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WORLD SHORTAGE OF CEREALS ACTION TAKEN TO IMPLEMENT
THE RESOLUTION OF THE GENERAL ASSEMBLY OF 14 FEBRUARY 1946

(Item 21 of the Provisional Agenda for the
Second Part of the First Session)

Report of the Secretary-General

WORLD FOOD APPRAISAL
FOR 1946 - 1947
Issued 2 September 1946

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD FOOD APPRAISAL FOR 1946-47

(Issued 2 September 1946)

Copenhagen

2 September 1946

TABLE OF CONTENTS

I.	SUMMARY	1
II.	MINIMUM IMPORT NEEDS.	2
	1. Nutritional Levels	2
	2. Situation in Different Regions.	4
	3. Immediate Problems	5
III.	AVAILABLE EXPORT SUPPLIES	6
	1. Cereals	6
	2. Rice	8
	3. Fats and Oils	9
	4. Meat and Fish	11
	5. Milk and Milk Products	13
	6. Sugar (Beet and Cane)	15
APPENDIX:	Approximate Consumption Levels in	
	1945-46 of Meats, Fats, and Sugar.	17

WORLD FOOD APPRAISAL FOR 1946-47^{1/}

(Issued 2 September 1946)

CHAPTER I. SUMMARY

In May 1946, the Food and Agriculture Organization of the United Nations issued an Appraisal of the World Food Situation in 1946-47 which showed a gap between needs and supplies of bread grain of over 10 million tons. As a result of the recent favorable weather in some areas, the gap is now probably about 8 million tons.

For the deficit countries of continental Europe and the Far East needs were defined as the quantities necessary to assure a minimum subsistence diet of 2000 calories a day in Europe and 1600 calories in the Orient. The import needs of these countries plus the anticipated imports of bread grain by the United Kingdom, Latin America, and other importers totalled some 30 million tons. Since May the peoples' physiological needs have not of course changed, but harvests have turned out better in certain areas, notably in Southern Europe and in China; consequently import needs are now about 28 million tons of bread grains.

World export supplies of bread grain in 1946-47 are now revised upward by about 500,000 tons -- from just under to just over 20 million tons. Actually a very large wheat crop is being gathered in North America, but because of reduced stocks the total supplies are less than at the beginning of 1945-46.

The calculation of bread grain needs for deficit areas assumes a supply of fats, meat, and sugar equivalent to 80 percent of prewar. This is an optimistic assumption and to the extent that it is not fulfilled more bread grain will be needed to attain the physiological minimum. The calculation further assumes maintenance of 1945-46 extraction rates and controls over grain collection and feeding of grain to livestock; a slackening in any of these would further imperil the nutritional minimum of the nonfarm population. It assumes a steady rate of consumption throughout the year; if grain is used somewhat freely after the harvest, there will be greater deficiency later on. A temporary nutritional deficiency will also occur if for lack of transportation grain cannot be shipped in the months when it is required.

Moreover, some countries face such acute shortages of foreign exchange that they cannot afford to import enough to maintain a physiological minimum diet. Unless special financial arrangements can be made, the diet of considerable groups in these countries may remain at 1500 calories or lower throughout 1946-47.

^{1/} All tonnage figures in this report are metric unless otherwise indicated.

If steps can be taken to alleviate these financial difficulties thus putting the deficit countries in a position to ask for enough food to provide the minimum diet, there will be further upward pressure on prices to be guarded against and there will remain the problem of closing the gap in supplies. The closing of the gap must be sought chiefly in making more grain available for human use and in effecting greater economies in all grains so used. In one respect the prospect is brighter than in May: there is an exceptionally large crop of coarse grains (maize, barley, and oats) in the United States. The expected world export surplus of $6\frac{1}{2}$ million tons will be keenly demanded as livestock feed, but if part of this, together with certain additional amounts of grain otherwise destined for animal feeding or for stock rebuilding, could be made available for human use it might go far to close the gap. For the rest it will be necessary and important to bring into operation various economy measures recommended by the Special Meeting on Urgent Food Problems and to follow closely the principles of allocation there agreed.

Looking beyond 1946-47, there are signs that the world food balance may continue tight for some time, since import demand will be larger than prewar and export supplies of many foods, notably livestock products, can only expand slowly.

CHAPTER II. MINIMUM IMPORT NEEDS

1. Nutritional Levels

The basis of the needs estimates in the May Appraisal was, as already mentioned, that the food consumption of any sizable part of the population should not be allowed to fall below 2000 calories for Europe or 1600 calories for the Orient. This would imply a calorie intake one quarter to one third less than prewar for those sections of the population. It was assumed that the farm population of Europe and urban populations in certain countries, notably self-sufficient or food exporting ones, would continue to eat at current levels which are well above 2000 calories.

Next an estimate was made of indigenous production of all foods country by country distinguishing the quantities available to the nonfarm population. It was assumed that for visible fats, meat, and sugar indigenous supplies could be supplemented by enough imports to give about 80 percent of prewar consumption or somewhat less in central Europe. 1/ The balance of the calorie requirements would be made up by imported bread grain.

The Nutrition Committee which set up this standard did not consider it a desirable level; indeed, they proposed a somewhat higher calorie figure as "a temporary maintenance level". They regarded the subsistence minimum as the least that could be contemplated, especially after the acute shortages of

1/ Estimated of consumption in 1945-46 in selected countries are given in an Appendix.

1945-46. How bad the position has actually been in the spring of 1946 in certain urban areas can be seen from the following table:

Table 1. - Civilian Consumption Levels, April-June, 1946. 1/
(Calories per head per day from all foodstuffs)

	Nonfarm population	Whole population	Percent of prewar (a)
United States (b) ...	(c)	3,100	100
Canada (b) ...	(c)	3,000	100
Australia	(c)	3,000	97
United Kingdom ...	(c)	2,800/2,850	93/95
Denmark, Sweden ...	(c)	2,800/2,900	90
Belgium, France, Netherlands, Norway	2,000/2,300	2,300/2,500	75/85
UNRRA countries (d)	1,500/2,100	1,700/2,400	60/85
Germany (4 zones) ...	1,250/1,600	1,600/1,800	50/60

(a) For whole population.

(b) Calories factors normally used in North America have been adjusted to ensure comparability with other countries.

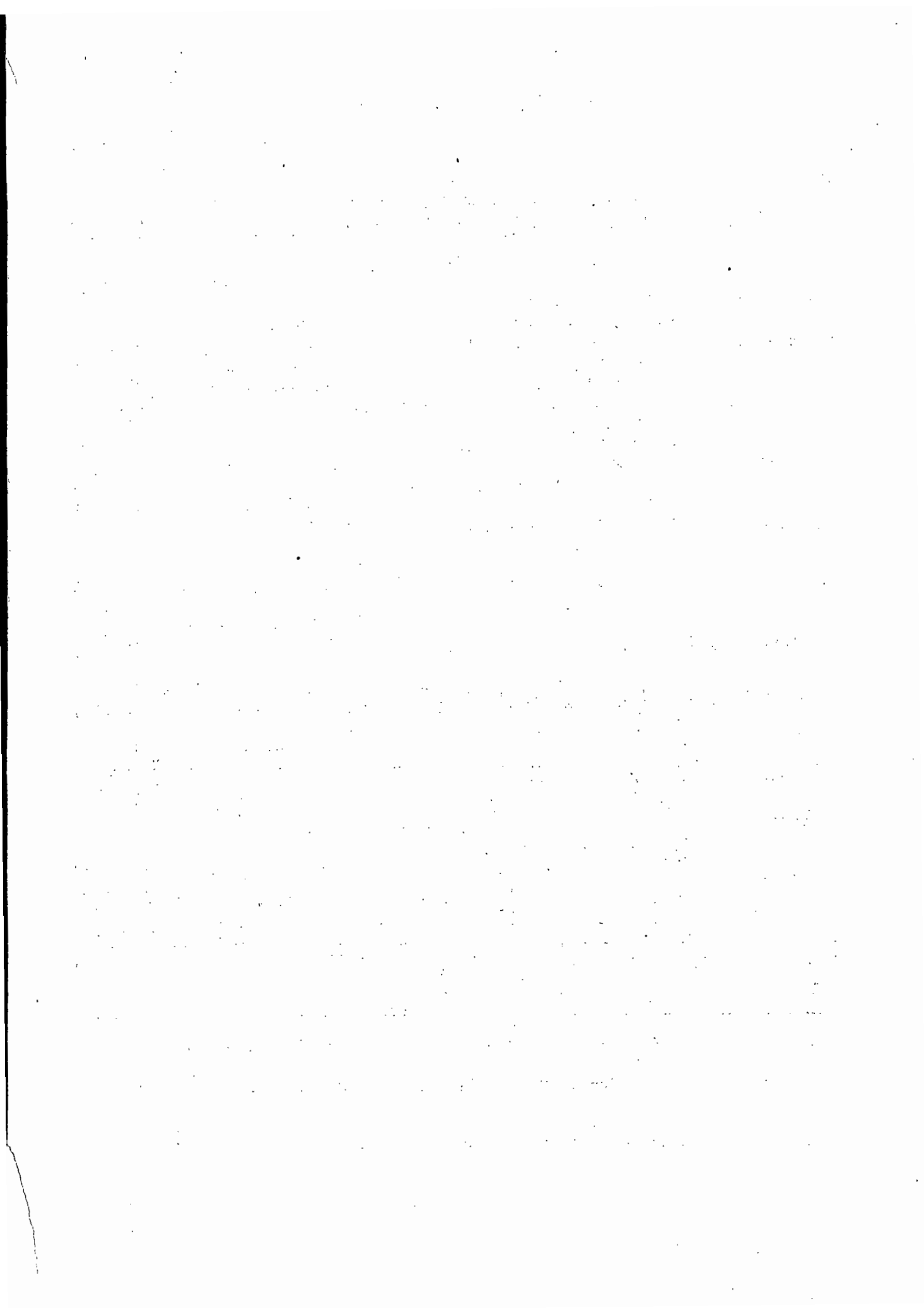
(c) Not separately estimated but unlikely to be significantly different from the national average.

(d) Austria, Czechoslovakia, Greece, Italy, and Yugoslavia.

Comparable figures for Asia, Africa, and Latin America cannot readily be computed, but undoubtedly in vast areas the average food consumption is even lower than in continental Europe. Indeed, in the case of India and China a substantial proportion of the population has had a food supply as low or lower than that of the worst deficit regions in Europe.

Evidence of serious malnutrition is accumulating. In the worst areas many adults have suffered a 15-25 percent loss in weight. The hospital cases of hunger oedema are numerous and increasing. There have been some deaths from starvation. If the food scarcity continues to be so acute for another twelve months, the permanent damage to health is unpredictable. It is vitally necessary that rations for these groups be raised and kept at least at the minimum subsistence level.

1/ U.K. Ministry of Food; "Second Review of the World Food Shortage, July 1946", London: H. M. Stationery Office. Cmd. 6879.



2. Situation in Different Regions

The 1946-47 food contribution from Europe's agriculture will be larger than in 1945-46, but still significantly below prewar. Since the May Appraisal there have been small upward revisions of forecasts for certain foodstuffs in the Netherlands, Belgium and France, offset by some decreases in Northern Europe, but these have been substantial upward revisions of grain estimated in Mediterranean countries. Indigenous bread grain supplies in continental Europe are approximately 1 million tons (2 percent) larger than forecast in May.

Over the whole field of food production recovery is hampered by shortages of various kinds; feeding stuffs, fertilizers, draft power, implements, fuel, seeds, and many other things. In particular, the restoration of the livestock industry, of central importance to European farming, is inevitably delayed as long as the critical shortage of cereals and oilcake continues.

In the United Kingdom the wartime increases in cereal and vegetable production are being maintained, but still more than half the food supply is imported. Beyond a modest improvement in its present dietary, the United Kingdom cannot expect to recover its prewar food standards -- still less achieve the much desired improvements over prewar inadequacies -- until (a) its own production of livestock products recovers to prewar or above, and (b) an appreciable improvement takes place in food exports from northwestern Europe and other supplying areas.

In India and the Orient generally the worst effects of the failure of the 1945-46 crops are only now being felt and avoidance of catastrophe in the urban and other deficient regions, pending availability of the new rice crop in December, hangs precariously on the arrival of large grain shipments. In view of the abnormal strain on transport facilities in exporting countries the quantities that can be shipped are unlikely to be enough to bring rations up to the 1600 calorie minimum before the December harvest.

As regards the coming harvests in the Far East, the indigenous rice supplies in China appear to be several million tons greater than was estimated in May. Nevertheless, the present severe internal difficulties will mean that large areas will be quite inadequately supplied and will need imports though not on the scale previously forecast. It is estimated that for the Far East as a whole an import of 8-9 million tons of bread grain (over and above anticipated rice imports) will be required to close half the gap between current indigenous supplies and prewar consumption levels. This compares with the import estimate of 10 million tons made last May.

As pointed out in the May Appraisal, this vast area containing over half the world's population necessarily relies almost wholly on its own production for its food supplies. Imports from other continents, even on the scale of 8 million tons, constitute only a small fraction of the total supply, but they are of vital importance to certain districts and to the maintenance of orderly

food distribution. In this area, more than any other, long term help in economic rehabilitation will be needed from outside and imports of certain foods above prewar levels may become a permanent feature of food supply programs.

Summarizing the bread grain needs of the deficit areas of the world. Europe would need about $11\frac{1}{2}$ million tons, the Far East about $8\frac{1}{2}$ million tons, while the United Kingdom, Africa, Latin America and the rest would together require 8-9 million tons. As can be seen from Table 2 in Chapter III, there is a reduction as compared with the May Appraisal of 1 million tons in the estimated needs of Europe and $1\frac{1}{2}$ million tons in those of the Far East, bringing the total need down from $30\frac{1}{2}$ - $31\frac{1}{2}$ to 28-29 million tons. This estimate is slightly less in total than the stated requirements at present under consideration by the International Emergency Food Council (IEFC), which probably include some provision for rebuilding stocks and for other contingencies.

Since, as already mentioned, the target consumption levels are unlikely to be reached in fats, meat, and perhaps sugar, the quantity of bread grain needed to provide the minimum subsistence diet would be even larger than is here suggested. In contrast, the available world export supply of bread grain appears not likely to exceed 20-21 million tons.

3. Immediate Problems

There are a number of reasons why certain deficit countries will find it difficult to reach the minimum subsistence level of diet, apart altogether from any difficulties in making available or obtaining sufficient supplies. During the war most of these countries adopted comprehensive measures of production and distribution control. At present there is strong pressure to relax or abandon these controls; in many cases they were imposed by the occupying enemy and in any event the public does not strongly appreciate the need for continuing them for more than a year after the cessation of hostilities. Nonetheless, the gravity of the world food situation requires that the controls be retained for the coming year. It is essential that no bread grain be fed to livestock and that the maximum quantities be surrendered by the farming community. Any accentuation of maldistribution of food as between country and town population will only aggravate the plight of the latter.

It is important that countries should form at this stage a clear idea of the imports they are likely to obtain during 1946-47. They can thus organize such a distribution of supplies as will provide steady rations throughout the year. Otherwise there may be a temptation to consume indigenous supplies rather freely after harvest and present and augmented claim for imports next spring. It is equally important to time shipments of food supplies so as to ensure the presence of adequate quantities in the months of greatest need.

One of the most disturbing factors in the present situation is the difficulty which certain countries now face in financing their food imports. During 1945-46 a number of countries had their food imports financed through UNRRA, whereas from the beginning of 1947 they will have to make their own financial arrangements. Meanwhile,

the paying countries cannot contemplate drawing on foreign exchange for food purchases so heavily as they did in 1945-46. On the other hand, there has been in recent months a considerable rise in export prices in some of the chief food supplying countries. It can already be predicted that some countries will not receive enough food to provide the physiological minimum unless they are equipped with loans, credits, or other financial facilities. If nothing is done in this direction the pressure on world food supplies may well be considerably eased, the gap might to all appearances be largely closed, and the food crisis dissipated so far as the IEFC was concerned. But hunger would remain.

Arising out of this situation there is the further danger that the international distribution of supplies may increasingly diverge from the principles laid down at the May meeting. Distribution may be determined to an increasing extent by ability to pay and by bilateral or commodity agreements. If an undue share goes to those who can afford it or who are otherwise in a strategic position to get or keep food, it becomes almost impossibly difficult to insure to other countries the supplies necessary for maintaining minimum diets.

CHAPTER III. AVAILABLE EXPORT SUPPLIES

1. Cereals (Excluding Rice)

A general account of the world cereals position has already been given in Chapter I, because cereals are the balancing factor which can make up the deficiencies in diets. In this section a few notes are added giving further details of the situation in supplying countries.

North American wheat exports in 1945-46 reached the record level of just over 20 million tons of which 11 million tons were drawn from accumulated stocks. In 1946-47, as a result of a record crop and substantial economies in domestic consumption, exports are estimated at 15 million tons which should be compared with 9 million tons out of last year's crop and only 4 million tons exported on the average during the five prewar years. Wheat acreages and crops are still somewhat below prewar in the Argentine and Australia, and it is estimated that their combined exports in 1946-47 will be not quite 5 million tons which compares with under 3 million tons last year, but 6 million tons prior to the war. Total wheat exports from the four major exporting countries are therefore estimated at 19-20 million tons and, if allowance is made for possible shipments from the U.S.S.R., southeast Europe, and other minor sources of supply, total world wheat exports can be put at 20-21 million tons. This supply, which represents an increase of somewhat less than 5 percent in the quantities forecast last May, compares with needs of 28-29 million tons. The bread grain position is summarized in the following table:

Table 2. World Bread Grain Needs and Supplies

	May 16th <u>Appraisal</u> Million Tons	Sept. 2nd <u>Appraisal</u> (Wheat Equivalent)
<u>(1) Import Needs</u>		
Continental Europe		
Western and northern	3.5	3.5
Central and eastern	5.5	5.4
Southern	<u>3.5</u>	<u>2.5</u>
Total	12.5	11.4

The first part of the paper discusses the importance of maintaining accurate records of all transactions. It is essential for the company to have a clear and concise record of all financial activities, including sales, purchases, and expenses. This will allow the company to track its performance over time and identify areas for improvement.

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Table 2. World Bread-Grain Needs and Supplies (cont)

India, Ceylon and Far East	10.0	8.5
U.K., Eire, Middle East, Africa, Latin America, etc.	<u>8-9</u>	<u>8-9</u>
	30½ - 31½	28-29
(2) <u>Export Supplies</u>		
Wheat and flour (as wheat)	19 - 21	20-21
(3) <u>World Deficit</u>		
(related only to bread-grain supplies):	10 - 11	8

Turning from wheat to cereals as a whole, there have been very large increases in production in recent years in North America; in fact, compared with prewar these increases probably equal the decreases in Europe and other deficit areas. In practice, however, it is extremely difficult to transfer out of North America more than a small proportion of this increased production since by far the greater part of the North American cereal harvest consists of maize, oats, and barley, most of which is fed to livestock on or near the farms where it is produced. This increase in North America's feed crops has resulted in a large expansion of livestock production and, to a lesser extent, in the export of livestock products.

This year a record maize crop is expected in the United States and it is estimated that some 150 million bushels of coarse grain will be available for export. This, together with estimated coarse grain exports from other supplying countries, makes up a total of 6½ million tons world exports for 1946-47. There will be strong competition for shares in this supply among countries anxious to import feed for their livestock. Unless special steps are taken, it is unlikely that much of it will be used for human consumption.

Since the world faces a bread-grain deficit of about 8 million tons, it is important for the nations seriously to reconsider whether and by what means more grain can be made available for direct human consumption in the coming year. The food importing countries may wish to consider the possibilities of diverting some coarse grain from animal to human use, of maintaining extraction rates at high levels, and of continuing bread rationing so as to reduce their claims on the inadequate

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1863. It is a very important document, as it contains the President's message to Congress, and is one of the most important documents in the history of the United States.

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world supply. Similar measures may be possible in the grain exporting countries, but in some instances further attempts at economy might create new difficulties. For example, in the United States the present goal is to export 250 million bushels of wheat and 150 million bushels of coarse grain, a total of some 10 million tons of grain which is the maximum that the internal transportation system is considered capable of handling. There will be, it is true, a considerably larger supply than last year of wheat and coarse grain left in the United States, but further investigation would be necessary to determine whether any further portion of this supply could in practice be moved to deficit countries.

A second best alternative would be to divert to human use at the expense of livestock some part of the $6\frac{1}{2}$ million tons export surplus of coarse grains. Although coarse grains are not practicable for bread-making in northwest Europe, they could be utilized in southern Europe and in parts of the Orient.

Whatever combinations of solutions may be found practicable, it is obviously desirable that all countries should know as soon as possible the size of the gap and the action required to close it so that the necessary measures may be put into effect.

Looking to the future, there seems likely to be in 1947-48 and possibly for longer a keen demand for all the cereals the world can produce. On the supply side, although technical improvements in North America have undoubtedly increased production capacity, it would be unwise to count on a continuance in that region of the favorable weather of the last few seasons. On the demand side, India seems now permanently on an importing basis, Germany and Japan for a time at least will have abnormally heavy requirements, and a number of other countries will continue to import above the prewar level until their agricultural production recovers.

2. Rice

World rice production for 1946-47 is forecast at about 92 million tons in terms of milled rice. This figure represents an increase of approximately 10 percent over the 1945-46 crop, but is still considerably less than prewar production which averaged more than 98 million tons. However, even if the prewar volume of production could be obtained, consumption would still fall below the prewar standard owing to the sizable increase in population in the principal rice consuming areas of the Far East. This population increase is of the order of 10 percent in the case of India and parts of China and is thought to be considerably greater in some of the smaller countries of southeast Asia.

The fall in rice production has occurred chiefly in Japan, a few areas of China, and the rice exporting countries, namely Burma, Siam,

Indo-china, Korea, and Formosa. In some of these latter production has declined by more than a third and the export surplus has been almost wiped out. Recovery in production is handicapped through lack of draft cattle, through weakened incentive due to lack of consumption goods, through political instability and through lack of agricultural implements and in some areas fertilizers.

Export for 1946-47 are estimated at about 2.5 million tons (including accumulated stocks not shipped during 1946-46) which represents not much more than one third of prewar rice exports. For the last half of 1946 total exportable surpluses are expected to provide the populations in the urban and other deficit areas of the Far East with a consumption averaging about 50 percent of prewar. Unless imports of other cereals can arrive in time, the nutritional consequences will be serious. Such a cut in rice supplies represents a decline of at least 600 calories in a diet which normally ranges between 2000 and 2200 calories.

In India, although the production of rice has been approximately maintained, the drastic curtailment of customary rice imports since 1942, together with the effects of the 1945-46 drought, has produced a critical situation in many urban areas. In China it is the breakdown of internal transportation which has given rise to large import demands for areas which were normally provisioned from national sources. In Japan there has been a sharp fall in production, considerable difficulty over the collection of rice from the peasants, coupled with cessation of imports from Korea and Formosa.

The world rice situation will continue difficult far beyond 1946-47. It is not merely that recovery in production is likely to be slow in several important areas, it is also that the major rice-eating countries face the problem of expanding their output to keep pace with the expansion in population. If fertilizers could be applied to these rice areas on the scale normally used in Japan, a rapid expansion in output could be secured. Meanwhile, some countries in the Far East are trying to introduce other cereals into the diet of rice-eating groups; but naturally there is great difficulty in making these substitutes acceptable.

3. Fats and Oils

World production of visible fats and oils available for consumption in 1947 1/ if forecast at about 5 percent above 1946, but about 15 percent below the immediate prewar average. Excluding the supplies retained for native con-

1/ This section related to prospects for the calendar year 1947 since most of the supply estimates are on that basis. An improvement in supplies is discernible for the second half of 1947, but the position for the 12 months commencing July 1, 1946, is little different from that given in the May Appraisal.

sumption in tropical countries, production in 1947 may be about 8 percent above 1946, but probably 20 percent below prewar. The total quantity available for international trade in 1947 (viz., excluding locally consumed indigenous production in Europe and North America) is forecast at between 2.8 and 3 million tons compared with 2.5 million in 1946 and an annual average of 5.4 million tons during 1935-39. The improvement in 1947 supplies, however, is less than indicated above, since (1) contributions cannot be made from stocks, as occurred during the past 18 months, and (2) United States production will be less than in 1946.

The stock position in almost all countries is even more precarious than was expected last May and considerable replenishing is desirable to insure regular distribution. Consequently, consumption may not be able to rise in 1947 as much as production and exports. Many countries will still be far short of 80 percent of prewar consumption and the shortage of fats is especially acute in respect to supplies for the manufacture of soap, paints, floor coverings, and other products urgently needed for industrial or domestic purposes. 2/

The greatest increase in 1947 exportable supplies over those of the present year will probably be in copra, occurring primarily in supplies from the Philippines, and the Outer Islands of the Netherlands Indies. The expansion in palm oil exports next year is expected to be limited in the East Indies due to the political unrest and the time-lag in repairing installation damaged during Japanese occupation.

In the Mediterranean area olive oil production may be as much as 300,000 tons greater than in 1946 but still below prewar. Long experience has shown that even such large fluctuations in olive oil have only a small effect on the foreign trade in oils of this area; in other words, Italy and Spain, which largely went without last year, now will have more from their own crops. Nevertheless, they expect to make some exports in 1947 although the tonnage will be small.

Whale oil production in 1947 is expected to increase with additional factory ships being made ready for the coming expedition to the Antarctic. Total production in 1946 equalled about 145,000 tons, while next year's catch may be over 200,000 tons. Even if the latter figure is attained, however, it will be less than half of the prewar production.

Peanut acreage in West Africa during the 1946-47 season is likely to be above that of last year, if favorable weather conditions prevail and supplies should be larger. The supply of Argentine sunflower oil available for export may be greater next year owing to the delayed exports from the 1946 harvest. On the other hand, United States production of vegetable oils from home-grown seeds will be lower, and present indications

2/ For 1945-46 consumption data in selected countries, see Appendix.

are that Manchurian production and exports of soybeans next year will, as in 1946, be only a fraction of prewar volume.

As regards animals fats (excluding butter), United States lard production will continue to decline in the first part of 1947 and the year's output will probably be somewhat less than in 1946. No great change is to be expected in export supplies from the Argentine, Australia, and New-Zealand.

Recently the prices of fats and oils have risen significantly in certain supplying countries. At present this does not affect too adversely the financially disadvantaged countries because they can, in any case, secure only small quantities for import. Later, however, as supplies begin to expand it might well be that such countries could not afford to claim their equitable share until these prices returned to more reasonable levels.

The supply situation may be expected to improve in the latter half of 1947. More vegetable oils will be available from the Far East while United States lard production might begin to improve 12 months hence as a result of the ample corn supplies now becoming available. Nevertheless world supplies will still be well below prewar levels. Moreover, the continued world butter shortage involves and increased demand, compared with prewar, for other edible fats. Meantime, steps are being taken in various territories to develop additional sources of vegetable oil supply which may lead to a substantial increase in world exports a few years hence.

4. Meat and Fish

(a) Meat

During the war, significant changes occurred in meat production in different continents. There was a heavy fall in Europe, continental production declining to 60 percent and United Kingdom production to 70 percent of the prewar level. At the same time meat output in North America was expanded by 40 percent which went largely to satisfy and increase in home demand.

The United Kingdom was the only large importer during the war years, apart from limited quantities going to the U.S.S.R., but the liberation of the continent gave rise to considerable demands from Europe.

Production in most exporting countries in 1946-47 will be higher than in prewar years, but lower than in 1945-46. In North America the decline in pig meat production from the peak wartime level of 1944 is expected

Condition	Control (%)	MCI (%)	AD (%)
A	~95	~85	~75
B	~90	~75	~65
C	100	80	60
D	~95	~85	~75

1. *Phragmites* (1990)

[illegible]

to continue, though the ample feed prospects in the United States may result in a reversal of this trend toward the end of 1947. Civilian demand will probably continue at a high level and North American exports will be less than in 1945-46. Exports should be somewhat larger than last year from Australia and New Zealand where meat rationing is likely to continue, and from the Argentine. There may also be an increase in supplies from Denmark. Production in the rest of Europe will be about 65-70 percent of prewar and will continue to recover, but only slowly so long as the feeding-stuffs situation remains difficult. A major problem is the supply of oil-cake which, although improving, is unlikely in 1946-47 to exceed 50 percent of prewar for Britain and Western Europe. (No supplies of imported oilseeds or oilcake are available for Germany and Japan, both of which imported over 1 million tons annually before the war.)

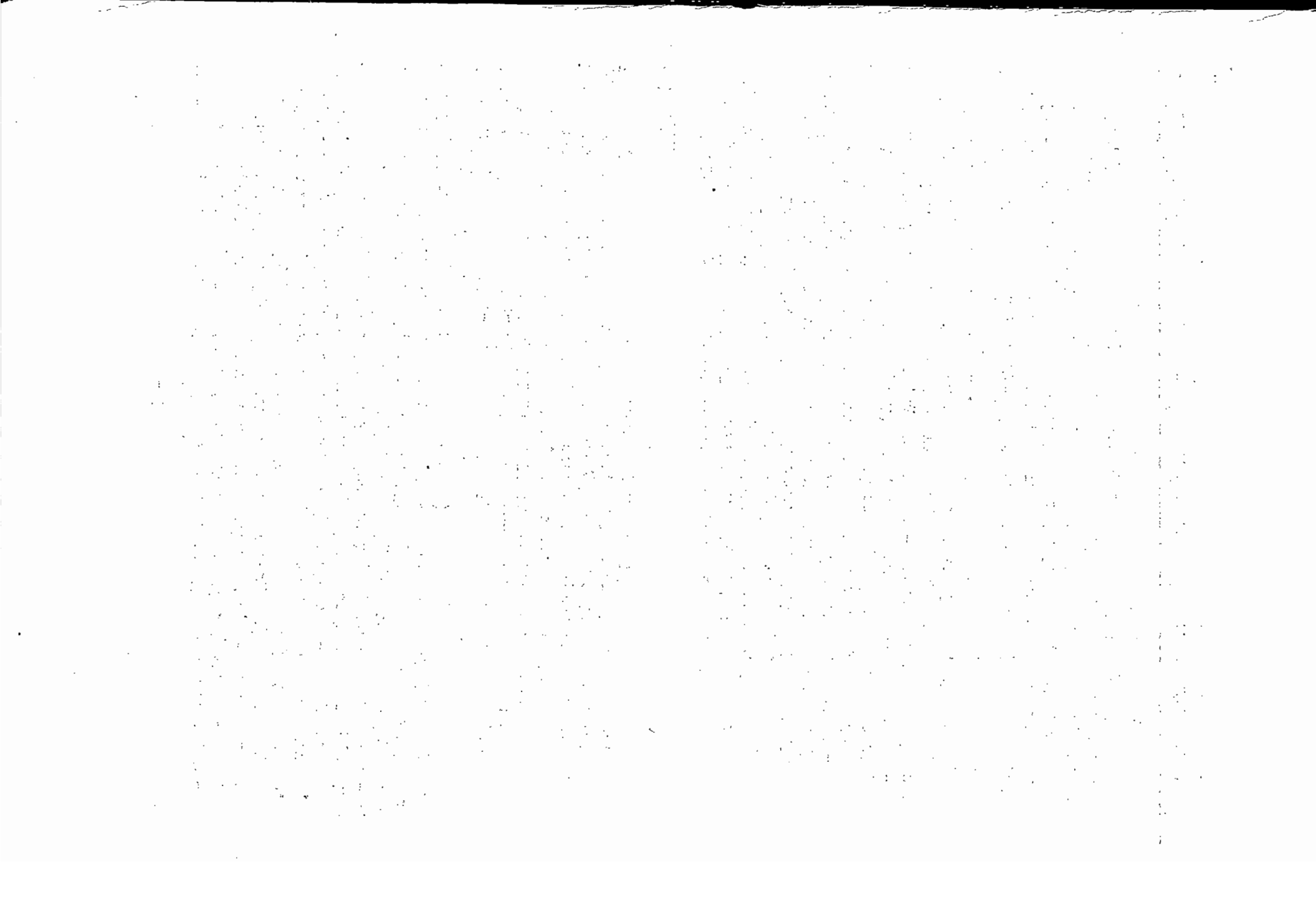
Considering the year 1946-47, there is likely to be a significant gap between available exports and import demands -- even on the basis of existing rations in Britain and Europe. If it were not that lack of money prevents real needs from finding expression, the scarcity would be still more manifest. On present forecasts, northwestern and southern Europe will be getting from indigenous production and imports a total supply equivalent to 75 percent of prewar, while central and eastern Europe will be getting a much smaller percentage. 1/

(b) Fish

The fish situation remains substantially the same as outlined at the Special Meeting on Urgent Food Problems in May 1946. While supplies are greater than in 1945-46 they are substantially below prewar. Large quantities of fresh and frozen fish can be made available from such countries as Iceland, United Kingdom, Norway, Denmark, The Netherlands and Sweden; but owing to its high degree of perishability and the lack of adequate refrigerated transport and warehouse facilities, distribution is necessarily limited. However, some quantities are being made available for distribution in the occupied zones of Germany and Austria, from Danish and Swedish supplies. Although there are no current consumption and production data for the important fish-eating countries of Europe and the Far East, it appears that where fishing equipment is reasonably sufficient, as in most of the countries of northwest Europe, the catches are already back to prewar levels.

The supply position of salted fish (cod and related species) has improved considerably in recent months because of the reappearance of Denmark and the Faroe Islands as major suppliers. Newfoundland, Canada, and Norway are expected to maintain production at least equal to that of the immediate prewar years; but France, normally an exporter of some 30 million pounds annually, is now a claimant to the extent of some 10 million pounds

1/ The 1945-46 figures for selected countries are given in the Appendix.



annually; and Iceland which exported 70 to 80 million pounds is not expected to have an exportable surplus of more than 10 million pounds. This reduction in the Icelandic supply is due to a diversion to fresh and frozen fish.

The total estimated supply of canned fish in 1946-47 is about 75 million pounds less than in 1945-46. This reduction is due to the heavy inroads made on carry over stocks. Because of a sharp reduction in military requirements, exportable supplies available against civilian requirements remain approximately the same as last year. This exportable supply is about 150 million pounds less than prewar, which is accounted for by the absence of an exportable surplus from Japan and the shortage of tinplate and other ancillary materials in such countries as Norway, Spain, and Portugal.

Because of shortage of funds UNRRA has recently relinquished a large part of its allocations and other proposed purchases of fish, including 60 million pounds canned fish from United States, 30 million pounds Canadian canned fish, 3 million pounds (dry salt basis) of salted fish and 12 million pounds of salted (pickled) herring. The effects of this and of the general termination of UNRRA activities are (1) to accentuate a distribution of fish supplies on a basis of buying power rather than need, and (2) to remove an important stimulus to the catching of fish. More boats would put to sea and more fish would be caught if there were forward contracts at reasonable prices. Fish could considerably augment the supply of animal protein among needful peoples. Unless food-deficit countries can obtain the necessary foreign exchange, however, there is a real danger that a part of the 1946-47 catch will be wasted for lack of a market.

5. Milk and Milk Products

(a) Liquid Milk

During the war the production of liquid milk fell heavily throughout continental Europe because of shortage of feeding-stuffs, reduction in cattle numbers. Ration allotments have been meagre to all groups except the priority classes of mothers and young children. In the United Kingdom milk production declined slightly; but through drastic reductions in the amount of milk fed to calves and used in manufacture, it was possible to increase total milk consumption in liquid form.

Priority in the allocation of feeding-stuffs is in most countries given to dairy cattle, and it is important nutritionally that this should continue; nevertheless the feed situation especially with respect to oilcake is such that there cannot be any quick improvement in milk yields either in continental Europe or in Britain. This milk shortage has stimulated in some countries an abnormally high demand for canned and dried milk.

(b) Butter

From 250,000 to 300,000 tons of butter will be available for international trade in 1946-47, only one half of the prewar volume; this implies half the prewar consumption in the United Kingdom, the chief buyer. About two thirds of these exports will come from Australia and New Zealand and the balance mainly from Denmark and the Argentine. Denmark, formerly the largest exporter of butter, will be able to make available exports of about one half the prewar level. Continental Europe will continue almost self-sufficient at a very reduced level of consumption. Consumption is also below prewar levels in North America, Australia, and New Zealand.

(c) Cheese

Although the supplies of cheese for export in 1946-47 will be somewhat larger than in the prewar period, the demand from the United Kingdom and the deficit countries of Europe will not be fully met. More than 250,000 tons will be available for export, principally from New Zealand, the United States and Canada. Exports from New Zealand are unlikely to differ materially from those of last year, while a diminished production in the United States, and Canada will reduce the amounts of cheese available from these countries. By strict control of milk utilization -- largely at the expense of domestic supplies -- The Netherlands and Denmark plan to resume exports during this year for the first time since the beginning of the war. Production of cheese in the rest of continental Europe is still much below prewar levels and it is not expected that there will be any quick recovery, certainly not in the supplies for the non-farm population.

(d) Canned Milk

Supplies of canned milk available for export during 1946-47 are expected to be about 350,000 tons, almost all from the U.S.A., whereas the previous year's exports totaled more than 450,000 tons, and the prewar average was 2000,000 tons, mainly from The Netherlands.

The United States, because of greatly increased production, has been able to supply about three fourth of the total exports of canned milk in recent years. The large exports in 1945-46 were made possible by the release of accumulated stocks. Exports in 1946-47 will have to come from current production. Production of canned milk in The Netherlands, previously the world's largest exporter, has recommenced. Australia and New Zealand, Canada, and Denmark will export substantial quantities.

In spite of the shortages of milk and other dairy products which are still acute in many areas, the effective world demand for canned milk during the current year is lower than the total exports during 1945-46, mainly for lack of purchasing power. Of these exports, continental Europe received

about two thirds (including over 200,000 tons delivered to UNRRA for distribution). The decrease in requirements from Europe will be partially offset by a resumption of demand from the South Pacific Islands, the Far East and the Near East.

(e) Dried Milk

Exportable supplies of dried milk in 1946-47 are anticipated to be about 175,000 tons, chiefly from the United States, where production during the year is expected to be somewhat below the previous year, but well above prewar levels. Out of 1945-46 exports of about 270,000 tons over 110,000 tons were made available for liberated areas, more than half of which was delivered to UNRRA. In 1946-47, since much smaller quantities will be requested by former UNRRA countries, the dried milk requirements are principally for civilian feeding by the armies of occupation, and for the United Kingdom and India.

6. Sugar (Beet and Cane)^{1/}

World supplies of sugar for 1946-47 are estimated at about 31 million tons, based on some very free estimates for eastern Europe, the U.S.S.R., India, and China, together with an arbitrary and possibly over-optimistic assumption regarding availability of supplies from Java. Increases in production are anticipated in all the major areas except Asia. This total supply is about 10 percent above the 28 million tons estimated to have gone into consumption during 1945-46, and at least 10 percent below the quantity which it is estimated would be needed to meet unrationed demand. In 1946-47, as in the year just past (when production was at the lowest point reached since 1923), it will not be possible to increase supplies to any appreciable extent by drawing on carryovers from previous years.

A major factor contributing to the expected increase over last year's production is the assumption that output will be about 1.4 million tons greater in the Caribbean area, mostly in Cuba and Puerto Rico. Since it is too early to forecast the 1946-47 crops in this area with any accuracy, the world supply outlook may be too optimistic by the extent to which these crops may fall short of present assumptions. The estimated Cuban crop for 1946-47 might be as much as 1 million tons above the 1945-46 crop. Not all of this increased production, however, could be moved into export positions within this period, it being estimated that stocks would in fact increase during the 12 months by 600,000 tons; a somewhat similar stock increase occurred in 1945-46. Exports from Cuba in 1946-47 may reach 4.7 million tons, against 3.5 million tons in 1945-46.

In Europe the 1946-47 beet harvest is about to begin and fairly reliable estimates are available for most western European countries. It now seems reasonable to predict that European production will exceed last year's by

^{1/} Figures in this section are in short tons of raw sugar.

The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, which are based on the principle of the uncertainty of the position and momentum of the particles.

In the second part of the paper, the author discusses the problem of the structure of the nucleus. It is shown that the structure of the nucleus is determined by the laws of quantum mechanics, which are based on the principle of the uncertainty of the position and momentum of the particles. The author also discusses the problem of the structure of the nucleus in the case of the presence of a magnetic field.

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References

1. A. Einstein, "On the Quantum Theory of Radiation," *Ann. Phys.*, **17**, 101 (1905).
2. M. Planck, "On the Law of Distribution of Energy in the Normal Spectrum," *Monatsh. f. Phys.*, **2**, 369 (1901).
3. A. Bohr, "On the Constitution of Matter," *Nature*, **246**, 234 (1934).

about 2 million tons. This will mean that Europe has recovered a level representing about 75 percent of prewar production, compared with less than 60 percent last year. Belgium, France, Italy, The Netherlands, Poland, and the U.S.S.R. (the countries where production suffered most heavily last year because of the war), are expected to show the greatest advances, though shortages of fertilizer, fuel, and transportation facilities are still retarding recovery somewhat.

In Asia, on the other hand, recovery will be much slower than in Europe, because the cane production of Java, Formosa, and the Philippines, which before the war amounted to 3.7 million tons, was practically destroyed and will take several years to rehabilitate. Stocks in Java estimated at 1,200,00 tons are being steadily consumed, and probably less than half will be available when export shipments again become possible. Production in India and China has been fairly well maintained throughout the war years. India will probably be self-sufficient, but China will need sugar from other sources until production in Formosa or Java is restored. Before the war, China depended on Java for nearly half her sugar supply.

Exports from Hawaii and Fiji will be higher than last year though still below prewar. In Australia, production may be seriously reduced by the present drought. In Africa, total production is expected to be approximately at the prewar level. In certain sugar-exporting countries, particularly in Central America, South America, and South Africa, consumption has increased with the wartime prosperity of the mass of the population, with the result that exports are below prewar levels.

The IEFC allocation recently arranged for the calendar year 1946 provides for a consumption level of about 70 percent of prewar in the major importing countries, in all of which wartime rationing is maintained.^{1/} During 1947 it should become possible to raise ration levels, but further improvement must wait upon recovery of production in Java, Formosa, the Philippines, and Europe.

^{1/} For 1945-46 consumption in selected countries, see Appendix.

APPENDIX

Approximate Consumption Levels in Various Countries
in 1945-46 of Meat, Fats, and Sugar 1/

(Note: The estimates for the United Kingdom, North America, and Australia were based on current consumption level estimates, those for countries in continental Europe on import allocations which may not have been achieved in full.)

MEAT (including bacon and offal) as carcass weight		FATS (including butter) for edible and technical purposes (e.g., soap)		SUGAR (cane and beet sugar only)	
Lb. per head per year	Percent of prewar	Lb. per head per year	Percent of prewar	Lb. per head per year	Percent of prewar
Over 120 lb:		Over 60 lb:		Over 80 lb:	
United States <u>a/</u>	120	United States <u>a/</u>	90	Australia <u>a/</u>	90
Canada <u>a/</u>	110	Canada	90	Sweden	90
Australia <u>a/</u>	80				
100-120 lb:		50-60 lb:		60-80 lb:	
Denmark <u>a/</u>	90	United Kingdom	80	United States	70
United Kingdom	80	Australia <u>a/</u>	80	Canada	70
		Denmark <u>a/</u>	70	United Kingdom	70
		Norway <u>a/</u>	70	Denmark <u>a/</u>	60
80-100 lb:		40-50 lb:		40-60 lb:	
Sweden <u>b/</u>	110	Belgium	80	Czechoslovakia <u>a/</u>	100
		Sweden	70	Belgium	70
		The Netherlands	70	The Netherlands	70
				Norway	60
60-80 lb:		30-40 lb:		20-40 lb:	
France	80	Greece <u>a/</u>	80	France	70
		France	70		
40-60 lb:		20-30 lb:		10-20 lb:	
Czechoslovakia	70	---		Greece	70
Norway	60			Germany <u>a/</u>	40
Austria	40				
Under 40 lb:		Under 20 lb:		Under 10 lb:	
Yugoslavia	70	Yugoslavia	50	Yugoslavia	70
Greece	50	Italy	40	Italy	30
Italy <u>b/</u>	50	Austria	40	Austria	10
The Netherlands <u>b/</u>	40	Czechoslovakia	40		
Germany <u>a/</u>	30	Germany	25		

a/ Supplies drawn entirely from home production (or imports balanced by exports).

b/ Less than 10% of supplies imported

1/ From United Kingdom Ministry of Food, Second Review of the World Food Shortage, July 1946, Cmd. 6879, London; H. M. Stationery Office.

