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NATIONAL FARM DATA HANDBOOK SYRIAN ARAB REPUBLIC 1994

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All tables, figures and maps have been reproduced as submitted.

Preface

The objective of this National Farm Data Handbook is to facilitate the use of existing farm data for planning, policy analysis and project design. The handbook contains standard input/output data on crops and livestock for the major agro-ecological zones in the Syrian Arab Republic for the crop year 1993/1994.

Of the numerous potential uses of such data, the most important are:

- Agricultural policy analysis
- Agricultural sector planning
- Regional rural development planning
- Preparation of agricultural projects
- Planning agricultural support services
- Teaching and training.

This handbook is not designed for use in planning individual farms. These input/output data are too generalized for planning and managing individual farms or devising specific extension recommendations, which should be based on more detailed data on the specific nature of a site or farming system.

This handbook was prepared by the Joint ESCWA/FAO Agriculture Division and the Agricultural Policy Department of the Syrian Ministry of Agriculture and Agrarian Reform, in cooperation with FAO. Data was collected from existing information and those generated through numerous farm surveys. Gaps were then filled by interviewing farmers and field agricultural officers in the agro-ecological zones. Data are therefore not to be considered official statistics.

The Economic and Social Commission for Western Asia (ESCWA) would like to express its gratitude to Mr. Nahi Al-Shaibany, Director, Department of Agricultural Economics, Ministry of Agriculture and Agrarian Reform, as well as Messrs. Mohammed Khazma and Hassan Sowar. ESCWA also extends its thanks to Messrs. Naser Alebeod, Samir Grad, Haytham Haydar and Amer Jabarin.

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LIST OF ABBREVIATIONS

Ag.ec.Z	Agro-ecological zone
CAB	Cooperative Agricultural Bank
COM	Cotton Marketing Organization
du	Dunum
GCE	General Company for Elevators
GCTGP	General Company for Trade and Grain Processing
GIC	General Institution for Consumption
GOF	General Organization for Feeds
GOTPG	General Organization for Trading and Processing of Grains
ha	Hectare
HAC	Higher Agricultural Council
kg	Kilogram
l	Litre
SP	Syrian pound
MAAR	Ministry of Agriculture and Agrarian Reform
Man/hr	Labour working hour
mm	Millimetre
m ³	Cubic metre
Ton	Metric ton

I. GENERAL FEATURES OF THE SYRIAN ARAB REPUBLIC

A. LOCATION AND AREA

The Syrian Arab Republic lies at the eastern end of the Mediterranean. The total area is 18,518,000 ha. Topographically, the Syrian Arab Republic can be divided into four regions:

- (a) The coastal region between mountains and the sea;
- (b) The mountains and the highlands extending from north to south parallel to the Mediterranean coast;
- (c) The plains or interior, located east of the highlands and including the plains of Damascus, Homs, Hamah, Aleppo, Al-Hassakeh, and Dara'a;
- (d) The *badiyah* and the desert plains located in the southeastern part of the country, bordering Jordan and Iraq.

B. CLIMATE

The climate of the Syrian Arab Republic is Mediterranean, with rainy winters, dry summers and two short seasons in between. According to rainfall level, the country is divided into four climatical regions, which is compatible with the above-mentioned topographical classification. The coastal region is characterized by high precipitation in winter and moderate temperatures and high humidity in summer. The mountains, about 1,000 metres above sea level, are characterized by heavy rainfall (exceeding 1,000 millimetres in winter and moderate weather in summer). The plains are characterized by moderate to low rainfall in winter and dryness and high temperatures in summer, with significant changes in daily temperatures. The *badiyah* region is characterized by low rainfall in winter and hot and dry summers.

Relative humidity during summer ranges from 20 to 50 per cent in the internal regions and between 70 and 80 per cent in the coastal regions. During winter relative humidity ranges between 60 and 70 per cent in the internal regions and in the coastal regions. The desert region has the lowest relative humidity.

Eastern winds blow during winter on the eastern parts and northern winds blow on northern and north-western parts, while the western and south-western winds blow on the rest of the country. During summer, northern winds blow on north-eastern parts, while the western and south-western winds blow on the rest of the country.

The majority of the Syrian Arab Republic is exposed to high variability in daily temperature. The maximum difference in daily temperature can be as high as 32 C° in the interior and about 13 C° in the coastal region.

Snow falls on mountains with an elevation of 1,500 metres above sea level, while areas located between 800 and 1,500 metres above sea level receive a mixture of rain and snow during the winter season.

C. MOUNTAINS, RIVERS, AND LAKES

In general, the majority of mountains are located in the western areas of the country. Mountain density and elevation decrease towards the east.

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Several national and international rivers are found in the Syrian Arab Republic. The following are the most important:

River	Length in km		Annual flow (m ³ /sec)		
	Total	In the Syrian Arab Republic	Average	Maximum	Minimum
Euphrates	2 330	600	482.0	1 143.0	43.0
Khabour	442	442	28.2	36.6	36.6
Khalej	124	100	9.6	11.3	24.5
Blekh	116	116	NA	NA	NA
Asai	485	366	7.6	11.5	4.8
N-Kabeer	96	89	7.7	36.9	NA
Assen	6	6	14.0	20.1	6.4
Barda	81	81	10.0	57.5	0.1
Awaj	70	70	2.3	25.5	0.1
Yarmouk	42	32	5.7	200.0	1.5
S-Kabeer	86	56	NA	NA	NA

Several natural and artificial lakes are also found in the Syrian Arab Republic, among which are the following:

Lake name	Location	Area (km ²)
Al-Assad	near Althourah	674
Jbool	near Aleppo	239
Kutainah	near Homs	81
Al-Otayka	near Damascus	11
Mzareeb	near Dara'a	1
Al-bath	near Arakah	27
Massadah	near Kunaitarah	1

D. POPULATION

The population of the Syrian Arab Republic in 1992 totalled about 12.5 million and is expected to reach 17 million by the year 2000. The population growth rate is currently estimated at 3.36 per cent. The labour force totalled about 1,645,000 in urban areas and 1,605,000 in rural areas. The agricultural labour force in 1992 totalled about 756,000, which constituted about 23 per cent of the total labour force. About 25 per cent of agricultural labourers are women, and about 32 per cent of agricultural labour consists of family labour.

II. THE AGRICULTURAL SECTOR

The average contribution of the agricultural sector to the GDP from 1970 to 1992 was around 18.6 per cent, with the lowest (16.3 per cent) in 1985, and the highest (19.6 per cent) in 1970. The average contribution during that period was SP 24.27 billion. The agricultural sector production had increased from about SP 9.1 billion in 1970 to SP 32.8 billion in 1992 over 260 per cent).

The agricultural sector is important in terms of natural resources, especially water, arable land and labour. The sector is a major source of income, foreign exchange and employment in the Syrian Arab Republic. Agriculture employs around 23 per cent of the labour force and accounts for nearly 20 per cent of GDP. Agricultural products constitute over 60 per cent of non-oil exports. Agro-industries contribute around 25 per cent of the country's output and account for an estimated 50 per cent of the jobs in the manufacturing sector.

According to the 1981 census, arable land owned and registered in the Syrian Arab Republic is distributed among 532,691 holdings, with a total area of 4,901,860 ha. Table 1 shows the distribution of land holdings by area. Figure I shows that 75.4 per cent of the holdings cover less than 10 ha each. Table 2 and figure II demonstrate that the largest average holding area is in Al-Rakka Governorate followed by Al-Hassakeh.

Irrigated agriculture contribute by more than 50 per cent of the total value of agricultural production, on about 15 per cent of the cultivated land. Cotton, sugar beet and a significant amount of wheat are produced in the irrigated areas. The sources of irrigation water are mainly rivers, deep and shallow wells and other surface water resources.

Natural resources, labour, capital and management are available in good proportions in Syrian agriculture.

A. LAND USE

Agricultural land in the Syrian Arab Republic is classified into two categories based on land use and soil type (see tables 3 and 4). Land classification based on use is further classified into four groups. In 1993, the land area of each group was as follows:

Cultivable land	5,939,000 ha
Uncultivable land	3,777,000 ha
Pasture and steppe land	8,217,000 ha
<u>Forests</u>	<u>585,000 ha</u>
Total area	18,518,000 ha

Cultivable land is classified into reclaimed and unreclaimed land amounting to 5,424,000 and 513,000 ha, respectively. The uncultivable land is mainly used for buildings and services.

Based on soil type, Syrian land is classified into the following:

Red Mediterranean soils	850,000 ha
Reddish-dark brown soils	2,217,000 ha
Yellowish-brown soils	4,782,000 ha
Desert soils	4,244,000 ha

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Gypsum soils	5,528,000 ha
Others	897,000 ha
Total	18,518,000 ha

**Table 1. THE DISTRIBUTION OF LAND HOLDINGS IN THE SYRIAN ARAB REPUBLIC
ACCORDING TO CATEGORIES**

Holding categories (hectare)	Number of holdings	Area (hectare)	Average holding area (hectare)	Area of category (percentage)	Number of holdings per category (percentage)
Less than 10 hectare	401 649	1 151 937	2.87	23.5	75.4
10-100 hectare	126 780	2 877 392	22.7	58.7	23.8
Greater than 100	4 262	872 531	204.72	17.8	0.8
Total	532 691	4 901 860	9.20	100	100

**Table 2. THE DISTRIBUTION OF LAND HOLDINGS IN THE SYRIAN ARAB REPUBLIC
ACCORDING TO GOVERNORATES**

Governorate	Number of holdings	Area (hectare)	Average holding area (hectare)	Area of category (percentage)	Number of holdings per category (percentage)
Sweida	15 792	132 811	8.41	2.71	2.96
Dar'a	20 857	200 644	9.62	4.09	3.92
Quneitra	2 264	11 773	5.20	0.24	0.43
Damascus	37 608	177 134	4.71	3.61	7.06
Homs	40 107	338 503	8.44	6.91	7.53
Hama	51 063	404 930	7.93	8.26	9.59
Idleb	46 985	251 840	5.36	5.14	8.82
Tartous	92 278	205 780	2.23	4.20	17.32
Lattakia	36 525	70 493	1.93	1.44	6.86
Aleppo	85 927	937 464	10.91	19.12	16.13
Al-Rakka	21 598	646 860	29.95	13.20	4.05
Dair-Ezzor	26 525	116 445	4.39	2.38	4.98
Al-Hassake	55 162	1 407 183	25.51	28.71	10.36
Total	532 691	4 901 860	9.20	100	100

The reclaimed land can also be classified, according to its productivity, into irrigated and rain-fed land. In 1993 irrigated areas totalled 1,013,000 ha, of which 124,000 ha were planted with trees and 889,000 ha were planted with annual crops. Rain-fed areas totalled 3,925,000 ha divided into five settlement zones. The boundaries are mainly drawn on the basis of the rainfall patterns. These zones are:

(a) First settlement zone:^{1/} with average annual rainfall greater than 350 mm. It is subdivided into two sub-zones:

^{1/} The area of the first settlement zone is 2.698 million ha (about 14.6 per cent of the total area). In 1993, the actual cultivated area in the first settlement zone was 1.750 million ha. The cropping pattern included 373,300 ha of trees and 693,000 ha of field crops (mainly wheat, barley, lentils, and chick-peas).

Figure I. NUMBER OF HOLDINGS PER CATEGORY
(Percentage)

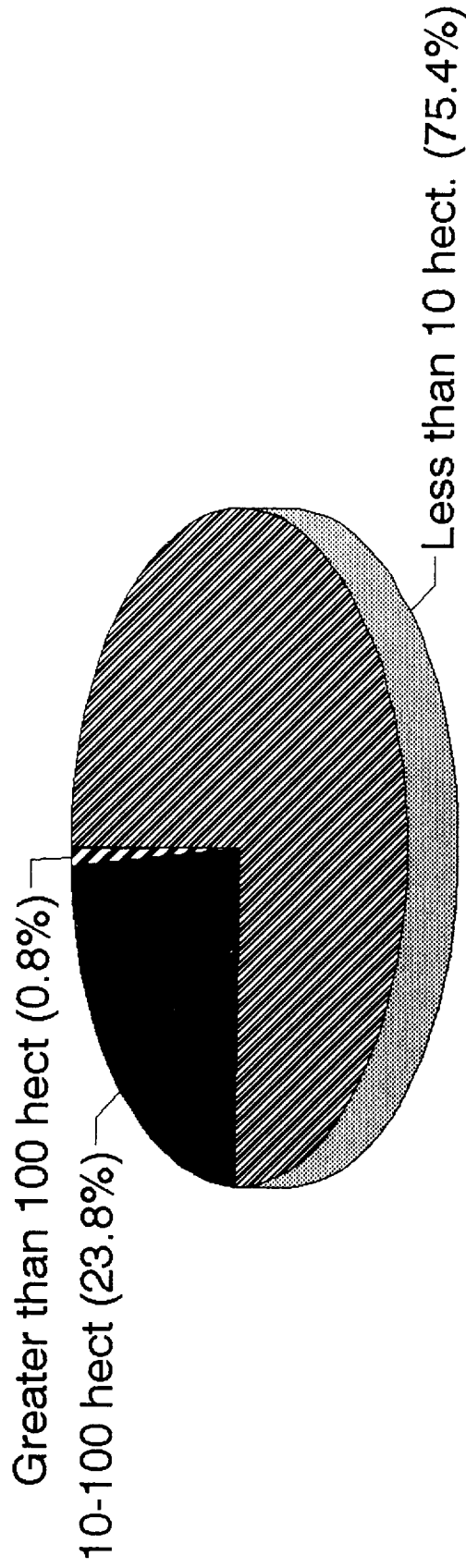
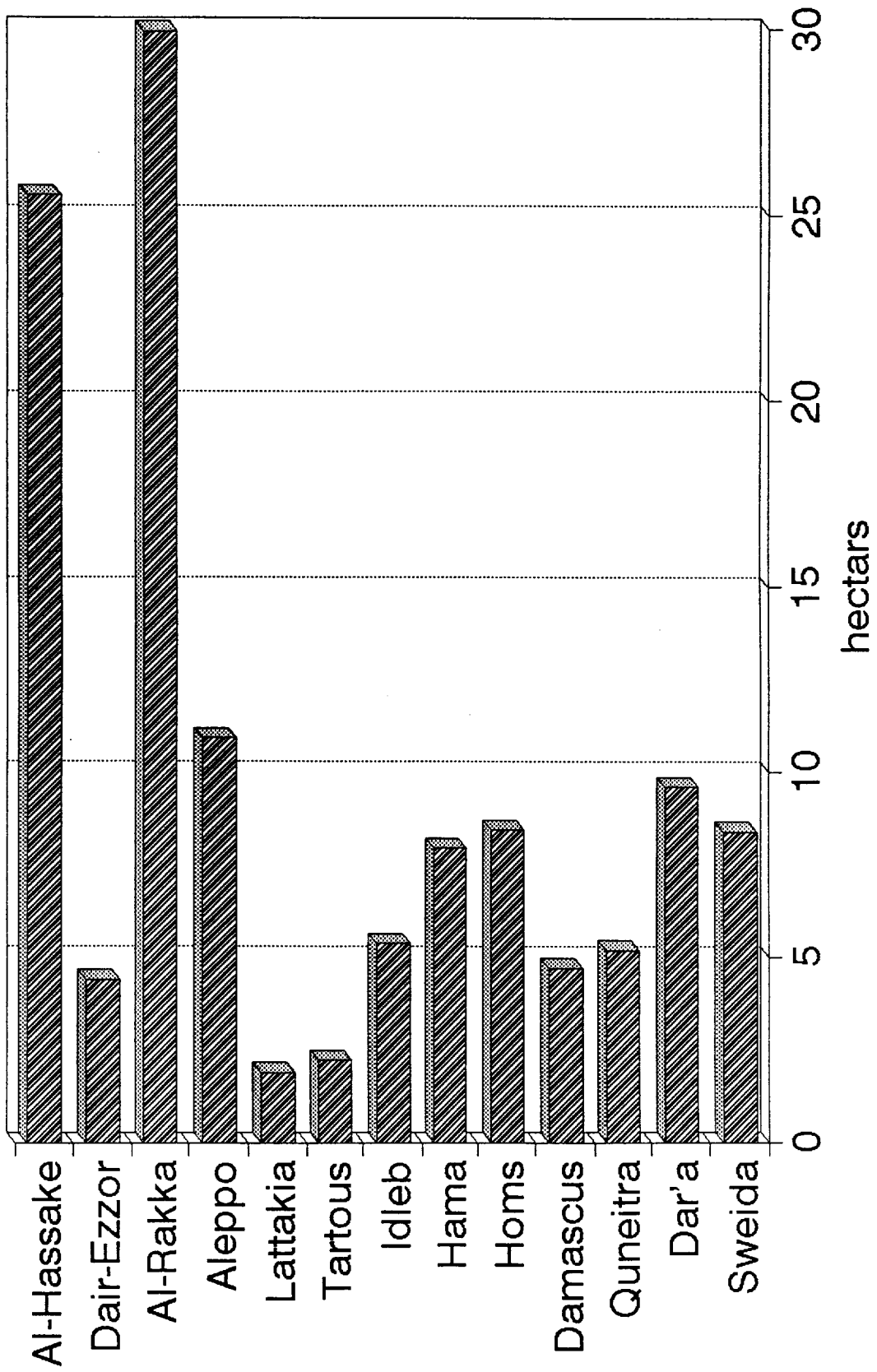


Figure II. AVERAGE HOLDING SIZE PER GOVERNORATE
(Hectares)



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Table 3. LAND USE PATTERN IN THE SYRIAN ARAB REPUBLIC IN 1993
(Hectares)

Governorate	Area	Total	Arable land		Non-cult. Total	Non-Arable land			Steppe & forests	
			Cultivated	Non-cult.		Bul. & road	water	Rocky	Pasture	
Damascus	1801813	193494	126600	66894	236157	69019	3529	163609	1336136	36026
Dam-city	11844	1660	1660	0	9419	7798	21	1600	0	765
Dara'a	373000	226766	213610	13156	111246	75555	1833	33858	27857	7131
Sweida	555000	190628	140212	50416	143398	29132	1424	102842	215401	5573
Quneitra	186096	146881	16600	130281	21839	6725	591	14523	15098	2278
Homs	4093986	385697	385126	571	1042724	85693	5924	951107	2538582	126982
Hamah	878176	392482	326885	65597	150091	41670	3404	105017	301360	34243
Ghab	138092	81902	81902	0	13904	10430	2521	953	2645	37641
Idleb	609710	336796	314939	21857	157109	40010	2281	114818	45640	70165
Aleppo	1819678	1210336	1209986	350	349596	66157	19734	263705	217343	42403
Al-Assad	28540	17179	16455	724	10260	4802	4208	1250	0	1101
Tartous	189620	114196	114196	0	40772	21651	1506	17565	3333	31369
Lattakia	229689	112429	99019	13410	28992	149228	2722	11332	3011	85257
Al-Hasakeh	2333359	1383613	1277290	106323	88158	44284	10584	33390	766932	94656
Al-Reqqa	1924005	887035	883553	3482	145672	53963	66690	25019	886632	4666
G.A.E.B.	39363	24797	18617	6180	14380	3912	0	10468	0	186
Dair-Ezzor	3306000	233156	299002	34154	1213413	25848	11350	1176215	1854587	4844
Total	18517971	5939047	5525652	513395	3777130	735877	138322	3027271	8214557	585286

Source: MAAR (Dept. of Agricultural Economics)

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Table 4. ARABLE LAND ACCORDING TO GOVERNORATE IN 1993

Governorate	Total arable	Fallow	Actual cultivated land			Irrigated		Total	Irrigated land		wells	
			Total	Rain-fed		Irrigated	trees		From rivers and lakes			
				rain-fed	irrigated				slekh	trees		pumps
Damascus	16600	12779	43601	70230	21802	1799	34376	35844	70220	318	22830	47072
Dam-city	1660	0	0	1660	0	0	996	664	1660	0	1177	483
Dara'a	213610	10889	175522	27199	156624	18898	20020	7179	271	13947	5125	8127
Sweida	140212	13947	126196	69	99016	27180	0	69	0	0	692	
Quneitra	16600	0	13091	3509	10351	2740	1924	6585	3509	1105	947	1457
Homs	285126	53618	285562	44946	234282	52280	32406	12540	44946	6502	20427	18017
Hamah	326885	24603	260511	41771	220970	39541	36249	5522	41771	2674	8571	30526
Ghab	81902	0	12087	69815	10065	2022	69374	441	69815	0	46598	23217
Idleb	314939	0	285009	29930	167148	117861	24985	4945	29930	2268	532	27130
Aleppo	1209986	131132	989824	89030	819031	170793	81822	7208	89030	10273	22356	56401
Al-Assad	16455	1025	0	15430	0	0	6381	9049	15430	15430	0	0
Tartous	114196	0	90120	24076	28389	61731	17027	7049	24076	2433	4252	17391
Lattakia	99019	0	97642	31377	34862	32780	12206	19171	31377	19702	8339	3336
Al-Hasakeh	1277290	0	920719	356571	920060	659	354702	1869	356571	34307	20858	301406
Al-Reqqa	883553	175815	601212	106526	501007	205	103905	2621	106526	44533	13200	48793
G.A.E.B.	18617	0	2185	16432	2185	0	10712	5720	16432	16432	0	0
Dair-Ezzor	199002	63174	51116	84712	51116	0	82263	2449	84712	58080	0	26632
Total	5215652	486982	3955397	1013283	3276908	528489	889348	128925	986276	228004	175904	609988

Source: MAAR (Dept. of Agricultural Economics)

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(a) First settlement zone:^{2/} with average annual rainfall greater than 350 mm. It is subdivided into two sub-zones:

- (i) a sub-zone with rainfall greater than 600 mm where rain-fed crops are grown without any risk;
- (ii) a sub-zone with rainfall between 350 and 600 mm where only two seasons out of three are secured;

(b) Second settlement zone: with average annual rainfall between 250 and 350 mm. Two out of three seasons are secured in this zone. Its total area is 2.473 million ha. In 1993, the actual cultivated area in this zone was 1.358 million ha, of which 143,000 ha were planted with fruit trees and 1.215 million ha with field crops (mainly wheat, barley, lentils and chick-peas);

(c) Third settlement zone: with average annual rainfall greater than 250 mm in more than half of the seasons. The total area of the zone is 1.306 million ha. The actual cultivated area in 1993 was 830,000 ha, of which 617,000 ha were planted with fruit trees and 596,000 ha in field crops (mainly wheat, barley, lentils and chick-peas);

(d) Fourth settlement zone: with average annual rainfall between 200 and 250 mm in more than half of the seasons. The area under this zone is about 1.833 million ha, of which 592,000 ha were cultivated in 1993. Of these, 7,000 ha were planted with trees and 585,000 ha were planted with field crops (mainly wheat, barley, lentils and chick-peas);

(e) Fifth settlement zone: with average annual rainfall of less than 200 mm in more than half of the seasons. It is considered as rangeland and desert areas and covers 1.0111 million ha (about 55.1 per cent of the total area of the Syrian Arab Republic).

For each settlement zone, the ideal crops and cropping patterns are determined centrally after extensive consultation between the local civil authorities and the respective bodies in the farming community. The selection is based not only on strict agro-climatic factors but also on other criteria related to national objectives and policies, such as self-sufficiency in staple food commodities, adequate supplies or raw materials for existing agro-processing plants.

B. IRRIGATION WATER

The sources for irrigation water in the Syrian Arab Republic are:

Surface water	16,477,000 m ³
Springs	3,693,000 m ³
<u>Renewable underground</u>	<u>2,321,000 m³</u>
Total	22,491,000 m ³

^{2/} The area of the first settlement zone is 2.698 million ha (about 14.6 per cent of the total area). In 1993, the actual cultivated area in the first settlement zone was 1.750 million ha. The cropping pattern included 373,300 ha of trees and 693,000 ha of field crops (mainly wheat, barley, lentils, and chick-peas).

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Annual rainfall in the Syrian Arab Republic amounts to 45,000,000,000 m³ of water; however, most of it either evaporates or recharges the groundwater. Only 9 per cent of the rainfall flows as surface water.

There are 16 rivers and tributaries in the Syrian Arab Republic, the largest being the Euphrates with a length, in the Syrian Arab Republic, of 602 km and an average flow of 1,042 m³/sec. The Al-Khabour River and its tributaries extend 405 km, with an average flow of 3 m³/sec., while the Orantes and its tributaries run some 325 km in the Syrian Arab Republic and flow at an average rate of 51 m³/sec.

There are 141 dams in the Syrian Arab Republic with a storage capacity of 25,693,000,000 m³. The largest dam is located at Al-Tabka on the Euphrates. It forms Al-Assad Lake with a storage capacity of 11,200,000,000 m³. Approximately 640,000 ha of land are planned for irrigation with water from this dam. Medium-sized dams include Al-Resten (225 million m³), Mouhardeh (50 million m³) and Taldo (15.5 million m³). There are some 20 dams classified as small, the largest of which is Dara'a, with a storage capacity of 15 million m³. The majority of these dams are located near Homs and Hama.

Apart from Al-Assad Lake, there are five lakes in the Syrian Arab Republic, the largest being Lake Jabboul near Aleppo (surface area about 239 km²) while Lake Qattineh near Homs is the principal lake in the Syrian Arab Republic that remains full throughout the year.

C. FORESTRY

In comparison with other countries in the Middle East, the Syrian Arab Republic is considered one of the richest in forests. Forests and woodland areas cover about 585,000 ha, of which 309,000 ha are located in the first settlement zone. Forests are concentrated in the higher-rainfall zones of Homs, Lattakia and Idleb, where they normally occupy land which is unsuitable for agriculture (steep slopes and poor soils)

D. INPUT USE

Several laws govern the rights to use natural agricultural resources. These laws grant Syrian citizens the right to benefit from all natural resources such as water and land. Available information on input use in agriculture reveals a doubling of the quantity of fertilizers used in Syrian agriculture between 1980 and 1990. The number of tractors more than doubled during that period, and the use of pumps, seed drills and sprayers has increased rapidly.

E. AGRICULTURAL PRODUCTION

Plant production contributes about 64 per cent of the total value of agricultural production in the Syrian Arab Republic, while animal production provides 36 per cent of the total value of agricultural production. In 1993, the cultivated areas included about 4 million ha in the rain-fed regions and 1 million ha under irrigation.

Plant production in the Syrian Arab Republic is classified into six groups as follows:

(a) *Cereals*: including wheat, barley, maize and sorghum. In the 1992-1993 production season, areas cultivated with cereals under irrigation and rain-fed conditions totalled 625,000 ha and 3 million ha, respectively;

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(b) *Legumes*: including lentils, chick-peas, peas, broad beans and vetch. The lentil is the dominant crop inasmuch as it occupies more than 50 per cent of the cultivated areas in legumes annually. In the 1992-1993 production season, areas cultivated with legumes under irrigation and rain-fed conditions totalled 9,000 ha and 190,000 ha, respectively;

(c) *Industrial crops*: including cotton, sugar beet, peanuts, soybeans and sesame. The majority of these crops are produced under irrigation. In the 1992-1993 production season, areas planted with industrial crops totalled 260,000 ha under irrigation and 190,000 ha under rain-fed conditions;

(d) *Forage crops*: including alfalfa, grazing barley, grazing maize and grazing vetch. The cultivated areas amounted to 38,000 ha and 56,000 ha under irrigation and rain-fed conditions, respectively;

(e) *Vegetables*, which are produced in winter and summer, constitute the largest group with regard to types (mainly potatoes, onions, tomatoes, eggplant and peppers). In the 1992-1993 production season, 148,000 ha and 67,000 ha were cultivated in vegetables under irrigation and rain-fed conditions, respectively;

(f) *Fruit trees* include mainly olives, grapes, apples, citrus, apricots and pistachios. In the 1992-1993 production season, the cultivated areas under irrigation and rain-fed conditions totalled 124,000 ha and 548,000 ha, respectively. The country has about 215 million trees, most of which were planted in the last two decades.

F. CROPPING PATTERN AND CROP ROTATIONS

1. *Irrigated areas*

There is wide variation in cropping patterns in the irrigated areas owing to the number of water sources available and the agro-climatical conditions. Strategic crops such as wheat and cotton are concentrated in the northern and the eastern parts of the country. More than 50 per cent of the wheat and cotton produced in the country comes from Al-Hassakeh Governorate. However, production of winter vegetables is centred in the coastal region, while summer vegetables are produced mainly in the internal plains, especially in the middle and southern regions. Irrigated fruit trees such as citrus are mainly found in the coastal region.

In 1993, the total irrigated area was 1,013,000 ha, of which 124,000 ha were planted with fruit trees and the remaining 889,000 ha were planted with field crops and vegetables. Production intensity in field crops reaches 120 per cent; therefore, the 889,000 irrigated hectares become 1,066,000 ha, of which 676,000 ha are planted with winter field crops and vegetables and 390,000 ha are planted with summer field crops and vegetables.

2. *Rain-fed areas*

Rain-fed areas in the Syrian Arab Republic are mainly cultivated with field crops and fruit trees. In 1991, the total planted area devoted to fruit trees and field crops amounted to 3,925,000 ha in the five agro-climatical zones. The actual cultivated area in the first settlement zone was 98 per cent of the total arable area. The actual cultivated areas of the total arable lands in settlement zones two, three, four, and five reached 88.5 per cent, 81 per cent, 70 per cent and 52 per cent, respectively.

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G. ECONOMICS OF AGRICULTURAL PRODUCTION

The economics of production are determined by costs and returns, which is closely linked to the level of labour rates, the cost of hired machinery and the cost of inputs. Returns are linked mainly to price levels. The Government has specified the following objectives for the agricultural sector:

- (a) To improve food self-sufficiency, especially in cereals production;
- (b) To provide the agro-industry with the required raw materials;
- (c) To expand livestock production; and
- (d) To encourage producers to develop production through vertical and horizontal expansion and improve input and support services (equipment, extension).

III. PLANT PRODUCTION

A. MAIN CROPS

As mentioned above, wheat, barley, lentils, chick-peas and sugar beet are the main winter crops in the Syrian Arab Republic, while cotton, maize and sunflower are the main summer crops (table 5).

1. *Wheat*

Wheat is produced in both irrigated and rain-fed areas. The high-yielding wheat varieties are used in irrigated areas.

Wheat production fluctuated during the period 1983-1992. It was about 1.6 million tons in 1983 but dropped to 1.1 million tons in 1984; however, it recovered afterwards to reach about 2 million tons in 1990 and about 3 million tons in 1992. The lowest production figure was about 1 million tons in 1989. The Syrian Arab Republic imports small amounts of soft wheat to be mixed with the local hard wheat so as to enrich its quality. Wheat exports are negligible.

The General Organization for Trading and Processing of Grains (GOTPG) has a monopoly on grain trade and is the sole legal purchasing organization.

In terms of grain traded, Al-Hassakeh Governorate is by far the most important area. Since government authorization is required for selling to other governorates and for export, illegal domestic and border sales occur, but the extent is not known. The major part of un-traded grains is retained on the farms for household needs. Figure III summarizes the marketing channels of wheat in the Syrian Arab Republic.

The largest quantity of wheat is delivered to the GOTPG in bags. The Cereals Office makes arrangements to purchase grain directly from some producers, particularly small farmers, and collect the grains at the farm.

Direct supply of grain to the central storage silos is not practised. The operation of the silo plants is the responsibility of the General Company for Elevators (GCE). Most of the wheat is delivered from storage silos to the General Company for Trade and Grain Processing (GCTGP), which sells the flour to the General Institution for Consumption (GIC).

Since, in the past, the Syrian Arab Republic has not been self-sufficient in wheat, the GOTPG imports wheat and wheat flour to supplement local production. Owing to the shortage in milling capacity, most wheat is imported as flour and delivered directly to the GCE. The primary reason for not delivering imported flour directly to bakeries is that imported flour is usually mixed with locally produced flour before delivery.

Consumers purchase baked bread mainly in bakeries owned by the General Company for Baking. The rest is purchased from private bakeries. The GIC sells grain as flour to consumers, while local traders sell only grains.

2. *Barley*

Barley is produced mainly under rain-fed conditions. About one third of it is produced in the third settlement zone.

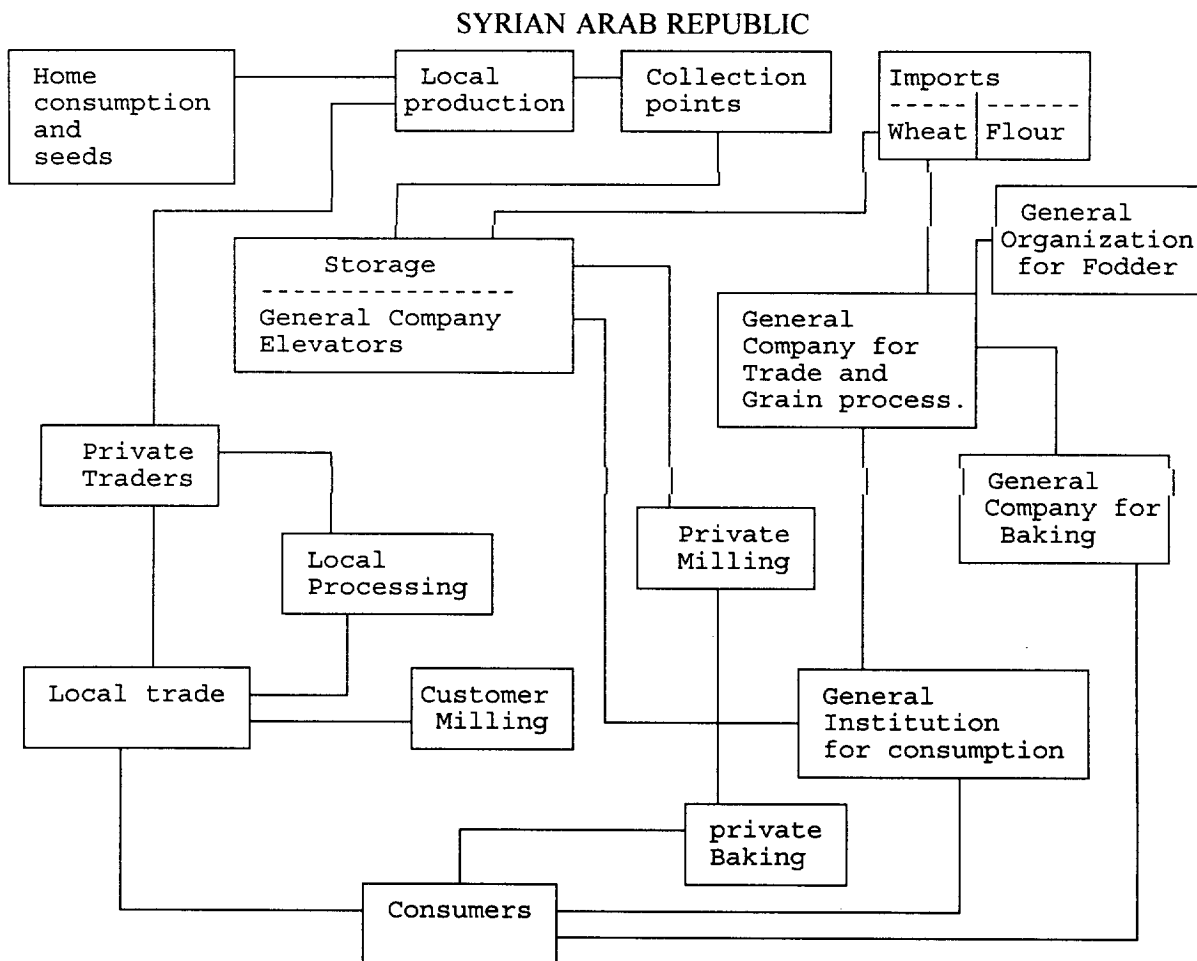


Figure III. MARKETING CHANNELS FOR WHEAT

Barley production witnesses more fluctuation than that of wheat. The highest production was about 2.8 million tons in 1988, and the lowest was 279,000 tons in 1989. Production of barley in 1992 reached about 1.1 million tons.

The largest quantity imported was about 299,000 tons in 1984. There were no imports in 1986, 1989, or 1990. On the other hand, the Syrian Arab Republic exported a small quantity in 1983 (57,000 tons) and in 1988 (177,000 tons). The GOTPG also purchases barley at prices fixed by the Higher Agricultural Council (HAC). GOTPG centres are open from the middle of May until September. A premium is given for deliveries before and after the main harvest period to avoid the peak period. Private trade in barley is restricted, and transport of barley without a GOTPG certificate between the governorates is not permitted.

Most of the barley purchased by GOTPG is sold to the General Organization for Feeds (GOF) (figure IV), which sometimes pays prices lower than the GOTPG purchasing price. The GOF sells grains to owners of sheep and cattle and to poultry farms.

3. Lentils

During the period 1983 to 1992, lentil production witnessed intense fluctuation. The highest level of production occurred in 1988 (171,000 tons), and the lowest (36,000 tons) in 1984. No lentils were imported

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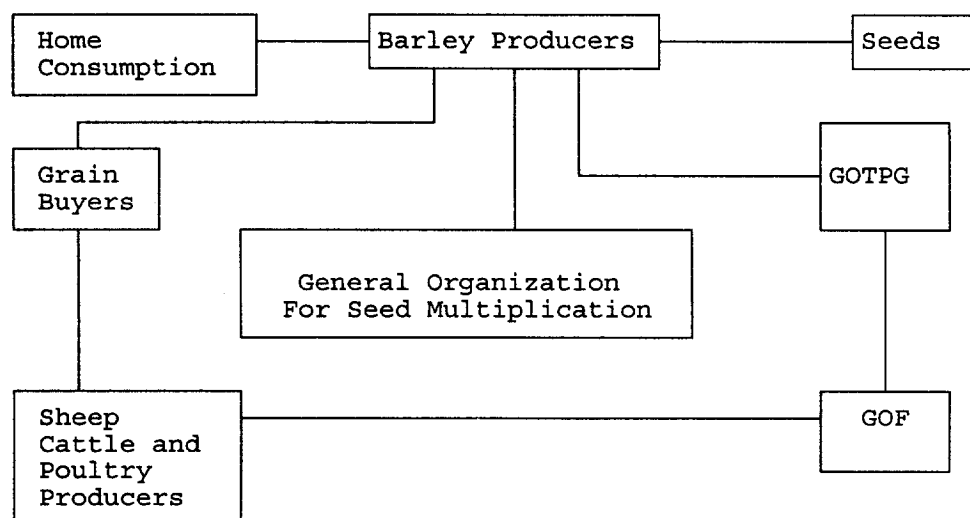


Figure IV. MARKETING CHANNELS FOR BARLEY

during the period 1983 to 1992, but there were varying levels of exports. The largest quantity (95,000 tons) was exported in 1989, while exports in 1984 were nil.

In 1990, about 63 per cent of lentil production was sold to the GCTGP, which sells most of it to the GIC. This institution, in turn, sells it to the consumers.

4. Chick-peas

Chick-pea production also fluctuated during the period 1983 to 1992, with the lowest level (13,000 tons) in 1989 and the highest (74,000 tons) in 1992. The Syrian Arab Republic is self-sufficient in chick-peas. It has not imported any quantities of chick-peas, and exports have come to a virtual halt since 1990.

Only small quantities of chick-peas were delivered to the GOTPG in 1989 (about 7,300 tons) and 1990 (about 3,000 tons). The GOTPG sold most of the procured quantities to the GIC, which, in turn, sold it to the consumers.

5. Maize

The Syrian Arab Republic is far from self-sufficiency in maize production; the average production during the period 1989 to 1991 (the highest production period) was about 174,000 tons, while the apparent demand during the same period was 378,000 tons. Thus, the self-sufficiency ratio during that period was about 45 per cent.

Demand for maize has significantly increased during the past two decades owing mainly to the expansion of poultry production. Maize is produced as an intensive crop after irrigated winter crops. Maize production is expected to increase during the coming years in order to achieve self-sufficiency.

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Table 5. CULTIVATED AREA, PRODUCTION AND YIELD OF MAJOR IRRIGATED CROPS IN 1993 ACCORDING TO GOVERNORATE
(Yield: kg/hectares)

Governorate	High wheat			Reg. wheat			Barley			Sugarbeet			Potatoes			Tomatoes			
	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield	
Swedia																			
Dara'a	493	1234	2503	9380	35895	3827							469	7035	15000	2448	96120	39265	
Quneitra	22907	80288	3505				465	1168	2512				10	120	12000	515	14930	28798	
Damascus	19254	82864	4293	2174	8959	4121	40	80	2000	5376	307022	57110	1216	24937	20507	1165	27951	23992	
Homs	20538	88580	4313				1530	5271	3445	1226	66680	56020	3926	47270	12040	1019	14135	13871	
Hamah	38888	202207	5200	207	800	3885	207	800	3885	8653	305370	35291	2926	52905	18081	367	10583	28837	
Ghab	13600	54009	3971							1250	55168	44133	4225	108000	25089	1009	11565	11462	
Idlib	8151	29129	3574							ERR		ERR	775	15602	20132	1443	40514	28076	
Tartous	45989	193943	4217				2525	9360	3707	5455	223310	40937	688	13357	19996	3080	82014	26628	
Latakia	3942	10406	2640							648	9258	14284							
Aleppo	57125	236134	4134				840	2926	3483	3975	121480	30581				391	10186	26051	
Al-Asaad	4164	12323	2959				820	21	26	552	18774	34011							
Al-Reqqa	49979	171302	3427				2609	5781	2216	4200	84935	20223	50	758	15160	504	11445	22708	
G.A.E.B.	254368	970806	3816							705	6793	9635	61	915	15000	1301	26020	20000	
Dair-Ezzor																			
Al-Hasakeh																			
Total	539396	2132825		11554	44854		9036	25407		32040	1200786		19356	374541		14083	362097		
Governorate																			
Swedia																			
Dara'a				549	1061	1933					740	2496	3373	550	7700	14000	20	400	20000
Quneitra				200	289	1445				31	137	4419							
Damascus	2290	74320	32454	459	1465	3192							370	6288	16995	19	480	25263	
Homs	2039	5271	2595	4697	8041	1712	950	1900	2000	32	87	2719	1053	20980	19924	10	150	15000	
Hamah	6073	21627	3581	1771	5588	3155	257	646	2514	378	1072	2836	620	14634	23603	409	8380	20489	
Ghab	14246	44177	3101	3072	3394	1105	378	1083	2865	905	2801	3095	689	22008	31942	799	14279	17871	
Idlib	24830	8633	348	287	292	1017				333	712	2138	304	6758	22230	1665	37340	22426	
Tartous							8926	18237	2043	148	186	1257	50	1000	20000				
Latakia							3022	7556	2500	494	949	1921				14	351	25071	
Aleppo	19760	66400	3360	10524	26962	2562				71	243	3423	189	3901	20640				
Al-Asaad	864	1771	2050	1287	1711	1329										564	5840	10000	
Al-Reqqa	13600	99538	7319	17335	83046	4791										136	3333	24507	
G.A.E.B.	2485	4000	1610	1853	2035	1098													
Dair-Ezzor	24757	84118	3398	14820	54240	3660	16	48	3000				56	815	14554	400	6491	16228	
Al-Hasakeh	89878	296037	3294	5918	7497	1267							244	4880	20000	927	13905	15000	
Total	200822	705892		62772	195621		13549	29470		3132	8683		4125	88964		4963	90749		

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Yields differ from one region to another. In Hama, Aleppo and Al-Hassakeh, yields have reached 3,500, 4,500 and 4,000 kg per hectare, respectively.

Maize marketing follows the same pattern as barley, except that there is no role for the General Organization for Seed Multiplication.

6. *Sugar beet*

Although sugar beet production is regulated by government policies, it has fluctuated greatly during the period 1989 to 1992. The highest level of production was 1,365,000 tons in 1992, and the lowest was 187,000 tons in 1989.

Production is delivered to the processing factories owned by the Government. Sugar is then sold to the GIC, which, in turn, sells it to consumers. Sugar beet pulp is sold to the GOF, which sells it to sheep and cattle owners. The molasses is used in the production of alcoholic drinks.

7. *Cotton*

Cotton is the main agricultural cash crop in the Syrian Arab Republic, and until 1974 it was the most exported product. Currently, it is second to oil in foreign exchange earnings. The highest level of production of cotton lint was 555,000 tons in 1991. In 1992 it dropped to 55,000 tons.

Marketing of cotton has been the responsibility of the Cotton Marketing Organization (CMO) since 1965, when this activity was nationalized. The role of CMO is to procure cotton seeds and gin and market lint cotton and the by-products of ginning. Currently, about 50 per cent of lint production is exported, and most of the remainder is used by the Syrian textile industry. All cotton seeds (except small quantities supplied to farmers through the Cooperative Agricultural Bank [CAB] as loans) are transferred to the State-owned company for vegetable oil processing. Oil is then sold to the Union of Food Industries, which sells it to consumers. Control of the cotton industry by the State begins with the issuance of licences to farmers to grow cotton, and this control continues through to the marketing system (figure V).

Cotton is a product in which the Syrian Arab Republic has a clear competitive advantage in production and marketing.^{3/} The product is profitable at all levels and brings a good price in international markets. Partly because it is hand-picked, it is normally priced above the average international price of cotton having comparable grade and stable length.

8. *Sunflower seeds*

Production of this crop was introduced to the country in 1988, starting with small areas of 5,000 ha. To encourage farmers to expand this crop, the Government offered good price of 16 SP/kg. Yields of this crop increased from 1,500 kg per hectare in 1988 to 2,000 kg per hectare in 1993. Production is expected to increase in the future.

^{3/} United States Department of Agriculture (USDA) and United States Agency for International Development (USAID), "Agricultural Sector Assessment—Agricultural Marketing Annex", vol. 4, 1980, p. 72.

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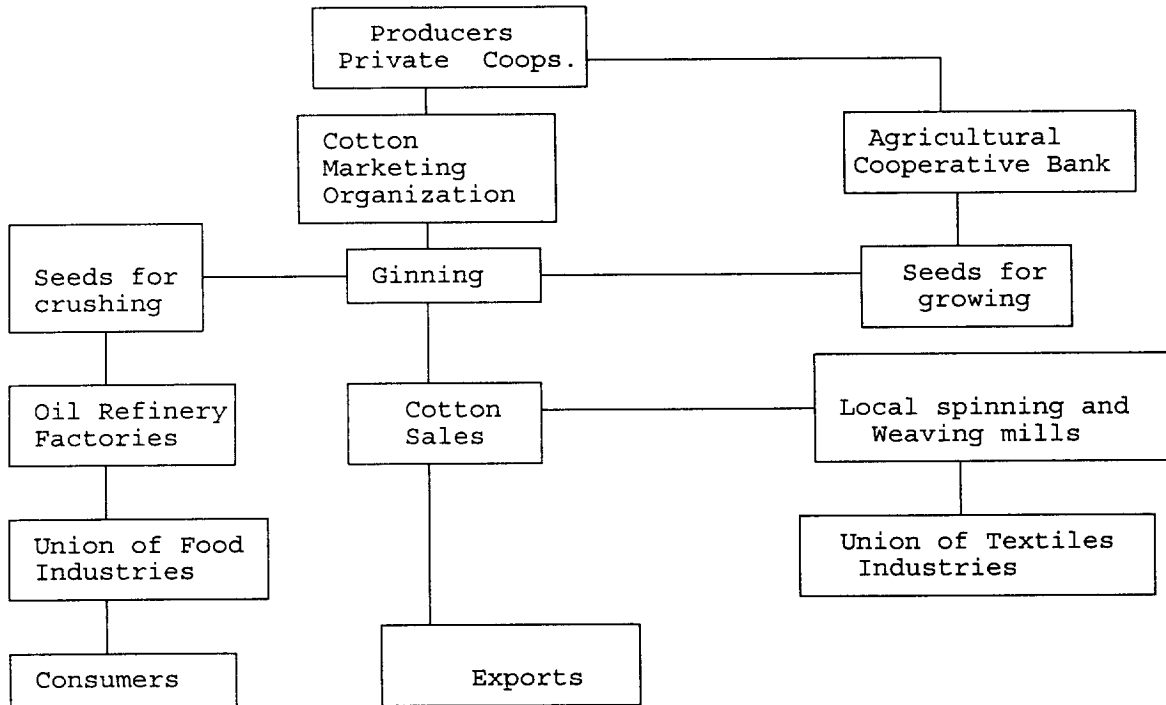


Figure V. MARKETING CHANNELS FOR COTTON

9. Soybeans

This crop was introduced to the Syrian Arab Republic in 1988 along with the sunflower. In the first stage, yields varied between producers even in the same location owing to lack of experience. Later, with the help of extension agents and cooperation among different groups, yields improved significantly. In 1992, soybean yields reached 2,100 kilograms per hectare in Hama, 2,000 in Aleppo and 1,800 in Al-Hassakeh.

10. Onions

Onion, produced mainly in the middle regions of the Syrian Arab Republic, is considered one of the most important vegetable crops. It is also one of the crops whose price is not controlled by the Government. As a result, onion prices vary sharply from one production season to another and from year to year.

11. Tomatoes

Tomatoes are cultivated during the spring and summer seasons. It is also produced during winter in greenhouses. The majority of winter tomatoes and greenhouse tomatoes and a significant amount of summer tomatoes are produced in the coastal region. Tomato prices fluctuate continuously owing to market supply and demand. A significant portion of summer tomatoes are processed into tomato paste and juice.

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12. *Potatoes*

The potato crop is considered a strategic crop in the Syrian Arab Republic. The annual cultivated area ranges from 20,000 to 23,000 ha, and production varies from 370,000 to 450,000 tons. Potatoes are produced in spring, summer and fall.

The annual cultivated area of spring potatoes varies from 7,000 to 9,000 ha, and yields also vary from 25 to 42 tons per hectare. Spring potatoes are produced mainly in Aleppo, Homs, Tartous and Hama. Seeds are planted in December and January and harvested from April to June.

About 60 per cent of summer potatoes are produced in Damascus Governorate. The annual cultivated area ranges from 2,000 to 3,000 ha. It is planted in April and harvested from September to November.

Fall is the major production season for potatoes, compared with spring and summer. Fall potatoes are mainly produced in Homs, Hama and Idleb. The annual cultivated area ranges from 9,000 to 14,000 ha. Potatoes are planted in June and July and harvested from January to April.

It is worth noting that potatoes are available year-round owing to the three production seasons.

13. *Protected agriculture*

Protected agriculture started in the Syrian Arab Republic in 1976 to meet the demand for off-season vegetables. The number of greenhouses during the last 10 years has been increasing continuously. In 1994, the number of greenhouses was 45,000, of which two thirds were found in the coastal region.

Tomatoes, eggplant, peppers, pineapples and flowers are the major crops produced in greenhouses. Long- and short-season crops are produced in greenhouses:

- (a) Long-season crops are vegetables planted in October and harvested from December to June;
- (b) Short-season crops are vegetables planted in September and harvested from October to November.

14. *Fruit trees*

In the last two decades, the Syrian Arab Republic has witnessed a significant expansion in the planting of fruit trees, both rain-fed (mainly almonds, olives and pistachios) and irrigated (mainly citrus). Olives cover more than 50 per cent of the total area planted with fruit trees. The expansion in the planting of olive trees took place in areas with relatively low rainfall and relatively poor soil conditions. The major expansion in citrus took place in the coastal plains, with guidance and support from the Government. Citrus in this region is irrigated from wells and surface water that are provided through government projects.

B. INPUT/OUTPUT TABLES (AT FARMGATE PRICES)
FOR THE MAIN AGRICULTURAL CROPS

1. *RAIN-FED CROPS*
AGRO-ECOLOGICAL ZONE I

Activity : Barley

Input-output data & gross margin per hectare for rain-fed barley in agro-ecological zone 1

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	1	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	BARLEY			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2100.00	6.80	14280.00
7	Crop produce 2:	Hect	1.00	800.00	800.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				15080.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	175.00	11.50	2012.50
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			2402.80
16	N	Kg	52.00	17.90	930.80
17	P	Kg	80.00	18.40	1472.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			350.00
21	- Weeds control	Hect	1.00	350.00	350.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	22	25	550.00
24	Costs of hired machinery	SP	6.90		3424.20
25	- Tillages	hr	4.40	233.00	1025.20
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	702.00	351.00
35	- Harvesting	Hect	1.00	928.00	928.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	2.1	400	840.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			8788.50
40	GROSS MARGIN	SP			6291.50
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages	hr			0.00
43	- planting (sowing)	hr	1.00	25.00	25.00
44	- Fertilization	hr			0.00
45	-Chemical	hr	1.00	25.00	25.00
46	-Organic	hr			0.00
47	- Flating	hr			0.00
48	- Hoeing & weeding	hr			0.00
49	- Using chemical	hr			0.00
50	- Mechanical (hand)	hr			0.00
51	- Controlling	hr			0.00
52	- Harvesting	Hect			0.00
53	- Irrigation	hr			0.00
54	- Others	hr			0.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	3000	3000.00
57	Gross margin per man hour (1)	SP/m.hr			3145.25
58	Gross margin per man hour (2)	SP/m.hr			3170.25

Monthly machinery, labour & water requirements for rain-fed barley in agro-ecological zone 1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	1	0	0	0	0	0	2.2	3.2	0	6.4
Tillages				1						2.2	2.2		5.4
Planting (sowing)											0.5		0.5
Fertilization											0.5		0.5
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	0	0	0	0	2	0	2
Planting (sowing)											1		1
Fertilization											1		1
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect
 Labour :- hr/hect

Activity :Chickpeas

Input-output data & gross margin per hectare for rain-fed chickpeas in agro-ecological zone 1

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	1	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP)	CHICKPEAS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1130.00	20.00	22600.00
7	Crop produce 2:	Hect	1.00	500.00	500.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				23100.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	120.00	27.90	3348.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1159.20
16	N	Kg			0.00
17	P	Kg	63.00	18.40	1159.20
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			100.00
21	- Weeds control	Hect	1.00	100.00	100.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	9	25	225.00
24	Costs of hired machinery	SP	6.40		2037.20
25	- Tillages	hr	4.40	233.00	1025.20
26	- planting (sowing)	hr	1.00	280.00	280.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	280.00	140.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.13	400	452.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			9974.40
40	GROSS MARGIN	SP			13125.60
41	Labour requirements for:	Man.hr	123.00		3105.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling		3.00	35.00	105.00
52	- Harvesting		118.00	25.00	2950.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	5830	5830.00
57	Gross margin per man hour (1)	SP/m.hr			106.71
58	Gross margin per man hour (2)	SP/m.hr			131.96

Monthly machinery, labour & water requirements for rain-fed chickpeas in agro-ecological zone 1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	5.9	0	0.5	0	0	0	0	0	0	0	6.4
Tillages			4.4										4.4
Planting (sowing)			1										1
Fertilization			0.5										0.5
Flating													0
Controlling					0.5								0.5
Harvesting													0
Others													0
Labour Requirements	0	0	2	0	3	118	0	0	0	0	0	0	123
Planting (sowing)			1										1
Fertilization			1										1
Flating													0
Hoing & Weeding													0
Controlling					3								3
Harvesting						118							118
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Lentils

Input-output data & gross margin per hectare for rain-fed lentils in agro-ecological zone 1

A1	GROSS MARGIN CALCULATION	Ag.ec. Zone: 1		Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP)	LENTILS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1200.00	15.00	18000.00
7	Crop produce 2:	Hect	1.00	3600.00	3600.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				21600.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	120.00	25.00	3000.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1122.40
16	N	Kg			0.00
17	P	Kg	61.00	18.40	1122.40
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			100.00
21	- Weeds control	Hect	1.00	100.00	100.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	11.5	25	287.50
24	Costs of hired machinery	SP	6.00		1926.00
25	- Tillages	hr	4.50	228.00	1026.00
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	- Chemical	hr	0.50	280.00	140.00
29	- Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	280.00	140.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.2	400	480.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			19018.90
40	GROSS MARGIN	SP			11580.10
41	Labour requirements for:	Man.hr	143.00		3575.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	- Chemical		1.00	25.00	25.00
46	- Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling		1.00	25.00	25.00
52	- Harvesting		140.00	25.00	3500.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	6000	6000.00
57	GROSS MARGIN per man hour	SP/m.hr			106.04
58	GROSS MARGIN / cbm irrig. water	SP/ cbm			0.00

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed lentils in agro-ecological zone 1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	1	0	0.5	0	0	0	0	0	0	0	4.5	0	6
Tillages											4.5		4.5
Planting (sowing)	0.5												0.5
Fertilization	0.5												0.5
Flating													0
Controlling			0.5										0.5
Harvesting													0
Others													0
Labour Requirements	2	0	1	0	140	0	0	0	0	0	0	0	143
Planting (sowing)	1												1
Fertilization	1												1
Flating													0
Hoing & Weeding			1										1
Controlling													0
Harvesting					140								140
Others													0
Irrigation													0
Water Requirements													0

Machinery : hr/hect

Labour : hr/hect

Activity :Vetch

Input-output data & gross margin per hectare for rain-fed vetch in agro-ecological zone 1

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	1	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	VETCH			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	Kg	1350.00	11.00	14850.00
7	Crop produce 2:	Hect	1.00	4000.00	4000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				18850.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	150.00	12.00	1800.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1457.00
16	N	Kg	30.00	17.90	537.00
17	P	Kg	50.00	18.40	920.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			100.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect	1.00	100.00	100.00
23	- Containers	No.	12	25	300.00
24	Costs of hired machinery	SP	6.00		1984.65
25	- Tillages	hr	4.50	227.70	1024.65
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	- Chemical	hr	0.50	280.00	140.00
29	- Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	280.00	140.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.35	400	540.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			9465.65
40	GROSS MARGIN	SP			9384.35
41	Labour requirements for:	Man.hr	153.00		3825.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	- Chemical		1.00	25.00	25.00
46	- Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling		1.00	25.00	25.00
52	- Harvesting		150.00	25.00	3750.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	6000	6000.00
57	Gross margin per man hour (1)	SP/m.hr			61.33
58	Gross margin per man hour (2)	SP/m.hr			86.33

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed vetch in agro-climatical zone 1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	3.25	0.5	0	0	0	0	0	0	0	0	0	2.25	6
Tillages	2.25											2.25	4.5
Planting (sowing)	0.5												0.5
Fertilization	0.5												0.5
Flating													0
Controlling			0.5										0.5
Harvesting													0
Others													0
Labour Requirements	2	0	1	0	0	150	0	0	0	0	0	0	153
Planting (sowing)	1												1
Fertilization	1												1
Flating													0
Hoing & Weeding													0
Controlling			1										1
Harvesting													150
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Wheat

Input-output data & gross margin per hectare for rain-fed wheat in agro-ecological zone 1

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	1	Irrigated:	
2	FOR ANNUAL CROPS (WITHOUT WATER COST)			Rain fed:	X
3	Enterprise (CROP):	WHEAT			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2500.00	10.70	26750.00
7	Crop produce 2:	Hect	1.00	1150.00	1150.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				27900.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	195.00	16.00	3120.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			0.00
16	N		62.00	17.90	1109.80
17	P		70.00	18.40	1288.00
18	K				0.00
19	Compound or other fertil.				0.00
20	Chemicals:	Hect	1.00		350.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect	1.00	350.00	350.00
23	Containers	No.	20	25	500.00
24	Costs of hired machinery	SP	7.40		4742.92
25	- Tillages	hr	4.40	269.30	1184.92
26	- planting (sowing)	hr	1.00	280.00	280.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	532.00	266.00
35	- Harvesting	Hect	1.00	1872.00	1872.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	2.5	400	1000.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			8762.92
40	GROSS MARGIN	SP			19137.08
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	7400	7400.00
57	Gross margin per man hour (1)	SP/m.hr			8565.14
58	Gross margin per man hour (2)	SP/m.hr			8593.54

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed wheat in agro-ecological zone 1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0.5	0	0	0	0	0	0	2.2	3.7	6.4
Tillages											2.2	2.2	4.4
Planting (sowing)												1	1
Fertilization												0.5	0.5
Flating													0
Controlling				0.5									0.5
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	0	0	0	0	0	2	2
Planting (sowing)												1	1
Fertilization												1	1
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect
Labour :- hr/hect

*2. RAIN-FED CROPS
AGRO-ECOLOGICAL ZONE 2*

Activity :Barley

Input-output data & gross margin per hectare for rain-fed barley in agro-ecological zone 2

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone: 2		Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP)	BARLEY			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1860.00	6.80	12648.00
7	Crop produce 2:	Hect	1.00	800.00	800.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				13448.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	160.00	11.50	1840.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1724.00
16	N	Kg	48.00	17.90	859.20
17	P	Kg	47.00	18.40	864.80
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	18	25	450.00
24	Costs of hired machinery	SP	6.50		3124.00
25	- Tillages	hr	4.00	256.25	1025.00
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	126.00	63.00
35	- Harvesting	Hect	1.00	1012.00	1012.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.86	400	744.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			7188.00
40	GROSS MARGIN	SP			6260.00
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	2500	2500.00
57	Gross margin per man hour (1)	SP/m.hr			125.20
58	Gross margin per man hour (2)	SP/m.hr			115.00

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed barley in agro-climatical zone 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	0	0	0	0	2	3	0	5
Labour										2	2		4
Planting (sowing)											0.5		0.5
Fertilization											0.5		0.5
Flating													0
Controlling													0
Harvesting													0
Others													0
Water Requirements	0	0	0	0	0	0	0	0	0	0	2	0	2
Planting (sowing)											1		1
Fertilization											1		1
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect
Labour :- hr/hect

Activity :Chickpeas

Input-output data & gross margin per hectare for rain-fed chickpeas in agro-ecological zone 2

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone: 2		Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP)	CHICKPEAS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1000.00	20.00	20000.00
7	Crop produce 2:	Hect	1.00	500.00	500.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				20500.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	114.00	27.90	3180.60
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			625.60
16	N	Kg			0.00
17	P	Kg	34.00	18.40	625.60
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			100.00
21	- Weeds control	Hect	1.00	100.00	100.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	8	25	200.00
24	Costs of hired machinery	SP	6.40		1985.20
25	- Tillages	hr	4.40	233.00	1025.20
26	- planting (sowing)	hr	1.00	280.00	280.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	280.00	140.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1	400	400.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			8441.40
40	GROSS MARGIN	SP			12058.60
41	Labour requirements for:	Man.hr	94.00		2350.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling		1.00	25.00	25.00
52	- Harvesting		91.00	25.00	2275.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	3750	3750.00
57	Gross margin per man hour (1)	SP/m.hr			128.28
58	Gross margin per man hour (2)	SP/m.hr			153.28

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed chickpeas in agro-climatical zone 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Plotted machinery	0	0	5.9	0	0.5	0	0	0	0	0	0	0	6.4
Tillages			4.4										4.4
Planting (sowing)			1										1
Fertilization			0.5										0.5
Flating													0
Controlling					0.5								0.5
Harvesting													0
Others													0
Labour Requirements	0	0	2	0	1	91	0	0	0	0	0	0	94
Planting (sowing)			1										1
Fertilization			1										1
Flating													0
Hoing & Weeding													0
Controlling					1								1
Harvesting						91							91
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Lentils

Input-output data & gross margin per hectare for rain-fed lentils in agro-ecological zone 2

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	2	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	LENTILS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1000.00	15.00	15000.00
7	Crop produce 2:	Hect	1.00	2000.00	2000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				17000.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	110.00	25.00	2750.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			772.80
16	N	Kg			0.00
17	P	Kg	42.00	18.40	772.80
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	7	25	175.00
24	Costs of hired machinery	SP	1.00		800.00
25	- Tillages	hr	1.00	400.00	400.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1	400	400.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			7297.80
40	GROSS MARGIN	SP			9162.20
41	Labour requirements for:	Man.hr	136.00		3400.00
42	- Tillages				0.00
43	- planting (sowing)		3.00	25.00	75.00
44	- Fertilization				0.00
45	-Chemical		3.00	25.00	75.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting		130.00	25.00	3250.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	4500	4500.00
57	GROSS MARGIN per man hour	SP/m.hr			67.33
58	GROSS MARGIN / cbm irrig. water	SP/ cbm			0.00

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed lentils in agro-climatical zone 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0	0	0	0	0	0	0	0	1	1
Tillages											1		1
Planting (sowing)													0
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	6	0	0	0	130	0	0	0	0	0	0	0	136
Planting (sowing)	3												3
Fertilization	3												3
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others					130								130
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Vetch

Input-output data & gross margin per hectare for rain-fed vetch in agro-ecological zone 2

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	2	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	VETCH			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1100.00	11.00	12100.00
7	Crop produce 2:	Hect	1.00	2500.00	2500.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				14600.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	120.00	12.00	1440.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1094.00
16	N	Kg	20.00	17.90	358.00
17	P	Kg	40.00	18.40	736.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	Containers	No.	10	25	250.00
24	Costs of hired machinery	SP	2.00		1120.00
25	- Tillages	hr	1.00	400.00	400.00
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	- Chemical	hr	0.50	280.00	140.00
29	- Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.1	400	440.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			6954.00
40	GROSS MARGIN	SP			7646.00
41	Labour requirements for:	Man.hr	122.00		3050.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	- Chemical		1.00	25.00	25.00
46	- Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting		120.00	25.00	3000.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	4500	4500.00
57	Gross margin per man hour (1)	SP/m.hr			62.67
58	Gross margin per man hour (2)	SP/m.hr			47.87

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed vetch in agro-climatical zone 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Fixed machinery	2	0	0	0	0	0	0	0	0	0	0	0	2
Tillages	1												1
Planting (sowing)	0.5												0.5
Fertilization	0.5												0.5
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	2	0	0	0	120	0	0	0	0	0	0	0	122
Planting (sowing)	1												1
Fertilization	1												1
Flating													0
Hoeing & Weeding													0
Controlling													0
Harvesting					120								120
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Wheat

Input-output data & gross margin per hectare for rain-fed wheat in agro-ecological zone 2

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	2	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	WHEAT			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	1900.00	10.70	20330.00
7	Crop produce 2:	Hect	1.00	200.00	200.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT:				20530.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	164.00	16.00	2624.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			1780.20
16	N	Kg	46.00	17.90	823.40
17	P	Kg	52.00	18.40	956.80
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			350.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect	1.00	350.00	350.00
23	- Containers	No.	15	25	375.00
24	Costs of hired machinery	SP	6.75		3991.00
25	- Tillages	hr	4.00	256.25	1025.00
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.75	600.00	300.00
35	- Harvesting	Hect	1.00	1626.00	1626.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1.9	400	760.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			8770.20
40	GROSS MARGIN	SP			11759.80
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	3375	3375.00
57	Gross margin per man hour (1)	SP/m.hr			5079.90
58	Gross margin per man hour (2)	SP/m.hr			5704.00

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for wheat in agro-ecological zone 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0.75	0	0	0	0	0	2	2	3	5.75
Tillages										2	2	2	4
Planting (sowing)											0.5	0.5	0.5
Fertilization											0.5	0.5	0.5
Flating													0
Controlling				0.75									0.75
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	0	0	0	0	2	2	2
Planting (sowing)												1	1
Fertilization												1	1
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

3. *RAIN-FED CROPS*
AGRO-ECOLOGICAL ZONE 3

Activity :Barley

Input-output data & gross margin per hectare for rain-fed barley in agro-ecological zone 3

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	3	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	BARLEY			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	830.00	6.80	5644.00
7	Crop produce 2:	Hect	1.00	1000.00	1000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				6644.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	100.00	11.50	1150.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			834.90
16	N	Kg	23.00	17.90	411.70
17	P	Kg	23.00	18.40	423.20
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	8	25	200.00
24	Costs of hired machinery	SP	5.80		2060.99
25	- Tillages	hr	4.30	238.37	1024.99
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	Hect	1.00	564.00	564.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	0.83	400	332.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			4298.89
40	GROSS MARGIN	SP			2345.11
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	1250	1250.00
57	Gross margin per man hour (1)	SP/m.hr			1174.05
58	Gross margin per man hour (2)	SP/m.hr			1193.05

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed barley in agro-ecological zone 3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	0	0	0	0	2.2	2.6	0	4.8
Tillages										2.2	2.1		4.3
Planting (sowing)											0.5		0.5
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	0	0	0	0	2	0	2
Planting (sowing)											1		1
Fertilization											1		1
Flating													0
Hoeing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect
 Labour :- hr/hect

Activity :Lentils

Input-output data & gross margin per hectare for rain-fed lentils in agro-ecological zone 3

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone: 3		Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	LENTILS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	600.00	15.00	9000.00
7	Crop produce 2:	Hect	1.00	3000.00	3000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				12000.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	90.00	25.00	2250.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			0.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	4.5	25	112.50
24	Costs of hired machinery	SP	1.00		640.00
25	- Tillages	hr	1.00	400.00	400.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	Hect			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	0.6	400	240.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			5327.50
40	GROSS MARGIN	SP			6172.50
41	Labour requirements for:	Man.hr	113.00		2825.00
42	- Tillages				0.00
43	- planting (sowing)		3.00	25.00	75.00
44	- Fertilization				0.00
45	-Chemical				0.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting		110.00	25.00	2750.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	2500	2500.00
57	GROSS MARGIN per man hour	SP/m.hr			79.62
58	GROSS MARGIN / cbm irrig. water	SP/ cbm			0.00

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed lentils in agro-climatical zone 3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	0	0	0	0	0	0	1	1
Tillages											1		1
Planting (sowing)													0
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	3	0	0	0	110	0	0	0	0	0	0	0	113
Planting (sowing)	3												3
Fertilization													0
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting					110								110
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect

Labour :- hr/hect

Activity :Wheat

Input-output data & gross margin per hectare for rain-fed wheat in agro-ecological zone 3

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	3	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP):	WHEAT			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	950.00	10.70	10165.00
7	Crop produce 2:	Hect	1.00	350.00	350.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				10515.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	130.00	16.00	2080.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			940.80
16	N	Kg	32.00	17.90	572.80
17	P	Kg	20.00	18.40	368.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	8	25	200.00
24	Costs of hired machinery	SP	6.90		2751.20
25	- Tillages	hr	4.40	233.00	1025.20
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.50	280.00	140.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	0.50	100.00	50.00
35	- Harvesting	Hect	1.00	1016.00	1016.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	0.95	400	380.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			8022.00
40	GROSS MARGIN	SP			4493.00
41	Labour requirements for:	Man.hr	2.00		50.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical		1.00	25.00	25.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	1834	1834.00
57	Gross margin per man hour (1)	SP/m.hr			2246.50
58	Gross margin per man hour (2)	SP/m.hr			2271.40

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for rain-fed wheat in agro-ecological zone 3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery (hr/ha)	0	0	0	0	0	0	0	0	0	2.2	3.2	0	5.4
Tillages										2.2	2.2		4.4
Planting (sowing)											0.5		0.5
Fertilization											0.5		0.5
Flating													0
Controlling													0
Harvesting													0
Labour (hr/ha)	0	0	0	0	0	0	0	0	0	0	2	0	2
Planting (sowing)											1		1
Fertilization											1		1
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery : hr/haect

Labour : hr/haect

4. *RAIN-FED CROPS*
AGRO-ECOLOGICAL ZONE 4

Activity : Barley

Input-output data & gross margin per hectare for rain-fed barley in agro-ecological zone 4

A1	GROSS MARGIN CALCULATION	Ag.ec.Zone:	4	Irrigated:	
2	FOR ANNUAL CROPS			Rain fed:	X
3	Enterprise (CROP)	BARLEY			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	400.00	6.80	2720.00
7	Crop produce 2:	Hect	1.00	250.00	250.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				2970.00
11	Irrigation: Water requirements:	Cubicmet.			0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	80.00	11.50	920.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect			0.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect			0.00
23	- Containers	No.	4	25	100.00
24	Costs of hired machinery	SP	5.50		1625.00
25	- Tillages	hr	4.00	256.25	1025.00
26	- planting (sowing)	hr	0.50	280.00	140.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	Hect	1.00	300.00	300.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	0.4	400	160.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			2570.00
40	GROSS MARGIN	SP			300.00
41	Labour requirements for:	Man.hr	1.00		25.00
42	- Tillages				0.00
43	- planting (sowing)		1.00	25.00	25.00
44	- Fertilization				0.00
45	-Chemical				0.00
46	-Organic				0.00
47	- Flating				0.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling				0.00
52	- Harvesting				0.00
53	- Irrigation				0.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	700	700.00
57	Gross margin per man hour (1)	SP/m.hr			300.00
58	Gross margin per man hour (2)	SP/m.hr			325.00

Monthly machinery, labour & water requirements for rain-fed barley in agro-ecological zone 4

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	0	0	0	0	2	2.5	0	4.5
Tillages										2	0.5	2	4
Planting (sowing)													0
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	0	0	0	0	1	0	1
Planting (sowing)											1		1
Fertilization													0
Flating													0
Hoing & Weeding													0
Controlling													0
Harvesting													0
Others													0
Irrigation													0
Water Requirements													0

Machinery :- hr/hect
Labour :- hr/hect

5. *RAIN-FED FRUIT TREES*

Activity :ALMONDS

Input-output data & gross margin per dunum for rainfed almonds

1	GROSS MARGIN CALCULATION		Irrigated:						
2	FOR PERENNIAL CROPS		Rain fed: X						
3	Enterprise (CROP):		ALMONDS		Establishment year		(7) years before		
4					production		(30) years of		
5					production		production		
6	Unit	Price SP	Unit:	TOTAL	Unit:	TOTAL	Unit:	TOTAL	
7	Definition:	Unit:	Unit:	SP	Unit:	SP	Unit:	SP	
7	Crop produce	kg	30.00	0.00	200.00	6000.00	250.00	7500.00	
8	TOTAL GROSS OUTPUT:			0.00		6000.00		7500.00	
9	Irrigation: Water requirements:	Cubicmet.	300.00	0.00		0.00		0.00	
10	Seedlings: bought/owned	No.	10.00	40.00	400.00				
11	Manure - Fertilizer	M ³	300.00	0.50	150.00	4.50	1350.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		315.60		394.50
13	N	kg	17.90		0.00	8.00	143.20	10.00	179.00
14	P	kg	18.40		0.00	4.00	73.60	5.00	92.00
15	K	kg	24.70		0.00	4.00	98.80	5.00	123.50
16	Chemicals:	SP/Dunum			0.00		150.00		200.00
17	- Weeds control	Dunum	1.00		0.00	150.00	150.00	200.00	200.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	25.00		0.00	4.00	100.00	5.00	125.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00		5000.00		1200.00
21	- Tillages and flating	hr	200.00	2.00	400.00	14.00	2800.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr			0.00		0.00		0.00
29	- Controlling	hr	250.00		0.00	8.00	2000.00	2.00	500.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific)	Sp/Dunum	1.00		0.00	200.00	200.00	300.00	300.00
33	Variable costs of owned machinery	SP / Dunum			0.00				0.00
34	TOTAL VARIABLE COSTS	SP			2000.00		9720.60		3689.50
35	GROSS MARGIN	SP			2000.00		3720.60		3510.50
36	Labour requirements for:	Man.hr		42.00	1050.00	109.00	2805.00	70.00	1770.00
37	- Tillages and flating	hr	25.00		0.00		0.00		0.00
38	- Planting (sowing)	hr	25.00	40.00	1000.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00	12.00	300.00	6.00	150.00
41	- Organic	hr	25.00	2.00	50.00	14.00	350.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr			0.00		0.00		0.00
44	- Mechanical (hand)	hr			0.00		0.00		0.00
45	- Controlling	hr	35.00		0.00	8.00	280.00	2.00	70.00
46	- Harvesting	hr	25.00		0.00	35.00	875.00	30.00	750.00
47	- Irrigation	hr	25.00		0.00		0.00		0.00
48	- Pruning	hr	25.00		0.00	40.00	1000.00	30.00	750.00
49	- Others	hr			0.00		0.00		0.00
50	- transportation (crop specific)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	200.00	200.00	1400.00	1400.00	200.00	200.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed almonds according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Returns to capital
	Annual after production	Before production	Total			(1)	(2)	
A	3510.50	240.69	3751.19	7500.00	3748.81	53.55	78.84	1.999
B	3510.50	290.69	3801.19	7500.00	3698.81	52.84	78.13	1.973
C	3510.50	247.35	3757.85	7500.00	3742.15	53.46	78.74	1.996
D	3510.50	340.69	3851.19	7500.00	3648.81	52.13	77.41	1.947

Monthly machinery, labour & water requirements for rain-fed almonds

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	2.4	4.5	3.8	4.5	8.3	0	4.5	0	0	0	0	0	28
** Establishment year:	0	0.5	0	0.5	0.5	0	0.5	0	0	0	0	0	2
Tillages and flating		0.5		0.5	0.5		0.5						2
Hoeing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	2	3.5	3	3.5	6.5	0	3.5	0	0	0	0	0	22
Tillages and flating		3.5		3.5	3.5		3.5						14
Hoeing & Weeding													0
Fertilization													0
Controlling	2		3		3								8
** After production:	0.4	0.5	0.8	0.5	1.3	0	0.5	0	0	0	0	0	4
Tillages and flating		0.5		0.5	0.5		0.5						2
Hoeing & Weeding													0
Fertilization													0
Controlling	0.4		0.8		0.8								2
Labour Requirements	2.4	89	3.8	17	3.8	55	0	0	40	0	0	0	211
** Establishment year:	0	2	0	0	0	0	0	0	40	0	0	0	2
Planting (sowing)									40				0
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation													0
** Befor production:	2	53	3	13	3	25	0	0	0	0	0	0	99
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		13		13									26
Pruning		40											40
Controlling	2		3		3								8
Harvesting						25							25
Irrigation													0
** After production:	0.4	34	0.8	4	0.8	30	0	0	0	0	0	0	70
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		4		4									8
Pruning		30											30
Controlling	0.4		0.8		0.8								2
Harvesting						30							30
Irrigation													0
Water Requirements	0	0	0	0	0	0	0	0	0	0	0	0	0
** Establishment year:													0
** Befor production:													0
** After production:													0

Machinery :- hr/dunum
Labour :- hr/dunum

Activity :Apples

Input-output data & gross margin per dunum for rainfed apples

1	GROSS MARGIN CALCULATION		Irrigated:						
2	FOR PERENNIAL CROPS		Rain fed:	X					
3	Enterprise (CRP)	APPLES	Establishment year		(8) years before production		(30) years of production		
4		Unit	Price SP	Unit:	TOTAL	Unit:	TOTAL	Unit:	
5		Definition:	Unit:		SP	Unit:	SP	Unit:	
6									
7	Crop produce	kg	10.00		0.00	880.00	8800.00	1100.00	11000.00
8	TOTAL GROSS OUTPUT				0.00	880.00	8800.00	1100.00	11000.00
9	Irrigation: Water requirements:	Cubicmet.	150.00	2.00	300.00	4.00	600.00		0.00
10	Seedlings: bought/owned	No.	10.00	30.00	300.00				
11	Manure - Fertilizer	M ³	300.00	0.50	150.00	5.50	1650.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		1054.20		1273.00
13	N	kg	17.90		0.00	30.00	537.00	35.00	626.50
14	P	kg	18.40		0.00	12.00	220.80	15.00	276.00
15	K	kg	24.70		0.00	12.00	296.40	15.00	370.50
16	Chemicals:	SP/Dunum			0.00		1200.00		1500.00
17	- Weeds control	Dunum	1.00		0.00	1200.00	1200.00	1500.00	1500.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	44.00	880.00	55.00	1100.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00	24.00	5565.00	5.00	1480.00
21	- Tillages and flating	hr	200.00	2.00	400.00	14.00	2800.00	2.00	400.00
22	- Planting (sowing)	hr							0.00
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr			0.00		0.00		0.00
29	- Controlling	hr	250.00		0.00	10.00	2500.00	3.00	750.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific!)	Sp/Dunum)	1.00		0.00	265.00	265.00	330.00	330.00
33	Variable costs of owned machinery	SP / Dunum			0.00				
34	TOTAL VARIABLE COSTS	SP			2250.00		15374.20		7719.00
35	GROSS MARGIN	SP			2250.00		6674.20		3287.00
36	Labour requirements for:	Man.hr		44.00	1100.00	171.00	4425.00	80.00	2060.00
37	- Tillages and flating	hr	25.00		0.00		0.00		0.00
38	- Planting (sowing)	hr	25.00	30.00	750.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00	16.00	400.00	2.00	50.00
41	- Organic	hr	25.00	2.00	50.00	14.00	350.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr			0.00		0.00		0.00
44	- Mechanical (hand)	hr			0.00		0.00		0.00
45	- Controlling	hr	35.00		0.00	15.00	525.00	6.00	210.00
46	- Harvesting	hr	25.00		0.00	22.00	550.00	30.00	750.00
47	- Irrigation	hr	25.00	12.00	300.00	24.00	600.00	0.00	0.00
48	- Pruning	hr	25.00		0.00	80.00	2000.00	40.00	1000.00
49	- Others	hr			0.00		0.00		0.00
50	- transportation (crop specific!)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	3000.00	3000.00	2100.00	2100.00	300.00	300.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed apples according to land type

According to land type	Cost		Returns	Gross Margin	Gross Margin after production Per man/hr		Returns to capital
	Annual after production	Befor production			(1)	(2)	
A	7713.00	344.14	11000.00	2942.86	36.79	62.54	1.365
B	7713.00	394.14	11000.00	2892.86	36.16	61.91	1.357
C	7713.00	350.81	11000.00	2936.19	36.70	62.45	1.364
D	7713.00	444.14	11000.00	2842.86	35.54	61.29	1.349

Monthly machinery, labour & water requirements for rain-fed apples

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	2.6	0	4.5	7.1	2.6	2.6	2.6	0	4.5	4.5	0	31
** Establishment year:	0	0	0	0.5	0.5	0	0	0	0	0.5	0.5	0	2
Tillages and flating				0.5	0.5					0.5	0.5		2
Hoing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	0	2	0	3.5	5.5	2	2	2	0	3.5	3.5	0	24
Tillages and flating				3.5	3.5					3.5	3.5		14
Hoing & Weeding													0
Fertilization													0
Controlling		2			2	2	2	2					10
** After production:	0	0.6	0	0.5	1.1	0.6	0.6	0.6	0	0.5	0.5		5
Tillages and flating				0.5	0.5					0.5	0.5		2
Hoing & Weeding													0
Fertilization													0
Controlling		0.6			0.6	0.6	0.6	0.6					3
Labour Requirements	8.5	134.7	0	0	4.2	12.7	12.7	4.2	92	26	0	0	295
** Establishment year:	0	2	0	0	0	0	0	0	42	0	0	0	14
Planting (sowing)									30				
Tillages and flating													0
Hoing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation									12				12
** Befor production:	7.5	90.5	0	0	3	10.5	10.5	3	35	11	0	0	171
Tillages and flating													0
Hoing & Weeding													0
Fertilization	7.5	7.5				7.5	7.5						30
Pruning		80											80
Controlling		3			3	3	3	3					15
Harvesting									11	11			22
Irrigation									24				24
** After production:	1	42.2	0	0	1.2	2.2	2.2	1.2	15	15	0	0	80
Tillages and flating													0
Hoing & Weeding													0
Fertilization	1	1				1	1						4
Pruning		40											40
Controlling		1.2			1.2	1.2	1.2	1.2					6
Harvesting									15	15			30
Irrigation													0
Water Requirements	0	0	0	0	0	0	0	0	0	0	0	0	0
** Establishment year:													0
** Befor production:													0
** After production:													0

Machinery - hr/dunum
Labour - hr/dunum

Activity :Cherry

Input-output data & gross margin per dunum for rainfed cherry

1	GROSS MARGIN CALCULATION		Irrigated:						
2	FOR PERENNIAL CROPS		Rain fed: X						
3	Enterprise (CROP):	CHERRY	Establishment year		(6) years before production		(30) years of production		
4		Unit	Price SP		TOTAL		TOTAL	TOTAL	
5		Definition:	Unit:	Unit:	SP	Unit:	SP	Unit:	
6									
7	Crop produce	kg	15.00		0.00	700.00	10500.00	900.00	13500.00
8	TOTAL GROSS OUTPUT				0.00		10500.00		13500.00
9	Irrigation: Water requirements:	Cubicmet.	300.00	0.50	150.00	1.00	300.00		0.00
10	Seedlings: bought/owned	No.	10.00	30.00	300.00				
11	Manure - Fertilizer	M ³	300.00	0.50	150.00	4.50	1350.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		340.80		487.00
13	N	kg	17.90		0.00	7.00	125.30	10.00	179.00
14	P	kg	18.40		0.00	5.00	92.00	6.00	110.40
15	K	kg	24.70		0.00	5.00	123.50	8.00	197.60
16	Chemicals:	SP/Dunum			0.00		500.00		800.00
17	- Weeds control	Dunum	1.00		0.00	500.00	500.00	800.00	800.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	35.00	700.00	50.00	1000.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00		4360.00		1200.00
21	- Tillages and flating	hr	200.00	2.00	400.00	12.00	2400.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	-Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr			0.00		0.00		0.00
29	- Controlling	hr	250.00		0.00	7.00	1750.00	2.00	500.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific!)	Sp/Dunum	1.00		0.00	210.00	210.00	300.00	300.00
33	Variable costs of owned machinery	SP / Dunum			0.00				0.00
34	TOTAL VARIABLE COSTS	SP			1850.00		10170.80		6127.00
35	GROSS MARGIN	SP			1850.00		329.20		7373.00
36	Labour requirements for:	Man.hr		34.00	850.00	102.00	2620.00	92.00	2340.00
37	- Tillages and flating	hr	25.00		0.00		0.00		0.00
38	- Planting (sowing)	hr	25.00	30.00	750.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00	14.00	350.00	6.00	150.00
41	-Organic	hr	25.00	2.00	50.00	12.00	300.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr			0.00		0.00		0.00
44	- Mechanical (hand)	hr			0.00		0.00		0.00
45	- Controlling	hr	35.00		0.00	7.00	245.00	4.00	140.00
46	- Harvesting	hr	25.00		0.00	25.00	625.00	35.00	875.00
47	- Irrigation	hr	25.00	2.00	50.00	4.00	100.00		0.00
48	- Pruning	hr	25.00		0.00	40.00	1000.00	45.00	1125.00
49	- Others	hr			0.00		0.00		0.00
50	- transportation (crop specific!)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	300.00	300.00	1800.00	1800.00	300.00	300.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed cherry according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Returns to capital
	Annual after production	Before production	Total			(1)	(2)	
A	6127.00	100.69	6227.69	13500.00	7272.31	79.05	104.48	2.168
B	6127.00	150.69	6277.69	13500.00	7222.31	78.50	103.94	2.150
C	6127.00	107.36	6234.36	13500.00	7265.64	78.97	104.41	2.165
D	6127.00	200.69	6327.69	13500.00	7172.31	77.96	103.39	2.133

Monthly machinery, labour & water requirements for rain-fed cherry

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery Requirements													
** Establishment year:	0	0	4.25	3.2	7.45	3.2	0	0	0	3.7	3.2	0	25
Tillages and flating				0.4	0.4	0.4				0.4	0.4		2
Hoeing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	0	0	3.5	2.4	5.9	2.4	0	0	0	2.4	2.4	0	19
Tillages and flating				2.4	2.4	2.4				2.4	2.4		12
Hoeing & Weeding													0
Fertilization													0
Controlling			3.5		3.5								7
** After production:	0	0	0.75	0.4	1.15	0.4	0	0	0	0.9	0.4		4
Tillages and flating				0.4	0.4	0.4				0.4	0.4		2
Hoeing & Weeding													0
Fertilization													0
Controlling			0.75		0.75					0.5			2
Labour Requirements													
** Establishment year:	0	104	5.5	17	15.5	25	25	0	36	0	0	0	228
Planting (sowing)									30				
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation										2			2
** Befor production:	0	53	3.5	13	8.5	10	10	0	4	0	0	0	102
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		13		13									26
Pruning		40											40
Controlling			3.5		3.5								7
Harvesting					5	10	10						25
Irrigation									4				4
** After production:	0	49	2	4	7	15	15	0	0	0	0	0	92
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		4		4									8
Pruning		45											45
Controlling			2		2								4
Harvesting					5	15	15						35
Irrigation													0
Water Requirements													
** Establishment year:	0	0	0	0	0	0	0	0	0	0	0	0	0
** Befor production:													0
** After production:													0

Machinery :- hr/dunum
Labour :- hr/dunum

Activity :Grapes

Input-output data & gross margin per dunum for rainfed grapes

1	GROSS MARGIN CALCULATION		Irrigated:					
2	FOR PERENNIAL CROPS		Rain fed:	X				
3	Enterprise (CROP):	GRAPES	Establishment year		(4) years before	(30) years of		
4					production	production		
5		Unit	Price SP	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
6		Definition:	Unit:	SP	Unit:	SP	Unit:	SP
7	Crop produce	kg	9.00	0.00	390.00	3510.00	900.00	8100.00
8	TOTAL GROSS OUTPUT			0.00		3510.00		8100.00
9	Irrigation: Water requirements:	Cubicmet.	150.00	2.00	300.00	4.00	600.00	0.00
10	Seedlings: bought/owned	No.	5.00	100.00	500.00			
11	Manure - Fertilizer	M ³	300.00	1.00	300.00	4.00	1200.00	1.00
12	Total mineral fertilizer	SP/Dunum			0.00		1130.50	437.60
13	N	kg	17.90		0.00	15.00	268.50	10.00
14	P	kg	18.40		0.00	20.00	368.00	6.00
15	K	kg	24.70		0.00	20.00	494.00	6.00
16	Containers	No.	20.00		0.00	26.00	520.00	60.00
17	Chemicals:	SP/Dunum			0.00		700.00	300.00
18	- Weeds control	Dunum	1.00		0.00	700.00	700.00	300.00
19	- Insecticides	Dunum			0.00		0.00	0.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00		4250.00	1200.00
21	- Tillages and flating	hr	200.00	2.00	400.00	8.00	1600.00	2.00
22	- Planting (sowing)	hr						
23	- Fertilization	hr			0.00		0.00	0.00
24	- Chemical	hr			0.00		0.00	0.00
25	- Organic	hr			0.00		0.00	0.00
26	- Hoeing & weeding	hr			0.00		0.00	0.00
27	- Using chemical	hr			0.00		0.00	0.00
28	- Mechanical (hand)	hr			0.00		0.00	0.00
29	- Controlling	hr	250.00		0.00	10.00	2500.00	2.00
30	- Harvesting	hr			0.00		0.00	0.00
31	- Others	hr			0.00		0.00	0.00
32	- transportation (crop specific!)	Sp/Dunum)	1.00		0.00	150.00	150.00	300.00
33	Variable costs of owned machiner	SP / Dunum			0.00			
34	TOTAL VARIABLE COSTS	SP			3650.00		11900.50	6857.60
35	GROSS MARGIN	SP			3650.00		6300.50	1242.40
36	Labour requirements for:	Man.hr		106.00	2150.00	136.00	3500.00	136.00
37	- Tillages and flating	hr	25.00		0.00		0.00	0.00
38	- Planting (sowing)	hr	20.00	100.00	2000.00		0.00	0.00
39	- Fertilization	hr			0.00		0.00	0.00
40	- Chemical	hr	25.00		0.00	10.00	250.00	2.00
41	- Organic	hr	25.00	2.00	50.00	8.00	200.00	2.00
42	- Hoeing & weeding	hr			0.00		0.00	0.00
43	- Using chemical	hr			0.00		0.00	0.00
44	- Mechanical (hand)	hr			0.00		0.00	0.00
45	- Controlling	hr	35.00		0.00	10.00	350.00	2.00
46	- Harvesting	hr	25.00		0.00	50.00	1250.00	100.00
47	- Irrigation	hr	25.00	4.00	100.00	8.00	200.00	0.00
48	- Pruning	hr	25.00		0.00	50.00	1250.00	30.00
49	- Others	hr			0.00		0.00	0.00
50	- transportation (crop specific!)	Ton			0.00		0.00	0.00
51	- Land rent	Dunum	1.00	200.00	200.00	800.00	800.00	200.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed grapes according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after		Returns to capital
	Annual after production	Before production	Total			production (1)	(2)	
A	6857.60	451.35	7308.95	8100.00	791.05	5.82	30.96	1.108
B	6857.60	501.35	7358.95	8100.00	741.05	5.45	30.60	1.101
C	6857.60	458.02	7315.62	8100.00	784.38	5.77	30.91	1.107
D	6857.60	551.35	7408.95	8100.00	691.05	5.08	30.23	1.093

Monthly machinery, labour & water requirements for rain-fed grapes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Establishment year:	0	5.4	0	3	3	2.4	2.4	2.4	2.4	0	3	0	24
Tillages and flating	0	0.5	0	0.5	0.5	0	0	0	0	0	0.5	0	2
Hoing & Weeding													0
Fertilization													0
Controlling													0
Befor production:	0	4	0	2	2	2	2	2	2	2	0	2	18
Tillages and flating		2		2	2							2	8
Hoing & Weeding													0
Fertilization													0
Controlling		2				2	2	2	2	2			10
After production:	0	0.9	0	0.5	0.5	0.4	0.4	0.4	0.4	0	0.5		4
Tillages and flating		0.5		0.5	0.5						0.5		2
Hoing & Weeding													0
Fertilization													0
Controlling		0.4				0.4	0.4	0.4	0.4				2
Establishment year:	5.5	69.9	0	0	0	7.9	7.9	14.4	177.4	75	0	0	378
Establishment year:	0	2	0	0	0	0	0	4	100	0	0	0	6
Planting (sowing)									100				
Tillages and flating													0
Hoing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irigation									4				4
Befor production:	4.5	56.5	0	0	0	6.5	6.5	10	27	25	0	0	136
Tillages and flating													0
Hoing & Weeding													0
Fertilization	4.5	4.5				4.5	4.5						18
Pruning		50											50
Controlling		2				2	2	2	2				10
Harvesting									25	25			50
Irigation									8				8
After production:	1	31.4	0	0	0	1.4	1.4	0.4	50.4	50	0	0	136
Tillages and flating													0
Hoing & Weeding													0
Fertilization	1	1				1	1						4
Pruning		30											30
Controlling		0.4				0.4	0.4	0.4	0.4				2
Harvesting									50	50			100
Irigation													0
Establishment year:	0	0	0	0	0	0	0	0	0	0	0	0	0
Establishment year:													0
Befor production:													0
After production:													0

Machinery - hr/dunum
Labour - hr/dunum

Activity :Pistachio

Input-output data & gross margin per dunum for rainfed pistachio

1	GROSS MARGIN CALCULATION		Irrigated:						
2	FOR PERENNIAL CROPS		Rain fed:	X					
3	Enterprise (CROP)	PISTACHIO	Establishment year		(7) years before production		(30) years of production		
4		Unit	Price SP		TOTAL	TOTAL	TOTAL	TOTAL	
5		Definition:	Unit:	Unit:	SP	Unit:	SP	Unit:	
6									
7	Crop produce	kg	70.00		0.00	280.00	19600.00	150.00	10500.00
8	TOTAL GROSS OUTPUT				0.00		19600.00		10500.00
9	Irrigation: Water requirements:	Cubicmet.	300.00		0.00		0.00		0.00
10	Seedlings: bought/owned	No.	25.00	50.00	1250.00				
11	Manure - Fertilizer	M ³	300.00		0.00		0.00		0.00
12	Total mineral fertilizer	SP/Dunum			0.00		5727.40		401.80
13	N	kg	17.90		0.00	84.00	1503.60	8.00	143.20
14	P	kg	18.40		0.00	98.00	1803.20	6.00	110.40
15	K	kg	24.70		0.00	98.00	2420.60	6.00	148.20
16	Chemicals:	SP/Dunum			0.00		1500.00		500.00
17	- Weeds control	Dunum	1.00		0.00	1500.00	1500.00	500.00	500.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	11.00	220.00	8.00	160.00
20	Costs of hired machinery	SP/Dunum		3.00	600.00	53.00	12075.00	5.00	1210.00
21	- Tillages and flating	hr	200.00	3.00	600.00	25.00	5000.00	2.00	400.00
22	- Planting (sowing)	hr							0.00
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr			0.00		0.00		0.00
29	- Controlling	hr	250.00		0.00	28.00	7000.00	3.00	750.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific!)	Sp/Dunum)	1.00		0.00	75.00	75.00	60.00	60.00
33	Variable costs of owned machinery	SP / Dunum			0.00				
34	TOTAL VARIABLE COSTS	SP			3100.00		23372.40		4426.80
35	GROSS MARGIN	SP			5100.00		5772.40		6073.20
36	Labour requirements for:	Man.hr		50.00	1250.00	154.00	3850.00	85.00	2155.00
37	- Tillages and flating	hr	25.00		0.00		0.00		0.00
38	- Planting (sowing)	hr	25.00	50.00	1250.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00		0.00	2.00	50.00
41	- Chemical	hr	25.00		0.00	14.00	350.00		0.00
42	- Organic	hr			0.00		0.00		0.00
43	- Hoeing & weeding	hr			0.00		0.00		0.00
44	- Using chemical	hr			0.00		0.00		0.00
45	- Mechanical (hand)	hr	35.00		0.00		0.00	3.00	105.00
46	- Harvesting	hr	25.00		0.00	40.00	1000.00	30.00	750.00
47	- Irrigation	hr	25.00		0.00		0.00		0.00
48	- Pruning	hr	25.00		0.00	100.00	2500.00	50.00	1250.00
49	- Others	hr			0.00		0.00		0.00
50	- transportation (crop specific!)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	350.00	350.00	2450.00	2450.00	200.00	200.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed pistachio according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Returns to capital
	Annual after production	Before production	Total			(1)	(2)	
A	4426.80	279.08	4705.88	10500.00	5794.12	68.17	93.52	2.23
B	4426.80	329.08	4755.88	10500.00	5744.12	67.58	92.93	2.21
C	4426.80	285.75	4712.55	10500.00	5787.45	68.09	93.44	2.23
D	4426.80	379.08	4805.88	10500.00	5694.12	66.99	92.34	2.18

Monthly machinery, labour & water requirements for rain-fed pistachio

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery Requirements													
** Establishment year:	9	7	11	8	19	0	7	0	0	0	0	0	61
Tillages and flating	0	0.5	0	1	1	0	0.5	0	0	0	0	0	3
Hoeing & Weeding		0.5		1	1		0.5						3
Fertilization													0
Controlling													0
** Befor production:	8	6	10	6.5	16.5	0	6	0	0	0	0	0	53
Tillages and flating		6		6.5	6.5		6						25
Hoeing & Weeding													0
Fertilization													0
Controlling	8		10		10								28
** After production:	1	0.5	1	0.5	1.5	0	0.5	0	0	0	0	0	5
Tillages and flating		0.5		0.5	0.5		0.5						2
Hoeing & Weeding													0
Fertilization													0
Controlling	1		1		1								3
Labour Requirements													
** Establishment year:	9	158	11	8	11	70	0	0	50	0	0	0	317
Planting (sowing)									50				
Tillages and flating													0
Hoeing & Weeding													0
Fertilization													0
Pruning													0
Controlling													0
Harvesting													0
Irrigation													0
** Befor production:	8	107	10	7	10	40	0	0	0	0	0	0	182
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		7		7									14
Pruning		100											100
Controlling	8		10		10								28
Harvesting						40							40
Irrigation													0
** After production:	1	51	1	1	1	30	0	0	0	0	0	0	85
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		1		1									2
Pruning		50											50
Controlling	1		1		1								3
Harvesting						30							30
Irrigation													0
Water Requirements													
** Establishment year:	0	0	0	0	0	0	0	0	0	0	0	0	0
** Befor production:													0
** After production:													0

Machinery : h/daunum
Labour : h/daunum

Activity :Olives

Input-output data & gross margin per dunum for rainfed olive trees

GROSS MARGIN CALCULATION FOR PERENNIAL CROPS		Irrigated:		Rain fed: X					
Enterprise (CHOP)		OLIVES		Establishment year		(11) years before production		(40) years of production	
		Unit Definition:	Price SP Unit:	Unit:	TOTAL SP	Unit:	TOTAL SP	Unit:	TOTAL SP
7	Crop produce	kg	25.00		0.00	200.00	5000.00	300.00	7500.00
8	TOTAL GROSS OUTPUT				0.00		5000.00		7500.00
9	Irrigation: Water requirements:	Cubicmet.	300.00	1.50	450.00	3.00	900.00		0.00
10	Seedlings: bought/owned	No.	15.00	12.00	180.00				
11	Manure - Fertilizer	M ^ 3	300.00	1.00	300.00	11.00	3300.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		1972.50		322.90
13	N	kg	17.90		0.00	50.00	895.00	6.00	107.40
14	P	kg	18.40		0.00	25.00	460.00	5.00	92.00
15	K	kg	24.70		0.00	25.00	617.50	5.00	123.50
16	Chemicals:	SP/Dunum			0.00		600.00		200.00
17	- Weeds control	Dunum	1.00		0.00	600.00	600.00	200.00	200.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	8.00	160.00	12.00	240.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00		5960.00		1375.00
21	- Tillages and flating	hr	200.00	2.00	400.00	22.00	4400.00	4.00	800.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Flating	hr			0.00		0.00		0.00
27	- Hoeing & weeding	hr			0.00		0.00		0.00
28	- Using chemical	hr			0.00		0.00		0.00
29	- Mechanical (hand)	hr	250.00		0.00		0.00	2.00	500.00
30	- Controlling	hr	250.00		0.00	6.00	1500.00		0.00
31	- Harvesting	hr			0.00		0.00		0.00
32	- Others	hr			0.00		0.00		0.00
33	- transportation (crop specific!)	Sp/Dunum)	1.00		0.00	60.00	60.00	75.00	75.00
34	Variable costs of owned machinery	SP / Dunum			0.00				0.00
35	TOTAL VARIABLE COSTS				1890.00		17052.50		4057.90
36	GROSS MARGIN				1690.00		12852.50		3442.10
37	Labour requirements for:	Man.hr		20.00	560.00	164.00	4160.00	64.00	1620.00
38	- Tillages and flating	hr	25.00	0.50	12.50	5.50	137.50		0.00
39	- Planting (sowing)	hr	30.00	12.00	360.00		0.00		0.00
40	- Fertilization	hr			0.00		0.00		0.00
41	- Chemical	hr	25.00		0.00	18.00	450.00	2.00	50.00
42	- Organic	hr	25.00	1.50	37.50	16.50	412.50	2.00	50.00
43	- Hoeing & weeding	hr			0.00		0.00		0.00
44	- Using chemical	hr			0.00		0.00		0.00
45	- Mechanical (hand)	hr	35.00		0.00		0.00		0.00
46	- Controlling	hr	35.00		0.00	6.00	210.00	2.00	70.00
47	- Harvesting	hr	25.00		0.00	16.00	400.00	28.00	700.00
48	- Irrigation	hr	25.00	6.00	150.00	12.00	300.00	0.00	0.00
49	- Pruning	hr	25.00		0.00	90.00	2250.00	30.00	750.00
50	- Others	hr			0.00		0.00		0.00
51	- transportation (crop specific!)	Ton			0.00		0.00		0.00
52	Land rent	Dunum	1.00	200.00	200.00	2200.00	2200.00	200.00	200.00

The first year establishment costs includes ploughing, removal of stones, and

flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for rain-fed olives according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Returns to capital
	Annual after production	Befor production	Total			(1)	(2)	
A	4057.90	386.06	4443.96	7500.00	3056.04	47.75	73.06	1.69
B	4057.90	423.56	4481.46	7500.00	3018.54	47.16	72.48	1.67
C	4057.90	391.06	4448.96	7500.00	3051.04	47.67	72.98	1.69
D	4057.90	461.06	4518.96	7500.00	2981.04	46.58	71.89	1.66

Monthly machinery, labour & water requirements for rain-fed olives

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	6.5	7.5	7.5	0	0	4	4	0	6.5	0	36
** Establishment year:	0	0	0.5	0.5	0.5	0	0	0	0	0	0.5	0	2
Tillages and flating			0.5	0.5	0.5						0.5		2
Hoeing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	0	0	5	6	6	0	0	3	3	0	5	0	28
Tillages and flating			5	6	6						5		22
Hoeing & Weeding													0
Fertilization													0
Controlling								3	3				6
** After production:	0	0	1	1	1	0	0	1	1	0	1		6
Tillages and flating			1	1	1						1		4
Hoeing & Weeding													0
Fertilization													0
Controlling								1	1				2
Water Requirements	0	134.5	0	0	0.5	0	0	4	34	22	40	13	248
** Establishment year:	0	1.5	0	0	0.5	0	0	0	18	0	0	0	8
Planting (sowing)									12				
Tillages and flating					0.5								0.5
Hoeing & Weeding													0
Fertilization		1.5											1.5
Pruning													0
Controlling													0
Harvesting													0
Irrigation									6				6
** Befor production:	0	101.5	0	0	0	0	0	3	15	8	25	11.5	164
Tillages and flating											5.5		5.5
Hoeing & Weeding													0
Fertilization		11.5									11.5	11.5	34.5
Pruning		90											90
Controlling								3	3				6
Harvesting										8	8		16
Irrigation									12				12
** After production:	0	31.5	0	0	0	0	0	1	1	14	15	1.5	64
Tillages and flating													0
Hoeing & Weeding													0
Fertilization		1.5									1	1.5	4
Pruning		30											30
Controlling								1	1				2
Harvesting										14	14		28
Irrigation													0
Other Requirements	0	0	0	0	0	0	0	0	0	0	0	0	0
** Establishment year:													0
** Befor production:													0
** After production:													0

Machinery - hr/dunum
Labour - hr/dunum

6. *IRRIGATED CROPS*

Activity :Broad Beans

Input-output data & gross margin per hectare for irrigated broad beans

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	BROAD BEANS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	3000.00	16.00	48000.00
7	Crop produce 2:	Hect	1.00	2000.00	2000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				50000.00
11	Irrigation: Water requirements:	Cubicmet.	4444.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	250.00	19.00	4750.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	1380.00	1380.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			1000.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	1000.00	1000.00
23	Containers	No.	22	25	550.00
24	Costs of hired machinery	SP	10.00		3850.00
25	- Tillages	hr	6.00	350.00	2100.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	2.00	175.00	350.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	3	300	900.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			20075.00
40	GROSS MARGIN	SP			29925.00
41	Labour requirements for:	Man.hr	400.00		8540.00
42	- Tillages				0.00
43	- planting (sowing)		100.00	20.00	2000.00
44	- Fertilization				0.00
45	-Chemical		4.00	25.00	100.00
46	-Organic				0.00
47	- Flating		20.00	25.00	500.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)				0.00
51	- Controlling		8.00	35.00	280.00
52	- Harvesting		200.00	20.00	4000.00
53	- Irrigation		60.00	25.00	1500.00
54	- Others		8.00	20.00	160.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	9000	9000.00

Revenues and costs per hectare of broad beans according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margi	Gross margin per man hour	Gross margin per man hour	Gross margin 1 per cbm wat.	Gross margin per cbm wat.	Return to capital
-Deep wells	1 & 2	50000.00	16000.00	20070.00	13930.00	34.83	56.18	3.13	6.73	1.39
	3,4, & 5	50000.00	18000.00	20070.00	11930.00	29.83	51.18	2.68	6.73	1.31
-Shallow wells	1 & 2	50000.00	9000.00	20070.00	20930.00	52.33	73.68	4.71	6.73	1.72
	3,4, & 5	50000.00	11000.00	20070.00	18930.00	47.33	68.68	4.26	6.73	1.61
-Rivers	1 & 2	50000.00	6500.00	20070.00	23430.00	79.93	79.93	5.27	6.73	1.88
	3,4, & 5	50000.00	8000.00	20070.00	21930.00	76.18	76.18	4.93	6.73	1.78
-Government projects		50000.00	2500.00	20070.00	27430.00	89.93	89.93	6.17	6.73	2.22

Monthly machinery, labour & water requirements for broad beans

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Misc machinery	0	2.5	4	0	0	0	0	0	0	0	0	0	3.5
Tillages		2.5											3.5
Planting (sowing)													6
Fertilization													0
Flating			2										2
Controlling			2										2
Harvesting													0
Others													0
Labour Requirements	0	0	132	17	30	21	200	0	0	0	0	0	400
Planting (sowing)			100										100
Fertilization			4										4
Flating			20										20
Hoeing & Weeding													0
Controlling				4	4								8
Harvesting							200						200
Others													8
Irrigation			8	13	18	21							60
Water Requirements			576	925	1343	1600							4444

Machinery :- hr/hect
 Labour :- hr/hect

Activity :Eggplants

Input-output data & gross margin per hectare for irrigated eggplants

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	EGGPLANTS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	26000.00	3.50	91000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		26000.00		91000.00
11	Irrigation: Water requirements: **	Cubicmet.	12000.00		0.00
12	Seed/seedling: Owned	kg			0.00
13	Seed/seedling: Bought	kg	0.30	2000.00	600.00
14	Manure - Fertilizer	Ton	10.00	300.00	3000.00
15	Total mineral fertilizer	Hect	1.00	7681.00	7681.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			1200.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	1200.00	1200.00
23	Containers	Hect	1	1820	1820.00
24	Costs of hired machinery	SP	18.00		13698.40
25	- Tillages	hr	9.00	366.60	3299.40
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	3.00	233.00	699.00
35	- Harvesting	hr			0.00
36	- Others	hr	4	350	1400.00
37	- transportation (crop specific!)	Ton	26	300	7800.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			43429.40
40	GROSS MARGIN	SP			47570.60
41	Labour requirements for:	Man.hr	706.00		15430.00
42	- Tillages				0.00
43	- planting (sowing)		90.00	20.00	1800.00
44	- Fertilization				0.00
45	-Chemical		40.00	25.00	1000.00
46	-Organic		24.00	25.00	600.00
47	- Flating		20.00	25.00	500.00
48	- Hoeing & weeding				0.00
49	- Using chemical		10.00	20.00	200.00
50	- Mechanical (hand)		50.00	20.00	1000.00
51	- Controlling		32.00	35.00	1120.00
52	- Harvesting		260.00	20.00	5200.00
53	- Irrigation		160.00	25.00	4000.00
54	- Others		20.00	0.50	10.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for eggplants according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin per man hour	Gross margin per cbm wat.	Gross margin per cbm wat.	Return to capital	
-Deep wells	1 & 2	91000.00	23000.00	43429.40	24570.60	34.80	56.66	2.05	3.96	1.37
	3, 4, & 5	91000.00	25000.00	43429.40	22570.60	31.97	53.83	1.88	3.96	1.33
-Shallow wells	1 & 2	91000.00	13000.00	43429.40	34570.60	48.97	70.82	2.88	3.96	1.61
	3, 4, & 5	91000.00	24000.00	43429.40	23570.60	33.39	55.24	1.96	3.96	1.35
-Rivers	1 & 2	91000.00	9500.00	43429.40	38070.60	53.92	75.78	3.17	3.96	1.72
	3, 4, & 5	91000.00	11000.00	43429.40	36570.60	51.80	73.66	3.05	3.96	1.67
-Government projects		91000.00	2500.00	43429.40	45070.60	63.84	85.69	3.76	3.96	1.98

Monthly machinery, labour & water requirements for eggplants

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	4.5	9.5	0	4	0	0	0	0	0	0	18
Tillages			4.5	4.5									9
Planting (sowing)													0
Fertilization													0
Flating				2									2
Controlling				3									3
Harvesting													0
Others						4							4
Labour Requirements	0	24	16	128	101	81	80	146	130	0	0	0	706
Planting (sowing)				90									90
Fertilization		24	16	8	8	8							64
Flating				20									20
Hoing & Weeding					25	25	16	16					50
Controlling				10									42
Harvesting								130	130				260
Others					20								20
Irrigation					48	48	64						160
Water Requirements					3600	3600	4800						12000

Machinery :- hr/hect
 Labour :- hr/hect

Activity : Cotton

Input-output data & gross margin per hectare for irrigated cotton

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	COTTON			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	3392.00	23.55	79881.60
7	Crop produce 2:	Hect			0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				79881.60
11	Irrigation: Water requirements: **	Cubicmet.	10897.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	116.00	7.48	867.68
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	5301.00	5301.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			989.00
21	- Weeds control	Hect	1.00	989.00	989.00
22	- Insecticides	Hect			0.00
23	Containers	Hect	19.4	65	1261.00
24	Costs of hired machinery	SP	22.60		8250.64
25	- Tillages	hr	16.40	265.20	4349.28
26	- planting (sowing)	hr	2.40	333.30	799.92
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	3.80	215.80	820.04
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	3.4	671	2281.40
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			39177.72
40	GROSS MARGIN	SP			40703.88
41	Labour requirements for:	Man.hr	891.00		22508.40
42	- Tillages				0.00
43	- planting (sowing)		45.00	22.90	1030.50
44	- Fertilization				0.00
45	-Chemical		20.00	26.30	526.00
46	-Organic				0.00
47	- Flating		20.00	31.00	620.00
48	- Hoeing & weeding				0.00
49	- Using chemical		6.00	83.30	499.80
50	- Mechanical (hand)		85.00	23.10	1963.50
51	- Controlling		13.00	35.00	455.00
52	- Harvesting		468.00	22.40	10483.20
53	- Irrigation		160.00	32.40	5184.00
54	- Others		74.00	23.60	1746.40
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	13649	13649.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for cotton according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin per man hour	Gross margin per man hour	Gross margin per cbm wat.	Gross margin per cbm wat.	Return to capital
-Deep wells	1 & 2	79881.60	25000.00	39177.72	15703.88	17.63	42.89	1.44	3.74	1.24
	3,4, & 5									
-Shallow wells	1 & 2	79881.60	15000.00	39177.72	25703.88	28.85	54.11	2.36	3.74	1.47
	3,4, & 5									
-Rivers	1 & 2	79881.60	11000.00	39177.72	29703.88	33.34	58.60	2.73	3.74	1.59
	3,4, & 5									
-Government projects		79881.60	2500.00	39177.72	38203.88	42.88	68.14	3.51	3.74	1.92

Monthly machinery, labour & water requirements for irrigated cotton

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	5	12.6	0	5	0	0	0	0	0	0	22.6
Tillages			5	6.4		5							16.4
Planting (sowing)				2.4									2.4
Fertilization													0
Flating				3.8									3.8
Controlling													0
Harvesting													0
Others													0
Labour Requirements	0	0	0	87.4	30	198.3	52.9	40	14.4	312	156	0	891
Planting (sowing)				45									45
Fertilization				16		4							20
Flating				20									20
Hoing & Weeding						151							151
Controlling						6.5	6.5						13
Harvesting										312	156		468
Others					14								14
Irrigation				6.4	16	36.8	46.4	40	14.4				160
Water Requirements				417	1046	2520	3186	2720	1008				10897

Machinery :- hr/hect
Labour :- hr/hect

Activity :Cucumbers

input-output data & gross margin per hectare for irrigated cucumbers

A1	GROSS MARGIN CALCULATION		Irrigated:	X	
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)		Rain fed:		
3	Enterprise (CROP):	CUCUMBERS			
4		Unit	Price SP	TOTAL	
5		Definition:	Unit:	SP	
6	Crop produce 1:	kg	25000.00	4.50	112500.00
7	Crop produce 2:	Hect	1.00		0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				112500.00
11	Irrigation: Water requirements: **	Cubicmet.	15600.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	2.50	3000.00	7500.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	6524.00	6524.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			2500.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	2500.00	2500.00
23	Containers	Hect	1	1750	1750.00
24	Costs of hired machinery	SP	13.00		11100.00
25	- Tillages	hr	7.00	300.00	2100.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	- Chemical	hr			0.00
29	- Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	4.00	250.00	1000.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	25	300	7500.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			47039.00
40	GROSS MARGIN	SP			65461.00
41	Labour requirements for:	Man.hr	766.00		17665.00
42	- Tillages				0.00
43	- planting (sowing)		80.00	25.00	2000.00
44	- Fertilization				0.00
45	- Chemical		16.00	25.00	400.00
46	- Organic				0.00
47	- Flating		16.00	25.00	400.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		100.00	20.00	2000.00
51	- Controlling		64.00	35.00	2240.00
52	- Harvesting		315.00	20.00	6300.00
53	- Irrigation		165.00	25.00	4125.00
54	- Others		10.00	20.00	200.00
55	- transportation (crop specific!)	Ton			0.00
56	- Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated cucumbers according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margi	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	112500.00	23000.00	47039.00	42461.00	55.43	78.49	2.72	4.20	1.61
	3, 4, & 5	112500.00	25000.00	47039.00	40461.00	52.82	52.82	2.59	4.20	1.56
-Shallow wells	1 & 2	112500.00	13000.00	47039.00	52461.00	68.49	71.10	3.36	4.20	1.87
	3, 4, & 5	112500.00	15000.00	47039.00	50461.00	65.88	65.88	3.23	4.20	1.81
-Rivers	1 & 2	112500.00	9500.00	47039.00	55961.00	73.06	73.58	3.59	4.20	1.99
	3, 4, & 5	112500.00	11000.00	47039.00	54461.00	71.10	71.10	3.49	4.20	1.94
-Government projects		112500.00	25000.00	47039.00	62961.00	82.19	82.72	4.04	4.20	2.27

Monthly machinery, labour & water requirements for irrigated cucumbers

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0	0	9	4	0	0	0	0	0	13
Tillages						3	4						7
Planting (sowing)													0
Fertilization													0
Flating						2							2
Controlling						4							4
Harvesting													0
Others													0
Labour Requirements	0	0	0	0	0	0	265	336	165	0	0	0	766
Planting (sowing)							80						80
Fertilization							16						16
Flating							16						16
Hoing & Weeding							60	40					100
Controlling							32	32					64
Harvesting								200	115				315
Others							10						10
Irrigation							51	64	50				165
Water Requirements							4800	6000	4800				15600

Machinery :- hr/hect

Labour :- hr/hect

Activity : Cucumbers (Green House)*

Input-output data & gross margin per green house for irrigated cucumbers

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	CUCUMBERS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	6500.00	20.00	130000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		6500.00		130000.00
11	Irrigation: Water requirements: **	Cubicmet.	640.00	0.78	500.00
12	Seed/seedling: Owned	kg			0.00
13	Seed/seedling: Bought	No.	1000.00	7.00	7000.00
14	Manure - Fertilizer	Ton	3.00	300.00	900.00
15	Total mineral fertilizer	Hect	1.00	2933.00	2933.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			7500.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect	1.00	7500.00	7500.00
23	Containers	Hect	1	490	490.00
24	Costs of hired machinery	SP	1.50		2475.00
25	- Tillages	hr	1.50	350.00	525.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	- Chemical	hr			0.00
29	- Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	6.5	300	1950.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			38245.00
40	GROSS MARGIN	SP			93782.00
41	Labour requirements for:	Man.hr	644.00		14420.00
42	- Tillages				
43	- planting (sowing)		60.00	20.00	1200.00
44	- Fertilization				0.00
45	- Chemical		10.00	25.00	250.00
46	- Organic		8.00	25.00	200.00
47	- Flating		4.00	25.00	100.00
48	- Hoeing & weeding				0.00
49	- Using chemical		100.00	20.00	2000.00
50	- Mechanical (hand)		20.00	20.00	400.00
51	- Controlling		72.00	35.00	2520.00
52	- Harvesting		240.00	20.00	4800.00
53	- Irrigation		30.00	25.00	750.00
54	- Others		100.00	22.00	2200.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	1500	1500.00
57	Depreciation	G-House	1	60000	60000.00
58	Gross margin per man hour (1)	SP/m.hr			145.62
59	Gross margin per man hour (2)	SP/m.hr			168.02
60	Gross margin per cm of water (1)	SP/m.hr			148.53
61	Gross margin per cm of water (2)	SP/m.hr			147.32

* Area of one green house is 400 M²

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for cucumbers (green house)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0	0	0	0.5	0.5	0.5	0	0	0	1.5
Tillages							0.5	0.5	0.5				1.5
Planting (sowing)													0
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	88.4	92.4	101.4	67	0	0	8	2	89	50.2	77.2	68.4	644
Planting (sowing)							8	2	60		1	1	60
Fertilization	1	1	1	1					1	1	1		18
Flating									4				4
Hoing & Weeding	20	20	20						20	20	20		120
Controlling	10.4	10.4	10.4	10						10.2	10.2	10.4	72
Harvesting	30	45	53	52							30	30	240
Others	24	12	13							15	12	24	100
Irrigation	3	4	4	4					4	4	4	3	30
Water Requirements	63.9	85.2	85.2	86.2					85.2	85.2	85.2	63.9	640

Machinery :- hr/green house

Labour :- hr/green house

Activity :Fall Potatoes

Input-output data & gross margin per hectare for irrigated fall potatoes

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	FALL POTATOES				
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	20000.00	7.00	140000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				140000.00
11	Irrigation: Water requirements: **	Cubicmet.	7296.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	No.	2500.00	13.00	32500.00
14	Manure - Fertilizer	Ton	9.00	300.00	2700.00
15	Total mineral fertilizer	Hect	1.00	9155.00	9155.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			3700.00
21	- Weeds control	Hect	1.00	2400.00	2400.00
22	- Insecticides	Hect	1.00	1300.00	1300.00
23	Containers	No.	570	15	8550.00
24	Costs of hired machinery	SP	37.00		13150.00
25	- Tillages	hr	11.00	331.82	3650.00
26	- planting (sowing)	hr	12.00	125.00	1500.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controling	hr			0.00
35	- Harvesting	hr	12.00	125.00	1500.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	20	300	6000.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS				67485.00
40	GROSS MARGIN				62535.00
41	Labour requirements for:	Man.hr	802.00		17710.00
42	- Tillages				0.00
43	- planting (sowing)		40.00	20.00	800.00
44	- Fertilization				0.00
45	-Chemical		16.00	25.00	400.00
46	-Organic		20.00	25.00	500.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		50.00	20.00	1000.00
51	- Controling		36.00	35.00	1260.00
52	- Harvesting		450.00	20.00	9000.00
53	- Irrigation		150.00	25.00	3750.00
54	- Others		16.00	25.00	400.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.
Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for fall potatoes according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin per man hour	Gross margin per man hour	Gross margin per cbm wat.	Gross margin per cbm wat.	Return to capital
-Deep wells	1 & 2	140000.00	25000.00	87465.00	27535.00	34.33	56.42	3.77	7.20	1.24
	3, 4, & 5	140000.00	25000.00	87465.00	27535.00	34.33	56.42	3.77	7.20	1.24
-Shallow wells	1 & 2	140000.00	15000.00	87465.00	37535.00	46.80	68.88	5.14	7.20	1.37
	3, 4, & 5	140000.00	15000.00	87465.00	37535.00	46.80	68.88	5.14	7.20	1.37
-Rivers	1 & 2	140000.00	11000.00	87465.00	41535.00	51.79	73.87	5.69	7.20	1.42
	3, 4, & 5	140000.00	11000.00	87465.00	41535.00	51.79	73.87	5.69	7.20	1.42
-Government projects		140000.00	2500.00	87465.00	50035.00	62.39	84.47	6.86	7.20	1.56

Monthly machinery, labour & water requirements for fall potatoes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	8	3	0	14	0	0	0	12	0	37
Tillages				8	3								11
Planting (sowing)							12						12
Fertilization													0
Flating							2						2
Controlling													0
Harvesting											12		12
Others													0
Labour Requirements	0	0	0	0	20	39	90	32	104.5	66.5	450	0	802
Planting (sowing)					20	12	40	2					40
Fertilization							2	2					36
Flating							24						24
Hoeing & Weeding									30	20			50
Controlling						6			15	15			36
Harvesting											450		450
Others													16
Irrigation						21	24	30	43.5	31.5			150
Water Requirements						1000	1161	1480	2107	1548			7296

Machinery :- hr/hect

Labour :- hr/hect

Activity :Maize

Input-output data & gross margin per hectare for irrigated maize

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	MAIZE			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	3927.00	7.00	27489.00
7	Crop produce 2:	Hect	1.00	528.00	528.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				28017.00
11	Irrigation: Water requirements: **	Cubicmet.	7694.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	40.30	18.00	725.40
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	4045.00	4045.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			570.00
21	- Weeds control	Hect	1.00	270.00	270.00
22	- Insecticides	Hect	1.00	300.00	300.00
23	Containers	No.	32.4	25	810.00
24	Costs of hired machinery	SP	16.00		5959.89
25	- Tillages	hr	9.00	230.70	2076.30
26	- planting (sowing)	hr	1.10	386.00	424.60
27	- Fertilization	hr			0.00
28	-Chemical	hr	0.20	400.00	80.00
29	-Organic	hr			0.00
30	- Flating	hr	2.10	214.30	450.03
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr	0.2	400	80.00
33	- Mechanical (hand)	hr			0.00
34	- Controling	hr			0.00
35	- Harvesting	hr	3.40	364.40	1238.96
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	4	402.5	1610.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			19472.06
40	GROSS MARGIN	SP			8544.95
41	Labour requirements for:	Man.hr	276.20		7361.76
42	- Tillages				0.00
43	- planting (sowing)		13.60	25.00	340.00
44	- Fertilization				0.00
45	-Chemical		10.00	32.00	320.00
46	-Organic				0.00
47	- Flating		15.00	22.00	330.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		45.60	24.60	1121.76
51	- Controling		13.00	35.00	455.00
52	- Harvesting		50.00	22.50	1125.00
53	- Irrigation		104.00	30.00	3120.00
54	- Others		25.00	22.00	550.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	6287	6287.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated maize according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to	
										capital	capital
-Deep wells	1 & 2	28017.00	20000.00	19472.05	-11455.05	-41.47	-14.82	-1.49	1.11	0.71	0.71
	3, 4, & 5	28017.00	20000.00	19472.05	-11455.05	-41.47	-14.82	-1.49	1.11	0.71	0.71
-Shallow wells	1 & 2	28017.00	12000.00	19472.05	-3455.05	-12.51	14.14	-0.45	1.11	0.89	0.89
	3, 4, & 5	28017.00	12000.00	19472.05	-3455.05	-12.51	14.14	-0.45	1.11	0.89	0.89
-Rivers	1 & 2	28017.00	9000.00	19472.05	-455.05	-1.65	25.01	-0.06	1.11	0.98	0.98
	3, 4, & 5	28017.00	9000.00	19472.05	-455.05	-1.65	25.01	-0.06	1.11	0.98	0.98
-Government projects		28017.00	2500.00	19472.05	6044.95	21.89	48.54	0.79	1.11	1.28	1.28

Monthly machinery, labour & water requirements for irrigated maize

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired Machinery	0	0	0	0	3	9.6	0	0	0	3.4	0	0	16
Tillages					3	6							9
Planting (sowing)						1.1							1.1
Fertilization						0.2							0.2
Flating						2.1							2.1
Controlling						0.2							0.2
Harvesting										3.4			3.4
Others													0
Labour Requirements	0	0	0	0	0	52.2	89.3	43	29	62.7	0	0	276.2
Planting (sowing)						13.6							13.6
Fertilization						9		1					10
Flating						15							15
Hoing & Weeding							55.6						55.6
Controlling								13					13
Harvesting											50		50
Others							15						15
Irrigation						14.6	18.7	29	29	12.7			104
Water Requirements						1100	1346	2144	2151	953			7694

Machinery :- hr/hect

Labour :- hr/hect

Activity :Musk Melon

Input-output data & gross margin per hectare for irrigated musk melon

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	MUSK MELON			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	25000.00	2.50	62500.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		25000.00		62500.00
11	Irrigation: Water requirements: **	Cubicmet.	8605.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	1.50	1900.00	2850.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	2720.00	2720.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			700.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	700.00	700.00
23	Containers	No.			0.00
24	Costs of hired machinery	SP	10.00		8550.00
25	- Tillages	hr	7.00	400.00	2800.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	3.00	250.00	750.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	25	200	5000.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			27750.00
40	GROSS MARGIN	SP			34750.00
41	Labour requirements for:	Man.hr	592.00		12960.00
42	- Tillages				0.00
43	- planting (sowing)		70.00	20.00	1400.00
44	- Fertilization				0.00
45	-Chemical		8.00	25.00	200.00
46	-Organic				0.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		80.00	20.00	1600.00
51	- Controlling		16.00	35.00	560.00
52	- Harvesting		180.00	20.00	3600.00
53	- Irrigation		144.00	25.00	3600.00
54	- Others		70.00	20.00	1400.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	10000	10000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated muskmelon according to the irrigation system (SP/hect)

WATER SOURCE		Ag-zone	Revenues	Wat-Costs	Costs	Gross margi	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells		1 & 2	62500.00	23000.00	27780.00	11720.00	41.69	88.61	4.03	1.36	1.23
		3,4, & 5	62500.00	25000.00	27780.00	9720.00	38.31	85.24	4.03	1.13	1.18
-Shallow wells		1 & 2	62500.00	13000.00	27780.00	21720.00	58.58	105.51	4.03	2.52	1.53
		3,4, & 5	62500.00	15000.00	27780.00	19720.00	55.20	102.13	4.03	2.29	1.46
-Rivers		1 & 2	62500.00	9500.00	27780.00	25220.00	64.49	111.42	4.03	2.93	1.68
		3,4, & 5	62500.00	11000.00	27780.00	23720.00	61.96	108.89	4.03	2.76	1.61
-Government projects			62500.00	2500.00	27780.00	32220.00	76.32	123.24	4.03	3.74	2.06

Monthly machinery, labour & water requirements for musk melon

	JAN	FEB	MAR	APR	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	4	6	0	0	0	0	0	0	0	10
Tillages			4	3								7
Planting (sowing)												0
Fertilization												0
Flating				3								3
Controlling												0
Harvesting												0
Others												0
Labour Requirements	0	0	0	194	54	240	0	0	0	0	0	488
Planting (sowing)				70								70
Fertilization				8								8
Flating				24								24
Hoing & Weeding				80								80
Controlling					8							8
Harvesting							180					180
Others												0
Irrigation				12	46	60						118
Water Requirements				664	2732	3643						7039

Machinery :- hr/hect

Labour :- hr/hect

Activity :Onions

Input-output data & gross margin per hectare for irrigated onions

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	ONIONS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	23500.00	5.00	117500.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		23500.00		117500.00
11	Irrigation: Water requirements: **	Cubicmet.	9745.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	No.	1100.00	15.00	16500.00
14	Manure - Fertilizer	Ton	10.00	300.00	3000.00
15	Total mineral fertilizer	Hect	1.00	8636.00	8636.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			500.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	500.00	500.00
23	Containers	No.	670	10	6700.00
24	Costs of hired machinery	SP	14.50		11550.00
25	- Tillages	hr	12.50	320.00	4000.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	23.5	300	7050.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			64326.00
40	GROSS MARGIN	SP			53674.00
41	Labour requirements for:	Man/hr	796.00		17540.00
42	- Tillages				0.00
43	- planting (sowing)		180.00	20.00	3600.00
44	- Fertilization				0.00
45	-Chemical		20.00	25.00	500.00
46	-Organic		8.00	25.00	200.00
47	- Flating		20.00	25.00	500.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		100.00	20.00	2000.00
51	- Controlling		12.00	35.00	420.00
52	- Harvesting		360.00	22.00	7920.00
53	- Irrigation		96.00	25.00	2400.00
54	- Others				0.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	18000	18000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for musk melon

	JAN	FEB	MAR	APR	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	4	6	0	0	0	0	0	0	0	10
Tillages			4	3								7
Planting (sowing)												0
Fertilization												0
Flating				3								3
Controlling												0
Harvesting												0
Others												0
Labour Requirements	0	0	0	194	54	240	0	0	0	0	0	488
Planting (sowing)				70								70
Fertilization				8								8
Flating				24								24
Hoing & Weeding				80								80
Controlling					8							8
Harvesting							180					180
Others												0
Irrigation				12	46	60						118
Water Requirements				664	2732	3643						7039

Machinery :- hr/hect

Labour :- hr/hect

Revenues and costs per hectare for irrigated onions according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	117500.00	18000.00	64426.00	35074.00	66.10	147.04	5.45	3.60	1.43
	3, 4, & 5	117500.00	20000.00	64426.00	33074.00	63.59	144.52	5.45	3.39	1.39
-Shallow wells	1 & 2	117500.00	11000.00	64426.00	42074.00	74.89	155.83	5.45	4.32	1.56
	3, 4, & 5	117500.00	13000.00	64426.00	40074.00	72.38	153.32	5.45	4.11	1.52
-Rivers	1 & 2	117500.00	8500.00	64426.00	44574.00	78.03	158.97	5.45	4.57	1.61
	3, 4, & 5	117500.00	10000.00	64426.00	43074.00	76.15	157.09	5.45	4.42	1.58
-Government projects		117500.00	2500.00	64426.00	50574.00	85.57	166.51	5.45	5.19	1.76

Monthly machinery, labour & water requirements for irrigated onions

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	8.25	0	0	0	0	0	0	0	0	6.25	14.5
Tillages			6.25									6.25	12.5
Planting (sowing)													0
Fertilization													0
Flating			2										2
Controlling													0
Harvesting													0
Others													0
Labour Requirements	0	22	203	72	64	28	30	377	0	0	0	0	796
Planting (sowing)			180										180
Fertilization			3		3								28
Flating			20										20
Hoing & Weeding				60	40								100
Controlling				6	6								12
Harvesting								360					360
Others													0
Irrigation				6	15	28	30	17					96
Water Requirements				544	1511	2821	3028	1841					9745

Machinery :- hr/hect

Labour :- hr/hect

Activity :Peanuts

Input-output data & gross margin per hectare for irrigated peanuts

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	PEANUTS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2480.00	26.00	64480.00
7	Crop produce 2:	Hect	1.00	8000.00	8000.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				72480.00
11	Irrigation: Water requirements: **	Cubicmet.	7578.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	50.00	35.20	1760.00
14	Manure - Fertilizer	Ton	10.00	300.00	3000.00
15	Total mineral fertilizer	Hect	1.00	3970.00	3970.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			1000.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	1000.00	1000.00
23	Containers	No.	50	25	1250.00
24	Costs of hired machinery	SP	18.00		5344.20
25	- Tillages	hr	9.00	288.80	2599.20
26	- planting (sowing)	hr	2.00	250.00	500.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	3.00	167.00	501.00
35	- Harvesting	hr	2.00	250.00	500.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	2.48	300	744.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			30459.20
40	GROSS MARGIN	SP			42020.80
41	Labour requirements for:	Man/hr	613.00		14135.00
42	- Tillages				0.00
43	- planting (sowing)		75.00	25.00	1875.00
44	- Fertilization				0.00
45	-Chemical		16.00	25.00	400.00
46	-Organic		24.00	25.00	600.00
47	- Flating		16.00	25.00	400.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		120.00	20.00	2400.00
51	- Controlling		16.00	35.00	560.00
52	- Harvesting		250.00	22.00	5500.00
53	- Irrigation		96.00	25.00	2400.00
54	- Others				0.00
55	- transportation (crop specific!)	Ton			0.00
56	- Land rent	Hect	1	10000	10000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated peanuts according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	72480.00	20000.00	30459.20	22020.80	35.92	58.98	2.91	5.55	1.44
	3,4, & 5	72480.00	20000.00	30459.20	22020.80	35.92	58.98	2.91	5.55	1.44
-Shallow wells	1 & 2	72480.00	12000.00	30459.20	30020.80	48.97	72.03	3.96	5.55	1.71
	3,4, & 5	72480.00	12000.00	30459.20	30020.80	48.97	72.03	3.96	5.55	1.71
-Rivers	1 & 2	72480.00	9000.00	30459.20	33020.80	53.87	76.93	4.36	5.55	1.84
	3,4, & 5	72480.00	9000.00	30459.20	33020.80	53.87	76.93	4.36	5.55	1.84
-Government projects		72480.00	2500.00	30459.20	39520.80	64.47	87.53	5.22	5.55	2.20

Monthly machinery, labour & water requirements for irrigated peanuts

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired Machinery	0	5	7	4	4	0	0	0	0	4.48	0	0	20.48
Tillages		5	4										9
Planting (sowing)				2									2
Fertilization					2								0
Flating													2
Controlling			3							2			5
Harvesting										2.48			2.48
Others													0
Labour Requirements	0	24	12	98	82	71	33	32	11	250	0	0	613
Planting (sowing)				75									75
Fertilization		24	12	4									40
Flating				16									16
Hoeing & Weeding					70	50							120
Controlling						6	5	5					16
Harvesting										250			250
Others													0
Irrigation				3	12	15	28	27	11				96
Water Requirements				191	907	1205	2176	2099	1000				7578

Machinery :- hr/hect

Labour :- hr/hect

Activity :Soybeans

Input-output data & gross margin per hectare for irrigated soybeans

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	SOYBEANS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2800.00	16.00	44800.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		2800.00		44800.00
11	Irrigation: Water requirements: **	Cubicmet.	4541.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	30.00	25.00	750.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	1407.00	1407.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			500.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	500.00	500.00
23	Containers	No.	24	25	600.00
24	Costs of hired machinery	SP	13.00		4690.00
25	- Tillages	hr	6.00	350.00	2100.00
26	- planting (sowing)	hr	1.00	250.00	250.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr	4.00	250.00	1000.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	2.8	300	840.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			15097.00
40	GROSS MARGIN	SP			29703.00
41	Labour requirements for:	Man.hr	324.00		7150.00
42	- Tillages				0.00
43	- planting (sowing)		2.00	25.00	50.00
44	- Fertilization				0.00
45	-Chemical		8.00	25.00	200.00
46	-Organic				0.00
47	- Flating		16.00	25.00	400.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		50.00	20.00	1000.00
51	- Controlling		8.00	35.00	280.00
52	- Harvesting		140.00	20.00	2800.00
53	- Irrigation		84.00	25.00	2100.00
54	- Others		16.00	20.00	320.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	6000	6000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated soybeans according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	44800.00	20000.00	15097.00	9703.00	52.02	98.61	6.54	2.14	1.28
	3.4, & 5	44800.00	20000.00	15097.00	9703.00	52.02	98.61	6.54	2.14	1.28
-Shallow wells	1 & 2	44800.00	12000.00	15097.00	17703.00	76.71	123.30	6.54	3.90	1.65
	3.4, & 5	44800.00	12000.00	15097.00	17703.00	76.71	123.30	6.54	3.90	1.65
-Rivers	1 & 2	44800.00	9000.00	15097.00	20703.00	85.97	132.56	6.54	4.56	1.86
	3.4, & 5	44800.00	9000.00	15097.00	20703.00	85.97	132.56	6.54	4.56	1.86
-Government projects		44800.00	2500.00	15097.00	27203.00	106.03	152.62	6.54	5.99	2.55

Monthly machinery, labour & water requirements for soybeans

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	9	0	0	4	0	0	0	13
Labour						6							6
Water Requirements						1							1
Tillages													0
Planting (sowing)						2							2
Fertilization													0
Flating													0
Controlling													0
Harvesting												4	4
Others													0
Total	0	0	0	0	0	53	94	29	148	0	0	0	324
Planting (sowing)						2							2
Fertilization						8							8
Flating						16							16
Hoing & Weeding							50						50
Controlling						8							8
Harvesting									140				140
Others							16						16
Irrigation						19	28	29	8				84
Total						1020	1520	1550	451				4541

Machinery : hr/haect
 Labour : hr/haect

Activity :Spring Potatoes

Input-output data & gross margin per hectare for irrigated spring potatoes

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP):	SPRING POTATOES			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	25000.00	6.00	150000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		25000.00		150000.00
11	Irrigation: Water requirements: **	Cubicmet.	4857.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	No.	2500.00	13.00	32500.00
14	Manure - Fertilizer	Ton	9.00	300.00	2700.00
15	Total mineral fertilizer	Hect	1.00	9155.00	9155.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			3700.00
21	- Weeds control	Hect	1.00	2400.00	2400.00
22	- Insecticides	Hect	1.00	1300.00	1300.00
23	Containers	No.	715	15	10725.00
24	Costs of hired machinery	SP	37.00		14650.00
25	- Tillages	hr	11.00	331.82	3650.00
26	- planting (sowing)	hr	12.00	125.00	1500.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr	12.00	125.00	1500.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	25	300	7500.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			91340.00
40	GROSS MARGIN	SP			58560.00
41	Labour requirements for:	Man.hr	832.00		18010.00
42	- Tillages				0.00
43	- planting (sowing)		40.00	20.00	800.00
44	- Fertilization				0.00
45	-Chemical		16.00	25.00	400.00
46	-Organic		20.00	25.00	500.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		50.00	20.00	1000.00
51	- Controlling		36.00	35.00	1260.00
52	- Harvesting		540.00	20.00	10800.00
53	- Irrigation		90.00	25.00	2250.00
54	- Others		16.00	25.00	400.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for spring potatoes according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	150000.00	16000.00	91440.00	42560.00	51.15	72.80	8.76	12.06	1.40
	3,4, & 5	150000.00	18000.00	91440.00	40560.00	48.75	70.40	8.35	12.06	1.37
-Shallow wells	1 & 2	150000.00	11000.00	91440.00	47560.00	57.16	78.81	9.79	12.06	1.46
	3,4, & 5	150000.00	9000.00	91440.00	49560.00	59.57	81.21	10.20	12.06	1.49
-Rivers	1 & 2	150000.00	6000.00	91440.00	52560.00	63.17	84.82	10.82	12.06	1.54
	3,4, & 5	150000.00	8000.00	91440.00	50560.00	60.77	82.42	10.41	12.06	1.51
-Government projects		150000.00	2500.00	91440.00	56060.00	67.38	89.03	11.54	12.06	1.60

Monthly machinery, labour & water requirements for spring potatoes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	5	12	0	0	12	0	0	0	0	0	0	8	37
Labour	3	12										8	11
Water (mm)													12
Planting (sowing)		12											0
Fertilization													2
Flailing	2												0
Controlling													0
Harvesting					12								12
Others													0
Machinery	30	43	35.4	52	609.2	32.4	0	0	0	0	0	0	832
Labour		40											40
Water (mm)													36
Planting (sowing)				3									30
Fertilization													24
Flailing	24												50
Hoing & Weeding			30		20								36
Controlling	6			15	15								540
Harvesting					540								16
Others				16									90
Irrigation			5.4	18	34.2	32.4							1788
Water (mm)			277	955	1857	1788							4657

Machinery : hr/haect
Labour : hr/haect

Activity :Sugar Beets

Input-output data & gross margin per hectare for irrigated sugar beets

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	SUGAR BEETS			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	53667.00	1.91	102503.97
7	Crop produce 2:	Hect	1.00		0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				102503.97
11	Irrigation: Water requirements: **	Cubicmet.	6779.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	20.18	269.00	5428.42
14	Manure - Fertilizer	Ton	3.81	300.00	1142.00
15	Total mineral fertilizer	Hect	1.00	10073.00	10073.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			975.00
21	- Weeds control	Hect	1.00	975.00	975.00
22	- Insecticides	Hect			0.00
23	Containers	Hect			0.00
24	Costs of hired machinery	SP	22.00		13835.56
25	- Tillages	hr	14.60	231.50	3379.90
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	1.50	166.60	249.90
29	-Organic	hr			0.00
30	- Flating	hr	4.40	139.80	615.12
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	1.50	233.00	349.50
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	47	196.62	9241.14
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS				60642.28
40	GROSS MARGIN				41861.69
41	Labour requirements for:	Man/yr	870.00		19228.40
42	- Tillages				0.00
43	- planting (sowing)		75.00	23.40	1755.00
44	- Fertilization				0.00
45	-Chemical		16.00	23.40	374.40
46	-Organic		3.00	25.00	75.00
47	- Flating		16.00	25.10	401.60
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		90.00	21.00	1890.00
51	- Controlling		3.00	35.00	105.00
52	- Harvesting		440.00	20.30	8932.00
53	- Irrigation		120.00	29.00	3480.00
54	- Others		60.00	21.10	1266.00
55	- transportation (crop specific!)		47.00	20.20	949.40
56	Land rent	Hect	1	17920	17920.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for sugar beets according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	102503.97	23000.00	50682.38	28821.59	33.13	55.23	4.25	7.64	1.39
	3.4. & 5	102503.97	25000.00	50682.38	26821.59	30.83	52.93	3.96	7.64	1.35
-Shallow wells	1 & 2	102503.97	13000.00	50682.38	38821.59	44.62	66.72	5.73	7.64	1.61
	3.4. & 5	102503.97	15000.00	50682.38	36821.59	42.32	64.43	5.43	7.64	1.56
-Rivers	1 & 2	102503.97	9500.00	50682.38	42921.59	70.75	70.75	6.24	7.64	1.70
	3.4. & 5	102503.97	1100.00	50682.38	50721.59	80.40	80.40	7.48	7.64	1.98
-Government projects		102503.97	2500.00	50682.38	49321.59	78.79	78.79	7.28	7.64	1.93

Monthly machinery, labour & water requirements for sugar beets

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	0	0	0	0	0	0	5	15.5	1.5	0
Tillages									5	5	9.6		14.6
Planting (sowing)													0
Fertilization											1.5		1.5
Flailing											4.4		4.4
Controlling												1.5	1.5
Harvesting													0
Others													0
Labour	57	4.8	12	24.6	36	280.7	248.3	0	0	0	108	98.6	0
Planting (sowing)											75		75
Fertilization	2									17			19
Flailing										16			16
Hoing & Weeding	55										80		135
Controlling				3									3
Harvesting						220	220						440
Others						23.5	23.5					15	62
Irrigation		4.8	12	21.6	36	37.2	4.8					3.6	120
Water Requirements		242	673	1197	2040	2089	300					228	6779

Machinery : hr/haect
 Labour : hr/haect

Activity :Summer Potatoes

Input-output data & gross margin per hectare for irrigated summer potatoes

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COS			Rain fed:	
3	Enterprise (CROP)	SUMMER POTATOES			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	25000.00	6.00	150000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		25000.00		150000.00
11	Irrigation: Water requirements: **	Cubicmet.	9311.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	No.	2500.00	13.00	32500.00
14	Manure - Fertilizer	Ton	9.00	300.00	2700.00
15	Total mineral fertilizer	Hect	1.00	9155.00	9155.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			3700.00
21	- Weeds control	Hect	1.00	2400.00	2400.00
22	- Insecticides	Hect	1.00	1300.00	1300.00
23	Containers	No.	715	15	10725.00
24	Costs of hired machinery	SP	37.00		14650.00
25	- Tillages	hr	11.00	331.82	3650.00
26	- planting (sowing)	hr	12.00	125.00	1500.00
27	- Fertilization	hr			0.00
28	- Chemical	hr			0.00
29	- Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr	12.00	125.00	1500.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	25	300	7500.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			82940.00
40	GROSS MARGIN	SP			57060.00
41	Labour requirements for:	Man.hr	892.00		19510.00
42	- Tillages				0.00
43	- planting (sowing)		40.00	20.00	800.00
44	- Fertilization				0.00
45	- Chemical		16.00	25.00	400.00
46	- Organic		20.00	25.00	500.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		50.00	20.00	1000.00
51	- Controlling		36.00	35.00	1260.00
52	- Harvesting		540.00	20.00	10800.00
53	- Irrigation		150.00	25.00	3750.00
54	- Others		16.00	25.00	400.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for summer potatoes according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	150000.00	25000.00	92940.00	32060.00	35.94	57.81	3.44	6.13	1.27
	3,4, & 5	150000.00	25000.00	92940.00	32060.00	35.94	57.81	3.44	6.13	1.27
-Shallow wells	1 & 2	150000.00	15000.00	92940.00	42060.00	47.15	69.02	4.52	6.13	1.39
	3,4, & 5	150000.00	15000.00	92940.00	42060.00	47.15	69.02	4.52	6.13	1.39
-Rivers	1 & 2	150000.00	11000.00	92940.00	46060.00	51.64	73.51	4.95	6.13	1.44
	3,4, & 5	150000.00	11000.00	92940.00	46060.00	51.64	73.51	4.95	6.13	1.44
-Government projects		150000.00	2500.00	92940.00	54560.00	61.17	83.04	5.86	6.13	1.57

Monthly machinery, labour & water requirements for summer potatoes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	3	4	14	0	0	0	0	0	12	0	0	33
Tillages		3	4										7
Planting (sowing)				12									12
Fertilization													0
Flating				2									2
Controlling													0
Harvesting										12			12
Others													0
Labour Requirements	0	0	16	77.5	55.5	92.5	50.5	40	540	0	0	20	892
Planting (sowing)				40									40
Fertilization			10	3		3						20	36
Flating				24									24
Hoing & Weeding					30		20						50
Controlling			6			10	10	10					36
Harvesting									540				540
Others						16							16
Irrigation				10.5	25.5	43.5	40.5	30					150
Water Requirements				664	1566	2732	2504	1845					9311

Machinery :- hr/hect

Labour :- hr/hect

Activity :Sunflower seed

Input-output data & gross margin per hectare for irrigated sunflower seed

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	SUNFLOWER SEED			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2600.00	16.00	41600.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		2600.00		41600.00
11	Irrigation: Water requirements: **	Cubicmet.	4630.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	10.00	137.70	1377.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	1636.00	1636.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			0.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00		0.00
23	Containers	No.	35	25	875.00
24	Costs of hired machinery	SP	14.00		3732.00
25	- Tillages	hr	7.00	300.00	2100.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr	5.00	60.00	300.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	2.6	320	832.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			15470.00
40	GROSS MARGIN	SP			26130.00
41	Labour requirements for:	Man.hr	352.00		7850.00
42	- Tillages				0.00
43	- planting (sowing)		45.00	25.00	1125.00
44	- Fertilization				0.00
45	-Chemical		6.00	25.00	150.00
46	-Organic				0.00
47	- Flating		15.00	25.00	375.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		25.00	20.00	500.00
51	- Controlling				0.00
52	- Harvesting		120.00	20.00	2400.00
53	- Irrigation		96.00	25.00	2400.00
54	- Others		45.00	20.00	900.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	6000	6000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for sunflower according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	41600.00	20000.00	15470.00	6130.00	39.72	83.66	5.64	1.32	1.17
	3,4, & 5	41600.00	20000.00	15470.00	6130.00	39.72	83.66	5.64	1.32	1.17
-Shallow wells	1 & 2	41600.00	12000.00	15470.00	14130.00	62.44	106.39	5.64	3.05	1.51
	3,4, & 5	41600.00	12000.00	15470.00	14130.00	62.44	106.39	5.64	3.05	1.51
-Rivers	1 & 2	41600.00	9000.00	15470.00	17130.00	70.97	114.91	5.64	3.70	1.70
	3,4, & 5	41600.00	9000.00	15470.00	17130.00	70.97	114.91	5.64	3.70	1.70
-Government projects		41600.00	2500.00	15470.00	23630.00	89.43	133.38	5.64	5.10	2.31

Monthly machinery, labour & water requirements for sunflower

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0	0	9	0	0	5	0	0	0	14
Tillages													0
Planting (sowing)						7							7
Fertilization													0
Flating						2							2
Controlling													0
Harvesting										5			5
Others													0
Labour Requirements	0	0	0	0	0	66	92	32	152	10	0	0	352
Planting (sowing)						45							45
Fertilization						6							6
Flating						15							15
Hoeing & Weeding							70						70
Controlling													0
Harvesting									120				120
Others													0
Irrigation							22	32	32	10			96
Water Requirements						1057	1524	1553	496				4630

Machinery : hr/hect

Labour : hr/hect

Revenues and costs per hectare for sunflower according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	41600.00	20000.00	15470.00	6130.00	39.72	83.66	5.64	1.32	1.17
	3,4, & 5	41600.00	20000.00	15470.00	6130.00	39.72	83.66	5.64	1.32	1.17
-Shallow wells	1 & 2	41600.00	12000.00	15470.00	14130.00	62.44	106.39	5.64	3.05	1.51
	3,4, & 5	41600.00	12000.00	15470.00	14130.00	62.44	106.39	5.64	3.05	1.51
-Rivers	1 & 2	41600.00	9000.00	15470.00	17130.00	70.97	114.91	5.64	3.70	1.70
	3,4, & 5	41600.00	9000.00	15470.00	17130.00	70.97	114.91	5.64	3.70	1.70
-Government projects		41600.00	2500.00	15470.00	23630.00	89.43	133.38	5.64	5.10	2.31

Activity :Tobacco

Input-output data & gross margin per hectare for irrigated tobacco

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CRGP)	TOBACCO			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	2200.00	55.00	121000.00
7	Crop produce 2:	Hect	1.00		0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				121000.00
11	Irrigation: Water requirements: **	Cubicmet.	8130.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	Hect	1.00	6500.00	6500.00
14	Manure - Fertilizer	Ton	10.00	300.00	3000.00
15	Total mineral fertilizer	Hect	1.00	6856.00	6856.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			8500.00
21	- Weeds control	Hect	1.00	4500.00	4500.00
22	- Insecticides	Hect	1.00	4000.00	4000.00
23	Containers	Hect	1	4500	4500.00
24	Costs of hired machinery	SP	13.00		6099.20
25	- Tillages	hr	9.00	288.80	2599.20
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	2.00	250.00	500.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	1	2500	2500.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			64615.20
40	GROSS MARGIN	SP			56184.80
41	Labour requirements for:	Man.hr	1336.00		29360.00
42	- Tillages				0.00
43	- planting (sowing)		130.00	20.00	2600.00
44	- Fertilization				0.00
45	-Chemical		20.00	25.00	500.00
46	-Organic		24.00	25.00	600.00
47	- Flating		16.00	25.00	400.00
48	- Hoeing & weeding				0.00
49	- Using chemical		32.00	35.00	1120.00
50	- Mechanical (hand)		70.00	20.00	1400.00
51	- Controlling		64.00	35.00	2240.00
52	- Harvesting		600.00	20.00	12000.00
53	- Irrigation		180.00	25.00	4500.00
54	- Others		200.00	20.00	4000.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	20000	20000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for tobacco according to the irrigation system (SP/hect)

WATER SOURCE		Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells		1 & 2	121000.00	24000.80	64815.20	32184.00	24.09	46.07	3.96	6.91	1.36
		3,4, & 5	121000.00	25000.80	64815.20	31184.00	23.34	45.32	3.84	6.91	1.35
-Shallow wells		1 & 2	121000.00	14000.80	64815.20	42184.00	31.57	53.55	5.19	6.91	1.54
		3,4, & 5	121000.00	15000.80	64815.20	41184.00	30.83	52.80	5.07	6.91	1.52
-Rivers		1 & 2	121000.00	10000.80	64815.20	46184.00	56.54	56.54	5.68	6.91	1.62
		3,4, & 5	121000.00	11000.80	64815.20	45184.00	55.80	55.80	5.56	6.91	1.60
-Government projects			121000.00	2500.80	64815.20	53684.00	62.16	62.16	6.60	6.91	1.80

Monthly machinery, labour & water requirements for tobacco

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Water requirements	0	0	5	8	8	0	0	0	0	0	0	0	13
Tillages			5	4									9
Planting (sowing)													0
Fertilization													0
Flating					2								2
Controlling					2								2
Harvesting													0
Others													0
Water requirements	0	24	8	171	117	112	78	442	384	0	0	0	1336
Planting (sowing)				130									130
Fertilization			24	4	4	4							44
Flating				16									16
Hoing & Weeding					40	30							70
Controlling				16	16	24	24	16					96
Harvesting								300	300				600
Others					32			84	84				200
Irrigation				5	25	54	54	42					180
Water requirements				289	1134	2435	2441	1851					8130

Machinery : hr/hect
Labour : hr/hect

Activity : Tomatoes

Input-output data & gross margin per hectare for irrigated tomatoes

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)			TOMATOES	
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	40000.00	3.00	120000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT:			40000.00	120000.00
11	Irrigation: Water requirements: **	Cubicmet.	9311.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	0.32	4100.00	1312.00
14	Manure - Fertilizer	Ton	10.00	300.00	3000.00
15	Total mineral fertilizer	Hect	1.00	9153.00	9153.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			3000.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	3000.00	3000.00
23	Containers	Hect	1	2800	2800.00
24	Costs of hired machinery	SP	15.00		16850.00
25	- Tillages	hr	11.00	331.82	3650.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	2.00	250.00	500.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	2.00	350.00	700.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	40	300	12000.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS			SP	69685.00
40	GROSS MARGIN			SP	50135.00
41	Labour requirements for:	Man.hr	1588.00		33750.00
42	- Tillages				0.00
43	- planting (sowing)		35.00	20.00	700.00
44	- Fertilization				0.00
45	-Chemical		24.00	25.00	600.00
46	-Organic		20.00	25.00	500.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		185.00	20.00	3700.00
51	- Controlling		40.00	35.00	1400.00
52	- Harvesting		1050.00	20.00	21000.00
53	- Irrigation		210.00	25.00	5250.00
54	- Others				0.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	18000	18000.00

** Different water price according to the source

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for tobacco

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	5	8	8	0	0	0	0	0	0	0	13
Labour			5	4									9
Tillages													0
Planting (sowing)													0
Fertilization					2								2
Flailing					2								2
Controlling													0
Harvesting													0
Others													0
Machinery	0	24	8	171	117	112	78	442	364	0	0	0	1336
Labour				130	4	4	4						130
Planting (sowing)		24	8	4	4								44
Fertilization				16									16
Flailing					40	30							70
Hoeing & Weeding					16	24	24	16					80
Controlling								300	300				600
Harvesting					32			84	84				200
Others				5	25	54	54	42					180
Irrigation													0
Water Requirements				289	1134	2435	2441	1651					8130

Machinery : hr/haect

Labour : hr/haect

Revenues and costs per hectare for irrigated tomatoes according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margi	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	120000.00	23000.00	69865.00	27135.00	17.09	38.34	2.91	5.38	1.29
	3, 4, & 5	120000.00	25000.00	69865.00	25135.00	15.83	37.08	2.70	5.38	1.26
-Shallow wells	1 & 2	120000.00	13000.00	69865.00	37135.00	23.38	44.64	3.99	5.38	1.45
	3, 4, & 5	120000.00	15000.00	69865.00	35135.00	22.13	43.38	3.77	5.38	1.41
-Rivers	1 & 2	120000.00	9500.00	69865.00	40635.00	46.84	46.84	4.36	5.38	1.51
	3, 4, & 5	120000.00	11000.00	69865.00	39135.00	45.90	45.90	4.20	5.38	1.48
-Government projects		120000.00	2500.00	69865.00	47635.00	51.25	51.25	5.12	5.38	1.66

Monthly machinery,labour & water requirements for irrigated tomatoes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	0	6	2	2	0	0	0	0	0	5	15
Tillages				6								5	11
Planting (sowing)													0
Fertilization													0
Flating					2								2
Controlling						2							2
Harvesting													0
Others													0
Labour Requirements	0	0	0	24.7	98.2	152.4	486.2	456.5	350	0	0	20	1588
Planting (sowing)					35								35
Fertilization				10	3.5	3.5	3.5	3.5				20	44
Flating					24								24
Hoing & Weeding						80	60	45					185
Controlling						8	16	16					40
Harvesting							350	350	350				1050
Others													0
Irrigation				14.7	35.7	60.9	56.7	42					210
Water Requirements				664	1566	2732	2504	1845					9311

Machinery :- hr/hectare
Labour :- hr/hectare

Activity : Tomatoes (Green House)*

Input-output data & gross margin per green house for irrigated tomatoes

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS			Rain fed:	
3	Enterprise (CROP):	TOMATOES			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	6000.00	18.00	108000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT		6000.00		108000.00
11	Irrigation: Water requirements:	Cubicmet.	700.00	0.71	500.00
12	Seed/seedling: Owned	kg			0.00
13	Seed/seedling: Bought	No.	1200.00	1.00	1200.00
14	Manure - Fertilizer	Ton	3.00	300.00	900.00
15	Total mineral fertilizer	Hect	1.00	2835.00	2835.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			7500.00
21	- Weeds control	Hect			0.00
22	- Insecticides	Hect	1.00	7500.00	7500.00
23	Containers	Hect	1	420	420.00
24	Costs of hired machinery	SP	1.50		2325.00
25	- Tillages	hr	1.50	350.00	525.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	- Chemical	hr			0.00
29	- Organic	hr			0.00
30	- Flating	hr			0.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	6	300	1800.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			30100.00
40	GROSS MARGIN	SP			77900.00
41	Labour requirements for:	Man.hr	644.00		14420.00
42	- Tillages				
43	- planting (sowing)		60.00	20.00	1200.00
44	- Fertilization				0.00
45	- Chemical		10.00	25.00	250.00
46	- Organic		8.00	25.00	200.00
47	- Flating		4.00	25.00	100.00
48	- Hoeing & weeding				0.00
49	- Using chemical		100.00	20.00	2000.00
50	- Mechanical (hand)		20.00	20.00	400.00
51	- Controlling		72.00	35.00	2520.00
52	- Harvesting		240.00	20.00	4800.00
53	- Irrigation		30.00	25.00	750.00
54	- Others		100.00	22.00	2200.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	1000	1000.00
57	Depreciation	G-House	1	50000	50000.00
58	Gross margin per man hour (1)	SP/m.hr			120.96
59	Gross margin per man hour (2)	SP/m.hr			143.35
60	Gross margin per cm of water (1)	SP/m.hr			111.29
61	Gross margin per cm of water (2)	SP/m.hr			112.00

* Area of one green house is 400 M²

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Monthly machinery, labour & water requirements for tomatoes (green houses)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	0	0	0	0.5	0.5	0.5	0	0	0	1.5
Tillages							0.5	0.5	0.5				1.5
Planting (sowing)													0
Fertilization													0
Flating													0
Controlling													0
Harvesting													0
Others													0
Labour Requirements	95.7	83.7	85.6	59.6	50.8	0	8	2	97.6	48.6	44.7	67.7	644
Planting (sowing)									60				60
Fertilization	1	1	1	1			8	2	1	1	1	1	18
Flating									4				4
Hoing & Weeding	20	20	20						20	20	20		120
Controlling	9	9	9	9					9	9	9		72
Harvesting	39	39	39	46	46								240
Others	24	12	13							15	12	24	100
Irrigation	2.7	2.7	3.6	3.6	4.8				3.6	3.6	2.7	2.7	30
Water Requirements	63.6	63.6	84.8	84.8	106.4				84.8	84.4	63.6	63.6	699.6

Machinery :- hr/green house

Labour :- hr/green house

Activity : Water Melon

Input-output data & gross margin per hectare for irrigated water melon

A1	GROSS MARGIN CALCULATION			Irrigated:	X
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)			Rain fed:	
3	Enterprise (CROP)	WATER MELON			
4		Unit		Price SP	TOTAL
5		Definition:	Unit:	Unit:	SP
6	Crop produce 1:	kg	32000.00	2.00	64000.00
7	Crop produce 2:				0.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				64000.00
11	Irrigation: Water requirements: **	Cubicmet.	8605.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	1.50	1900.00	2850.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	2720.00	2720.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			700.00
21	- Weeds control	Hect	1.00		0.00
22	- Insecticides	Hect	1.00	700.00	700.00
23	Containers	No.			0.00
24	Costs of hired machinery	SP	10.00		9950.00
25	- Tillages	hr	7.00	400.00	2800.00
26	- planting (sowing)	hr			0.00
27	- Fertilization	hr			0.00
28	-Chemical	hr			0.00
29	-Organic	hr			0.00
30	- Flating	hr	3.00	250.00	750.00
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr			0.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr			0.00
35	- Harvesting	hr			0.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	32	200	6400.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS				20680.00
40	GROSS MARGIN				33320.00
41	Labour requirements for:	Man.hr	637.00		13860.00
42	- Tillages				0.00
43	- planting (sowing)		70.00	20.00	1400.00
44	- Fertilization				0.00
45	-Chemical		8.00	25.00	200.00
46	-Organic				0.00
47	- Flating		24.00	25.00	600.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		80.00	20.00	1600.00
51	- Controlling		16.00	35.00	560.00
52	- Harvesting		225.00	20.00	4500.00
53	- Irrigation		144.00	25.00	3600.00
54	- Others		70.00	20.00	1400.00
55	- transportation (crop specific!)	Ton			0.00
56	Land rent	Hect	1	10000	10000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for water melon according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	64000.00	23000.00	30080.00	10920.00	38.90	2.79	3.94	1.27	1.21
	3, 4, & 5	64000.00	25000.00	30080.00	8920.00	35.76	-3.49	3.94	1.04	1.16
-Shallow wells	1 & 2	64000.00	13000.00	30080.00	20920.00	54.60	34.19	3.94	2.43	1.49
	3, 4, & 5	64000.00	15000.00	30080.00	18920.00	51.46	27.91	3.94	2.20	1.42
-Rivers	1 & 2	64000.00	9500.00	30080.00	24420.00	60.09	45.18	3.94	2.84	1.62
	3, 4, & 5	64000.00	11000.00	30080.00	22920.00	57.74	40.47	3.94	2.66	1.56
-Government projects		64000.00	2500.00	30080.00	31420.00	71.08	67.16	3.94	3.65	1.96

Monthly machinery, labour & water requirements for water melon

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired Machinery	0	0	4	4	6	0	0	0	0	0	0	0	10
Tillages			4		3								7
Planting (sowing)													0
Fertilization													0
Flating					3								3
Controlling													0
Harvesting													0
Labour Requirements	0	0	0	194	104	54	285	0	0	0	0	0	637
Planting (sowing)				70									70
Fertilization				8									8
Flating				24									24
Hoing & Weeding				80	70								150
Controlling					8	8							16
Harvesting													225
Others													0
Irrigation				12	26	46	60						144
Water Requirements				664	1566	2732	3643						8605

Machinery :- hr/hect

Labour :- hr/hect

Activity :Wheat

Input-output data & gross margin per hectare for irrigated wheat

A1	GROSS MARGIN CALCULATION		Irrigated:	X	
2	FOR ANNUAL CROPS (WITHOUT WATER COSTS)		Rain fed:		
3	Enterprise (CROP)	WHEAT (IRRIGATED)			
4		Unit	Price SP	TOTAL	
5		Definition:	Unit:	SP	
6	Crop produce 1:	kg	4519.00	10.20	46093.80
7	Crop produce 2:	Hect	1.00	1192.00	1192.00
8					0.00
9	Other produce:				0.00
10	TOTAL GROSS OUTPUT				47285.80
11	Irrigation: Water requirements: **	Cubicmet.	4018.00		0.00
12	Seed/seedling:	kg			0.00
13	Seed/seedling: Bought	kg	264.00	14.50	3828.00
14	Manure - Fertilizer	Ton			0.00
15	Total mineral fertilizer	Hect	1.00	5070.00	5070.00
16	N	Kg			0.00
17	P	Kg			0.00
18	K	Kg			0.00
19	Compound or other fertil.	Kg			0.00
20	Chemicals:	Hect			620.00
21	- Weeds control	Hect	1.00	620.00	620.00
22	- Insecticides	Hect			0.00
23	Containers	No.	36.2	25	905.00
24	Costs of hired machinery	SP	22.00		8404.30
25	- Tillages	hr	11.00	203.50	2238.50
26	- planting (sowing)	hr	1.00	300.00	300.00
27	- Fertilization	hr			0.00
28	-Chemical	hr	1.00	280.00	280.00
29	-Organic	hr			0.00
30	- Flating	hr	3.00	166.60	499.80
31	- Hoeing & weeding	hr			0.00
32	- Using chemical	hr	1	280	280.00
33	- Mechanical (hand)	hr			0.00
34	- Controlling	hr	1.00	80.00	80.00
35	- Harvesting	hr	4.00	749.00	2996.00
36	- Others	hr			0.00
37	- transportation (crop specific!)	Ton	4	432.5	1730.00
38	Variable costs of owned machinery	SP / hect.			0.00
39	TOTAL VARIABLE COSTS	SP			21454.20
40	GROSS MARGIN	SP			25831.60
41	Labour requirements for:	Man.hr	99.00		2626.90
42	- Tillages				0.00
43	- planting (sowing)		3.00	23.30	69.90
44	- Fertilization				0.00
45	-Chemical		8.00	25.00	200.00
46	-Organic				0.00
47	- Flating		12.00	25.00	300.00
48	- Hoeing & weeding				0.00
49	- Using chemical				0.00
50	- Mechanical (hand)		15.00	20.00	300.00
51	- Controlling		1.00	35.00	35.00
52	- Harvesting				0.00
53	- Irrigation		60.00	28.70	1722.00
54	- Others				0.00
55	- transportation (crop specific!)				0.00
56	Land rent	Hect	1	10000	10000.00

** Different water prices according to the source.

Source of information: MAAR (Dept. of Agricultural Economics)

Revenues and costs per hectare for irrigated wheat according to the irrigation system (SP/hect)

WATER SOURCE	Ag-zone	Revenues	Wat-Costs	Costs	Gross margin	Gross margin 1 per man hour	Gross margin 2 per man hour	Gross margin 1 per cbm wat.	Gross margin 2 per cbm wat.	Return to capital
-Deep wells	1 & 2	47285.80	16000.00	21454.20	9831.60	68.31	125.84	2.45	6.43	1.26
	3,4, & 5	47285.80	18000.00	21454.20	7831.60	79.11	105.64	1.95	6.43	1.20
-Shallow wells	1 & 2	47285.80	9000.00	21454.20	16831.60	170.02	196.55	4.19	6.43	1.55
	3,4, & 5	47285.80	11000.00	21454.20	14831.60	149.81	176.35	3.69	6.43	1.46
-Rivers	1 & 2	47285.80	6500.00	21454.20	19331.60	195.27	221.80	4.81	6.43	1.69
	3,4, & 5	47285.80	8000.00	21454.20	17831.60	180.12	206.65	4.44	6.43	1.61
-Government projects		47285.80	2500.00	21454.20	23331.60	235.67	262.21	5.81	6.43	1.97

Monthly machinery, labour & water requirements for irrigated wheat

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Hired machinery	0	0	0	1	0	4	0	0	0	6	11	0	22
Tillages										5	6		11
Planting (sowing)											1		1
Fertilization											1		1
Flating											3		3
Controlling				1					1				2
Harvesting						4							4
Others													0
Labour Requirements	0	4	13	22	17	0	0	0	0	0	23	13	99
Planting (sowing)											3		3
Fertilization											8		8
Flating											12		12
Hoing & Weeding											8	7	15
Controlling				1									1
Harvesting													0
Others													0
Irrigation			4	13	21	17						5	60
Water Requirements		265	859	1358	1170							366	4018

Machinery : hr/hect
 Labour : hr/hect

Monthly machinery, labour & water requirements for irrigated wheat

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Tired machinery	0	0	0	1	0	4	0	0	6	11	0	0	22
Tillages									5	6			11
Planting (sowing)										1			1
Fertilization										1			1
Flating										3			3
Controlling				1					1				2
Harvesting						4							4
Others													0
Water Requirements	0	4	13	22	17	0	0	0	0	23	13	7	99
Planting (sowing)										3			3
Fertilization										8			8
Flating										12			12
Hoeing & Weeding											8	7	15
Controlling				1									1
Harvesting													0
Others													0
Irrigation		4	13	21	17						5		60
Water Requirements		265	859	1358	1170						366		4018

Machinery :- hr/hect
 Labour :- hr/hect

7. IRRIGATED FRUIT TREES

Activity :Apples

Input-output data & gross margin per dunum for irrigated apples

1	GROSS MARGIN CALCULATION		Irrigated:	X					
2	FOR PERENNIAL CROPS		Rain fed:						
3	Enterprise (CROP):	APPLES	Establishment year		(7) years before production		(30) years of production		
4		Unit	Price SP	TOTAL	TOTAL	TOTAL	TOTAL		
5		Definition:	Unit:	SP	Unit:	SP	Unit:	SP	
6									
7	Crop produce	kg	10.00	0.00	2000.00	20000.00	2800.00	28000.00	
8	TOTAL GROSS OUTPUT			0.00		20000.00		28000.00	
9	Irrigation: Water requirements:	Cubicmet	300.00	10.00	3000.00	70.00	21000.00	10.00	3000.00
10	Seedlings: bought/owned	No.	10.00	35.00	350.00				
11	Manure - Fertilizer	M ³	300.00	1.00	300.00	7.00	2100.00	1.50	450.00
12	Total mineral fertilizer	SP/Dunu			0.00		4376.00		1972.50
13	N	kg	17.90		0.00	100.00	1790.00	50.00	895.00
14	P	kg	18.40		0.00	60.00	1104.00	25.00	460.00
15	K	kg	24.70		0.00	60.00	1482.00	25.00	617.50
16	Chemicals:	SP/Dunu			0.00		2600.00		2000.00
17	- Weeds control	Dunum	1.00		0.00	2600.00	2600.00	2000.00	2000.00
18	- insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	100.00	2000.00	140.00	2800.00
20	Costs of hired machinery	SP/Dunu		2.50	525.00	37.50	9275.00	6.00	2150.00
21	- Tillages and flating	hr	200.00	2.00	400.00	14.00	2800.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	-Chemical	hr			0.00		0.00		0.00
25	-Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr	250.00		0.00		0.00	1.00	250.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr	250.00	0.50	125.00	3.50	875.00		0.00
29	- Controlling	hr	250.00		0.00	20.00	5000.00	3.00	750.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific)	Sp/Dunu	1.00		0.00	600.00	600.00	750.00	750.00
33	Variable costs of owned machinery	SP / Dunu			0.00				
34	TOTAL VARIABLE COSTS	SP			5650.00		50401.00		16632.50
35	GROSS MARGIN	SP			5000.00		90001.00		11367.50
36	Labour requirements for:	Man.hr		59.00	1475.00	354.00	9050.00	168.00	4260.00
37	- Tillages and flating	hr	25.00	2.00	50.00	14.00	350.00	2.00	50.00
38	- Planting (sowing)	hr	25.00	35.00	875.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	-Chemical	hr	25.00		0.00	16.00	400.00	8.00	200.00
41	-Organic	hr	25.00	2.00	50.00	14.00	350.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr			0.00		0.00		0.00
44	- Mechanical (hand)	hr	20.00		0.00		0.00		0.00
45	- Controlling	hr	35.00		0.00	20.00	700.00	6.00	210.00
46	- Harvesting	hr	25.00		0.00	50.00	1250.00	70.00	1750.00
47	- Irrigation	hr	25.00	20.00	500.00	140.00	3500.00	20.00	500.00
48	- Pruning	hr	25.00		0.00	100.00	2500.00	60.00	1500.00
49	- Others	hr			0.00		0.00		0.00
50	- transportation (crop specific)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	2000.00	2000.00	17500.00	17500.00	2500.00	2500.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for irrigated apples according to land type

According to land type	Cost		Returns	Gross Margin	Gross Margin after production per man/hr		Returns to capital
	Annual after production	Before production			(1)	(2)	
A	11367.50	1251.70	28000.00	15380.80	91.55	1.42	2.22
B	11367.50	1301.70	28000.00	15330.80	91.25	1.41	2.21
C	11367.50	1258.37	28000.00	15374.13	91.51	1.42	2.22
D	11367.50	1351.70	28000.00	15280.80	90.96	1.41	2.20

Monthly machinery, labour & water requirements for irrigated apples

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery Requirements													
** Establishment year:	0	4.6	0	4.5	12.1	4.6	4.6	4.6	0	4.5	4.5	2	46
Tillages and flating				0.5	1	0	0	0	0	0.5	0.5	0	2.5
Hoeing & Weeding				0.5	0.5					0.5	0.5		2
Fertilization					0.5								0.5
Controlling													0
** Befor production:	0	4	0	3.5	9.5	4	4	4	0	3.5	3.5	1.5	37.5
Tillages and flating				3.5	3.5					3.5	3.5		14
Hoeing & Weeding					2							1.5	3.5
Fertilization													0
Controlling		4			4	4	4	4					20
** After production:	0	0.6	0	0.5	1.6	0.6	0.6	0.6	0	0.5	0.5	0.5	6
Tillages and flating				0.5	0.5					0.5	0.5		2
Hoeing & Weeding					0.5							0.5	1
Fertilization													0
Controlling		0.6			0.6	0.6	0.6	0.6					3
Labour Requirements	10.5	175.7	0	6.6	38.6	47.9	56.9	69	127	48.8	0	0	581
** Establishment year:	0	2	0	0.8	3.8	3.6	4.6	4.4	38.4	1.4	0	0	24
Planting (sowing)									35				
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation				0.8	1.8	3.6	4.6	4.4	3.4	1.4			20
** Befor production:	8	110	0	5	31	37	44	59	49	11	0	0	354
Tillages and flating					14								14
Hoeing & Weeding													0
Fertilization	8	6				8	8						30
Pruning		100											100
Controlling		4			4	4	4	4					20
Harvesting								25	25				50
Irrigation				5	13	25	32	30	24	11			140
** After production:	2.5	63.7	0	0.8	3.8	7.3	8.3	5.6	39.6	36.4	0	0	168
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization	2.5	2.5				2.5	2.5						10
Pruning		60											60
Controlling		1.2				1.2	1.2	1.2	1.2				6
Harvesting									35	35			70
Irrigation				0.8	1.8	3.6	4.6	4.4	3.4	1.4			20
Water Requirements	0	0	0	405	999	1998	2520	2341	1845	738	0	0	10846
** Establishment year:				45	111	222	280	261	205	82			1206
** Befor production:				315	777	1554	1960	1819	1435	574			8434
** After production:				45	111	222	280	261	205	82			1206

Machinery :- hr/dunum

Labour :- hr/dunum

Activity :Appricots

Input-output data & gross margin per dunum for irrigated appricots

1	GROSS MARGIN CALCULATION		Irrigated:	X					
2	FOR PERENNIAL CROPS		Rain fed:						
3	Enterprise (CROP):	APPRICOTS	Establishment year		(4) years of production		(20) years of production		
4		Unit	Price SP	Unit:	TOTAL	Unit:	TOTAL	Unit:	TOTAL
5		Definition:	Unit:		SP		SP		SP
6	Crop produce	kg	12.00		0.00	1000.00	12000.00	1400.00	16800.00
7	TOTAL GROSS OUTPUT				0.00		12000.00		16800.00
8	Irrigation: Water requirements:	Cubicmet.	300.00	8.00	2400.00	32.00	9600.00	8.00	2400.00
9	Seedlings: bought/owned	No.	10.00	40.00	400.00				
10	Manure - Fertilizer	M ³	300.00	1.00	300.00	4.00	1200.00	1.00	300.00
11	Total mineral fertilizer	SP/Dunum			0.00		791.50		1094.00
12	N	kg	17.90		0.00	15.00	268.50	25.00	447.50
13	P	kg	18.40		0.00	15.00	276.00	15.00	276.00
14	K	kg	24.70		0.00	10.00	247.00	15.00	370.50
15	Chemicals:	SP/Dunum			0.00		2500.00		1000.00
16	- Weeds control	Dunum	1.00		0.00	2500.00	2500.00	1000.00	1000.00
17	- Insecticides	Dunum			0.00		0.00		0.00
18	Containers	No.	15.00		0.00	60.00	900.00	80.00	1200.00
19	Costs of hired machinery	SP/Dunum		2.00	400.00	18.00	4400.00	5.00	1510.00
20	- Tillages and flating	hr	200.00	2.00	400.00	8.00	1600.00	2.00	400.00
21	- Planting (sowing)	hr							
22	- Fertilization	hr			0.00		0.00		0.00
23	- Chemical	hr			0.00		0.00		0.00
24	- Organic	hr			0.00		0.00		0.00
25	- Hoeing & weeding	hr			0.00		0.00		0.00
26	- Using chemical	hr			0.00		0.00		0.00
27	- Mechanical (hand)	hr			0.00		0.00		0.00
28	- Controlling	hr	250.00		0.00	10.00	2500.00	3.00	750.00
29	- Harvesting	hr			0.00		0.00		0.00
30	- Others	hr			0.00		0.00		0.00
31	- transportation (crop specific!)	Sp/Dunum	1.00		0.00	300.00	300.00	360.00	360.00
32	Variable costs of owned machinery	SP / Dunum			0.00				
33	TOTAL VARIABLE COSTS	SP			4850.00		23516.50		9764.00
34	GROSS MARGIN	SP			4850.00		11516.50		7036.00
35	Labour requirements for:	Man.hr		54.00	1350.00	161.00	4125.00	88.00	2260.00
36	- Tillages and flating	hr	25.00	2.00	50.00	8.00	200.00	2.00	50.00
37	- Planting (sowing)	hr	25.00	40.00	1000.00		0.00		0.00
38	- Fertilization	hr			0.00		0.00		0.00
39	- Chemical	hr	25.00		0.00	10.00	250.00	6.00	150.00
40	- Organic	hr	25.00	2.00	50.00	8.00	200.00	2.00	50.00
41	- Hoeing & weeding	hr			0.00		0.00		0.00
42	- Using chemical	hr			0.00		0.00		0.00
43	- Mechanical (hand)	hr	20.00		0.00		0.00		0.00
44	- Controlling	hr	35.00		0.00	10.00	350.00	6.00	210.00
45	- Harvesting	hr	25.00		0.00	35.00	875.00	40.00	1000.00
46	- Irrigation	hr	25.00	10.00	250.00	40.00	1000.00	16.00	400.00
47	- Pruning	hr	25.00		0.00	50.00	1250.00	16.00	400.00
48	- Others	hr			0.00		0.00		0.00
49	- transportation (crop specific!)	Ton			0.00		0.00		0.00
50	Land rent	Dunum	1.00	2000.00	2000.00	8000.00	8000.00	2000.00	2000.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for apricots according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Gross Margin after production per cbm wat.		Returns to capital
	Annual after production	Before production	Total			(1)	(2)	(1)	(2)	
A	9764.00	893.33	10657.33	16800.00	6142.68	69.80	95.48	0.83	1.16	1.58
B	9764.00	968.33	10732.33	16800.00	6067.68	68.95	94.63	0.82	0.82	1.57
C	9764.00	903.33	10667.33	16800.00	6132.68	69.69	95.37	0.83	0.87	1.57
D	9764.00	1043.33	10807.33	16800.00	5992.68	68.10	93.78	0.81	0.96	1.55

Monthly machinery, labour & water requirements for irrigated apricots

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery Requirements													
** Establishment year:	3	2.4	7.4	2.4	7.4	0	2.4	0	0	0	0	0	25
Tillages and flating	0	0.4	0.4	0.4	0.4	0	0.4	0	0	0	0	0	2
Hoeing & Weeding		0.4	0.4	0.4	0.4		0.4						2
Fertilization													0
Controlling													0
** Befor production:	2	1.6	5.6	1.6	5.6	0	1.6	0	0	0	0	0	18
Tillages and flating		1.6	1.6	1.6	1.6		1.6						8
Hoeing & Weeding													0
Fertilization													0
Controlling	2		4		4								10
** After production:	1	0.4	1.4	0.4	1.4	0	0.4	0	0	0	0	0	5
Tillages and flating		0.4	0.4	0.4	0.4		0.4						2
Hoeing & Weeding													0
Fertilization													0
Controlling	1		1		1								3
Labour Requirements													
** Establishment year:	4	80	7.5	18	25.3	87.1	14.2	12.4	49.1	5.4	0	0	303
Planting (sowing)									40				
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation			0.2	0.6	1.1	1.8	2.2	1.9	1.4	0.8			10
** Befor production:	2	58	4.8	12.4	16.4	42.4	8.6	7.5	5.6	3.3	0	0	161
Tillages and flating					8								8
Hoeing & Weeding													0
Fertilization		8		10									18
Pruning		50											50
Controlling	2		4		4								10
Harvesting						35							35
Irrigation			0.8	2.4	4.4	7.4	8.6	7.5	5.6	3.3			40
** After production:	2	20	2.5	5	5.8	42.9	3.4	3	2.1	1.3	0	0	88
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		4		4									8
Pruning		16											16
Controlling	2		2		2								6
Harvesting						40							40
Irrigation			0.5	1	1.8	2.9	3.4	3	2.1	1.3			16
Water Requirements													
** Establishment year:	0	0	144	450	804	1356	1584	1386	1044	600	0	0	7368
** Befor production:			15	47	84	142	166	145	109	63			771
** After production:			105	328	586	988	1154	1010	761	437			5369
** After production:			24	75	134	226	264	231	174	100			1228

Machinery : /hourum
Labour : /hourum

Input-output data & gross margin per dunum for irrigated cherry

1	GROSS MARGIN CALCULATION		Irrigated:	X					
2	FOR PERENNIAL CROPS		Rain fed:						
3	Enterprise (CHCP):	CHERRY	Establishment year		(6) years before production		(20) years of production		
4		Unit	Price SP		TOTAL	TOTAL	TOTAL	TOTAL	
5		Definition:	Unit:	Unit:	SP	Unit:	SP	Unit:	
6									
7	Crop produce	kg	15.00		0.00	1400.00	21000.00	1400.00	21000.00
8	TOTAL GROSS OUTPUT				0.00		21000.00		21000.00
9	Irrigation: Water requirements:	Cubicmet.	300.00	8.00	2400.00	48.00	14400.00	8.00	2400.00
10	Seedlings: bought/owned	No.	10.00	35.00	350.00				
11	Manure - Fertilizer	M ^ 3	300.00	0.50	150.00	4.50	1350.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		609.00		748.90
13	N	kg	17.90	0.00	0.00	12.00	214.80	15.00	268.50
14	P	kg	18.40	0.00	0.00	8.00	147.20	10.00	184.00
15	K	kg	24.70	0.00	0.00	10.00	247.00	12.00	296.40
16	Chemicals:	SP/Dunum			0.00		700.00		1000.00
17	- Weeds control	Dunum			0.00		0.00		0.00
18	- Insecticides	Dunum	1.00		0.00	700.00	700.00	1000.00	1000.00
19	Containers	No.	20.00		0.00	42.00	840.00	70.00	1400.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00	22.00	5160.00	4.00	1260.00
21	- Tillages and flating	hr	200.00	2.00	400.00	12.00	2400.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr	250.00		0.00		0.00	2.00	500.00
29	- Controlling	hr	250.00			10.00	2500.00		
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific!)	Sp/Dunum	1.00		0.00	260.00	260.00	360.00	360.00
33	Variable costs of owned machinery	SP / Dunum			0.00				
34	TOTAL VARIABLE COSTS	SP			4450.00		27354.00		19518.90
35	GROSS MARGIN	SP			4450.00		6361.00		10481.10
36	Labour requirements for:	Man.hr		46.00	1150.00	169.00	4325.00	134.00	3410.00
37	- Tillages and flating	hr	25.00	2.00	50.00	12.00	300.00	2.00	50.00
38	- Planting (sowing)	hr	25.00	35.00	875.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00	14.00	350.00	8.00	200.00
41	- Organic	hr	25.00	2.00	50.00	12.00	300.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr	20.00		0.00		0.00		0.00
44	- Mechanical (hand)	hr	35.00		0.00		0.00		0.00
45	- Controlling	hr	35.00			10.00	350.00	6.00	210.00
46	- Harvesting	hr	25.00		0.00	28.00	700.00	50.00	1250.00
47	- Irrigation	hr	25.00	7.00	175.00	43.00	1075.00	16.00	400.00
48	- Pruning	hr	25.00		0.00	50.00	1250.00	50.00	1250.00
49	- Others	hr			0.00		0.00		0.00
49	- transportation (crop specific!)	Ton			0.00		0.00		0.00
50	Land rent	Dunum	1.00	2000.00	2000.00	12600.00	12600.00	2000.00	2000.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for irrigated cherry according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Gross Margin after production per cbm wat.		Returns to capital
	Annual after production	Befor production	Total			(1)	(2)	(1)	(2)	
A	10518.90	411.13	10930.03	21000.00	10069.97	75.15	100.60	1.02	1.27	1.92
B	10518.90	461.13	10980.03	21000.00	10019.97	74.78	100.22	1.02	1.02	1.91
C	10518.90	417.80	10936.70	21000.00	10063.30	75.10	100.55	1.02	1.05	1.92
D	10518.90	511.13	11030.03	21000.00	9969.97	74.40	99.85	1.01	1.09	1.90

Monthly machinery, labour & water requirements for irrigated cherry

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	0	7.45	3.2	7.45	0	0	0	0	6.7	3.2	0	28
** Establishment year:	0	0	0.4	0.4	0.4	0	0	0	0	0.4	0.4	0	2
Tillages and flating			0.4	0.4	0.4					0.4	0.4		2
Hoeing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	0	0	5.9	2.4	5.9	0	0	0	0	5.4	2.4	0	22
Tillages and flating			2.4	2.4	2.4					2.4	2.4		12
Hoeing & Weeding													0
Fertilization													0
Controlling			3.5		3.5					3			10
** After production:	0	0	1.15	0.4	1.15	0	0	0	0	0.9	0.4		4
Tillages and flating			0.4	0.4	0.4					0.4	0.4		2
Hoeing & Weeding													0
Fertilization													0
Controlling			0.75		0.75					0.5			2
Labour Requirements	0	119	7	23	46.8	41.9	43.9	12.3	44.2	10.9	0	0	349
** Establishment year:	0	2	0.2	0.4	2.8	1.3	1.5	1.3	36	0.5	0	0	11
Planting (sowing)									35				
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation			0.2	0.4	0.8	1.3	1.5	1.3	1	0.5			7
** Befor production:	0	62	4.4	16.6	28.2	17.7	19	8	6	7.1	0	0	169
Tillages and flating					12								12
Hoeing & Weeding													0
Fertilization		12		14									26
Pruning		50											50
Controlling			3.5		3.5					3			10
Harvesting					8	10	10						28
Irrigation			0.9	2.6	4.7	7.7	9	8	6	4.1			43
** After production:	0	55	2.4	6	15.8	22.9	23.4	3	2.2	3.3	0	0	134
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		5		5									10
Pruning		50											50
Controlling			2		2					2			6
Harvesting					10	20	20						50
Irrigation			0.4	1	1.8	2.9	3.4	3	2.2	1.3			16
Water Requirements	0	0	213	600	1072	1808	2112	1848	1392	800	0	0	9845
** Establishment year:			11	33	59	99	116	102	77	44			541
** Befor production:			178	492	879	1483	1732	1515	1141	656			8076
** After production:			24	75	134	226	264	231	174	100			1228

Machinery - h/num
Labour - h/num

Input-output data & gross margin per dunum for irrigated citrus

1	GROSS MARGIN CALCULATION		Irrigated:	X				
2	FOR PERENNIAL CROPS		Rain fed:					
3	Enterprise (CROP):	CITRUS	Established (1) year		(7) years		(25) years of	
4					before production		production	
5		Unit	Price SP	Unit:	TOTAL	Unit:	TOTAL	Unit:
6		Definition:	Unit:		SP		SP	
7	Crop produce	kg	15.00			2000.00	30000.00	2200.00
8	TOTAL GROSS OUTPUT						30000.00	33000.00
9	Irrigation: Water requirements:	Cubicmet.	300.00	10.00	3000.00	70.00	21000.00	10.00
10	Seedlings: bought/owned	No.	12.00	30.00	360.00			
11	Manure - Fertilizer	M ³	300.00	1.00	300.00	7.00	2100.00	1.00
12	Total mineral fertilizer	SP/Dunum			0.00		5450.00	
13	N	kg	17.90		0.00	160.00	2864.00	40.00
14	P	kg	18.40		0.00	60.00	1104.00	15.00
15	K	kg	24.70		0.00	60.00	1482.00	15.00
16	Chemicals:	SP/Dunum			0.00		4000.00	
17	- Weeds control	Dunum	1.00		0.00	4000.00	4000.00	2500.00
18	- Insecticides	Dunum			0.00		0.00	0.00
19	Containers	No.	20.00		0.00	100.00	2000.00	105.00
20	Costs of hired machinery	SP/Dunum		2.50	525.00	41.50	10275.00	9.00
21	- Tillages and flating	hr	200.00	2.00	400.00	14.00	2800.00	2.00
22	- Planting (sowing)	hr						
23	- Fertilization	hr			0.00		0.00	0.00
24	- Chemical	hr			0.00		0.00	0.00
25	- Organic	hr			0.00		0.00	0.00
26	- Hoeing & weeding	hr			0.00		0.00	0.00
27	- Using chemical	hr	250.00	0.50	125.00	3.50	875.00	1.00
28	- Mechanical (hand)	hr	250.00		0.00		0.00	0.00
29	- Cotroling	hr	250.00		0.00	24.00	6000.00	6.00
30	- Harvesting	hr			0.00		0.00	0.00
31	- Others	hr			0.00		0.00	0.00
32	- transportation (crop specific!)	Sp/Dunum	1.00		0.00	600.00	600.00	630.00
33	Variable costs of owned machinery	SP / Dunum			0.00			
34	TOTAL VARIABLE COSTS	SP			5735.00		57915.00	15902.50
35	GROSS MARGIN	SP			5735.00		27915.00	17097.50
36	Labour requirements for:	Man.hr		64.00	1550.00	528.00	13090.00	156.00
37	- Tillages and flating	hr	25.00	2.00	50.00	14.00	350.00	2.00
38	- Planting (sowing)	hr	25.00	30.00	750.00		0.00	0.00
39	- Fertilization	hr			0.00		0.00	0.00
40	- Chemical	hr	25.00		0.00	16.00	400.00	6.00
41	- Organic	hr	25.00	2.00	50.00	14.00	350.00	2.00
42	- Hoeing & weeding	hr			0.00		0.00	0.00
43	- Using chemical	hr	20.00	10.00	200.00	70.00	1400.00	20.00
44	- Mechanical (hand)	hr	35.00		0.00		0.00	0.00
45	- Cotroling	hr	35.00		0.00	24.00	840.00	6.00
46	- Harvesting	hr	25.00		0.00	50.00	1250.00	50.00
47	- Irrigation	hr	25.00	20.00	500.00	140.00	3500.00	20.00
48	- Pruning	hr	25.00		0.00	200.00	5000.00	50.00
49	- Others	hr			0.00		0.00	0.00
50	- transportation (crop specific!)	Ton			0.00		0.00	0.00
51	Land rent	Dunum	1.00	2500.00	2500.00	17500.00	17500.00	2500.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for citurs according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Gross Margin after production per cbm wat.		Returns to capital
	Annual after production	Befor production	Total			(1)	(2)	(1)	(2)	
A	15902.50	1406.00	17308.50	33000.00	15691.50	100.59	125.33	1.45	1.72	1.91
B	15902.50	1466.00	17368.50	33000.00	15631.50	100.20	124.95	1.44	1.72	1.90
C	15902.50	1414.00	17316.50	33000.00	15683.50	100.54	125.28	1.45	1.72	1.91
D	15902.50	1526.00	17428.50	33000.00	15571.50	99.82	124.56	1.44	1.71	1.89

Monthly machinery, labour & water requirements for irrigated citrus

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	5.2	0	4.5	12.45	5.2	7.2	7.2	0	4.5	4.5	2.25	53
** Establishment year:	0	0	0	0.5	1	0	0	0	0	0.5	0.5	0	2.5
Tillages and flating				0.5	0.5					0.5	0.5		0.5
Hoeing & Weeding					0.5								0
Fertilization													0
Controlling													0
** Befor production:	0	4	0	3.5	9.25	4	6	6	0	3.5	3.5	1.75	41.5
Tillages and flating				3.5	3.5					3.5	3.5		14
Hoeing & Weeding					1.75							1.75	3.5
Fertilization													0
Controlling		4			4	4	6	6					24
** After production:	0	1.2	0	0.5	2.2	1.2	1.2	1.2	0	0.5	0.5	0.5	9
Tillages and flating				0.5	0.5					0.5	0.5		2
Hoeing & Weeding					0.5								0.5
Fertilization													0
Controlling		1.2			1.2	1.2	1.2	1.2					6
Labour	10	265.2	0	7.2	88.2	47.6	58.6	46.8	111.8	62.6	0	50	748
** Establishment year:	0	2	0	0.8	8.8	3.6	4.6	4.4	33.4	1.4	0	5	34
Planting (sowing)									30				
Tillages and flating					2								2
Hoeing & Weeding					5							5	10
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation				0.8	1.8	3.6	4.6	4.4	3.4	1.4			20
** Befor production:	8	210	0	5.6	65.6	37.2	46.2	36.8	48.8	34.8	0	35	528
Tillages and flating					14								14
Hoeing & Weeding					35							35	70
Fertilization	8	6				8	8						30
Pruning		200											200
Controlling		4			4	4	6	6					24
Harvesting									25	25			50
Irrigation				5.6	12.6	25.2	32.2	30.8	23.8	9.8			140
** After production:	2	53.2	0	0.8	13.8	6.8	7.8	5.6	29.6	26.4	0	10	156
Tillages and flating					2								2
Hoeing & Weeding					10							10	20
Fertilization	2	2				2	2						8
Pruning		50											50
Controlling		1.2				1.2	1.2	1.2	1.2				6
Harvesting									25	25			50
Irrigation				0.8	1.8	3.6	4.6	4.4	3.4	1.4			20
Water Requirements	0	0	0	405	999	1998	2520	2341	1845	738	0	0	10846
** Establishment year:				45	111	222	280	261	205	82			1206
** Befor production:				315	777	1554	1960	1819	1435	574			8434
** After production:				45	111	222	280	261	205	82			1206

Machinery : h/ha/annum

Labour : h/ha/annum

Activity :Grapes

Input-output data & gross margin per dunum for irrigated grapes

1	GROSS MARGIN CALCULATION		Irrigated:	X					
2	FOR PERENNIAL CROPS		Rain fed:						
3	Enterprise (CROP)	GRAPE	Establishment year		(4) years before production		(30) years of production		
4		Unit	Price SP	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	
5		Definition:	Unit:	SP	Unit:	SP	Unit:	SP	
6									
7	Crop produce	kg	15.00	0.00	1000.00	15000.00	2500.00	37500.00	
8	TOTAL GROSS OUTPUT			0.00		15000.00		37500.00	
9	Irrigation: Water requirements:	Cubicmet.	300.00	10.00	3000.00	40.00	12000.00	10.00	3000.00
10	Seedlings: bought/owned	No.	5.00	100.00	500.00				
11	Manure - Fertilizer	M ³	300.00	1.00	300.00	4.00	1200.00	1.50	450.00
12	Total mineral fertilizer	SP/Dunum			0.00		1309.50		2009.70
13	N	kg	17.90		0.00	25.00	447.50	28.00	501.20
14	P	kg	18.40		0.00	20.00	368.00	35.00	644.00
15	K	kg	24.70		0.00	20.00	494.00	35.00	864.50
16	Chemicals:	SP/Dunum			0.00		1000.00		1000.00
17	- Weeds control	Dunum	1.00		0.00	1000.00	1000.00	1000.00	1000.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	15.00		0.00	66.00	990.00	166.00	2490.00
20	Costs of hired machinery	SP/Dunum		2.00	400.00	23.00	5650.00	6.00	2250.00
21	- Tillages and flating	hr	200.00	2.00	400.00	8.00	1600.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr			0.00		0.00		0.00
28	- Mechanical (hand)	hr			0.00		0.00		0.00
29	- Controlling	hr	250.00		0.00	15.00	3750.00	4.00	1000.00
30	- Harvesting	hr			0.00		0.00		0.00
31	- Others	hr			0.00		0.00		0.00
32	- transportation (crop specific!)	Sp/Dunum)	1.00		0.00	300.00	300.00	850.00	850.00
33	Variable costs of owned machinery	SP / Dunum			0.00				
34	TOTAL VARIABLE COSTS	SP			6800.00		37324.50		20149.70
35	GROSS MARGIN	SP			6800.00		22424.50		17350.30
36	Labour requirements for:	Man.hr		124.00	2600.00	601.00	15175.00	356.00	8940.00
37	- Tillages and flating	hr	25.00	2.00	50.00	8.00	200.00	2.00	50.00
38	- Planting (sowing)	hr	20.00	100.00	2000.00		0.00		0.00
39	- Fertilization	hr			0.00		0.00		0.00
40	- Chemical	hr	25.00		0.00	10.00	250.00	8.00	200.00
41	- Organic	hr	25.00	2.00	50.00	8.00	200.00	2.00	50.00
42	- Hoeing & weeding	hr			0.00		0.00		0.00
43	- Using chemical	hr			0.00		0.00		0.00
44	- Mechanical (hand)	hr			0.00		0.00		0.00
45	- Controlling	hr	35.00		0.00	15.00	525.00	4.00	140.00
46	- Harvesting	hr	25.00		0.00	200.00	5000.00	200.00	5000.00
47	- Irrigation	hr	25.00	20.00	500.00	80.00	2000.00	30.00	750.00
48	- Pruning	hr	25.00		0.00	80.00	2000.00	50.00	1250.00
49	- Others	hr	25.00		0.00	200.00	5000.00	60.00	1500.00
50	- transportation (crop specific!)	Ton			0.00		0.00		0.00
51	Land rent	Dunum	1.00	1000.00	1000.00	4000.00	4000.00	1000.00	1000.00
52	Other fixed costs	Dunum	1	32000					

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to for irrigated grapes capital according to land type

According to land type	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Gross Margin after production per cbm wat.		Returns to capital
	Annual after production	Befor production	Total			(1)	(2)	(1)	(2)	
A	20139.70	2087.48	22227.18	37500.00	15272.82	42.90	68.01	2.40	2.87	1.69
B	20139.70	2137.48	22277.18	37500.00	15222.82	42.76	67.87	2.39	2.39	1.68
C	20139.70	2094.15	22233.85	37500.00	15266.15	42.88	67.99	2.40	2.47	1.69
D	20139.70	2187.48	22327.18	37500.00	15172.82	42.62	67.73	2.38	2.70	1.68

Monthly machinery, labour & water requirements for irrigated grapes

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	0	6.8	0	3	3	0	3.8	3.8	3.8	3.8	3	0	31
** Establishment year:	0	0.5	0	0.5	0.5	0	0	0	0	0	0.5	0	2
Tillages and flating		0.5		0.5	0.5						0.5		2
Hoeing & Weeding													0
Fertilization													0
Controlling													0
** Befor production:	0	5	0	2	2	0	3	3	3	3	2	0	23
Tillages and flating		2		2	2						2		8
Hoeing & Weeding													0
Fertilization													0
Controlling		3					3	3	3	3			15
** After production:	0	1.3	0	0.5	0.5	0	0.8	0.8	0.8	0.8	0.5		6
Tillages and flating		0.5		0.5	0.5						0.5		2
Hoeing & Weeding													0
Fertilization													0
Controlling		0.8					0.8	0.8	0.8	0.8			4
Labour Requirements	7.5	141.3	0	9.9	26.9	35	40.3	29.7	319.9	210.3	0	0	820.8
** Establishment year:	0	2	0	1.5	4.3	4.2	4.4	3.9	102.5	1	0	0	23.8
Planting (sowing)									100				
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation				1.5	2.3	4.2	4.4	3.9	2.5	1			19.8
** Befor production:	5	86	0	6	17	22	26	19	113	107	0	0	401
Tillages and flating					8								8
Hoeing & Weeding													0
Fertilization	5	3				5	5						18
Pruning		80											80
Controlling		3					3	3	3	3			15
Harvesting									100	100			200
Irrigation				6	9	17	18	16	10	4			80
** After production:	2.5	53.3	0	2.4	5.6	8.8	9.9	6.8	104.4	102.3	0	0	296
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization	2.5	2.5				2.5	2.5						10
Pruning		50											50
Controlling		0.8					0.8	0.8	0.8	0.8			4
Harvesting									100	100			200
Irrigation				2.4	3.6	6.3	6.6	6	3.6	1.5			30
Water Requirements	0	0	0	480	738	1338	1392	1254	798	366	0	0	6366
** Establishment year:				53	81	147	153	138	88	40			700
** Befor production:				347	534	968	1007	907	577	265			4805
** After production:				80	123	223	232	209	133	61			1061

Machinery : h/ha/num
Labour : h/ha/num

Activity :Peaches

Input-output data & gross margin per dunum for irrigated peaches

1	GROSS MARGIN CALCULATION		Irrigated:	X					
2	FOR PERENNIAL CROPS		Rain fed:						
3	Enterprise (CROP):	PEACHES	Establishment year		(6) years before production		(30) years of production		
4									
5		Unit	Price SP	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	
6		Definition:	Unit:	SP	Unit:	SP	Unit:	SP	
7	Crop produce	kg	10.00	0.00	2000.00	20000.00	2000.00	20000.00	
8	TOTAL GROSS OUTPUT			0.00		20000.00		20000.00	
9	Irrigation: Water requirements:	Cubicmet.	300.00	5.00	1500.00	30.00	9000.00	10.00	3000.00
10	Seedlings: bought/owned	No.	10.00	25.00	250.00				
11	Manure - Fertilizer	M ³	300.00	0.50	150.00	6.50	1950.00	1.00	300.00
12	Total mineral fertilizer	SP/Dunum			0.00		1399.00		1075.10
13	N	kg	17.90		0.00	30.00	537.00	25.00	447.50
14	P	kg	18.40		0.00	20.00	368.00	18.00	331.20
15	K	kg	24.70		0.00	20.00	494.00	12.00	296.40
16	Chemicals:	SP/Dunum			0.00		700.00		1000.00
17	- Weeds control	Dunum	1.00		0.00	700.00	700.00	1000.00	1000.00
18	- Insecticides	Dunum			0.00		0.00		0.00
19	Containers	No.	20.00		0.00	70.00	1400.00	100.00	2000.00
20	Costs of hired machinery	SP/Dunum		9.00	2150.00	26.00	6000.00	7.00	1750.00
21	- Tillages and flating	hr	200.00	2.00	400.00	12.00	2400.00	2.00	400.00
22	- Planting (sowing)	hr							
23	- Fertilization	hr			0.00		0.00		0.00
24	- Chemical	hr			0.00		0.00		0.00
25	- Organic	hr			0.00		0.00		0.00
26	- Hoeing & weeding	hr			0.00		0.00		0.00
27	- Using chemical	hr	200.00		0.00		0.00	1.00	200.00
28	- Mechanical (hand)	hr	200.00		0.00		0.00		0.00
29	- Controlling		250.00	7.00	1750.00	14.00	3500.00	4.00	1000.00
29	- Harvesting	hr			0.00		0.00		0.00
30	- Others	hr			0.00		0.00		0.00
31	- transportation (crop specific!)	Sp/Dunum	1.00		0.00	100.00	100.00	150.00	150.00
32	Variable costs of owned machinery	SP / Dunum			0.00		0.00		0.00
33	TOTAL VARIABLE COSTS	SP			5025.00		27159.00		14561.10
34	GROSS MARGIN	SP			4025.00		7136.00		5434.90
35	Labour requirements for:	Man.hr		39.00	975.00	262.00	6690.00	216.00	5440.00
36	- Tillages and flating	hr	25.00	2.00	50.00	12.00	300.00	2.00	50.00
37	- Planting (sowing)	hr	25.00	25.00	625.00		0.00		0.00
38	- Fertilization	hr			0.00		0.00		0.00
39	- Chemical	hr	25.00		0.00	14.00	350.00	8.00	200.00
40	- Organic	hr	25.00	2.00	50.00	12.00	300.00	2.00	50.00
41	- Hoeing & weeding	hr			0.00		0.00		0.00
42	- Using chemical	hr	20.00		0.00		0.00		0.00
43	- Mechanical (hand)	hr	35.00		0.00		0.00	4.00	140.00
44	- Controlling	hr	35.00		0.00	14.00	490.00		0.00
45	- Harvesting	hr	25.00		0.00	50.00	1250.00	80.00	2000.00
46	- Irrigation	hr	25.00	10.00	250.00	60.00	1500.00	20.00	500.00
47	- Pruning	hr	25.00		0.00	100.00	2500.00	100.00	2500.00
48	- Others	hr			0.00		0.00		0.00
49	- transportation (crop specific!)	Ton			0.00		0.00		0.00
50	- Land rent	Dunum	1.00	2000.00	2000.00	12000.00	12000.00	2000.00	2000.00

The first year establishment costs includes ploughing, removal of stones, and flating. These costs vary according to land types as follows:

- A- Costs for flat and stone free land = 1500 SP/Dunum
- B- Costs for flat with stones land = 3000 SP/Dunum
- C- Costs for rough and stone free land = 1700 SP/Dunum
- D- Costs for rough with stones land = 4500 SP/Dunum

Source of information: MAAR (Dept. of Agricultural Economics)

Variable costs, gross margins, and return to capital for irrigated peaches according to land type

According to land ty	Cost			Returns	Gross Margin	Gross Margin after production Per man/hr		Gross Margin after production per cbm wat.		Returns to capital
	Annual after production	Befor production	Total			(1)	(2)	(1)	(2)	
A	14565.10	455.47	15020.57	20000.00	4979.43	23.05	48.24	0.66	1.06	1.33
B	14565.10	505.47	15070.57	20000.00	4929.43	22.82	48.01	0.66	0.66	1.33
C	14565.10	462.13	15027.23	20000.00	4972.77	23.02	48.21	0.66	0.70	1.33
D	14565.10	555.47	15120.57	20000.00	4879.43	22.59	47.78	0.65	0.79	1.32

Monthly machinery, labour & water requirements for irrigated peaches

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Machinery	5	3.2	9.7	3.2	9.7	4	3.2	0	0	0	0	4	42
** Establishment year:	0	0.4	0.4	0.4	0.4	3.5	0.4	0	0	0	0	3.5	9
Tillages and flating		0.4	0.4	0.4	0.4		0.4						2
Hoeing & Weeding						3.5							7
Fertilization													0
Controlling													0
** Befor production:	4	2.4	7.4	2.4	7.4	0	2.4	0	0	0	0	0	26
Tillages and flating		2.4	2.4	2.4	2.4		2.4						12
Hoeing & Weeding													0
Fertilization													0
Controlling	4		5		5								14
** After production:	1	0.4	1.9	0.4	1.9	0.5	0.4	0	0	0	0	0.5	7
Tillages and flating		0.4	0.4	0.4	0.4		0.4						2
Hoeing & Weeding						0.5							1
Fertilization													0
Controlling	1		1.5		1.5								4
Labour	5	220	8.6	23.4	32.4	148.2	18.9	17.1	37.6	7.8	0	0	517
** Establishment year:	0	2	0.3	0.6	3.1	1.8	2.1	1.9	26.4	0.8	0	0	14
Planting (sowing)									25				
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		2											2
Pruning													0
Controlling													0
Harvesting													0
Irrigation			0.3	0.6	1.1	1.8	2.1	1.9	1.4	0.8			10
** Befor production:	4	113	6.2	16.6	23.6	60.8	12.6	11.4	8.4	5.4	0	0	262
Tillages and flating					12								12
Hoeing & Weeding													0
Fertilization		13		13									26
Pruning		100											100
Controlling	4		5		5								14
Harvesting						50							50
Irrigation			1.2	3.8	6.6	10.8	12.6	11.4	8.4	5.4			60
** After production:	1	105	2.1	6.2	5.7	83.6	4.2	3.8	2.8	1.6	0	0	216
Tillages and flating					2								2
Hoeing & Weeding													0
Fertilization		5		5									10
Pruning		100											100
Controlling	1		1.5		1.5								4
Harvesting						80							80
Irrigation			0.6	1.2	2.2	3.6	4.2	3.8	2.8	1.6			20
Water Requirements	0	0	174	544	971	1638	514	1675	1261	725	0	0	7502
** Establishment year:			12	38	67	113	132	116	87	50			615
** Befor production:			138	431	770	1299	118	1328	1000	575			5659
** After production:			24	75	134	228	264	231	174	100			1228

Machinery : hr/dunum
Labour : hr/dunum

IV. ANIMAL PRODUCTION

A. MAJOR ANIMAL PRODUCTION ACTIVITIES

The Government of the Syrian Arab Republic has accorded high priority to the development of the livestock subsector. One of the objectives of the Sixth Five-Year Plan was to increase the annual growth rate of output to 7.7 percent. The Plan's strategies included support for research and development to improve the productivity of local breeds in milk and meat through cross-breeding and selection.

The Awassi is the only breed of sheep in the Syrian Arab Republic. It is a multi-purpose animal for meat, milk and wool production. The total number of sheep increased from 9.3 million in 1980 to 14.7 million in 1992. Sheep are an integral part of the production systems in the dry land farming zones.

The total number of cattle increased from 766,000 in 1982 to 799,000 in 1992, of which milking cows constituted about 44 per cent. These can be further subdivided as follows:

- 47 per cent local milking cows;
- 28 per cent imported milking cows;
- 20 per cent mixed milking cows; and
- 5 per cent Chami milking cows.

The goat population reached about 1.157 million head in 1992 and consists of two main breeds, the Chami goat and the black mountain goat.

Numbers of poultry have fluctuated from 13 to 18 million birds during the period 1982 to 1992. In 1992, egg layers constituted 66 per cent and produced 1.758 million eggs, while broiler meat production reached 83,000 tons.

B. INPUT/OUTPUT TABLES (AT FARMGATE PRICES)
FOR ANIMAL PRODUCTION ENTERPRISES

Activity : Sheep Raising (Sarehee)

Input-output data & gross margin for keeping 100 ewes over one year

		unit	quantity	price per unit	value SP
1	Male lambs weaned	No.	37.00	3200.00	118400.00
2	Female lambs weaned	No.	40.00	2600.00	104000.00
3	Milk	Kg	4047.00	14.50	58681.50
4	Youghort	Kg	1389.00	18.00	25002.00
5	Ghee	Kg	54.00	285.00	15390.00
6	Jameed (kreshah)	Kg	47.00	17.00	799.00
7	Cheese	Kg	257.00	58.00	14906.00
8	Wool	Kg	223.00	46.00	10258.00
9	Culls	Kg	402.00	83.00	33366.00
10					
11	A. Total gross output	SP			380802.50
12					
13	Barley	kg	4652.00	8.40	39076.80
14	Wheat Bran	kg	3828.00	6.40	24499.20
15	Cotton seed cake	kg	1509.00	8.00	12072.00
16	Straw	kg	7008.00	3.00	21024.00
17	Sugar beets cake	kg	230.00	7.13	1639.90
18	Forage	Hect	18.00	2305.00	41490.00
19	Other feed items	SP	1.00	3197.00	3197.00
20	Veterinary costs	SP	1.00	3539.00	3539.00
21	Fuel, water, and electricity	SP	1.00	21741.00	21741.00
22	Pick-up tires	SP	1.00	4074.00	4074.00
23	Hired labor	Month	4.07	4000	16280.00
24	Replacement	SP	1.00	64320.00	64320.00
25	Mortality	SP	1.00	8000.00	8000.00
26	Interest on working capital (9% of 20% of VC)	SP	1.00	4697.15	4697.15
27	Other expences (1% of VC)	SP	1.00	2609.53	2609.53
28					
29	B. Total variable costs	SP			268259.58
30					
31	Family labour	Month	6.93	4000.00	27720.00
32	Maintenance	SP	1.00	4874.00	4874.00
33	Depreciation of fixed capital	SP	1.00	11647.00	11647.00
34					
35	C. Total fixed costs	SP			44241.00
36	D. Total costs (B+C)	SP			312500.58
37	E. Gross margin (A-B)	SP			112542.92
38	F. Net profit (A-D)	SP			68301.92

Average number of heads in each farm is 266

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Lamb Fattening

Input-output data & gross margin for fattening of one hundred lambs

1		Unit	Quantity	Price	Value
2				per unit	
3	Fattened lambs sales (carcass weight)	Kg	4825.00	97.00	468625.00
4	Emergency sales (live weight)	Kg	150.00	75.00	11250.00
5	Manure	M ³	10.00	300.00	3000.00
6	A. Gross Revenue				482275.00
7					
8	Variable Costs				
9	Ready made feed mixture	Kg	14400.00	8.00	115200.00
10	Forage	Kg	9000.00	3.00	27000.00
11	Fattening lambs at 22 kg weight	No.	100	2600	260000.00
12	Veterinary expenses	SP	1	3000	3000.00
13	Fuel, water, and electricity expenses	SP	1	2100	2100.00
14	Hired labor for feeding and fattening	hr	720	18.75	13500
15	Hired labor for loading and unloading	SP	1	5000	5000
16	Mortality	SP	1.00	8000.00	8000.00
17	Interest on operating capital (9% of 33% the VC for 4 months)	SP	1.00	4294.62	4294.62
18	Other expenses (1% of the VC for 4 months)	SP	1.00	4338.00	4338.00
19	B. Total variable costs				442432.62
20					
21	Fixed costs				
22	Rent of land	SP	1.00	4396.00	4396.00
23	Maintenance costs	SP	1.00	2000.00	2000.00
24	Depreciation of fixed capital	SP	1.00	8792.00	8792.00
25	C. Total fixed costs	SP			15188.00
26	D. Total costs (A+B)	SP			457620.62
27	E. Gross margin (A-B)	SP			39842.38
28	F. Net Profit (A-D)	SP			24654.36

Average fattening period : 100 days

Average annual fattening cycles : 3

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Improved Local Dairy Cows

Input-output data & gross margin for keeping 10 heads of improved local dairy cows over one year

		unit	quantity	price per unit	value SP
1	Calves (live weight)	Kg	2570.00	76.00	195320.00
2	Milk	Kg	27019.00	10.20	275593.80
3	Culls	Kg	417.00	60.00	25020.00
4	Manure	M ³	35.00	275.00	9625.00
5					
6	A. Total gross output	SP			565558.80
7					
8	Concentrates	kg	17436.00	8.25	143847.00
	Forage	kg	24497.00	1.10	26946.70
9	Hay	kg	23675.00	3.30	78127.50
10	Wheat straw	kg	121.00	4.00	484.00
11	Grazing of stubbles	SP	1.00	4331.00	4331.00
12	Veterinary costs	SP	1.00	14750.00	14750.00
13	Fuel, water, and electricity	SP	1.00	3476.00	3476.00
14	Hired labor	Day	36.00	106	3816.00
15	Replacement	SP	1.00	49995.00	49995.00
16	Interest on working capital (9% of 20% of VC)	SP	1.00	5863.92	5863.92
17	Other expences (1% of VC)	SP	1.00	3257.73	3257.73
18					
19	B. Total variable costs	SP			334894.85
20					
	Land rent	SP	1.00	8094.00	8094.00
21	Family labour	Day	324.00	106.00	34344.00
22	Maintenance	SP	1.00	1073.00	1073.00
23	Depreciation of fixed capital	SP	1.00	16188.00	16188.00
24					
25	C. Total fixed costs	SP			59699.00
26	D. Total costs (B+C)	SP			394593.85
27	E. Gross margin (A-B)	SP			170663.95
28	F. Net profit (A-D)	SP			110964.95

Average number of improved local dairy cows on one farm : 4 heads

Source of information: MAAR (Dept. of Agricultural Economics)

Input-output data & gross margin for keeping 10 heads of local dairy cows over one year

		unit	quantity	price per unit	value SP
1	Calves (live weight)	Kg	2000.00	76.00	152000.00
2	Milk	Kg	10500.00	10.20	107100.00
3	Culls	Kg	250.00	60.00	15000.00
4	Manure	M ³	25.00	275.00	6875.00
5					
6	A. Total gross output	SP			280975.00
7					
8	Concentrates	kg	10000.00	8.25	82500.00
	Forage	kg	11818.00	1.10	12999.80
9	Hay	kg	12500.00	3.30	41250.00
10	Grazing of stubbles	SP	1.00	2500.00	2500.00
11	Veterinary costs	SP	1.00	2500.00	2500.00
12	Fuel, water, and electricity	SP	1.00	2500.00	2500.00
13	Hired labor	Day			0.00
14	Replacement	SP	1.00	30000.00	30000.00
15	Interest on working capital (9% of 20% of VC)	SP	1.00	3136.50	3136.50
16	Other expences (1% of VC)	SP	1.00	1742.50	1742.50
17					
18	B. Total variable costs	SP			179128.79
19					
	Land rent	SP	1.00	8250.00	8250.00
20	Family labour	Day	365.00	100.00	36500.00
21	Maintenance	SP	1.00	500.00	500.00
22	Depreciation of fixed capital	SP	1.00	16500.00	16500.00
23					
24	C. Total fixed costs	SP			61750.00
25	D. Total costs (B+C)	SP			240878.79
26	E. Gross margin (A-B)	SP			101846.21
27	F. Net profit (A-D)	SP			40096.21

Average number of improved local dairy cows on one farm : 4 heads

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Imported Dairy Cows

Input-output data & gross margin for keeping 10 heads of imported dairy cows over one year

		unit	quantity	price per unit	value SP
1	Calves (live weight)	Kg	2830.00	76.00	215080.00
2	Milk	Kg	47903.00	10.20	488610.60
3	Culls	Kg	517.00	60.00	31020.00
4	Manure	M ³	63.00	275.00	17325.00
5					
6	A. Total gross output	SP			752035.60
7					
8	Concentrates	kg	29274.00	8.25	241510.50
	Forage	kg	22428.00	1.10	24670.80
9	Hay	kg	26793.00	3.30	88416.90
10	Wheat straw	kg	213.00	4.00	852.00
11	Cotton seed cake	kg	1643.00	9.50	15608.50
12	Grazing of stubbles	SP	1.00	5196.00	5196.00
13	Veterinary costs	SP	1.00	11383.00	11383.00
14	Fuel, water, and electricity	SP	1.00	5639.00	5639.00
15	Hired labor	Day	72.38	122	8830.36
16	Replacement	SP	1.00	62422.00	62422.00
17	Interest on working capital (9% of 20% of V	SP	1.00	8361.52	8361.52
18	Other expences (1% of VC)	SP	1.00	4645.29	4645.29
19					
20	B. Total variable costs	SP			477535.87
21					
	Land rent	SP	1.00	11288.00	11288.00
22	Family labour	Day	444.62	122.00	54243.64
23	Maintenance	SP	1.00	802.00	802.00
24	Depreciation of fixed capital	SP	1.00	22575.00	22575.00
25					
26	C. Total fixed costs	SP			88908.64
27	D. Total costs (B+C)	SP			566444.51
28	E. Gross margin (A-B)	SP			274499.73
29	F. Net profit (A-D)	SP			185591.09

Average number of imported dairy cows on one farm : 6 heads

Source of information: MAAR (Dept. of Agricultural Economics)

ACTIVITY : Steers Fattening

Input-output data & gross margin for fattening of ten steers

1		Unit	Quantity	Price	Value
2				per unit	
3	Fattend steer sales (live weight)	Kg	3390.00	72.00	244080.00
4	Manure	M ³	118.00	166.00	19588.00
5					
6	A. Gross Revenue				243658.00
7					
8	Variable Costs				
9	Steers for fattening at 163 kg weight	Head	10.00	11760.00	117600.00
10	Ready made feed mixture	Kg	7490.00	7.00	52430.00
11	Hay	Kg	8120.00	3.00	24360.00
12	Veterinary expenses	SP	1	780	780.00
13	Fuel, water, and electricity expenses	SP	1	1700	1700.00
14	Hired labor for feeding and fattening	Day	39.14	170	6653.8
15	Mortality	SP	1.00	2940.00	2940.00
16	Interest on operating capital (9% of 33% the VC for 5 months)	SP	1.00	1548.48	1548.48
17	Other expenses (1% of the VC for 4 months)	SP	1.00	2064.64	2064.64
18	B. Total variable costs				210076.92
19					
20	Fixed costs				
21	Rent of land	SP	1.00	2685.00	2685.00
	Family labour	Day	63.86	170.00	10856.20
22	Maintenance costs	SP	1.00	657.00	657.00
23	Depreciation of fixed capital	SP	1.00	5370.00	5370.00
24	C. Total fixed costs	SP			19568.20
25	D. Total costs (A+B)	SP			229645.12
26	E. Gross margin (A-B)	SP			53581.08
27	F. Net Profit (A-C)	SP			34022.88

Average fattening period : 100 days

Average annual fattening cycles : 3

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Goat Raising (Mountain Goats)

Input-output data & gross margin for keeping 100 Mountain goat over one year

		unit	quantity	price per unit	value SP
1	New borns	No.	127.00	2900.00	368300.00
2	Milk	Kg	25810.00	9.00	232290.00
3	Culls	SP	1.00	29750.00	29750.00
4	Manure	SP	1.00	2000.00	2000.00
5	A. Total gross output	SP			632340.00
6					
7	Concentrates	kg	17090.00	7.30	124757.00
8	Straw	kg	25420.00	3.30	83886.00
9	Wheat bran	kg	4920.00	5.00	24600.00
10	Cotton seed cake	kg	3260.00	8.00	26080.00
11	Dry bread	kg	1670.00	5.00	8350.00
12	Broken wheat grains	kg	3590.00	7.50	26925.00
13	Veterinary costs	SP	1.00	8910.00	8910.00
14	Fuel, water, and electricity	SP	1.00	11690.00	11690.00
15	Hired labor	Month	11.50	3090	35535.00
16	Replacement	SP	1.00	59500.00	59500.00
17	Mortality	SP	1.00	9157.00	9157.00
18	Interest on working capital (9% of 20% of V)	SP	1.00	7549.02	7549.02
19	Other expences (1% of VC)	SP	1.00	4193.90	4193.90
20					
21	B. Total variable costs	SP			431132.92
22					
	Land rent	SP	1.00	9150.00	9150.00
23	Family labour	Month	11.50	3090.00	35535.00
24	Maintenance	SP	1.00	1000.00	1000.00
25	Depreciation of fixed capital	SP	1.00	18300.00	18300.00
26					
27	C. Total fixed costs	SP			63985.00
28	D. Total costs (B + C)	SP			495117.92
29	E. Gross margin (A-B)	SP			201207.08
30	F. Net profit (A-D)	SP			137222.08

Average number of goats on one farm : 10 heads

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Goat Raising (Chami Goats)

Input-output data & gross margin for keeping 100 chami goat over one year

		unit	quantity	price per unit	value SP
1	New borns	No.	184.00	8889.00	1635576.00
2	Milk	Kg	35500.00	12.50	443750.00
3	Culls	SP	1.00	91666.00	91666.00
	Manure	SP	1.00	2778.00	2778.00
4					
5	A. Total gross output	SP			2173770.00
6					
7	Concentrates	kg	54447.00	8.50	462799.50
8	Straw	kg	6667.00	4.50	30001.50
9	Forage	SP	1.00	1333.33	1333.33
10	Veterinary costs	SP	1.00	20833.00	20833.00
11	Fuel, water, and electricity	SP	1.00	29998.00	29998.00
12	Pick-up tires	SP	1.00	1500.00	1500.00
13	Hired labor	Month	35.00	3750	131250.00
14	Replacement	SP	1.00	183334.00	183334.00
15	Mortality	SP	1.00	16667.00	16667.00
16	Interest on working capital (9% of 20% of VC)	SP	1.00	15798.89	15798.89
17	Other expences (1% of VC)	SP	1.00	8777.16	8777.16
18					
19	B. Total variable costs	SP			902292.39
20					
21	Family labour	Month	35.00	3750.00	131250.00
22	Maintenance	SP	1.00	5556.00	5556.00
23	Depreciation of fixed capital	SP	1.00	56713.00	56713.00
24					
25	C. Total fixed costs	SP			193519.00
26	D. Total costs (B+C)	SP			1095811.39
27	E. Gross margin (A-B)	SP			1271477.61
28	F. Net profit (A-D)	SP			1077958.61

Average number of goats on one farm : 48 heads

Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Broiler Enterprise

Input-output data & gross margin for broiler enterprise

(Unit of 1000 Chicken one cycle)

	UNIT	QUANTIT	PRICE PER UNI	VALUE SP
1	Broilers :			
2	Manure :			
3	A. Gross Revenue			
4				
5	Variable costs			
6	1. Purchase of one day old chic	No.	16	16000.0
7	2. Feed mixture	Kg	12	51828.0
8	3. Bed preparation	Sack	85	935.0
9	4. Veterinary expenses	SP	1	2005.0
10	5. Water, fuel, and electricity	SP	1	1642.0
11	6. Hired Labour	hr	58.24	31.5
12	7. Mortality	No.	71	24
13	8. Interest on operating capital (9% yearly, 0.018%*Variable costs for each cycl	cycle	1	1367.07
14	9. Other expenses (1% yearly, of the variable costs)	cycle	1	759.486
15	B. Total variable costs			76075.1
16				
17	FIXED COSTS			
18	10. Rent of land	SP	1	2532.0
19	11. Family labour	hr	45.76	31.5
20	12. Depreciation on fixed capital	SP	1	5064.0
21	13. Maintenance of sheds and equipments	SP	1	1675.0
22				
23	C. TOTAL FIXED COSTS			10712.4
24	D. TOTAL COSTS (B+C)			86787.6
25	E. GROSS MARGIN (A-B)			16856.9
26	F. NET PROFIT (A-D)			6144.4

one cycle : 50-55 days Average flock size of one producers: 4010 birds
 Source of information: MAAR (Dept. of Agricultural Economics)

Activity : Egg Production

input-output data & gross margin for egg production enterprise
(Unit of 1000 Chicken one cycle)

	UNIT	QUANTIT	PRICE PER UNI	VALUE SP
1 Eggs:	No.	293189	21	615696.9
2 Culls:	Kg	1487	38	56506.0
3 Manure:	M ³	27.5	229	6307
4 A. Gross Revenue				678509.9
5				
6 Variable costs				
7 1. Purchase of pullets :	No.	1000	120	120000.0
8 2. Feed mixture	Kg	45106	10	451060.0
9 3. Veterinary expenses	SP	1	5198	5198.0
10 4. Water, fuel, and electricity	SP	1	5732	5732.0
11 5. Hired Labour	hr	385.28	43.6	16798.2
12 6. Mortality and broken eggs	SP	1	10378	10378.0
13 7. Interest on operating capital (9% yearly, for 20% of the total VC for 13 months)	cycle	1	11878.74	11878.741
14 8. Other expenses (1% yearly, for 20% the total VC for each cycle)	cycle	1	6599.300	6599.3005
15 B. Total variable costs				627644.2
16				
17 FIXED COSTS				
18 9. Rent of land	SP	1	3860	3860.0
19 10. Family labour (57% of total labor requirements)	hr	510.72	43.6	22267.4
20 11. Depreciation on fixed capital	SP	1	7720	7720.0
21 12. Maintenance of sheds and equipments	SP	1	1146	1146.0
22				
23 C. TOTAL FIXED COSTS				34993.4
24 D. TOTAL COSTS (B+C)				662637.6
25 E. GROSS MARGIN (A-B)				50865.7
26 F. NET PROFIT (A-D)				15872.3

one cycle : 13 months

Average flock size of one producer: 8915 birds

Source of information: MAAR (Dept. of Agricultural Economics)

V. STANDARD RATES, CONVERSION AND PRICES

A. Standard rates of vegetables and field crops in the irrigated and rainfed areas

a. Work rates

1. Labour (human)

Crop	Land preparation	Planting (sowing)	Planning	Husbandry & Weeding	Protection	Irrigation	Fertilization	Harvestin	Others
Wheat	-	3	12	15	1	60	8	4	-
Cotton	-	45	20	91	13	160	20	468	74
Sugar beets	-	75	16	90	3	120	19	400	107
Sunflower	-	45	15	25	-	96	6	120	-
Broadbeans	-	100	20	-	8	60	4	200	-
Soybeans	-	2	16	50	8	84	8	140	-
Maize	-	13.6	15	45.6	13	104	10	50	25
Tomatoes	-	35	24	185	40	210	44	1050	-
Fall Potatoes	-	40	24	50	36	150	36	450	-
Spring Potatoes	-	40	24	50	36	90	36	540	-
Summer Potatoes	-	40	24	50	36	150	36	540	-
Eggplants	-	90	20	60	32	160	64	260	-
Onions	-	180	20	100	12	96	28	360	-
Cucumbers	-	80	16	100	64	165	16	315	-
Peanuts	-	75	16	120	16	96	40	250	-
Water melons	-	70	24	80	16	144	8	225	70
Musk melons	-	70	24	80	16	144	8	180	70
Tobacco	-	130	16	102	64	180	24	600	200
Tomatoes (g-house)	-	1500	100	3000	1800	750	450	6000	2500
Cucumbers (g-house)	-	1500	100	3000	1800	750	450	6000	2500
Rain-fed wheat zone 1	-	1	-	-	-	-	1	-	-
Rain-fed wheat zone 2	-	1	-	-	-	-	1	-	-
Rain-fed wheat zone 3	-	1	-	-	-	-	1	-	-
Rain-fed barley zone 1	-	1	-	-	-	-	1	-	-
Rain-fed barley zone 2	-	1	-	-	-	-	1	-	-
Rain-fed barley zone 3	-	1	-	-	-	-	1	-	-
Rain-fed barley zone 4	-	1	-	-	-	-	1	-	-
Rain-fed chickpeas zone	-	1	-	-	-	-	1	-	-
Rain-fed chickpeas zone	-	1	-	-	-	-	1	-	-
Rain-fed lentils zone 1	-	1	-	-	-	-	1	-	-
Rain-fed lentils zone 2	-	3	-	-	-	-	3	-	-
Rain-fed lentils zone 3	-	3	-	-	-	-	3	-	-
Rain-fed vetch zone 1	-	1	-	-	-	-	1	-	-
Rain-fed vetch zone 2	-	1	-	-	-	-	1	-	-

Source: MAAR (Dept. of Agricultural Economics)

2. Machinery (hr/hect.)

Crop	Land preparation	Planting (sowing)	Planning	Husbandry & Weeding	Protection	Irrigation	Fertilization	Harvesting	Others
Wheat	11	1	3	1	1	-	-	1	-
Cotton	16.4	2.4	3.8	-	-	-	-	-	-
Sugar beets	14.6	-	4.4	-	1.5	-	1.5	-	-
Sunflower	7	-	2	-	-	-	-	5	-
Broadbeans	6	-	2	-	2	-	-	-	-
Soybeans	6	1	2	-	-	-	-	4	-
Maize	9	1.1	2.1	0.2	-	-	0.2	3.4	-
Tomatoes	11	-	2	-	2	-	-	-	-
Fall Potatoes	11	12	2	-	-	-	-	12	-
Spring Potatoes	11	12	2	-	-	-	-	12	-
Summer Potatoes	11	12	2	-	-	-	-	12	-
Eggplants	9	-	2	-	3	-	-	-	-
Onions	12.5	-	2	-	-	-	-	-	-
Cucumbers	7	-	2	-	4	-	-	-	-
Peanuts	9	2	2	-	3	-	-	2	-
Water melons	7	-	3	-	-	-	-	-	-
Musk melons	7	-	3	-	-	-	-	-	-
Tobacco	9	-	2	-	-	-	-	-	-
Tomatoes (g-house)	37.5	-	-	-	-	-	-	-	-
Cucumbers (g-house)	37.5	-	-	-	-	-	-	-	-
Rain-fed wheat zone 1	4.4	1	-	-	-	-	0.5	-	-
Rain-fed wheat zone 2	4	0.5	-	-	-	-	0.5	-	-
Rain-fed wheat zone 3	4.4	0.5	-	-	-	-	0.5	-	-
Rain-fed barley zone 1	4.4	0.5	-	-	-	-	0.5	-	-
Rain-fed barley zone 2	4	0.5	-	-	-	-	0.5	-	-
Rain-fed barley zone 3	4.3	0.5	-	-	-	-	-	-	-
Rain-fed barley zone 4	4	0.5	-	-	-	-	-	-	-
Rain-fed chickpeas zone 1	4.4	1	-	-	0.5	-	0.5	-	-
Rain-fed chickpeas zone 2	4.4	1	-	-	0.5	-	0.5	-	-
Rain-fed lentils zone 1	4.5	0.5	-	-	0.5	-	0.5	-	-
Rain-fed lentils zone 2	1	-	-	-	-	-	-	-	-
Rain-fed lentils zone 3	1	-	-	-	-	-	-	-	-
Rain-fed vetch zone 1	4.5	0.5	-	-	0.5	-	0.5	-	-
Rain-fed vetch zone 2	1	0.5	-	-	-	-	0.5	-	-

Source: MAAR (Dept. of Agricultural Economics)

B. Standard rates of fruit trees in irrigated and rainfed areas

a. Work rates

1. Labour (human)

Crop	(hr/dunum)									
	Land preparation & flating	Husbandary & Weeding	Chemical fertilization	Organic fertilization	Pruning	Protection	Irrigation	Harvesting	Others	
Irrigated olives	6	-	-	8	2	50	5	20	44	-
Rain-fed olives	-	-	-	2	2	30	2	-	28	-
Irrigated grapes	2	-	-	8	2	50	4	30	200	60
Rain-fed grapes	-	-	-	2	2	30	2	-	100	-
Irrigated peaches	2	-	-	8	2	100	4	20	80	-
Irrigated apples	2	-	-	8	2	60	6	20	70	-
Rain-fed apples	-	-	-	2	2	40	6	-	30	-
Irrigated cherries	2	-	-	8	2	50	6	16	50	-
Rain-fed cherries	-	-	-	6	2	45	4	-	35	-
Irrigated apricots	2	-	-	6	2	16	6	16	40	-
Irrigated citurs	2	20	-	6	2	50	6	20	50	-
Rain-fed pistachio	-	-	-	2	-	50	3	-	30	-
Rain-fed almonds	-	-	-	6	2	30	2	-	30	-

Source: MAAR (Dept. of Agricultural Economics)

2. Machinery	(hr/dunum)									
	Land preparation & flating	Husbandary & Weeding	Chemical fertilization	Organic fertilization	Pruning	Protection	Irrigation	Harvesting	Others	
Irrigated olives	3	-	-	-	-	-	5	-	-	-
Rain-fed olives	4	-	-	-	-	-	2	-	-	-
Irrigated grapes	2	-	-	-	-	-	4	-	-	-
Rain-fed grapes	2	-	-	-	-	-	2	-	-	-
Irrigated peaches	2	1	-	-	-	-	4	-	-	-
Irrigated apples	2	1	-	-	-	-	3	-	-	-
Rain-fed apples	2	-	-	-	-	-	3	-	-	-
Irrigated cherries	2	-	-	-	-	-	2	-	-	-
Rain-fed cherries	2	-	-	-	-	-	2	-	-	-
Irrigated apricots	2	-	-	-	-	-	3	-	-	-
Irrigated citurs	2	1	-	-	-	-	6	-	-	-
Rain-fed pistachio	2	-	-	-	-	-	3	-	-	-
Rain-fed almonds	2	-	-	-	-	-	2	-	-	-

Source: MAAR (Dept. of Agricultural Economics)

C. Conversions

1. Weight and measures / local to metric

Local	Metric
Dunum	1,000 square meters
Hectare	10,000 square meters
Green house	400 square meters
Ton	1,000 Kg

2. Currency /US Dollar to Syrian Pound

Year	Official exchange rate	According to neighboring countries
1988	11.22	-
1989	11.22	-
1990	11.22	-
1991	11.22	42.5
1992	11.22	45.5

Annual Wholesale prices of vegetables, fruits and animal products during 1986-1993

Crop	1986	1987	1988	1989	1990	1991	1992	1993
Soft wheat	1.9	3.4	4.8	7.7	9.25	9.65	10.15	9.88
Hard wheat	1.9	3.4	4.9	7.5	9.15	9.6	10.65	10.55
Chickpeas	6.6	14.2	12	12.8	17.3	22.8	24.3	20.4
Lentils	5.2	8.2	9	13.3	18.25	19.8	21.35	21.8
Barley	1.6	2.8	4.3	6.12	8.1	7.45	8.3	7.5
Maize	3.4	4.8	6.8	9.3	9.6	9.5	10.6	9.55
Grapes	3	5.1	7.75	13.2	9.15	13	11.5	16
Potatoes	1.6	6.2	5.5	5.8	8.1	8.7	5.9	8.25
Tomatoes	4.4	9.7	15	15.9	14.1	13.7	16.5	15.6
Onions	2.5	1.7	4.5	1.05	7.6	4.7	4.95	6
Garlic	7.5	8.8	4.7	22.6	50.45	34.85	10.85	21.9
Olives	12.4	18.6	19.4	27.75	25.1	30.25	26.5	32.85
Apples	3.1	12.6	13.7	13.4	16.4	17.55	19.6	17.8
Oranges	7.3	10.1	14.5	14.65	14.85	13.9	14.5	17.95
Cow milk	3.1	4.7	6.3	7.8	9.65	10.5	10.95	11.05
Eggs	18.5	32.6	53	52.65	70	71.1	73.35	79
Beef	38.7	53	84.5	86.2	88.3	98.85	103.15	115.3
Mutton	44	65.7	108	86.2	107.05	125.05	136.45	154.45

Source: MAAR (Dept. of Agricultural Economics)

Annual retail prices of vegetables, fruits and animal products during 1986-1993

Crop	1986	1987	1988	1989	1990	1991	1992	1993
Soft wheat	2.1	3.7	5.3	8.45	10.3	10.8	11.5	11.3
Hard wheat	2.2	3.7	5.4	8.2	10.05	10.75	12.1	11.95
Chickpeas	7.4	15.7	13.9	14.7	19.8	25.55	27.45	23.75
Lentils	5.9	9.2	10.7	15.2	20.6	22.6	24.55	25.7
Barley	1.8	3.1	4.8	6.9	9.35	8.35	9.5	8.7
Maize	3.8	5.7	7.8	10.95	11.35	10.85	11.5	11.11
Grapes	3.9	6.4	10.4	15.8	12.35	15.5	14.15	19.5
Potatoes	2	7.4	6.6	7.1	9.7	10.65	7.5	10
Tomatoes	5.6	12.2	19	19.6	17.6	17.05	20.2	19.55
Onions	3.1	2.2	5.6	12.6	9.2	5.9	6.35	8.65
Garlic	9.1	10.6	6.2	26.8	57.4	40.6	13.1	25.55
Olives	14.1	21	22.4	31.35	28.6	35.55	31.2	37.2
Apples	3.8	13.8	16.9	16.8	19.7	20.95	24.65	22.35
Oranges	8.6	11.9	17.4	17.65	17.7	16.65	18.75	22.1
Cow milk	3.6	5.4	7.1	8.9	11.15	12.1	12.65	12.75
Eggs	19.9	34.9	57.1	57.55	57.25	77.65	80.1	85.46
Beef	41.4	59	93.3	86.6	100.05	111.2	112.4	129
Mutton	49	72.5	117	100.9	123.5	139.55	154.35	190.7

Source: MAAR (Dept. of Agricultural Economics)

VI. SCIENTIFIC NAMES OF CROPS

CROP	SCIENTIFIC NAME
Almond	<i>Amygdalus communis L.</i>
Apple	<i>Malus sylvestris Min</i>
Apricot	<i>Prunus armeniaca</i>
Barley	<i>Hordeum SPP.</i>
Broad bean	<i>Vicia faba</i>
Cherry	<i>Prunus avium</i>
Chick-pea	<i>Cicer arietinum L.</i>
Citrus	<i>Citrus SPP.</i>
Cotton	<i>Gossypium arboreum</i>
Cucumber	<i>Cucumis sativus</i>
Eggplant	<i>Solanum melongena L.</i>
Grape	<i>Vitis vinifera</i>
Lentil	<i>Lens esculentus</i>
Musk melon	<i>Cucumis melo</i>
Olive	<i>Olea europea</i>
Peach	<i>Prunus persica</i>
Peanut	<i>Arachis hypogaea</i>
Pistachio	<i>Pistacia vera</i>
Potato	<i>Solanum tuberosum L.</i>
Soybean	<i>Glycine max</i>
Sugar beet	<i>Beta vulgaris</i>
Sunflower	<i>Helianthus annus</i>
Tobacco	<i>Nicotiana tabaccum</i>
Tomato	<i>Lycopersicon esculentum Mill</i>
Water melon	<i>Citrullus vulgaris L.</i>
Wheat	<i>Triticum</i>

L. = author

SPP. = different species

VII. GLOSSARY

Activity: A process using a particular, defined technology combining input factors to generate a particular type of output. Thus, the wheat enterprise on a particular farm may involve two activities of a high-yielding variety of wheat and a local variety of wheat, or barley harvested by harvesters and manually harvested. Activities may be classified in various ways, such as by function (productive, intermediate or marketing) or by type of product (animal or crop).

Activity budget: A budget for an activity, a statement of the technical and economic characteristics of an activity.

Activity gross income: The market value of the output of an activity over a specified accounting period (usually a year), whether that output is sold or not.

Activity gross margin: Activity gross income minus the direct variable costs attributable to the activity.

Farmgate price: The price paid for input or received from output as measured at the farmgate, which is the point in product flow at which the farmer relinquishes full control over output or where the farmer gains full control over input. It serves to establish a point in input or output flow where a unique price can be determined.

Farming system zones: Zones which are defined in terms of common features from an agricultural point of view. For different purposes these features will differ but may involve such factors as climate, soil resources, land use, ethnic grouping and market access.

Gross margin per cubic metre of water (1): Gross margin in Syrian pounds divided by water requirement in cubic metres per hectare or dunum.

Gross margin per cubic metre of water (2): Gross margin plus the cost of irrigation water divided by the water requirement in cubic metres per hectare or dunum.

Gross margin per man-hour (1): Gross margin in Syrian pounds divided by labour requirement in man/hr.

Gross margin per man-hour (2): Gross margin plus the cost of the labour factor divided by the labour requirement in man/hr.

Input/output data: Data relating the level of crop or livestock output to (different) levels of input use, usually expressed in physical terms but may also be expressed in value terms.

Man-hour equivalent: A unit of measurement of labour input, requirement or availability, usually assumed to represent the work accomplished by an adult male worker in one hour. It is used as the basis for aggregating the supply or availability of labour from individuals of different ages and sexes.

Net crop yield: This measures crop yield per hectare (or other land unit) in the field, minus harvest losses and, where appropriate, storage losses.

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Return to capital: Total gross output in Syrian pounds divided by the total variable cost of each activity.

Target area: A group of farmers within an agro-ecological zone whose farms are sufficiently similar and who follow sufficiently similar practices that a given recommendation is applicable to the entire group.

Variable costs: Components of total farm costs that are variable in the sense of changing according to the scale of the activity or enterprise in which they are incurred. They may be in the form of direct or indirect costs.

Working capital: Capital needed for the month-to-month running of a farm, as distinct from investment capital. Specified in accounting terms as current assets less current liabilities.