currency problems.

A major area in which international action would seem to be a precondition for success is the expansion of beef exports from the developing countries. A principal obstacle, aside from the supply situation, is the unsatisfactory state of disease control and abattoir hygiene in most potential beef-exporting countries in the developing world. Without improvements in these fields it would be unrealistic to expect the high-income markets, with their valuable

[61] This does not mean that the possibilities of inducing genetic changes by the use of chemicals, radiation, etc. should be ignored. These methods, however, are only one of the tools of plant breeding, and the results are largely unpredictable.

domestic livestock industries, to open their doors to imports from new sources. Indeed, the progress being made in Europe in eradicating foot-and-mouth disease suggests that veterinary import regulations may be expected to become more stringent, rather than easier, in future.

From the technical point of view, improved abattoir hygiene should not be too difficult to achieve; indeed some existing exporters have made great strides in this direction. Effective disease control is much more complex and costly. Much good work is already being done in the developing countries, but the total resources devoted to disease control, particularly foot-and-mouth disease, remain limited relative to the losses that it is reported to cause and the potential benefits that would accrue from the opening of export outlets. However, without the assurance of entry to high-income markets for their meat, it may be difficult to induce developing countries to invest heavily in disease control. The only way to solve this would seem to be the promotion of some kind of international arrangement under which those developing countries that undertake to produce meat of acceptable hygienic standards are given a reasonable assurance of market outlets in the high-income countries.

Livestock products, being one of the more promising foreign exchange earners for developing countries, provide a link with the third main problem area for the 1970s selected for discussion in this chapter. Greater foreign exchange earnings for the developing countries depend to a great extent on policy changes in the developed countries that are their main market. This is a fact that was much stressed in the recommendations of the Second World Food Congress, and it is to be hoped that the Second Development Decade will see much more progress in this regard. Some of the ways in which FAO and other international agencies can help in the difficult process of international adjustment include studies of the economic and technical factors determining the current market situation; exploration of the possibility of developing, in consultation with governments, agreed criteria or guidelines to determine how the burden of production and trade adjustment might be shared among countries; promotion of informed discussions to foster greater understanding between governments; and further attempts at broader trade negotiations along the lines of the initial plans for the Kennedy Round, where account would also be taken of nontariff barriers to trade, including the level of agricultural support.

The Second World Food Congress, in addition to calling for a dismantling of protectionism, especially of processed products, urged developed countries to pledge themselves never to raise tariffs or reduce quotas for products from developing countries, even if balance of payments difficulties necessitated such measures against imports from other developed countries. It also called for a study of comparative advantages in the production of agricultural commodities in the light of both short- and long-term opportunity costs. The need was stressed for the further development of international commodity agreements and their extension to additional commodities, including not only formal agreements but also less formal arrangements of the type developed under FAO auspices for jute and hard fibres. FAO and other international organizations might be able to contribute to an improved atmosphere for the negotiation of commodity arrangements by making studies of the trade flows resulting from the additional export earnings of developing countries.

A very important aspect of international cooperation during the Second Development Decade will be among the developing countries themselves, in strengthening the existing schemes for subregional economic cooperation and integration and establishing additional ones. Such schemes provide a sound basis for the expansion of trade between developing countries. They require assistance in the basic studies that must precede effective action, perhaps along the lines of that provided by FAO to the Central American Common Market, and in the establishment of the necessary trading infrastructure. More specialized fields for international assistance might include financial assistance for the establishment of regional or interregional payments arrangements (such as the proposed Asian Regional Payments Union); the creation of a link between the Special Drawing Rights of the International Monetary Fund and development finance would greatly help in this.

The analysis in this chapter also suggests that international agencies such as FAO and GATT, as well as individual developing countries, should give increased attention to market analysis for minor commodities both for the immediate benefit of exporters and to provide a basis for policy-oriented studies of agricultural diversification in countries relying heavily on a few major exports.

Concerning rural employment, the fourth problem area discussed, a principal need is for a better understanding of this comparatively new problem, including its nature and magnitude and even the basic concepts of unemployment and underemployment. Here international assistance in the necessary research can be most valuable. The Development Centre of the Organization for Economic Cooperation and Development (OECD) is already conducting a substantial programme of research in this field, and studies are also in preparation by FAO, ILO and other bodies.

In the long run, the main attack on the employment problem will probably have to be through

population policy. Rapid population growth is the main factor delaying the moment when the agricultural labour force finally begins to decline in absolute numbers. Just as, during the First Development Decade, food production difficulties constituted one of the most powerful arguments for a reduction in population growth, in the Second Development Decade employment problems seem likely to assume major importance in this regard. As with food production difficulties, employment problems beset sparsely and densely populated countries alike. Even where there is unused land its exploitation is usually very costly, and the resources involved could better be used to raise the living levels of a less rapidly growing population. Bilateral and multilateral assistance to countries wishing to slow down their population growth by means of family planning has expanded rapidly in the last few years, but will need to be stepped up much more substantially during the Second Development Decade.

Another fruitful area for international assistance would be in guaranteeing mortgages for housing and other construction required in the development of decentralized rural towns. This would not only add substantially to rural employment opportunities, but would also assist in the establishment of rural centres that would be important sources of demand for agricultural products and a suitable channel for the many services that governments must furnish to farmers.

Foreign assistance to agriculture has in the past often tended to go mainly to large-scale projects, such as irrigation schemes, and thus to favour the larger and more fortunately placed farmers. If rural inequalities are not to be further widened, ways must be found of channelling an increasing proportion of foreign assistance so that it will benefit small farmers. In particular, there is considerable scope for the development of additional ways of assisting agricultural credit institutions, as have been pioneered in recent years by the FAO/IBRD Cooperative Programme.

In addition to this bilateral and multilateral assistance in the public sector, assistance from the private sector will, as stressed by the Second World Food Congress, have a crucial role to play in the attainment of the objectives of the Second Development Decade, especially in such fields as processing industries and the production and distribution of inputs. A neglected area in many developing countries — which may well depend mainly on the support of the private sector — is the seed industry, which is essential for the sustained use of the high-yielding varieties and other improved seeds.

* * *

Even from this incomplete review of agricultural progress in the developing countries during the past 25 years, and of some of the areas which are likely to be among the main agricultural problems during the Second United Nations Development Decade, a number of broad conclusions can be drawn. It is clear that in many developing countries the agricultural sector constituted one of the principal drags on overall economic and social development during the First Development Decade. Fortunately, many lessons about the crucial role of agriculture have been learned from this experience. Fortunately, too, the end of the decade has seen a remarkable spurt in the pace of agricultural modernization in a number of countries, so far mainly in Asia.

Thus there is some reason to hope that the performance of agriculture in the developing countries during the Second Development Decade will be a good deal more successful than it was during the first. But hopes must not be set too high. It seems fairly sure that during the next decade good progress can be made in overcoming the quantitative calorie deficiencies in diets that have been one of the worst blots on the postwar record. But as one generation of problems is overcome it either breeds another or at least makes it possible to concentrate on those that previously had to take a lower priority. Even if the worst calorie deficiencies can be met, progress is bound to be much slower with the protein deficiencies that so gravely affect the physical and possibly even the mental development of young children. While it will, it seems, be a little easier than in the recent past to keep up with the food needs of a rapidly growing population, it is going to be more difficult than ever before to keep up with its needs for productive employment. Inequalities in rural areas seem likely to widen. And unrest caused by problems of employment and income distribution could easily react back on and place in jeopardy the possibilities for improving food production.

The Second Development Decade can therefore do little more than lay the foundations for the eventual solution of many of the problems that at present beset mankind. It may well prove, however, the last chance for these foundations to be laid. It is essential to use the breathing space granted by the high-yielding varieties and related agricultural improvements to plan the necessary measures for better-balanced diets in the developing countries, to introduce really effective family planning programmes before it is too late, and to take the social and other measures needed to secure a more equitable distribution of employment and income-earning opportunities. All this requires not only resolute action by the governments and people of the developing countries themselves, but much more attention to their problems by governments and people in richer countries, including a massive increase in financial and other assistance within the framework of the strategy agreed for the Second United Nations Development Decade.

ANNEX TABLES

EXPLANATORY NOTE

FAO index numbers of agricultural, fishery, and forest production and trade

Production index numbers [1]

The indices of agricultural production have been recalculated on a calendar year basis. They are therefore not comparable with the indices for crop years published in the 1966 and prior issues of this report.

The indices are calculated by applying regional weights, based on 1952-56 farm price relationships, to the production figures, which are adjusted to allow for quantities used for feed and seed. The indices for food products exclude coffee, tea, tobacco, inedible oilseeds, animal and vegetable fibres, and rubber.

For fishery production, quantities are weighted by the average unit values of fishermen's landings in 1957-59. For forest production, roundwood production is weighted by 1952-56 prices.

Trade index numbers

The indices of agricultural trade were revised in 1968, and the present series are not comparable with the indices for earlier years published in previous issues.

In calculating the indices of the volume of exports and imports of agricultural products, the volume figures for individual products are weighted by average unit values in 1957-59.

Average unit values are calculated on a regional basis, using quantity and value data covering a minimum of 85 percent of the region's total trade in each product. The unit values for individual products are weighted by the average volume of trade in 1957-59.

As far as possible, the indices for trade in fishery and forest products are calculated in the same way as those for agricultural products.

Regional coverage

The coverage of most of the regional groupings is self-explanatory. It should be noted, however, that western Europe is defined as including Yugoslavia, and the Near East as extending from Cyprus and Turkey in the northwest to Afghanistan in the east, and including from the African continent Libya, the Sudan, and the United Arab Republic. For China (Mainland) no estimates are included until more complete data are available.

Because of difficulties concerning exchange rates and the pricing of barter transactions, the trade of eastern Europe and the U.S.S.R. has been priced at the world average export unit values.

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[1] For full details, including a list of weights, see FAO, *Production Yearbook 1968*, Rome, 1969, p. viii and 693-697.

ANNEX TABLE 1A. – WORLD:[1] VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
Agricultural products															
Wheat	184.25	202.25	197.92	229.05	219.67	221.32	211.84	237.69	218.25	251.61	240.65	283.37	270.92	305.80	288.96
Barley	62.48	70.64	64.47	70.44	68.56	77.75	70.09	84.29	86.93	93.84	89.74	99.95	102.18	112.85	114.87
Oats	62.69	61.09	57.72	60.92	54.80	57.20	49.14	48.62	45.63	42.53	44.74	46.67	48.82	52.26	52.15
Maize	144.24	148.16	148.87	161.50	177.59	185.70	186.40	188.69	199.22	191.77	201.18	214.83	237.88	224.83	234.50
Rice (milled equivalent)[2]	85.76	89.31	84.48	93.24	97.99	103.65	104.60	105.36	111.93	115.55	107.39	107.36	119.56	124.99	128.53
Sugar (centrifugal)	39.50	40.42	44.55	48.60	48.25	53.56	50.16	48.94	52.99	63.69	60.44	62.28	63.84	66.96	70.19
Apples[3]	13.83	16.02	10.03	20.84	13.64	20.66	14.60	19.11	17.95	18.80	18.77	18.43	21.15	19.56	21.32
Citrus fruit	18.15	18.29	18.59	20.02	20.79	21.06	23.16	21.09	22.58	24.87	26.57	30.99	28.43	32.85	33.39
Bananas	13.76	13.91	15.26	15.32	16.41	17.16	17.69	18.16	19.31	21.20	23.55	23.87	24.83	24.76	25.50
Olive oil	0.80	1.20	1.19	1.12	1.24	1.40	1.47	1.00	1.92	1.00	1.32	1.36	1.41	1.50	1.53
Soybeans	11.90	13.92	15.00	17.65	16.44	17.02	20.70	20.61	21.24	21.15	25.45	28.00	29.59	32.95	33.68
Groundnuts	9.25	10.07	11.23	11.58	10.80	11.87	12.41	13.33	13.46	13.87	13.38	13.72	14.77	13.21	14.10
Cottonseed	14.91	14.61	14.02	14.47	15.28	15.96	16.10	17.44	18.49	18.47	18.75	17.06	16.49	18.31	18.13
Copra	3.13	3.47	3.49	2.92	2.73	3.34	3.40	3.12	3.29	3.35	3.30	3.45	3.16	3.27	3.27
Total vegetable oils and oilseeds (oil equivalent)	18.39	20.05	19.91	20.94	20.10	21.15	22.18	22.32	23.52	23.57	24.87	25.37	25.86	26.73	27.21
Coffee	2.87	2.46	3.08	3.54	4.17	4.29	4.42	4.63	4.17	3.59	5.03	3.80	4.42	3.84	4.16
Cocoa	0.85	0.90	0.77	0.91	1.04	1.17	1.14	1.17	1.21	1.51	1.22	1.35	1.36	1.23	1.37
Tea	0.73	0.73	0.75	0.80	0.82	0.83	0.89	0.90	0.92	0.97	0.98	1.03	1.03	1.08	1.11
Wine	23.55	22.61	18.27	23.81	24.96	24.35	21.98	28.53	25.80	28.51	28.92	27.27	28.49	28.19	27.57
Tobacco	3.24	3.27	3.22	3.03	3.26	3.25	3.18	3.51	3.79	4.11	3.74	3.83	4.08	3.94	3.89
Cotton (lint)	8.13	8.00	7.57	7.82	8.36	8.72	8.71	9.55	10.09	10.11	10.24	9.31	8.88	9.89	9.80
Jute[4]	2.56	2.55	2.54	2.88	2.58	2.47	3.65	3.14	3.32	3.27	3.54	3.79	3.77	2.68	3.68
Sisal, henequen and other agaves	0.59	0.62	0.65	0.68	0.74	0.76	0.77	0.80	0.83	0.88	0.86	0.86	0.81	0.79	0.80
Wool (greasy)	2.16	2.26	2.22	2.36	2.51	2.47	2.52	2.50	2.57	2.53	2.54	2.62	2.65	2.75	2.76
Rubber	1.95	1.92	1.93	1.95	2.05	2.00	2.09	2.13	2.08	2.22	2.35	2.46	2.49	2.66	2.89
Milk (total)	297.24	308.74	319.77	327.47	332.71	340.09	346.41	349.49	347.44	353.55	368.54	377.10	384.58	392.77	393.83
Meat[5]	51.09	54.08	55.17	56.57	58.71	59.69	62.63	64.94	67.06	67.11	69.79	73.06	76.41	78.67	79.56
Eggs	9.58	9.80	10.18	10.07	10.31	10.89	11.36	11.56	11.38	11.92	12.09	12.55	13.10	13.48	13.99
Fishery products[6,7]															
Freshwater and diadromous fish	4.55	4.71	5.06	5.56	6.14	6.61	6.96	6.78	6.99	7.34	7.84	8.24	8.34	8.53	8.60
Marine fish	21.03	22.28	22.83	24.12	26.75	29.21	32.19	35.63	36.32	40.91	40.95	44.00	47.25	49.94	48.63
Crustacea, molluscs and other invertebrates	2.84	2.91	3.03	2.95	3.26	3.56	3.52	3.77	4.15	3.91	4.13	4.32	4.53	4.84	4.90
Seals and miscellaneous aquatic mammals	0.01	0.01	0.01	0.01	—	—	—	—	—	—	—	0.01	0.01	0.01	0.01
Miscellaneous aquatic animals and residues	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.05	0.06	0.06
Aquatic plants	0.43	0.45	0.54	0.52	0.51	0.58	0.69	0.79	0.69	0.64	0.72	0.75	0.90	0.89	0.90
Forest products															
Fuelwood[8]	778	774	788	782	785	767	772	777	804	816	821	822	813	809	814
Industrial roundwood[8]	905	927	915	915	974	991	978	1 000	1 012	1 072	1 089	1 110	1 135	1 158	1 196
Sawn softwood[8]	234.0	235.8	231.7	241.8	259.2	258.5	256.8	259.3	266.7	279.0	283.4	280.2	282.2	293.3	295.4
Sawn hardwood[8]	61.3	64.1	59.5	62.0	65.1	67.2	68.2	69.6	72.9	78.5	79.5	81.3	82.9	83.0	86.8
Plywood[8]	10.8	11.2	11.7	12.9	14.7	15.2	16.4	18.0	20.1	22.1	24.1	25.2	26.2	29.5	30.9
Fibreboard	3.2	3.3	3.4	3.7	4.1	4.4	4.6	5.0	5.4	6.0	6.2	6.2	6.2	6.9	7.2
Mechanical wood pulp	15.3	16.1	16.2	15.9	17.2	18.0	18.4	18.8	19.4	20.5	21.2	22.4	22.0	23.0	24.7
Chemical wood pulp	30.9	33.1	33.7	33.7	37.3	40.6	43.6	45.6	49.7	54.1	57.1	61.4	63.5	66.5	71.6
Newsprint	11.0	11.9	12.1	11.9	12.7	13.7	14.0	14.3	14.6	15.9	16.6	17.9	18.0	18.6	20.0
Other paper and paperboard	44.9	47.3	48.1	49.2	54.0	57.5	61.1	63.8	68.1	73.2	77.7	83.4	85.4	90.5	97.7

[1] Excluding Mainland China and other centrally planned countries in Asia. – [2] Paddy converted at 65 percent. – [3] Excluding centrally planned countries. – [4] Including allied fibres. – [5] Beef and veal, mutton and lamb, pork, poultry meat. – [6] World total including Mainland China. – [7] Nominal catch (liveweight). – [8] Million cubic metres.

ANNEX TABLE 1B. – WORLD:[1] VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
Agricultural products															
Wheat and wheat flour (wheat equivalent)	24.85	31.75	29.56	27.68	29.37	33.29	40.83	36.92	45.19	54.46	53.78	56.45	45.89	44.30	41.11
Barley	5.16	7.04	6.35	6.50	6.18	4.93	6.19	5.62	5.05	7.18	5.91	6.04	6.66	5.71	6.16
Maize	4.64	5.79	7.07	8.80	9.99	11.12	12.47	17.49	19.08	20.08	23.43	24.72	25.70	27.94	25.32
Oats	0.88	1.32	1.44	1.46	1.40	1.28	1.14	1.34	1.20	1.39	1.67	1.33	1.19	1.01	1.02
Rye	0.94	1.03	0.73	0.62	0.59	0.56	0.70	0.77	0.64	0.50	0.40	0.44	0.36	0.29	0.24
Millet and sorghums	1.87	1.82	0 98	2.51	3.28	3.10	2.37	3.86	3.93	3.80	6.21	11.18	9.63	7.96	7.57
Rice (milled equivalent)[2]	4.62	5.43	5.49	4.82	4.77	5.50	5.69	5.49	6.33	6.56	6.87	5.93	5.61	5.27	5.32
Sugar (raw equivalent)[3]	13.28	13.51	14.61	14.42	13.34	16.13	17.22	15.51	15.19	15.14	16.59	16.10	17.28	17.85	16.75
Potatoes	2.31	2.33	1.87	2.58	2.47	2.38	2.34	2.67	2.42	2.41	2.93	2.69	2.62	2.62	3.13
Pulses (dry)	0.96	1.04	0.84	0.84	1.06	1.04	0.93	1.19	1.34	1.27	1.43	1.37	1.29	1.42	1.47
Apples	0.98	0.87	1.14	0.84	1.28	1.24	1.38	1.51	1.21	1.41	1.70	1.55	1.59	1.73	1.69
Bananas	3.06	3.05	3.30	3.53	3.68	3.88	3.98	3.88	4.03	4.23	4.54	5.17	5.37	5.78	5.66
Citrus fruit[4]	2.83	2.37	2.67	2.77	3.09	3.34	3.23	3.58	3.27	4.14	4.20	4.21	4.35	4.25	4.24
Grapes (fresh)	0.31	0.36	0.31	0.39	0.38	0.43	0.44	0.50	0.45	0.55	0.60	0.60	0.63	0.60	0.62
Dates	0.32	0.32	0.29	0.30	0.34	0.32	0.24	0.30	0.40	0.35	0.33	0.36	0.33	0.31	0.31
Vegetables oils and oilseeds (oil equivalent)[5]	4.50	4.83	4.96	4.63	4.96	5.31	5.22	5.19	5.72	6.07	6.13	6.05	5.80	6.22	6.34
Oilseed cake and meal	3.22	3.53	3.23	3.88	4.64	4.45	4.96	6.11	6.61	7.33	8.04	8.36	8.51	8.77	9.15
Cattle[6]	2.14	2.12	2.97	3.15	2.63	2.82	3.68	3.65	3.77	3.48	3.84	3.49	3.69	4.24	4.37
Sheep. lambs and goats	2.54	2.26	1.86	1.92	2.54	2.80	3.46	3.99	4.45	4.15	4.03	3.95	3.91	4.83	4.74
Pigs[6]	0.66	0.52	0.52	0.49	0.99	1.23	1.19	1.02	0.70	0.85	0.92	0.65	0.95	1.24	1.60
Meat[7]	1.24	1.38	1.50	1.58	1.71	1.74	1.85	2.21	2.57	2.58	2.54	2.58	2.72	2.87	3.16
Milk (condensed. evaporated and powdered)	0.72	0.82	0.81	0.80	0.91	0.90	0.97	1.03	1.21	1.39	1.37	1.42	1.58	1.79	1.82
Eggs (in the shell)	0.35	0.35	0.37	0.39	0.43	0.41	0.39	0.34	0.29	0.24	0.20	0.18	0.18	0.21	0.25
Coffee (green)	2.06	2.33	2.22	2.19	2.55	2.61	2.67	2.82	3.02	2.79	2.70	3.00	3.11	3.31	3.29
Cocoa beans	0.70	0.75	0.78	0.64	0.75	0.90	1.00	1.03	1.04	1.03	1.30	1.11	1.09	1.06	0.99
Tea	0.43	0.50	0.48	0.52	0.49	0.49	0.52	0.54	0.55	0.55	0.57	0.54	0.59	0.59	0.56
Wine	2.57	2.48	2.81	2.78	2.42	2.69	2.66	2.83	2.37	2.56	2.33	2.53	2.12	2.17	2.21
Pepper and pimento	0.09	0.12	0.10	0.10	0.12	0.10	0.12	0.13	0.14	0.12	0.12	0.13	0.17	0.18	0.15
Tobacco (unmanufactured)	0.64	0.64	0.67	0.66	0.64	0.68	0.77	0.77	0.76	0.87	0.84	0.80	0.85	0.86	0.85
Wool (actual weight)	1.14	1.18	1.20	1.15	1.37	1.31	1.42	1.40	1.38	1.29	1.39	1.40	1.29	1.45	1.43
Cotton (lint)	2.37	2.82	3.06	2.65	2.79	3.50	3.28	3.00	3.37	3.47	3.22	3.36	3.25	3.28	2.95
Jute and kenaf	0.99	0.88	0.81	0.95	0.89	0.83	0.76	0.99	0.90	1.00	1.13	1.20	1.07	0.99	1.08
Rubber (natural)[8]	2.02	1.94	1.96	1.97	2.28	2.01	2.22	2.28	2.24	2.24	2.31	2.22	2.35	2.50	3.06
Fishery products[9]															
Fresh. chilled or frozen fish	0.81	0.83	0.87	0.96	1.00	1.14	1.15	1.34	1.48	1.71	1.72	1.80	1.79	1.79	1.82
Dried. salted or smoked fish	0.65	0.67	0.63	0.61	0.58	0.56	0.55	0.55	0.54	0.50	0.50	0.50	0.50	0.50	0.51
Crustacea and molluscs. fresh. frozen. dried. salted. etc.	0.18	0.18	0.17	0.18	0.21	0.23	0.25	0.27	0.27	0.30	0.30	0.30	0.32	0.34	0.35
Fish products and preparations. whether or not in airtight containers	0.39	0.43	0.43	0.47	0.51	0.50	0.52	0.54	0.51	0.58	0.52	0.57	0.56	0.61	0.58
Crustacean and mollusc products and preparations. whether or not in airtight containers	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07
Oils and fats. crude or refined. of aquatic animal origin	0.32	0.33	0.44	0.48	0.54	0.59	0.62	0.67	0.74	0.63	0.72	0.68	0.81	0.84	0.71
Meals. solubles and similar animal feedstuffs of aquatic animal origin	0.46	0.53	0.57	0.67	0.83	1.03	1.36	1.72	1.78	2.44	2.47	2.48	3.05	3.59	2.91
Forest products[9]															
Pulpwood[10]	10.9	10.6	10.3	8.5	9.0	10.8	13.1	12.4	11.7	13.2	13.8	14.2	14.8	14.1	15.6
Coniferous logs[10]	1.8	1.8	2.1	2.7	3.3	4.2	5.9	6.4	8.7	9.9	11.6	13.5	16.8	21.1	20.5
Broadleaved logs[10]	7.0	7.7	8.4	9.4	11.8	13.3	14.0	14.2	17.4	19.3	20.7	22.3	24.3	29.0	32.7
Sawn softwood[10]	32.0	28.1	30.4	29.7	32.3	36.3	36.3	38.2	41.4	44.6	44.0	42.6	42.8	47.5	47.5
Sawn hardwood[10]	3.7	3.4	3.5	3.6	3.9	4.5	4.3	4.3	4.4	5.4	5.8	5.9	5.8	6.4	7.0
Plywood and veneers[10]	1.2	1.1	1.3	1.4	1.9	1.8	1.9	2.1	2.4	3.0	3.3	3.6	3.8	4.7	5.1
Fibreboard	0.5	0.6	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.3	1.4
Mechanical wood pulp	1.2	1.3	1.3	1.1	1.2	1.3	1.3	1.2	1.3	1.4	1.4	1.4	1.2	1.3	1.3
Chemical wood pulp	6.3	6.5	6.6	6.6	7.3	8.4	8.5	9.0	10.1	11.0	11.1	12.1	12.4	13.7	14.9
Newsprint	6.6	7.0	6.9	6.8	7.0	7.5	7.7	7.5	7.8	8.5	9.0	9.7	9.4	9.7	10.6
Other paper and paperboard	3.1	3.2	3.5	3.5	3.7	4.5	5.0	5.2	5.9	6.8	7.4	8.4	8.7	10.2	11.8

[1] Including exports to the U.S.S.R., eastern Europe and Mainland China, but excluding exports from these countries. – [2] Including paddy converted at 65 percent. – [3] Including refined sugar converted at 108.7 percent. – [4] Oranges, mandarines and lemons. – [5] Excluding reexports of copra from Malaysia, but including unrecorded shipments of copra from Indonesia and the Philippines to Malaysia. – [6] Million head. – [7] Beef and veal, mutton and lamb, pork, poultry meat. – [8] Excluding imports into Malaysia for reexports and exports from Hong Kong, but including unrecorded shipments from Indonesia to Malaysia. – [9] Excluding Mainland China only. – [10] Million cubic metres.

ANNEX TABLE 1C. – WORLD:[1] AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	U.S. dollars per metric ton														
Agricultural products [2]															
Wheat	65.8	62.9	63.5	62.5	62.2	61.7	63.3	66.2	64.6	66.1	61.0	63.2	66.3	63.5	63.1
Wheat flour	95.4	89.7	88.7	84.8	79.0	76.9	78.5	81.8	81.5	84.3	84.9	87.1	84.4	82.5	84.6
Barley	55.5	55.1	51.1	51.3	52.7	52.8	47.2	57.6	55.8	56.6	62.5	69.6	67.3	63.9	59.8
Maize	62.0	60.0	55.1	50.6	50.2	50.1	49.2	47.8	52.9	54.7	57.2	57.5	56.1	51.2	54.8
Rice (milled)	119.1	117.4	117.2	122.4	112.9	103.3	109.5	122.0	121.7	124.8	127.5	140.3	163.7	180.7	171.7
Sugar (raw)	96.2	95.4	114.1	99.9	96.0	93.1	95.4	97.3	138.4	138.9	105.4	104.6	102.8	101.3	113.4
Apples	109.9	128.4	136.7	154.3	111.8	138.0	125.7	137.1	146.0	134.9	142.9	158.7	157.3	154.9	161.5
Bananas	104.1	105.7	105.6	98.1	92.3	86.4	90.4	90.2	87.0	89.8	91.9	89.2	92.4	87.5	88.7
Oranges and tangerines	102.2	124.1	133.7	127.0	105.6	110.5	121.1	121.4	137.4	120.7	119.8	129.8	126.4	123.2	130.9
Raisins	241.4	275.4	279.8	326.4	317.1	272.0	282.3	263.3	272.4	335.0	341.4	330.2	323.8	298.9	309.1
Dates	48.1	42.1	56.4	51.6	50.4	62.5	63.7	99.5	83.8	89.8	84.4	90.7	94.9	100.0	102.0
Cottonseed	84.3	84.0	80.8	68.4	67.5	77.8	77.5	68.6	62.1	63.1	68.2	76.1	80.3	73.1	66.8
Copra	151.6	143.5	139.3	163.7	201.9	174.7	141.9	142.2	157.4	165.4	188.4	163.9	158.8	189.0	176.7
Palm kernels	121.7	123.7	121.1	125.7	158.4	157.9	126.8	120.3	136.5	139.0	166.9	148.9	128.1	166.0	155.3
Soybeans	95.2	95.8	91.2	86.8	84.7	83.3	94.4	92.4	99.1	99.4	104.8	113.5	107.2	101.1	97.0
Groundnuts (shelled)	186.0	195.2	204.1	171.8	164.6	182.1	179.5	170.5	168.7	175.6	155.0	187.5	173.5	158.0	220.0
Olive oil	590.1	763.6	668.6	589.3	507.0	511.9	532.9	564.8	803.0	553.6	630.6	638.7	678.9	699.1	645.5
Cottonseed oil	299.4	333.8	337.9	358.0	292.5	244.5	304.6	303.9	266.8	251.9	292.9	295.3	289.5	269.3	257.5
Coconut oil	243.6	235.2	243.5	273.6	342.6	292.5	233.0	221.0	256.4	279.9	305.7	260.0	261.3	311.5	271.2
Palm oil	202.7	219.2	220.8	202.6	206.5	194.1	206.4	194.4	188.6	201.7	237.7	203.8	192.2	146.1	145.9
Palm kernel oil	240.6	236.1	242.1	252.4	316.8	296.2	230.7	209.4	230.9	232.4	287.6	250.4	226.8	317.3	260.5
Soybean oil	321.7	343.4	338.6	303.6	254.1	233.0	284.5	244.8	239.4	239.1	293.8	299.2	271.1	221.0	229.4
Groundnut oil	319.6	399.5	397.2	361.2	325.8	343.1	344.3	299.9	307.2	322.6	336.5	311.4	318.2	264.0	312.5
Cattle [3]	128.2	125.2	126.7	135.9	145.2	138.2	130.7	120.5	132.1	150.2	151.9	132.7	137.8	131.9	144.3
Pigs [3]	60.1	56.8	43.3	51.2	49.1	47.7	47.1	45.9	53.6	56.5	55.8	67.8	62.1	64.1	70.4
Beef and veal	448.9	414.7	437.1	500.9	573.7	595.3	559.6	529.9	557.0	678.6	771.5	771.8	765.1	790.8	836.9
Mutton and lamb	428.9	453.5	460.3	429.1	377.9	401.2	378.1	372.2	414.3	464.2	519.0	492.2	462.7	428.7	461.8
Poultry meat	804.0	825.4	781.6	767.4	682.2	669.2	630.3	650.9	662.4	668.1	693.6	710.5	634.7	644.9	681.6
Bacon. ham. salted pork	664.7	726.3	684.1	712.5	675.0	686.0	661.6	667.0	717.5	782.0	759.7	868.0	818.6	720.2	791.3
Canned meat	877.0	873.6	820.8	848.1	883.5	901.8	937.1	907.4	878.0	924.3	951.2	1 020.2	1 019.6	1 016.4	1 114.5
Milk. condensed and evaporated	310.2	317.6	330.3	311.2	307.9	308.8	307.4	299.8	306.2	328.1	336.3	333.7	314.4	299.5	305.5
Milk. powdered	375.4	374.8	429.0	375.6	355.1	401.8	363.5	336.5	298.8	305.2	385.9	378.3	382.2	300.7	339.7
Butter	949.5	923.5	783.9	639.6	904.8	829.9	714.3	762.5	826.4	896.0	905.7	818.3	798.1	726.0	720.1
Cheese	678.7	736.9	708.5	639.0	739.3	721.8	719.3	701.7	709.6	763.9	841.3	867.0	878.8	876.6	930.3
Potatoes	48.4	58.8	51.8	59.4	57.3	56.1	52.3	72.7	62.6	57.0	68.0	75.2	70.9	58.6	72.6
Oilseed cake and meal	72.5	67.7	61.9	55.4	68.7	68.1	63.7	70.4	77.6	76.2	78.8	82.2	81.7	81.7	80.9
Coffee	1 077.1	1 051.0	1 025.2	922.8	749.1	723.4	684.2	655.6	646.9	839.8	811.1	774.4	702.1	725.3	703.6
Cocoa	818.5	580.8	562.9	844.0	738.8	593.4	474.3	454.0	486.1	502.4	378.7	402.0	544.5	608.0	776.5
Tea	1 383.4	1 215.5	1 191.0	1 170.6	1 144.5	1 168.0	1 144.6	1 102.8	1 110.9	1 089.2	1 050.9	1 004.2	990.9	915.8	831.0
Wine	141.7	155.1	170.3	207.2	176.2	177.6	182.2	173.6	202.3	203.7	212.0	211.8	253.6	257.7	278.0
Tobacco (unmanufactured)	1 267.6	1 227.6	1 334.5	1 280.8	1 290.2	1 280.1	1 211.7	1 204.0	1 310.1	1 235.5	1 244.7	1 356.7	1 314.5	1 279.5	1 325.3
Linseed	133.7	145.4	116.7	125.1	131.6	132.4	127.9	134.6	124.6	121.2	119.7	114.1	120.0	127.0	121.3
Linseed oil	205.3	313.6	245.6	250.7	212.5	246.8	254.1	229.7	200.7	208.2	201.4	189.0	174.2	188.4	215.9
Castor beans	96.9	134.7	182.0	117.4	110.4	134.1	123.9	106.9	111.1	114.3	106.0	106.9	119.9	124.6	123.7
Castor oil	206.2	288.8	279.5	273.0	238.2	282.2	280.1	263.4	249.4	240.9	205.1	238.7	311.7	328.9	251.9
Cotton	797.9	731.9	732.8	673.2	587.0	624.1	641.2	609.6	609.3	603.0	617.1	564.7	558.4	588.0	579.6
Jute and kenaf	189.1	183.8	208.5	193.0	174.8	220.2	291.0	194.7	199.5	161.1	215.6	223.9	225.7	202.6	198.0
Sisal	156.3	158.3	141.8	146.9	174.5	214.8	193.4	197.1	293.2	285.8	190.8	172.5	142.2	112.3	118.8
Wool (greasy)	1 358.7	1 378.0	1 598.4	1 132.8	1 083.6	1 162.4	1 143.8	1 138.2	1 324.8	1 445.7	1 175.8	1 223.5	1 120.1	997.0	1 081.9
Rubber (natural)	698.2	627.5	596.5	516.0	659.4	743.0	548.1	524.8	503.5	462.4	445.8	436.6	363.0	342.0	368.6
Fishery products [1]															
Fresh. chilled or frozen fish	260.2	274.9	284.5	293.1	302.4	287.1	301.2	315.1	296.7	289.2	328.9	352.6	323.3	349.2	388.0
Dried. salted or smoked fish	272.6	291.2	296.4	296.5	307.9	328.3	331.1	345.0	361.2	390.9	426.9	454.1	459.5	444.2	455.0
Crustacea and molluscs. fresh. frozen. dried. salted. etc.	469.8	536.7	647.0	670.3	667.4	634.3	684.2	758.1	845.8	796.0	891.6	989.5	1 007.2	1 116.8	1 181.0
Fish products and preparations. whether or not in airtight containers	549.7	621.1	606.5	646.3	632.3	624.3	600.8	695.1	648.6	639.3	703.0	682.9	726.6	699.4	733.0
Crustacean and mollusc products and preparations. whether or not in airtight containers	1 005.8	1 071.1	1 075.5	1 105.6	1 066.6	1 099.5	1 150.5	1 146.4	1 210.8	1 283.1	1 319.2	1 646.6	1 432.1	1 452.4	1 564.0
Oils and fats. crude or refined. of aquatic animal origin	213.6	238.3	241.6	207.3	191.9	180.1	172.6	133.3	137.3	182.7	194.0	182.2	128.1	92.5	120.0
Meals. solubles and similar animal feedstuffs of aquatic origin	144.0	145.7	136.9	133.3	134.0	92.6	86.8	103.8	107.9	109.9	125.3	144.6	117.8	107.6	121.0

ANNEX TABLE 1C. – WORLD:[1] AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	U.S. dollars per metric ton														
Forest products [1]															
Fuelwood [4]	8.8	8.8	8.8	9.2	8.0	8.1	9.4	9.7	9.9	9.7	10.0	10.2	9.6	8.8	9.5
Charcoal	23.5	21.6	22.7	23.1	21.8	22.8	23.3	22.1	22.0	25.0	27.8	26.3	30.0	30.6	31.3
Coniferous logs [4]	15.9	15.7	16.4	17.0	17.5	17.4	17.8	18.1	14.4	15.2	16.7	17.3	18.2	20.1	21.0
Broadleaved logs [4]	21.7	19.6	18.4	18.6	19.0	22.2	21.7	22.6	23.5	22.7	23.3	23.7	24.2	24.1	24.8
Pulpwood [4]	12.8	12.1	12.3	11.6	10.8	10.6	11.9	11.3	10.7	11.0	11.2	10.7	10.8	10.7	11.2
Pitprops [4]	13.9	14.3	14.7	14.0	12.5	11.9	13.0	13.0	13.0	15.1	16.4	17.3	17.6	16.6	17.9
Poles, piling. posts [4]	29.8	32.3	34.2	28.0	25.0	23.9	22.9	24.1	24.8	27.9	29.3	32.1	26.2	26.9	28.2
Sawn softwood [4]	40.0	39.4	39.0	36.8	36.6	36.7	35.9	35.0	35.0	36.6	38.1	38.4	37.0	39.6	42.2
Sawn hardwood [4]	60.9	62.2	60.2	58.7	58.5	59.4	59.0	59.2	63.8	61.3	58.8	60.2	59.0	59.7	61.1
Sleepers [4]	33.4	37.6	39.2	37.1	37.6	36.9	35.1	36.1	39.7	42.5	40.7	40.1	42.1	42.3	44.4
Veneer sheets [4]	271.6	260.6	271.8	263.5	262.4	259.0	253.3	262.2	254.9	237.2	256.3	253.5	251.9	245.8	263.0
Plywood [4]	160.5	160.5	155.6	152.0	156.1	149.5	145.1	150.1	152.3	142.6	139.4	143.4	141.0	145.5	152.1
Particle board	147.3	135.1	143.3	131.1	116.5	108.8	113.9	110.1	108.5	109.2	107.2	107.2	105.3	101.8	104.9
Fibreboard	101.7	101.1	100.3	93.6	91.3	91.1	87.7	88.7	91.8	97.0	104.0	106.1	101.4	99.8	100.8
Mechanical wood pulp	70.3	76.6	77.1	70.5	67.4	66.6	66.1	65.6	64.6	64.9	68.9	68.4	67.5	68.7	70.0
Chemical wood pulp	144.9	147.5	149.6	140.5	134.2	133.4	132.3	125.4	125.0	134.1	136.8	131.6	131.3	122.7	129.4
Newsprint	131.1	135.9	141.1	138.4	140.0	134.8	129.1	127.1	125.8	126.2	124.7	126.3	130.2	132.5	133.8
Printing and writing paper	266.2	261.3	267.2	251.4	236.0	235.1	229.8	228.3	222.0	226.1	225.4	234.9	236.5	236.8	241.6

[1] Excluding Mainland China and other centrally planned countries in Asia. – [2] Excluding centrally planned countries. – [3] U.S. dollars per thousand head. – [4] U.S. dollars per cubic metre.

ANNEX TABLE 2A. – WESTERN EUROPE: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Austria	1950	[1] 1 516	22	401	18	265	[1]25	[1]45	1.22	47
	1960	[2] 1 155	16	650	12	563	20	22	[2]1.49	128
	1965	1 045	14	723	9	692	15	21	1.61	208
	1967	...	...	833	9	...	14	17	...	242
Belgium	1950	1 116	10	[3]599	8	536	[4]15	[4]43	0.93	293
	1960	[2]644	7	710	7	1 102	9	25	1.10	360
	1965	570	6	905	6	1 587	11	22	1.65	474
	1967	...	...	1 021	6	...	11	21	...	529
Denmark	1950	1 014	24	657	21	648	[1]75	[1]29	2.66	102
	1960	828	18	822	14	992	63	25	3.36	151
	1965	655	14	1 088	11	1 661	55	22	4.18	180
	1967	...	...	1 059	9	...	51	19	...	195
Finland	1950	1 366	34	540	26	395	...	...	1.82	44
	1960	1 408	32	880	20	625	55	17	1.89	93
	1965	1 310	28	1 302	18	994	44	16	2.08	126
	1967	...	...	1 186	15	...	38	17	...	133
France	1950	...	...	4 316	15	...	[1]21	[1]56	...	50
	1960	[5]8 362	18	6 000	10	718	18	40	2.57	102
	1965	7 657	16	6 248	8	816	20	30	2.68	151
	1966	...	...	5 732	7	...	19	25	...	167
Germany, Fed. Rep. of	1950	7 007	15	2 329	10	332	[1]5	[1]67	1.22	167
	1960	[2]4 500	8	4 237	6	942	4	39	1.90	266
	1965	4 547	8	4 920	5	1 082	4	33	1.85	343
	1967	...	...	5 226	5	...	4	31	...	349
Greece	1950	[6]3 929	52	611	31	155	[7]80	[7]37	0.88	15
	1960	[2]4 482	54	771	25	172	81	19	0.83	38
	1965	4 590	54	1 270	25	277	78	23	0.84	65
	1967	...	...	1 371	23	...	73	22	...	71
Ireland	1950	[8]1 463	49	271	29	185	[1]84	[1]35	0.89	61
	1960	[2]973	35	390	25	401	67	25	1.41	123
	1965	913	32	493	21	539	63	25	1.42	168
	1967	...	...	491	19	...	60	23	...	274
Italy	1950	[2]20 026	44	[1]5 370	23	...	[1]25	[1]52	0.83	29
	1960	[2]13 888	28	4 478	15	322	18	39	1.14	51
	1965	12 380	24	6 546	13	529	14	37	1.24	70
	1967	...	...	7 070	12	...	12	35	...	74
Malta	1950	[8]39	13	...	...	...	...	...	[8]0.44	10
	1960	55	17	9	7	155	24	42	0.35	29
	1965	30	9	9	7	307	24	37	0.53	20
	1967	...	...	11	7	...	21	35	...	27
Netherlands	1950	1 405	14	613	14	436	[1]41	[1]37	0.75	407
	1960	1 171	10	1 120	11	956	33	26	0.89	456
	1965	1 030	8	1 375	8	1 335	30	23	0.95	575
	1967	...	...	1 420	7	...	29	22	...	626
Norway	1950	623	19	296	15	475	[1]46	[1]23	1.30	131
	1960	688	19	453	11	658	33	17	1.23	178
	1965	645	17	575	9	892	28	15	1.32	200
	1967	...	...	527	7	...	24	14	...	211
Portugal	1950	3 491	42	426	33	122	[1]48	[1]35	...	...
	1960	3 743	42	585	25	156	38	28	1.10	35
	1965	3 587	39	720	21	201	34	28	1.22	38
	1967	...	...	840	20	...	32	28	...	41
Spain	1950	13 250	48	...	...	...	[1]52	[1]36	1.47	11
	1960	12 423	41	2 307	24	186	54	29	1.89	32
	1965	11 060	35	3 596	18	325	50	25	1.86	38
	1967	...	...	3 931	16	...	48	26	...	45

ANNEX TABLE 2A. – WESTERN EUROPE: BASIC DATA ON NATIONAL AGRICULTURE (*concluded*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Sweden	1950	1 649	24	641	12	389	[1]47	[1]25	2.28	61
	1960	1 050	14	1 047	9	997	29	18	3.43	81
	1965	1 000	13	1 265	7	1 265	23	16	3.60	117
	1967	...	...	1 258	6	...	20	15	...	136
Switzerland	1950	768	16	...	...	...	...	...	0.64	112
	1960	621	11	...	...	...	6	26	0.71	231
	1965	575	10	...	...	...	7	22	0.70	329
	1967	...	...	...	...	...	7	21	...	330
United Kingdom	1950	[1]2 520	5	1 905	6	756	[1]9	[1]69	2.95	112
	1960	[2]2 096	4	2 527	4	1 205	10	53	3.49	183
	1965	2 024	4	2 591	3	1 280	8	45	3.68	208
	1967	...	...	2 797	3	...	8	40	...	253
Yugoslavia	1950	[1]12 039	73	[7, 9]751	24	62	[1]56	[1]49	0.65	2
	1960	[2]9 307	50	[2]1 601	26	172	47	22	0.92	33
	1965	9 145	47	2 485	28	272	34	28	0.91	55
	1967	...	...	2 529	26	...	34	21	...	62

[1] 1951. – [2] 1961. – [3] 1953. – [4] 1951 Belgium-Luxembourg. – [5] 1962. – [6] 1949. – [7] 1952. – [8] 1948. – [9] Gross national product plus net import.

ANNEX TABLE 2B. – WESTERN EUROPE: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	37.81	31.99	40.50	39.09	42.67	39.60	37.64	47.88	41.56	46.84	48.90	44.61	52.17	51.81	50.15
Barley	14.74	19.04	17.51	17.73	20.35	22.15	22.54	25.92	28.50	29.53	30.91	32.57	37.95	37.91	39.29
Oats	14.78	15.98	13.23	12.88	12.57	13.29	12.96	12.63	12.62	11.97	11.86	11.89	13.40	13.04	12.51
Rye	6.69	7.14	7.21	6.99	7.18	7.04	5.41	6.03	5.85	6.34	5.40	4.87	5.55	5.60	5.17
Maize	9.84	10.22	12.27	11.15	14.39	14.89	13.19	12.45	15.21	15.44	14.90	18.30	17.89	19.33	21.73
Sugar (centrifugal)	6.88	6.49	7.06	8.18	7.31	9.92	7.80	7.34	8.56	10.21	9.08	9.47	10.12	10.38	11.16
Potatoes	73.24	84.47	79.16	72.51	72.82	79.85	73.06	74.02	80.64	68.48	63.17	65.04	69.00	66.34	60.00
Apples	8.51	10.06	4.19	13.34	7.12	13.47	7.87	11.92	10.05	10.42	10.82	9.86	12.05	10.65	11.76
Citrus fruit	2.54	1.84	2.76	2.91	3.28	3.26	4.06	3.25	4.25	4.43	4.53	5.12	4.91	5.14	5.50
Olive oil	0.67	0.88	1.02	0.79	1.06	1.09	1.20	0.80	1.60	0.63	1.06	1.07	1.15	1.13	1.05
Rapeseed	0.33	0.22	0.49	0.46	0.45	0.27	0.38	0.53	0.41	0.65	0.77	0.61	0.94	1.03	0.97
Total vegetable oils and oilseeds (oil equivalent) [1]	0.90	1.06	1.30	1.05	1.34	1.32	1.52	1.15	1.97	1.04	1.50	1.49	1.63	1.67	1.68
Wine	16.09	15.59	11.74	16.03	16.67	16.64	14.22	19.93	16.70	19.74	19.44	18.34	18.83	18.43	17.93
Tobacco	0.34	0.31	0.37	0.31	0.32	0.27	0.21	0.26	0.34	0.38	0.37	0.33	0.37	0.32	0.30
Cotton (lint)	0.12	0.11	0.11	0.11	0.14	0.14	0.20	0.21	0.20	0.15	0.16	0.18	0.17	0.16	0.18
Milk (total)	89.98	92.77	96.13	96.57	97.00	102.60	105.20	106.54	106.06	106.24	109.72	112.02	114.51	117.73	116.99
Meat [2]	11.41	11.69	12.15	12.42	12.95	13.70	14.50	15.32	15.53	15.70	16.18	16.81	18.14	18.20	18.11
Eggs	2.76	2.84	2.98	3.08	3.24	3.31	3.44	3.55	3.69	3.90	3.82	3.96	4.05	4.17	4.39
FISHERY PRODUCTS [3]	7.58	8.01	7.59	7.45	7.84	7.71	7.94	8.21	8.50	9.18	10.24	10.87	11.26	10.97	—
FOREST PRODUCTS															
Fuelwood [4]	79.7	79.7	87.0	84.7	81.9	77.5	78.3	72.9	70.5	66.8	62.5	59.1	55.9	53.0	52.5
Coniferous logs [4]	67.9	61.5	59.4	63.9	61.0	70.4	71.3	70.7	67.0	75.3	76.0	74.5	74.9	73.8	80.0
Broadleaved logs [4]	17.2	17.4	17.6	18.6	18.3	19.4	21.1	20.2	21.0	22.8	23.2	23.3	23.2	22.9	23.7
Other industrial roundwood [4]	66.9	70.3	73.9	70.0	69.3	75.8	81.5	83.2	77.7	82.2	82.6	84.0	90.3	86.8	96.0
Sawn softwood [4]	38.0	36.4	36.1	36.7	35.7	40.1	40.5	39.9	39.2	42.1	42.1	41.0	41.5	43.7	45.8
Sawn hardwood [4]	7.9	8.2	8.4	8.3	8.3	8.8	9.3	9.2	9.5	10.3	10.5	10.7	10.9	10.9	11.2
Plywood [4]	1.6	1.5	1.6	1.7	1.8	2.1	2.1	2.2	2.5	2.6	2.6	2.6	2.7	2.8	3.1
Fibreboard	1.1	1.2	1.3	1.3	1.4	1.6	1.7	1.7	1.8	2.0	2.0	1.9	1.9	2.0	2.1
Particle board	0.2	0.3	0.4	0.5	0.7	1.0	1.2	1.5	1.8	2.2	2.7	3.1	3.6	4.2	5.2
Mechanical wood pulp	4.1	4.4	4.5	4.5	4.8	5.4	5.6	5.6	5.8	6.2	6.4	6.7	6.5	7.1	7.6
Chemical wood pulp	7.4	7.7	8.2	8.0	8.7	9.8	10.6	10.8	11.8	13.1	13.8	13.8	14.6	15.1	16.3
Newsprint	2.9	3.2	3.3	3.3	3.5	4.0	4.1	4.1	4.1	4.4	4.7	4.9	4.9	5.1	5.5
Printing and writing paper	3.2	3.3	3.5	3.6	3.9	4.4	4.8	4.8	5.3	5.7	6.0	6.7	7.1	7.9	8.8
Other paper and paperboard	8.3	8.7	9.4	9.6	10.4	11.7	12.3	12.7	13.9	14.8	15.5	15.9	16.1	17.4	19.1

[1] Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, hempseed, castor beans. – [2] Beef and veal, mutton and lamb, pork, poultry meat. – [3] Nominal catch (liveweight). – [4] Million cubic metres.

ANNEX TABLE 2C. – WESTERN EUROPE: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Prelim-inary)
	1952-56 average = 100													
Total agricultural production														
WESTERN EUROPE	103	106	109	112	118	117	125	127	129	129	132	141	144	144
European Economic Community	103	104	109	111	119	117	126	126	127	128	130	141	145	145
Belgium-Luxembourg	99	101	102	98	111	111	118	122	115	111	106	126	131	132
France	103	102	104	110	123	117	131	129	130	140	134	148	155	151
Germany, Fed. Rep. of	102	104	112	106	122	109	123	129	127	118	127	140	145	144
Italy	104	102	115	116	109	119	121	114	123	126	130	135	133	138
Netherlands	98	104	109	109	123	119	131	123	124	119	123	134	140	145
Other western Europe	103	109	108	114	117	119	124	128	130	130	135	141	142	143
Austria	107	109	120	109	124	129	131	140	139	123	134	145	148	147
Denmark	103	112	108	107	116	118	125	117	120	122	121	123	127	121
Finland	98	108	107	111	127	123	117	132	136	140	132	142	144	156
Greece	111	127	120	126	117	136	131	145	153	163	169	173	159	173
Iceland	116	128	130	125	126	132	139	135	132	139	143	146	137	145
Ireland	105	113	104	100	111	123	119	121	122	115	122	137	138	137
Malta	106	91	101	102	101	102	87	106	107	117	125	145	172	181
Norway	107	104	100	98	105	104	105	104	99	103	99	103	116	117
Portugal	101	106	99	101	104	107	119	124	120	123	110	124	122	112
Spain	102	105	107	115	116	120	123	140	126	126	138	142	149	151
Sweden	97	98	95	97	101	99	104	97	104	103	94	107	110	95
Switzerland	99	101	110	107	114	115	110	111	112	109	114	122	131	127
United Kingdom	96	107	106	113	120	122	132	133	139	143	145	149	143	145
Yugoslavia	102	147	120	159	138	131	138	151	152	147	184	181	177	96
Per caput agricultural production														
WESTERN EUROPE	102	104	105	107	113	111	117	117	117	117	119	126	128	127
European Economic Community	102	101	106	106	112	109	117	115	115	115	116	125	127	126
Belgium-Luxembourg	98	100	99	95	107	106	113	116	108	103	98	116	120	120
France	101	100	100	104	116	109	120	116	116	124	118	129	134	129
Germany, Fed. Rep. of	100	100	107	100	114	100	112	116	112	103	110	121	124	122
Italy	103	100	113	113	105	114	115	108	115	117	120	124	121	124
Netherlands	96	100	103	102	114	109	118	110	109	103	105	113	117	119
Other western Europe	102	107	105	110	113	113	117	120	120	120	123	128	128	128
Austria	107	109	120	108	122	126	128	136	134	118	128	137	139	138
Denmark	102	109	105	103	112	113	118	110	112	113	111	112	115	109
Finland	96	104	103	106	120	115	108	122	124	128	120	128	128	139
Greece	109	124	115	120	111	128	122	135	141	150	155	156	143	154
Iceland	111	119	119	112	110	114	118	113	108	111	113	112	109	111
Ireland	106	115	107	103	115	128	123	125	125	118	124	138	139	138
Malta	107	90	99	99	97	98	84	102	104	116	125	144	170	180
Norway	105	101	96	93	100	98	98	96	91	94	90	92	103	103
Portugal	100	104	97	99	101	103	114	118	113	115	102	113	111	101
Spain	100	102	104	110	110	113	115	130	116	115	125	127	133	133
Sweden	98	96	93	94	97	95	99	92	98	96	86	98	101	86
Switzerland	95	97	105	100	105	103	96	95	94	90	93	99	105	101
United Kingdom	108	105	104	111	116	117	126	125	131	134	135	137	132	132
Yugoslavia	99	142	115	151	130	122	127	137	136	131	161	156	151	166

ANNEX TABLE 2C. – WESTERN EUROPE: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*concluded*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total food production														
WESTERN EUROPE	103	106	109	112	119	118	126	127	128	129	133	142	145	145
European Economic Community	103	104	110	111	119	117	127	126	128	129	131	143	147	146
Belgium-Luxembourg	99	102	103	99	112	112	119	123	115	112	108	130	134	135
France	103	102	105	110	123	118	131	129	130	140	135	149	156	151
Germany, Fed. Rep. of	103	104	113	106	122	110	124	129	127	119	128	141	146	144
Italy	105	103	117	117	110	122	123	115	125	128	132	137	136	140
Netherlands	98	105	110	110	124	121	132	124	125	120	125	137	143	148
Other western Europe	103	109	108	114	118	119	124	128	129	130	135	141	143	144
Austria	107	110	120	110	124	130	132	141	140	124	135	145	148	148
Denmark	103	112	108	107	117	119	125	117	120	123	121	123	128	122
Finland	98	108	107	111	128	124	117	133	137	141	133	143	144	157
Greece	109	125	119	127	118	135	127	138	150	163	171	173	163	175
Iceland	112	126	129	131	132	140	148	143	140	148	153	156	145	155
Ireland	105	113	103	99	111	123	119	121	122	115	121	137	138	137
Malta	106	91	101	102	101	102	87	106	107	117	126	145	172	182
Norway	107	104	99	97	105	104	104	103	98	102	99	102	116	116
Portugal	101	106	99	102	104	107	119	125	120	123	110	124	122	112
Spain	101	105	107	114	114	117	121	139	126	125	138	143	150	153
Sweden	99	98	95	97	101	100	104	97	104	103	94	107	111	95
Switzerland	97	100	110	106	114	115	110	111	111	109	113	122	130	127
United Kingdom	109	107	106	113	120	122	132	133	140	144	146	150	144	146
Yugoslavia	102	147	121	162	141	134	141	153	153	149	187	185	183	203
Per caput food production														
WESTERN EUROPE	102	104	106	108	113	111	117	117	117	117	119	127	129	128
European Economic Community	102	102	106	106	113	110	117	116	115	116	116	126	128	127
Belgium-Luxembourg	98	100	100	96	108	108	114	117	108	105	100	119	123	123
France	101	100	101	105	116	110	120	116	116	124	118	129	134	130
Germany, Fed. Rep. of	100	100	107	100	114	101	112	116	113	104	111	121	125	123
Italy	103	101	114	114	106	117	117	109	117	119	122	125	123	126
Netherlands	96	101	105	103	115	110	119	110	109	104	106	115	119	122
Other western Europe	102	107	105	110	113	113	117	120	120	119	123	128	128	128
Austria	107	109	120	108	122	127	129	136	134	118	128	138	140	139
Denmark	102	109	106	104	112	113	119	110	112	113	111	112	115	109
Finland	96	105	103	106	121	116	109	122	125	128	120	128	129	140
Greece	107	121	115	122	111	127	118	128	139	150	157	156	146	155
Iceland	107	118	119	118	115	120	125	119	114	118	120	121	111	118
Ireland	106	115	106	102	115	128	123	124	125	117	123	138	139	138
Malta	107	90	99	100	97	98	84	102	104	116	125	144	170	180
Norway	105	101	96	93	99	98	97	95	90	93	89	92	103	103
Portugal	100	104	97	99	101	103	114	118	113	115	101	113	111	101
Spain	100	102	103	109	109	110	113	129	116	114	124	128	134	135
Sweden	98	96	93	94	98	96	99	92	98	96	87	98	101	86
Switzerland	95	97	105	100	104	103	96	95	94	90	93	99	105	101
United Kingdom	108	105	104	111	117	117	126	126	131	134	135	138	132	133
Yugoslavia	99	142	116	154	133	125	126	139	137	132	164	160	156	171

ANNEX TABLE 2D. – WESTERN EUROPE: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	13.33	15.89	14.16	12.35	12.89	11.17	15.13	13.32	12.05	10.56	12.39	12.42	10.45	10.91	13.51
Barley	3.57	5.06	4.61	4.69	4.77	4.27	4.19	4.72	3.63	4.51	4.84	5.02	4.96	4.07	3.99
Maize	4.51	5.02	4.78	6.32	7.66	8.93	9.43	12.91	13.87	14.48	16.95	18.69	19.38	18.73	16.61
Oats	0.70	1.11	0.98	1.32	1.41	1.24	0.86	1.32	1.07	0.97	1.32	1.28	1.05	1.01	0.93
Rye	0.92	0.76	0.77	0.56	0.59	0.76	0.75	1.02	0.74	0.46	0.36	0.41	0.40	0.27	0.25
Millet and sorghums	1.32	1.65	0.68	1.88	2.72	2.51	1.77	2.88	2.03	2.18	2.74	3.20	2.43	1.49	0.84
Rice (milled equivalent) [1]	0.44	0.54	0.48	0.51	0.60	0.59	0.51	0.53	0.52	0.54	0.55	0.62	0.50	0.59	0.64
Sugar (raw equivalent) [2]	4.07	4.40	5.38	4.86	4.62	4.62	3.99	4.22	5.32	4.97	4.54	4.97	4.84	4.67	4.46
Potatoes	1.49	1.50	1.05	1.81	1.86	1.40	1.48	1.97	1.72	1.54	2.39	2.06	1.94	1.81	2.34
Pulses (dry)	0.48	0.56	0.47	0.50	0.62	0.61	0.45	0.61	0.68	0.66	1.03	1.00	0.81	0.97	1.15
Apples	0.71	0.66	0.94	0.68	0.99	0.95	1.11	1.23	0.96	1.13	1.36	1.28	1.24	1.31	1.30
Bananas	1.18	1.34	1.44	1.59	1.63	1.68	1.85	1.90	1.93	1.97	2.35	2.58	2.61	2.53	2.59
Citrus fruit [3]	2.30	1.96	2.22	2.36	2.55	2.76	2.71	2.98	2.71	3.30	3.21	3.31	3.19	3.14	3.46
Grapes (fresh)	0.21	0.28	0.24	0.33	0.30	0.32	0.37	0.43	0.37	0.44	0.50	0.48	0.49	0.48	0.51
Vegetable oils and oilseeds (oil equivalent) [4]	2.95	3.24	3.40	3.09	3.21	3.53	3.39	3.35	3.63	3.59	3.64	3.90	3.87	3.96	4.15
Oilseed cake and meal	2.85	3.14	2.95	3.69	4.42	4.44	4.60	5.67	5.91	6.17	7.00	7.99	7.48	7.42	8.03
Cattle [5]	1.17	1.33	1.60	1.41	1.32	1.49	1.83	1.49	2.02	1.94	2.03	2.03	2.54	2.97	3.33
Sheep, lambs and goats [5]	0.49	0.62	0.78	0.68	0.87	1.10	0.88	1.35	1.32	1.37	1.93	1.74	1.74	2.15	2.50
Pigs [5]	0.80	0.65	0.40	0.76	1.16	1.29	1.04	0.96	0.74	0.91	1.24	1.25	1.14	1.30	1.82
Meat (fresh, chilled and frozen) [6]	0.99	1.20	1.25	1.21	1.23	1.36	1.27	1.44	1.72	1.81	1.89	1.82	2.06	2.04	2.30
Butter	0.39	0.44	0.45	0.46	0.47	0.48	0.47	0.49	0.51	0.56	0.52	0.52	0.54	0.54	0.52
Cheese	0.28	0.30	0.31	0.33	0.34	0.34	0.36	0.39	0.42	0.43	0.46	0.47	0.50	0.49	0.50
Coffee (green)	0.67	0.74	0.75	0.79	0.87	0.93	0.99	1.04	1.12	1.19	1.18	1.24	1.28	1.38	1.47
Cocoa beans	0.40	0.39	0.45	0.39	0.43	0.47	0.52	0.56	0.56	0.54	0.59	0.60	0.55	0.54	0.56
Tea	0.26	0.27	0.31	0.30	0.27	0.28	0.29	0.29	0.30	0.29	0.30	0.28	0.32	0.34	0.28
Wine	2.40	2.13	2.53	2.64	2.18	2.45	2.39	2.55	1.95	2.10	1.92	2.16	1.62	1.67	1.97
Tobacco (unmanufactured)	0.41	0.40	0.41	0.41	0.40	0.47	0.48	0.52	0.52	0.54	0.53	0.52	0.56	0.54	0.57
Wool (actual weight)	0.80	0.85	0.89	0.77	0.89	0.83	0.86	0.88	0.86	0.81	0.80	0.80	0.73	0.80	0.83
Cotton (lint)	1.42	1.51	1.72	1.43	1.44	1.70	1.59	1.46	1.47	1.54	1.39	1.57	1.47	1.41	1.43
Sisal	0.25	0.28	0.30	0.32	0.34	0.36	0.36	0.39	0.40	0.37	0.38	0.39	0.34	0.37	0.35
Rubber (natural)	0.76	0.64	0.71	0.62	0.64	0.64	0.64	0.66	0.70	0.75	0.76	0.76	0.75	0.81	0.92
FOREST PRODUCTS															
Pulpwood [7]	5.68	5.50	4.90	4.27	4.81	6.61	8.63	7.57	7.01	8.81	9.51	8.99	9.31	9.71	11.20
Coniferous logs [7]	1.31	1.17	1.21	1.46	1.62	2.17	2.28	2.25	2.44	2.23	2.25	2.52	2.51	2.29	2.21
Broadleaved logs [7]	3.17	3.17	3.55	3.79	4.51	5.76	5.78	5.51	6.08	6.76	6.21	6.41	6.30	6.96	8.35
Pitprops [7]	3.32	2.98	3.01	2.50	1.81	1.76	1.82	1.44	1.30	1.34	1.16	0.87	0.44	0.40	0.52
Sawn softwood [7]	16.69	14.37	16.00	15.01	16.87	20.08	19.62	20.22	21.68	24.25	23.57	21.85	22.09	23.66	23.85
Sawn hardwood [7]	1.66	1.46	1.62	1.57	1.68	2.04	2.03	1.91	2.20	2.48	2.60	2.67	2.65	3.10	3.36
Plywood and veneers [7]	0.66	0.50	0.64	0.64	0.74	0.96	0.90	0.98	1.10	1.33	1.40	1.38	1.65	1.88	1.98
Fibreboard	0.32	0.32	0.39	0.39	0.44	0.50	0.52	0.59	0.65	0.75	0.69	0.65	0.74	0.77	0.79
Mechanical wood pulp	1.03	1.05	1.02	0.92	0.95	1.11	1.06	0.97	1.04	1.16	1.21	1.14	0.99	1.07	1.08
Chemical wood pulp	3.53	3.57	3.73	3.73	4.08	4.99	4.89	4.97	5.80	6.23	6.04	6.48	6.63	7.44	8.22
Newsprint	0.90	0.98	1.09	1.14	1.09	1.34	1.43	1.49	1.56	1.69	1.70	1.84	1.72	1.97	2.25
Other paper and paperboard	1.57	1.52	1.77	1.81	2.11	2.60	2.98	3.24	3.72	4.30	4.65	5.02	5.24	6.18	7.16

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Oranges, mandarines and lemons. – [4] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil. – [5] Million head. – [6] Beef and veal, mutton and lamb, pork, poultry meat. – [7] Million cubic metres.

ANNEX TABLE 2E. – WESTERN EUROPE: VOLUME OF EXPORTS OF MAJOR AGRICULTRAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	3.40	2.30	3.09	3.88	3.78	3.37	3.19	3.69	5.07	5.27	6.99	6.43	5.73	8.47	10.88
Barley	0.40	0.99	1.96	0.76	0.64	1.05	2.51	1.69	2.29	3.16	2.63	3.37	4.08	4.20	4.09
Maize	0.12	0.13	0.11	0.61	0.37	0.81	1.09	0.34	0.94	1.27	1.89	2.15	2.77	2.52	3.23
Rye	0.24	0.32	0.14	0.09	0.21	0.20	0.31	0.18	0.16	0.05	0.05	0.06	0.05	0.09	0.14
Sugar (raw equivalent) [1]	1.81	1.56	1.72	1.37	1.34	1.57	1.47	1.26	1.59	1.45	1.54	1.27	1.11	1.60	1.39
Potatoes	1.78	1.64	1.35	2.01	1.80	1.58	1.75	1.83	1.64	1.70	2.26	1.98	1.88	1.85	2.37
Pulses (dry)	0.16	0.18	0.17	0.21	0.19	0.17	0.19	0.22	0.17	0.15	0.17	0.19	0.24	0.28	0.27
Apples	0.66	0.53	0.73	0.38	0.79	0.71	0.84	0.88	0.53	0.73	0.88	0.76	0.78	0.86	0.94
Citrus fruit [2]	1.40	0.85	0.96	1.20	1.35	1.47	1.49	1.73	1.22	2.01	1.91	1.97	1.94	1.79	1.90
Grapes (fresh)	0.19	0.24	0.19	0.26	0.24	0.28	0.31	0.34	0.29	0.38	0.41	0.41	0.42	0.40	0.40
Vegetable oils and oilseeds (oil equivalent) [3]	0.31	0.34	0.31	0.28	0.31	0.44	0.38	0.40	0.37	0.40	0.31	0.38	0.46	0.52	0.71
Oilseed cake and meal	0.61	0.68	0.65	0.61	0.77	0.76	0.91	0.92	0.89	1.03	1.07	1.13	1.26	1.20	1.31
Cattle [4]	1.18	1.24	1.51	1.34	1.26	1.38	1.80	1.37	1.85	1.88	1.74	1.46	2.02	2.34	2.46
Sheep, lambs and goats [4]	0.39	0.38	0.67	0.47	0.57	0.86	1.17	0.87	1.35	0.87	0.85	0.58	0.72	0.93	0.98
Pigs [4]	0.53	0.37	0.25	0.32	0.58	0.80	0.58	0.49	0.39	0.66	0.82	0.49	0.83	1.14	1.51
Meat (fresh, chilled and frozen) [5]	0.30	0.23	0.30	0.32	0.40	0.51	0.58	0.74	0.81	0.79	0.92	0.91	1.10	1.20	1.25
Bacon, ham and salted pork	0.29	0.28	0.30	0.30	0.31	0.37	0.36	0.37	0.35	0.35	0.36	0.36	0.35	0.35	0.34
Milk (condensed, evaporated and powdered)	0.39	0.43	0.45	0.46	0.51	0.58	0.64	0.69	0.72	0.75	0.90	1.03	1.16	1.38	1.34
Butter	0.19	0.19	0.25	0.25	0.21	0.25	0.26	0.23	0.24	0.23	0.27	0.27	0.31	0.34	0.33
Cheese	0.23	0.25	0.26	0.29	0.32	0.33	0.34	0.36	0.38	0.40	0.42	0.47	0.48	0.51	0.53
Eggs (in the shell)	0.27	0.28	0.30	0.31	0.34	0.31	0.29	0.28	0.23	0.19	0.15	0.14	0.13	0.16	0.20
Wine	0.64	0.91	0.88	1.17	0.75	0.91	1.01	1.01	1.26	1.21	1.19	1.30	1.31	1.38	1.42
Wool (actual weight)	0.07	0.08	0.09	0.08	0.11	0.11	0.11	0.12	0.13	0.10	0.11	0.11	0.10	0.11	0.11
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	511.0	509.6	531.6	593.2	639.2	694.0	684.5	771.7	849.9	877.0	907.7	876.5	860.8	906.5	...
Dried, salted or smoked fish	431.0	466.0	417.0	391.0	346.2	331.0	333.3	353.8	334.3	314.7	323.2	317.4	312.4	312.8	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	85.0	87.2	74.8	84.9	108.5	109.2	112.5	123.4	114.0	118.9	108.8	113.7	116.7	131.4	...
Fish products and preparations, whether or not in airtight containers	164.4	166.8	166.8	177.6	197.0	191.0	183.7	211.7	196.7	209.1	221.4	211.3	193.8	195.1	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	4.0	5.0	5.0	6.0	7.0	6.0	8.0	9.0	9.0	13.0	13.0	13.0	13.0	14.0	...
Oils and fats, crude or refined, of aquatic animal origin	109.8	104.8	216.8	213.7	228.4	213.7	218.8	243.9	199.8	190.0	266.2	340.1	390.8	203.8	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	231.0	284.0	253.0	266.0	252.8	234.6	286.2	240.2	306.9	434.8	555.0	576.8	810.4	787.4	...
	Million metric tons														
FOREST PRODUCTS															
Pulpwood [6]	5.08	4.60	4.55	3.76	3.93	4.88	6.10	4.42	3.46	3.62	3.61	3.01	3.82	4.17	5.03
Coniferous logs [6]	0.93	0.72	0.70	0.97	1.03	1.34	1.30	1.14	1.05	1.06	1.03	1.35	1.55	1.36	1.25
Broadleaved logs [6]	0.77	0.68	0.68	0.59	0.79	1.04	0.98	0.93	0.91	0.97	1.02	1.10	1.17	1.20	1.25
Pitprops [6]	2.74	2.86	2.90	2.32	1.90	1.62	1.81	1.37	1.07	0.83	0.56	0.54	0.36	0.37	0.46
Sawn softwood [6]	13.39	12.54	13.02	11.86	13.51	15.35	14.24	13.86	13.86	14.62	13.57	12.72	12.85	15.05	16.20
Sawn hardwood [6]	0.97	0.72	0.82	0.79	0.87	1.06	0.93	0.96	0.98	1.14	1.21	1.26	1.24	1.34	1.44
Plywood and veneers [6]	0.55	0.45	0.50	0.48	0.61	0.70	0.65	0.66	0.73	0.83	0.86	0.88	0.97	1.05	1.16
Fibreboard	0.44	0.47	0.53	0.56	0.66	0.74	0.75	0.78	0.83	0.88	0.82	0.76	0.82	0.86	0.90
Particle board	0.02	0.03	0.04	0.06	0.11	0.15	0.18	0.21	0.24	0.29	0.46	0.51	0.59	0.66	0.86
Mechanical wood pulp	0.99	1.06	1.02	0.88	0.93	1.10	1.06	0.97	1.05	1.15	1.12	1.13	1.00	1.06	1.10
Chemical wood pulp	3.66	3.86	3.84	3.90	4.36	4.73	4.50	4.80	5.36	5.86	5.79	6.24	6.16	6.55	6.80
Newsprint	1.08	1.26	1.24	1.30	1.32	1.51	1.62	1.63	1.71	1.88	1.97	2.07	2.11	2.32	2.47
Other paper and paperboard	2.31	2.34	2.57	2.49	2.84	3.25	3.57	3.77	4.23	4.77	5.06	5.54	5.67	6.55	7.74

[1] Including refined sugar converted at 108.7 percent. – [2] Oranges, mandarines and lemons. – [3] Linseed, sunflowerseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil, linseed oil. – [4] Million head. – [5] Beef and veal, mutton and lamb, pork, and poultry meat. – [6] Million cubic metres.

ANNEX TABLE 2F. – WESTERN EUROPE: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	92	98	99	103	115	121	121	129	135	143	147	157	171	...
Agricultural products	89	89	98	100	102	114	124	123	133	137	147	150	164	182	90
Food and feed	91	87	98	99	103	116	127	126	133	140	152	155	171	192	202
Beverages and tobacco	77	94	98	118	84	98	107	101	121	121	121	129	134	133	137
Raw materials	82	100	94	89	116	110	117	130	142	113	113	117	118	128	115
Fishery products	88	95	97	100	103	104	108	114	115	120	133	135	141	140	141
Forest products	97	97	99	95	106	120	119	119	126	137	139	143	146	164	176
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	93	95	102	97	100	112	116	118	132	146	158	162	171	178	202
Agricultural products	89	91	101	98	100	111	116	120	139	151	163	168	182	190	216
Food and feed	90	91	101	98	102	113	118	121	139	153	169	173	188	197	226
Beverages and tobacco	79	86	101	110	89	100	109	116	145	149	150	162	180	177	195
Raw materials	92	110	113	84	103	104	108	117	133	117	102	109	100	102	94
Fishery products	83	94	98	99	103	104	111	123	125	141	170	179	176	172	194
Forest products	103	103	106	95	99	115	118	114	121	139	146	147	147	157	177
Import volume															
Agricultural products	89	96	100	97	103	107	109	114	116	118	122	127	125	127	...
Food and feed	86	96	97	98	105	109	110	118	121	124	133	138	136	136	...
Beverages and tobacco	92	93	100	101	99	109	114	120	120	123	123	126	128	132	...
Raw materials	97	99	108	93	99	103	101	101	100	101	97	102	95	99	...
Import value															
Agricultural products	94	101	106	96	98	104	102	108	117	124	128	133	129	124	...
Food and feed	87	101	102	95	103	106	106	115	130	138	150	156	152	144	...
Beverages and tobacco	96	91	101	105	94	98	98	102	103	114	111	114	116	119	...
Raw materials	108	107	120	88	89	101	95	93	95	99	88	92	81	79	...

ANNEX TABLE 2G. – WESTERN EUROPE: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils
		Grammes per day										
Austria	1934–38	360	264	67	10	158	124	134	18	4	580	47
	1948/–50/	355	295	64	7	166	134	83	10	6	474	42
	1960/–62/	284	230	101	10	170	312	164	32	10	579	49
	1967/68	258	205	99	12	187	276	182	38	10	555	55
	1968/69	255	201	104	12	192	281	188	39	10	544	68
Belgium-Luxembourg	1936–38	313	428	72	16	135	92	129	32	16	340	52
	1948/–50/	290	405	79	12	166	172	129	33	16	418	57
	1960/–62/	246	345	87	11	208	148	166	37	21	542	78
	1966/67	220	327	106	13	207	175	177	39	25	535	82
	1967/68	228	320	108	14	274	194	179	37	24	504	84
Denmark	1934–38	257	330	138	13	159	105	204	20	28	602	73
	1948/–50/	286	387	101	...	...	...	168	24	49	781	50
	1960/62	216	324	137	7	113	127	174	30	40	692	75
	1967/68	193	260	130	6	112	179	169	32	58	700	76
	1968/69	197	257	135	6	115	174	166	32	58	722	78
Finland	1934–38	351	495	77	9	82	58	89	8	16	773	36
	1949/–50/	336	325	85	5	49	45	79	14	34	890	42
	1960/–62/	293	304	110	5	42	119	94	22	29	953	53
	1967/68	227	248	108	7	50	127	106	23	30	934	53
	1968/69	224	262	113	6	47	127	110	25	35	899	52
France	1934–38	339	392	66	18	392	81	151	25	16	391	43
	1948/–50/	333	363	63	14	384	110	152	29	16	392	40
	1960–62	269	313	86	18	384	182	194	31	20	520	58
	1966	235	277	91	15	350	196	221	31	23	607	65
	1967	225	278	105	12	372	232	227	34	25	601	67
Germany, Fed. Rep. of	1935–38 [10]	310	508	72	9	142	129	145	20	18	526	58
	1948/–50/ [10]	314	574	67	11	140	115	80	14	22	460	43
	1960/–62/	217	359	89	11	144	284	171	36	18	542	73
	1967/68	192	303	97	12	172	308	193	40	16	558	73
	1968/69	191	311	96	13	176	316	200	42	13	532	71
Greece	1935–38	446	57	30	40	74	169	53	11	15	268	40
	1948/–50/	422	93	26	38	182	224	31	9	16	190	41
	1960–62	430	108	44	39	369	300	72	19	25	344	50
	1967	331	161	56	46	382	397	111	29	28	448	51
Ireland	1934–38	360	535	104	4	146	53	150	43	8	673	37
	1948–50	366	521	97	6	161	72	146	34	7	690	50
	1960–62	300	387	131	7	179	88	176	45	11	719	53
	1967	261	354	139	13	161	119	208	40	14	755	51
	1968	262	349	142	15	181	117	207	39	13	740	49
Italy	1934–38	440	100	22	52	153	87	55	20	12	216	32
	1948/–50/	410	105	32	27	223	152	42	16	11	258	27
	1960/–62/	369	126	63	25	348	221	84	26	14	345	45
	1966/67	360	120	72	26	430	321	106	26	16	418	48
	1968/69	357	127	74	26	394	308	129	26	18	387	57
Netherlands	1936–38	293	317	88	14	183	138	103	25	15	625	56
	1948/–50/	269	434	106	10	186	129	76	13	17	717	63
	1960/–62/	219	270	129	12	192	198	140	32	16	665	86
	1967/68	189	247	135	16	218	257	157	31	16	694	74
	1968/69	188	248	133	14	216	230	159	33	15	671	73
Norway	1934–38	326	356	95	8	53	102	104	19	58	653	68
	1948/–50/	319	350	69	9	78	80	92	19	67	846	63
	1960/–62/	214	272	115	10	99	171	109	24	55	667	63
	1967/68	197	260	120	11	97	190	115	28	54	693	64
	1968/69	194	276	122	10	99	221	116	28	54	712	62
Portugal	1937–38	287	209	28	22	300	118	41	9	44	42	40
	1948–50	330	296	34	34	294	155	44	7	44	60	37
	1960–62	334	271	52	25	301	230	54	10	55	125	42
	1967	357	312	54	44	476	181	74	11	59	152	46
	1968	379	271	59	36	539	235	74	11	61	166	53

ANNEX TABLE 2G. – WESTERN EUROPE: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES (*concluded*)

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils
		Grammes per day										
Spain	1952/-53/	336	286	29	40	279	183	39	13	27	180	42
	1954/-56/	320	309	37	41	280	182	39	14	29	209	44
	1960/-62/	317	316	52	40	356	239	57	20	39	212	56
	1967/68	261	285	68	33	361	296	98	31	39	322	54
	1968/69	242	279	77	38	351	223	115	28	38	322	48
Sweden	1934–38	261	335	124	8	58	101	134	23	48	683	49
	1948/-50/	242	328	128	9	68	153	133	29	43	747	55
	1960/-62/	198	250	118	9	82	225	140	32	54	719	63
	1967/68	172	250	114	11	114	246	145	32	56	706	57
Switzerland	1934–38	300	248	105	12	170	235	146	24	4	887	42
	1948/-50/	319	243	105	16	200	287	121	24	5	876	40
	1960/-62/	262	188	120	21	206	396	164	27	10	706	55
	1966/67	230	163	125	30	228	389	183	29	11	661	59
	1967/68	215	156	113	21	221	419	182	29	12	619	54
United Kingdom	1934–38	261	226	122	14	149	144	184	35	33	402	58
	1948/-50/	291	314	111	14	167	135	136	36	32	559	59
	1960/-62/	224	270	141	16	160	144	203	42	26	593	63
	1967/68	200	283	135	16	173	139	204	44	26	600	60
	1968/69	202	280	132	18	165	150	205	44	26	595	62
Yugoslavia	1952–53	522	175	22	19	86	131	55	6	2	276	21
	1954–56	509	165	29	26	107	116	64	7	2	325	25
	1960–62	515	185	45	27	152	129	74	9	2	300	30
	1966	523	177	67	27	155	181	78	12	2	296	38
	1967	514	181	67	26	167	155	85	13	2	281	39

[1] In terms of flour and milled rice. – [2] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [3] Shelled equivalent for nuts, including cocoa beans. – [4] In terms of fresh equivalent; including processed vegetables. – [5] In terms of fresh equivalent; including processed fruit. – [6] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [7] In terms of fresh equivalent. – [8] Estimated edible weight. – [9] Milk and milk products, excluding butter, expressed in terms of fresh milk. – [10] Excluding the Saar.

ANNEX TABLE 2H. – WESTERN EUROPE: ESTIMATED CALORIES AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1968/1969	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1968/1969	Pre-war	1948/-1950/	1960/-1962/	1966/1967	1968/1969
	Number per day					*Grammes per day*									
Austria	2 930	2 670	2 970	2 950	2 990	88.3	77.2	86.8	86.4	87.1	40.9	30.2	47.5	49.4	51.4
Belgium-Luxembourg	2 820	2 880	3 060	3 090	[4]3 150	83.7	83.1	89.6	87.5	[4]88.6	35.3	37.7	49.0	50.6	[4]49.5
Denmark	3 450	3 160	3 260	3 290	3 180	93.2	104.9	88.4	...	89.2	56.8	59.8	56.3	61.7	60.4
Finland	3 000	[2]2 980	3 110	2 950	2 890	95.2	[2]96.2	93.8	...	87.8	43.8	[3]51.6	54.5	56.4	56.6
France	2 880	2 800	[2]3 090	[2]3 100	[6]3 180	94.9	92.4	[2]99.2	[2]100.7	[6]99.8	40.9	40.3	[2]53.4	[2]59.9	[6]60.3
Germany, Fed. Rep. of [1]	[1]3 040	2 730	2 990	2 870	2 960	84.8	79.5	80.5	79.9	80.5	42.5	32.1	49.2	51.5	51.6
Greece	2 600	2 500	[2]2 940	[2]2 910	[5]2 900	83.6	76.3	[2]96.3	[2]98.2	[5]98.9	23.0	16.6	[2]31.3	[2]41.7	[5]43.0
Ireland [2]	3 400	3 430	3 480	3 440	3 450	98.5	100.6	91.6	92.3	93.2	47.4	47.6	54.7	57.7	58.9
Italy	2 510	2 350	2 690	2 860	2 940	76.6	69.7	78.7	85.4	87.2	20.3	19.3	29.8	35.5	37.8
Netherlands	2 960	2 950	3 160	2 900	3 030	82.3	80.6	84.9	82.7	84.2	40.1	38.6	50.4	52.8	53.7
Norway	3 210	3 110	2 930	2 970	2 910	89.7	99.5	82.1	81.4	81.5	49.1	53.2	49.7	49.2	51.2
Portugal [2]	2 040	2 270	2 530	2 580	2 930	59.4	67.8	72.4	75.0	86.5	20.4	22.1	27.3	29.8	33.5
Spain	...	...	2 820	2 860	2 680	...	...	77.8	85.1	81.9	...	...	24.0	36.7	36.9
Sweden	3 120	3 110	2 990	2 900	[2]2 880	91.9	86.9	82.6	79.8	[4]80.7	55.4	52.5	54.0	53.6	[4]54.1
Switzerland	3 140	3 170	3 210	3 170	[2]2 990	95.7	95.9	90.2	88.0	[4]84.3	53.9	50.8	51.4	52.8	[4]51.1
United Kingdom	3 110	3 130	3 270	3 220	3 180	80.2	90.3	88.9	88.9	88.0	43.9	45.1	53.4	53.3	54.0
Yugoslavia [2]	...	...	2 970	...	[5]3 200	...	...	90.5	92.8	[5]93.3	...	...	20.4	[2]21.3	[5]22.1

[1] From 1959/60 onward including the Saar. – [2] Calendar years instead of split years. – [3] 1949/50. – [4] 1967/68 instead of 1968/69. – [5] 1967.

ANNEX TABLE 3A. – EASTERN EUROPE AND U.S.S.R.: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP [1]			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Albania	1950	...	...	...	...	...	...	...	...	...
	1960	...	...	...	...	...	...	...	...	...
	1965	1 095	59	...	...	...	...	...	...	16
	1967	...	...	...	...	...	...	...	...	13
Bulgaria	1950	...	...	...	[3]30	...	...	...	...	2
	1960	[2]4 198	55	...	32	...	...	...	...	34
	1965	3 690	45	...	34	...	...	...	1.24	79
	1967	...	...	...	31	...	...	...	...	133
Czechoslovakia	1950	3 076	25	...	17	...	...	...	1.79	38
	1960	2 416	18	...	16	...	...	...	2.25	91
	1965	2 830	20	...	13	...	7	28	2.22	178
	1967	...	...	...	13	...	7	28	...	178
Germany, Eastern	1950	3 488	21	...	13	...	...	...	...	...
	1960	...	...	...	10	...	...	...	...	197
	1965	3 050	19	...	13	...	...	...	1.54	262
	1967	...	...	...	1	...	...	...	...	283
Hungary	1950	...	...	...	25	...	...	...	...	6
	1960	3 583	36	...	23	...	...	...	1.59	29
	1965	2 915	29	...	20	...	25	25	1.93	63
	1967	...	...	...	21	...	25	24	...	91
Poland	1950	11 597	47	...	...	...	...	...	...	...
	1960	11 244	38	...	26	...	...	...	1.44	49
	1965	11 250	36	...	23	...	21	26	1.42	82
	1967	...	...	...	22	...	18	21	...	118
Romania	1950	...	...	...	28	...	...	...	...	1
	1960	11 206	38	...	33	...	...	...	0.92	7
	1965	11 380	60	...	29	...	...	...	0.92	25
	1967	...	...	...	29	...	...	...	...	42
U.S.S.R.	1950	*90 000	50	...	...	...	...	...	2.50	5
	1960	...	...	...	20	...	...	...	...	10
	1965	73 271	32	...	23	...	21	28	3.30	23
	1967	...	...	...	22	...	23	23	...	29

[1] Net national products. – [2] 1956. – [3] 1953.

ANNEX TABLE 3B. – EASTERN EUROPE AND U.S.S.R.: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	59.30	78.23	71.41	88.43	83.06	77.23	80.04	84.70	63.15	88.83	78.35	118.66	98.19	114.53	102.68
Rye	27.74	24.79	25.88	26.99	28.81	27.81	28.05	26.73	21.92	23.78	27.73	23.69	23.70	25.66	23.71
Barley	15.53	17.57	13.83	17.79	15.81	22.37	19.24	25.91	25.95	34.73	27.21	34.90	32.40	36.94	37.93
Oats	17.19	18.26	18.05	18.68	18.68	17.53	14.30	10.83	8.79	9.48	10.43	13.73	16.66	16.54	16.96
Millet	3.11	4.70	1.71	3.02	1.43	3.35	3.01	2.90	1.96	3.62	2.31	3.27	3.36	2.77	3.11
Maize	22.57	17.58	16.43	18.31	17.16	21.15	27.68	25.86	23.27	26.82	19.33	23.32	22.27	22.20	27.65
Pulses	1.63	1.09	1.30	1.33	1.55	2.03	2.90	6.06	7.28	9.29	5.53	5.77	5.16	5.47	5.56
Cotton (lint)	1.36	1.52	1.48	1.52	1.63	1.48	1.54	1.51	1.78	1.82	1.96	2.09	2.07	2.05	1.97
Flax (fibre)	0.47	0.62	0.52	0.51	0.43	0.51	0.49	0.54	0.48	0.44	0.58	0.56	0.61	0.51	0.53
Sugar (centrifugal)	7.20	6.65	8.80	9.84	8.86	10.37	10.64	10.16	10.09	14.87	13.00	13.32	14.89	14.22	12.29
Vegetable oils and oilseeds (oil equivalent) [1]	2.01	2.03	1.69	2.18	1.87	2.09	2.39	2.44	2.42	2.79	2.84	3.18	3.38	3.39	3.12
Sunflowerseed	4.56	4.55	3.39	5.26	3.96	4.92	5.65	5.74	5.26	7.03	6.45	7.35	7.89	7.97	7.71
Potatoes	123.65	162.58	153.06	145.38	147.08	148.65	148.45	130.91	141.52	167.15	152.74	159.65	169.63	177.97	155.16
Milk, total	66.96	73.44	80.67	86.24	90.19	90.53	91.77	92.16	89.40	91.98	102.93	108.49	113.47	116.28	115.83
Meat, total [2]	8.44	8.97	9.72	10.27	11.28	11.21	11.48	11.08	12.58	11.41	13.15	13.72	14.89	15.19	15.43
Wool (greasy)	0.32	0.32	0.35	0.39	0.42	0.43	0.44	0.44	0.44	0.42	0.43	0.45	0.48	0.50	0.48
Eggs	1.66	1.75	1.95	2.01	2.19	2.41	2.57	2.58	2.47	2.45	2.65	2.80	3.00	3.08	3.19
FISHERY PRODUCTS [3]	2.73	2.87	2.82	2.91	3.08	3.40	3.63	4.02	4.47	5.05	5.73	6.02	6.43	6.93	...
FOREST PRODUCTS															
Fuelwood [4]	142.6	139.8	142.7	141.5	145.0	125.3	114.6	112.6	118.1	124.2	120.3	117.8	112.6	106.3	104.5
Coniferous logs [4]	132.6	133.5	138.5	154.7	168.5	170.7	171.5	171.3	173.0	178.1	145.5	144.4	154.7	156.0	156.5
Broadleaved logs [4]	25.6	26.0	27.7	31.3	33.8	34.3	32.3	34.1	34.4	35.5	30.4	31.2	33.1	33.2	33.8
Other industrial roundwood [4]	105.6	114.3	122.2	114.7	116.7	106.1	101.1	104.2	112.8	116.7	151.3	151.0	155.0	158.0	161.5
Sawn softwood [4]	80.7	81.4	85.7	95.4	104.1	105.3	104.1	104.3	105.1	108.7	109.0	105.8	107.4	108.1	108.1
Sawn hardwood [4]	14.3	14.5	15.6	17.9	19.5	20.0	20.2	20.6	21.1	21.9	21.8	21.5	22.0	22.3	22.5
Plywood [4]	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.4	2.5	2.6	2.6	2.6
Particle board	—	—	—	0.1	0.1	0.3	0.4	0.6	0.7	0.9	1.1	1.3	1.6	1.8	2.0
Fibreboard	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.7	0.8
Mechanical wood pulp	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	[5]0.5	1.7	1.8	1.9	1.9	1.9
Chemical wood pulp	2.7	2.8	3.0	3.2	3.3	3.7	3.9	4.1	4.3	[5]1.6	4.3	4.8	5.3	5.7	6.0
Newsprint	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.2	1.3	1.3	1.4
Printing and writing paper	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.8	1.9	2.0

[1] Olive oil, soybeans, groundnuts, cottonseed, rapeseed, sesame seed, sunflowerseed, castor beans, hempseed, linseed. – [2] Beef and veal, mutton and lamb, pork, poultry meat. – [3] Nominal catch (liveweight). – [4] Million cubic metres. – [5] Eastern Europe only.

ANNEX TABLE 3C. – EASTERN EUROPE AND U.S.S.R.: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100														
Total agricultural production	105	115	118	128	130	132	135	138	133	145	148	165	167	174	171
Per caput agricultural production	103	111	113	121	121	121	122	123	117	126	127	141	141	145	142
Total food production	104	114	118	129	131	133	137	140	134	146	149	167	168	176	173
Per caput food production	103	111	113	122	122	122	123	124	118	127	128	143	142	148	144

ANNEX TABLE 3D. – EASTERN EUROPE AND U.S.S.R.: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	3.12	3.18	5.13	3.66	5.09	5.57	5.46	4.18	8.21	15.09	10.80	12.16	6.21	5.92	...
Barley	0.80	0.77	1.10	0.61	0.49	0.43	0.69	0.67	0.89	1.17	1.93	0.44	0.81	0.80	...
Maize	0.72	0.54	0.15	0.69	0.39	0.64	0.61	1.32	0.96	1.20	1.22	1.08	1.08	1.35	...
Rye	0.77	0.84	0.40	0.49	0.39	0.54	0.76	0.87	0.78	0.15	0.06	0.23	0.28	0.19	...
Rice (milled equivalent) [1]	0.66	0.81	0.62	0.76	1.10	0.93	0.24	0.55	0.50	0.63	0.49	0.53	0.65	0.51	...
Sugar (raw equivalent) [2]	1.23	0.42	0.76	0.49	0.46	2.03	4.22	3.42	1.91	2.18	2.95	2.53	3.23	2.56	...
Citrus fruit [3]	0.16	0.15	0.20	0.25	0.26	0.23	0.24	0.27	0.27	0.37	0.45	0.54	0.58	0.60	...
Vegetable oils and oilseeds (oil equivalent) [4]	0.31	0.30	0.34	0.29	0.35	0.36	0.36	0.34	0.36	0.44	0.41	0.45	0.44	0.44	...
Sheep, lambs and goats [5]	2.31	2.23	1.52	1.66	1.58	1.74	1.76	1.38	1.25	1.15	1.41	1.93	1.67	1.09	...
Meat (fresh, chilled and frozen) [6]	0.27	0.23	0.16	0.22	0.25	0.21	0.17	0.26	0.22	0.25	0.34	0.29	0.27	0.24	...
Coffee (green)	0.01	0.02	0.03	0.03	0.06	0.06	0.08	0.07	0.09	0.10	0.11	0.12	0.12	0.14	...
Cocoa beans	0.04	0.04	0.07	0.04	0.08	0.10	0.07	0.10	0.11	0.13	0.16	0.12	0.16	0.19	...
Wine	0.08	0.08	0.11	0.13	0.12	0.18	0.19	0.18	0.22	0.25	0.26	0.31	0.41	0.50	...
Tobacco (unmanufactured)	0.11	0.13	0.15	0.14	0.16	0.13	0.12	0.13	0.16	0.20	0.17	0.13	0.13	0.13	...
Cotton (lint)	0.37	0.40	0.50	0.54	0.62	0.67	0.66	0.66	0.71	0.68	0.71	0.74	0.68	0.70	...
Rubber (natural)	0.09	0.20	0.21	0.34	0.35	0.34	0.52	0.48	0.45	0.35	0.43	0.48	0.44	0.51	...
FOREST PRODUCTS [7]															
Sawn softwood [8]	0.61	0.49	0.42	0.34	0.27	0.21	0.21	0.16	0.11	0.02	—	—	—	—	—
Sawn hardwood [8]	0.08	0.15	0.17	0.18	0.22	0.24	0.27	0.27	0.24	0.31	0.27	0.27	0.30	0.30	0.29

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Oranges, mandarines and lemons. – [4] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, castor oil, linseed oil, cottonseed oil. – [5] Million head. – [6] Beef and veal, mutton and lamb, pork, poultry meat. – [7] U.S.S.R. only. – [8] Million cubic metres.

ANNEX TABLE 3E. – EASTERN EUROPE AND U.S.S.R.: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS .															
Wheat and wheat flour (wheat equivalent)	2.64	1.74	5.63	4.11	6.34	5.86	5.46	5.18	4.97	2.52	2.32	4.12	6.54	6.14	...
Barley	0.62	0.91	1.33	0.38	0.19	0.43	1.18	0.61	0.69	0.76	2.14	0.39	0.53	0.67	...
Maize	1.01	0.84	0.26	0.73	0.27	0.70	1.30	2.33	1.78	1.93	1.35	0.62	1.57	0.53	...
Rye [1]	0.77	0.67	0.45	0.47	0.55	0.76	1.15	1.35	0.89	0.17	0.06	0.32	0.44	0.30	...
Sugar (raw equivalent) [2]	1.13	0.54	0.62	1.10	1.36	1.33	3.21	3.17	2.19	1.71	2.02	2.19	2.34	2.58	...
Potatoes	0.08	0.09	0.12	0.17	0.31	0.25	0.40	0.66	0.46	1.15	0.65	0.62	0.67	0.68	...
Sunflowerseed [1]	0.08	0.08	0.06	0.06	0.12	0.18	0.17	0.22	0.15	0.24	0.19	0.35	0.48	0.45	...
Oilseed cake and meal	0.19	0.15	0.22	0.38	0.59	0.53	0.42	0.39	0.24	0.08	0.16	0.43	0.40	0.34	...
Meat (fresh, chilled and frozen) [3]	0.07	0.09	0.12	0.10	0.31	0.14	0.20	0.27	0.27	0.17	0.24	0.25	0.34	0.32	...
Butter	0.01	0.03	0.05	0.06	0.11	0.08	0.09	0.11	0.10	0.06	0.08	0.10	0.12	0.12	...
Eggs (in the shell)	0.04	0.05	0.04	0.06	0.07	0.10	0.13	0.11	0.08	0.08	0.11	0.09	0.13	0.11	...
Cotton	0.34	0.32	0.32	0.32	0.35	0.40	0.39	0.35	0.32	0.39	0.46	0.52	0.55	0.57	...
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	0.8	1.0	1.2	2.5	5.5	9.9	17.9	33.7	80.9	88.9	178.3	229.5	215.8	235.5	...
Dried, salted or smoked fish	—	1.2	1.0	13.0	34.8	45.3	31.7	40.5	44.4	35.3	39.9	28.6	35.6	25.2	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.1	0.1	0.1	0.4	0.2	0.3	0.2	0.3	0.6	1.1	1.2	1.3	1.3	0.6	...
Fish products and preparations, whether or not in airtight containers	6.5	7.5	9.3	9.4	18.0	22.0	25.3	24.3	19.3	18.9	19.6	22.7	24.2	27.0	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	4.6	5.7	3.8	4.2	4.2	3.7	3.7	3.0	5.0	5.6	4.9	5.0	5.0	5.0	...
Oils and fats, crude or refined, of aquatic animal origin	5.4	6.3	4.6	5.3	8.6	35.9	18.2	15.2	32.2	40.0	57.1	71.9	58.2	59.4	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	3.1	3.6	3.2	3.8	7.2	4.0	4.9	3.7	3.8	4.2	7.2	14.2	38.6	30.6	...
	Million metric tons														
FOREST PRODUCTS [1]															
Pulpwood [4]	0.55	0.53	0.59	0.82	1.18	1.59	2.33	3.26	3.49	4.05	4.18	5.47	5.51	4.74	5.30
Coniferous logs [4]	0.12	0.24	0.65	0.99	1.14	1.50	1.83	2.45	2.63	3.22	4.57	4.79	4.81	5.91	6.30
Pitprops [4]	0.84	0.64	0.82	0.99	0.89	1.11	1.00	1.20	1.40	1.39	1.50	1.24	0.91	0.76	0.80
Sawn softwood [4]	2.33	2.21	3.46	3.63	4.38	4.98	5.20	6.00	6.53	7.68	8.00	7.99	7.44	7.93	7.95
Plywood [4]	0.09	0.05	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.19	0.21	0.22	0.23	0.27	0.28
Chemical wood pulp	0.14	0.15	0.15	0.22	0.20	0.24	0.27	0.27	0.25	0.26	0.26	0.30	0.37	0.39	0.43

[1] U.S.S.R. only. – [2] Including refined sugar converted at 108.7 percent. – [3] Beef and veal, mutton and lamb, pork and poultry meat. – [4] Million cubic metres.

ANNEX TABLE 3F. – EASTERN EUROPE AND U.S.S.R.: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	72	69	90	92	118	121	145	156	152	146	168	182	203	204	...
Agricultural products	71	68	90	90	120	118	146	154	141	125	148	161	195	191	...
Food and feed	64	59	88	88	124	115	155	169	147	118	145	160	204	196	...
Beverages and tobacco	61	85	90	93	117	133	120	111	149	176	168	157	170	164	...
Raw materials	102	95	97	96	107	120	124	117	112	129	151	166	171	184	...
Fishery products	64	78	70	85	145	191	193	211	289	301	435	530	514	532	535
Forest products	76	69	93	99	108	129	141	162	177	203	216	230	230	241	251
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	77	72	94	91	115	113	135	142	152	143	165	179	202	196	...
Agricultural products	75	71	93	89	118	114	138	145	149	134	153	165	197	185	...
Food and feed	66	62	90	87	124	112	146	159	159	133	153	169	210	190	...
Beverages and tobacco	59	80	91	94	115	132	115	103	151	172	168	167	186	178	...
Raw materials	122	105	108	97	95	114	120	110	108	123	145	149	150	166	...
Fishery products	62	78	75	89	136	163	165	169	210	212	256	300	308	339	345
Forest products	80	72	97	97	105	125	136	153	166	197	216	232	227	248	270
Import volume															
Agricultural products	79	81	94	95	111	117	129	129	137	168	167	162	147	149	...
Food and feed	94	88	98	92	109	121	139	136	143	201	192	187	161	152	...
Beverages and tobacco	62	76	96	91	113	109	99	108	133	161	160	141	159	174	...
Raw materials	64	74	87	102	111	116	128	129	131	122	134	135	120	132	...
Import value															
Agricultural products	83	85	99	94	107	115	122	121	136	175	166	160	142	141	...
Food and feed	94	90	102	91	107	115	131	129	152	220	203	198	169	157	...
Beverages and tobacco	63	73	94	99	112	103	89	94	119	152	143	128	149	164	...
Raw materials	76	84	97	98	105	119	123	120	120	117	122	119	99	105	...

ANNEX TABLE 3G. – EASTERN EUROPE AND U.S.S.R.: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils
		Grammes per day										
Albania	1964–66	435	38	48	25	82	94	84	4	3	255	14
Bulgaria	1964–66	532	62	64	20	247	152	109	14	6	236	36
Czechoslovakia	1964–66	348	295	103	8	224	128	167	25	9	356	36
Germany, Eastern	1964–66	270	383	90	4	199	154	171	34	23	316	80
Hungary	1960–62	372	262	75	13	220	167	133	24	2	295	58
	1963–65	374	241	81	11	222	172	140	27	2	268	58
	1967	368	232	88	12	223	193	141	31	3	288	64
	1968	362	219	87	10	225	189	147	33	3	317	65
Poland	1960–62	409	548	81	5	25	60	126	21	10	517	37
	1964–66	383	347	90	10	261	63	148	25	26	552	40
Romania	1960–62	545	194	35	20	172	125	98	14	5	393	24
	1963	520	178	38	37	184	144	85	13	7	352	25
	1964–66	500	182	48	25	164	100	105	14	4	319	26
U.S.S.R.	1964–66	428	378	103	14	186	57	106	19	28	386	33

[1] In terms of flour and milled rice. – [2] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [3] Shelled equivalent for nuts, including cocoa beans. – [4] In terms of fresh equivalent; including processed vegetables. – [5] In terms of fresh equivalent; including processed fruit. – [6] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [7] In terms of fresh equivalent. – [8] Estimated edible weight. – [9] Milk and milk products, excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 3H. – EASTERN EUROPE AND U.S.S.R.: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968
	Number per day					*Grammes per day*									
Albania	...	...	...	[1]2 370	...	...	...	...	[1]71.3	...	...	...	...	[1]21.2	...
Bulgaria	...	...	...	[1]3 110	...	...	...	...	[1]90.2	...	...	...	...	[1]24.5	...
Czechoslovakia	...	...	...	[1]2 990	...	...	...	...	[1]83.3	...	...	...	...	[1]38.9	...
Germany, Eastern	...	...	...	[1]3 170	...	...	...	...	[1]76.4	...	...	...	...	[1]40.7	...
Hungary	...	...	3 030	3 100	3 140	...	...	91.7	96.3	97.0	...	...	37.2	39.7	41.3
Poland	...	...	3 350	[1]3 110	...	...	...	...	[1]93.2	...	...	...	37.6	[1]42.6	...
Romania	...	...	3 160	[1]3 020	...	...	...	...	[1]87.0	...	...	...	...	[1]26.2	...
U.S.S.R.	...	...	...	[1]3 150	...	...	...	...	[1]91.5	...	...	...	...	[1]35.8	...

[1] 1964-66 instead of 1966.

ANNEX TABLE 4A. – NORTH AMERICA: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Canada	1950	[1] 2 632	16	2 018	13	...	[2] 51	[2] 21	...	5
	1960	[2] 2 073	11	2 328	7	1 123	36	16	20.19	9
	1965	1 765	9	2 549	6	1 444	35	13	24.59	17
	1967	...	...	3 012	6	...	27	11	...	21
United States	1950	[4] 22 158	13	20 097	7	...	29	59	...	23
	1960	[5] 14 313	8	20 360	4	1 422	26	36	12.94	39
	1965	11 700	6	20 763	3	1 775	26	28	15.37	64
	1967	...	...	23 979	3	...	23	25	...	77

[1] 1956. – [2] 1951. – [3] 1961. – [4] 1955. – [5] 1962.

ANNEX TABLE 4B. – NORTH AMERICA: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	..... *Million metric tons*														
AGRICULTURAL PRODUCTS															
Wheat	39.63	42.96	36.70	50.50	42.53	50.98	41.25	45.11	50.90	51.28	53.48	58.22	57.57	60.58	58.33
Barley	14.24	14.06	14.34	15.57	13.85	13.55	11.00	12.93	13.37	12.07	13.30	15.12	13.54	16.30	17.32
Oats	27.87	23.92	23.61	25.67	20.55	22.89	19.05	22.29	20.89	17.72	19.62	17.41	16.15	19.23	19.52
Maize	73.78	78.82	78.11	86.01	97.93	99.90	92.13	92.45	103.01	89.85	105.26	106.27	122.79	113.66	118.15
Sorghum	6.16	5.20	14.42	14.76	14.11	15.75	12.20	12.96	14.87	12.44	17.09	18.16	19.20	18.79	18.88
Rice (milled equivalent) [1]	1.65	1.46	1.27	1.32	1.58	1.61	1.60	1.95	2.07	2.16	2.25	2.51	2.64	3.07	2.69
Sugar (centrifugal)	3.26	3.41	3.58	3.38	3.70	3.79	4.08	4.28	5.04	5.25	4.87	4.94	4.93	5.50	5.62
Potatoes	12.17	13.09	13.01	13.92	12.76	13.62	15.32	14.16	14.41	13.10	15.30	16.42	15.99	15.75	16.44
Apples	2.71	2.46	2.92	3.12	2.92	2.54	2.92	2.99	3.08	3.28	3.24	3.04	2.89	2.88	3.50
Citrus fruit	7.51	7.61	6.47	7.45	7.28	6.93	7.88	5.95	5.66	6.93	7.97	10.37	7.56	10.18	10.40
Soybeans	10.32	12.37	13.33	15.97	14.69	15.24	18.65	18.39	19.16	19.27	23.23	25.52	26.78	30.27	30.61
Cottonseed	5.48	4.91	4.18	4.35	5.44	5.34	5.42	5.57	5.62	5.66	5.52	3.59	2.91	4.21	3.80
Total vegetable oils and oilseeds (oil equivalent) [2]	3.24	3.72	3.44	4.08	3.77	4.06	4.47	4.51	4.74	4.76	5.65	5.59	5.56	6.42	6.72
Tobacco	1.06	1.06	0.83	0.88	0.89	0.98	1.03	1.14	1.15	1.08	0.92	0.96	0.99	0.88	0.92
Cotton (lint)	3.21	2.90	2.39	2.51	3.17	3.11	3.12	3.24	3.34	3.31	3.26	2.09	1.62	2.38	2.18
Milk (total)	63.51	64.40	64.45	63.98	63.39	63.96	65.35	65.62	65.16	66.00	64.66	62.73	62.19	61.53	61.19
Meat [3]	16.03	17.08	16.72	16.61	17.71	18.04	18.85	18.89	19.84	21.08	21.01	22.00	22.96	23.43	23.54
Eggs	4.10	4.17	4.16	4.16	4.25	4.09	4.09	4.12	4.07	4.14	4.17	4.21	4.43	4.38	4.37
FISHERY PRODUCTS [4]	3.79	4.13	3.80	3.75	3.98	3.79	4.00	4.15	4.01	3.91	4.04	3.95	3.78	3.97	...
FOREST PRODUCTS															
Fuelwood [5]	61.9	59.8	58.3	55.8	54.0	49.4	48.3	39.4	36.5	37.6	36.8	34.8	26.8	27.2	27.0
Coniferous logs [5]	190.0	185.8	169.6	166.0	193.8	188.5	176.6	193.5	196.8	208.8	212.5	216.5	214.8	232.2	233.0
Broadleaved logs [5]	42.4	40.7	38.7	37.9	36.7	34.8	33.4	35.7	38.7	39.8	41.7	41.7	39.7	37.7	39.0
Other industrial roundwood [5]	119.8	132.8	123.9	111.9	123.6	132.7	125.1	124.4	119.7	127.9	135.2	145.0	142.5	147.7	158.0
Sawn softwood [5]	90.3	90.4	80.4	80.8	89.1	80.9	79.6	82.5	87.8	91.0	93.1	91.6	89.1	96.3	95.5
Sawn hardwood [5]	18.8	19.9	14.8	15.1	16.7	15.8	15.1	15.8	17.0	18.4	18.9	19.4	18.9	17.8	20.3
Plywood [5]	6.5	6.7	6.7	7.6	8.8	8.9	9.7	10.6	11.9	13.1	14.5	14.8	14.9	16.5	16.5
Fibreboard	1.67	1.70	1.62	1.72	1.97	1.85	1.92	2.04	2.18	2.37	2.44	2.35	2.29	2.72	2.72
Mechanical wood pulp	8.87	9.20	8.98	8.79	9.45	9.67	9.60	9.86	10.12	10.78	11.13	11.76	11.49	11.74	12.80
Chemical wood pulp	19.16	20.62	20.25	20.19	22.50	23.69	25.03	26.46	28.53	31.11	32.93	35.97	36.20	37.69	40.50
Newsprint	6.92	7.32	7.41	7.04	7.51	7.89	7.96	7.96	8.05	8.66	8.98	9.86	9.68	9.81	10.70
Printing and writing paper	5.16	5.64	5.35	5.71	6.45	6.67	6.87	6.29	7.63	8.11	8.78	9.75	9.56	10.10	11.00
Other paper and paperboard	20.88	21.55	21.00	20.84	22.73	23.00	23.90	25.11	26.23	27.97	29.87	31.65	31.66	32.65	34.60

[1] Paddy converted at 65 percent. – [2] Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, castor beans. – [3] Beef and veal, mutton and lamb, pork, poultry meat. – [4] Nominal catch (liveweight). – [5] Million cubic metres.

ANNEX TABLE 4C. – NORTH AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100														
Total agricultural production															
NORTH AMERICA	101	103	98	106	107	109	109	112	119	117	119	120	124	126	125
Canada	99	108	91	97	99	106	90	114	127	118	131	144	123	134	141
United States	101	103	99	107	108	110	111	112	118	117	118	118	124	125	124
Per caput agricultural production															
NORTH AMERICA	99	100	93	98	98	98	96	97	102	99	99	99	100	101	99
Canada	96	103	84	87	86	91	75	94	103	94	102	110	92	99	102
United States	100	99	94	99	99	99	98	98	102	99	99	98	101	102	99
Total food production															
NORTH AMERICA	101	104	101	109	109	111	110	114	121	119	122	127	132	133	132
Canada	99	106	90	96	98	105	88	114	127	119	130	144	124	134	140
United States	102	104	103	111	111	112	113	114	120	120	121	125	133	133	132
Per caput food production															
NORTH AMERICA	99	101	96	101	100	100	98	99	104	101	102	104	107	107	105
Canada	96	101	83	85	86	90	74	94	103	94	102	110	93	99	101
United States	100	101	97	103	102	101	100	99	103	102	102	103	109	108	106

ANNEX TABLE 4D. – NORTH AMERICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Maize	0.13	0.24	0.28	0.38	0.34	0.41	0.61	0.92	0.61	0.55	0.49	0.54	0.76	0.81	0.69
Sugar (raw equivalent) [1,2]	4.22	4.46	4.43	5.01	4.86	4.93	4.55	4.98	4.84	4.06	4.34	4.64	5.16	5.41	5.28
Bananas	1.58	1.67	1.70	1.76	1.91	2.02	1.94	1.72	1.73	1.71	1.75	1.89	1.91	1.98	1.93
Citrus fruit [3]	0.21	0.21	0.21	0.20	0.24	0.22	0.20	0.20	0.22	0.25	0.23	0.23	0.24	0.26	0.26
Vegetable oils and oilseeds (oil equivalent) [4]	0.54	0.52	0.52	0.53	0.57	0.58	0.59	0.62	0.58	0.62	0.64	0.71	0.73	0.72	0.74
Cattle [5]	0.32	0.16	0.73	1.16	0.74	0.67	1.05	1.25	0.86	0.58	1.13	1.11	0.78	1.05	1.05
Meat (fresh, chilled and frozen) [6]	0.05	0.05	0.09	0.22	0.31	0.27	0.35	0.49	0.58	0.41	0.35	0.44	0.48	0.55	0.63
Coffee (green)	1.23	1.33	1.30	1.26	1.45	1.38	1.41	1.54	1.51	1.44	1.35	1.39	1.36	1.61	1.30
Cocoa beans	0.24	0.27	0.25	0.21	0.23	0.27	0.37	0.31	0.30	0.29	0.38	0.34	0.30	0.25	0.24
Wool (actual weight)	0.17	0.17	0.13	0.12	0.19	0.15	0.16	0.17	0.17	0.11	0.13	0.13	0.09	0.12	0.09
Rubber (natural)	0.70	0.64	0.61	0.52	0.63	0.45	0.43	0.47	0.42	0.50	0.50	0.49	0.51	0.60	0.62
FOREST PRODUCTS															
Pulpwood [7]	4.08	4.42	4.18	3.31	3.05	3.42	3.43	3.39	3.08	1.85	1.83	1.98	1.86	1.65	1.55
Coniferous logs [7]	0.91	0.90	0.74	0.64	0.75	0.90	0.97	1.21	1.23	1.20	1.56	1.24	1.30	1.58	1.50
Broadleaved logs [7]	0.54	0.55	0.41	0.33	0.33	0.36	0.22	0.28	0.24	0.51	0.50	0.53	0.59	0.53	0.48
Sawn softwood [7]	8.20	7.84	6.79	7.87	9.32	8.97	9.86	11.15	12.11	11.73	11.73	11.39	11.69	13.98	14.00
Sawn hardwood [7]	0.87	0.92	0.81	0.83	1.09	0.94	0.83	0.97	0.97	1.00	1.08	1.26	1.20	1.09	1.36
Plywood [7]	0.44	0.46	0.46	0.55	0.90	0.66	0.73	0.96	1.07	1.31	1.42	1.64	1.66	2.29	2.65
Mechanical wood pulp	0.23	0.25	0.21	0.18	0.21	0.24	0.28	0.30	0.31	0.32	0.31	0.28	0.25	0.22	0.28
Chemical wood pulp	1.83	1.93	1.76	1.78	2.06	1.98	2.01	2.34	2.28	2.42	2.60	2.80	2.64	2.99	3.25
Newsprint	4.68	5.05	4.74	4.43	4.77	4.91	4.96	4.97	4.91	5.40	5.74	6.34	5.99	5.86	6.26
Other paper and paperboard	0.30	0.28	0.24	0.26	0.29	0.26	0.29	0.30	0.28	0.31	0.33	0.42	0.42	0.43	0.46

[1] Including refined sugar converted at 108.7 percent. – [2] Excluding trade between United States and its territories. – [3] Oranges, mandarines and lemons. – [4] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, linseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil. – [5] Million head. – [6] Beef and veal, mutton and lamb, pork, poultry meat. – [7] Million cubic metres.

ANNEX TABLE 4E. – NORTH AMERICA: VOLUME OF EXPORTS OF MAJOR AGRICULTRAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	13.64	21.98	20.27	19.18	19.64	23.30	29.84	24.98	31.11	37.45	31.63	39.44	28.70	27.42	20.64
Barley	2.96	3.56	2.55	4.25	3.83	3.01	2.40	2.59	1.62	2.48	2.11	2.04	2.02	1.03	0.80
Maize	2.78	3.02	4.52	4.57	5.59	5.61	7.35	10.81	11.12	12.14	15.21	15.60	12.97	15.00	14.02
Millet and sorghums	1.59	1.40	0.57	1.88	2.59	2.46	1.64	2.79	2.94	2.55	5.32	9.50	7.80	6.38	5.46
Rye	0.37	0.55	0.27	0.34	0.25	0.21	0.34	0.57	0.48	0.29	0.18	0.35	0.31	0.18	0.09
Rice (milled equivalent) [1]	0.52	0.82	0.74	0.57	0.69	0.89	0.80	1.05	1.20	1.33	1.47	1.28	1.72	1.71	1.66
Citrus fruit [2]	0.36	0.48	0.40	0.27	0.33	0.29	0.30	0.27	0.26	0.30	0.33	0.37	0.42	0.27	0.39
Pulses (dry)	0.10	0.16	0.17	0.18	0.31	0.24	0.16	0.26	0.34	0.28	0.30	0.32	0.28	0.27	0.35
Vegetable oils and oilseeds (oil equivalent) [3]	0.84	1.15	1.27	1.05	1.40	1.55	1.23	1.60	1.61	2.00	2.09	1.81	1.85	2.02	2.15
Oilseed cake and meal	0.76	0.83	0.61	0.44	0.93	0.83	0.79	1.37	1.69	1.95	2.47	2.60	2.75	2.91	3.24
Milk (condensed, evaporated and powdered)	0.21	0.27	0.24	0.22	0.25	0.21	0.23	0.22	0.35	0.47	0.31	0.19	0.15	0.17	0.21
Tobacco (unmanufactured)	0.27	0.25	0.24	0.23	0.23	0.24	0.24	0.23	0.25	0.26	0.23	0.27	0.28	0.29	0.29
Cotton (lint)	0.56	1.03	1.57	1.04	0.83	1.73	1.45	0.87	0.99	1.19	0.86	0.82	0.90	0.88	0.55
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	128.5	142.0	148.7	148.2	139.6	147.3	141.9	157.3	159.1	197.5	216.4	237.8	223.2	250.3	...
Dried, salted or smoked fish	77.7	66.1	81.0	74.3	70.7	68.3	65.3	59.9	70.0	61.4	54.3	53.6	55.9	54.8	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	15.4	14.5	15.0	13.9	14.4	16.4	19.0	18.9	22.8	24.5	25.6	23.7	24.2	26.9	...
Fish products and preparations, whether or not in airtight containers	58.0	48.9	40.4	49.4	46.0	30.0	24.2	26.4	31.2	42.8	36.0	37.0	42.4	34.6	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	8.9	9.5	8.4	4.6	6.5	6.3	4.5	6.6	7.2	7.7	10.4	10.6	11.5	9.7	...
Oils and fats, crude or refined, of aquatic animal origin	77.0	76.0	57.3	52.0	82.7	80.9	61.2	61.7	129.8	87.4	58.7	41.1	46.7	38.6	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	42.0	54.0	48.6	29.7	46.3	34.0	38.8	46.2	54.3	60.4	57.5	51.7	50.7	65.3	...
	Million metric tons														
FOREST PRODUCTS															
Pulpwood [4]	4.58	4.89	4.51	3.29	2.91	3.12	3.17	3.20	2.88	3.14	3.44	3.52	3.07	2.64	2.65
Coniferous logs [4]	0.71	0.70	0.54	0.60	0.79	1.00	2.28	2.24	4.33	4.85	5.25	6.42	9.25	11.84	10.80
Broadleaved logs [4]	0.22	0.26	0.25	0.27	0.24	0.34	0.31	0.40	0.41	0.38	0.45	0.43	0.52	0.51	0.49
Sawn softwood [4]	12.60	10.81	10.22	10.76	11.38	12.55	13.28	14.50	16.68	17.36	17.43	16.51	17.25	19.16	18.35
Sawn hardwood [4]	0.63	0.61	0.57	0.53	0.64	0.62	0.55	0.60	0.59	0.69	0.74	0.91	0.81	0.66	0.74
Plywood and veneers [4]	0.17	0.16	0.13	0.13	0.22	0.19	0.21	0.29	0.31	0.45	0.47	0.52	0.62	0.66	0.68
Mechanical wood pulp	0.24	0.26	0.23	0.21	0.22	0.22	0.22	0.24	0.23	0.26	0.29	0.24	0.22	0.22	0.23
Chemical wood pulp	2.48	2.37	2.41	2.27	2.59	3.18	3.45	3.60	4.09	4.47	4.47	4.87	5.22	6.04	6.80
Newsprint	5.42	5.55	5.51	5.27	5.47	5.74	5.84	5.68	5.74	6.29	6.60	7.19	6.85	6.90	7.60
Other paper and paperboard	0.58	0.59	0.68	0.70	0.78	0.89	0.99	1.05	1.22	1.57	1.76	2.01	2.21	2.63	2.80

[1] Including paddy converted at 65 percent. – [2] Oranges, mandarines and lemons. – [3] Groundnuts, soybeans, sunflowerseed, linseed, cottonseed, groundnut oil, coconut oil, soybean oil, linseed oil, castor oil, cottonseed oil. – [4] Million cubic metres.

ANNEX TABLE 4F. – NORTH AMERICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCT, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	83	100	103	96	101	118	122	120	134	154	149	161	150	153	...
Agricultural products	73	100	104	95	101	121	124	120	135	158	149	162	144	144	128
Food and feed	74	102	96	96	108	117	128	134	152	179	175	191	164	164	149
Beverages and tobacco	113	104	104	99	98	103	104	100	106	109	99	114	118	125	122
Raw materials	52	90	137	90	74	143	121	74	83	102	76	76	79	78	53
Fishery products	106	101	97	104	99	92	91	96	115	125	121	118	125	125	144
Forest products	106	102	100	97	104	114	120	124	135	148	152	162	166	181	192
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	84	101	105	96	99	113	118	116	130	151	148	164	152	155	151
Agricultural products	76	102	107	96	97	115	123	119	135	159	153	170	151	146	133
Food and feed	76	103	98	97	105	111	126	133	152	182	180	202	174	165	152
Beverages and tobacco	102	94	102	99	99	108	111	108	115	120	110	137	144	153	158
Raw materials	66	101	145	90	65	131	117	73	78	94	69	65	66	67	45
Fishery products	91	94	93	102	105	99	93	97	114	135	142	151	158	159	183
Forest products	102	101	100	95	105	110	109	111	119	133	138	148	154	179	194
Import volume															
Agricultural products	92	95	95	97	108	101	106	115	113	104	107	112	113	123	...
Food and feed	80	82	90	105	105	103	109	121	121	105	110	123	130	138	...
Beverages and tobacco	92	100	98	95	107	106	112	117	115	112	111	111	110	123	...
Raw materials	117	110	101	87	112	88	89	95	91	84	90	86	83	92	...
Import value															
Agricultural products	102	102	101	97	102	95	93	97	102	101	98	104	103	114	...
Food and feed	77	80	89	104	106	101	105	115	129	110	110	127	136	150	...
Beverages and tobacco	111	113	109	97	94	88	86	86	84	101	93	92	89	100	...
Raw materials	132	121	109	79	112	99	84	88	86	85	82	81	68	69	...

ANNEX TABLE 4G. – NORTH AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils
		Grammes per day										
Canada	1935–39	254	165	127	16	154	119	170	38	15	533	51
	1948/–50/	205	206	135	18	192	143	193	42	16	692	55
	1960/–62/	182	176	131	15	204	211	213	42	15	663	53
	1967	186	210	134	12	228	227	250	40	17	638	57
United States	1935–39	253	182	135	26	290	271	197	44	13	565	56
	1948–50	210	143	128	24	319	293	224	59	14	645	54
	1960–62	181	131	128	22	304	267	261	52	17	673	56
	1967	177	133	133	23	269	239	295	51	17	665	61
	1968	178	122	139	23	314	223	299	50	17	671	63

[1] In terms of flour and milled rice. – [2] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [3] Shelled equivalent for nuts, including cocoa beans. – [4] In terms of fresh equivalent: including processed vegetables. – [5] In terms of fresh equivalent; including processed fruit. – [6] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [7] In terms of fresh equivalent. – [8] Estimated edible weight. – [9] Milk and milk products, excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 4H. – NORTH AMERICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968	Pre-war	1948-1950	1960-1962	1966/1967	1967/1968
	Number per day					*Grammes per day*									
Canada	[1]3 020	[1]3 110	[1]3 020	3 180	[2]3 180	[1]84.6	[1]93.1	[1]91.2	95.9	[2]95.4	[1]47.9	[1]57.2	[1]60.4	64.2	[2]64.1
United States	3 280	3 200	3 120	3 160	[3]3 240	86.3	89.7	92.4	93.8	[3]96.1	51.7	59.6	65.1	65.1	[3]69.6

[1] Split years instead of calendar years. – [2] Calendar year 1967. – [3] Calendar year 1968.

ANNEX TABLE 5A. – OCEANIA: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Australia	1950	963	12	2 986	29	3 100	[1]92	[1]15	19.23	20
	1960	[2]1 133	11	1 962	13	1 732	80	13	26.24	21
	1965	1 117	10	2 334	12	2 090	81	10	33.26	29
	1966	...	...	2 508	11	...	71	10	...	28
New Zealand	1950	372	19	494	[3]24	1 328	...	...	2.62	156
	1960	336	14	739	[4]20	2 199	97	11	1.91	443
	1965	343	12	...	...	...	95	11	2.38	558
	1967	...	...	...	...	...	92	9	...	446

[1] 1951. – [2] 1961. – [3] 1952. – [4] 1959.

ANNEX TABLE 5B. – OCEANIA: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	..... *Million metric tons*														
AGRICULTURAL PRODUCTS															
Wheat	5.43	3.73	2.74	5.96	5.57	7.69	6.98	8.57	9.17	10.31	7.32	12.99	7.90	15.25	11.29
Sugar (centrifugal)	1.36	1.36	1.51	1.64	1.60	1.55	1.55	2.13	2.06	2.29	2.30	2.69	2.67	3.17	2.57
Wool (greasy)	0.85	0.93	0.88	0.97	1.02	1.00	1.04	1.04	1.09	1.09	1.07	1.12	1.13	1.22	1.25
Milk (total)	11.65	11.60	11.09	11.87	12.01	11.63	12.16	12.28	12.49	12.83	13.16	13.67	13.30	13.31	14.20
Meat [1]	1.92	2.01	2.04	2.25	2.22	2.13	2.32	2.51	2.58	2.64	2.57	2.53	2.70	2.92	3.02
FISHERY PRODUCTS [2]	0.10	0.10	0.11	0.11	0.12	0.13	0.14	0.15	0.15	0.16	0.18	0.19	0.20	0.21	...
FOREST PRODUCTS															
Fuelwood [3]	8.8	8.9	9.0	7.9	7.8	7.7	7.6	7.5	7.4	7.3	7.3	7.2	7.0	6.9	6.5
Coniferous logs [3]	4.3	4.1	4.2	4.7	4.9	5.5	5.4	5.1	5.3	6.0	6.2	6.3	6.5	7.1	7.5
Broadleaved logs [3]	7.5	7.4	7.3	7.0	7.2	7.6	7.6	7.0	7.4	7.8	7.8	8.0	8.0	8.1	8.0
Other industrial roundwood [3]	2.2	2.6	2.4	2.6	2.6	2.7	2.9	2.9	3.3	3.5	3.6	3.8	3.6	3.7	4.0
Sawn softwood [3]	2.0	2.1	2.1	2.1	2.3	2.3	2.2	2.1	2.2	2.5	2.5	2.5	2.3	2.4	2.5
Sawn hardwood [3]	2.8	2.5	2.4	2.6	2.7	2.7	2.6	2.4	2.5	2.6	2.8	2.7	2.6	2.6	2.6
Mechanical wood pulp	0.19	0.24	0.26	0.28	0.30	0.30	0.30	0.31	0.38	0.42	0.46	0.43	0.44	0.46	0.48
Chemical wood pulp	0.17	0.26	0.26	0.26	0.30	0.28	0.31	0.33	0.38	0.42	0.45	0.49	0.54	0.56	0.59
Newsprint	0.09	0.13	0.15	0.16	0.17	0.18	0.18	0.21	0.26	0.28	0.29	0.28	0.30	0.30	0.30
Other paper and paperboard	0.29	0.35	0.37	0.41	0.44	0.52	0.54	0.55	0.64	0.69	0.81	0.85	0.91	0.93	0.94

[1] Beef and veal, mutton and lamb, pork, poultry meat. – [2] Nominal catch (liveweight). – [3] Million cubic metres.

ANNEX TABLE 5C. – OCEANIA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100														
Total agricultural production															
OCEANIA	104	105	101	118	119	122	125	133	137	141	135	152	143	166	163
Australia	105	105	98	119	118	122	126	134	139	144	133	154	141	169	165
New Zealand	102	106	107	114	120	122	124	130	131	135	141	145	150	156	159
Per caput agricultural production															
OCEANIA	101	100	94	107	106	107	107	111	112	113	106	117	108	123	119
Australia	102	100	92	109	106	107	108	113	115	116	105	121	108	127	122
New Zealand	100	102	100	104	108	108	107	109	108	109	113	113	115	119	120
Total food production															
OCEANIA	104	100	98	118	115	121	124	135	138	144	136	158	145	174	168
Australia	105	99	94	120	114	123	125	139	142	149	137	167	145	183	173
New Zealand	101	105	106	111	116	118	120	125	127	133	134	139	145	153	156
Per caput food production															
OCEANIA	102	96	91	107	102	106	105	113	113	116	107	122	109	129	122
Australia	103	94	88	110	102	108	107	117	117	121	109	130	111	138	128
New Zealand	99	101	99	102	104	104	104	105	105	108	107	108	111	116	118

ANNEX TABLE 5D. – OCEANIA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	0.28	0.32	0.34	0.32	0.27	0.22	0.23	0.26	0.26	0.27	0.24	0.19	0.15	0.10	0.08
Sugar (raw equivalent) [1]	0.13	0.11	0.11	0.15	0.12	0.13	0.16	0.14	0.15	0.13	0.16	0.16	0.17	0.18	0.20
Rubber (natural)	0.06	0.05	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.06	0.05	0.05	0.06	0.06
FOREST PRODUCTS															
Sawn softwood [2]	0.77	0.66	0.65	0.60	0.56	0.70	0.71	0.60	0.58	0.73	0.72	0.72	0.70	0.69	0.74
Newsprint	0.26	0.23	0.21	0.31	0.22	0.25	0.30	0.20	0.22	0.26	0.29	0.28	0.28	0.30	0.32
Other paper and paperboard	0.14	0.14	0.11	0.12	0.12	0.15	0.20	0.15	0.17	0.17	0.19	0.17	0.19	0.20	0.20

[1] Including refined sugar converted at 108.7 percent. – [2] Million cubic metres.

ANNEX TABLE 5E. – OCEANIA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	2.55	3.57	2.56	1.42	2.68	3.60	6.41	4.79	6.44	6.82	7.25	4.79	8.69	5.39	6.57
Barley	0.36	0.63	0.64	0.32	0.88	0.38	0.95	0.40	0.28	0.36	0.38	0.25	0.43	0.12	0.55
Oats	0.08	0.20	0.09	0.07	0.38	0.22	0.39	0.27	0.31	0.37	0.31	0.25	0.42	0.17	0.35
Sugar (raw equivalent) [1]	0.80	0.82	0.98	0.89	0.84	1.04	0.99	1.40	1.45	1.60	1.47	1.66	2.03	2.49	1.80
Copra and coconut oil (oil equivalent)	0.17	0.17	0.18	0.16	0.17	0.17	0.18	0.17	0.18	0.18	0.17	0.18	0.17	0.18	0.17
Beef and veal	0.25	0.24	0.28	0.28	0.32	0.25	0.26	0.37	0.40	0.43	0.40	0.39	0.35	0.38	0.46
Mutton and lamb	0.33	0.31	0.30	0.34	0.39	0.42	0.41	0.41	0.43	0.48	0.44	0.47	0.51	0.55	0.62
Butter	0.24	0.25	0.21	0.24	0.28	0.22	0.25	0.24	0.27	0.28	0.27	0.28	0.32	0.27	0.29
Cheese	0.11	0.11	0.10	0.10	0.10	0.10	0.11	0.12	0.12	0.13	0.12	0.12	0.14	0.12	0.13
Wool (actual weight)	0.71	0.72	0.80	0.73	0.87	0.85	0.89	0.89	0.91	0.89	0.90	0.92	0.86	0.97	1.00
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	3.0	3.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	4.0	8.0	11.0	10.0	9.0	...
Dried, salted or smoked fish	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	4.0	4.0	4.0	4.0	4.0	5.0	5.0	6.0	6.0	7.0	8.0	8.0	10.0	13.0	...
Fish products and preparations, whether or not in airtight containers	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	—	—	0.1	—	—	—	—	—	—	—	0.4	1.0	1.0	2.0	...
Oils and fats, crude or refined, of aquatic animal origin	17.0	14.0	16.0	19.0	15.0	17.0	11.0	8.0	4.0	5.3	9.0	6.0	4.0	7.0	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	—	—	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	—	—	—	—	...
	Million cubic metres														
FOREST PRODUCTS															
Coniferous logs	—	—	—	0.04	0.15	0.14	0.27	0.29	0.29	0.36	0.45	0.55	0.80	1.44	1.55

[1] Including refined sugar converted at 108.7 percent.

ANNEX TABLE 5F. – OCEANIA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	96	98	92	109	107	119	120	128	133	132	128	141	142	—
Agricultural products	92	96	98	92	110	106	120	120	128	132	131	127	139	138	147
Food and feed	96	102	97	93	111	106	128	128	142	153	149	138	171	152	165
Beverages and tobacco	71	82	92	94	113	131	158	194	231	270	303	299	349	467	447
Raw materials	89	90	100	92	109	107	112	112	114	111	114	115	108	122	127
Fishery products	96	92	101	100	98	117	103	113	108	128	171	191	214	280	300
Forest products	25	60	90	98	112	111	105	110	148	166	163	176	209	274	289
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	95	99	110	85	105	103	112	112	133	147	134	133	140	125	146
Agricultural products	96	99	110	85	105	102	112	112	133	147	134	132	138	121	142
Food and feed	96	101	94	89	117	108	126	126	152	170	164	154	185	152	180
Beverages and tobacco	82	73	80	103	117	120	128	159	188	213	232	226	306	424	437
Raw materials	96	98	126	81	93	97	99	99	115	124	104	110	93	90	104
Fishery products	79	89	103	96	100	110	106	141	134	149	203	257	274	369	410
Forest products	25	60	91	98	111	111	105	109	140	159	160	173	213	283	305
Import volume															
Agricultural products	101	93	98	102	100	101	104	95	105	110	120	117	—	—	—
Food and feed	87	91	96	107	97	95	105	106	114	120	127	131	—	—	—
Beverages and tobacco	100	91	100	98	102	104	107	94	99	105	109	113	—	—	—
Raw materials	124	101	98	101	102	105	98	82	100	106	127	102	—	—	—
Import value															
Agricultural products	114	97	101	99	100	100	97	88	101	111	114	109	—	—	—
Food and feed	87	93	99	105	96	91	101	101	124	136	138	139	—	—	—
Beverages and tobacco	120	91	100	98	103	96	93	83	87	94	94	97	—	—	—
Raw materials	141	111	105	95	101	118	100	78	95	103	115	88	—	—	—

ANNEX TABLE 5G. – OCEANIA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils
		Grammes per day										
Australia	1936/-38/	278	133	149	7	178	205	330	33	14	395	44
	1948/-50/	265	136	153	15	181	217	300	32	12	444	40
	1960/-62/	229	129	142	12	174	222	298	33	14	571	40
	1966/67	219	139	144	14	196	231	283	34	18	618	39
	1967/68	221	140	142	13	184	225	290	35	18	631	38
New Zealand	1935–39	238	136	136	8	178	215	299	37	18	653	47
	1948–50	246	141	144	9	217	170	281	35	20	696	45
	1960–62	237	162	126	10	218	179	302	44	17	818	55
	1967	221	153	113	10	247	192	302	49	19	762	50

[1] In terms of flour and milled rice. – [2] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [3] Shelled equivalent for nuts, including cocoa beans. – [4] In terms of fresh equivalent; including processed vegetables. – [5] In terms of fresh equivalent; including processed fruit. – [6] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [7] In terms of fresh equivalent. – [8] Estimated edible weight. – [9] Milk and milk products excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 5H. – OCEANIA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948/-1950	1960/-1962	1966/1967	1967/1968	Pre-war	1948/-1950	1960/-1962	1966/1967	1967/1968	Pre-war	1948/-1950	1960/-1962	1966/1967	1967/1968
	Number per day					*Grammes per day*									
Australia	3 300	3 240	3 140	3 120	3 110	103.3	97.5	89.8	90.5	91.6	66.6	66.1	59.7	60.6	62.0
New Zealand [1]	3 260	3 360	3 490	3 470	[2]3 290	100.7	100.1	109.4	109.4	[2]107.3	67.8	66.8	74.8	74.8	[2]74.3

[1] Calendar years instead of split years. – [2]1967.

ANNEX TABLE 6A. – LATIN AMERICA: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Argentina	1950	[1] 3 682	20	1 477	14	401	...	...	8.15	1
	1960	3 933	19	2 427	17	617	95	10	4.95	1
	1965	4 510	20	2 884	17	639	94	17	6.44	1
	1966	...	...	2 382	15	...	93	17	...	2
Barbados	1960	48	24	20	28	408	85	35	0.54	271
	1965	60	25	23	26	388	74	34	...	...
	1966	...	...	23	25	...	72	32	...	...
Bolivia	1950	1 890	63	...	...	...	...	...	1.64	—
	1960	...	...	122	29	...	...	...	...	—
	1965	2 731	63	124	23	45	4	22	...	...
	1966	...	...	124	22	...	6	19	...	...
Brazil	1950	31 720	61	2 378	29	75	[2] 94	[3] 17	0.63	2
	1960	36 244	52	4 106	28	113	88	17	0.82	8
	1965	40 383	50	5 408	30	134	83	21	...	...
	1966	...	...	5 275	28	...	85	20	...	...
Chile	1950	[1] 1 830	30	312	14	171	...	...	2.08	6
	1960	2 156	28	382	12	177	...	...	2.56	17
	1965	2 349	28	404	10	172	6	25	1.92	24
	1966	...	...	473	11	...	7	23	...	...
Colombia	1950	[2] 6 185	53	943	39	152	...	...	0.39	5
	1960	6 554	46	1 327	35	202	70	12	0.77	11
	1965	9 010	50	1 511	32	168	75	14	...	...
	1966	...	...	...	...	...	76	16	...	...
Costa Rica	1950	...	...	101	43	...	...	...	...	31
	1960	[3] 675	51	115	27	170	96	14	[3] 0.92	26
	1965	745	50	146	27	196	85	10	...	...
	1966	...	...	148	26	...	83	11	...	...
Dominican Republic	1950	985	46	119	27	121	...	...	0.69	3
	1960	1 830	61	207	27	113	91	10	0.58	10
	1965	2 148	59	209	26	97	87	32	...	...
	1966	...	...	216	24	...	88	23	...	...
Ecuador	1950	1 696	53	186	39	110	...	...	1.77	—
	1960	2 704	52	288	37	106	96	11	...	6
	1965	2 955	57	324	34	110	97	13	0.98	5
	1966	...	...	349	35	...	95	11	...	...
El Salvador	1950	1 197	63	...	...	...	...	...	0.45	2
	1960	[4] 1 500	60	164	32	110	94	18	[4] 0.43	32
	1965	1 670	57	219	30	131	81	18	...	...
	1966	...	...	218	28	...	75	18	...	...
Guatemala	1950	1 727	62	231	33	134	...	...	0.85	1
	1960	...	...	305	30	...	...	...	...	10
	1965	2 842	64	380	29	134	86	12	...	...
	1966	...	...	386	29	...	83	13	...	...
Haiti	1950	2 822	83	126	53	45	...	...	...	...
	1960	...	...	144	50	...	...	...	...	...
	1965	3 517	80	...	...	...	...	...	...	...
Honduras	1950	1 162	83	145	56	125	..	...	0.70	1
	1960	1 273	67	161	44	126	93	13	0.78	6
	1965	1 405	65	198	42	141	81	12	...	...
	1966	...	...	203	41	...	90	13	...	...
Jamaica	1950	650	46	61	31	94	...	...	0.26	26
	1960	[5] 755	46	73	12	96	44	25	0.40	50
	1965	788	44	100	12	127	41	27	0.39	67
	1966	...	...	96	12	...	40	24	...	...

ANNEX TABLE 6A. – LATIN AMERICA: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Mexico	1950	15 254	58	1 724	23	113	...	...	1.31	1
	1960	19 440	54	2 578	19	133	...	...	1.23	8
	1965	22 200	52	3 092	17	139	57	9	...	...
	1966	...	...	3 328	17	...	52	8	...	...
Nicaragua	1950	748	68	[6]84	[6]42	112	...	...	0.91	1
	1960	...	...	124	37	...	94	9	...	2
	1965	960	58	191	37	199	90	11	...	...
	1966	...	...	171	32	...	87	11	...	...
Panama	1950	393	49	64	27	162	...	...	0.63	8
	1960	507	48	96	25	189	94	15	1.11	9
	1965	540	43	143	24	265	56	12	...	...
	1966	...	...	144	23	...	58	11	...	...
Paraguay	1950	784	56	104	42	132	...	...	...	...
	1960	990	52	116	36	117	...	...	1.96	...
	1965	1 018	50	144	36	142	...	...	0.91	2
	1966	...	...	144	35	...	...	...	...	2
Peru	1950	...	...	513	35	...	...	...	...	42
	1960	5 000	50	646	25	129	...	...	0.39	42
	1965	5 775	50	697	20	121	55	18	0.47	31
	1966	...	...	...	...	...	50	18	...	...
Surinam	1960	...	...	12	13	...	17	17	...	13
	1965	76	26	19	13	245	17	12	0.61	33
	1967	...	...	...	...	...	12	13	...	38
Trinidad and Tobago	1950	133	20	30	17	227	[2]19	[2]21	1.29	19
	1960	160	20	51	12	322	13	18	1.09	35
	1965	197	20	62	11	316	9	13	...	...
	1966	...	...	60	10	...	8	14	...	...
Uruguay	1950	[3]454	19	...	18	...	...	...	3.40	1
	1960	[4]390	14	267	19	57	...	...	5.77	8
	1965	470	17	221	15	47	...	...	...	...
Venezuela	1950	1 986	40	...	...	...	...	...	1.36	1
	1960	[2]2 337	31	388	7	166	1	19	2.23	2
	1965	2 705	29	566	8	209	1	16	...	...
	1966	...	...	579	8	...	1	14	...	...

[1] 1952. – [2] 1951. – [3] 1963. – [4] 1961. – [5] 1960/61. – [6] 1953.

ANNEX TABLE 6B. – LATIN AMERICA: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	9.51	11.25	9.82	10.63	19.46	8.01	9.55	9.77	12.81	15.64	10.32	10.59	11.79	10.68	12.42
Maize	17.19	19.00	18.72	21.52	22.28	22.43	24.35	25.62	26.25	28.11	30.84	32.52	35.38	33.99	30.73
Rice (milled equivalent) [1]	3.82	3.69	4.15	4.03	4.25	4.92	5.27	5.51	5.52	6.02	6.98	5.86	6.69	6.67	5.93
Sugar (centrifugal)	13.11	14.61	15.10	16.75	17.17	17.98	16.06	15.23	16.28	18.62	18.49	19.93	18.57	17.72	22.40
Citrus fruit	4.15	4.30	4.61	4.64	4.78	4.90	5.12	5.44	5.74	5.79	5.95	6.44	6.54	6.92	—
Bananas	8.88	9.17	10.26	10.19	10.92	11.37	11.37	11.55	12.06	13.62	14.55	14.18	15.61	15.70	15.83
Groundnuts	0.48	0.57	0.67	0.78	0.79	0.82	1.04	1.29	1.11	1.03	1.38	1.52	1.31	1.25	1.18
Cottonseed	2.18	2.02	1.93	2.29	1.90	2.22	2.46	2.84	2.93	2.96	2.98	2.96	2.68	3.02	3.00
Sunflowerseed	0.41	0.87	0.74	0.94	0.49	0.92	0.68	0.97	0.59	0.57	0.84	0.94	1.31	1.03	0.97
Copra	0.16	0.22	0.23	0.23	0.23	0.24	0.27	0.27	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Palm kernels	0.12	0.12	0.14	0.15	0.14	0.15	0.18	0.20	0.20	0.22	0.24	0.24	0.24	0.25	0.25
Total vegetable oils and oilseeds (oil equivalent) [2]	1.04	1.35	1.39	1.53	1.45	1.57	1.74	2.02	1.86	1.92	2.10	2.17	2.12	2.67	2.23
Coffee	2.30	1.86	2.40	2.81	3.34	3.25	3.44	3.46	2.89	2.31	3.61	2.52	2.87	2.37	2.64
Cocoa	0.32	0.31	0.31	0.32	0.36	0.29	0.29	0.29	0.28	0.29	0.33	0.35	0.35	0.34	0.38
Tobacco	0.37	0.38	0.40	0.38	0.40	0.43	0.44	0.48	0.52	0.50	0.53	0.50	0.53	0.55	0.59
Cotton (lint)	1.20	1.15	1.11	1.25	1.07	1.24	1.37	1.59	1.64	1.68	1.62	1.67	1.51	1.68	1.65
Sisal	0.25	0.27	0.28	0.29	0.34	0.35	0.37	0.38	0.40	0.43	0.42	0.42	0.39	0.38	0.39
Wool (greasy)	0.33	0.34	0.34	0.34	0.35	0.35	0.34	0.33	0.34	0.35	0.34	0.37	0.35	0.34	0.34
Milk	17.40	18.31	18.55	18.35	18.52	19.00	19.09	19.34	19.87	20.85	21.26	22.13	21.95	23.45	23.79
Meat [3]	6.78	7.44	7.73	8.05	7.42	7.37	7.83	8.18	8.48	8.10	8.30	8.63	9.05	9.04	9.64
Eggs	0.71	0.77	0.84	0.88	0.87	0.91	0.96	0.96	0.99	1.05	1.12	1.19	1.17	1.24	1.26
FISHERY PRODUCTS [4]	0.98	1.11	1.36	1.87	3.23	4.73	6.62	8.62	8.78	11.40	9.43	11.57	12.71	13.48	...
FOREST PRODUCTS															
Sawn softwood [5]	5.3	5.1	4.6	5.3	5.2	4.9	5.1	5.3	5.0	5.6	5.8	6.3	6.5	6.6	6.8
Sawn hardwood [5]	7.2	7.5	6.7	6.6	6.2	6.3	6.3	6.6	6.4	6.9	6.8	7.2	7.2	7.4	7.6
Plywood [5]	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Mechanical wood pulp	0.15	0.16	0.16	0.20	0.22	0.24	0.28	0.27	0.34	0.34	0.39	0.39	0.41	0.42	0.42
Chemical wood pulp	0.13	0.19	0.22	0.23	0.27	0.35	0.47	0.51	0.65	0.71	0.78	0.89	0.93	0.91	0.94
All paper and paperboard	1.04	1.18	1.23	1.39	1.49	1.57	1.80	1.84	1.94	2.14	2.33	2.59	2.67	2.70	2.78

[1] Paddy converted at 65 percent. – [2] Olive oil, palm oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, copra, palm kernels, linseed, hempseed, castor beans. – [3] Beef and veal, mutton and lamb, pork, poultry meat. – [4] Nominal catch (liveweight). – [5] Million cubic metres.

ANNEX TABLE 6C. – LATIN AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total agricultural production														
LATIN AMERICA	107	111	118	118	121	128	130	133	135	142	139	147	145	148
Central America	113	127	136	130	136	141	151	159	168	173	175	184	190	187
Costa Rica	96	118	122	126	139	140	134	146	143	158	161	181	197	203
El Salvador	118	117	122	119	130	155	159	176	177	153	155	163	159	172
Guatemala	108	116	123	132	134	138	169	175	187	195	176	198	201	193
Honduras	107	114	122	123	122	129	139	142	150	169	152	179	180	185
Nicaragua	111	117	117	102	106	133	153	174	204	195	196	195	191	179
Mexico	115	131	141	133	141	148	153	161	170	175	179	187	194	190
Panama	105	115	120	124	121	132	129	136	141	158	161	168	172	169
Caribbean	98	110	107	114	118	122	108	99	102	114	101	116	108	106
Barbados	91	119	91	108	92	95	96	111	95	113	101	115	94	84
Cuba	95	108	107	112	114	122	100	86	93	112	94	115	106	99
Dominican Republic	108	115	118	127	146	132	133	134	132	120	125	133	123	136
Haiti	96	108	96	104	97	108	104	101	102	104	101	101	95	98
Jamaica	108	109	105	115	122	128	133	139	139	147	150	143	142	135
South America	107	108	116	117	118	125	129	131	132	139	136	143	141	145
Argentina	110	102	111	104	97	106	111	124	123	110	118	126	116	121
Bolivia	120	125	138	139	147	152	150	166	172	166	169	174	179	180
Brazil	106	116	123	133	136	144	149	143	142	171	154	164	162	171
Chile	107	105	117	112	114	119	119	127	124	120	124	127	133	131
Colombia	103	102	110	118	119	119	127	124	130	133	136	142	150	151
Ecuador	124	136	141	154	150	166	172	168	192	210	207	215	210	211
Guyana	103	115	122	117	141	149	148	131	136	152	139	145	147	157
Paraguay	102	105	112	112	104	109	113	118	129	137	130	136	139	143
Peru	101	102	109	112	123	126	129	132	136	136	141	142	141	139
Uruguay	95	96	88	78	90	92	98	99	110	104	98	88	102	102
Venezuela	108	115	118	125	138	143	151	159	174	185	194	204	216	220
Per caput agricultural production														
LATIN AMERICA	102	102	106	103	102	105	104	103	102	104	99	102	98	97
Central America	106	116	120	111	113	116	117	119	122	121	118	120	120	114
Costa Rica	89	106	106	105	111	108	101	106	100	107	106	115	121	121
El Salvador	112	108	109	104	110	128	126	134	130	108	106	107	101	105
Guatemala	102	106	109	114	112	112	132	133	138	139	122	133	131	122
Honduras	101	104	108	106	102	104	109	108	110	120	104	118	115	114
Nicaragua	105	108	104	89	89	109	121	134	152	140	135	130	123	112
Mexico	108	119	124	113	116	117	118	119	122	121	121	121	122	115
Panama	99	105	107	108	102	108	102	104	104	113	112	113	112	107
Caribbean	94	103	98	102	103	105	90	81	81	89	77	86	78	75
Barbados	90	117	89	104	89	91	91	105	88	104	91	103	83	73
Cuba	91	101	98	101	101	106	85	72	75	89	72	88	79	73
Dominican Republic	101	103	103	106	119	103	100	98	92	82	82	84	75	80
Haiti	92	103	90	95	87	96	90	86	84	85	81	79	73	74
Jamaica	105	105	98	105	110	115	118	120	117	121	120	112	109	102
South America	102	100	104	102	100	103	103	102	100	103	98	100	96	96
Argentina	106	96	102	94	87	93	95	106	103	90	96	100	92	94
Bolivia	115	117	125	123	126	128	123	133	134	127	126	126	126	124
Brazil	100	106	110	115	114	117	118	110	106	124	109	112	107	110
Chile	102	97	106	99	98	100	98	102	97	92	92	92	94	91
Colombia	96	93	97	101	99	96	99	93	95	95	93	95	97	94
Ecuador	117	124	125	133	126	135	135	127	141	148	142	142	134	131
Guyana	98	105	109	101	118	122	117	101	102	111	99	100	98	101
Paraguay	97	98	102	99	91	93	93	94	100	104	95	97	95	95
Peru	96	95	99	99	106	105	105	104	104	100	101	99	95	91
Uruguay	92	92	83	73	83	84	87	87	95	89	83	73	84	83
Venezuela	100	102	101	103	109	109	111	113	119	123	124	126	129	127

ANNEX TABLE 6C. – LATIN AMERICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*concluded*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total food production														
LATIN AMERICA	109	111	117	116	118	124	126	131	137	140	140	150	149	151
Central America	112	126	134	133	136	145	150	156	164	171	175	186	196	198
Costa Rica	93	110	111	115	129	124	123	132	135	143	140	156	179	183
El Salvador	106	105	100	97	107	109	126	131	123	132	142	144	157	167
Guatemala	106	107	117	118	120	121	140	151	151	146	150	157	171	177
Honduras	107	112	119	120	120	130	134	136	142	156	147	173	181	183
Nicaragua	103	99	102	105	105	118	123	130	139	143	140	153	161	158
Mexico	116	132	142	140	145	154	158	165	175	182	186	199	206	209
Panama	107	116	120	125	121	131	129	135	141	159	161	169	174	171
Caribbean	98	109	108	113	118	122	106	97	101	115	101	117	109	106
Barbados	91	119	90	107	92	95	95	111	95	113	100	115	94	84
Cuba	95	108	108	112	113	122	98	85	93	114	93	116	107	99
Dominican Republic	109	115	120	129	150	133	135	133	131	121	129	135	127	139
Haiti	100	100	100	100	103	104	106	105	105	106	108	108	101	103
Jamaica	108	110	105	115	124	129	134	140	142	150	154	146	145	136
South America	110	109	115	113	114	121	124	131	135	137	139	147	146	148
Argentina	111	102	110	103	96	105	111	126	124	110	119	130	120	124
Bolivia	122	129	143	143	151	155	153	171	178	171	173	178	182	184
Brazil	110	117	122	124	130	136	140	144	152	169	165	174	176	180
Chile	108	104	118	111	114	120	120	129	125	120	125	128	134	131
Colombia	106	103	105	112	113	115	122	120	128	132	136	140	148	148
Ecuador	124	134	141	158	156	167	172	173	196	210	205	215	214	217
Guyana	103	115	121	116	141	147	146	130	135	150	137	144	143	153
Paraguay	104	108	115	115	108	111	111	111	128	134	132	139	139	143
Peru	99	102	109	111	121	123	124	126	133	134	142	148	144	144
Uruguay	96	97	85	78	90	91	96	97	114	109	98	87	106	107
Venezuela	110	118	118	126	140	146	157	163	181	194	202	214	226	231
Per caput food production														
LATIN AMERICA	103	102	105	101	100	102	101	102	103	102	100	104	101	99
Central America	106	115	118	113	113	116	116	116	118	119	118	122	124	121
Costa Rica	86	98	96	96	104	96	92	95	94	97	91	99	110	109
El Salvador	100	97	90	84	91	90	100	100	91	94	97	95	100	103
Guatemala	99	98	103	101	100	98	110	115	111	104	104	106	112	112
Honduras	101	102	106	103	100	105	105	103	104	110	101	115	115	113
Nicaragua	97	90	91	91	88	96	97	100	103	102	97	102	103	98
Mexico	109	120	125	119	119	123	122	123	126	126	125	129	129	127
Panama	101	106	107	108	102	107	102	103	105	114	112	114	113	108
Caribbean	94	102	99	101	103	104	88	79	81	89	77	87	79	75
Barbados	90	117	89	104	88	91	91	105	88	103	91	103	83	73
Cuba	91	101	99	101	100	106	83	71	75	90	72	88	80	73
Dominican Republic	102	104	105	109	122	104	102	97	92	82	84	86	77	82
Haiti	96	95	93	92	99	92	92	89	87	87	86	85	77	78
Jamaica	105	106	99	106	112	116	119	121	120	123	123	115	111	103
South America	104	100	103	98	97	100	100	102	103	101	100	103	99	98
Argentina	107	96	102	93	86	92	96	107	104	90	97	104	94	96
Bolivia	116	120	130	126	131	131	126	137	139	130	128	129	129	127
Brazil	104	107	108	108	109	111	111	111	114	122	116	119	117	91
Chile	102	97	107	99	98	101	98	103	98	91	93	93	95	91
Colombia	100	94	93	96	94	92	95	91	93	93	93	93	95	92
Ecuador	117	123	125	136	130	135	135	131	144	149	140	143	137	134
Guyana	98	105	107	99	118	120	116	100	101	109	98	99	94	98
Paraguay	99	100	105	102	95	95	92	89	100	101	97	98	95	95
Peru	95	95	99	98	104	103	100	99	101	99	102	103	97	94
Uruguay	94	93	80	72	83	82	86	86	99	94	83	73	87	87
Venezuela	102	105	101	104	111	111	115	116	124	129	130	132	135	133

ANNEX TABLE 6D. – LATIN AMERICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	3.79	3.31	3.25	3.40	3.95	4.20	4.24	4.88	5.16	5.99	5.57	6.70	6.86	7.03	...
Maize	0.08	0.20	0.86	0.96	0.16	0.21	0.22	0.39	0.67	0.67	0.40	0.41	0.37	0.59	...
Rice (milled equivalent) [1]	0.22	0.22	0.32	0.40	0.34	0.35	0.35	0.31	0.34	0.50	0.55	0.45	0.37	0.35	...
Sugar (raw equivalent) [2]	0.47	0.28	0.49	0.37	0.39	0.24	0.50	0.23	0.27	0.21	0.27	0.31	0.25	0.24	...
Bananas	0.20	0.14	0.21	0.27	0.25	0.27	0.27	0.24	0.24	0.24	0.25	0.26	0.23	0.24	...
Pulses (dry)	0.11	0.13	0.13	0.17	0.17	0.14	0.17	0.13	0.16	0.19	0.16	0.19	0.19	0.18	...
Cattle [3]	0.17	0.20	0.26	0.24	0.21	0.30	0.35	0.39	0.42	0.29	0.27	0.32	0.33	0.30	...
Sheep, lambs and goats [3]	0.13	0.14	0.04	0.05	0.05	0.08	0.09	0.11	0.28	0.14	0.07	0.09	0.12	0.15	...
Milk (condensed, evaporated and powdered)	0.15	0.14	0.15	0.15	0.17	0.14	0.18	0.20	0.23	0.24	0.24	0.23	0.26	0.26	...
Rubber (natural)	0.10	0.07	0.09	0.10	0.08	0.09	0.09	0.08	0.08	0.09	0.08	0.09	0.09	0.10	...
FOREST PRODUCTS															
Broadleaved logs [4]	0.37	0.41	0.32	0.34	0.24	0.27	0.28	0.23	0.22	0.25	0.37	0.35	0.31	0.28	0.30
Sawn softwood [4]	1.48	1.10	1.62	1.42	1.08	1.05	1.32	1.09	1.03	1.23	1.39	1.49	1.34	1.37	1.40
Chemical wood pulp	0.51	0.43	0.45	0.40	0.44	0.40	0.49	0.38	0.41	0.50	0.50	0.54	0.49	0.52	0.55
Newsprint	0.42	0.48	0.55	0.54	0.52	0.60	0.64	0.58	0.54	0.56	0.60	0.66	0.68	0.70	0.73
Other paper and paperboard	0.27	0.35	0.36	0.36	0.31	0.30	0.31	0.28	0.29	0.41	0.43	0.58	0.56	0.60	0.63

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Million head. – [4] Million cubic metres.

ANNEX TABLE 6E. – LATIN AMERICA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	4.23	3.03	2.83	2.45	2.48	2.50	1.10	2.87	1.97	4.31	7.44	5.26	2.37	2.46	2.70
Maize	0.53	1.11	0.84	1.74	2.74	3.11	1.79	3.00	3.18	3.75	4.79	5.29	6.05	5.08	5.46
Millet and sorghums	0.02	0.17	0.16	0.34	0.33	0.20	0.39	0.67	0.64	0.89	0.34	1.18	1.16	0.88	1.60
Rye	0.33	0.16	0.31	0.19	0.06	0.14	0.04	0.01	—	0.11	0.10	—	—	0.02	0.02
Rice (milled equivalent) [1]	0.13	0.24	0.12	0.16	0.12	0.13	0.34	0.31	0.18	0.15	0.45	0.60	0.32	0.43	0.32
Sugar (raw equivalent) [2,3]	17.76	7.90	8.64	8.83	8.17	10.01	10.92	9.06	7.65	7.63	9.26	8.60	9.89	9.51	9.29
Bananas	2.37	2.37	2.63	2.79	2.94	3.11	3.10	3.02	3.14	3.16	3.37	3.94	4.17	4.63	4.45
Vegetable oils and oilseeds (oil equivalent) [4]	0.31	0.15	0.31	0.39	0.34	0.36	0.41	0.56	0.49	0.41	0.59	0.49	0.57	0.43	0.54
Oilseed cake and meal	0.67	0.79	0.82	1.39	1.07	1.09	1.27	1.46	1.42	1.28	1.66	1.74	1.62	1.55	1.60
Cattle	0.38	0.35	0.61	0.71	0.61	0.66	0.85	1.13	0.96	0.61	0.79	0.84	0.82	0.95	1.00
Beef and veal	0.21	0.40	0.42	0.46	0.42	0.37	0.37	0.44	0.67	0.62	0.31	0.54	0.52	0.48	0.58
Coffee (green)	1.57	1.70	1.57	1.56	1.87	1.85	1.83	1.92	2.06	1.82	1.69	1.89	1.93	2.11	2.12
Cocoa beans	0.22	0.21	0.20	0.19	0.17	0.23	0.19	0.15	0.18	0.16	0.19	0.20	0.22	0.20	0.21
Tobacco (unmanufactured)	0.07	0.08	0.08	0.08	0.08	0.09	0.12	0.13	0.14	0.15	0.13	0.11	0.12	0.11	0.13
Wool (actual weight)	0.17	0.19	0.13	0.18	0.20	0.19	0.23	0.21	0.19	0.14	0.21	0.21	0.18	0.22	0.18
Cotton (lint)	0.69	0.76	0.52	0.59	0.73	0.61	0.76	1.01	0.97	0.91	1.02	1.05	0.80	0.89	1.10
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	16.5	18.0	15.3	23.4	41.4	28.7	30.5	33.7	35.9	24.3	30.6	34.2	39.1	38.7	...
Dried, salted or smoked fish	0.3	0.1	—	—	0.3	—	—	1.1	—	1.6	1.6	0.8	1.1	1.2	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	28.4	34.5	33.0	39.1	43.6	51.6	59.0	62.1	62.2	64.5	68.5	65.3	69.8	65.1	...
Fish products and preparations, whether or not in airtight containers	17.0	19.1	20.6	14.6	18.0	17.0	22.8	20.6	17.8	18.2	14.0	14.0	8.6	8.0	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	3.2	2.6	2.7	2.6	3.6	4.1	3.9	4.0	4.7	3.5	5.0	3.4	3.5	4.3	...
Oils and fats, crude or refined, of aquatic animal origin	27.0	42.0	33.7	45.0	49.3	79.1	140.8	161.3	154.2	137.6	171.3	110.4	210.3	345.4	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	60.0	53.1	94.8	159.2	325.4	554.0	775.5	1 143.7	1 139.4	1 590.6	1 500.3	1 505.3	1 728.3	2 270.7	...
	Million cubic metres														
FOREST PRODUCTS															
Pulpwood	—	—	0.05	0.18	0.24	0.18	0.24	0.34	0.24	0.41	0.34	0.36	0.33	0.36	0.35
Broadleaved logs	0.40	0.48	0.37	0.39	0.28	0.31	0.35	0.31	0.28	0.43	0.55	0.56	0.41	0.41	0.40
Sawn softwood	1.60	0.99	1.75	1.44	1.22	1.26	1.37	1.06	1.05	1.39	1.49	1.66	1.52	1.87	1.70

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Excluding trade between United States and its territories. – [4] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, linseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil.

ANNEX TABLE 6F. – LATIN AMERICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	90	96	95	99	106	110	114	121	121	117	129	132	130	133	...
Agricultural products	92	98	95	99	106	110	112	118	119	113	125	129	127	130	132
Food and feed	86	91	98	104	98	110	110	112	108	111	136	135	136	133	136
Beverages and tobacco	95	103	95	95	110	112	111	114	123	111	104	115	118	126	123
Raw materials	106	110	83	99	118	102	127	148	140	125	152	149	122	133	150
Fishery products	67	77	77	95	128	168	214	266	262	317	318	304	349	425	390
Forest products	19	36	108	100	91	92	103	89	89	115	128	138	127	149	146
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	101	104	105	99	96	100	102	105	115	124	129	128	122	127	131
Agricultural products	104	106	105	99	96	99	100	103	112	121	125	123	117	121	125
Food and feed	87	88	104	100	96	103	102	104	122	134	146	144	144	141	146
Beverages and tobacco	113	119	109	98	93	94	88	87	91	101	96	98	90	100	102
Raw materials	128	126	97	100	103	101	131	144	146	134	145	128	105	117	123
Fishery products	47	66	77	96	127	137	175	254	260	306	333	388	380	429	400
Forest products	22	37	114	99	87	86	95	85	85	108	126	136	126	153	153
Import volume															
Agricultural products	92	89	99	102	99	103	108	115	125	140	136	147	143	147	...
Food and feed	90	88	98	101	101	104	108	118	128	143	136	149	149	153	...
Beverages and tobacco	96	96	106	110	84	95	109	103	108	112	119	147	117	113	...
Raw materials	103	94	104	102	94	106	104	106	118	133	146	137	125	128	...
Import value															
Agricultural products	101	91	103	102	96	101	101	111	123	143	137	147	147	147	...
Food and feed	98	90	101	101	97	100	103	115	127	149	139	151	155	156	...
Beverages and tobacco	101	91	107	112	81	79	83	80	89	105	103	129	102	94	...
Raw materials	118	102	109	96	95	119	102	103	113	133	151	131	123	126	...

ANNEX TABLE 6G. – LATIN AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods [2]	Sugars and sweets [3]	Pulses, nuts and seeds [4]	Vegetables [5]	Fruit [6]	Meat [7]	Eggs [8]	Fish [9]	Milk [10]	Fats and oils
		Grammes per day										
Argentina	1935-39	291	180	74	7	67	129	293	19	6	419	26
	1948	345	241	96	6	108	160	319	20	5	399	43
	1960-62	250	241	96	7	131	219	273	22	6	285	43
	1963-65	344	232	92	9	119	224	256	18	7	326	44
	1966	268	202	90	6	124	229	309	21	8	338	41
	1967	273	247	109	9	218	195	...	...	...	337	50
Bolivia [a]	1961-62	292	399	53	9	155	150	70	3	—	90	13
	1963-65	293	432	67	9	177	139	68	3	—	95	16
	1966	282	349	62	8	171	190	69	3	—	76	13
Brazil	1935-39	215	312	68	60	55	186	136	7	4	205	14
	1948-50	233	405	85	68	43	205	78	6	5	94	11
	1960-62	299	409	110	81	48	239	75	9	7	144	14
	1966	269	453	98	88	52	242	74	8	7	179	18
Chile	1935-39	339	201	70	28	137	114	105	5	9	116	13
	1948	367	218	68	16	148	112	104	5	...	236	15
	1961-62	338	199	88	25	214	130	99	4	10	245	22
	1966	433	167	90	31	212	120	93	5	11	274	23
Colombia [a]	1957-59	183	291	124	16	38	107	87	7	2	160	11
	1961-62	213	457	137	20	138	150	95	6	4	290	14
	1966	176	238	131	20	133	196	82	5	4	280	20
Costa Rica [a]	1961-62	234	134	156	38	39	370	73	6	3	284	23
	1963-65	260	123	162	46	36	416	74	5	4	260	25
	1966	273	114	162	40	36	361	82	7	5	265	28
Dominican Republic [a]	1961-62	159	249	76	33	29	412	39	7	7	160	20
	1963-65	181	236	79	38	27	408	39	7	10	174	26
	1966	147	219	175	37	26	411	35	7	11	183	24
Ecuador [a]	1954-56	226	376	62	26	53	263	30	10	6	203	13
	1961-63	172	323	72	39	165	521	61	4	9	171	15
	1966	167	329	84	39	168	644	68	5	9	190	12
El Salvador [a]	1961-62	314	8	61	39	19	71	34	6	2	134	22
	1963-65	365	9	77	33	20	71	31	5	3	148	17
	1966	326	8	78	22	19	71	27	5	2	135	14
Guatemala [a]	1961-62	397	22	76	23	67	47	34	4	1	75	9
	1963-65	401	18	70	25	67	46	36	5	2	88	13
	1966	416	16	76	30	66	50	40	5	3	65	17
Honduras [a]	1961-62	297	116	58	41	13	550	35	9	2	249	11
	1963-65	294	117	62	40	13	540	33	8	2	251	11
	1966	249	116	68	46	13	417	34	9	1	249	17
Jamaica [a]	1961-62	219	337	92	36	112	656	49	7	23	148	26
	1963-65	239	364	113	22	123	583	53	5	26	157	28
	1966	226	356	70	23	107	602	41	4	26	174	26
Mexico [a]	1954-56	346	45	88	53	...	135	54	12	6	190	26
	1961-62	354	47	99	63	38	153	53	12	6	172	28
	1966	356	24	109	67	25	187	53	11	9	156	26
Nicaragua	1961-62	227	196	122	42	43	248	67	7	1	355	21
	1963-65	245	191	123	45	42	218	65	7	2	316	23
	1966	279	182	110	44	40	222	59	8	4	297	19
Panama [a,11]	1961-62	336	191	72	42	57	154	84	12	19	170	24
	1963-65	334	190	71	36	60	158	84	12	23	182	25
	1966	348	183	89	31	57	214	104	11	13	137	20
	1968	323	222	77	29	78	247	91	12	26	156	28

ANNEX TABLE 6G. – LATIN AMERICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES (*concluded*)

	Period	Cereals [1]	Potatoes and other starchy foods [2]	Sugars and sweets [3]	Pulses, nuts and seeds [4]	Vegetables [4]	Fruit [6]	Meat [7]	Eggs [8]	Fish [9]	Milk [10]	Fats and oils
		Grammes per day										
Paraguay	1957–59	205	726	42	42	44	383	130	2	—	196	11
	1960–62	202	702	53	39	43	383	120	2	1	177	13
Peru [2]	1957–59	246	400	68	26	...	...	49	2	15	95	21
	1960–62	256	492	70	28	89	150	60	4	22	152	20
	1966	248	518	73	27	120	143	67	4	22	180	29
Surinam [2]	1958–59	338	74	72	23	30	93	21	6	23	97	24
	1960–62	282	75	72	22	30	78	24	7	27	111	27
	1966	407	60	77	32	49	39	40	8	21	104	34
	1967	411	50	80	26	52	105	53	8	23	96	32
Uruguay	1948–50	272	140	91	8	61	165	315	20	3	427	39
	1961–62	267	183	123	8	109	148	366	14	4	595	29
	1966	277	150	134	6	108	136	310	13	7	584	36
Venezuela [2]	1952–53	223	238	88	39	27	180	51	12	17	200	18
	1960–62	239	275	93	43	37	207	69	9	18	232	26
	1966	254	335	106	35	41	295	81	10	32	202	30

[1] In terms of flour and milled rice. – [2] Bolivia includes bananas and plantains under starchy foods. Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Surinam, Venezuela include plantains under starchy foods. Peru includes plantains starting with 1960-62. – [3] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [4] Shelled equivalent for nuts, including cocoa beans. – [5] In terms of fresh equivalent; including processed vegetables. – [6] In terms of fresh equivalent; including processed fruit. – [7] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [8] In terms of fresh equivalent. – [9] Estimated edible weight. – [10] Milk and milk products excluding butter, expressed in terms of fresh milk. – [11] Data on consumption of coconuts, bananas and plantains include Indian jungle population.

ANNEX TABLE 6H. – LATIN AMERICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories				Total protein				Animal protein			
	Pre-war	1948-1950	1961/1962	1967	Pre-war	1948-1950	1961/1962	1967	Pre-war	1948-1950	1961/1962	1967
	Number per day				*Grammes per day*							
Argentina	2 780	[1]3 240	[2]2 810	[3]3 130	96.5	[1]110.4	[2]81.6	[3]87.6	59.6	[1]66.1	[2]52.4	[3]50.7
Bolivia	...	...	1 990	[4]2 060	...	...	48.6	[4]51.8	...	...	12.4	[4]13.1
Brazil	2 190	2 240	[2]2 720	[5]2 700	63.8	54.9	[2]66.4	[5]66.5	27.9	15.5	[2]17.9	[5]18.5
Chile	2 250	[1]2 420	2 480	[4]2 720	69.6	[1]74.8	71.0	[4]77.8	21.4	[1]25.5	26.0	[4]26.3
Colombia	...	...	2 370	[4]2 280	...	...	55.6	[4]53.3	...	...	25.2	[4]23.3
Costa Rica	...	...	2 420	[5]2 610	...	...	54.9	[5]57.9	...	...	21.9	[5]21.8
Dominican Republic	...	...	1 930	[4]2 000	...	...	40.1	[4]43.6	...	...	14.1	[4]15.6
Ecuador	...	...	1 990	[4]2 020	...	...	48.5	[4]50.3	...	...	17.0	[4]17.5
El Salvador	...	...	1 890	[5]1 840	...	...	50.2	[5]44.2	...	...	10.5	[5]9.4
Guatemala	...	...	2 050	[5]2 220	...	...	53.4	[5]56.8	...	...	8.2	[5]8.3
Honduras	...	...	2 160	[5]2 010	...	...	56.4	[5]51.0	...	...	14.9	[5]14.5
Jamaica	...	...	2 230	[4]2 430	...	...	51.1	[4]54.7	...	...	18.2	[4]19.6
Mexico	...	...	2 500	[4]2 600	...	...	65.0	[4]66.8	...	...	15.5	[4]15.1
Nicaragua	...	...	2 300	[5]2 350	...	...	56.5	[5]59.0	...	...	22.6	[5]20.1
Panama	...	...	2 350	[6]2 420	...	...	61.6	[6]62.3	...	...	23.6	[6]25.5
Paraguay	...	...	[2]2 520	...	...	...	[2]63.3	...	...	...	[2]23.7	...
Peru	...	...	[2]2 260	[5]2 300	...	...	[2]55.5	[5]55.4	...	...	[2]20.0	[5]18.9
Surinam	...	...	[1]1 920	2 510	...	...	[2]47.0	62.3	...	...	[2]17.4	21.9
Uruguay	...	2 900	3 200	[4]3 140	...	94.5	110.5	[4]111.7	...	61.2	75.5	[4]77.4
Venezuela	...	...	[2]2 300	[5]2 490	...	...	[2]58.7	[5]65.9	...	...	[2]23.0	[5]26.4

[1] 1948. – [2] 1960-62. – [3] 1963-65. – [4] 1964-66. – [5] 1966. – [6] 1968.

ANNEX TABLE 7A. – FAR EAST: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Burma	1950	...	...	317	40	...	...	...	...	—
	1960	...	...	475	32	...	93	17	...	1
	1965	15 334	62	566	32	37	85	15	1.04	1
	1967	...	...	613	34	...	...	...	...	3
Cambodia	1950	...	...	225	[1]56	...	...	...	...	—
	1960	[2]3 332	70	286	45	86	...	...	0.71	—
	1965	4 695	75	366	42	78	99	8	0.63	1
	1966	...	...	376	41	...	100	9	...	1
Ceylon	1950	...	...	469	58	...	...	...	...	19
	1960	...	...	606	46	...	97	41	...	39
	1965	5 582	50	647	42	116	97	53	0.34	41
	1967	...	...	665	40	...	95	48	...	46
China (Taiwan)	1950	...	...	[3]280	[3]35	...	...	...	...	92
	1960	...	...	505	31	...	...	...	...	201
	1965	5 846	47	692	26	118	65	32	0.15	257
	1967	...	...	750	24	...	47	27	...	284
India	1950	[3]249 122	70	10 207	51	41	...	...	0.53	—
	1960	[4]313 170	73	14 826	50	47	44	29	[4]0.51	2
	1965	340 655	70	21 223	46	62	38	31	0.48	5
	1967	...	...	20 550	52	...	41	40	...	11
Japan	1950	[1]37 954	44	...	[1]24	...	[3]11	[3]73	0.13	152
	1960	23 748	25	5 229	15	220	12	43	0.26	304
	1965	23 685	24	8 192	12	346	6	43	0.25	321
	1967	...	...	11 161	12	...	5	39	...	384
Korea, Rep. of	1960	14 165	57	1 043	40	74	...	...	0.09	137
	1965	15 594	55	1 136	41	73	35	33	0.14	149
	1967	...	...	1 456	35	...	35	26	...	210
Pakistan	1950	...	...	3 639	58	...	...	...	...	—
	1960	[4]69 525	[4]75	3 875	53	56	...	...	0.42	3
	1965	83 842	74	4 904	47	58	62	23	0.34	5
	1967	...	...	6 201	47	...	49	23	...	11
Philippines	1950	[5]13 267	69	884	41	67	...	...	0.50	3
	1960	12 140	44	1 182	32	97	...	...	0.56	12
	1965	18 738	58	1 528	32	82	85	25	0.44	14
	1967	...	...	1 648	32	...	77	19	...	14
Thailand	1950	12 211	66	...	...	...	...	...	0.39	—
	1960	21 648	82	1 032	39	48	89	11	0.13	2
	1965	24 001	78	1 251	32	52	84	9	0.48	3
	1967	...	...	1 572	31	...	80	8	...	9
Viet-Nam, Rep. of	1960	...	...	508	37	...	...	...	...	8
	1965	13 705	85	545	31	40	98	44	0.21	32
	1967	...	...	...	...	...	97	13	...	43

[1] 1952. – [2] 1958. – [3] 1951. – [4] 1961. – [5] 1948.

ANNEX TABLE 7B. – FAR EAST:[1] VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	14.18	14.02	14.90	13.39	15.94	16.54	17.28	18.61	16.50	16.24	19.15	16.33	17.74	24.95	27.16
Maize	7.76	8.74	9.04	10.18	10.59	11.20	12.47	13.76	12.76	14.46	13.20	14.11	15.22	15.62	15.63
Millet and sorghum	15.41	15.28	16.98	18.31	17.37	18.07	17.08	19.00	18.41	19.49	15.41	18.25	20.40	18.46	19.80
Rice (milled equivalent)[2]	75.71	79.46	73.93	83.17	86.98	91.83	92.78	92.07	98.26	101.12	92.18	92.67	102.71	107.48	111.62
Sugar (centrifugal	5.06	5.21	5.56	5.73	6.23	6.79	6.52	6.12	6.78	7.99	8.47	6.63	6.85	8.38	8.64
Sugar (noncentrifugal)	5.42	5.80	6.94	7.48	7.03	7.75	7.95	8.54	8.71	9.55	9.47	8.70	8.87	9.41	8.91
Pulses[3]	9.33	9.16	9.81	8.71	11.43	10.07	10.85	10.50	10.20	8.99	10.40	8.47	8.15	10.60	9.13
Soybeans	1.27	1.26	1.32	1.27	1.30	1.31	1.30	1.21	1.15	1.12	1.08	1.07	1.24	1.16	1.17
Groundnuts	4.69	5.23	5.69	6.25	5.66	6.08	6.26	6.43	6.50	7.19	5.54	5.84	7.14	6.09	6.70
Copra	2.60	2.86	2.89	2.33	2.13	2.75	2.73	2.47	2.65	2.70	2.69	2.85	2.53	2.63	2.63
Total vegetable oils and oilseeds (oil equivalent)[4]	4.95	5.26	5.43	5.17	4.90	5.50	5.63	5.66	5.76	5.84	5.53	5.61	6.01	5.95	6.15
Tea	0.66	0.66	0.68	0.71	0.72	0.72	0.78	0.77	0.78	0.82	0.82	0.82	0.83	0.86	0.86
Tobacco	0.78	0.82	0.86	0.73	0.86	0.84	0.85	0.94	0.96	1.05	1.04	1.07	1.17	1.23	1.20
Cotton (lint)	1.21	1.26	1.31	1.24	1.08	1.36	1.28	1.49	1.61	1.50	1.47	1.53	1.74	1.66	1.68
Jute[5]	2.22	2.20	2.14	2.47	2.17	2.04	3.23	2.71	2.85	2.75	2.97	3.20	3.16	2.04	3.02
Rubber (natural)	1.82	1.77	1.78	1.80	1.87	1.82	1.91	1.95	1.90	2.03	2.15	2.25	2.28	2.45	2.64
Milk (total)	31.30	32.19	32.78	33.34	33.88	34.45	35.09	35.77	36.51	37.22	37.83	38.34	39.10	40.05	41.12
Meat[6]	2.38	2.50	2.64	2.71	2.83	2.82	2.97	3.20	3.29	3.39	3.58	3.90	4.07	4.54	4.66
Eggs	0.77	0.76	0.83	0.85	0.90	0.97	1.16	1.28	1.34	1.50	1.53	1.53	1.87	2.00	2.18
FISHERY PRODUCTS[7]	9.06	9.31	10.30	10.60	10.92	11.81	12.45	13.04	13.37	13.72	14.52	15.23	16.41	18.04	...
FOREST PRODUCTS															
Industrial roundwood[8]	63.1	67.6	69.4	69.0	73.4	77.9	84.3	81.6	88.6	92.1	93.0	97.6	102.2	101.9	103.0
Sawn softwood[8]	16.4	19.3	21.6	20.4	21.6	23.3	23.6	23.3	25.4	26.8	28.4	29.9	32.1	32.9	33.3
Sawn hardwood[8]	8.7	9.9	10.0	9.8	9.8	11.6	12.6	12.9	14.3	16.2	16.2	17.1	18.7	19.2	19.7
Plywood[8]	0.8	1.0	1.2	1.3	1.6	1.7	1.9	2.3	2.7	3.2	3.6	4.4	5.2	6.6	7.6
Mechanical wood pulp	0.68	0.74	0.80	0.75	0.90	0.97	1.00	0.99	1.00	1.06	1.07	1.12	1.16	1.21	1.27
Chemical wood pulp	1.25	1.49	1.70	1.65	2.15	2.63	3.21	3.31	3.70	4.11	4.29	4.79	5.32	5.94	6.60
Newsprint	0.48	0.55	0.59	0.61	0.75	0.82	0.90	1.05	1.14	1.26	1.31	1.32	1.47	1.63	1.78
Other paper and paperboard	2.08	2.43	2.84	2.90	3.70	4.48	5.40	5.62	6.36	7.31	7.25	8.23	9.06	9.92	11.20

[1] Excluding Mainland China. – [2] Paddy converted at 65 percent. – [3] Dry beans, dry peas, broad beans, chick-peas, lentils. – [4] Palm oil, soybeans, groundnuts, cottonseed, sesame seed, rapeseed, copra, palm kernels, linseed, castor beans. – [5] Including allied fibres. – [6] Beef and veal, mutton and lamb, pork, poultry meat. – [7] Nominal catch (liveweight). – [8] Million cubic metres.

ANNEX TABLE 7C. – FAR EAST:[1] INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total agricultural production														
FAR EAST	107	108	112	117	121	125	128	131	134	133	135	142	149	154
Developed country														
Japan	110	113	118	118	118	120	130	128	133	134	139	156	162	160
Developing countries	107	107	112	117	121	126	128	131	135	133	134	141	148	153
Burma	106	94	109	116	116	119	130	131	140	134	117	131	141	140
Cambodia	109	117	120	121	136	149	134	160	168	156	152	157	193	161
Ceylon	102	104	108	110	118	123	128	135	143	141	140	147	152	156
China (Taiwan)	108	118	124	123	123	128	127	132	145	157	163	170	176	180
India	106	107	111	115	120	124	124	127	129	122	121	131	137	144
Indonesia	102	105	109	111	112	111	119	111	119	119	122	124	129	133
Korea, Rep. of	107	117	122	123	121	136	122	135	172	171	185	168	167	183
Malaysia														
Sabah	111	112	108	121	121	138	134	133	138	147	148	157	160	164
Sarawak	118	130	114	135	148	130	144	140	138	136	125	102	103	160
West Malaysia	105	108	109	113	121	127	127	134	137	146	155	159	176	194
Nepal	101	101	103	102	105	95	96	95	98	99	94	100	104	105
Pakistan	105	106	106	113	116	120	120	128	128	131	130	142	150	154
Philippines	109	113	113	115	123	126	135	140	139	146	156	153	161	156
Thailand	113	93	108	115	130	140	147	158	157	167	202	171	182	191
Per caput agricultural production														
FAR EAST	103	102	103	105	106	108	108	107	108	104	103	106	108	109
Developed country														
Japan	107	110	113	112	112	112	120	117	121	120	124	137	141	137
Developing countries	103	101	102	104	106	107	106	106	106	102	101	103	105	107
Burma	103	89	101	106	104	104	112	111	116	108	93	102	107	104
Cambodia	104	109	109	107	117	124	109	126	129	117	110	111	133	108
Ceylon	97	97	97	97	102	103	105	108	112	107	104	107	108	109
China (Taiwan)	101	107	108	104	99	101	97	97	103	109	109	111	112	112
India	103	101	102	104	106	107	105	105	104	96	93	98	100	103
Indonesia	98	98	100	100	98	95	100	91	95	93	93	92	94	95
Korea, Rep. of	103	109	111	109	104	113	99	107	132	128	135	119	116	123
Malaysia														
Sabah	105	104	97	106	102	113	106	102	102	104	100	102	101	99
Sarawak	113	121	103	120	127	111	120	113	109	104	93	73	71	108
West Malaysia	100	99	97	98	101	102	99	102	101	105	108	107	116	124
Nepal	97	96	96	93	95	84	83	81	82	81	76	79	80	80
Pakistan	100	98	95	99	98	98	96	100	96	96	93	98	100	100
Philippines	103	104	100	99	103	102	105	106	102	104	107	101	103	96
Thailand	107	86	96	99	109	114	116	121	117	120	141	116	120	121

ANNEX TABLE 7C. – FAR EAST:[1] INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*concluded*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total food production														
FAR EAST	107	108	113	118	122	126	129	131	135	133	135	142	151	155
Developed country														
Japan	110	113	119	118	120	121	132	130	134	135	141	159	166	164
Developing countries	107	107	112	118	122	127	128	131	135	133	134	141	149	154
Burma	107	93	111	118	118	121	132	133	142	136	120	134	143	143
Cambodia	107	116	119	120	134	145	131	158	165	152	147	151	190	154
Ceylon	100	98	101	108	120	125	131	142	159	147	143	155	162	169
China (Taiwan)	108	117	123	122	122	128	126	130	144	157	163	169	176	179
India	106	106	111	116	120	124	124	126	128	122	121	130	138	145
Indonesia	104	106	111	113	115	112	122	114	125	121	125	125	132	137
Korea, Rep. of	107	118	124	125	124	138	123	139	175	173	185	167	165	180
Malaysia														
Sabah	111	109	103	116	118	140	139	141	145	159	160	177	177	174
Sarawak	89	126	94	121	120	124	148	142	136	148	162	125	164	199
West Malaysia	108	112	114	117	134	144	142	152	146	158	165	169	180	189
Nepal	100	100	102	101	106	95	95	95	96	98	93	99	103	104
Pakistan	105	107	106	115	119	120	120	130	130	132	130	141	151	154
Philippines	108	112	112	114	121	124	131	137	136	145	155	152	160	155
Thailand	113	90	105	110	124	133	144	154	150	154	185	161	176	179
Per caput food production														
FAR EAST	103	101	104	106	108	109	108	108	108	104	103	106	110	110
Developed country														
Japan	107	109	114	113	113	113	122	119	121	121	125	140	145	141
Developing countries	103	101	103	106	107	108	107	107	107	103	101	103	106	107
Burma	104	89	103	108	106	107	114	112	118	110	95	104	108	106
Cambodia	102	108	108	106	115	121	106	125	127	113	107	107	131	103
Ceylon	95	91	91	95	103	105	107	113	124	112	106	113	115	118
China (Taiwan)	101	106	108	103	99	100	96	96	103	108	109	111	112	112
India	102	100	102	105	107	108	105	104	104	96	93	98	101	104
Indonesia	99	99	102	101	101	96	103	93	100	95	96	93	96	97
Korea, Rep. of	103	111	113	111	106	116	100	110	135	129	135	119	114	121
Malaysia														
Sabah	105	101	93	102	100	114	110	107	107	112	109	115	111	106
Sarawak	85	117	85	107	103	106	122	114	107	114	121	89	114	134
West Malaysia	102	103	102	101	112	116	111	115	108	114	115	114	119	121
Nepal	97	95	95	93	95	83	82	80	80	80	76	78	80	79
Pakistan	100	99	96	100	101	99	96	101	98	97	92	97	101	100
Philippines	102	102	100	98	101	101	103	104	99	103	106	100	102	95
Thailand	107	82	94	95	104	108	114	118	111	111	129	109	116	114

[1] Excluding Mainland China.

ANNEX TABLE 7D. – FAR EAST: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	4.41	5.49	7.55	7.85	8.45	10.31	8.86	8.53	11.48	13.31	14.46	15.34	15.96	14.43	...
Barley	0.60	1.20	1.12	1.07	0.50	0.02	0.18	0.11	0.39	0.68	0.75	0.46	0.64	0.85	...
Maize	0.44	0.49	0.68	0.82	1.15	1.65	2.20	2.78	3.10	3.55	3.82	3.94	4.62	5.78	...
Millet and sorghums	0.11	0.05	0.01	0.09	0.07	0.07	0.17	0.43	0.79	1.06	1.59	3.87	4.79	2.70	...
Rice (milled equivalent) [1]	3.10	4.03	4.05	3.85	3.17	3.90	3.75	3.54	4.15	4.41	4.46	4.43	4.31	3.77	...
Sugar (raw equivalent) [2]	2.24	2.07	1.91	2.08	1.91	2.08	2.31	2.48	2.35	2.44	2.77	2.96	3.06	3.71	...
Dates	0.10	0.11	0.12	0.07	0.07	0.08	0.08	0.04	0.08	0.04	0.08	0.08	0.09	0.08	...
Vegetable oils and oilseeds (oil equivalent) [3]	0.52	0.50	0.58	0.53	0.60	0.65	0.66	0.75	0.81	0.92	0.82	0.94	1.05	1.04	...
Milk (condensed, evaporated and powdered)	0.33	0.38	0.42	0.36	0.36	0.38	0.42	0.45	0.50	0.49	0.46	0.49	0.48	0.49	...
Wool (actual weight)	0.09	0.13	0.13	0.13	0.17	0.19	0.26	0.22	0.25	0.24	0.26	0.30	0.30	0.31	...
Cotton (lint)	0.66	0.86	0.89	0.75	0.90	1.15	1.26	1.05	1.14	1.15	1.18	1.19	1.31	1.42	...
Jute and kenaf	0.29	0.23	0.17	0.14	0.12	0.21	0.16	0.18	0.15	0.16	0.23	0.19	0.14	0.16	...
Rubber (natural) [4]	0.12	0.15	0.19	0.18	0.22	0.24	0.25	0.27	0.26	0.29	0.28	0.31	0.34	0.34	...
FOREST PRODUCTS															
Pulpwood [5]	—	—	—	0.08	0.13	0.19	0.42	0.47	0.47	0.59	0.55	0.96	0.97	0.90	0.90
Coniferous logs [5]	0.11	0.21	0.34	0.61	1.01	1.25	2.68	3.25	4.45	5.51	6.15	7.81	11.89	15.94	15.50
Broadleaved logs [5]	2.41	2.83	2.84	3.96	5.09	5.65	6.78	8.00	9.61	10.64	12.19	15.93	17.84	20.05	22.50
Sawn softwood [5]	0.24	0.23	0.30	0.38	0.56	0.37	0.75	0.81	1.07	1.15	0.97	1.31	2.01	2.45	2.55
Sawn hardwood [5]	0.17	0.13	0.12	0.09	0.12	0.09	0.10	0.13	0.17	0.37	0.44	0.42	0.53	0.68	0.80
Chemical wood pulp	0.12	0.18	0.25	0.13	0.22	0.30	0.38	0.49	0.75	0.78	0.73	0.96	1.00	1.12	1.30
Newsprint	0.23	0.21	0.21	0.19	0.23	0.23	0.29	0.24	0.26	0.34	0.28	0.35	0.36	0.49	0.55
Other paper and paperboard	0.34	0.31	0.35	0.30	0.33	0.37	0.39	0.38	0.42	0.52	0.47	0.54	0.65	0.76	0.86

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, inseed oil, castor oil, cottonseed oil. – [4] Excluding imports into Malaysia for re-export. – [5] Million cubic metres.

ANNEX TABLE 7E. – FAR EAST: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Maize	0.18	0.20	0.19	0.31	0.45	0.71	0.71	0.64	0.89	1.28	0.92	1.37	1.34	1.65	1.62
Rice (milled equivalent) [1]	3.36	3.50	3.98	3.23	3.55	3.82	3.85	3.57	4.25	4.26	4.25	3.39	2.64	1.96	2.09
Sugar (raw equivalent) [2]	1.89	1.99	2.03	2.06	1.81	2.23	2.25	2.19	2.68	2.58	2.55	2.60	1.96	2.04	...
Pulses (dry)	0.22	0.14	0.12	0.12	0.17	0.17	0.18	0.16	0.20	0.17	0.22	0.23	0.18	0.17	0.21
Vegetable oils and oilseeds (oil equivalent) [3,4]	1.42	1.47	1.40	1.19	1.10	1.29	1.40	1.34	1.48	1.49	1.36	1.67	1.45	1.63	1.53
Oilsced cake and meal	0.59	0.51	0.46	0.60	1.00	0.90	1.01	1.32	1.55	1.64	1.48	1.45	1.37	1.48	1.36
Coffee (green)	0.04	0.10	0.11	0.08	0.08	0.09	0.16	0.13	0.17	0.11	0.15	0.16	0.25	0.18	0.20
Tea	0.40	0.47	0.44	0.49	0.45	0.45	0.46	0.48	0.48	0.47	0.49	0.44	0.48	0.48	0.43
Pepper and pimento	0.07	0.10	0.09	0.09	0.11	0.08	0.10	0.11	0.11	0.09	0.09	0.10	0.14	0.14	0.12
Cotton (lint)	0.28	0.23	0.17	0.18	0.12	0.14	0.10	0.15	0.22	0.23	0.18	0.13	0.24	0.26	0.14
Jute and kenaf	0.99	0.87	0.81	0.94	0.89	0.83	0.75	0.99	0.89	1.00	1.12	1.19	1.07	0.98	1.07
Rubber (natural) [5]	1.92	1.82	1.83	1.83	2.12	1.85	2.06	2.12	2.09	2.08	2.14	2.04	2.18	2.32	2.86
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	119.6	108.7	121.7	155.0	195.8	212.4	223.7	277.4	292.2	375.7	332.9	356.7	395.1	311.7	...
Dried, salted or smoked fish	87.0	78.3	70.3	70.2	68.9	57.7	55.4	46.3	42.6	39.4	35.8	48.8	47.0	48.9	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	37.9	36.6	35.7	36.0	37.1	38.0	41.5	44.6	50.5	66.0	72.3	72.0	83.0	87.9	...
Fish products and preparations, whether or not in airtight containers	65.4	108.8	106.6	133.7	138.7	125.9	110.9	138.7	139.6	156.7	146.7	174.5	180.8	223.9	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	11.0	15.0	16.0	20.0	24.0	22.0	23.0	25.0	25.0	27.0	26.0	29.1	31.2	31.8	...
Oils and fats, crude or refined, of aquatic animal origin	55.5	79.0	75.3	110.0	106.0	107.9	114.9	113.9	172.9	107.8	97.7	56.0	56.0	28.0	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	7.0	19.0	7.0	26.0	31.0	12.0	13.0	30.0	16.0	21.0	35.0	45.0	38.0	38.0	...
	Million metric tons														
FOREST PRODUCTS															
Broadleaved logs [6]	2.95	3.57	3.99	4.66	6.51	6.92	7.81	8.31	10.83	11.69	13.21	14.75	16.56	20.31	22.80
Sawn hardwood [6]	1.06	1.08	1.04	1.09	1.17	1.41	1.25	1.19	1.29	1.84	1.99	1.85	1.95	2.30	2.60
Plywood [6]	0.25	0.30	0.38	0.49	0.69	0.53	0.59	0.67	0.83	1.08	1.24	1.47	1.50	2.09	2.38
All other paper and paperboard	0.12	0.15	0.14	0.13	0.14	0.20	0.29	0.24	0.25	0.26	0.29	0.40	0.37	0.44	0.50

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Groundnuts, copra, palm kernels, soybeans, cottonseed, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, cottonseed oil. – [4] Excluding re-export of copra from Malaysia, but including unrecorded shipments of copra from Indonesia and the Philippines to Malaysia. – [5] Excluding imports into Malaysia for re-export and exports from Hong Kong, but including unrecorded shipments from Indonesia to Malaysia. – [6] Million cubic metres.

ANNEX TABLE 7F. – FAR EAST:[1] INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	96	98	98	98	104	103	109	113	120	123	124	123	125	131	...
Agricultural products	100	101	100	98	102	101	108	110	117	117	117	113	115	117	124
Food and feed	101	103	106	95	98	111	117	111	131	134	129	132	111	110	107
Beverages and tobacco	83	102	98	104	98	96	109	112	117	111	114	107	127	123	115
Raw materials	106	99	96	96	108	96	101	108	107	108	109	104	112	118	140
Fishery products	68	85	82	104	114	103	100	122	121	133	129	133	138	143	137
Forest products	67	79	85	95	120	123	132	136	165	196	219	241	256	329	370
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	102	99	98	94	108	111	106	109	119	119	119	120	117	123	126
Agricultural products	108	101	101	93	107	109	104	103	113	111	109	105	101	99	100
Food and feed	96	96	103	95	102	106	111	109	141	150	138	140	127	126	117
Beverages and tobacco	97	105	100	104	96	99	102	102	107	105	105	98	109	101	90
Raw materials	121	103	99	86	115	116	100	99	95	86	89	85	78	79	92
Fishery products	59	82	82	107	110	108	105	144	134	147	151	173	166	185	175
Forest products	68	84	84	94	123	134	135	150	183	206	221	262	290	376	435
Import volume															
Agricultural products	79	93	101	97	103	120	126	123	142	154	162	178	186	188	...
Food and feed	79	90	101	100	99	116	113	117	141	159	169	186	194	191	...
Beverages and tobacco	102	113	104	92	104	102	137	153	156	144	137	193	178	201	...
Raw materials	75	97	101	90	110	133	153	133	143	143	150	160	169	179	...
Import value															
Agricultural products	86	98	109	95	96	113	119	115	139	160	160	177	185	183	...
Food and feed	82	91	107	99	94	106	106	109	141	170	170	190	202	195	...
Beverages and tobacco	110	107	100	95	105	103	128	134	140	147	144	201	197	197	...
Raw materials	92	111	113	89	98	129	146	125	136	140	140	147	147	155	...

[1] Excluding Mainland China.

ANNEX TABLE 7G. – FAR EAST: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods [2]	Sugars and sweets [3]	Pulses, nuts and seeds [4]	Vegetables [5]	Fruit [6]	Meat [7]	Eggs [8]	Fish [9]	Milk [10]	Fats and oils [11]
		Grammes per day										
Ceylon	1952–53	323	93	44	89	114	10	8	4	15	41	11
	1960–62	368	95	54	81	115	24	6	3	16	39	10
	1967	373	78	57	79	106	26	5	5	16	46	10
	1968	363	84	59	75	103	26	5	5	20	47	10
China (Taiwan) [4]	1935–39	270	331	30	15	170	54	51	6	35	12	8
	1948–50	377	209	26	15	170	61	30	4	16	2	6
	1960–62	440	175	26	28	159	58	44	4	33	21	13
	1967	432	144	24	44	152	93	63	7	39	11	18
	1968	445	80	34	36	185	144	74	10	41	17	18
India [10,11,12]	1934–38	377	21	36	60	68	72	8	1	4	177	7
	1949/–50/	324	24	32	56	...	36	4	—	2	122	8
	1960/–62/	383	29	49	63	...	48	...	1	3	...	11
	1965/66	346	39	50	41	...	44	4	1	3	110	9
	1966/–68/	370	44	43	44	...	...	...	...	3	...	9
Indonesia	1961–63	350	329	19	22	...	41	14	3	13	2	13
	1963–65	306	407	19	20	74	38	11	1	23	2	10
Japan [4,13]	1934–38	432	127	39	46	193	42	8	6	26	9	2
	1948–50	...	171	11	19	168	37	5	2	36	11	2
	1960–62	411	181	44	46	310	83	21	19	80	69	13
	1967	380	188	57	45	362	121	37	31	84	118	19
	1968	370	181	61	46	370	141	37	36	89	123	24
Korea, Rep. of	1962	512	136	6	19	121	18	11	4	20	1	—
	1963–65	515	223	4	17	122	19	15	5	26	3	1
	1966	556	212	4	16	142	28	10	6	36	5	1
	1967	582	117	12	18	151	30	15	8	34	2	1
Malaysia [2,14]	1961–63	392	113	80	23	97	71	39	10	28	112	26
	1964–66	360	29	72	19	96	111	34	8	33	97	27
Pakistan [10,11,12]	1934–38	377	21	36	60	68	72	8	1	4	177	7
	1949/–50/	438	...	33	22	50	39	13	1	2	152	8
	1960/–62/	424	13	39	14	51	71	11	1	4	208	15
	1966/67	429	38	51	19	43	128	11	1	5	208	17
	1967/68	435	41	49	19	59	87	11	1	5	208	16
Philippines	1953	308	120	38	11	88	122	43	8	32	20	5
	1960–62	324	117	35	19	81	150	44	9	38	34	7
	1967	342	98	46	23	76	123	48	6	45	40	9
	1968	345	92	50	22	75	127	43	7	54	48	8
Thailand	1963–65	412	91	29	52	108	128	28	9	19	13	4
	1964–66	396	81	28	53	108	131	26	10	23	13	5

[1] In terms of flour and milled rice. – [2] Malaysia includes plantains under starchy foods. – [3] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [4] Shelled equivalent for nuts, including cocoa beans, China (Taiwan) includes soybean curd in terms of soybean. Japan includes "miso" and "shoyu" (soybean preparations) in terms of soybean. – [5] In terms of fresh equivalent; including processed vegetables. – [6] In terms of fresh equivalent; including processed fruit. – [7] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [8] In terms of fresh equivalent. – [9] Estimated edible weight. – [10] Milk and milk products excluding butter, expressed in terms of fresh milk. However, India and Pakistan include milk for making butter. – [11] India and Pakistan exclude butter. – [12] Prewar figures refer to India-Pakistan. – [13] Refers to fiscal year, April-March. – [14] Includes Singapore in 1961-63.

ANNEX TABLE 7H. – FAR EAST: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968
	Number per day					*Grammes per day*									
Ceylon	...	...	2 080	2 180	2 150	...	...	46.1	44.5	46.2	...	...	7.9	10.3	8.5
China (Taiwan)	1 870	1 980	2 350	2 400	2 510	45.1	43.3	58.5	62.2	64.8	15.5	8.3	15.3	19.3	20.5
India [1]	[3]1 950	[4]1 700	2 020	[6]1 810	[7]1 900	[3]52.2	[4]44.9	50.1	[6]45.4	[7]47.8	[3]8.2	[4]5.4	6.2	[6]5.4	[7]6.1
Indonesia [1]	...	...	...	[8]1 870	...	...	...	...	[8]41.4	...	...	...	...	[8]8.4	...
Japan [2]	2 020	...	2 330	2 350	2 460	59.7	...	70.7	77.6	75.7	7.7	8.6	22.8	24.6	29.5
Korea, Rep. of	...	...	[5]2 090	2 390	[9]2 430	...	...	59.0	70.5	[9]69.5	...	...	6.1	11.5	[9]8.1
Malaysia [12]	...	...	...	[10]2 190	...	...	...	...	[10]47.7	...	...	...	...	[10]14.5	...
Pakistan [1]	[3]1 950	[4]2 020	2 090	2 230	[11]2 230	[3]52.2	[4]48.3	47.8	51.5	[11]50.6	[3]8.2	[4]7.7	9.9	11.2	[11]10.1
Philippines	...	...	1 880	2 070	2 010	...	...	48.0	48.6	51.9	...	...	17.7	18.2	19.9

[1] Split years. – [2] Fiscal year April-March. – [3] India and Pakistan. – [4] 1949/50. – [5] 1962. – [6] 1965/66. – [7] 1966/-68. – [8] 1963-65. – [9] 1967. – [10] 1964-66. – [11] 1967/68. – [12] Includes Singapore in 1960-62.

ANNEX TABLE 8A. – NEAR EAST: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Cyprus	1950	258	53	29	27	112	[1]44	[1]22	1.68	11
	1960	240	40	44	17	185	36	26	1.85	30
	1965	230	39	78	22	339	54	21	1.88	44
	1967	...	...	95	23	...	59	20	...	38
Iran	1950	[2]10 065	55	...	...	...	...	...	...	...
	1960	12 096	60	1 212	29	100	...	...	0.96	1
	1965	12 195	49	1 631	26	134	8	18	...	...
	1967	...	...	1 660	22	...	6	9	...	...
Iraq	1960	[3]2 832	48	269	17	95	...	...	2.65	—
	1965	3 959	48	460	20	116	5	27	1.89	—
	1966	...	...	407	19	...	5	21	...	1
Israel	1950	224	18	[4, 5]70	11	313	...	...	1.56	43
	1960	[6]273	13	[5]230	12	844	38	27	[6]1.51	81
	1965	310	12	[5]250	9	807	30	23	1.29	100
	1967	...	...	[5]282	9	...	28	24	...	113
Jordan	1960	[6]595	35	40	16	67	...	...	[6]1.70	2
	1965	630	33	97	23	154	54	33	1.79	4
	1967	...	...	109	22	...	48	33	...	...
Lebanon	1950	...	...	...	...	...	[7]59	[7]46	...	12
	1960	...	...	...	18	...	...	...	...	49
	1965	1 213	55	138	12	114	60	36	0.24	48
	1967	...	...	...	...	...	33	37	...	74
Saudi Arabia	1965	3 105	72	205	8	66	...	...	0.12	18
Syria	1960	2 571	56	187	28	73	...	...	2.48	3
	1965	2 877	55	229	28	80	89	27	2.09	3
	1967	...	...	273	28	...	74	23	...	4
Turkey	1950	[8]13 475	72	1 643	49	122	[7]87	[7]14	1.13	—
	1960	20 625	75	2 187	42	106	88	12	1.22	1
	1965	22 740	73	2 890	36	127	88	11	1.15	6
	1967	...	...	3 498	34	...	91	6	...	11
Libya	1960	855	72	...	...	...	84	14	...	[9]3
	1965	647	40	71	5	110	1	15	...	...
	1966	...	...	71	4	...	—	18	...	...
Sudan, The	1950	[3]3 292	87	...	...	...	...	...	...	210
	1960	...	...	579	57	...	...	...	...	...
	1965	10 426	77	[10]680	[10]54	65	99	27	...	...
	1967	...	...	...	...	...	99	25	...	...
United Arab Republic	1950	[11]13 120	64	674	41	51	[7]91	[7]38	0.19	26
	1960	14 706	57	884	31	60	81	32	0.17	84
	1965	16 225	55	1 417	29	87	71	37	0.17	122
	1966	...	...	1 413	28	...	71	35	...	103

[1] 1953. – [2] 1956. – [3] 1957. – [4] 1952. – [5] Net domestic product. – [6] 1961. – [7] 1951. – [8] 1945. – [9] Tripolitania only. – [10] 1964. – [11] 1947.

ANNEX TABLE 8B. – NEAR EAST: VOLUME OF PRODUCION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	14.12	15.36	17.73	16.73	16.32	16.45	15.78	18.13	18.73	17.44	17.99	18.42	20.50	21.11	21.53
Barley	5.42	6.23	7.52	6.48	6.00	6.12	6.00	7.21	7.66	6.30	6.75	6.56	7.11	6.89	7.31
Maize	3.09	3.24	3.03	3.43	3.31	3.57	3.41	3.59	3.66	3.74	3.88	4.17	4.07	4.16	4.27
Rice (milled) [1]	1.31	1.63	1.79	1.37	1.72	1.83	1.52	2.24	2.45	2.32	2.22	2.16	2.71	2.93	2.98
Sugar (centrifugal)	0.68	0.71	0.78	0.85	1.04	1.16	0.99	1.01	1.16	1.47	1.25	1.55	1.82	1.87	1.70
Pulses [2]	0.86	0.86	0.93	0.90	0.87	0.91	0.79	1.05	0.96	1.14	1.14	1.07	1.02	0.96	1.07
Citrus fruit	1.23	1.24	1.36	1.41	1.52	1.57	1.51	1.68	2.05	2.10	2.29	2.55	2.87	3.09	3.11
Dates	1.23	1.36	1.30	1.42	1.21	1.38	1.48	1.54	1.51	1.37	1.49	1.55	1.42	1.51	1.55
Olive oil	0.06	0.14	0.08	0.13	0.09	0.11	0.18	0.09	0.15	0.19	0.12	0.22	0.15	0.22	0.10
Cottonseed	1.43	1.50	1.70	1.63	1.83	1.92	1.78	2.22	2.21	2.31	2.53	2.31	2.33	2.51	2.72
Total vegetable oils and oilseeds (oil equivalent) [3]	0.50	0.62	0.55	0.63	0.63	0.64	0.71	0.67	0.78	0.83	0.81	0.87	0.82	0.87	0.90
Tobacco	0.15	0.15	0.16	0.15	0.17	0.18	0.14	0.12	0.16	0.25	0.19	0.22	0.24	0.22	0.20
Cotton (lint)	0.76	0.79	0.89	0.88	0.99	1.04	0.95	1.22	1.18	1.29	1.39	1.31	1.34	1.44	1.54
Wool (greasy)	0.11	0.11	0.11	0.11	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.14
Milk (total)	8.77	9.25	9.16	10.11	10.42	10.33	10.22	10.45	10.51	10.82	11.12	11.57	11.74	11.91	12.03
Meat [4]	1.13	1.22	1.27	1.26	1.31	1.38	1.44	1.50	1.52	1.45	1.50	1.54	1.53	1.63	1.78
FISHERY PRODUCTS [5]	0.40	0.40	0.39	0.38	0.39	0.40	0.42	0.44	0.51	0.54	0.52	0.51	0.49	0.53	...
FOREST PRODUCTS															
Industrial roundwood [6]	7.4	7.6	8.0	7.9	7.8	8.1	7.9	8.3	9.1	9.9	10.6	10.9	11.2	11.7	12.2
Sawn softwood [6]	0.8	0.6	0.7	0.6	0.7	0.8	0.8	1.1	1.2	1.4	1.5	2.0	2.0	2.2	2.3
Sawn hardwood [6]	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8

[1] Paddy converted at 65 percent. – [2] Dry beans, dry peas, broad beans, chick-peas, lentils. – [3] Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, hempseed, castor beans. – [4] Beef and veal, mutton and lamb, pork, poultry meat. – [5] Nominal catch (liveweight). – [6] Million cubic metres.

ANNEX TABLE 8C. – NEAR EAST: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total agricultural production														
NEAR EAST	110	115	118	123	124	124	136	139	142	145	148	155	160	163
Developed country														
Israel	125	133	137	169	175	186	204	211	245	255	256	297	310	322
Developing countries	109	115	118	122	123	123	135	138	141	144	147	153	158	161
Afghanistan	111	108	115	117	122	123	127	124	131	133	129	137	137	138
Cyprus	94	104	96	109	104	122	136	139	127	179	180	215	205	229
Iran	112	118	119	127	123	132	130	138	134	145	144	157	175	172
Iraq	105	124	107	93	104	118	131	107	122	134	134	141	168	165
Libya	103	138	121	119	115	128	130	126	125	176	177	181	196	169
Saudi Arabia	100	104	107	116	124	130	143	146	149	173	178	180	172	179
Southern Yemen	137	134	120	88	129	109	121	135	127	157	115	138	87	121
Sudan, The	120	129	115	135	130	130	156	154	142	158	166	196	172	196
Syria	116	135	94	98	92	112	158	143	154	153	115	142	143	154
Turkey	108	106	122	124	126	127	133	140	146	141	157	160	166	165
United Arab Republic	107	115	116	120	127	112	135	136	141	144	144	140	150	156
Yemen	103	105	95	90	91	92	95	94	94	94	97	101	102	102
Per caput agricultural production														
NEAR EAST	104	107	107	108	107	104	111	110	110	110	110	112	112	112
Developed country														
Israel	116	117	117	140	141	145	152	152	169	169	166	190	192	194
Developing countries	104	107	107	108	106	103	110	110	109	109	108	111	111	110
Afghanistan	108	103	108	108	111	110	111	106	110	110	104	109	107	106
Cyprus	92	99	90	100	95	110	122	123	113	157	156	183	172	190
Iran	106	108	107	110	104	109	103	107	101	106	103	108	118	113
Iraq	99	114	95	80	87	95	103	81	90	95	92	93	107	101
Libya	96	124	105	99	93	99	97	91	87	118	115	113	118	98
Saudi Arabia	97	98	99	105	111	113	123	123	123	140	142	140	132	134
Southern Yemen	132	126	111	80	115	95	103	113	104	126	90	105	65	89
Sudan, The	114	118	102	117	110	106	124	119	107	116	118	135	116	128
Syria	110	124	84	85	77	92	125	110	115	111	81	98	95	100
Turkey	102	98	109	108	106	104	107	110	111	105	114	113	115	111
United Arab Republic	102	107	105	107	110	95	111	109	111	110	107	102	106	108
Yemen	101	102	91	85	85	86	88	86	85	84	86	89	88	88

ANNEX TABLE 8C. – NEAR EAST: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*concluded*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total food production														
NEAR EAST	110	115	119	121	122	124	133	137	138	141	145	153	156	159
Developed country														
Israel	124	131	135	165	167	175	192	204	235	239	237	276	285	291
Developing countries	110	114	118	121	122	123	132	136	136	139	144	151	154	157
Afghanistan	110	107	114	115	120	121	122	117	126	128	124	132	132	133
Cyprus	94	104	98	109	106	125	137	141	128	181	184	220	212	237
Iran	112	118	119	126	120	128	128	134	128	136	139	153	168	166
Iraq	104	123	106	91	102	117	133	108	121	134	135	141	169	166
Libya	103	140	118	115	116	126	128	124	123	179	178	184	199	169
Saudi Arabia	100	104	107	116	124	130	143	146	149	173	178	180	172	179
Southern Yemen	106	123	121	111	138	101	99	102	110	117	113	129	110	124
Sudan, The	119	123	128	133	127	128	136	147	148	154	161	190	163	181
Syria	112	131	81	86	75	98	148	128	131	127	93	136	122	139
Turkey	108	107	124	124	126	128	134	140	140	137	151	152	158	158
United Arab Republic	112	115	112	117	124	118	137	140	141	143	150	146	158	160
Yemen	102	104	94	88	89	89	93	92	93	93	97	101	102	103
Per caput food production														
NEAR EAST	105	107	107	107	105	104	109	109	107	106	107	110	110	109
Developed country														
Israel	116	115	115	136	135	136	143	147	162	159	154	176	177	**176**
Developing countries	105	106	107	107	105	103	108	108	106	105	106	109	108	**107**
Afghanistan	106	102	107	106	109	108	107	100	106	106	101	106	103	103
Cyprus	92	99	92	101	97	113	124	125	114	159	159	187	178	197
Iran	106	108	107	110	101	105	102	104	97	99	99	106	113	108
Iraq	99	113	94	78	85	95	104	82	89	95	92	93	108	102
Libya	96	126	103	96	93	98	96	90	86	120	116	115	120	98
Saudi Arabia	97	98	99	105	111	114	123	123	123	140	142	140	132	134
Southern Yemen	102	116	112	100	123	88	85	85	90	94	88	99	82	91
Sudan, The	112	113	114	115	107	105	108	114	111	113	115	132	110	118
Syria	107	120	72	75	63	80	117	98	98	92	66	94	81	90
Turkey	102	98	110	108	107	105	107	109	107	102	110	108	109	107
United Arab Republic	107	107	102	104	108	100	113	112	110	109	111	106	112	111
Yemen	100	101	90	83	84	83	85	84	84	84	86	89	89	88

ANNEX TABLE 8D. – NEAR EAST: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	1.25	2.18	2.51	2.29	2.90	3.99	4.24	3.77	4.42	3.51	4.68	4.64	4.64	5.00	...
Maize	—	0.13	0.16	0.12	0.23	0.21	0.31	0.48	0.44	0.68	0.37	0.47	0.46	0.46	...
Rice (milled equivalent) [1]	0.17	0.23	0.26	0.19	0.35	0.35	0.41	0.35	0.26	0.36	0.36	0.34	0.34	0.31	...
Sugar (raw equivalent) [2]	0.86	0.94	0.93	1.05	1.13	1.16	1.51	1.14	0.92	1.33	1.82	1.49	1.39	1.30	...
Dates	0.11	0.10	0.08	0.11	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.03	...
Vegetable oils and oilseeds (oil equivalent) [3]	0.07	0.08	0.11	0.13	0.17	0.17	0.14	0.29	0.31	0.31	0.24	0.25	0.29	0.28	...
Sheep, lambs and goats [4]	1.63	1.63	0.94	1.13	1.62	1.23	1.53	2.37	2.30	2.84	2.71	3.07	2.63	3.79	...
FOREST PRODUCTS															
Sawn softwood [5]	0.65	0.52	0.60	0.53	0.65	0.69	0.63	0.72	0.62	0.68	0.76	0.75	0.70	0.65	0.70
All paper and paperboard	0.11	0.11	0.12	0.14	0.15	0.16	0.18	0.20	0.23	0.24	0.28	0.29	0.42	0.46	0.50

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Groundnuts, copra, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm kernel oil, soybean oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil. – [4] Million head. – [5] Million cubic metres.

ANNEX TABLE 8E. – NEAR EAST: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	0.33	0.42	0.44	0.27	0.44	0.08	0.06	0.30	0.23	0.26	0.08	0.10	0.11	0.07	...
Barley	0.46	0.78	0.53	0.58	0.26	0.02	0.16	0.76	0.54	0.29	0.47	0.19	0.07	0.15	0.35
Rice (milled equivalent) [1]	0.23	0.23	0.30	0.39	0.05	0.31	0.23	0.14	0.38	0.54	0.37	0.36	0.41	0.58	0.79
Potatoes	0.09	0.12	0.12	0.10	0.18	0.24	0.15	0.26	0.21	0.20	0.19	0.24	0.25	0.21	0.24
Pulses (dry)	0.14	0.21	0.14	0.09	0.10	0.08	0.09	0.18	0.18	0.20	0.31	0.14	0.18	0.14	0.11
Citrus fruit [2]	0.30	0.35	0.37	0.39	0.46	0.51	0.40	0.48	0.62	0.55	0.69	0.68	0.81	0.92	0.90
Dates	0.29	0.30	0.27	0.27	0.31	0.29	0.22	0.26	0.37	0.31	0.30	0.32	0.30	0.28	0.28
Oilseed cake and meal	0.22	0.29	0.24	0.31	0.31	0.29	0.35	0.42	0.49	0.54	0.64	0.68	0.62	0.72	0.68
Sheep, lambs and goats [3]	1.18	0.95	0.23	0.47	0.69	0.71	0.90	1.32	1.25	1.15	1.43	1.26	1.08	1.32	1.33
Cotton (lint)	0.57	0.51	0.55	0.54	0.76	0.72	0.66	0.70	0.84	0.80	0.84	1.00	0.90	0.88	0.82
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	15.9	25.8	25.6	10.4	7.6	13.1	10.7	8.9	9.5	10.9	14.7	13.4	9.3	5.5	...
Dried, salted or smoked fish	13.0	11.7	7.9	5.5	5.3	8.2	7.7	4.7	6.2	6.7	8.3	10.2	10.0	10.1	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.2	0.6	0.5	0.4	0.9	1.3	2.8	5.1	4.0	3.5	3.6	2.7	4.7	2.5	...
Fish products and preparations, whether or not in airtight containers	1.3	0.9	1.2	2.3	1.1	0.6	0.6	0.6	0.6	0.3	0.4	0.5	0.4	0.3	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.5	0.5	0.3	0.5	0.8	1.1	0.9	—	—	—	—	0.9	0.8	0.2	...
Oils and fats, crude or refined, of aquatic animal origin	0.5	0.1	0.7	—	—	0.1	0.1	0.1	0.1	0.3	0.3	0.1	—	—	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	...
	Million cubic metres														
FOREST PRODUCTS															
Industrial roundwood	7.4	7.6	8.0	7.9	7.8	8.1	7.9	8.3	9.1	9.7	9.9	10.0	10.3	10.5	...
Sawn softwood	0.8	0.6	0.7	0.6	0.7	0.8	0.8	1.1	1.2	1.4	1.5	2.0	2.0	2.2	...
Sawn hardwood	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.7	...

[1] Including paddy converted at 65 percent. – [2] Oranges, mandarines and lemons. – [3] Million head.

ANNEX TABLE 8F. – NEAR EAST: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	91	99	90	112	110	107	120	126	124	133	144	139	137	...
Agricultural products	91	90	99	90	112	110	107	120	126	124	134	144	139	140	134
Food and feed	90	106	106	97	97	110	106	138	139	137	153	132	137	154	155
Beverages and tobacco	84	86	126	82	92	81	117	119	68	80	96	113	129	119	107
Raw materials	93	83	89	87	124	117	105	111	132	127	132	158	143	137	128
Fishery products	112	130	125	100	75	95	98	94	89	85	102	104	106	107	108
Forest products	65	69	78	86	136	150	141	173	235	268	306	314	335	295	295
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	94	100	109	91	99	103	97	103	116	114	125	129	127	131	136
Agricultural products	95	100	109	91	99	103	97	103	115	114	124	129	127	133	134
Food and feed	88	113	108	98	94	101	100	132	144	139	155	147	154	176	176
Beverages and tobacco	84	89	133	82	85	62	79	86	68	85	86	98	114	96	85
Raw materials	100	95	105	90	105	113	99	91	111	108	117	126	115	119	123
Fishery products	101	117	111	97	92	108	116	113	115	129	152	163	182	134	150
Forest products	66	72	78	84	137	147	136	171	238	254	284	300	310	282	294
Import volume															
Agricultural products	73	86	94	96	110	121	133	137	140	148	166	171	165	168	...
Food and feed	67	87	95	94	111	126	140	142	147	154	176	174	168	176	...
Beverages and tobacco	93	85	96	99	105	101	111	110	113	118	120	151	142	122	...
Raw materials	72	74	86	100	115	133	134	166	158	180	206	200	219	243	...
Import value															
Agricultural products	78	88	103	93	104	112	122	123	136	158	162	168	154	150	...
Food and feed	69	88	103	92	105	115	128	129	147	172	175	178	163	163	...
Beverages and tobacco	114	91	104	97	99	95	95	89	90	100	107	131	114	92	...
Raw materials	79	81	100	97	103	132	150	172	161	183	198	180	183	190	...

ANNEX TABLE 8G. – NEAR EAST: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods	Sugars and sweets [2]	Pulses, nuts and seeds [3]	Vegetables [4]	Fruit [5]	Meat [6]	Eggs [7]	Fish [8]	Milk [9]	Fats and oils [10]
		Grammes per day										
Afghanistan	1961–62	495	—	18	1	85	33	31	1	—	86	7
	1963–65	468	—	16	1	81	35	30	2	—	87	8
	1966	441	—	39	1	78	37	31	2	—	88	8
Iran	1960	394	10	52	11	22	101	44	5	2	176	18
	1963–65	312	9	61	13	96	167	40	3	—	131	17
	1966	323	9	71	12	95	169	41	3	—	142	16
Iraq	1960–62	317	13	72	14	139	173	49	3	2	180	9
Israel	1950/51	365	124	65	26	282	298	42	52	44	426	42
	1960/–62/	318	103	94	26	307	386	109	55	19	374	48
	1966/67	286	98	111	29	316	431	144	60	17	374	50
	1967/68	305	97	95	29	317	428	145	58	18	373	51
Jordan	1957–59	348	34	59	40	243	257	21	3	2	72	20
	1960–62	368	28	63	27	319	315	33	5	2	81	26
	1966	290	43	113	25	309	236	28	8	2	137	26
Lebanon	1960–62	300	46	63	26	249	413	65	7	6	176	26
	1963–65	334	50	66	30	264	463	79	9	6	250	29
	1966	357	59	97	18	290	354	79	21	5	327	24
Libya	1959	282	42	70	16	116	164	26	4	2	152	18
	1960–62	321	25	41	10	58	138	34	2	3	103	17
	1967	375	13	94	22	212	164	56	3	5	130	26
	1968	342	14	93	19	120	246	60	4	6	136	49
Saudi Arabia	1963–65	320	6	35	12	103	364	41	2	5	81	4
	1966	337	6	29	12	132	406	47	2	5	99	4
Sudan, The [11]	1961–63	342	54	36	25	95	112	56	2	6	365	21
	1964–65	350	62	34	24	95	79	73	3	4	290	22
	1966	310	69	33	15	95	99	76	3	4	352	24
Syria	1960–62	432	24	46	32	153	435	38	4	...	146	30
	1963–65	438	25	44	39	169	396	30	4	...	108	26
	1966	575	21	39	23	146	257	32	4	—	121	26
Turkey	1934–38	520	16	20	27	87	156	41	6	1	212	20
	1948/–50/	511	50	27	26	152	191	39	3	2	201	19
	1960/61	611	105	51	36	288	340	37	5	6	221	22
	1964–66	474	113	40	35	240	317	39	5	5	219	28
United Arab Republic [9,10]	1948/–50/	474	29	39	32	125	138	28	2	9	163	10
	1960/–62/	545	32	44	29	242	227	32	3	7	125	16
	1965/66	551	38	49	35	292	230	36	4	9	122	19
	1966/67	600	33	58	32	268	260	35	4	5	120	15

[1] In terms of flour and milled rice. – [2] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [3] Shelled equivalent for nuts, including cocoa beans. – [4] In terms of fresh equivalent; including processed vegetables. – [5] In terms of fresh equivalent; including processed fruit. – [6] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [7] In terms of fresh equivalent. – [8] Estimated edible weight. – [9] Milk and milk products excluding butter, expressed in terms of fresh milk. However, United Arab Republic includes milk for making butter. – [10] United Arab Republic excludes butter. – [11] Data relate to an area covering 87 percent of the population.

ANNEX TABLE 8H. – NEAR EAST: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968	Pre-war	1948-1950	1960-1962	1966	1968
	Number per day					*Grammes per day*									
Afghanistan	...	...	[2] 2 040	[8] 1 950	[7] 1 990	...	...	[3] 62.5	56.4	[7] 59.6	...	...	[3] 7.8	7.7	[7] 7.8
Iran	...	...	[4] 2 050	...	[7] 1 950	...	...	[4] 59.6	49.8	[7] 52.1	...	...	[4] 13.4	11.5	[7] 11.8
Iraq	...	...	1 920	...	...	...	...	54.9	...	...	...	...	15.5	...	...
Israel [1]	...	[2] 2 680	2 810	...	[9] 2 930	...	[2] 87.6	84.5	89.2	[9] 88.9	...	[2] 33.7	36.0	41.3	[9] 41.6
Jordan	...	...	2 220	...	[7] 2 620	...	...	61.5	54.9	[7] 65.4	...	...	9.9	13.6	[7] 8.2
Lebanon	...	...	2 160	2 540	...	...	...	61.2	73.0	...	...	...	18.0	26.0	...
Libya	...	...	1 770	[10] 2 580	2 560	...	...	48.3	[10] 62.1	59.6	...	...	9.4	[10] 14.7	15.2
Saudi Arabia	...	...	...	[8] 1 750	[7] 1 830	...	...	...	49.8	...	...	...	...	11.5	...
Sudan, The	...	...	...	...	[7] 2 080	...	...	...	63.9	[7] 58.1	...	...	...	25.9	[7] 18.0
Syria	...	...	2 350	[2] 2 330	[7] 2 480	...	...	68.7	[6] 69.3	[7] 74.5	...	...	12.2	[8] 9.3	[7] 10.0
Turkey [1]	2 490	2 510	[5] 3 110	[7] 2 860	...	81.0	80.9	[5] 97.5	[7] 78.2	...	15.9	15.3	[5] 15.9	[7] 14.8	...
United Arab Republic [1]	...	2 360	2 690	...	[11] 2 960	...	69.3	77.3	[6] 80.8	[11] 76.3	...	12.1	10.7	[6] 11.8	[11] 10.7

[1] Split years. – [2] 1950/51. – [3] 1961/62. – [4] 1960. – [5] 1960/61. – [6] 1965/66. – [7] 1964-66. – [8] 1963-65. – [9] 1967/68. – [10] 1966-68. – [11] 1966/67.

ANNEX TABLE 9A. – AFRICA: BASIC DATA ON NATIONAL AGRICULTURE

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Algeria	1950	[1]6 010	71	672	34	112	...	...	0.97	6
	1960	...	...	[2]678	21	...	...	...	...	8
	1965	7 150	60	[3]449	17	63	...	...	0.95	6
	1967	...	...	...	...	...	...	...	...	7
Cameroon	1960	...	...	[4]245	48	...	...	...	...	...
	1965	4 368	84	226	41	52	81	15	...	...
	1967	...	...	216	37	...	95	13	...	...
Congo, Dem. Rep. of the	1950	[5]9 084	84	...	37	...	[6]51	[6]9	5.39	—
	1960	...	...	...	33	...	...	...	...	—
	1965	10 945	70	[3]237	26	22	...	...	...	—
	1967	...	...	...	...	...	...	...	...	...
Ethiopia	1960	[8]18 900	90	[7]694	68	37	...	...	[6]0.61	—
	1965	20 120	89	812	66	40	98	8	0.62	—
	1966	...	...	895	64	...	99	12	...	...
Gabon	1960	[7]230	74	35	27	154	...	...	0.55	—
	1965	388	84	44	26	113	46	16	...	—
	1966	...	...	50	22	...	43	16	...	—
Ghana	1960	3 944	58	767	51	194	75	19	1.35	—
	1965	4 642	60	[3]891	51	192	85	13	0.55	2
	1967	...	...	...	...	...	89	20	...	3
Ivory Coast	1960	...	...	247	50	...	...	...	...	...
	1965	3 105	81	338	42	109	94	19	0.66	6
	1966	...	...	358	41	...	94	21	...	6
Kenya	1960	...	...	252	40	...	78	8	...	6
	1965	7 821	84	316	34	40	74	14	...	...
	1967	...	...	392	35	...	58	12	...	...
Liberia	1960	[8]810	81	...	40	...	51	17	...	—
	1965	856	80	75	27	88	25	17	4.77	—
	1966	...	...	74	25	...	23	20	...	—
Malawi	1950	[9]2 078	92	...	...	...	...	...	1.37	—
	1960	[7]2 765	79	74	58	27	...	...	1.06	1
	1965	3 158	80	99	56	31	92	17	0.40	4
	1967	...	...	102	47	...	80	17	...	...
Morocco	1950	[10]6 390	71	491	32	...	...	...	1.24	2
	1960	6 496	56	518	32	80	...	...	1.32	5
	1965	7 295	55	633	33	87	55	42	1.08	6
	1967	...	...	...	28	...	54	37	...	9
Nigeria	1950	...	...	961	67	...	[6]89	[6]11	...	—
	1960	...	...	1 979	63	...	89	14	...	—
	1965	46 196	79	2 372	55	51	66	10	...	...
	1966	...	...	2 517	56	...	58	11	...	...
Rhodesia	1960	...	...	142	18	...	...	...	...	30
	1965	3 195	75	188	19	59	44	14	...	...
	1967	...	...	205	20	...	...	...	...	...
Senegal	1960	...	...	[6, 12]231	34	...	...	...	...	1
	1965	2 605	75	235	33	90	88	41	...	...
	1966	...	...	241	33	...	87	41	...	...
South Africa	1950	2 687	22	642	18	239	...	...	2.57	18
	1960	6 995	44	835	12	119	42	10	1.72	18
	1965	5 200	29	1 052	10	202	40	9	...	...
	1967	...	...	1 517	12	...	38	9	...	...
Tanzania	1960	...	...	316	61	...	83	8	...	...
	1965	10 932	95	370	54	34	83	9	1.09	1
	1967	...	...	414	52	...	[11]74	[11]11	...	...

ANNEX TABLE 9A. – AFRICA: BASIC DATA OT NATIONAL AGRICULTURE (*concluded*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agri-culture	Fertilizer consumption per hectare of arable land
							Exports	Imports		
		Thousands	*Percent of total*	*Million dollars*	*Percent of total*	*Dollars per caput*	..... *Percent*		*Hectares per caput*	*Kilogrammes/ hectare*
Togo	1960	[12]1 308	91	...	...	...	...	...	1.65	...
	1965	1 295	79	81	50	62	62	18	1.67	...
	1966	...	...	94	47	...	53	23	...	...
Tunisia	1960	...	...	169	25	...	...	...	...	3
	1965	2 630	60	187	23	71	51	21	1.65	5
	1967	...	...	136	16	...	41	32	...	...
Uganda	1960	[5]5 829	87	260	61	45	88	6	[4]0.51	1
	1965	6 870	91	369	59	54	85	8	0.55	1
	1967	...	...	403	58	...	83	14	...	1
Zambia	1950	1 423	77	...	...	...	...	...	...	...
	1960	...	...	56	11	...	...	...	...	5
	1965	3 005	81	154	10	51	3	11	...	...
	1967	...	...	92	9	...	[13]2	[13]12	...	...

[1] 1948. – [2] 1958. – [3] 1964. – [4] 1959. – [5] 1947. – [6] 1951. – [7] 1961. – [8] 1962. – [9] 1949. – [10] Average 1952-1954. – [11] 1968. – [12] 1958/60. – [13] 1966.

ANNEX TABLE 9B. – AFRICA: VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat	4.27	4.71	4.14	4.32	4.13	4.82	3.34	4.94	5.44	5.04	5.13	3.57	5.06	6.89	5.41
Barley	3.31	4.04	2.75	3.82	3.25	3.90	2.29	3.84	4.32	3.44	3.64	2.47	3.43	5.65	4.54
Maize	9.84	10.38	11.10	10.69	11.70	12.40	12.97	14.75	14.87	13.09	13.61	15.94	20.05	15.65	16.13
Millet and sorghum	13.30	13.55	13.77	14.71	15.14	15.45	16.12	16.95	17.82	18.28	18.30	17.77	18.30	17.79	18.45
Rice (milled equivalent) [1]	1.91	1.83	2.11	2.06	2.12	2.27	2.13	2.30	2.33	2.51	2.39	2.57	3.00	3.04	3.22
Sugar (centrifugal)	1.93	1.98	2.15	2.23	2.34	2.03	2.53	2.67	3.02	3.00	2.98	3.76	3.99	3.74	3.82
Pulses [2]	1.51	1.46	1.38	1.44	1.52	1.50	1.39	1.49	1.61	1.58	1.80	1.76	1.73	1.96	1.88
Citrus fruit	1.19	1.29	1.40	1.39	1.55	1.71	1.69	1.78	1.86	2.15	2.00	2.12	2.24	2.38	2.26
Bananas	0.94	0.90	0.99	0.90	0.96	0.95	0.94	1.00	1.07	1.14	1.13	1.12	1.19	1.19	1.19
Olive oil	0.05	0.16	0.08	0.18	0.08	0.19	0.08	0.09	0.15	0.15	0.12	0.06	0.09	0.14	0.07
Groundnuts	3.19	3.27	3.96	3.40	3.29	3.83	4.07	4.45	4.53	4.28	4.92	4.80	4.74	4.39	4.53
Total vegetable oils and oilseeds (oil equivalent) [3]	2.66	2.87	2.95	2.92	2.79	3.06	2.99	3.11	3.21	3.16	3.25	3.15	2.97	3.01	3.11
Coffee	0.46	0.49	0.53	0.60	0.66	0.86	0.75	0.96	1.03	1.08	1.19	1.02	1.26	1.19	1.21
Cocoa	0.53	0.58	0.45	0.57	0.66	0.87	0.83	0.85	0.90	1.20	0.86	0.97	0.98	0.86	0.95
Wine	2.03	2.54	2.17	2.07	2.58	2.29	2.02	1.93	2.07	1.83	2.47	1.45	1.30	1.75	1.66
Tobacco	0.15	0.16	0.17	0.18	0.20	0.21	0.20	0.20	0.19	0.25	0.24	0.23	0.21	0.19	0.19
Cotton (lint)	0.28	0.27	0.30	0.32	0.30	0.32	0.25	0.30	0.33	0.36	0.37	0.43	0.42	0.46	0.56
Sisal	0.30	0.31	0.33	0.35	0.37	0.38	0.37	0.40	0.41	0.43	0.42	0.42	0.40	0.38	0.38
Rubber (natural)	1.01	1.15	1.18	1.25	1.44	1.50	1.44	1.52	1.55	1.62	1.57	1.75	1.72	1.80	1.86
Wool (greasy)	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.17	0.18	0.17	0.19	0.18	0.18	0.19	0.20
Milk (total)	6.67	6.81	6.94	7.01	7.30	7.58	7.53	7.33	7.43	7.62	7.86	8.14	8.33	8.51	8.68
Meat [4]	1.87	1.94	1.96	2.03	2.08	2.14	2.32	2.33	2.29	2.42	2.51	2.60	2.60	3.21	3.22
Eggs	0.29	0.30	0.30	0.32	0.34	0.36	0.37	0.37	0.38	0.40	0.43	0.44	0.47	0.50	0.51
FISHERY PRODUCTS [5]	1.75	1.85	1.98	2.03	2.16	2.20	2.40	2.52	2.67	2.95	3.04	3.09	3.62	4.10	...
FOREST PRODUCTS															
Fuelwood [6]	153.1	158.2	159.2	156.7	160.2	165.4	171.0	174.0	194.4	196.3	201.3	206.1	210.8	214.2	218.0
Industrial roundwood [6]	17.1	17.5	18.6	20.5	21.8	22.7	23.4	24.5	26.1	27.3	29.7	30.6	32.3	33.2	35.0
Sawn softwood [6]	0.5	0.6	0.5	0.5	0.6	0.7	0.9	0.8	0.9	1.0	1.2	1.1	1.2	1.1	1.2
Sawn hardwood [6]	1.3	1.4	1.5	1.6	1.7	1.7	1.9	1.8	1.8	1.9	2.0	2.1	2.1	2.1	2.1
Plywood [6]	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
All paper and paperboard	0.20	0.24	0.25	0.27	0.29	0.32	0.35	0.40	0.48	0.50	0.59	0.66	0.71	0.72	0.75

[1] Paddy converted at 65 percent. – [2] Dry beans, dry peas, broad beans, chick-peas, lentils. – [3] Olive oil, palm oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, copra, palm kernels, linseed, hempseed, castor beans. – [4] Beef and veal, mutton and lamb, pork, poultry meat. – [5] Nominal catch (liveweight). – [6] Million cubic metres.

ANNEX TABLE 9C. – AFRICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total agricultural production														
AFRICA	106	107	110	114	121	117	125	130	133	135	135	143	144	143
Developed country														
South Africa	109	114	110	117	123	133	136	143	138	138	146	182	159	159
Developing countries	106	106	110	114	121	115	124	129	132	134	133	138	142	142
Northwestern Africa	105	91	102	99	109	80	100	106	100	108	87	99	128	107
Algeria	108	97	90	96	101	73	92	92	78	90	68	82	97	86
Morocco	101	83	105	99	113	89	111	118	121	130	109	121	171	134
Tunisia	112	101	137	112	132	87	105	135	120	116	100	103	114	104
Western Africa	106	109	112	119	131	130	137	144	149	148	147	151	144	152
Dahomey	104	99	75	104	110	119	108	109	110	107	107	116	114	128
Gambia, The	113	134	109	98	134	138	141	137	143	164	173	153	149	170
Ghana	109	104	115	131	152	151	155	138	191	164	166	182	169	176
Guinea	107	119	118	119	130	131	129	129	128	126	127	135	134	134
Ivory Coast	106	119	124	132	162	126	175	193	193	212	185	240	216	233
Niger	112	125	123	123	127	137	156	164	164	157	165	184	167	178
Nigeria	106	107	112	116	125	127	128	131	136	135	137	127	122	128
Senegal	116	132	122	130	141	149	144	154	165	179	155	185	156	173
Upper Volta	105	110	111	122	163	143	168	195	215	212	203	202	235	237
Central Africa	106	109	111	112	117	109	114	113	116	118	124	127	131	134
Cameroon	106	110	113	114	121	125	141	150	164	164	167	170	174	180
Chad	107	113	105	102	119	115	123	124	120	117	123	116	133	129
Congo, Dem. Rep. of the	105	106	107	106	102	85	85	84	83	85	91	94	99	100
Eastern Africa	107	109	111	118	120	123	129	131	139	142	150	152	153	154
Ethiopia	103	107	107	114	122	123	125	131	137	137	142	145	148	149
Kenya	109	113	117	127	140	134	144	147	150	151	156	160	169	177
Madagascar	99	110	108	106	116	115	124	123	130	130	134	155	158	161
Malawi	110	117	124	129	128	132	145	142	143	168	194	201	167	166
Mauritius	110	108	101	112	51	107	101	128	99	126	109	124	117	128
Mozambique	102	119	120	122	126	131	140	140	151	141	152	166	164	173
Rhodesia	124	117	116	130	132	162	167	151	189	188	190	176	153	169
Somalia	105	122	112	116	118	105	118	120	111	124	131	137	140	146
Uganda	105	106	109	115	116	120	127	130	142	151	155	152	161	162
Southern Africa	100	94	99	101	103	116	112	108	103	105	111	108	112	114
Botswana	104	81	85	90	97	141	109	105	101	98	115	89	93	105
Lesotho	98	99	103	105	105	108	113	109	104	107	109	114	118	117

ANNEX TABLE 9C. – AFRICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*continued*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Per caput agricultural production														
AFRICA	102	100	100	101	105	99	104	105	104	104	101	105	102	100
Developed country														
South Africa	103	106	100	103	106	112	112	115	109	106	110	133	114	111
Developing countries	101	99	100	101	105	98	103	104	104	103	100	101	101	98
Northwestern Africa	100	85	93	88	95	68	84	87	80	84	66	73	91	74
Algeria	104	91	82	86	88	63	79	78	63	72	53	62	71	61
Morocco	96	77	94	86	96	73	88	92	92	96	78	85	115	88
Tunisia	108	96	130	105	123	79	95	120	105	99	83	84	90	80
Western Africa	101	101	101	104	112	108	110	113	114	110	106	106	98	101
Dahomey	99	91	68	91	93	98	86	85	83	78	77	80	77	84
Gambia, The	110	128	103	92	123	124	125	119	121	137	142	123	117	131
Ghana	104	96	103	115	130	125	125	124	147	123	121	129	116	118
Guinea	101	109	104	102	108	105	100	97	94	90	89	91	88	87
Ivory Coast	100	109	110	113	134	101	135	144	139	148	125	157	137	143
Niger	107	116	112	108	110	115	128	130	127	118	122	132	116	121
Nigeria	100	98	100	100	104	103	101	100	100	97	95	86	80	82
Senegal	111	124	111	116	123	127	120	125	132	139	118	139	115	125
Upper Volta	101	105	104	112	149	128	148	169	183	177	167	162	184	181
Central Africa	103	103	103	101	104	95	98	96	96	96	99	99	100	100
Cameroon	103	104	105	105	108	110	121	126	135	132	131	131	132	134
Chad	104	108	99	95	109	104	110	108	103	99	103	95	108	103
Congo, Dem. Rep. of the	101	99	98	94	89	72	71	69	67	67	70	71	73	72
Eastern Africa	102	102	101	105	105	105	108	107	111	111	114	133	111	109
Ethiopia	100	102	100	105	110	109	109	112	115	113	115	115	115	113
Kenya	102	103	104	109	117	109	114	112	112	110	110	109	112	116
Madagascar	94	102	98	94	100	97	102	99	102	100	100	113	113	112
Malawi	106	109	113	115	112	112	120	115	113	130	146	147	119	114
Mauritius	103	98	89	96	42	87	80	98	74	92	78	87	80	86
Mozambique	100	114	114	114	117	119	126	125	133	122	130	141	136	141
Rhodesia	117	107	102	111	108	129	129	113	137	132	130	116	98	105
Somalia	100	114	101	102	101	88	95	94	83	89	91	93	92	93
Uganda	100	98	99	101	100	100	104	104	111	115	115	110	114	112
Southern Africa	95	88	89	89	88	96	90	84	78	77	79	75	76	75
Botswana	98	75	76	79	82	116	87	81	76	72	82	61	63	68
Lesotho	95	93	94	93	90	89	91	86	79	79	79	80	80	78

ANNEX TABLE 9C. – AFRICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*continued*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Total food production														
AFRICA	106	106	108	112	119	115	123	127	128	130	131	139	140	138
Developed country														
South Africa	109	117	111	119	127	139	143	152	146	143	156	200	169	168
Developing countries	106	104	108	111	118	113	121	124	127	128	128	132	136	135
Northwestern Africa	107	91	104	99	111	81	102	108	102	110	87	100	130	107
Algeria	111	97	92	97	102	75	94	94	79	93	68	83	98	87
Morocco	102	83	106	99	115	89	112	119	123	132	109	122	174	135
Tunisia	113	100	138	112	134	87	106	137	121	116	98	102	113	103
Western Africa	106	109	110	118	130	129	135	140	147	144	146	146	140	147
Dahomey	104	98	74	104	109	118	107	111	111	106	106	113	108	123
Gambia, The	113	134	109	98	135	138	142	138	143	165	174	154	150	171
Ghana	109	105	114	131	153	151	155	157	191	165	165	182	168	176
Guinea	107	120	117	117	128	127	127	128	130	127	131	137	135	136
Ivory Coast	101	112	99	118	136	126	148	149	170	166	182	191	191	199
Niger	112	125	123	122	129	137	155	163	164	156	165	184	166	177
Nigeria	105	107	111	115	125	125	128	130	134	134	136	127	122	127
Senegal	116	133	122	130	142	150	144	154	166	179	156	186	154	173
Upper Volta	104	109	112	124	167	142	168	196	215	212	201	199	229	231
Central Africa	104	106	106	106	108	100	102	102	104	105	110	112	115	118
Cameroon	104	106	107	108	113	110	124	134	150	139	144	147	149	154
Chad	108	110	104	107	115	120	119	117	114	114	113	108	117	117
Congo, Dem. Rep. of the	102	104	103	97	97	81	80	79	80	85	91	94	97	98
Eastern Africa	105	108	109	114	115	120	123	125	128	132	142	145	145	146
Ethiopia	103	107	106	113	115	117	118	124	127	130	133	136	138	139
Kenya	106	113	115	123	138	132	140	138	138	141	146	149	155	165
Madagascar	98	110	109	105	116	116	121	122	130	128	135	153	157	161
Malawi	108	121	119	126	126	134	143	137	151	166	206	218	175	175
Mauritius	110	108	101	111	149	106	101	129	100	126	108	122	114	126
Mozambique	109	119	121	119	117	133	140	151	156	150	152	170	163	171
Rhodesia	118	121	114	121	113	153	163	153	157	164	179	172	167	173
Somalia	107	122	111	115	119	105	115	120	110	124	131	137	140	146
Uganda	103	102	105	109	110	122	122	121	129	135	147	147	150	153
Southern Africa	102	96	101	104	106	121	112	108	103	104	111	104	109	111
Botswana	104	81	85	90	97	141	109	105	101	98	116	89	94	105
Lesotho	101	102	107	109	110	113	113	109	104	107	109	110	115	114

ANNEX TABLE 9C. – AFRICA: INDICES OF FOOD AND TOTAL AGRICULTURAL PRODUCTION (*concluded*)

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1952-56 average = 100													
Per caput food production														
AFRICA	101	99	98	99	103	98	101	102	101	100	98	101	99	96
Developed country														
South Africa	104	109	100	105	110	117	118	122	115	110	117	147	121	117
Developing countries	101	97	98	99	103	96	100	100	100	99	96	97	97	94
Northwestern Africa	102	85	94	88	96	69	85	89	81	86	66	74	93	75
Algeria	106	91	84	87	89	65	82	80	64	74	53	62	72	62
Morocco	96	77	95	86	97	73	89	93	94	98	78	85	118	88
Tunisia	108	96	131	106	124	79	95	122	106	99	82	83	89	79
Western Africa	101	101	99	103	110	107	108	110	112	107	105	103	96	98
Dahomey	99	91	67	91	92	98	86	86	84	78	76	79	73	81
Gambia, The	110	129	103	92	124	125	126	120	122	137	142	123	118	132
Ghana	104	97	103	115	130	125	125	124	146	123	120	130	116	118
Guinea	101	109	104	100	106	102	99	97	95	91	91	93	89	88
Ivory Coast	95	102	88	101	112	101	115	111	122	116	123	125	121	122
Niger	107	116	111	108	111	115	127	130	127	118	121	132	116	120
Nigeria	99	98	99	99	104	101	100	99	99	96	95	86	80	81
Senegal	111	124	112	116	124	127	120	125	132	139	119	139	114	125
Upper Volta	101	105	105	115	152	127	148	170	183	177	165	160	179	177
Central Africa	100	101	98	96	96	87	87	86	87	85	87	88	89	89
Cameroon	100	101	100	99	101	96	107	113	123	112	113	113	113	115
Chad	105	105	98	99	105	109	106	103	98	97	95	89	95	94
Congo, Dem. Rep. of the	98	97	94	87	85	69	67	65	65	67	70	71	71	70
Eastern Africa	101	101	99	102	100	102	103	103	102	103	108	108	105	103
Ethiopia	99	101	99	104	104	104	103	106	107	108	108	108	107	105
Kenya	100	103	102	106	116	107	110	106	103	102	103	102	103	107
Madagascar	93	102	98	93	100	98	99	98	102	98	101	112	112	112
Malawi	104	113	109	113	110	114	119	111	119	129	156	160	124	120
Mauritius	103	98	89	95	41	86	80	99	74	91	77	85	78	84
Mozambique	106	114	115	111	108	121	126	134	137	130	130	144	135	139
Rhodesia	111	110	100	103	93	122	126	115	114	115	122	114	107	107
Somalia	102	114	101	102	102	87	93	94	83	89	91	93	92	93
Uganda	98	94	95	97	94	103	100	97	101	103	109	107	106	105
Southern Africa	98	90	91	91	91	100	90	84	78	77	80	72	74	73
Botswana	98	75	76	79	82	116	87	81	76	72	82	61	63	68
Lesotho	98	96	98	96	94	94	92	86	79	79	79	77	78	75

ANNEX TABLE 9D. – AFRICA: VOLUME OF IMPORTS OF MAJOR AGRICULTURAL AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent)	0.80	0.99	0.94	0.79	1.66	1.75	2.02	1.95	1.77	1.25	1.71	2.71	3.28	2.26	...
Barley	0.04	0.07	0.02	0.01	0.01	0.01	0.38	0.24	0.06	0.07	0.08	0.09	0.12	0.05	...
Rice (milled equivalent) [1]	0.36	0.35	0.46	0.38	0.53	0.50	0.52	0.61	0.55	0.66	0.71	0.77	0.65	0.64	...
Sugar (raw equivalent) [2]	0.94	0.95	1.00	1.01	1.08	1.12	1.11	1.22	0.98	1.07	1.25	1.21	1.07	1.13	...
Potatoes	0.23	0.26	0.27	0.29	0.26	0.32	0.35	0.25	0.21	0.20	0.17	0.17	0.13	0.17	...
Cattle [3]	0.22	0.21	0.21	0.22	0.23	0.27	0.29	0.27	0.30	0.25	0.21	0.26	0.25	0.21	...
Sheep, lambs and goats [3]	0.27	0.32	0.28	0.25	0.33	0.38	0.25	0.40	0.60	0.40	0.19	0.24	0.21	0.23	...
Wine	0.28	0.33	0.25	0.20	0.22	0.26	0.30	0.22	0.22	0.22	0.26	0.27	0.25	0.25	...
FOREST PRODUCTS															
Sawn softwood [4]	1.38	1.13	1.23	1.27	1.13	1.28	1.12	1.01	1.09	1.29	1.26	1.30	1.26	1.04	1.00
Sawn hardwood [4]	0.61	0.50	0.53	0.55	0.45	0.55	0.40	0.30	0.37	0.41	0.38	0.33	0.36	0.40	0.45
Newsprint	0.11	0.13	0.13	0.14	0.14	0.16	0.16	0.13	0.14	0.14	0.14	0.13	0.09	0.07	0.07
Other paper and paperboard	0.31	0.25	0.30	0.31	0.28	0.35	0.36	0.35	0.36	0.38	0.45	0.46	0.50	0.48	0.50

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Million head. – [4] Million cubic metres.

ANNEX TABLE 9E. – AFRICA: VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	Million metric tons														
AGRICULTURAL PRODUCTS															
Wheat and wheat flour (wheat equivalent) [1]	0.63	0.36	0.30	0.38	0.28	0.36	0.13	0.15	0.20	0.19	0.15	0.20	0.09	0.11	...
Barley	0.46	0.48	0.10	0.25	0.25	0.16	0.04	0.01	0.28	0.35	0.02	0.07	0.01	0.01	0.14
Maize	1.02	1.31	1.39	1.56	0.83	0.87	1.54	2.69	2.93	1.64	0.62	0.30	2.57	3.69	1.20
Sugar (raw equivalent) [2]	1.04	1.08	1.15	1.18	1.12	0.99	1.20	1.45	1.66	1.67	1.57	1.87	1.97	2.10	...
Bananas	0.37	0.35	0.40	0.39	0.37	0.38	0.43	0.43	0.45	0.44	0.43	0.38	0.38	0.38	0.38
Citrus fruit [3]	0.68	0.58	0.79	0.71	0.75	0.88	0.83	0.91	0.91	1.04	0.95	0.98	0.96	1.02	0.99
Pulses (dry)	0.25	0.24	0.15	0.17	0.21	0.29	0.23	0.27	0.31	0.36	0.30	0.28	0.25	0.38	0.36
Groundnuts and oil (oil equivalent)	0.37	0.46	0.43	0.52	0.50	0.44	0.54	0.55	0.57	0.59	0.57	0.64	0.63	0.74	0.55
Palm kernels and oil (oil equivalent)	0.36	0.38	0.35	0.39	0.38	0.36	0.35	0.32	0.32	0.33	0.31	0.33	0.25	0.25	0.26
Palm oil	0.37	0.38	0.36	0.37	0.40	0.39	0.36	0.31	0.32	0.31	0.28	0.27	0.18	0.20	0.19
Oilseed cake and meal	0.36	0.41	0.42	0.50	0.55	0.56	0.62	0.59	0.54	0.86	0.70	0.73	0.85	0.91	0.91
Cattle [4]	0.29	0.22	0.19	0.21	0.18	0.25	0.25	0.37	0.39	0.42	0.37	0.37	0.34	0.32	0.34
Sheep, lambs and goats [4]	0.66	0.67	0.73	0.79	1.02	0.86	1.11	1.42	1.30	1.69	1.37	1.64	1.51	1.79	1.75
Coffee (green)	0.44	0.52	0.53	0.54	0.59	0.66	0.67	0.76	0.77	0.85	0.85	0.92	0.90	1.00	0.97
Cocoa beans	0.48	0.52	0.57	0.44	0.56	0.65	0.80	0.85	0.82	0.84	1.08	0.88	0.84	0.82	0.69
Wine	1.90	1.53	1.90	1.52	1.63	1.76	1.62	1.79	1.06	1.31	1.10	1.18	0.76	0.73	0.73
Tobacco (unmanufactured)	0.08	0.09	0.08	0.08	0.09	0.11	0.11	0.12	0.12	0.15	0.17	0.11	0.10	0.11	0.10
Cotton (lint)	0.24	0.26	0.24	0.27	0.29	0.27	0.27	0.20	0.28	0.28	0.28	0.31	0.33	0.31	0.31
Sisal	0.29	0.30	0.32	0.34	0.36	0.37	0.36	0.40	0.40	0.39	0.36	0.34	0.31	0.32	0.31
Rubber (natural)	0.10	0.12	0.12	0.13	0.14	0.15	0.14	0.15	0.15	0.14	0.15	0.16	0.15	0.15	0.17
	Thousand metric tons														
FISHERY PRODUCTS															
Fresh, chilled or frozen fish	19.5	17.5	21.7	21.6	25.6	30.5	33.6	50.7	47.3	30.4	35.4	39.4	33.6	34.0	...
Dried, salted or smoked fish	44.0	49.0	53.8	54.0	52.8	51.1	55.9	44.0	41.2	37.9	44.9	39.8	48.4	56.7	...
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	4.9	4.8	5.8	4.8	6.8	6.7	7.6	7.6	8.5	9.5	10.1	9.3	10.3	12.6	...
Fish products and preparations, whether or not in airtight containers	73.3	75.5	80.2	86.0	93.2	117.5	131.6	118.7	99.8	134.0	83.9	113.0	108.0	122.0	...
Crustacean and mollusc products and preparations, whether or not in airtight containers	2.5	1.5	1.1	0.7	0.5	0.9	0.2	1.0	1.0	1.0	1.0	1.0	0.9	1.0	...
Oils and fats, crude or refined, of aquatic animal origin	23.0	12.0	38.0	31.0	54.4	59.3	64.8	64.0	49.8	65.1	58.5	53.0	46.0	97.0	...
Meals, solubles and similar animal feedstuffs of aquatic animal origin	117.0	115.0	164.0	188.0	167.0	187.0	240.0	257.0	263.0	322.0	310.0	287.0	387.0	398.0	...
	Million cubic metres														
FOREST PRODUCTS															
Broadleaved logs	2.54	2.64	3.00	3.38	3.92	4.60	4.44	4.13	4.79	5.64	5.23	5.12	5.18	6.02	7.15
Sawn hardwood	0.38	0.42	0.47	0.57	0.58	0.61	0.58	0.60	0.57	0.71	0.73	0.76	0.70	0.75	0.77

[1] Including coarse ground flour. – [2] Including refined sugar converted at 108.7 percent. – [3] Oranges, mandarines and lemons. – [4] Million head.

ANNEX TABLE 9F. – AFRICA: INDICES OF VOLUME AND VALUE OF EXPORTS AND IMPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS, BY COMMODITY GROUPS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969 (Preliminary)
	1957-59 average = 100														
Export volume															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	91	95	98	98	105	109	117	124	124	128	130	130	127	138	...
Agricultural products	93	96	98	98	104	108	116	123	122	128	129	128	124	133	122
Food and feed	93	96	94	105	101	97	106	114	121	121	107	114	118	135	113
Beverages and tobacco	92	97	103	92	105	119	127	139	129	142	155	145	134	139	135
Raw materials	93	98	94	97	109	103	107	99	107	106	108	113	108	109	108
Fishery products	83	81	95	97	108	124	142	144	134	148	130	139	148	171	160
Forest products	66	76	88	101	111	124	124	125	146	174	173	182	179	205	226
Export value															
AGRICULTURAL, FISHERY AND FOREST PRODUCTS	93	95	98	102	100	101	104	106	115	127	118	119	117	127	125
Agricultural products	95	96	98	103	99	99	102	103	112	122	113	114	112	120	118
Food and feed	92	101	99	103	97	94	104	111	124	123	116	118	118	130	120
Beverages and tobacco	94	89	95	106	99	100	98	99	99	122	114	113	114	124	126
Raw materials	102	107	105	92	102	107	106	97	118	118	105	105	93	90	89
Fishery products	82	85	99	97	105	114	128	125	120	139	126	131	134	149	142
Forest products	65	78	88	101	111	131	134	136	170	202	198	202	200	227	265
Import volume															
Agricultural products	87	97	99	94	107	119	129	127	116	119	133	147	146	143	...
Food and feed	82	91	97	92	111	122	132	132	118	118	136	152	151	145	...
Beverages and tobacco	100	116	104	99	97	107	117	102	105	114	116	123	118	128	...
Raw materials	97	93	104	101	95	116	129	150	137	159	161	167	178	190	...
Import value															
Agricultural products	90	98	102	96	101	112	118	114	108	121	132	138	137	130	...
Food and feed	85	96	101	94	105	116	123	118	112	124	139	146	144	135	...
Beverages and tobacco	99	105	102	107	91	96	97	89	90	102	106	109	107	105	...
Raw materials	119	105	115	93	92	129	135	148	134	152	148	151	164	150	...

ANNEX TABLE 9G. – AFRICA: PER CAPUT FOOD SUPPLIES AVAILABLE FOR HUMAN CONSUMPTION IN SELECTED COUNTRIES

	Period	Cereals [1]	Potatoes and other starchy foods [2]	Sugars and sweets [3]	Pulses, nuts and seeds [4]	Vegetables [5]	Fruit [6]	Meat [7]	Eggs [8]	Fish [9]	Milk [10]	Fats and oils
		Grammes per day										
Algeria	1961–62	427	72	46	14	95	120	31	3	3	123	17
	1963–65	453	51	48	12	92	131	24	2	2	78	13
	1966	365	39	47	11	66	127	23	3	2	58	18
Cameroon [2]	1961–63	243	775	5	48	49	54	38	1	17	17	14
Ethiopia	1961	407	51	5	57	34	4	48	8	1	225	15
	1961–63	394	47	6	58	33	5	57	5	—	241	14
	1964–66	441	81	8	61	35	11	53	6	4	65	11
Gabon [2]	1960–62	44	1 139	8	14	108	14	82	2	12	16	10
	1963–65	56	1 101	11	13	105	13	73	2	12	27	10
	1964–66	80	1 134	12	11	180	36	98	1	27	16	11
Gambia, The	1961–63	482	48	32	26	45	21	18	1	40	35	21
	1964–66	492	43	30	17	42	20	36	2	33	34	25
Ghana [2]	1961–63	158	1 147	23	38	84	26	26	1	26	8	11
	1964–66	161	1 077	24	51	...	30	26	1	21	18	12
Ivory Coast [2]	1961–63	276	799	21	23	44	45	31	1	23	14	11
	1964–66	299	1 010	20	23	35	74	44	2	21	27	13
Kenya [2]	1961–63	350	334	29	68	64	13	49	2	3	98	4
	1964–66	378	307	33	70	66	13	55	2	4	102	5
Madagascar [2]	1961–63	449	378	20	20	...	42	44	1	10	24	4
	1964–66	437	344	19	26	72	66	47	1	10	26	4
Mali	1961–63	468	71	15	32	51	19	32	1	7	88	8
	1964–66	461	68	13	35	56	17	48	2	11	91	7
Mauritius	1955–56	359	46	108	32	78	30	15	—	17	124	26
	1960–62	357	36	106	31	87	14	16	4	15	165	34
	1967	357	42	108	25	111	46	20	6	16	175	43
	1968	338	38	103	25	102	48	17	6	13	185	40
Morocco	1961–62	355	26	82	17	110	101	36	5	3	104	21
	1963–65	417	26	75	17	111	120	36	5	3	107	23
	1966	353	37	69	16	110	156	34	4	4	88	25
Mozambique	1961–63	258	976	20	56	53	56	15	1	5	5	4
	1964–66	231	762	31	49	1	51	13	1	5	28	2
Nigeria	1961–63	317	655	4	44	37	28	20	2	9	18	19
	1964–66	321	669	4	41	38	28	19	2	5	24	17
Rwanda	1961–63	146	608	—	136	9	230	20	—	—	13	6
	1964–66	118	1 067	1	140	85	...	15	—	—	35	1
Somalia	1961–63	320	128	33	13	36	41	55	2	—	210	6
	1964–66	310	22	28	18	42	81	71	1	1	313	5
South Africa	1935–39	426	43	63	6	70	48	104	5	9	491	9
	1948–50	427	44	115	9	94	74	115	7	15	217	13
	1959/–60/	456	39	112	11	99	108	122	9	24	226	15
	1964–66	467	44	114	7	43	100	114	8	...	215	21
Tanzania: Tanganyika [2]	1961–63	345	478	18	47	70	69	35	2	7	39	5
	1964–66	362	436	18	46	67	61	44	2	8	75	4
Tunisia	1961–62	274	32	53	13	145	138	30	6	6	103	28
	1963–65	332	28	48	14	130	135	32	6	6	105	39
	1966	262	38	42	16	187	105	32	7	7	104	41
	1964–66	392	30	43	16	202	139	33	6	7	106	37
Uganda [2]	1961	159	1 152	27	90	60	20	44	2	11	56	6
	1961–63	155	1 114	30	63	59	20	32	1	14	63	6
	1964–66	149	1 060	49	68	63	20	59	1	11	69	6

[1] In terms of flour and milled rice. – [2] Cameroon, Gabon, Ghana, Ivory Coast, Kenya, Madagascar, Tanzania: Tanganyika, Uganda include plantains under starchy foods. – [3] In terms of refined sugar including crude sugar, syrups, honey and other sugar products. – [4] Shelled equivalent for nuts, including cocoa beans. – [5] In terms of fresh equivalent; including processed vegetables. – [6] In terms of fresh equivalent; including processed fruit. – [7] Including poultry and game; expressed in terms of dressed carcass weight; including edible offals. – [8] In terms of fresh equivalent. – [9] Estimated edible weight. – [10] Milk and milk products excluding butter, expressed in terms of fresh milk.

ANNEX TABLE 9H. – AFRICA: ESTIMATED CALORIE AND PROTEIN CONTENT OF NATIONAL AVERAGE FOOD SUPPLY PER CAPUT

	Calories					Total protein					Animal protein				
	Pre-war	1948-1950	1961-1963	1966	1968	Pre-war	1948-1950	1961-1963	1966	1968	Pre-war	1948-1950	1961-1963	1966	1968
	Number per day					*Grammes per day*									
Algeria	...	...	[2] 2 180	[4] 1 950	...	...	...	[1] 64.6	[4] 55.4	...	...	...	[1] 10.5	[4] 6.6	...
Cameroon	...	...	2 130	...	...	...	...	54.4	...	...	...	...	10.0	...	...
Ethiopia	...	...	...	[4] 2 050	...	...	...	...	[4] 72.3	...	...	...	...	[4] 10.8	...
Gabon	...	...	[2] 1 910	[4] 2 200	...	...	...	[3] 35.9	[4] 60.4	...	...	...	[2] 15.7	[4] 26.1	...
Gambia, The	...	...	2 300	[4] 2 320	...	...	...	60.4	[4] 62.2	...	...	...	12.2	[4] 14.7	...
Ghana	...	...	2 160	[4] 2 130	...	...	...	48.6	[4] 46.9	...	...	...	10.5	[4] 9.6	...
Ivory Coast	...	...	2 290	[4] 2 440	...	...	...	52.3	[4] 59.6	...	...	...	10.3	[4] 13.4	...
Kenya	...	...	2 120	[4] 2 240	...	...	...	64.4	[4] 67.9	...	...	...	12.1	[4] 13.3	...
Madagascar	...	...	2 330	[4] 2 360	...	...	...	52.3	[4] 54.0	...	...	...	9.4	[4] 9.9	...
Mali	...	...	2 120	[4] 2 130	...	...	...	64.2	[4] 68.5	...	...	...	10.9	[4] 15.0	...
Mauritius	...	...	[2] 2 330	2 360	2 300	...	...	[2] 47.2	48.2	46.2	...	...	[2] 12.3	13.5	12.5
Morocco	...	...	[1] 2 080	[4] 2 180	...	...	...	[1] 54.6	[4] 59.7	...	...	...	[1] 8.6	[4] 10.0	...
Mozambique	...	...	...	[4] 2 050	...	...	...	...	[4] 44.8	...	...	...	...	[4] 4.2	...
Nigeria	...	...	...	[4] 2 170	...	...	...	59.3	[4] 59.5	...	...	...	5.3	[4] 5.1	...
Rwanda	...	...	...	[4] 1 900	...	...	...	...	[4] 57.0	...	...	...	...	[4] 3.6	...
Somalia	...	...	...	[4] 1 770	...	...	...	...	[4] 56.9	...	...	...	...	[4] 22.2	...
South Africa	2 340	2 640	[2] 2 820	[4] 2 870	...	67.8	72.9	[2] 80.2	[4] 78.2	...	23.4	27.2	[2] 31.5	[4] 29.5	...
Tanzania: Tanganyika	...	...	2 080	[4] 2 140	...	...	...	58.1	[4] 60.1	...	...	...	9.1	[4] 12.4	...
Tunisia	...	...	[1] 1 730	[4] 2 190	...	...	...	[1] 52.3	[4] 66.2	...	...	...	[1] 10.1	[4] 10.7	...
Uganda	...	...	2 090	[4] 2 160	...	...	...	50.1	[4] 55.9	...	...	...	10.2	[4] 15.1	...

[1] 1961/62. – [2] 1960-62. – [3] 1960/61. – [4] 1964-66.

ANNEX TABLE 10A. – AVERAGE ANNUAL GROWTH OF AGRICULTURAL PRODUCTION AND POPULATION IN DEVELOPING COUNTRIES

	Agricultural production			Food production			Population			Per caput agricultural production			Per caput food production		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
	Percent per year														
LATIN AMERICA	3.4	2.4	2.9	3.1	3.0	3.1	2.8	2.9	2.9	0.6	—0.5	—	0.3	0.1	0.2
Central America															
Costa Rica	4.0	4.7	4.3	2.6	3.7	3.6	3.8	3.4	3.6	0.2	1.2	0.7	—1.1	0.9	—
El Salvador	5.6	2.7	4.0	1.6	4.3	3.1	2.8	3.6	3.3	2.7	—0.9	0.7	—1.2	0.7	— 0.2
Guatemala	4.9	4.8	4.8	2.8	4.3	3.6	3.1	3.1	3.1	1.7	1.6	1.7	—0.3	1.1	0.5
Honduras	3.3	4.8	4.1	3.1	4.9	4.0	3.1	3.4	3.2	0.3	1.4	0.9	—	1.4	0.8
Nicaragua	3.8	6.7	5.4	3.6	5.3	4.5	3.0	3.4	3.2	0.8	3.3	2.1	0.6	1.9	1.3
Mexico	6.5	3.8	5.0	6.9	4.2	5.4	3.3	3.4	3.4	3.1	0.4	1.6	3.5	0.8	2.0
Panama	3.9	4.0	4.0	4.0	4.1	4.1	2.9	3.3	3.1	1.0	0.7	0.8	1.0	0.8	0.9
Caribbean															
Barbados	—0.2	0.3	0.1	—0.2	0.3	0.1	0.7	1.1	0.9	—0.9	—0.8	—0.8	—0.9	—0.8	— 0.8
Cuba	1.6	—1.0	0.2	1.5	—1.0	0.2	2.1	2.1	2.1	—0.6	—3.1	—2.0	—0.7	—3.0	— 2.0
Dominican Republic	4.7	—0.2	2.0	5.0	—0.2	2.2	3.6	3.6	3.6	1.0	—3.7	—1.5	1.3	—3.7	— 1.4
Haiti	0.5	—0.4	—	0.5	0.4	0.5	1.8	2.0	1.9	—1.2	—2.3	—1.9	—1.3	—1.5	— 1.4
Jamaica	3.3	1.8	2.5	0.4	1.8	2.6	1.6	2.1	1.9	1.7	—0.3	0.6	1.9	—0.2	0.8
South America															
Argentina	0.6	2.2	1.5	0.6	2.7	1.7	2.0	1.6	1.8	—1.3	0.7	—0.3	—1.3	1.1	—
Bolivia	6.7	2.7	4.5	7.3	2.6	4.7	2.5	2.6	2.5	4.1	0.1	2.0	4.7	—	2.1
Brazil	5.3	2.3	3.7	4.6	3.9	4.2	3.0	3.0	3.0	2.3	—0.6	0.7	1.6	0.9	1.2
Chile	2.4	2.0	2.1	2.4	2.0	2.2	2.5	2.5	2.5	—0.1	—0.5	—0.3	—0.1	—0.5	— 0.3
Colombia	2.8	2.9	2.8	2.3	3.3	2.8	3.2	3.2	3.2	—0.4	—0.3	—0.3	—0.9	0.1	— 0.4
Ecuador	8.8	4.2	6.3	9.1	4.0	6.4	3.1	3.4	3.2	5.6	0.8	3.0	5.9	0.6	3.0
Guyana	5.0	1.4	3.0	4.9	1.2	2.9	3.0	2.9	3.0	1.9	—1.5	0.1	1.8	—1.7	—
Paraguay	1.3	3.5	2.5	1.8	3.2	2.5	2.3	3.0	2.7	—1.1	0.5	—0.2	—0.6	0.2	— 0.2
Peru	3.0	2.0	2.5	2.6	2.7	2.7	2.5	3.1	2.8	0.5	—1.0	—0.3	0.1	—0.4	— 0.1
Uruguay	—2.1	1.3	—0.3	—2.3	2.0	—	1.5	1.3	1.4	—3.5	—	—1.7	—3.7	0.7	— 1.4
Venezuela	5.2	5.9	5.5	5.5	6.3	5.9	4.0	3.6	3.8	1.1	2.2	1.7	1.5	2.7	2.1
FAR EAST [1]	3.3	2.5	2.9	3.4	2.4	2.9	2.3	2.6	2.4	1.0	—0.1	0.4	1.1	—0.1	0.5
Burma	2.5	1.9	2.2	2.8	1.9	2.3	1.8	2.1	2.0	0.6	—0.2	0.2	1.0	—0.2	0.3
Cambodia	4.2	2.6	3.3	3.8	2.4	3.1	2.6	2.8	2.7	1.5	—0.2	0.6	1.2	—0.4	0.4
Ceylon	2.7	3.3	3.0	3.0	4.0	3.6	2.6	2.4	2.5	0.2	0.8	0.5	0.3	1.7	1.1
China (Taiwan)	3.7	4.2	3.9	3.5	4.2	3.9	3.6	3.0	3.3	0.1	1.1	0.6	—	1.1	0.6
India	3.1	1.8	2.4	3.1	1.7	2.4	2.0	2.4	2.2	1.0	—0.7	0.1	1.1	—0.7	0.1
Indonesia	1.7	1.8	1.8	2.1	1.8	1.9	2.2	2.4	2.3	—0.5	—0.6	—0.5	—0.1	—0.6	— 0.4
Korea, Rep. of	4.5	4.1	4.3	4.8	3.8	4.3	2.4	2.8	2.6	2.1	—1.3	1.7	2.4	1.0	1.6
Malaysia															
Sabah	4.1	2.8	3.4	3.8	4.0	3.9	2.8	3.8	3.3	1.3	—1.0	0.1	1.0	0.2	0.6
Sarawak	6.5	—0.6	2.7	4.4	3.8	4.1	2.5	2.8	2.6	3.9	—3.4	—	1.9	1.0	1.4
West Malaysia	3.3	5.0	4.2	4.8	4.2	4.5	3.0	3.0	3.0	0.2	1.9	1.1	1.7	1.2	1.4
Nepal	—	0.4	0.2	—0.1	0.3	0.1	1.8	1.8	1.8	—1.9	—1.4	—1.6	—1.9	—1.5	— 1.7
Pakistan	2.4	3.2	2.8	2.6	2.9	2.8	2.8	3.0	2.9	—0.4	0.2	—0.1	—0.1	—0.1	— 0.1
Philippines	3.4	3.5	3.5	3.2	3.6	3.4	3.1	3.4	3.3	0.4	0.1	0.2	0.1	0.2	0.1
Thailand	4.6	4.6	4.6	3.8	4.6	4.2	3.0	3.1	3.1	1.5	1.5	1.5	0.7	1.5	1.1
NEAR EAST [1]	3.4	3.1	3.2	3.3	2.9	3.1	2.5	2.6	2.5	0.9	0.5	0.7	0.8	0.3	0.5
Afghanistan	3.2	1.8	2.5	3.1	1.7	2.4	1.7	1.8	1.8	1.5	—	0.7	1.4	—0.1	0.6
Cyprus	1.2	8.7	5.1	1.4	8.8	5.3	1.5	1.0	1.3	—0.3	7.5	3.8	—0.1	7.7	4.0
Iran	4.2	3.4	3.8	3.9	3.1	3.5	2.8	2.9	2.9	1.3	0.5	0.9	1.0	0.2	0.6
Iraq	0.3	5.1	2.9	—	5.4	2.9	3.0	3.4	3.3	—2.6	1.7	—0.4	—2.9	1.9	— 0.4
Libya	2.8	5.3	4.1	2.6	5.7	4.2	3.7	3.7	3.7	—0.9	1.6	0.4	—1.1	1.9	0.5
Saudi Arabia	2.0	3.4	2.7	2.0	3.4	2.7	1.9	1.9	1.9	—	1.5	0.8	—	1.5	0.8
Southern Yemen	0.7	1.7	1.2	—	1.3	0.7	2.0	2.1	2.1	—1.3	—0.4	—0.8	—1.8	—0.9	— 1.3
Sudan, The	5.4	4.9	5.2	5.1	4.6	4.8	2.9	2.9	2.9	2.5	2.0	2.2	2.2	1.6	1.9
Syria	—	4.8	2.5	—2.8	5.5	1.5	2.9	2.9	2.9	—2.9	1.8	—0.4	—5.6	2.5	— 1.4
Turkey	3.7	3.2	3.4	3.7	2.5	3.1	2.9	2.5	2.7	0.8	0.6	0.7	0.8	—	0.4
United Arab Republic	3.1	2.8	3.0	3.5	3.4	3.4	2.4	2.6	2.5	0.7	0.2	0.5	1.1	0.8	0.9
Yemen	—0.5	1.1	0.3	—0.8	1.3	0.3	1.0	1.0	1.0	—1.5	0.1	—0.7	—1.8	0.3	— 0.7

ANNEX TABLE 10A. – AVERAGE ANNUAL GROWTH OF AGRICULTURAL PRODUCTION AND POPULATION IN DEVELOPING COUNTRIES (*concluded*)

	Agricultural production			Food production			Population			Per caput agricultural production			Per caput food production		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
	Percent per year														
AFRICA [1]	2.6	2.4	2.5	2.1	2.1	2.1	2.4	2.5	2.4	0.2	—0.1	0.1	—0.2	—0.4	— 0.3
Northwestern Africa															
Algeria	—1.4	—0.2	—0.8	—1.0	—0.3	—0.6	2.2	2.3	2.3	—3.5	—2.4	—2.9	—3.2	—2.5	— 2.9
Morocco	—	4.6	2.4	—	4.7	2.5	2.9	2.8	2.8	—2.8	1.7	—0.4	—2.7	1.8	— 0.3
Tunisia	1.0	—0.6	0.2	1.0	—0.8	—	1.4	2.0	1.7	—0.3	—2.5	—1.5	—0.3	0.1	— 0.1
Western Africa															
Dahomey	1.9	1.0	1.4	1.7	0.5	1.1	2.7	2.9	2.8	—0.8	—1.9	—1.4	1.0	—2.3	— 1.7
Gambia, The	3.6	3.7	3.6	3.6	3.7	3.6	1.4	2.0	1.7	2.1	1.7	1.9	2.2	1.7	1.9
Ghana	5.6	2.6	4.0	5.6	2.6	4.0	2.7	2.7	2.7	2.9	—	1.3	2.8	—0.1	1.3
Guinea	3.7	1.0	2.2	3.3	1.3	2.2	3.2	2.9	3.0	0.5	—1.9	—0.7	0.1	—1.5	— 0.7
Ivory Coast	5.7	6.4	6.1	3.7	5.5	4.6	3.2	3.4	3.3	2.4	2.9	2.7	0.5	2.0	1.3
Niger	4.7	4.0	4.3	4.7	3.9	4.3	2.5	2.7	2.6	2.2	1.3	1.7	2.1	1.2	1.6
Nigeria	3.4	0.4	1.8	3.2	0.3	1.7	3.0	3.0	3.0	0.3	—2.7	1.2	0.2	—2.6	1.3
Senegal	5.7	3.0	4.2	5.7	2.8	4.1	2.3	2.1	2.2	3.3	0.8	2.0	3.3	0.7	1.9
Upper Volta	5.5	5.9	5.7	5.6	5.4	5.5	1.6	1.9	1.8	3.8	3.9	3.9	3.9	3.5	3.7
Central Africa															
Cameroon	3.2	5.1	4.2	1.7	4.0	2.9	1.8	2.1	2.0	1.3	2.9	2.1	—0.1	1.8	0.9
Chad	2.1	1.3	1.7	2.3	—	1.1	1.5	1.5	1.5	0.6	—0.2	0.2	0.8	—1.5	— 0.4
Congo, Dem. Rep. of the	—0.1	—0.3	—0.2	—1.0	—	—0.5	2.3	2.1	2.2	—2.3	—2.5	—2.3	—3.2	—2.1	— 2.6
Eastern Africa															
Ethiopia	2.9	2.9	2.9	2.2	2.2	2.2	1.7	1.9	1.8	1.2	1.0	1.1	0.5	0.3	0.4
Kenya	4.5	3.1	3.7	3.9	2.5	3.1	3.0	2.9	3.0	1.4	0.2	0.7	0.8	—0.4	0.2
Madagascar	1.9	4.2	3.1	1.7	4.2	3.0	2.5	2.4	2.4	—0.6	1.8	0.7	—0.8	1.8	0.6
Malawi	4.4	4.3	4.4	4.4	5.1	4.8	2.3	2.6	2.5	2.2	1.7	1.9	2.1	2.5	2.3
Mauritius	—0.7	3.2	1.4	—1.0	3.0	1.1	3.1	2.6	2.8	—3.7	0.6	—1.4	—4.0	0.4	— 1.7
Mozambique	3.8	3.6	3.7	3.7	4.0	3.9	1.4	1.3	1.4	2.4	2.3	2.3	2.3	2.6	2.5
Rhodesia	6.4	2.1	4.1	4.7	3.6	4.1	3.3	3.2	3.2	3.0	—1.0	0.8	1.3	—0.4	0.9
Somalia	3.1	4.0	3.5	3.0	4.0	3.5	2.6	3.4	3.0	0.5	0.5	0.5	0.4	0.6	0.5
Uganda	2.7	4.0	3.4	2.0	3.5	2.8	2.5	2.5	2.5	0.1	1.4	0.8	—0.5	1.0	0.3
Southern Africa															
Botswana	1.7	—1.6	—0.1	1.7	—1.6	—0.1	2.8	3.0	2.9	—1.1	—4.4	—2.9	—1.1	—4.4	— 2.9
Lesotho	0.8	0.9	0.9	1.5	0.2	0.8	2.5	2.9	2.7	—1.6	—2.0	—1.8	—1.0	—2.5	— 1.9

NOTE: I, 1952-54 to 1959-61; II, 1959-61 to 1967-69; III, 1952-54 to 1967-69.

[1] Developing countries only.

ANNEX TABLE 10B. – MAIN FEATURES OF POSTWAR DEVELOPMENT PLANS IN DEVELOPING COUNTRIES

Country	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase	
						Total investment	Public investment	GNP	Agricultural production
				..... *Million*		..... *Percent*			
LATIN AMERICA									
Argentina	1947–51	P S	Pesos	...	6 590	...	3	...	...
	1953–57	P S		...	33 500	...	4	...	...
	1965–69	C	Pesos.[1]	1 339 195	426 965	17	2	6.0	...
Barbados	1960–65	P S	£	...	11.1	...	...	...	...
	1962–72	P S	EC $	—	46.0	—	11.0	8.0	2.6
Bolivia	1962–71	C	Bolivianos [2]	12 289 324	...	...	11.0	7.0	6.3
	1963–64	P S	$	...	210	...	13	6	...
Brazil	1963–65	C	Cruzeiros [3]	3 500 000	1 170 000	...	8	7	5.7
	1964–66	C	Cruzeiros.[4]	[5]5 120 000	...	[5]8	...	6	...
	1966/67	P S	Cruzeiros [2]	...	...	...	7	6.0	...
Chile	1961–70	C	Escudos.[1]	10 149	5 074	9	6.0	5.5	5.0
Colombia [6]	1961–70	C	Pesos.[2]	70 000	...	12	12.0	5.6	4.0
	1969–72	C		28 399	7 675	...	52.7	6.0	...
Costa Rica	1965–68	C	Colones	...	1 297	...	...	6.6	7.1
	1969–72	C		...	1 426	...	...	7.7	...
Cuba	1962–65	C P	Pesos	...	...	...	20	8–10	...
Ecuador	1960–62	C	Sucres [7]	7 075	2 591	...	...	4.8	...
	1964–73	C		41 007	17 713	16	7.0	6.2	6.6
El Salvador	1964–65	P S	Colones	...	238	...	14	...	...
	1965–69	C		...	...	...	...	6.5	...
Guatemala	1955/56–1960/61	C	Quetzales	540	250	...	17	5	...
	1960/61–1964/65	P S		...	[8]78.5	...	[8]22	...	...
	1965–69	C		...	334	...	25	5.6	...
Guyana	1960–64	P S	£	...	23	...	...	...	...
	1966–67	P S	$	...	295	...	...	...	...
	1966–72	P S	Guy. £	294	...	...	32.0	[9]5.6	...
Haiti	1951–56	P S	Gourdes	...	200	...	21	...	...
	1964–65	P S		...	490	...	18	...	...
	1968–69	P S		...	...	...	12	...	...
Honduras	1963–64	C	Lempiras	363	144	...	8	[10]2.5	...
	1965–69	C		...	...	...	13	...	...
Jamaica	1963–68	C	Jamaica £	...	91	...	15.0	[9]5.0	3.3
	1963/64–1967/68	C	£	280	91	...	24	[9]5	3.3
	1969–74	C	Jamaica £	...	...	...	...	...	...
Mexico	1963–65	C	Pesos	80 000	40 000	...	18	5.4	5.5
Nicaragua	1953–57	P S	$	...	59–76	...	34–36	[11]4.5	...
	1965–69	C	Córdobas	...	...	...	...	7.0	6.4
Panama	1963–70	C	Balboas	...	310	...	...	...	...
	1964–66	P S	$	...	95	...	19	...	...
	1969–72	C	Balboas	...	...	...	...	8.0	...
Paraguay	1965–66	P S	Guaranies	19 746	5 620	...	...	5.0	4.9
	1969–73	P S		—	...	—	...	7.0	...
Peru	1964–65	C	Soles	38 873	11 264	...	18	7	5.7
	1966	P S		21 942	5 424	...	26	5.5	...
Surinam	1965–74	C	Sur. guilders	...	...	...	...	...	7.7
Trinidad and Tobago	1964–68	P S	£	...	63	...	13.0	...	...
	1969–73	P S	T.T. $	1 016	380	...	16	[9]4.5	5.0
Uruguay	1965–74	P S	Pesos [12]	56 144	18 057	14	...	4.7	4.2
Venezuela	1963–66	C	Bolivares	28 191	9 433	...	17	7.9	8
	1965–68	C	Bolivares [4]	...	...	10	4.5	...	...

ANNEX TABLE 10B. – MAIN FEATURES OF POSTWAR DEVELOPMENT PLANS IN DEVELOPING COUNTRIES (*continued*)

Country	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase	
						Total investment	Public investment	GNP	Agricultural production
				..... *Million*		..... *Percent*			
FAR EAST									
Bhutan	1966/67–1970/71	P S	B rupees	...	212	...	21	...	...
Burma	1952–59	C	Kyats	7 500	4 020	...	9	7.4	5.0
	1956/57–1959/60	C		...	2 511	...	17	...	...
	1961/62–1964/65	C		5 787	2 629	10	15	6	...
	1966/67–1969/70	C		...	...	...	...	...	...
Cambodia	1956/57–1957/58	P S	C rupees	...	3 500	...	20	...	...
	1960–64	P S		...	8 000	...	12	3	...
	1968–72	P S	Riels	32 000	12 240	25	...	5	...
Ceylon	1947/48–1952/53	P S	C rupees	...	1 246	...	42	...	...
	1954/55–1959/60	P S		...	2 529	...	38	...	...
	1959–68	C		13 601	9 232	32	22	5.9	4.7
	1961/62–1963/64	C		3 415	2 005	...	28	4.8	...
	1964–65	C		1 325	769	...	23	...	...
China (Mainland)	1953–57	C P	Yuan	...	76 640	...	8	...	...
China (Taiwan)	1953–56	P S	NT dollars	...	8 753	...	27	6.2	4.0
	1957–60	C		20 000	12 327	20	14	7.4	4.6
	1961–64	C		50 190	34 129	16	13	8.0	5.4
	1969–72	C		156 460	48 687	12	44	7.0	4.4
India	1951/52–1956/57	P S	Rupees	...	26 400	...	36	...	...
	1951/52–1955/56	C		41 568	23 568	...	32	2.1	...
	1956/57–1960/61	C		62 000	38 000	23	22	4.6	3.3
	1961/62–1965/66	C		104 000	63 000	20	22	6.0	5.4
	1969/70–1973/74	C		248 820	159 020	[13]15	[13]24	5.5	4.5
Indonesia	1956–60	C	Rupiahs	30 000	12 500	...	26	[10]3.0	...
	1961–68	P S		...	240 000	...	10	3.7	...
	1969/70–1973/74	C		1 420 000	1 059 000	26	35	5	...
Korea, North	1961–67	C P	Won [1]	...	7 000	...	...	15.2	13.2
Korea, Rep. of	1962–66	C	Hwan [1]	3 214 500	1 118 600	17	17	5.0	3.8
	1967–71	C	Won [14]	980 070	401 090	16	23	7	5
Laos	1952–56	P S	Piasters	...	903	...	24	...	...
	1959/60–1963/64	P S	Kips	...	2 758	...	11	...	...
	1969/70–1973/74	C		20 579	5 729	...	...	...	...
Malaysia, West	1956–60	P S	M dollars	...	1 149	...	23	...	...
	1961–65	C		5 830	2 931	...	19	4.1	2.8
	[15]1966–70	C		10 500	4 839	...	24	5.5	5.5
Mongolia	1966–70	C P	Tugriks	...	4 700	...	...	7.0	6.0
Nepal	1956/57–1960/61	P S	N rupees	...	330	...	31	...	...
	1962/63–1964/65	P S		...	670	...	20	...	...
	1965/66–1969/70	P S		2 500	1 980	26	...	3.6	2.9
	1970–75	C		2 930	2 280	33	261	4.0	...
Pakistan	1951/52–1956/57	C	P rupees	2 600	2 200	32	...	...	...
	1955/56–1959/60	C		11 600	9 352	...	26	2.8	...
	1960/61–1964/65	C		23 000	14 620	19	24	4.4	2.7
	1965/66–1969/70	C		52 000	30 000	...	25	6.5	5.8
	1970–75	C		75 000	45 000	19	31.0	6.5	5.3
Philippines	1955/56–1959/60	P S	Pesos	...	1 737	...	10	6.9	2.4
	1956/57–1960/61	C		5 200	1 860	16	16	6.0	4.0
	1959/60–1961/62	C		3 446	1 067	...	14	5.9	...
	1958/59–1962/63	P S		...	4 348	...	13	5.8	...
	1962/63–1966/67	C	Pesos [1]	12 053	2 809	9	11	[17]6.0	3.0
	1966/67–1969/70	C		20 300	3 413	...	14	6.2	5.5
	1971–74	C		31 440	5 243	...	[16]17	5.5	6.2
Singapore	1951–57	P S	Sgp dollars	...	454.2	...	...	...	...
	1955–60	P S		...	562.2	...	...	...	...
	1961–64	P S		...	871.0	...	6	...	...
	1966–70	C		2 820	1 520	5	9	5	...

ANNEX TABLE 10B. – MAIN FEATURES OF POSTWAR DEVELOPMENT PLANS IN DEVELOPING COUNTRIES (*continued*)

Country	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase	
						Total investment	Public investment	GNP	Agricultural production
				..... *Million*		..... *Percent*			
Thailand	1961/62–1966/67	P S	Bahts	...	31 977	...	14	6.0	3.0
	1966/67–1970/71	C		130 700	37 900	...	20	8.5	4.3
Viet-Nam, Rep. of	1957–61	P S	Piastres	...	17 500	...	18	4.5	...
	1962–66	C		41 750	...	...	17	5.0	3.7
NEAR EAST									
Afghanistan	1957/58–1961/62	P S	Afghanis	...	[18]5 000	...	50	...	...
	1962/63–1966/67	P S		...	[18]31 350	...	24	7	...
	1967/68–1971/72	P S		...	33 000	...	29	4.3	3.5
	1969–71	P S		...	17 000	...	28	4.3	3.5
Cyprus	1961–65	P S	£ C	...	62	...	34	6.7	...
	1967–71	C		186	66.6	13	29	6.8	8.5
Iran	1948/49–1954/55	P S	Ir riyals	...	26 300	...	28	...	...
	1955/56–1961/62	C		167 000	84 000	...	23	...	...
	1962/63–1967/68	C		...	200 000	...	23	6.2	4.1
	1968/69–1972/73	C		810 000	443 000	14	17	9.4	5.0
Iraq	1951–55	P S	I dinars	...	155.4	...	49	...	...
	1955–59	P S		...	304.4	...	38	...	...
	1955–60	P S		...	500.7	...	34	...	...
	1959/60–1962/63	P S		...	392.2	...	12	...	...
	1961/62–1965/66	P S		...	556.3	...	20	7	...
	1965/66–1969/70	C		821	640	19	23	8	7.5
	1969/70–1974/75	C		1 144	859	20	23	7.1	7.0
Jordan	1964/65–1970/71	C	J dinars	209	90	23	...	5.9	6.5
	1964–70	C		275	146	26	37.0	7.3	4.7
	1965–75	C		231	104	26	41	6.7	4.7
Lebanon	1965–69	P S	Leb. £	...	1 080	...	19.0	...	...
Libya	1963/64–1967/68	P S	L £	...	169	...	20	...	...
	1969/70–1973/74	P S		...	1 150	...	13.0	...	...
Saudi Arabia	1970/71–1975/76	...	S riyals	...	...	...	...	9.3	5.0
Somalia	1963–67	P S	So shillings	...	1 400	...	18	...	...
	1968–70	P S		...	705	...	8	...	...
Sudan, The	1946/47–1950/51	P S	Sd pounds	...	14.6	...	36	...	...
	1951/52–1955/56	P S		...	44.5	...	27	...	...
	1961/62–1970/71	C		565	337	21	27	[24].3	4
	1970/71–1974/75	C		368	191	...	40	8.1	12
Syria	1955–61	P S	S pounds	...	610	...	[19]38	...	...
	1960/61–1964/65	C		2 720	1 720	40	51	[20]7	5.8
	1966–70	C		4 955	3 454	28	27	7.2	6.7
Turkey	1963–67	C	T liras	59 647	35 700	18	...	7	4.1
	1968–72	C		119 000	62 000	15	18	7	4.2
United Arab Republic	1960/61–1964/65	C	E £	...	1 577	...	25	[20]7	5.1
AFRICA									
Algeria	1959–63	P S	Francs	...	2 500	...	14	...	...
	1967–69	C	Dinars	5 400	...	...	...	...	...
	1970–73	P S		—	27 740	—	18	9	4.5
Basutoland	1960–63	P S	£	...	1.6	...	...	...	...
	1963–66	P S		...	5.76	...	...	...	...
Bechuanaland	1960–63	P S	£	...	1.8	...	...	...	...
Botswana	1966–69	P S	Rands	25	...	33	...	...	...
	1968–73	P S		—	70	—	8	6.0	...
Cameroon	1947–59	P S	CFA francs	...	74 470	...	...	...	...
	1961–65	C		[21]53 182	...	22	...	[24].6	...
	[22]1966–71	C		165 176	95 700	13	...	[25].8	...

ANNEX TABLE 10B. – MAIN FEATURES OF POSTWAR DEVELOPMENT PLANS IN DEVELOPING COUNTRIES (*continued*)

Country	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase	
						Total investment	Public investment	GNP	Agricultural production
				..... *Million*		..... *Percent*			
Central African Republic . .	1965–66	C	CFA francs	30 000	27 800	...	...	...	...
	1967–70	C		36 876	26 678	39	51	7.0	6.0
Chad	1948–53	P S	CFA francs	...	4 112	...	18	...	...
	1953–59	P S		...	8 425	...	43	...	...
	1966–70	P S		...	47 012	...	28	...	...
Congo (Brazzaville).	[22]1961–63	P S	CFA francs	...	16 630	...	14	...	...
	1964–68	C		50 347	30 347	6	...	[9]7.3	[23]4.3
Congo, Dem. Rep. of the. .	1949–58	P S	B. Congo francs	...	50 936	...	6	...	...
Dahomey	1962–65	C	CFA francs	[24]40 119	...	18–21	...	[9]6.5	[23]5
				47 569	...	...	...	7.5	...
	1966–70	C		35 400	...	34	...	4.0	...
Ethiopia	1957/58–1961/62	C	Eth $	[26]535	...	8	...	3.8	...
	1962/63–1966/67	C		[27]696	...	21	...	4.6	2.3
	1968/69–1972/73	C		2 865	1 484	11	7	6.0	3.1
Gabon	[22]1963–65	P S	CFA francs	...	19 585	...	14	...	...
	1966–70	C		92 000	36 800	27	...	7.5	3.7
Gambia, The	1955–60	P S	Ga £	...	0.9	...	...	...	...
	1959–64	P S		...	3.5	...	...	...	...
	1962–64	P S		...	2.7	...	...	...	...
	1964–67	P S		...	4.4	...	21	...	...
	1967–71	P S		5	5	...	13	...	...
Ghana	1968–70	C	Cedis	222	...	...	...	...	...
Guinea	1960–63	P S	G francs	...	38 912	...	26	[9]16	4
Ivory Coast	1947–59	P S	CFA francs	...	58 464	...	...	...	...
	[22]1962–63	P S		...	44 670	...	15	7	...
	1967–70	P S		224 000	117 000	...	30	4.8	...
Kenya	1954–57	P S	K £	...	30	...	...	...	...
	1957–60	P S		...	23	...	32	...	...
	1960–63	P S		...	26	...	...	...	...
	1964–70	C		317	102	4	14	5.4	6.8
	1966–70	P S		317	102	...	26	6.3	...
Madagascar	[22]1960–63	P S	CFA francs	...	23 000	...	41	...	6.0
	1964–68	C	Mg francs	[28]165 000	69 000	12	31	5.5	5.9
Malawi	1955–60	P S	M £	...	9.5	...	...	...	...
	1957–61	P S		...	12.5	...	...	...	...
	1962–65	P S		...	12.9	...	13	[29]6	...
	1965–69	P S		...	44.6	11	...	...	...
Mali	1957–60	P S	CFA francs	...	20 000	...	...	...	...
	1961–65	P S	M francs	...	65 000	...	20	8	9
Mauritania	1947–59	P S	CFA francs	...	3 766	...	...	...	...
	1960–62	P S		...	7 766	...	...	...	...
	1963–66	C		27 761	13 573	8	17	9.2	2
	1967–70	C		36 000	20 000	28	...	5.5	4.9
Mauritius	1955–60	P S	£	...	9.8	...	...	...	...
	1960–64	P S	Mau. rupees	...	26.5	...	...	...	...
	1962–65	P S		...	212	...	24	...	...
	1966–70	C		340	...	...	...	...	...
Morocco	1960–64	C	Dirhams	6 600	2 580	12	32	6	5.5
	1965–67	C		[29]3 483	2 933	...	29	3.5	...
	1968–72	P S		5 050	3 000	46	...	5	...
Niger	[22]1961–63	C	CFA francs	22 614	15 811	16	23	4	3.5
	1965–68	C		43 242	33 442	31	...	4.7	3.3
Nigeria	1955–60	P S	N £	...	290	...	...	...	...
	1962–68	P S	£	1 066	677	...	14.0	4.0	...

ANNEX TABLE 10B. – MAIN FEATURES OF POSTWAR DEVELOPMENT PLANS IN DEVELOPING COUNTRIES (*concluded*)

Country	Duration	Scope	Currency	Total investment	Public investment	Share of agriculture in		Planned annual increase	
						Total investment	Public investment	GNP	Agricultural production
				Million		*Percent*			
Portuguese Territories	1953–58	P S	Escudos	...	5 800	...	31	...	...
	1959–64	P S		...	8 200	...	[30]45	...	...
	1965–67	P S		...	14 400	...	...	...	...
Angola	1965–67	P S		...	7 210	...	14	...	...
Mozambique	1965–67	P S		...	5 400	...	20	...	...
Guinea	1965–67	P S		...	180	...	...	...	...
São Tomé and Principe	1965–67	P S		...	180	...	...	...	...
Rwanda	1966–70	C	RB franc	5 651 000	4 272 000	36	...	5.0	3.8
Senegal	1948–53	P S	CFA francs	...	19 800	...	20	...	...
	1953–58	P S		...	18 500	...	27	...	...
	1961–64	C		92 100	50 560	10	19	8	5
	1969/70–1972/73	C		130 000	82 500	29	60	5.5	...
Sierra Leone	1956–59	P S	£	...	7.6	...	...	...	...
	1962/63–1966/67	C		124	100	6	8	8	...
Spanish Guinea	1963–66	P S	Pesetas	2 579	1 651	...	...	7.6	...
Swaziland	1960–63	P S	£	...	5.4	...	...	...	...
	1969–74	P S	Rands	—	23	...	14	...	...
Tanzania:									
Tanganyika	1955–60	P S	T £	...	25.8	...	14	...	...
	1961/62–1963/64	P S		...	23.9	...	28	...	...
	1964/65–1968/69	C		246	130	15	28	6.7	[33]7.5
Zanzibar	1955–59	P S	Z £	...	1.4	...	...	...	...
	1961–64	P S		...	1.2	...	...	...	...
	1964–67	P S		...	23	...	8	...	...
	1969–74	C	T £	404	153	...	22	6.5	5.0
Togo	1966–70	C	CFA francs	28 600	20 000	21	...	5.6	3.3
Tunisia	1962–64	C	T dinars	330	140	7	15		
	1965–71	C		1 770	...	...	33	6	5.5
	1968–71	C		552	420	26	...	6.5	3.0
Uganda	1955–56	P S	£	...	34	...	...	...	...
	1960–63	P S		...	17	...	...	...	...
	1961/62–1965/66	C		[31]94	[31]72	15	19	5	...
	1966–71	C	£ U	230	80	9	19	6.3	5.1
Upper Volta	[32]1963–64	C	CFA francs	13 583	9 000	40	...	...	...
	1967–70	C		32 964	...	29	...	...	...
Zambia	1954–59	P S	£	...	28	...	...	...	...
	1959–63	P S		...	34	...	...	...	...
	1961/62–1964/65	P S		...	30	...	21	...	...
	1964–66	P S		...	35	...	30	...	...
	[32]1965–66	P S		...	45.9	...	20	...	...
	1966–70	C		429	282	10	15	...	...

NOTE: PS, public sector: C. comprehensive. CP. centrally planned economy. Where possible, data refer to net investment. In many cases however. no distinction is made in the plan. and data may refer to gross investment or may include some elements of recurrent expenditure. Agriculture includes animal production. fisheries. forestry. irrigation. land reclamation, community development. agricultural extension. etc. Plans are included in the table only if they have been approved by the government and their implementation actually begun.

[1] Of 1960. – [2] Of 1958. – [3] Of 1962. – [4] Of 1964. – [5] Internal resources only. – [6] The Plan includes four different growth alternatives: the figures given here correspond to Alternative I (the lowest). – [7] Of 1959. – [8] 1963/64-1964/65 only. – [9] Gross domestic product. – [10] Per caput. – [11] Agriculture and industry only. – [12] Of 1963. – [13] Includes flood control expenditure. – [14] Of 1965. – [15] Includes Sabah and Sarawak. – [16] Water resource development only. – [17] Within the framework of the fourth five-year plan. – [18] Includes some minor private investment. – [19] Including power. – [20] Net domestic product. – [21] Including CFAF 17 000 million investment in kind. – [22] Interim plan. – [23] Marketed production only. – [24] Including CFAF 14 420 million investment in kind. – [25] Food production only. – [26] Excluding Eth $139 million investment in kind. – [27] Excluding Eth $245 million investment in kind. – [28] Including Mg F 14 000 million investment in kind. – [29] Excluding 1 726 million dirhams of public expenditure on a programme of special projects. – [30] Including settlement and colonization. – [31] Including recurrent expenditure.

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