THE EGYPTIAN AGRICULTURAL SECTOR AND ITS PROSPECTS FOR THE YEAR 2000

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Tahani ABDEL HAKIM
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E G Y P T

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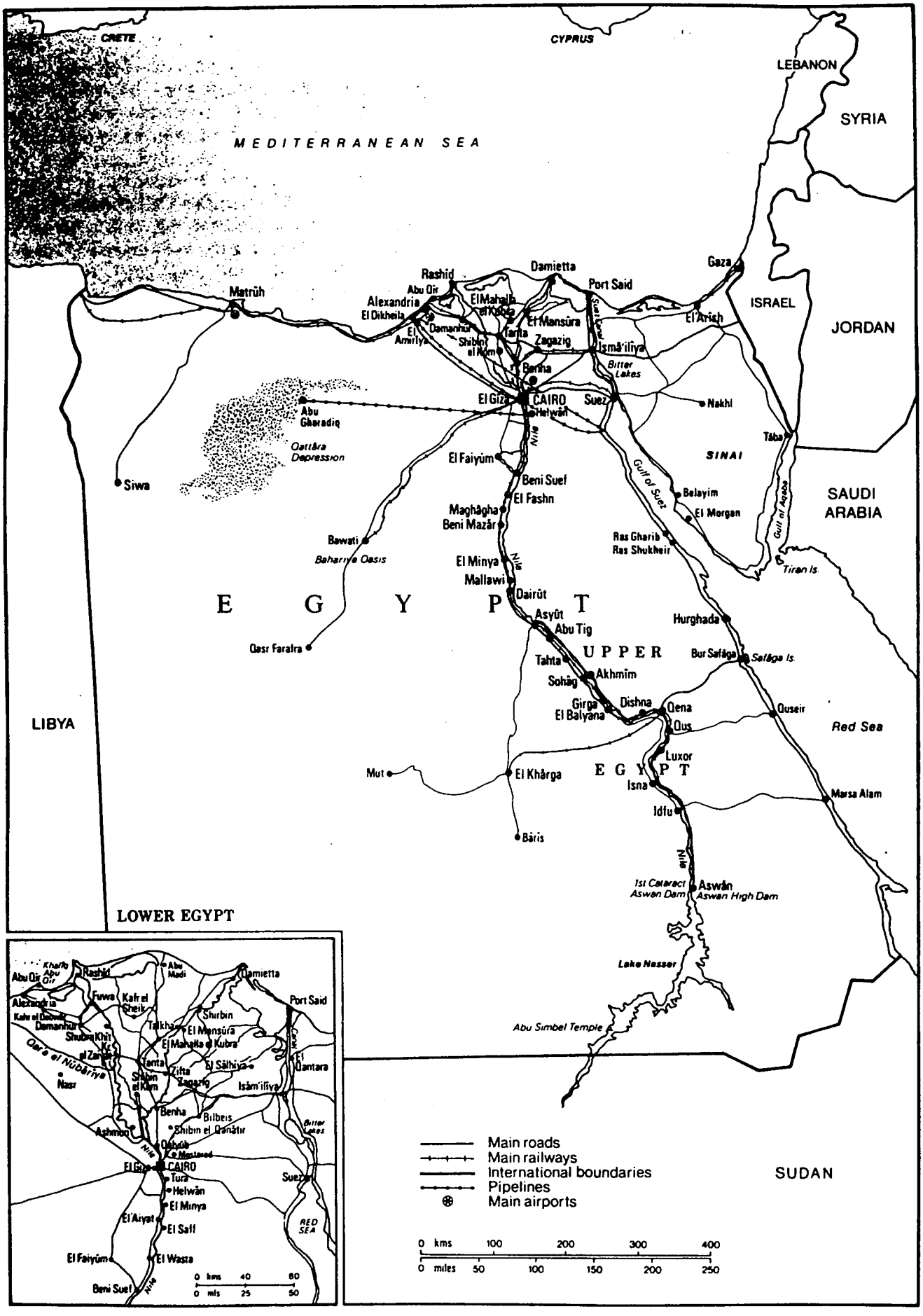
Figure 1.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El Mahalla el Kubra
El Mansûra
El Arish
El Amiriya
Damanhûr
Tanta
Zagazig
Shibin el Kôm
Ismâ'ilîya
Suez Canal
Benha
Bitter Lakes
El Giza
CAIRO
Helwân
Suez
Nakhl
Abu Gharadiq
Qattâra Depression
Nile
Tâba
SINAI
El Faiyûm
Siwa
Beni Suef
Gulf of Suez
Belayim
El Fashn
El Morgan
SAUDI ARABIA
Maghâgha
Beni Mazâr
Ras Gharib
Ras Shukheir
Bawati
Bahariya Oasis
El Minya
Gulf of Aqaba
Tiran Is.
Mallawi
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Qasr Farafra
UPPER
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Bur Safâga
Safâga Is.
Akhmîm
Sohâg
Girga
Dishna
Qena
Quseir
El Balyana
Qus
Red Sea
LIBYA
Luxor
Mut
El Khârga
E G Y P T
Isna
Marsa Alam
Idfu
Bâris
1st Cataract
Aswân
Aswan Dam
Aswan High Dam
LOWER EGYPT
Lake Nasser
Abu Simbel Temple
Main roads
Main railways
International boundaries
Pipelines
Main airports
SUDAN
0 kms 100 200 300 400
0 miles 50 100 150 200 250

CONTENTS

LIST OF TABLES

CHAPTER I - AGRICULTURE IN THE NATIONAL ECONOMY

INTRODUCTION

Historically, Egypt is known as one of the oldest agricultural civilisations: the River Nile allowed a sedentary agricultural society to develop thousands of years ago.

During the last 200 years, and especially since the time of Mohamed Ali, the country's economy has diversified and the importance of other sectors increased, whilst the relative importance of agriculture has declined.

In order to have a better picture of the importance and the development of the agricultural sector we need to be aware of the characteristics of the Egyptian economy.

1.1. THE CHARACTERISTICS OF THE EGYPTIAN ECONOMY

According to the most recent World Bank report, Egypt is classified among the low income countries, the per capita GDP being $600 a year[1]. Before that report, Egypt was classified as a middle income country, which suggests a considerable deterioration in the national economy.

Like all Third World countries, Egypt has not managed to escape the condition of an "underdeveloped country" and suffers from the same problems: population explosion, growing and chaotic urbanisation, food deficit, debt, decline in GDP, deterioration in services and infrastructures, pollution, etc.

From the 1950s to the end of the 1970s, the Egyptian economy was a command economy:

- on the one hand, the major industries and the banking sector were nationalised and the large public industries set up;
- on the other hand, there was the agrarian reform which caused the large landowners to disappear and developed small-scale family commercial agriculture.

In addition, the State had the monopoly of foreign trade and controlled agricultural production (by imposing mandatory agricultural rotation and determining the area to be planted with the main crops) and marketing (monopoly of the marketing of farm inputs and of the main agricultural products such as cereals, cotton, sugar cane, etc.).

One of the features of the economy was State intervention in the price system. Indeed, the prices paid to producers of the main agricultural products were set by the State, and the prices at which staple food products were sold to consumers were subsidised, as were the prices of certain public services.

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[1]- World Bank: Report on World Development in 1992. Al Ahram publishers, Cairo 1992.

Following the wars of 1967 and 1973 (and some will say because of those wars) the Egyptian economy entered a state of permanent structural crisis. The ingredients of that crisis are these:

- a very rapid growth in the food deficit and, as a result, the rise in food imports, placing an increasingly heavy burden on the budget deficit
- a drop in budget revenue
- an increase in the size of the external debt
- a decline in investments
- a downturn in economic growth
- rampant inflation (averaging 20% a year)
- deterioration in infrastructures and public services
- a decline in the general standard of living.

The second half of the 1980s was the most difficult period in the economic crisis, with the external debt increasing markedly to $46 billion in 1989/90. In 1990/91 the external debt fell back to $35 billion as a result of the cancellation by the United States of the military debt ($6.6 million) and the cancellation of debts by some Arab countries.

After the meeting of the "Club of Paris" in May 1991, another part of the debt was cancelled, bringing the current debt down to $29 billion.

The Egyptian economy has become a "payment economy", the main sources of national income being oil revenues, tourism and income from the Suez Canal.

The trends in the various production sectors show a marked decline in agriculture, slight growth in the industrial sector and a high rate of growth in the tertiary sector.

The rate of economic growth shows that the Egyptian economy is in crisis: it stood at 7.5% a year between 1981 and 1985, 3.2% between 1986 and 1989, and 2.3% in 1992[2]. The average rates of growth in the different sectors were 2.5% in agriculture, 4.3% in industry and 6.3% in the tertiary sector between 1980 and 1990.

The Egyptian economy is marked by a low and declining saving capacity: it was 15.2% in 1980, 4.8% in 1990 and 7% in 1991. The value of investments has also declined: from 27.5% of GDP in 1980 to 20.4% in 1991[3], despite the Egyptian economy having been open to foreign investment since the mid 1970s. Foreign investment amounted to $541 million in 1980, $1289 million in 1985, $124 million in 1990 and $136 million in 1991.

Decline in investment, low saving capacity, drop in the economic growth rate, large external debt, rising unemployment (estimated to be 30%), high rate of inflation, food deficit, drop in exports - such are the characteristics of the Egyptian economy today.

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2 - The globlal coalition for Africa, African Social and Economic Trends, Annual report, november 1992, Washington DC.

3 - Op. cit. pages 27 and 28.

1.2. THE PLACE OF AGRICULTURE IN THE NATIONAL ECONOMY

To get a picture of the place of agriculture in the national economy, we shall look at the following indicators:

- agriculture's contribution to GDP
- investment in agriculture and irrigation
- agricultural employment
- agricultural labour productivity
- the trade balance, the agricultural balance and the food deficit.

1.2.1. Agriculture's contribution to GDP

In 1991/92 the GDP was 10,150 million Egyptian pounds (EP), 19.2% of which came from the agricultural sector, representing 40.5% of the GDP of all market sectors[4].

From the start of the 1970s to the early 1990s no significant change is observed in the agricultural sector's contribution to GDP, except that it fell in 1985/86 (Table 1). The agricultural sector's share in the GDP of market sectors grew until 1980, then fell in 1985/86, rising again in 1991/92.

Table 1 - The agricultural sector's contribution to GDP

Year	Agriculture's share of the GDP of market sectors (%)	Agriculture's share in GDP (%)
1969/70	29.4	20.3
1975	32.0	21.9
1980	40.6	22.2
1985/86	32.8	16.7
1991/92	40.5	19.2

Source :
1 - Central Agency for General Mobilisation and Statistics, Statistical Yearbook 1952/1976, Cairo, October 1977 (in Arabic).
2 - National Bank, Economic Bulletin, nos 1 and 2, volume 44, Cairo 1991 (in Arabic).

The growth in the agricultural sector's contribution to the GDP of market sectors is explained by price liberalisation policies being implemented more rapidly in agriculture than in other sectors such as industry, electricity or oil.

There have, moreover, been major fluctuations in the oil sector: its share in GDP increased greatly between 1980 and 1985/86 (+653.8%), but there was a marked decline in 1991/92 to only 49.3% of its 1985/86 value.

At the same time, the productive services sector[5] has grown rapidly: +1080% in 1991/92 as compared to 1980, as against a 628% increase for agriculture over the same period.

4- The market sectors are: agriculture and irrigation, industry and mines, oil and petroleum products, construction and public works, electricity.

5- The productive services sector comprises: transport and communications, the Suez Canal, commerce, finance and insurance, tourism.

1.2.2. Investment in agriculture and irrigation

Investment is an important indicator reflecting the importance of the agricultural sector. Table 2 shows the change in the relative size of investments in agriculture and irrigation over the period 1969/70 to 1991/92.

Table 2 - Investments in agriculture and irrigation as a percentage of total investments

Year	% of investment in agriculture and irrigation
1969/70	15.8
1975	7.6
1980	9.5
1985/86	6.0
1991/92	7.3

1 - Central Agency for General Mobilisation and Statistics, Statistical Yearbook 1952/1976, Cairo, October 1977 (in Arabic).
2 - National Bank, Economic Bulletin, nos 1 and 2, volume 44, Cairo 1991 (in Arabic).
Source :

We see that investment in agriculture and irrigation fell markedly in relation to total investment between 1969/70 and 1991/92: from around 15.8% of the total to 7.3% of the total.

This low level of investment, at odds with the relative importance of the sector in the breakdown of GDP, is explained by several factors:

- the inadequacy of the State budget to meet investment requirements,
- agricultural policies, especially price policies, that discourage investors,
- the low return on investments in agriculture as compared to other sectors where the return on capital is quicker and the risk lower, such as in commerce, finance and tourism.

1.2.3. Employment in the agricultural sector

Agriculture is still the sector absorbing the most labour: in 1989/90 it employed 4.7 million persons or 32% of the total working population.

Having said that, we find that this capacity to absorb labour has declined slightly over the last ten years, especially by comparison with other sectors.

Table 3 - Number of persons employed in agriculture and in the Egyptian economy as a whole (millions)

Year	Agriculture	Economy as a whole	Agriculture as % of economy as a whole	Agriculture index 1969/70=100	Egyptian economy index 1969/70=100
1969/70	4.048	8.275	48.9	100.0	100.00
1975	4.218	9.430	44.7	104.2	114.0
1980	4.193	11.057	37.9	103.2	133.6
1985/86	4.480	12.006	37.3	110.7	145.1
1990/91	4.664	13.248	35.2	115.2	160.1

Source :
1 - As Tables 1 and 2.

Table 3 shows the decline in the relative importance of agriculture at the start of the 1980s: employment in the agricultural sector fell in 1980 as compared to 1975.

The main reason for this is the massive migration of Egyptian labour to the oil-producing Arab states starting in the mid 1970s.

During the 1980s the annual rate of growth in employment in the agricultural sector did not exceed 1.1%, which is low by comparison with other sectors of the economy.

This period in fact witnessed a development of production techniques and a spread of mechanisation.

To this should be added the decline in investment in the agricultural sector and the existence of employment opportunities in other sectors or abroad (migration to the oil-producing countries).

The average annual wage in a sector of economic activity is an indicator both of that sector's capacity to create added value and of the intensity with which labour is used.

Table 4 shows that agricultural wages remain lower than wages in other sectors because of hidden unemployment and the large amount of unskilled labour in agriculture.

Table 4 - Agricultural wages as compared to wages in other sectors (%)

Year Sector	1986/87	1990/91
Industry and mines	33.4	27.4
Oil and petroleum products	8.9	6.8
Building and Public Works	48.8	41.8
Electricity	19.9	22.2
Transport and telecommunications	29.1	9.1
Suez Canal	13.7	-
Commerce	27.5	-
Finance and insurance	50.1	25.1
Tourism, catering, hotels	33.7	33.2
Real estate	107.2	113.6
Public Services	30.7	30.2
Social services	56.5	56.5
Social security	28.7	-
Administration	27.6	26.3
Average	**41.9**	**39.4**

Source :
1 - National Bank, as tables 1 and 2.

It must be emphasised that agricultural wages declined by comparison with wages in several sectors in 1989/90 as compared with 1986/87. This is connected with the decline in migration and the return of many agricultural workers. On the other hand, the limited rise in agricultural wages is connected with a slight increase in the number of jobs available in the agricultural sector following the increase in jobs available in the public sector in the 1980s.

1.2.4. Labour productivity in the agricultural sector

Labour productivity in the agricultural sector is the lowest of all sectors, as Table 5 shows.

Table 5 - Agricultural labour productivity as compared to labour productivity in other sectors (%)

Year Sector	1980/81	1986/87	1989/90
Industry and mines	55.9	50.5	22.0
Oil and petroleum products	0.6	3.7	3.6
Building and public works	68.9	32.2	34.4
Electricity	37.5	29.6	25.8
Transport and telecommunications	-	-	-
Suez Canal	30.8	30.5	28.2
Commerce, finance, insurance	33.5	25.5	23.3
Tourism, catering, hotels	46.9	69.0	29.0
Housing and public services	52.7	69.4	44.0
Social services	116.3	100.3	121.6
Administration and social security	91.6	67.6	61.2
Total (incl. agriculture & irrigation)	**55.1**	**57.8**	**43.5**

Source :
1 - National Bank, as Tables 1 and 2.

The low labour productivity in agriculture is due to a high use of labour in relation to capital and to the low value of the sector's output, in turn the result of its relatively low prices.

Table 5 shows that the general trend is for a decline in labour productivity in agriculture, except in 1986/87.

1.2.5. The trade balance, the agricultural balance and the food deficit

Up until 1973 agriculture was the only sector in the economy to be in surplus in the balance of trade, the surplus for that year being estimated at $369.5 million.

From 1974 the agricultural trade balance began to show a deficit, which grew from $223.6 million in 1974 to $2,783.1 million in 1990.

The agricultural sector now accounts for a major part of the trade deficit: about 92.2% in 1980, 48.7% in 1985 and 39.9% in 1990.

Table 6 - Trade balance and agricultural balance (in $ millions)

Year	Trade balance	Agricultural balance	Agricultural balance as % of trade balance
1973	+ 208	+ 369.5	+ 177.6
1980	- 1 814.6	- 1 673	- 92.2
1985	- 6 249.2	- 3 048.2	- 48.7
1990	- 6 968	- 2 783.1	- 39.9

Source: Calculated from Tables 9 and 10 appended

Table 6 shows the development of trade surpluses and deficits in the commercial balance and the agricultural balance between 1973 and 1990.

The continuous increase in the agricultural trade deficit is the result of the stability and then decline in agricultural exports in the late 1980s and early 1990s as compared to their level in the 1970s.

On the other hand, the value of agricultural imports increased over the same period: from $214 million in 1970 to $3,263.8 million in 1990. This massive increase in agricultural imports is the consequence of the growing deficit in several agricultural products, as Table 7 shows.

Table 7 - The rate of deficit in agricultural products

Year Product	1974	1980	1991
Beans	- 6.7	- 14.1	- 20
Red meat	- 0.3	- 15.0	- 13
Maize	- 13.4	- 12.6	- 13
Lentils	- 5.2	- 90.8	- 82
Poultry	- 0.9	- 35.8	- 2
Rice	+ 7.1	+ 3.6	+ 12
Sugar	- 14.0	- 43.0	- 38
Oil plants	- 67.7	- 66.0	- 87
Wheat	- 58.4	- 75.2	- 58

Source :
1 - Ministry of Agriculture, Cairo.
2 - American Embassy, Agricultural Situation, Annual Report, EG 20014, Cairo, Egypt, October 1992

1.3. THE CHARACTERISTICS OF THE AGRICULTURAL SECTOR

1.3.1. Area under crop

The principal characteristic of Egyptian agriculture is the very small size of the cultivable area irrigated by water from the Nile.

Egypt has a total area of around 1 million km2, but the cultivable area is 2.61 million ha or 2.6% of the total area of the country in 1990, as Table 8 shows.

Table 8 - Total area and agricultural area by land use
(in thousand ha)

Year	Total area	Area under crop	Area under non-permanent crops	Area under permanent crops		Area irrigated by the water of the Nile
				Crops	Forests	
1970	100 145	2 843	2 725	87	31	2 843
1975	100 145	2 825	2 691	103	31	2 825
1980	100 145	2 445	2 286	128	31	2 445
1985	100 145	2 497	2 305	161	31	2 497
1990	100 145	2 607	2 330	246	31	2 607

Source :
1 - FAO, Agrostat.

We note that the area under crop declined in relation to the total area between 1970 and 1990. The rapid growth in urbanisation at the expense of agricultural land on the one hand and the slowing down in the reclamation of new land on the other caused the area under crop to decline between 1970 and 1980.

During the 1980s we find that the area under crop increases again (without reaching the area at the start of the 1970s) as a result of an acceleration in the reclamation of new land and the halt to urbanisation on agricultural land (Law 116 of 1983).

Two types of agricultural land are distinguished according to the crops grown:

- the area occupied by non-permanent crops (non-permanent crops are those occupying the soil for less than a year), representing 89.4% of the total area under crops in 1990;

- the area occupied by permanent crops (those occupying the soil for more than a year), i.e. fruit crops (trees in particular) and forests.

Table 8 shows that the forest area has remained unchanged for more than 20 years, whereas the area given over to fruit crops has increased from 87,000 ha in 1970, or 3.1% of the total area under crops, to around 246,000 ha, or 9.4% of the total area under crops, in 1990.

This increase in the areas given over to fruit crops is the result of the growing demand for fruit in consequence of:

- the change in patterns of consumption following urbanisation and the drift from the land;

- the growth in households' real incomes as a result of transfers of wages by Egyptian workers in oil-producing countries.

The very small size of the agricultural area and its decline between 1970 and 1990 have resulted in a major drop in the average amount of agricultural land per inhabitant and a lesser decline in the average amount of such land per agricultural worker, as Table 9 shows.

Table 9 - Average amount of agricultural land per inhabitant and per agricultural worker

Year	Area under crop (1000 ha)	Total population (1000s)	Population employed in agriculture (1000s)	Average amount per inhabitant	per agricultural worker
1970	2 834	33 053	4 765	0.09	0.59
1975	2 825	36 289	4 902	0.08	0.58
1980	2 445	40 875	5 133	0.06	0.48
1985	2 497	46 511	5 506	0.05	0.45
1990	2 607	52 426	5 880	0.05	0.59

Source :
1 - FAO - Agrostat.

Despite efforts to bring new land under cultivation, outside the Delta and the Nile Valley, the outlook for increasing the cultivable area seems limited because of a number of factors, such as:

- the scarcity of water resources
- the large investments required, especially in infrastructure
- the lack of motivation to invest in agriculture
- the administrative bureaucracy in the management of desert land.

In addition, the rampant and uncontrolled expansion of urban centres at the expense of agricultural land reduces the effects of bringing new land under cultivation.

It is thought that between 1952 and 1988 625,630.25 ha (1,469,000 fedd.) were reclaimed. If the agricultural land lost to urban development during the same period is taken into account, it is thought that the cultivable area has in reality increased by only around 400,000 ha.

1.3.2. Water resources

Egyptian agriculture is totally irrigated. The oldest and commonest system of irrigation in the old lands (delta and valley) is surface irrigation. The efficiency of this system is limited, since it wastes water and increases the salinity of the soil and the level of the groundwater.

Sprinkler and drip irrigation are found in the new areas. Getting these two systems more widely used is proving difficult, even though they are more efficient and more economical in their use of water, because it requires major investment, is up against the fragmentation and small size of farms, and, finally, is encountering technical problems as regards adaptation to the various cropping systems.

This totally irrigated agriculture suffers from the scarcity of water resources and its total dependence on the water of the Nile.

The statistics do not give any reliable figures on rainfall; estimates of the volume of deep ground water put it at 0.5 billion m^3 in 1990. The surface ground water consists essentially of Nile water that has soaked into the Delta and the Valley; this was estimated at around 2.6 billion m^3 in 1990.

Tables 10 and 11 give estimates of the available and potential resources and of current and future needs for the period 1990 - 2000.

Table 10 - Available and potential water resources

Source	Quantity in billion m^3 *1990*	Potential resources in m^3/year *2000*
- Nile water	55.5	57.5 (after first phase of Jongly Canal)
- Surface ground water (Nile Valley and Nile Delta)	2.6	4.9
- Drainage water	4.7	7.0
- Treated waste water	0.2	1.1
- Savings resulting from irrigation management programmes	-	1.0
- Deep ground water	0.5	2.5
Total	63.5	74.0

Source : ABOUZEID M., Water Research Center, Ministry of Irrigation, Cairo, 1992.

Table 11 - Present and future water requirements

Use	Quantity in billion m^3 *1990*	Potential needs in m^3/year *2000*
- Irrigation	49.7	59.9
- Drinking water	3.1	3.1
- Industry	4.6	6.1
- Shipping and maintenance of water level in the river	1.8	0.3
Total	59.2	69.4

Source : ABOUZEID M., Water Research Center, Ministry of Irrigation, Cairo, 1992.

We see from these data that the difference between resources and requirements is small. The estimates for the year 2000 depend on the completion of a number of projects both in Egypt and elsewhere, for example, the Jongly Canal project in Sudan, the first phase of which will make 2.3 billion m^3 available.

Projects to improve the drainage network will also increase the available resources of drainage water by 2.3 billion m^3, whilst deep ground water resources will reach 2.5 billion m^3 (or an increase of 2 billion m^3), and finally, improving irrigation management will enable significant amounts of water to be saved.

Most, if not all, of these projects are affected by political or regional factors. Some (like those for reusing drainage water and improving irrigation management) depend on major investments being made.

In the light of this, it seems possible that some of these projects will not be undertaken, or will be undertaken only in part. This means that the estimated difference between needs and resources given above may become greater and even become a cause for concern.

The water of the Nile therefore remains the main resource. The average amount of this resource per inhabitant fell from 1652 m^3 in 1970 to 1000 m^3 in 1990, and is expected to reach 690 m^3 in the year 2000.

The limited water resources present problems and raise fundamental questions. Some of these are political: they concern Egypt's role in the region and its relations with the neighbouring countries of the Nile Basin, Sudan and Ethiopia in particular.

Other problems are more technical: for example the problem of the choice of cropping system and whether to go for crops or varieties that use less water, making water resources the determining factor instead of area.

The importance of this subject may be measured by underlining the fact that agriculture used about 84% of available water resources in 1990.

The problems presented by water are also linked to the possibility of raising the necessary investments for carrying out the projects to improve resources management and limit water losses, estimated in 1990 at 50% of the total volume and 20% in the year 2000[6].

6- Dr. ABUZEID, M. (1992), Water Resource Assesment For Egypt. Water Research Center...

A number of proposals are under discussion for raising the necessary investment: for example, charging for irrigation water or requiring users to share in the costs of the irrigation management improvement projects referred to above.

1.3.3. Agricultural production and farm income

There have been no statistics on farm income in Egypt since 1986. Taking the 1986 data and comparing them with those for 1976, we find that the values of both agricultural production and farm income have changed.

Table 12 shows the change in the relative sizes of the various components of agricultural production.

Table 12 - The various components of agricultural production as % of farm income

Components of agricultural production	1976	1986
1. Plant production of which:		
Large-scale arable crops	51.1	40.2
Vegetables	14.5	14.2
Fruit	5.5	8.2
Flowers and medicinal plants	0.05	0.7
Total	*71.6*	*63.6*
2. Animal production of which:		
Red meat	12.9	10.2
Poultry	3.8	6.4
Milk	9.5	9.2
Eggs	1.9	5.5
Virgin wool	0.1	0.1
Honey	0.2	0.2
Fishing	28.4	31.6
TOTAL	**100.0**	**99.9**

Source :

1 - Ministry of Agriculture, Bulletin of Agricultural Economics, Department of Agricultural Economics, Cairo, 1989.

2 - Bulletin published by the Agro-Economics Research Institute, volume 1, 1978 (in Arabic).

From the data in this table we notice:

- the absence of a production value for fishing in the 1976 data
- the relative decline in plant production in general, with the exception of fruit production, in 1986 as compared to 1976.

This decline may be explained:

- firstly by the fact that the 1986 data include the value of fishing production, which increased the value of animal production as compared to plant production;

- and secondly by the increase in animal production and especially of eggs and poultry, poultry production having increased significantly in the period 1976 to 1986, increasing the rate of self-sufficiency as a result.

Turning to farm income (defined as the added value obtained after subtracting production factor costs from the value of production), we find that plant production occupies an important place in the composition of farm income: it represents 86.6% of farm income, whilst animal production (not including fishing) represents only 13.2% of farm income according to the 1986 data.

The importance of the value of plant production is due to the low value of those production factors: only 8.2% of the total value of plant production.

In the case of animal production, the value of production factors represents about 72.2% of the total value of animal production according to the 1986 data.

1.3.4. Farm structures, and the recent change in the law on tenant farming:

Farm structures are one of the main features of the structure of agricultural production in Egypt.

On the basis of the last agricultural census in 1982 and estimates for 1989 we can emphasize the following points:

- by far the majority of farms are smallholdings of less than 5 fedd. (or 2.1 ha), and microholdings of less than 2 fedd. (or 0.84 ha) make up 57.5% of the total number of farms, as Table 13 shows.

Table 13 - Number of farms classified by area (%)

Area class	% of farmers	% of area
<0.42 ha	41.62	6.0
<0.84 ha	38.28	28.5
<2.10 ha	15.65	17.8
from 2.10 to 4.20 ha	3.05	21.83
from 4.20 to 8.40 ha	0.41	7.91
from 8.40 ha to 42 ha and over	0.92	17.22
Total	**100.0**	**100.0**

Source :
1 - Ministry of Agriculture, General Agricultural Census, 1981/1982.

- farms, especially micro and smallholdings, are very fragmented. Plots are very small in size and very scattered. The total number of plots in farms smaller than 3 fedd. (i.e. 1.26 ha) is 3.6 million plots with an average of 1.9 plots per farm.
  The unit of cultivable area is therefore very small, preventing the spread of mechanisation and the modernisation of farming practices.

- one of the social characteristics of farmers in Egypt is the high rate of illiteracy among them as well as the large number without any professional qualifications and who are scarcely able to read or write.

  This proportion increases as the size of the farm declines: the illiteracy rate among very small farmers (less than 2 fedd. or 0.84 ha) is 59.5%.

  Those who are able to read and write form 38% of the total number of farmers and 36% of smallholders. This situation is clearly a handicap for the spread of new techniques among farmers.

- the land tenure structure is characterised by a high rate of concentration according to the GINI coefficient, which reaches 0.487, and as Table 13 shows, since 10% of farmers controlled 48.5% of the country's total agricultural area in 1981/1982.

- the general characteristic of farming in Egypt is the variety of legal forms involved. However, these legal forms have been highly stable since the Agrarian Reform Law of September 1952, which gave a legal framework to tenant farming and share farming, these two forms covering 14% of the total agricultural area in 1981/1982 and the other legal forms 20.5%.

During the second half of the 1970s a great debate was opened around the need to free rents and allow the rental value to be determined by the market instead of being fixed by law as hitherto.

As a result of this debate, rentals were increased, but were still not determined by supply and demand, and the legal forms of land rental have not been changed.

In the mid 1980s the debate on the need to free rents was reopened. It led to the promulgation of a law amending the position in two important respects:

- with effect from the 1992/1993 season, the rental value will be equal to 22 times the land tax and no longer 7 times as before,

- after a period of 5 years reckoned from January 1993, landowners will have the right to recover land let out to tenant farmers and to cancel contracts with farmers. The rental value will then be set by supply and demand.

It is not difficult to foresee the effects of such changes on farming structures in the country: a decline in indirect types of tenure in favour of direct types, a concentration of agricultural land, and the departure of a large number of farmers from their farms to become farm workers.

1.3.5. - The cropping system and the area harvested

Egyptian agriculture is one of the most intensive agricultures in the world from the point of view of the use of the surface unit, which is cultivated two or three times a year.

Table 14 shows the difference between the area under crop and the area harvested, and the degree of intensification.

Table 14 - Area under crop, area harvested and rate of crop intensification per unit area (in thousand ha)

Year	Area under crop	Area harvested	Rate of crop intensification
1970	2 834	4 552	1.61
1975	2 835	4 692	1.66
1980	2 445	4 674	1.91
1985	2 497	4 703	1.88
1990	2 607	4 861	1.86

Source :
1 - FAO, Agrostat.
2 - Ministry of Agriculture, Department of Agricultural Economics.

We see that the area harvested is constantly increasing, except for 1980, and that the rate of crop intensification per unit area increased from 1.61 in 1970 to 1.86 in 1990, with a peak of 1.91 in 1980.

There are several reasons for this phenomenon, including the reduction in the area on which cotton is grown, a crop which occupies the ground for quite a long period (8 months a year). The drop in the rate of intensification in 1990 as against 1980 is due to the increase in fruit-growing areas (especially trees).

Looking at the breakdown of the area harvested, we find the following for the various groups of crops (Table 15):

1 - Cereal crops:

These occupy the largest part of the area harvested in the period 1970 to 1991. Although cereal crops are always in first place, we also find that the area under cereals varies: up until 1984 the cereals area is stable, then it declines in 1985/1989, falling to 40.7% of the area harvested, increasing again in 1990/1991.

The main cause of this fluctuation is the marked increase in the area under wheat and rice. This increase is the result of:

- the rise in the purchase price paid to producers for wheat, taking it above international prices, following the abolition of the bread subsidy,
- the partial removal of rice from the compulsory supply system in 1990.

2 - Fodder crops:

These occupy second place, and consist mainly of berseem (or lucerne). We find that the area involved is stable, except for the year 1990/1991.

Indeed, as a result of the increased profitability of wheat, the main winter crop in competition with berseem, the area on which the latter is grown has declined. Moreover, the increase in animal production costs resulting from the very large increase in the price of fodder has caused many farmers, especially the smaller ones, to abandon livestock.

3 - Fibre crops:

This group of crops comes in third place and consists mainly of cotton. The area on which these crops are grown has declined steadily in recent years, from 14.5% in 1970/1975 to 9.5% in 1990/1991.

The decline in the area given over to cotton is mainly the result of the fall in this crop's profitability as compared to competing crops.

4 - Market garden crops:

These are in fourth place, and their relative importance in the area harvested is increasing: the area of market gardens has risen from 6.7% to 9.9% following a dramatic rise in demand for vegetables.

The last few years have in fact witnessed a change in food consumption patterns. This change is the result of:

- the accelerated urbanisation caused by population growth and the drift from the land;
- the growth in real incomes of several strata of the population resulting from financial transfers from Egyptian workers who have emigrated to oil-producing countries.

5 - Fruit crops:

In the 1970s, fruit crops occupied 6th place after legumes. But as a result of the change in patterns of consumption referred to above, demand for fruit has increased and the area under cultivation has grown in consequence. Fruit crops currently occupy 5th place in the cropping system.

6 - Legumes:

These have therefore been in 6th place since the 1980s with 3.2% of the area harvested.

The stability in the areas given over to legumes is explained by their unchanging yields and keen competition from imported produce.

7 - Sugar crops

These are relatively unimportant from the point of view of the area under cultivation and their place in the cropping system, despite a measure of increase in recent years: the area under sugar crops has risen from 1.8% to 2.7%.

In the case of sugar cane, this increase in the area under crop is due to the intervention of the State, which determines the area to be cultivated on the basis of contracts with producers to purchase all their production and process it in public sector refineries. Apart from this, the expansion in sugar beet growing has caused the areas given over to sugar crops to increase.

8 - Oil plant crops:

These are the least important in the cropping system. It must be stressed that cotton, included among fibre crops (or industrial crops) is the first oil plant crop, since it provides 80% of local vegetable oil production. One of the reasons for the decline in these crops is the low price level, in particular the price of soya, the area of which declined during the 1980s. Lack of experience on the part of producers is also limiting the development of these crops (see Table 15 on the next page).

Table 15 - Changes in area harvested by crop group (in ha)

Crop group	Year 1970/74		Year 1975/79		Year 1980/84		Year 1985/89		Year 1990/91	
		%		%		%		%		%
Cereals	1 916 858.0	41.8	2 016 860.6	42.9	1 994 941.7	42.6	1 919 471.9	40.7	2 247 469.4	46.2
Legumes	164 464.0	3.6	144 954.3	3.1	137 754.1	2.9	158 942.7	3.4	154 269.2	3.2
Fibres	665 293.9	14.5	561 968.8	12.0	478 687.1	10.2	448 046.3	9.5	402 914.2	8.3
Sugar crops	82 925.6	1.8	101 308.5	2.2	110 858.2	2.4	128 550.8	2.7	128 839.7	2.6
Oil plants	41 455.3	0.9	54 676.9	1.2	83 041.9	1.8	78 242.4	1.7	31 087.1	1.9
Fodder crops	1 285 816.1	28.1	1 290 284.7	27.4	1 278 084.9	27.3	1 258 534.3	26.7	1 125 683.4	23.1
Fruit	115 835.5	2.5	115 421.9	2.5	167 873.4	3.6	258 484.8	5.5	234 629.2	4.8
Vegetables	308 577.4	6.7	392 108.1	8.3	432 605.3	9.2	468 000.0	9.9	480 858.0	9.9
Total	4 581 225.7	100.0	4 701 546.4	100.0	4 683 846.8	100.0	4 718 693.2	100.0	4 865 750.0	100.0

Source:
1 - Ministry of Agriculture, Cairo, Egypt.

1.3.6. Use of chemical fertilizers

The level of use of chemical fertilizers is an important indicator of the growth in productivity and agricultural production.

In Egypt, the perennial irrigation by the water of the Nile and the fact that the land is cultivated two or three times a year have produced a growing demand for chemical fertilizers.

Indeed, among under-developed countries and even by comparison with some developed countries, Egyptian agriculture is considered one of the agricultures with the highest consumption of fertilizer per unit area, as Table 16 shows.

Table 16 - Average quantity of fertilizer used per unit area in Egypt and other countries (kg/ha)

Country or group of countries	1970/71	1989/90
Egypt	131.2	404.3
Low income countries	17.8	94.6
Middle income countries	36.3	69.3
Sub-Saharan Africa	3.3	8.9
East Asia and Pacific	36.4	190.3
South Asia	13.5	68.9
Europe	87.8	142.4
Latin America and Caribbean	20.1	46.8
United Kingdom	263.1	350.2
France	243.5	319.2
Germany	384.4	370.5
Canada	19.1	47.2
U.S.A.	81.6	98.5
Japan	354.7	417.9

Source :
1 - World Bank, World Development Report, Oxford University Press, 1992, p.225.

One of the factors explaining the increase in the use of fertilizers is the sale of fertilizers to producers at subsidised prices.

Now, as part of the economic reform policies (structural adjustment programme), the fertilizer subsidy has just been abolished, which has recently resulted in a major increase in fertilizer prices.

According to some researchers, Egyptian agriculture uses more fertilizer than it actually needs, causing water and soil pollution problems.

Although the drop in the use of fertilizers consequent on the price rises may have beneficial effects on the environment, it is also likely to have negative effects on productivity.

1.3.7. Mechanisation

Until the end of the 1960s, agricultural equipment was dominated by rudimentary hand tools and implements essentially based on animal draught (ploughing, irrigation and threshing work).

From the 1970s there was a major increase in mechanised equipment replacing men and animals, and certain traditional tools such as the "sakieh" or the "noria", the plough and the "shadouf" have disappeared.

Table 17 - Estimated rate of replacement of traditional tools by mechanisation

Agricultural work	1979 estimate	1982 estimate	1990 estimate	1990 as % of 1979
Ploughing	51	90	95	56.3
Weeding	51	75	90	76.5
Irrigation	58	62	70	20.7
Threshing	35	80	95	171.4

Source :
1 - M. ABOUMANDOUR, The Egyptian agricultural labour force and its future. Paper presented at the Congress on Agricultural Policies in Egypt, jointly organised by the FAO and the Ministry of Agriculture, Cairo, January 1992 (in Arabic).

From the data in Table 17 we find that some agricultural work has been almost completely mechanised, as for example ploughing, threshing and weeding.

The advance in mechanisation is also measured by the horse-power: this grew from 1.2 million h.p. in 1970 to 6.9 million h.p. in 1989 for the same area under crop.

It is worth stressing that this mechanisation of Egyptian agriculture did not in reality reduce the demand for human labour in the period of labour shortage experienced by the country from the mid 1970s to the mid 1980s (result of migration to oil countries). It can be inferred that mechanisation has mostly replaced the animal workforce.

The spread of mechanisation is likely to depend on research and development processes capable of creating appropriate technologies. But there is a lamentable lack of such processes and the technical and institutional back-up. As a result, agricultural machinery has been diverted and underused even on large farms, which, for example, have been unable to make mechanised harvesting the norm even today.

Moreover, the reform policies currently in place raise fundamental questions about the mechanisation of agriculture. The devaluation of the Egyptian pound (the national currency), the rise in energy and fuel prices, and the abolition of subsidies have caused mechanisation costs to rise by 300% as compared to the end of the 1980s.

At the same time, unemployment is increasing in the countryside for various reasons, including the return of Egyptian emigrant workers from oil-producing countries. The combination of these two factors raises the question of the future of mechanisation and the conditions for it.

1.3.8. Main crop yields

In the case of Egyptian agriculture, which is an irrigated agriculture making intensive use of inputs, the productivity per unit area is high compared to the international level.

Table 18 - Classification of the productivity of certain crops in Egypt as compared to the rest of the world (in 1985)

Crop	Classification	Crop	Classification
Cotton	3	Beans	3
Wheat	14	Lentils	1
Rice	4	Sesame	1
Maize (ZEA Maize)	1	Sugar cane	2
Onions	5	Maize	12

Source :
1 - Ministry of Agriculture, Bulletin of Agricultural Economics, Department of Agricultural Economics, Cairo 1989 (in Arabic).

Despite the high yields on several crops, there is still much to be done to improve the yields of certain crops such as wheat and maize. Increasing yields and productivity is coming up against many problems, including:

- the lack of improved seeds and high-yield varieties
- inadequate extension work
- the deteriorating economic and social conditions of farmers, reducing their ability to adopt new techniques and put them into practice.

CONCLUSION

Egyptian agriculture is characterised by the coexistence of tradition and modernity.

On the one hand, it is a traditional agriculture as regards the domination of small family farms and the economic and social characteristics of farmers.

On the other hand, it is an agriculture that may be described as modern if we look at the level of intensification, the use of inputs, mechanisation and the yields of certain crops.

It is also distinguished by being totally dependent on irrigation and by the limited natural water resources and land available.

CHAPTER II - PRODUCTION, CONSUMPTION AND TRADE IN THE MAIN AGRICULTURAL PRODUCTS

Analysis of the trends in production, consumption and trade in the main crops and animal products gives us a better understanding of the essential ingredients in the transformation that the agricultural sector in Egypt is undergoing and its prospects for development.

SECTION I - PLANT PRODUCTION

The main crops to be examined below were selected according to the following criteria:

- to be representative of the cropping system (pattern crop)
- the relative importance of each crop from the point of view of the area occupied within each group of crops
- to be representative of the crops that are important as staple foods and for industry
- the relative importance of each crop in trade.

The crops chosen are as follows:

- cereals: wheat, maize and rice
- fodder: berseem (or lucerne)
- legumes: beans
- oil plants: soya
- industrial crops: cotton, sugar cane
- vegetables: tomatoes, potatoes, onions
- fruit: oranges and grapes.

The total area occupied by all these crops represents 78.1% of the area harvested in the period 1989 to 1991.

1. CEREALS

1.1. WHEAT

Wheat is the most important food crop in Egypt, despite occupying second place among cereals after maize for area (yellow maize or nili). According to 1985 data, wheat represents 28.9% of the calories consumed per person per day[7].

Moreover, wheat was and is still considered a strategic crop in view of its importance as a staple food, but also because of its growing importance in the country's imports (in both value and volume terms), since Egypt is now the 3rd largest wheat importer after the former USSR and China.

7- Ministry of Agriculture, Department of Agricultural Economics, Economics Bulletin, 1989.

Indeed, wheat imports are a very heavy burden on the trade balance: in 1990 such imports amounted to $1.063 million or 28.7% of the total value of agricultural imports[8].

A - Area under crop

As Table 19 shows, the area given over to wheat was relatively stable between 1975 and 1983. It varied little (between 554 and 588 thousand ha) except in 1977, when it fell to 507 thousand ha.

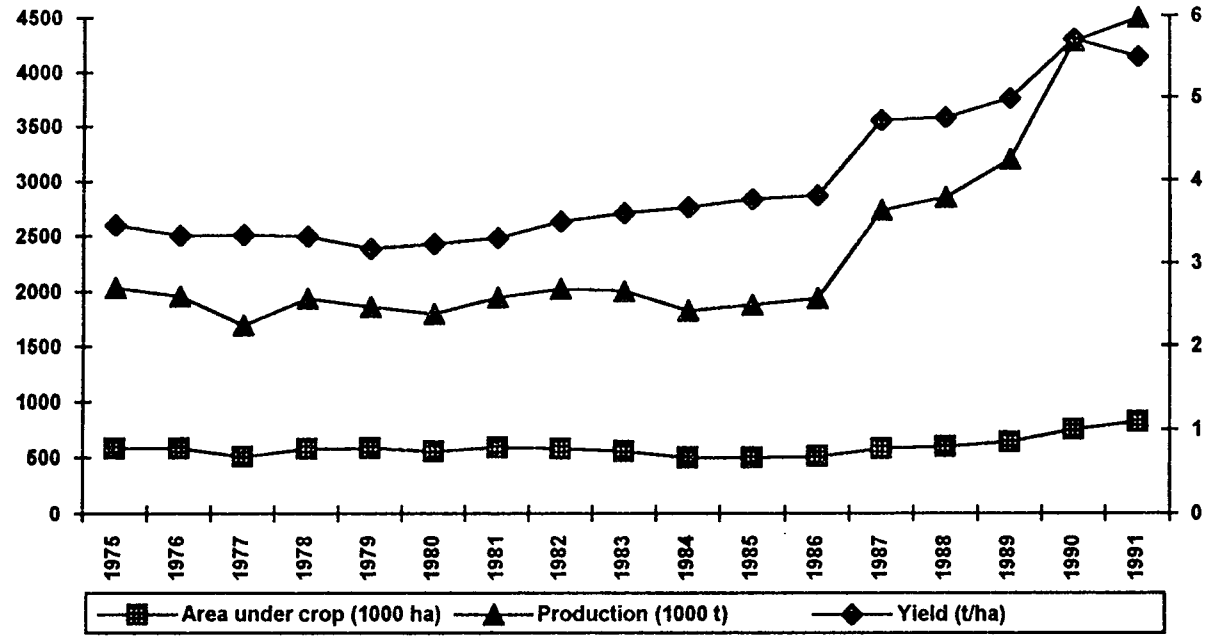
The area on which wheat was grown dropped in 1984 and 1985 to less than 1/2 million ha. It has risen steadily since 1987, with particularly high growth rates in 1990 and 1991, when it reached 816 thousand ha.

Table 19 - Trend in area under crop, yield and production of wheat

Year	Area under crop (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	585	3.47	2 033
1976	586	3.34	1 960
1977	507	3.35	1 697
1978	580	3.33	1 933
1979	584	3.18	1 856
1980	557	3.23	1 796
1981	588	3.30	1 938
1982	577	3.50	2 017
1983	554	3.60	1 996
1984	495	3.67	1 815
1985	498	3.76	1 872
1986	507	3.81	1 929
1987	577	4.72	2 722
1988	597	4.75	2 839
1989	637	4.99	3 183
1990	746	5.72	4 268
1991	816	5.50	4 483

Source: Ministry of Agriculture, Cairo, Egypt.

[8]- American Embassy, Cairo, Egypt, Agricultural Situation Report, Annual Report EG 2.14, 1992.



There are several reasons for the stability in the area under crop and in wheat yields observed between the mid 1970s and the mid 1980s:

- during that period prices for berseem (the main winter crop competing with wheat) were much higher than those for wheat, for which there was a system of compulsory supply to the State;

- the use of high-yield varieties was not yet widespread;

- the subsidy on industrial bread and imported wheat made farmers prefer to buy and consume subsidised industrial bread and wheat rather than produce wheat at costs higher than the subsidised prices.

During those last two years the level of subsidy fell dramatically, greatly increasing the price of wheat flour. The weight of a loaf of bread dropped from 160 g to 130 g for the same price, causing de facto a further increase in the price of bread.

Following the abolition of subsidies referred to above, and State intervention to increase the purchase price for wheat paid to producers, wheat has become a profitable crop and the area given over to it has increased.

The price paid to local producers has in fact risen above the international price: the purchase price set by the State is 450 EP/tonne, whereas the price of wheat on the international market is $120/tonne or only 397 EP/tonne.

Nevertheless, the prospects for increasing the area under wheat remain limited, mainly because of the shortage of suitable land and competition from berseem, the main fodder crop. It is therefore believed that the area under wheat could not exceed 840 thousand ha (or about 2 million fedd.).

B - Yield:

Wheat yields in Egypt are not very high. They have varied between 3.18 tonnes/ha in 1979 and 5.5 tonnes/ha in 1991.

After a period of fluctuation during the 1970s, yields started to increase regularly at the start of the 1980s, reaching the highest level of 5.72 tonnes/ha in 1990.

This improvement in productivity is the result of the use of high-yield varieties and improved seeds becoming more widespread and of the effective combatting of diseases.

Today, what little scope there is for increasing yields further will depend particularly on the use of new technologies to produce new varieties, and on the effectiveness of the extension services.

C - Production:

Wheat production increased by 120.5% in 1991 as compared to 1975, and 149.6% as compared to the lower output recorded in 1980 (1796 thousand tonnes).

This major increase in production has reduced the wheat deficit and improved the self-sufficiency rate, so that wheat imports have fallen (cf. Table 7).

The prospects for increasing wheat production are limited in particular by the lack of agricultural land. They will also depend on efforts to improve cultivated varieties and on progress in research in this field.

D - Consumption:

Wheat consumption has increased. Average consumption per person rose from 134.1 kg in 1981 to 186.7 kg in 1989/90.

Average consumption of flour per person has also increased: from 25.2 kg a year in 1980 to 37.1 kg a year in 1983/84, subsequently falling to 17.5 kg in 1989/90.

Taking the average consumption of wheat and flour together, however, we can say that it increased in 1990 as compared to the 1980 level.

The subsidy on wheat and industrial bread in the 1980s, the change in consumption patterns resulting from the flight from the land (maize is eaten in the countryside, wheat in the towns), and the rise in the price of the maize used as fodder explain the increase in demand for and consumption of wheat.

E - Trade:

Wheat and flour imports:

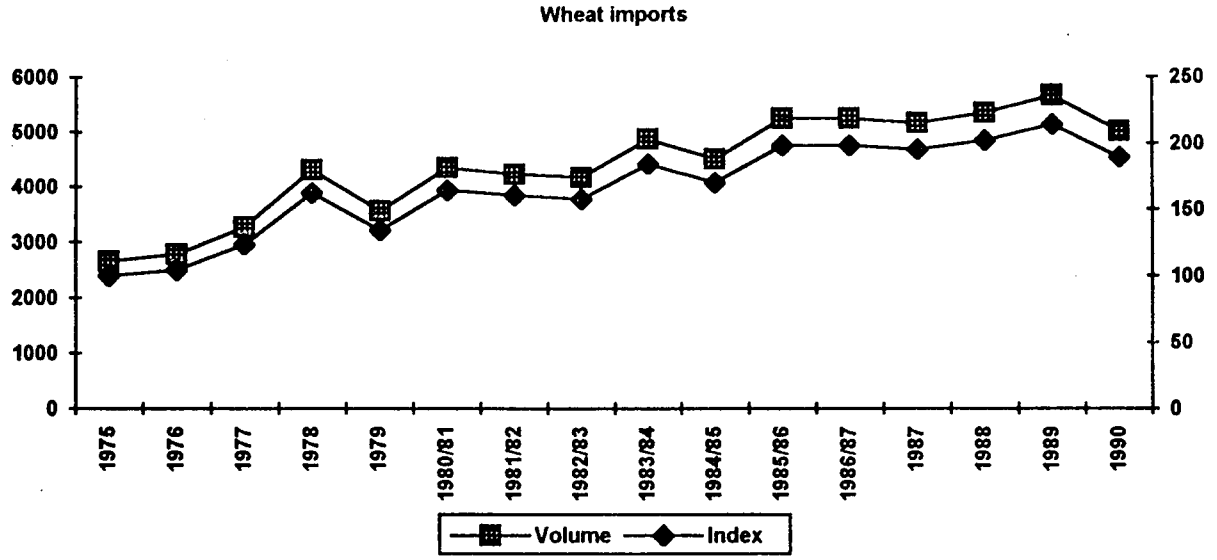
During the 1970s and up to the end of the 1980s the volume of wheat imports increased constantly, reaching its highest level in 1989.

Table 20 - Wheat and flour imports (1000 tonnes)

Year*	Wheat imports		Flour imports	
	Volume	Index	Volume	Index
1975	2 650	100	733	100
1976	2 779	104	541	74
1977	3 269	123	655	89
1978	4 302	162	1 072	146
1979	3 561	134	1 029	140
1980/81	4 344	164	1 384	189
1981/82	4 229	160	1 170	160
1982/83	4 164	157	1 468	200
1983/84	4 869	184	1 799	245
1984/85	4 508	170	1 760	240
1985/86	5 240	198	1 413	193
1986/87	5 240	198	1 413	193
1987	5 160	195	1 911	261
1988	5 341	202	1 500	205
1989	5 665	214	1 305	178
1990	5 013	189	719	89

*Being calculated from different sources, the data in the table are based on calendar years and financial years

Source :
1 - Data for 1975 to 1985: A. ABDEIGHAFAR, Study of the wheat and flour economy, paper presented at the seminar "Wheat production strategy and its future in Egypt". Academy of Scientific Research and Technology, Cairo, September 1989.
2 - Data for 1987 to 1990: American Embassy, Cairo, Egypt, Annual Report, 1992.



The main exporters of wheat to Egypt:

Table 21 - Egypt's wheat imports and the main exporting countries

Country Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Volume of imports of wheat and flour (1000 t)	5 946	5 722	6 628	7 203	7 238	6 801	7 092	6 841	6 970	5 732
Exporting countries' share in %										
USA	42.0	41.7	58.6	31.2	32.9	44.6	48.5	56.1	57.0	33.8
EEC	24.5	15.3	21.5	29.0	23.7	15.6	18.8	13.2	17.2	33.8
Australia	27.1	36.1	16.7	30.4	32.6	31.1	31.2	29.2	25.8	28.5
Canada	2.9	2.7	1.6	9.2	9.2	5.1	1.4	-	-	-
Others	3.6	4.2	1.7	0.2	1.6	3.6	0.1	1.5	-	3.9

Source :
- 1981 - 1987: USDA Statistics, Washington DC.
- 1988 - 1990: American Embassy of Cairo, Egypt, Annual Agricultural Situation Report (89/92).

During the period from 1981 to 1989, imports of wheat from the United States represented 40% of the total volume of wheat imports. These imports reached their highest level in 1989 with 57% of the total volume of imports.

In 1990 the United States' share dropped in favour of increased imports from the EEC, representing 33.8% of the total volume of imports (same percentage for the United States).

Australia also occupies an important place in the structure of Egypt's wheat imports: imports of Australian wheat have varied between 25.8% (1990) and 36.1% (1983) of the total volume of wheat imports.

The important place occupied by the United States in wheat imports is due to the fact that Egypt enjoys a subsidised price through the aid to exports program (EEP) under which Egypt imports 1.5 million tonnes of wheat and 350,000 tonnes of flour.

Egypt also has payment facilities under law PL 480, since it enjoys a repayment period of 40 years.

Egypt also has an EEC export subsidy. In fact, France is the EEC's only exporter of wheat to Egypt. 40% of the total volume of imports from France (350,000 tonnes of wheat and 350,000 tonnes of flour) are subsidised.

So far as can be foreseen, the relative importance of the United States in the import structure will decline because of a reduction in the subsidies and payment facilities Egypt currently enjoys, following the decline in geopolitical importance of Egypt and of its role in the Middle East.

Moreover, the world trend towards the freeing of international trade and the abolition or reduction of export subsidies may bring about significant changes in international prices and cause imports from the United States to decline in favour of those from the EEC or Australia as a result.

1.2. MAIZE: (ZEA MAIZE)

Maize is the leading cereal crop in the cereals groups as regards the area under crop.

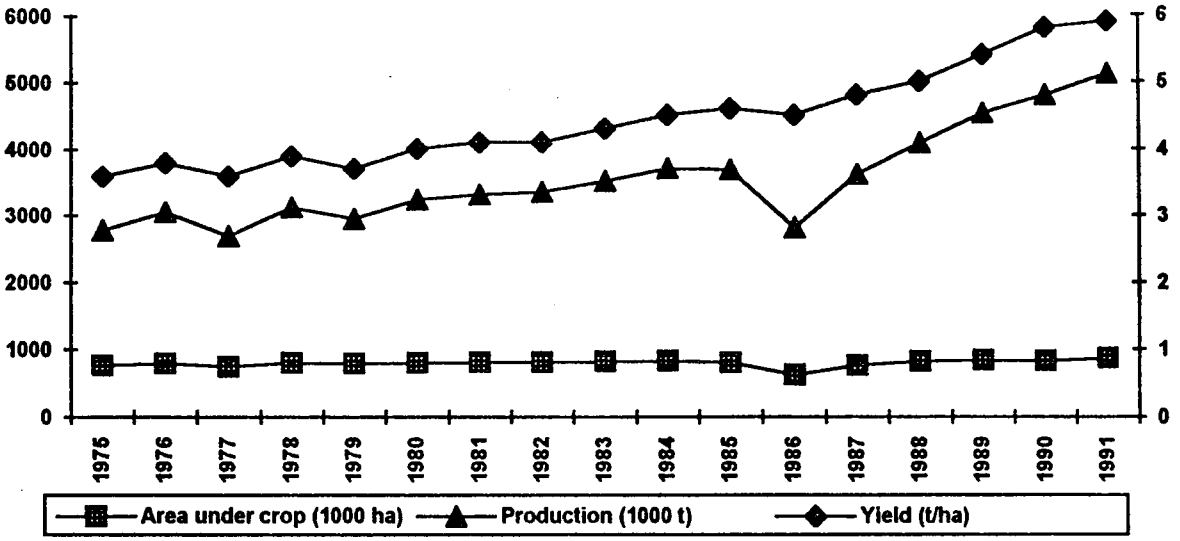
A - Area under crop:

Table 22 - Trend in area under crop, yield and production of maize

Year	Area under crop (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	768	3.6	2 781
1976	794	3.8	3 047
1977	741	3.6	2 690
1978	797	3.9	3 113
1979	792	3.7	2 940
1980	800	4.0	3 231
1981	808	4.1	3 308
1982	813	4.1	3 347
1983	820	4.3	3 509
1984	830	4.5	3 698
1985	804	4.6	3 687
1986	623	4.5	2 808
1987	760	4.8	3 619
1988	822	5.0	4 088
1989	840	5.4	4 530
1990	828	5.8	4 799
1991	867	5.9	5 122

Source : MALR.

1 - Ministry of Agriculture, Cairo, Egypt.



The total area under maize exceeded 800,000 ha most of the time between 1975 and 1985. We find the smallest area under maize in 1986: 623,000 ha.

The State did not intervene in maize production or set purchase prices paid to producers, except in 1985 when it obliged producers to supply 3.6 tonnes per ha, which explains both the large area under maize that year and the reduction in that area in 1986.

The large area under maize is also due to its being used as a very highly-priced animal feed, especially for poultry, farming of which expanded greatly in the 1980s.

B - Yields:

Maize yields increased steadily from 1975 to 1991, though more slowly between 1975 and 1986, as Table 22 shows. The yield increased from 3.6 tonnes per ha in 1975 to 5.9 tonnes per ha in 1991 (+63.9%).

The improvement in yields is mainly due to the use of high-yield varieties.

Under the economic reform policies, production of these varieties is now in the hands of private companies, which market them at high prices.

Because of their high price, producers are beginning to make less use of these varieties, which could cause yields to fall in the medium term.

C - Production:

As Table 22 shows, production increased during the period 1975 to 1991. It reached 5,122,000 tonnes in 1991, an increase of 84.2% as compared to 1975.

D - Consumption:

The data on maize consumption are estimated from national production, adding imports of yellow maize (corn) and subtracting losses, animal feeds and industrial uses.

The estimates show that average consumption per person per year was 68.7 kg in 1980 and 77.3 kg in 1989/90 (it reached its lowest level in 1981/82 with 65 kg per person per year, and its highest level in 1983/84 with 79.2 kg per person per year).

Maize production in 1989/90 was broken down as follows: 65.2% for human consumption, 29.3% for animal feed, 1% for seed, 6.9% for industry and 8.5% losses.

It seems to us that the human consumption of maize is overestimated, since a field study in 1987/88 showed that the average consumption per person per year in the countryside, where more maize is consumed than wheat, was only 44 kg[9].

E - Trade:

Egypt imports yellow maize only as feed for animals and poultry. Table 23 shows how yellow maize imports have developed.

Table 23 - Development of yellow maize imports between 1980 and 1990 (in 1000 tonnes)

Year	Volume	Index
1980	636	100.0
1980/81	1 294	203.4
1981/82	1 192	187.4
1982/83	1 514	238.0
1983/84	1 769	278.0
1984/85	1 624	255.4
1985/86	1 999	314.3
1986/87	1 651	259.6
1987	2 200	354.9
1988	1 600	251.6
1989	1 500	235.8
1990	1 874	294.7

Source :
1 - Data for 1980 to 1987: Statistical Yearbook of the National Statistical Agency.
2 - Data for 1987 to 1990: American Embassy, Cairo.

[9]-I. RIHAN, "The economics of wheat consumption in the countryside and in urban areas". Paper presented at the "Wheat production strategy in Egypt" seminar.

The main exporters of yellow maize to Egypt:

Table 24 - Maize imports and main countries exporting to Egypt

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Volume of imports	9809	1356	1297	1632	1932	1919	2140	2250	1300	1305	1874
Exporting countries (%)											
United States	99.2	99.1	91.1	94.9	79.6	79.4	79.3	66.8	82.8	61.2	94.7
EEC	-	-	-	-	-	-	-	11.5	7.7	-	-
Brazil	-	-	-	-	3.9	-	-	-	-	-	-
Thailand	0.4	0.8	-	-	-	-	3.9	8.8	2.7	-	-
Argentina	-	-	-	5.1	9.6	20.0	16.7	1.8	3.5	-	-
Others	0.4	0.1	8.9	-	6.9	0.6	0.1	11.1	3.4	39.8	5.3

Source :
1 - Data for 1960 - 1988: USDA Statistics, Washington DC.
2 - Data for 1989 - 1990: American Embassy, Cairo, Egypt, Agricultural Situation, Annual Reports of 1991.

The United States is the largest exporter of yellow maize to Egypt, since imports from the United States represented 99.2% of the total volume of yellow maize imports in 1980 and 61.2% in 1989.

It is hard to say which country comes in second place, but it seems that the EEC countries, Thailand and Argentina export to Egypt, albeit in small amounts and irregularly.

Nevertheless, it must be stressed that the data in Tables 23 and 24 are different. It is difficult to check the data because they differ from one source or institution to another.

1.3. RICE

Rice is the second cereal after wheat from the point of view of the staple food supply. Demand for rice is higher in the North of Egypt (delta), where this crop has expanded markedly in recent years.

Until the end of the 1960s and the early 1970s, rice was the second export crop after cotton. Its place in the country's agricultural exports has fallen back because of the increase in local demand.

A - Area under crop:

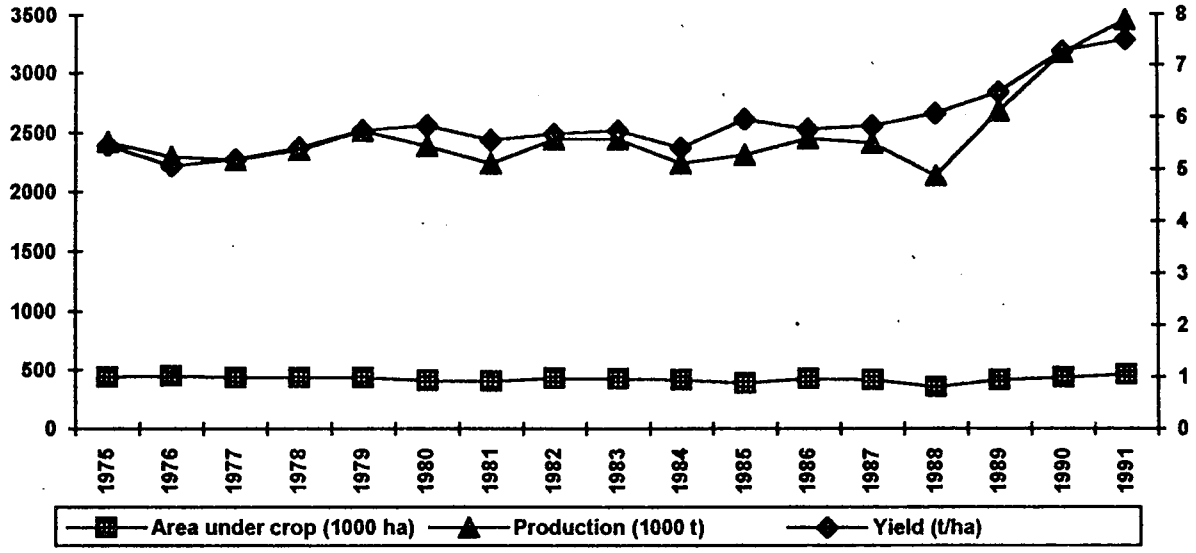
The area under rice was relatively stable during the period 1975 to 1991. It ranged from a minimum of 402,000 ha in 1981 to a maximum of 460,000 ha in 1991, with a fall in the area under crop in 1985 and 1988, when it was 388,000 ha and 352,000 ha respectively.

The drop in the area under crop in 1985 was the result of a disease that struck rice that year, causing farmers to stop growing it. The drop in 1988 was rather the result of State intervention to restrict the area under rice in order to reduce water consumption following the lowering of the water level in Lake Nasser, which had been drawn on excessively during the drought years of the 1980s.

Table 25 - Trend in area under crop, yield and production of rice

Year	Area under crop (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	442	5.48	2 424
1976	453	5.08	2 300
1977	437	5.20	2 272
1978	433	5.43	2 351
1979	437	5.75	2 511
1980	408	5.84	2 384
1981	402	5.57	2 236
1982	431	5.67	2 441
1983	426	5.74	2 442
1984	414	5.41	2 236
1985	388	5.95	2 311
1986	424	5.77	2 445
1987	413	5.83	2 406
1988	352	6.06	2 132
1989	413	6.48	2 677
1990	436	7.27	3 167
1991	460	7.50	3 448

Source :
1 - Ministry of Agriculture, Department of Agricultural Economics, Cairo, Egypt.



B - Yields:

Rice yields varied little between 1975 and 1987: the average yield per ha was 5.08 t/ha in 1976 and 5.95 t/ha in 1985.

From 1988 on, yields increased markedly: from 6.06 t/ha in 1988 to 7.5 t/ha in 1991. This improvement in yields is the outcome of several factors, including the more widespread use of high-yield varieties (like the Philippine varieties), improved advisory services on growing techniques and the availability of the necessary amounts of water.

C - Production:

Production varied between a minimum of 2,132,000 tonnes in 1988 (when the area under crop was reduced to save water) and a maximum of 3,448,000 tonnes in 1991. We also find that production has increased regularly since 1989 (Table 25).

D - Consumption:

Average rice consumption was 36.8 kg per person per year in 1980 and 25.4 kg per person per year in 1986/87. However, this does not mean that the trend is towards a lower consumption of rice, since between the two years quoted the level of consumption fluctuated from one year to the next.

The main factor determining the level of rice consumption is in fact the volume of production available and population growth[10].

[10] - National Agency for General Mobilisation and Statistics, Cairo, Egypt.

E - Trade:

As mentioned above, rice was the second export crop after cotton until the early 1980s: in 1977 rice exports reached 654,500 tonnes[11] .

From the 1980s, rice exports declined, dropping to 16,600 tonnes in 1985, the year after one of the most productive varieties was struck by disease.

However, it must be remembered that in 1986/87 and 1988/89 Egypt both exported and imported rice: production of local varieties, whose flavour is much appreciated, was exported, and other varieties were imported. The balance of imports and exports was in favour of exports.

Countries importing rice from Egypt

Table 26 - (see table overleaf)

[11] - Ministry of Agriculture, Bulletin of Agricultural Economics, vol. 1, 1978.

Table 26 - Rice exports (1970-1991) in 1000 tonnes

Year	Netherlands		Germany		Italy		Spain		Austria		Gt. Britain		Total		USSR		Czechslov.		Syria		World total
		%		%		%		%		%		%		%		%		%		%	
1970	6.80	23.29	10.70	36.64	2.10	7.19	9.60	32.88	-	-	-	-	29.20	4.46	241.00	36.82	23.80	3.64	38.40	5.87	654.50
1975	0.42	100.0	-	-	-	-	-	-	-	-	-	-	0.42	0.40	33.50	32.12	14.50	13.90	-	-	104.31
1980	0.43	3.09	-	-	-	-	-	-	3.00	21.54	-	-	13.93	14.20	-	-	16.60	16.934	-	-	98.07
1985	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	7.00	2.09	-	-	16.63
1986	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	12.00	29.96	-	-	40.05
1987	-	-	-	-	46.13	49.63	-	-	-	-	-	-	46.13	49.51	-	-	16.30	17.49	-	-	93.18
1988	-	-	2.30	6.65	20.00	57.80	-	-	10.00	28.90	2.30	6.65	34.60	48.63	-	-	9.30	13.07	-	-	71.15
1989	-	-	-	-	-	-	-	-	-	-	5.60	100.00	5.60	18.67	-	-	-	-	3.00	10.00	30.00
1990	-	-	5.10	32.08	-	-	-	-	5.20	32.70	4.60	28.93	15.90	23.95	-	-	0.30	0.45	32.00	48.19	66.40
1991	0.03	0.06	1.80	3.31	14.00	25.77	-	-	5.00	9.20	33.50	61.66	54.33	39.66	-	-	0.30	0.22	2.50	1.82	137.00

Source:
1 - Ministry of Agriculture, Cairo, Egypt.

The figures in Table 26 show that from 1970 to 1976 the former USSR was the main importer of Egyptian rice.

After 1976 the former USSR gives way to Czechoslovakia and the EEC countries, among which Italy takes first place.

The prospects for growth in rice exports are limited by

- the quantities of water available
- the increase in demand and local consumption
- and in particular by the awareness of the need to limit expansion of this crop because it causes salinity in the soil.

2 - INDUSTRIAL CROPS

2.1. COTTON

Cotton growing is very ancient in Egypt, but it did not expand until the 19th century under the reign of Mohamed Ali and his attempts to industrialise the country and open it up to the international market and to western capitalism.

The civil war in the United States (1861-1865) caused a drop in cotton production and in exports to the international market, encouraging the expansion of cotton growing in Egypt.

Since that time cotton production in Egypt has continued to grow: it rose from 596,000 q in 1861 to 2,507,000 q in 1965.

Despite the downturn in production during the last decade (the 1980s), it remains an important crop, representing 48% of the total value of agricultural exports and 7% of the total value of commodity exports from 1985/86 to 1989/90.

Cotton provides the raw material for Egypt's first industry, the textile industry, and also for other industries such as the production of oils or fodder. Cotton production also gives rise to a large number of associated activities such as insurance, marketing, transport, etc.

This means that cotton occupies a large part of the country's workforce: these industries and services employ 386,000 persons or 3% of the country's total working population[12], whilst cotton growing occupies around 18% of agricultural workers[13].

[12] - National Bank, Economic Bulletin, vol. 43 nos 3 and 4, Cairo, 1990

[13] - ABOUMANDOUR M.: The agricultural labour force in Egypt, op. cit.

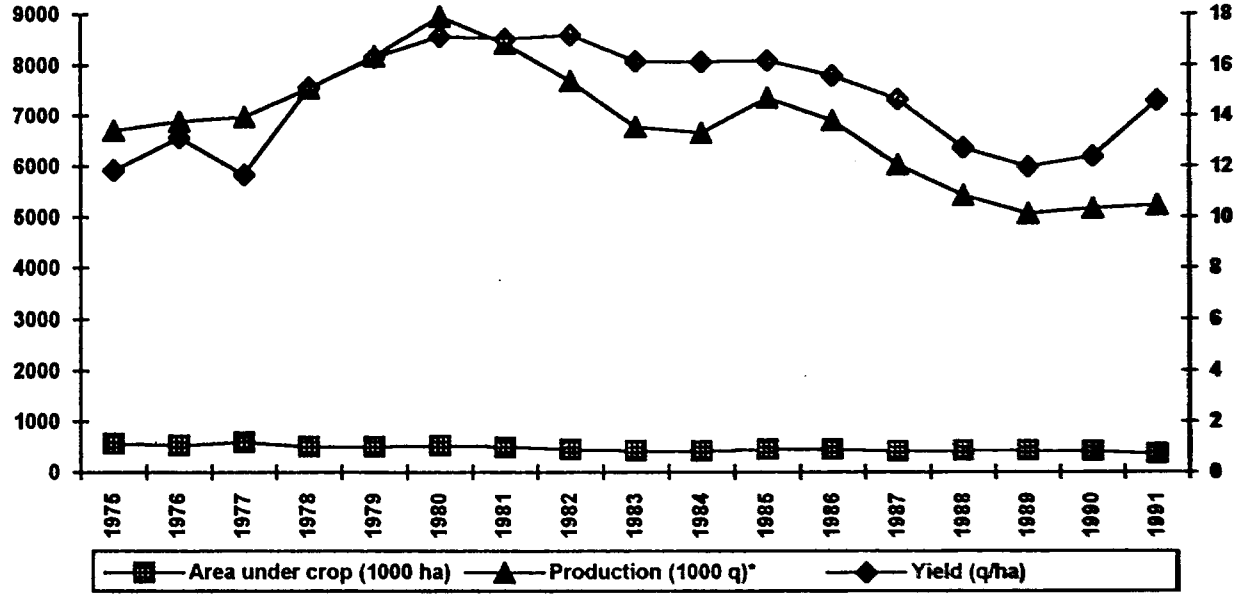
A - Area under crop:

Table 27 - Trend in area under crop, yield and production of cotton

Year	Area under crop (1000 ha)	Yield (q/ha)	Production (1000 q) *
1975	565	11.85	6 702
1976	524	13.14	6 884
1977	598	11.67	6 978
1978	499	15.12	7 547
1979	502	16.29	8 177
1980	523	17.11	8 941
1981	495	17.01	8 418
1982	448	17.18	7 689
1983	419	16.15	6 770
1984	413	16.12	6 659
1985	454	16.18	7 345
1986	443	15.58	6 902
1987	411	14.65	6 029
1988	426	12.73	5 422
1989	422	11.97	5 055
1990	417	12.39	5 169
1991	358	14.61	5 230

Source :
1 - Ministry of Agriculture, Department of Agricultural Economics, Cairo, Egypt.

(*) The data concerning the production and yield of cotton are in quintars (local unit of measurement).
1 quintar = 157.5 kg.



We see from the figures in Table 27 that the area under cotton has declined markedly: it fell to 358,000 ha in 1991, 36.6% of the 1975 area.

This decline was greater in the last three years 1989 - 1991, when the area under crop fell by 68,000 ha.

There are many reasons for this, but we can highlight in particular the discouraging price policy, since the State continued to set the prices paid to producers at quite a low level despite the increase in production costs, making cotton less profitable than competing crops.

Table 28 - Prices paid to local producers as compared to international prices

Variety	International price EP/q	Average price paid to producers EP/q	Producer's share in international price (%)
Guizeh 45	817	295	36.1
" 76	774	216	27.9
" 70	717.5	214	29.8
" 77	702	202	28.8
" 75	530.3	194	36.6
" 69	530.3	196	37.0
" 81	530.3	189	35.6

Source :
1 - National Cotton Office: memorandum on the cotton situation, Cairo 1990.

This table shows the differential between international prices (selling price on the international market) and local prices (prices paid to local producers) for the different varieties of cotton, knowing that the State pockets the difference.

B - Yields:

The lowest yield for cotton was in 1977, when it fell to 11.67 q/ha, and the highest yield was 17.18 q/ha in 1982.

After that, yields began to drop regularly between 1982 and 1989, when they reached 11.97 q/ha. Despite a slight upturn in 1990 and 1991, yields have remained below the 1982 level.

The reasons for the declining yields are much the same as for the loss of area under crop, that is mainly the discouragement of producers, plus the lack of an effective policy to combat disease and parasites.

C - Production:

Cotton production has declined, which is the logical outcome of the reduction in area under crop and the fall in yields referred to above.

Indeed, 1991 production did not exceed 78% of 1975 production and 58.5% of 1980 production (the year when production was at its highest, cf. Table 27).

D - Consumption:

Table 29 - Cotton consumption

Year	Volume	Index
1980/81	6 524	100.0
1981/82	5 839	89.5
1982/83	5 163	79.1
1983/84	5 307	81.3
1984/85	5 219	80.0
1985/86	5 710	87.5
1986/87	5 631	86.3
1987/88	5 411	82.9
1988/89	5 074	77.8
1989/90	4 953	75.9

Source :
1 - The Egyptian Cotton Gazette, no 96, January 1991.

The population growth has brought about an increase in local demand for cotton.

The figures in Table 29 show that the consumption of cotton for local needs reached its highest in 1980/81 with 6.524 million q, and its lowest in 1989/90 with 4.953 million q.

This of course means that consumption per person has declined: from 7.7 kg in 1980/81 to 4.8 kg in 1989/90, a drop of 37.7%.

The drop in local consumption is mainly due to the decline in production and the desire to export more.

E - Trade:

Table 30 - Development of cotton exports

Year	Volume	Index	Egyptian exports as % of world exports	Egyptian long-staple cotton exports as % of world exports
1980/81	3 297	100.0	3.9	-
1981/82	3 871	89.5	4.4	-
1982/83	3 607	109.4	4.2	64.4
1983/84	3 332	101.1	3.9	45.4
1984/85	3 040	100.2	2.2	56.0
1985/86	2 960	89.8	3.2	58.1
1986/87	2 427	73.7	2.5	37.9
1987/88	1 756	53.3	1.8	30.7
1988/89	1 200	36.4	1.2	22.7
1989/90	0 822	24.9	0.9	14.7

Source :
1 - The Egyptian Cotton Gazette, op. cit.
2 - Cotton World Statistics, Various Issues.

We note the drop in cotton exports in the second half of the 1980s: in 1989/90 they reached 822,000 q or 24.9% of 1981's exports.

The fall in production has affected not only local consumption but also exports.

Egypt has adopted a policy of importing certain varieties of cotton to meet local demand so that it can export greater quantities of the higher quality (long staple) varieties produced locally. Under this policy, Egypt imported 1.261 million tonnes from the United States in 1989/90.

This policy has not prevented Egypt's position in the international long staple cotton market from falling back.

At the same time, other countries, such as India and the former USSR, are appearing on the market in addition to those countries traditionally competing with Egypt, such as the United States and Peru.

Cotton exports (see table overleaf)

Egypt exports cotton to a large number of countries, as can be seen from Table 31.

Japan, alongside Italy and Czechoslovakia, is the country to which the volume of exports has been the most stable in recent years. Egypt's exports to these three countries amounted to 53.45% of the total volume of exports in 1987/88, 50.52% in 1988/89 and 40.64% in 1989/90.

The determining factor in the development of Egyptian cotton exports is the increase in local production and its stability, enabling it to meet importers' requirements and follow the pattern of competition on the international market.

The economic reform policies currently being put into practice envisage setting the prices paid to producers in line with international prices and abolishing State intervention, thus encouraging producers and increasing production.

However, it seems that increasing cotton production does not depend solely on increasing the prices paid to producers, but also on a number of measures including the production and use of high-yield varieties, effectively combatting disease and parasites and stopping the deterioration and sickness of the soil caused by massive use of pesticides.

Table 31 - Egyptian cotton exports (%)

Year Country	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Austria	0.64	0.22	0.54	2.03	-	1.77	0.75	0.70	1.04	0.67	1.0
Belgium	0.38	0.16	0.07	0.27	-	0.09	0.07	0.29	0.21	0.22	0.14
China	18.6	20.5	10.45	7.39	9.21	7.82	-	2.58	1.77	1.49	3.14
Czechoslovakia	4.45	0.90	7.55	6.68	4.45	4.29	0.89	11.27	9.94	9.52	15.42
France	3.17	5.29	7.61	3.91	2.68	2.39	1.29	0.70	0.88	1.49	1.52
Federal Rep. of Germany	9.16	8.02	3.05	5.89	8.74	8.51	5.41	4.55	3.95	3.64	1.84
German Dem. Rep.	4.16	1.01	2.02	1.83	2.05	2.64	3.20	3.03	1.87	0.97	1.58
Hungary	0.8	2.50	2.76	3.15	-	2.29	4.19	3.18	2.55	2.31	1.58
Italy	6.66	8.12	10.98	12.06	13.7	12.8	13.89	16.78	18.32	11.01	8.22
Japan	15.72	16.49	15.26	13.72	16.69	16.85	18.08	19.63	25.19	9.52	17.02
Poland	2.88	3.53	1.92	1.09	1.68	1.63	1.43	4.21	-	1.49	-
Romania	13.77	6.32	10.02	3.55	1.30	1.20	6.5	6.14	3.49	3.64	2.08
Spain	2.63	2.15	2.05	2.81	3.04	2.07	1.80	2.22	2.08	1.57	1.90
Switzerland	5.86	6.42	6.92	6.53	7.08	7.62	4.39	1.74	2.03	2.38	3.49
United Kingdom	2.05	0.80	1.31	0.78	0.94	0.81	1.53	1.62	1.72	1.49	0.80
United States	0.29	0.09	1.72	0.66	0.38	0.52	0.03	0.04	0.05	-	-
Former USSR	-	-	-	7.77	10.42	11.42	10.21	4.10	10.67	16.29	25.06
Yugoslavia	4.29	6.29	6.07	4.95	1.10	2.64	4.94	5.55	4.16	2.6	3.28
Other countries	4.74	10.6	10.94	14.91	16.5	11.92	10.83	11.61	10.04	10.2	11.92
Total volume of exports	3 123	3 114	3 904	3 937	3 617	4 053	2 937	2 705	1 921	1 344	808

Source:
1 - Ministry of Agriculture, Cairo, Egypt.

2.2. SUGAR CANE

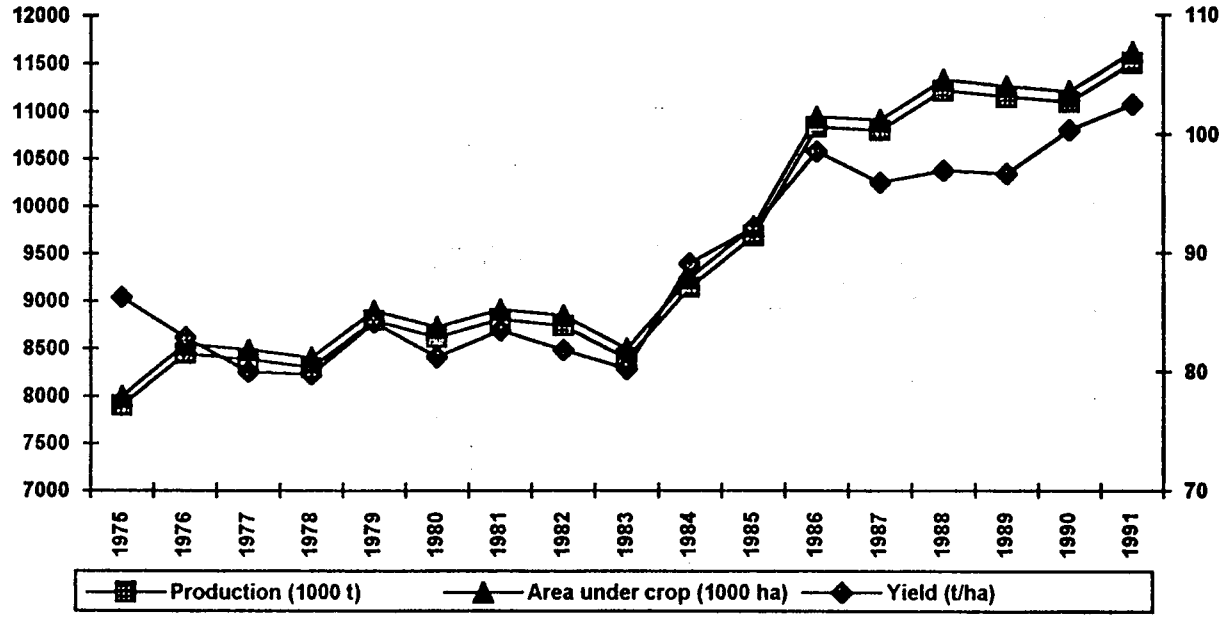
Sugar cane is the main sugar-producing crop in Egypt and is concentrated in Upper and Middle Egypt. It is considered the most water-consuming crop.

A - Area under crop:

Table 32 - Trend in area under crop, yield and production of sugar cane

Year	Area under crop (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	92	86.3	7 902
1976	102	82.9	8 441
1977	105	80.0	8 379
1978	104	79.8	8 296
1979	104	84.2	8 791
1980	106	81.3	8 618
1981	105	83.5	8 805
1982	107	81.9	8 740
1983	105	80.3	8 396
1984	102	89.2	9 142
1985	105	92.2	9 684
1986	110	98.6	10 832
1987	112	96.0	10 795
1988	116	97.0	11 213
1989	115	96.7	11 144
1990	111	100.4	11 095
1991	112	102.5	11 495

Source :
1 - Ministry of Agriculture, Cairo, Egypt.



The area under sugar cane is relatively stable, with little variation: the smallest area under crop was 92,000 ha in 1975 and the largest 116,000 ha in 1988, an increase of only 26.1%.

In 1990 the area under sugar cane fell to 111,000 ha, increasing slightly in 1991 (1000 ha more).

B - Yields:

In the period 1975 to 1984, yields varied between 80 t/ha and 90 t/ha. From 1985, yields have increased steadily to reach 102.5 t/ha.

There are two reasons for this increase in yields:

- the use of a high-yield variety (S 9)
- the use of new soil preparation techniques, in particular the use of laser devices for contouring the ground, which increases the productivity of the land by about 25%.

C - Production:

The volume of sugar cane production has varied according to the area under crop and the yields obtained. As the data in Table 32 show, we therefore find that the lowest output was 7,902,000 tonnes in 1975, the year when the area under crop was also the lowest, and that production was at its highest in 1991, which also saw the greatest yield.

D - Consumption:

The sugar produced locally, from sugar cane and sugar beet, is not enough to satisfy local demand.

The average consumption per person per year has varied between 26.7 kg in 1989/90 and 36.5 kg in 1983/84 (cf. table attached). Despite these variations, we see that the overall trend is for consumption to increase. This is due both to the increase in population and to the change in consumption patterns already mentioned.

The level of consumption is also linked to the quantities available, that is to production and import levels.

E - Trade:

Since locally produced sugar is not enough to satisfy demand, Egypt imports quantities that vary from one year to the next.

The largest quantity imported by Egypt was 1 million tonnes in 1981/82, and the smallest quantity was 555,000 tonnes in 1987/88.

The main countries exporting to Egypt

It is hard to discern any trends as to the origin of sugar imports.

Egypt in fact imports sugar from a very large number of countries, and the relative importance of each country in the import structure varies from year to year.

However, we can underline the fact that in 1988/89 the EEC became the main exporter to Egypt, followed by Brazil and Romania, whereas during the 1970s and the early 1980s most sugar imports came from Cuba.

Among the EEC countries, Great Britain held first place for Egypt's sugar imports for several years, followed by the Federal Republic of Germany, France and the Netherlands.

It is interesting to note the very great diversity of the sources of sugar imports, which means that the determining factor in trade is above all price and the payment facilities Egypt is able to obtain.

3. FODDER CROPS

3.1. BERSEEM (LUCERNE OR EGYPTIAN CLOVER)

Berseem is the main fodder crop in Egypt. It is used as a cattle feed for animals raised for milk or meat as well as for draught animals.

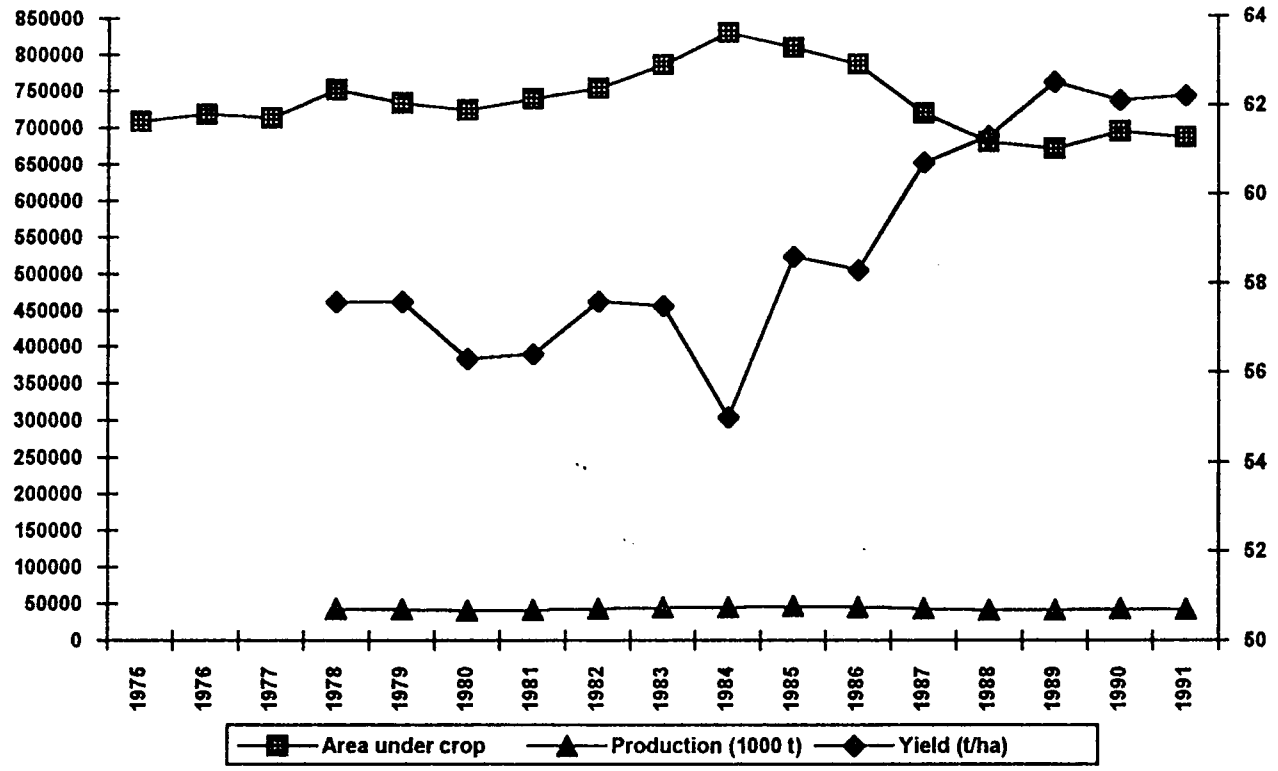
Incidentally, this crop does not appear in international trade.

A - Area under crop:

Table 33 - Trend in area under crop, yield and production of berseem

Year	Area under crop (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	709	-	-
1976	719	-	-
1977	713	-	-
1978	751	57.6	43 256
1979	733	57.6	42 230
1980	723	56.3	40 699
1981	738	56.4	41 586
1982	752	57.6	43 281
1983	784	57.5	45 063
1984	828	55.0	45 514
1985	807	58.6	47 310
1986	784	58.3	45 685
1987	717	60.7	43 514
1988	678	61.3	41 555
1989	668	62.5	41 799
1990	692	62.1	42 985
1991	684	62.2	42 535

Source :
1 - Ministry of Agriculture, Cairo, Egypt.



Berseem occupies the largest area of winter crops. The data in Table 33 show that the area under berseem is relatively stable, varying between 668,000 ha in 1989 and 828,000 ha in 1984 (a 24% reduction).

There are several reasons for the increase in the area under berseem in the period 1975 to 1984:

- the increase in demand for meat and milk over the same period caused demand and prices for berseem to increase;
- the lack of State intervention in setting prices for and marketing berseem. This made the crop the most profitable of the competing winter crops, wheat and beans in particular, except for wheat in 1990 and 1991.

Given the shortage of agricultural land in Egypt, the competition between wheat (to feed humans) and berseem (to feed cattle) is a problem requiring important political choices to be made.

Increasing the areas under wheat at the expense of areas under berseem could result in a major rise in prices of animal products, in particular meat and milk, and even a drop in production of those products, with a consequent rise in imports.

There will be no short or medium-term solution to this problem. In view of the major constraint that is the shortage of agricultural land, the prospects for developing and increasing production of winter crops (especially wheat and berseem) will be determined by increasing productivity and improving yields through the production and widespread use of high-yielding varieties.

C - Yields:

Berseem yields are distinguished by their very high stability. This crop's yields have changed the least in relation to the other crops examined.

From 1978 to 1986, yields remained around 60 t/ha; then they increased slightly from 1987.

The stability of this crop's yields reflects the lack of interest shown in it by scientific research. Despite the large area on which it is grown, about 24.7% of the total agricultural area[14], the number of researchers and research assistants working on berseem growing amounts to only 1.24% of the total number of researchers[15].

D - Production:

The lowest production of berseem was 40,699,000 tonnes in 1990, the highest 47,310,000 tonnes in 1985. The variations in production were a function of yields and areas, which explains why the variations are so small.

The development of berseem production is determined by the competition between wheat and berseem and by the production, food and commercial policy choices to be made in the course of the current economic reform.

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14 - Statistical Yearbook, National Agency for General Mobilisation and Statistics, Cairo, Egypt.

15 - ABOUMANDOUR M.: The question of wheat in Egypt, Seminar on "Wheat production strategy in Egypt", op. cit.

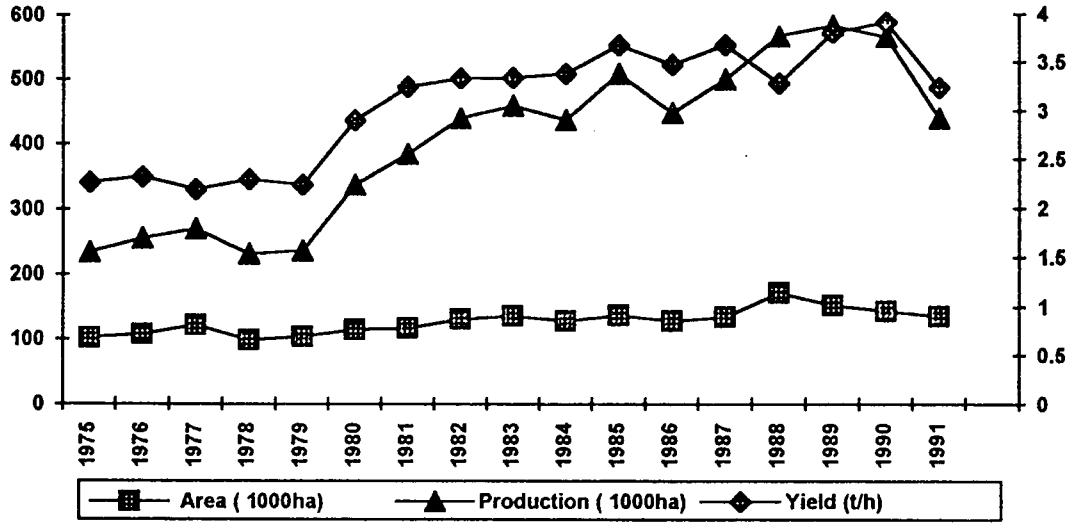
4. LEGUMES

4.1. BEANS

Beans are the first and main legume crop in Egypt. Food based on beans is the most widespread and most popular food, especially among the underprivileged classes. A part of bean production is used as cattle feed.

Table 34 - Trend in area under crop, yield and production of beans

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	103	2.27	234
1976	109	2.33	255
1977	123	2.20	270
1978	100	2.30	231
1979	105	2.25	236
1980	116	2.91	337
1981	118	3.25	384
1982	132	3.34	440
1983	137	3.35	459
1984	129	3.39	437
1985	138	3.68	508
1986	129	3.48	448
1987	135	3.68	499
1988	172	3.29	566
1989	153	3.81	582
1990	144	3.92	564
1991	136	3.24	439



Source: Ministry of Agriculture.

A - Area under crop:

As table 34 shows, the smallest area under crop was 103,000 ha in 1975, and the largest area was 172,000 ha in 1988. Beans are grown mainly in the regions of Middle and Upper Egypt (Nile Valley).

B - Yields:

We find that yields were quite low until the start of the 1980s (2.27 t/ha on average).

During the first five years of the 1980s we find an increase in yields: 2.91 t/ha in 1985, that is a 63.3% increase as compared to the 1979 yields.

After the middle of the 1980s the level of yields varied, reaching 3.92 t/ha in 1990. These variations in yield reflect the extent to which the crop was affected by various diseases.

C - Production:

The variations in areas under crop and in yields are reflected in changes in the overall volume of production. It must be stressed that the lowest production (331,000 tonnes) in 1978 went hand in hand with the smallest area, whereas the highest production (in 1989) was associated with an increase in yields rather than an increase in the area under crop.

D - Consumption:

Average per capita consumption reached its lowest level in 1981/82 with 4.1 kg/person, and its highest level in 1988/1989 with 6.7 kg/person. In fact, the level of consumption is determined by the level of supply, that is by the volume of national production and by exports.

E - Trade:

Egypt exports and imports beans: during the period 1980/1990 the volume of imports was 190,115 tonnes and the volume of exports was 22,272 tonnes. This means a deficit of 167,843 tonnes.

5. OIL PLANTS

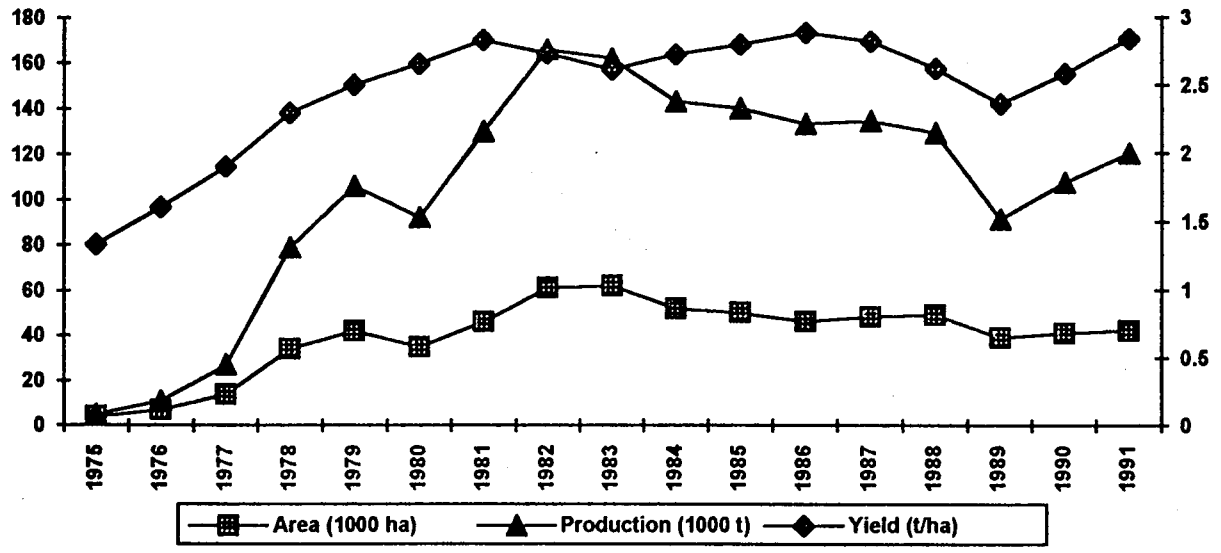
5.1. SOYA

Soya growing was introduced into Egypt in the 1970s, when the deficit in vegetable oils became very great. Soya beans may be considered an important source of vegetable oils; they have an extraction rate of 18%, as against 15.4% for cotton, which is considered the main source of vegetable oils in Egypt. However, the extraction rate for soya is lower than that of olives, sunflower seeds or sesame (25%, 45% and 60% respectively).

Table 35 - Trend in area under crop, yield and production of soya beans

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	4	1.34	5
1976	7	1.61	11
1977	14	1.91	27
1978	34	2.30	79
1979	42	2.51	106
1980	35	2.66	92
1981	46	2.84	130
1982	61	2.74	166
1983	62	2.62	162
1984	52	2.73	143
1985	50	2.80	140
1986	46	2.89	133
1987	48	2.82	134
1988	49	2.62	129
1989	39	2.36	91
1990	41	2.58	107
1991	42	2.84	120

Source: Ministry of Agriculture.



A - Area under crop:

The area under soya has grown since 1978, when it was 34,000 ha. It increased until 1983, the year with the largest area under crop at 62,000 ha. From 1983 we find the area under crop in decline, falling to 42,000 ha in 1991 (cf. Table 35).

The main constraint on increasing the areas under crop seems to be State intervention in the marketing of soya beans and the low level of the prices set for them.

It must be remembered that soya beans are no longer covered by the system of compulsory delivery to the State and marketing has been free since 1989.

B - Yields:

Soya yields are quite stable, as Table 35 shows, since they have varied little: from 2.30 t/ha in 1978 to 2.84 t/ha in 1981. This level of variation was maintained until 1991. Indeed, no attempt has been made to introduce high-yield varieties, and the low prices paid by the State has been no incentive for producers to improve their yields.

C - Production:

During the period from 1979 to 1991, soya bean production reached its highest level in 1981 (166,000 tonnes) and its lowest level in 1989 (91,000 tonnes). The volume of soya bean production has varied depending on the areas under crop and the annual yields.

D - Consumption and imports of vegetable oils:

As indicated above, cotton supplies Egypt with between 80 and 85% of its vegetable oils.

Table 36 - Production and consumption of vegetable oils

Year	National production (1000 tonnes)	Consumption (1000 tonnes)	Self-sufficiency rate	Average per capita consumption (kg per head)
1980/81	81.6	394.6	20.7	3.6
1981/82	96.6	408.5	23.6	6.1
1982/83	96.1	429.3	22.4	6.7
1983/84	113.9	426.6	26.7	6.8
1984/85	119.1	534.6	22.3	7.7
1985/86	115.7	537.1	21.5	7.8
1986/87	121.6	556.5	21.9	8.1
1987/88	114.1	413.1	27.6	5.3
1988/89	158.0	626.5	25.1	9.5
1989/90	170.0	484.1	35.1	6.4

Source: Central Statistical Agency.

Consumption of vegetable oils has constantly increased. This increase is the consequence both of the population growth and of the rise in consumption per person (from 3.6 kg/person in 1981 to 9.50 kg/person in 1989).

As Table 36 shows, the rate of self-sufficiency in vegetable oils has increased since the middle of the 1980s to reach 35.1% in 1990[16].

Table 37 - Countries exporting vegetable oils to Egypt and volume of imports in %

Group of countries	1989 (%)	1990 (%)	1991 (estimate)
USA	15.2	2.1	8.0
South America	42.0	39.7	34.8
EEC	5.8	5.4	5.1
South-East Asia	35.5	52.0	50.7
Other countries	1.5	0.7	1.4

Source: Annual Report, American Embassy, 1991/1992.

Despite this increase in self-sufficiency, Egypt still imports a very large amount of vegetable oils. The main exporters to Egypt are: the countries of South-East Asia and the countries of Latin America. Imports from the United States and the EEC countries are only 2.1% and 5.4% respectively of the total volume of imports.

16 - The figures in Table 36 include all oils and fats of vegetable origin.

6. VEGETABLES

6.1. TOMATOES

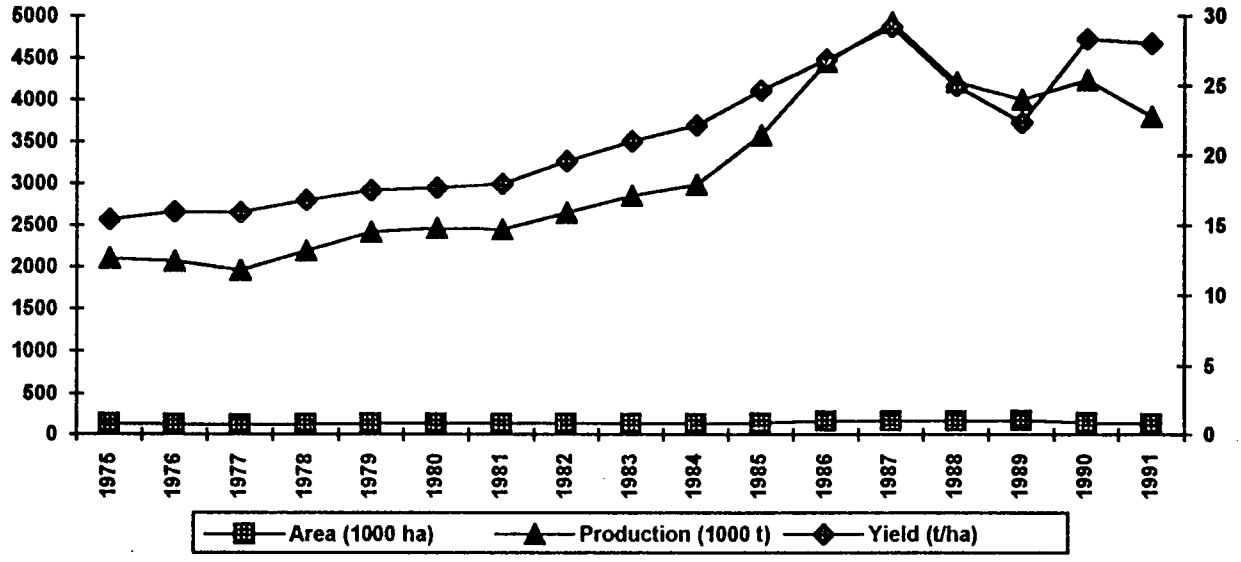
Tomatoes are the most important vegetable crop from the point of view of the surface they occupy.

They are also an important food crop both nationally and for export.

Table 38 - Trend in area under crop, yield and production of tomatoes

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	136	15.44	2 107
1976	129	15.98	2 076
1977	123	15.96	1 967
1978	130	16.84	2 197
1979	138	17.54	2 421
1980	139	17.71	2 468
1981	136	17.99	2 454
1982	135	19.66	2 657
1983	136	21.07	2 862
1984	135	22.19	2 993
1985	145	24.68	3 576
1986	166	26.91	4 456
1987	168	29.23	4 921
1988	169	24.98	4 212
1989	179	22.39	3 997
1990	149	28.38	4 234
1991	135	28.04	3 795

Source: Ministry of Agriculture



A - Area under crop:

From the data in Table 38 we see that the area under tomatoes increased during the second half of the 1980s, reaching 179,000 ha.

Indeed, during that period tomato growing increased in profitability (net earnings rose from 1020.7 EP/ha in 1982 to 4600.1 EP/ha in 1990). In 1990/91 the area under crop fell 24.6% compared with 1989, because the crop was attacked by disease (whitefly in particular) in the governorate of Faiyum, which is the largest tomato growing region.

B - Yields:

The introduction of high-yield varieties contributed to the increase in yields observed between 1975 and 1987, when yields reached 29.23 tonnes/ha. The experts apparently believe that it may be possible to increase yields by improving the quality of the plants used and the technical training.

C - Production:

The largest volume of production was 4.9 million tonnes (in 1987). It is still possible to increase production, especially by improving yields, which avoids extending the areas under crop and thus competing with other winter crops.

D - Trade:

Tomatoes are an important export crop. Most Egyptian tomatoes go to the region of the Middle East: Saudi Arabia occupies first place (followed, far behind, by Kuwait and the Emirates), since it imported as much as 94.5% of the total volume of Egyptian exports in 1990.

The EEC remains a market for exporting producers to conquer, provided they are able to comply with the standards, in particular for packaging and the use of chemical pesticides[17]. (See Table 39 overleaf).

[17] - This was explained and discussed at the seminar held at Cairo University (Centre of Agricultural Economic Studies) in October 1991.

Table 39 - Tomato exports 1984 to 1991 (tonnes)

Year	1984		1985		1986		1987		1988		1989		1990		1991	
	Volume	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Arab countries																
Saudi Arabia	6271	69.19	11659	83.06	13938	80.67	17958	79.02	12615	83.30	12012	80.43	19383	94.86	21273	90.41
Lebanon	28	0.31	18	0.13	158	0.91	400	1.76	30	0.20	712	4.77	38	0.19	446	1.90
Kuwait	2132	23.52	1368	9.75	1932	11.18	3576	15.73	1657	10.94	1496	10.02	336	1.64	345	1.47
Bahrain	179	1.98	125	0.89	470	2.72	347	1.53	92	0.61	29	0.19	5	0.02	32	0.14
Emirates	145	1.60	444	3.16	227	1.31	333	1.47	245	1.62	59	0.40	141	0.69	540	2.30
Other Arab countries	240	2.65	396	2.85	466	2.7	13	0.05	440	2.90	396	2.65	140	0.68	728	3.1
Total Arab countries	**8995**	**99.25**	**14010**	**99.81**	**17191**	**99.50**	**22626**	**99.56**	**15079**	**97.57**	**14704**	**98.45**	**20043**	**98.09**	**23364**	**99.30**
European countries																
United Kingdom	5	0.06	1	0.01	15	0.09	14	0.06	18	0.12	22	0.15	137	0.67	9	0.04
Germany	16	0.18	2	0.01	5	0.03	14	0.06	5	0.03	43	0.9	66	0.32	43	0.18
Austria	7	0.08			1	0.01	7	0.03	3	0.02	1	0.01	2	0.01	6	0.03
France	2	0.02			2	0.01			2	0.01	52	0.35	66	0.32	18	0.08
Greece					13	0.08			1	0.01						
Italy							3	0.01	1	0.01	0.2		15	0.07	2	0.01
Denmark							2	0.01	10	0.07	4	0.03	5	0.02	3	0.01
Sweden									0.3		2	0.01	3	0.01	2	0.01
Belgium									0.5				19	0.09	1	
Netherlands	13	0.14			7	0.04	5	0.02	15	0.10	35	0.23	48	0.23	4	0.02
Other European							21	0.02	1	0.01	0.58	0.38	6.3	0.02	54.3	0.23
Total European	**43**	**0.47**	**3**	**0.02**	**43**	**0.25**	**66**	**0.29**	**56.8**	**0.38**	**217.2**	**1.45**	**367.3**	**1.80**	**142.3**	**0.60**
Other countries	25	0.27	23	0.17	46	0.26	35	0.15	8.9	0.07	14.04	0.09	22.5	0.10	23	0.10
TOTAL	**9063**	**100**	**14036**	**100**	**17278**	**100**	**22727**	**100**	**15144**	**100**	**14935**	**100**	**20432**	**100**	**235.29**	**100**

Source: Central Statistical Agency.

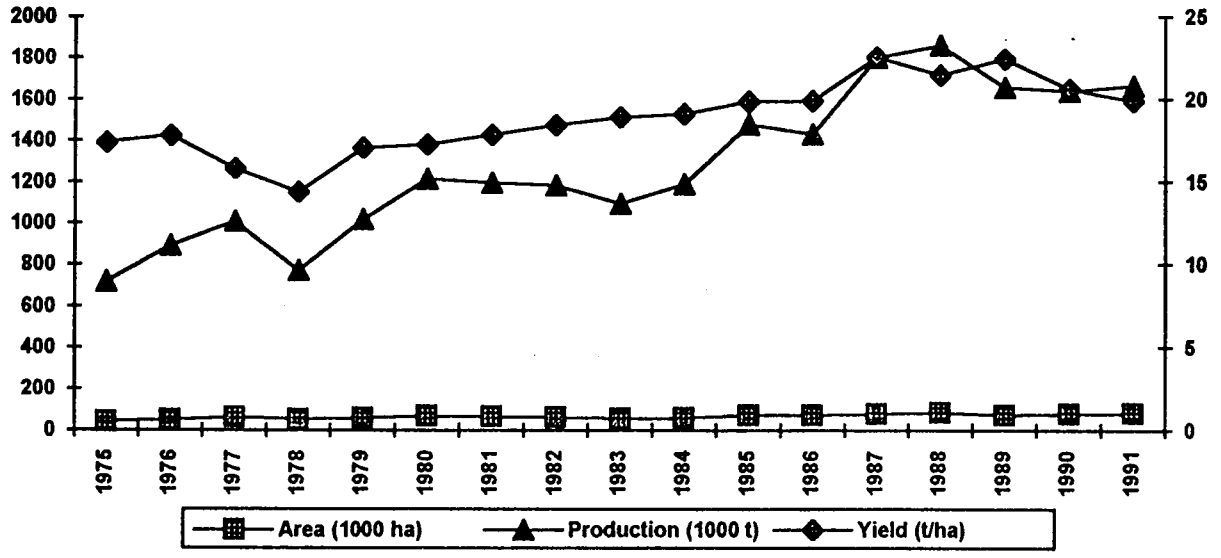
6.2. POTATOES

Potatoes are grown twice a year: once during the summer season and a second time during the "nili" seasons (when the Nile floods). It is a crop occupying an important place in the food supply (after wheat and rice) and is currently the largest export crop among vegetables.

Table 40 - Trend in area under crop, yield and production of potatoes

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	41	17.41	720
1976	50	17.82	893
1977	64	15.80	1 010
1978	54	14.41	772
1979	60	17.06	1 019
1980	70	17.28	1 214
1981	67	17.86	1 195
1982	64	18.44	1 184
1983	58	18.94	1 095
1984	62	19.11	1 189
1985	74	19.86	1 478
1986	72	19.93	1 431
1987	80	22.56	1 801
1988	87	21.46	1 862
1989	74	22.43	1 657
1990	80	20.57	1 638
1991	84	19.87	1 663

Source: Ministry of Agriculture



A - Area under crop:

The general trend was for the area under crop to increase during the period 1975 to 1991: from 41,000 ha in 1975 to 87,000 ha in 1988.

This almost constant increase in the area under crop reflects the growing interest shown in this crop, the profitability of which, too, has not ceased to increase. It must be pointed out that because of the high production costs potatoes are grown mainly by large farmers.

B - Yields:

We note an improvement in yields between 1982 and 1987, the period during which high-yield varieties were introduced and popularised. By contrast, the drop in yields in 1990/1991 is the result of the brown rot disease that attacked the potato crop in Egypt.

C - Production:

The largest production ever achieved goes hand in hand with the largest area under crop: 1,862,000 tonnes on 87,000 ha in 1988.

Potato production could be increased significantly if technical training and the methods of preventing and combatting diseases were improved.

D - Consumption:

Table 41 - Imports and consumption of potatoes 1980 - 1990

Year	Imports (t)	Av. consumption/ person/year (kg)
1980	22247	19.7
1980-1981	23058	18.9
1981-1982	44545	18.8
1982-1983	42283	17.1
1983-1984	34547	17.9
1984-1985	47295	23.1
1985-1986	19505	21.4
1986-1987	24385	26.7
1987-1988	31380	26.3
1988-1989	26805	22.5
1989-1990	31131	22.0

Source: Central Statistical Agency.

The total volume of national production and the volume of exports determine the level of supply on the national market, which affects the level of potato consumption.

Table 41 shows that the highest level of consumption (26.7 kg/person) was in 1986/1987. The same year saw a major increase in local production, whilst exports were down slightly, increasing the volume of production available on the local market.

E - Trade: (see Table 42 overleaf).

Table 42 - Potato exports 1984 to 1991 (tonnes)

Year	1984		1985		1986		1987		1988		1989		1990		1991	
	Volume	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Arab countries																
Saudi Arabia	17397	13.13	28096	21.99	19271	17.89	33800	29.81	37422	22.62	41158	27.12	20701	15.40	28982	13.31
Lebanon	22970	17.34	16567	12.97	18107	16.81	13800	12.17	13991	8.46	126.05	8.30	3279	2.44	3382	1.55
Kuwait	632	0.48	9707	7.60	651	0.60			17832	10.78	13227	8.71	4559	3.39	290	0.13
Bahrain	175	0.13	123	0.10	95	0.09			179	0.11	368	0.24	5			
Emirates	646	0.49	1476	1.16	29	0.03			1277	0.77	748	0.49	894	0.67	788	0.36
Qatar	160	0.12	296	0.23	24	0.02			629	0.38	639	0.42	324	0.24	352	0.16
Other Arab countries	4649	3.53	5489	4.3	1403	1.49	1500	1.32	2140	1.30	4380	2.88	827.2	5.88	13593	6.24
Total Arab countries	**46669**	**35.23**	**61754**	**48.34**	**39580**	**37.75**	**49100**	**43.30**	**73470**	**44.42**	**73125**	**48.18**	**30589**	**22.75**	**47387**	**21.76**
European countries																
United Kingdom	74087	55.93	64567	50.54	61470	57.07	64300	56.70	83399	50.42	70209	46.26	86611	64.43	95591	43.90
Germany	1105	0.83			1				63	0.04	20	0.01	116	0.09	3951	1.81
France	713	0.54			229	0.21			4296	2.60	1204	0.79	7152	5.32	11056	5.08
Netherlands	4663	3.52			2182	2.03			75	0.05	568	0.37	610	0.45	1032	0.47
Italy	1983	1.50	3		305	0.28			167	0.10	1468	0.97	1153	0.86	1804	0.83
Belgium	1483	1.12						200	0.12			169	0.13	750	0.34	
Other European			200	0.16	1900	1.77			25	0.02	5043	3.33	7900	5.88	56032	25.74
Total European	**84034**	**63.44**	**64770**	**50.70**	**66087**	**61.35**	**64300**	**56.70**	**88225**	**53.34**	**78513**	**51.73**	**103711**	**77.15**	**170216**	**78.18**
Other countries	1758	1.33	1227	0.96	2046	1.89			3708	2.24	139.1	0.09	129.7	0.10	134	0.06
TOTAL	**132461**	**100**	**127751**	**100**	**107713**	**100**	**113400**	**100**	**165403**	**100**	**151770**	**100**	**134429**	**100**	**217737**	**100**

Source: Central Statistical Agency.

The main importer of Egyptian potatoes is Great Britain: exports to that country accounted for about 51% of the total volume of Egyptian exports between 1988 and 1991.

Another important market, which opened in 1991, is Greece, which imported 54,500 tonnes or 25% of the total volume of exports.

The other countries that import Egyptian potatoes are: Saudi Arabia with 13% of exports, Libya with 6% and France with 5.1%. Exports to these five countries represent around 93.5% of all Egyptian exports.

Potato exports are in difficulty at present because of the appearance of brown rot disease, which is infesting production. Exporting producers believe that if this disease is not effectively combatted and rooted out, Egyptian potatoes will lose major shares of the international market, which will be very difficult to recover.

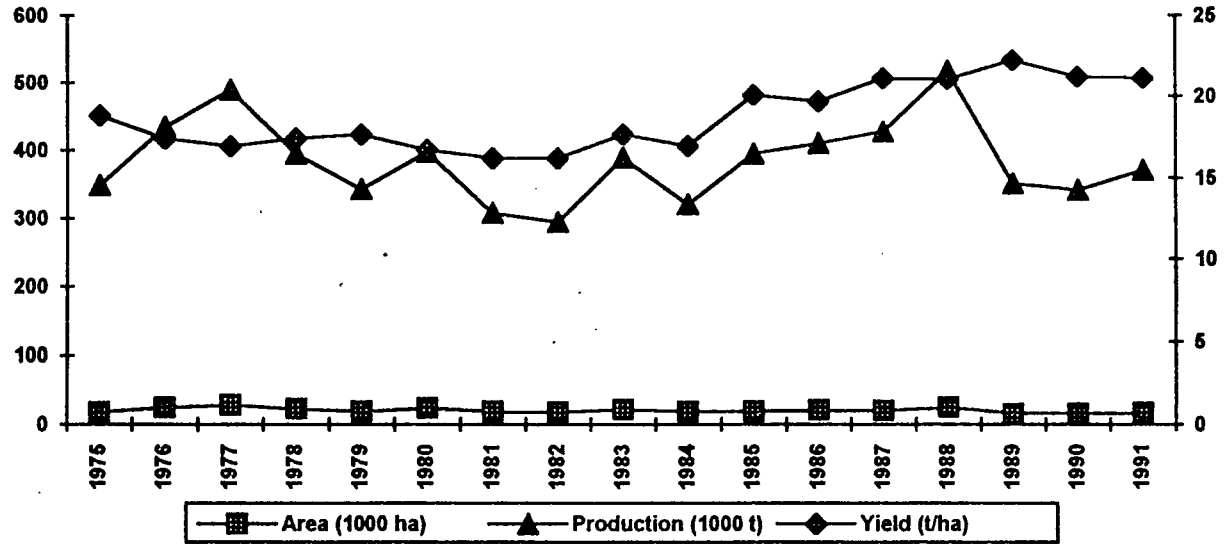
6.3. ONIONS

This is the third vegetable crop after potatoes and tomatoes. Until the middle of the 1970s, onions were also Egypt's third export crop after cotton and rice. Since then they have declined, because the varieties grown are no longer sought after on foreign markets.

Table 43 - Trend in area under crop, yield and production of onions

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1975	18.6	18.81	349
1976	25.0	17.38	434
1977	28.9	16.91	489
1978	22.7	17.38	395
1979	19.5	17.62	343
1980	23.9	16.67	398
1981	19.0	16.19	308
1982	18.2	16.19	294
1983	22.1	17.62	389
1984	19.0	16.91	321
1985	19.7	20.03	395
1986	20.9	19.65	410
1987	20.2	21.07	427
1988	24.6	21.03	517
1989	15.8	22.21	351
1990	16.2	21.18	342
1991	17.6	21.10	371

Source: Ministry of Agriculture.



A - Area under crop:

The loss in importance of onions as an export crop has led to a reduction in the areas grown. Table 43 shows that the area under crop (28,900 ha in 1977) has declined constantly, especially in the late 1980s and early 1990s.

B - Yields:

We note a degree of stability in yields between 1975 and 1981. The greatest increase was in 1989: 22.2 t/ha. It seems strange that yields are low and stable, knowing that it is one of the most profitable crops.

C - Production:

The relative stability of areas and yields means that the overall volume of production has changed little. Production has declined since 1988 and in 1991 was only 6.3% above its 1975 level.

D - Trade: (see Table 44 overleaf).

Table 44 - Onion exports (1984-1991) (tonnes)

Year	1984		1985		1986		1987		1988		1989		1990		1991	
	Volume	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Arab countries																
Bahrain									224	0.45	237	0.47	88	0.15	44	0.11
Emirates					3	0.014	1	0.003	246	0.49	88	0.17	731	1.22	44	0.11
Lebanon	1910	10.92	2130	9.66	527	2.53	421	1.33	1164	2.32	833	1.65	2273	3.79	1804	4.33
Kuwait					2	0.0096	873	2.77	5163	10.31	5557	11.00	2863	4.77	120	0.29
Saudi Arabia	410	2.34	1010	4.58	275	1.32	4453	14.12	22775	45.27	16474	32.60	23717	39.53	19741	47.36
Jordan							71	0.23	354	0.71	1217	2.41	111	0.19	40	0.10
Other Arab countries									176.5	0.35	300.2	0.6	4240	7.07	6582	15.79
Total	**2320**	**13.26**	**3140**	**14.25**	**807**	**3.88**	**5819**	**18.45**	**30003**	**59.9**	**24706**	**48.9**	**34023**	**56.71**	**28375**	**68.07**
European countries																
United Kingdom					52	0.25	1122	3.56	115	0.23	456	0.90	514	0.86	333	0.80
Italy	3390	19.38	3280	14.88	4327	20.84	3074	9.74	3639	7.27	4917	9.73	1897	3.16	251	0.60
Germany							134	0.42	761	1.52	345	0.68	305	0.51	38	0.09
France	1930	11.03	2440	11.07	2818	13.57	5298	16.8	36.43	7.27	8018	1587	6044	10.07	805	1.93
Former USSR	9240	5281	12770	57.94	11900	57.31	15962	50.60	9910	19.79	11025	21.82	10618	17.70	11050	26.51
Other European					822	3.95	136	0.43	1986.56	3.97	1002.5	1.97	6517	10.86	769.4	1.84
Total	**14560**	**83.22**	**18490**	**83.89**	**19919**	**95.94**	**25726**	**81.55**	**20055**	**40.04**	**25763**	**50.99**	**25895**	**43.16**	**13246**	**31.78**
Other countries	616	3.52	410	1.86	35	0.16			30.4	0.06	59	0.12	73	0.13	64	0.15
TOTAL	17496	100	22040	100	20761	100	31545	...	50087	...	50528	100	59991	100	41685	100

Egyptian exports increased slightly in 1990, when they amounted to 60,000 tonnes.

There are two reasons for the general downward trend in Egyptian exports:

- the varieties grown are no longer in demand on the international market;
- the varieties used date from the time when basin irrigation was the system used. They are unsuited to the present system of perennial irrigation, which increases humidity and quickly causes the produce to rot.

The main destination for Egyptian exports used to be the former USSR. The other destinations, in order of importance, were Saudi Arabia, France and Italy. From 1988 onwards we find Saudi Arabia becoming the main importer and the European market being replaced by that of the Arab countries.

Onions have great export potential. The openings on the Arab markets need to be expanded and European markets retaken. This will require the necessary technical input to improve the quality of the produce.

7. FRUIT

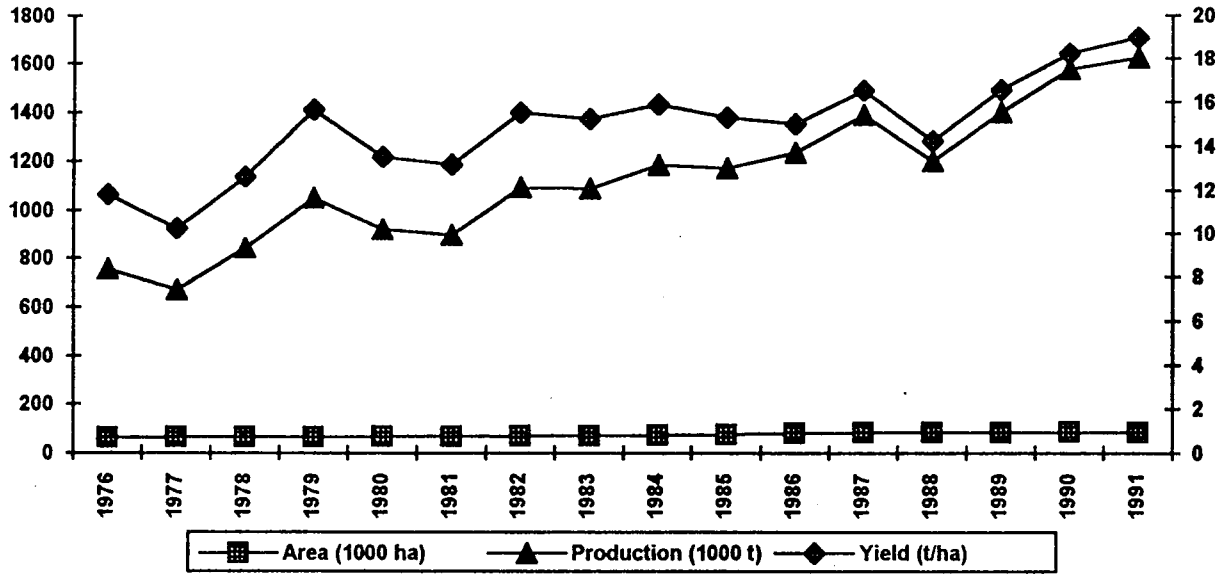
7.1. ORANGES

This is the most important fruit crop from the point of view of the area occupied and from that of exports.

Table 45 - Trend in area under crop, yield and production of oranges

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1976	63.8	11.84	755.4
1977	65.3	10.27	670.9
1978	66.7	12.63	842.7
1979	67.0	15.66	1050.0
1980	68.1	13.53	920.9
1981	68.0	13.18	895.4
1982	70.5	15.52	1093.7
1983	71.4	15.23	1087.1
1984	74.5	15.87	1182.4
1985	76.4	15.29	1168.5
1986	82.3	15.00	1234.2
1987	83.9	16.54	1387.0
1988	84.3	14.23	1198.8
1989	84.5	16.55	1397.5
1990	86.4	18.23	1574.3
1991	85.7	18.96	1624.2

Source: Ministry of Agriculture.



A - Area under crop:

The area under oranges increased steadily between 1975 and 1990, from 63,800 ha in 1975 to 86,400 ha in 1990.

Throughout the period, oranges were one of the most profitable crops.

In 1991 this trend went into reverse: the area under crop is starting to decline slightly, and many producers have started to give up this crop as it is no longer so profitable.

There are two reasons for this:

- firstly, the decline in purchasing power of a large number of consumers has changed consumption patterns: less and less fruit is being consumed;

- secondly, exports have failed to keep pace with rising production.

B - Yields:

As the data in Table 45 show, in line with the increase in the areas under crop, yields rose considerably during 1975/1991, reaching 18.96 t/ha. The use of new varieties and improvement in growing techniques largely contributed to the increase in yields.

C - Production:

The increase in production is the logical consequence of the growth in areas and yields. In 1991 production was 242% of the 1976 level.

D - Trade: (see Table 46 overleaf).

Table 46 - Orange exports 1984 - 1991 (tonnes)

Year	1984		1985		1986		1987		1988		1989		1990		1991	
	Volume	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Arab countries																
Saudi Arabia	34100	23.71	37600	23.35	38399	51.16	27979	25.22	29611	35.64	27588	17.98	14570	10.08	13100	11.83
Qatar					41	0.05	20	0.02	173	0.21	568	0.37	77	0.05	168	0.15
Kuwait							42	0.04	1328	1.60	1554	1.01	232	0.16	87	0.08
Emirates							2474	2.23	144	0.17	1915	1.25	426	0.29	115	0.10
Other Arabs countries					890	1.19	25	0.02	1197	6.62	4763	3.1	329	0.23	1226	1.11
Total Arab countries	**34100**	**23.71**	**37600**	**23.35**	**39330**	**52.40**	**30540**	**27.53**	**36764**	**44.25**	**36388**	**23.71**	**15634**	**10.82**	**14696**	**13.27**
European countries																
Netherlands	1700	1.18	2800	1.74	300	0.40	2202	1.99	2394	2.88	4511	2.94	3287	2.27	7377	6.66
Belgium							919	0.83	500	0.60	944	0.62	3479	2.41	1380	1.25
United Kingdom	3500	2.43	2000	1.24					4886	5.88	7550	4.92	8257	5.71	13517	12.20
Ex-Czechoslovakia			11400	7.08	9215	12.28	9084	8.19	13767	16.57	9659	6.29	10747	7.37	3	
Ex-USSR	102600	71.33	95000	58.99	23396	31.17	66496	59.95	20646	24.85	80742	52.62	84663	58.58	59526	53.74
Other European	0.19		9000	5.59	2160	5.68	772	0.7	2831	3.4	13579	8.83	18540	12.82	11814	10.69
	107800	**74.95**	**120200**	**74.64**	**35071**	**46.73**	**79473**	**71.65**	**45024**	**54.19**	**116976**	**76.23**	**28872**	**89.17**	**93617**	**84.52**
Total European																
Other countries	1932	1.34	3240	2.01	655	0.87	909	0.82	1299	1.56	77.5	0.06	12	0.01	2452	2.21
TOTAL	143832	100	161040	100	75056	100	110922	100	83088	100	153441	100	144518	100	110725	100

Source: Central Statistical Agency.

Table 46 shows that the variations in the volume of orange exports are quite significant: from 75,100 tonnes in 1986 to 144,500 tonnes in 1990.

As in the case of onions, the biggest importer of Egyptian oranges was the former USSR, followed in second place by Saudi Arabia until 1990. There was also a slight increase in exports to the United Kingdom, starting in 1988.

At present, Egyptian orange exports are in difficulty because of the disruption of the market in the former USSR and the very keen competition from other countries, in particular Israel, Morocco and Turkey.

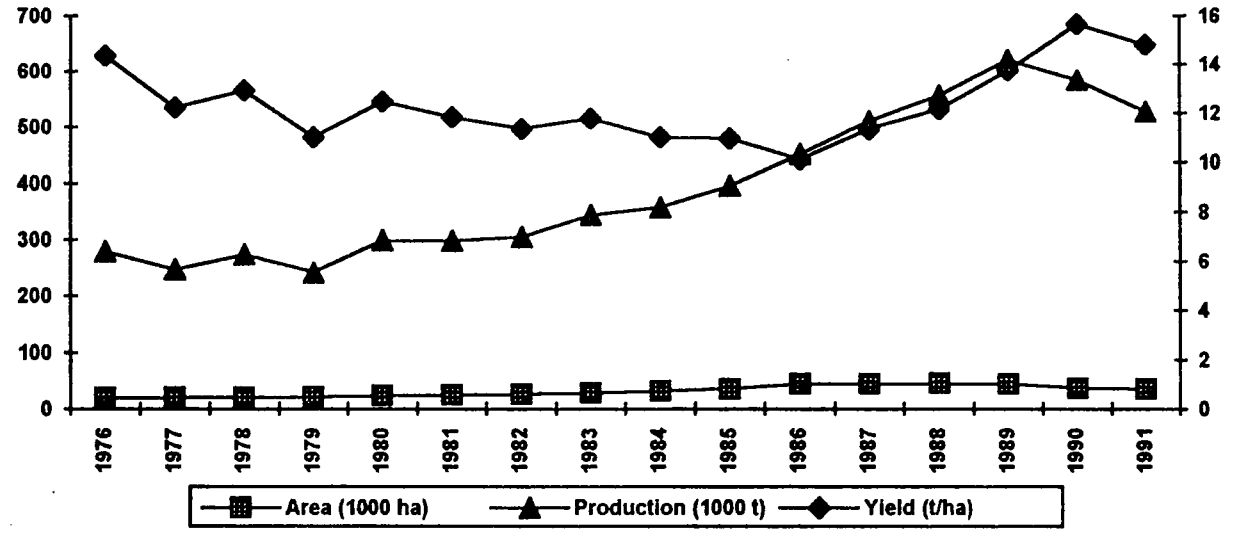
7.2. GRAPES

This is the second fruit crop after oranges from the point of view of the area occupied.

Table 47 - Trend in area under crop, yield and production of grapes

Year	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
1976	19.4	14.37	279.4
1977	20.3	12.22	247.8
1978	21.2	12.93	273.7
1979	22.1	10.99	242.3
1980	24.0	12.46	298.9
1981	25.2	11.81	298.0
1982	26.9	11.35	305.1
1983	29.2	11.77	343.5
1984	32.5	11.01	357.3
1985	36.1	10.95	395.0
1986	44.7	10.11	452.0
1987	45.0	11.33	510.0
1988	45.9	12.15	557.2
1989	45.1	13.76	620.6
1990	37.3	15.66	584.7
1991	35.5	14.82	526.7

Source: Ministry of Agriculture.



A - Area under crop:

In the 1980s, grapes followed the general trend to increase the area under fruit crops: the area under grapes rose from 19,400 ha in 1976 to 45,100 ha in 1989.

It must be remembered that another factor contributed to the increase in areas under grapes: the reclamation of new desert land. In fact, table grapes were planted over large areas in that region.

Following this period of expansion, the area under grapes declined markedly to 35,500 ha in 1991 or 77.3% of the area under crop in 1989.

Grape growing has experienced the same problems as oranges. Production has increased whilst demand has fallen slightly because of the decline in purchasing power and the stagnation in exports.

B - Yields:

Grape crop yields stagnated or even declined during the period under review.

Firstly, the varieties used have not been improved, and secondly, producers in the region where new land was opened up did not have the experience and the technical knowledge required to improve yields.

C - Production:

The rise in the overall volume of grape production was the result of the increase in areas under the crop mentioned above. In the present context (fall in demand and stagnation in exports) it may be assumed that production will decline as the areas under crop are reduced.

D - Trade: (see Table 48 overleaf).

Table 48 - Grape exports 1984 - 1991 (Tonnes)

Year	1984		1985		1986		(*)1988		1989		1990		1991	
	Volume	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Arab countries														
Sudan	132	92.31	178	91.28	167	64.73								
Saudi Arabia					14	5.43	2	3.14	0.9	4.98	0.4	0.30	58	20.57
Kuwait					28	10.85	21	33.02	3	16.61	78	57.55	65	23.05
Bahrain					2	0.78	2	3.14	0.1	0.55	10	7.38	15	5.32
Other Arab countries							14	22.02	6	33.22	23	16.97	61	21.64
Total Arab countries	**132**	**92.31**	**178**	**91.28**	**211**	**81.78**	**39**	**61.32**	**111.4**	**82.19**	**199**	**70.57**		
European countries					27	10.47	22.5	35.38	0.06	0.33	11.1	8.19	71	25.18
Other countries	11	7.79	17	8.72	20	7.75	2.1	3.30	8	44.30	13.04	9.62	12	4.26
TOTAL	**143**	**100**	**195**	**100**	**258**	**100**	**63.6**	**100**	**18.06**	**100**	**135.54**	**100**	**282**	**100**

Source: Central Statistical Agency.

(*)1987 data not available.

Grape exports are very low in volume, not more than a few hundred tonnes. Nevertheless, there is potential for increasing exports, especially if transport and packaging can be improved, these two factors being particularly important for this fragile produce.

SECTION II - ANIMAL PRODUCTION

Animal production occupies a less important place than plant production in the structure of agricultural production in Egypt; overall the country is in deficit and imports animal produce (cf. Chapter I, Table 12).

Red meat (comprising all types of livestock: buffalo, cows, camels, sheep, etc.), poultry and milk are the main products analyzed in this section.

1. RED MEAT

A - Production:

Table 49 - Production and imports of red meat 1980 - 1990

Year	Production		Imports		Av. consumption/ person/year	
	Volume (T)	Index	Volume (T)	Index	Volume (kg)	Index
1980	294000	100.00	60900	100.00	8.8	100.00
1980-81	294000	100.00	102500	168.31	9.4	106.82
1981-82	299000	101.70	919900	1510.51	10.0	113.64
1982-83	459000	156.12	86400	141.87	12.8	145.45
1983-84	487000	165.65	163200	267.98	14.5	164.77
1984-85	511000	173.81	153800	252.55	14.2	161.36
1985-86	511000	173.81	156090	256.31	14.7	167.05
1986-87	512000	174.15	152500	250.41	13.7	155.68
1987-88	530000	180.27	113300	186.04	13.0	147.73
1988-89	539000	183.33	116800	191.80	12.0	146.59
1989-90	...	...	148515	243.87	...	...

Source: Central Statistical Agency

Red meat production increased between 1980 and 1989 from 294,000 tonnes in 1980 to 539,000 tonnes in 1989.

During that period, large subsidies were given to investment projects in the field of animal production as part of a "food security" strategy. These subsidies were abolished in 1992 and replaced in part by finance from external aid.

Some specialists believe that because of its lack of natural pasture land, its extremely small agricultural area and the competition between wheat and berseem (the main fodder crop) Egypt has no comparative advantages so far as animal production is concerned.

With the policy of abolishing subsidies and the increased profitability of wheat as compared to berseem (which means a drop in fodder production), there will be no significant increase in animal production and it may even stagnate.

B - Consumption:

Average consumption of red meat increased between 1980 and 1985: from 8.8 kg/person in 1980 to 14.7 kg/person in 1986. This increased consumption reflects the improved incomes of a section of the population, resulting from the earnings of Egyptian labour that emigrated to the oil-producing countries.

Average consumption per person has declined since 1986, falling to 12.2 kg/person in 1989.

In fact, the end of the 1980s saw a major price increase[18] and a significant fall in the real incomes of a large proportion of consumers as many Egyptians returned from the oil-producing countries. These two factors caused red meat consumption to fall.

C - Trade:

Despite the increase in red meat production, imports increased as well: they stood at 60,900 tonnes in 1980 and 148,500 tonnes in 1990.

The data on the origins of meat imports are scattered and inconsistent, and except for the years 1988 and 1989 there are no uniform statistical series.

From the figures for those two years it appears that the EEC is the main exporter of red meat to Egypt (45.4 and 45.3% of imports), followed by the United States (20.1% and 20%) and Brazil (9.3 and 9.4%).

[18] - During the periods 1986/87 and 1988/89 the rise in the cost of living was the greatest the country has known: it reached 20.9% a year in urban areas and 21.7% a year in rural areas.

2. POULTRY

Most poultry produced is farmed. The mid 1970s to the present day have seen a major development of poultry farming, despite the confusion of the 1980s surrounding the policies for input prices, especially maize prices.

Table 50 - Production and imports of poultry 1980 - 1990

Year	Production		Imports		Av. consumption/ person/year	
	Volume (T)	Index	Volume (T)	Index	Volume (kg)	Index
1980	915895	100.00	17700	100.00	2.9	100.00
1980-81	132356	14.45	55800	315.25	4.4	151.72
1981-82	142815	15.59	71200	402.26	4.9	168.97
1982-83	407623	44.51	44100	249.15	10.6	365.52
1983-84	413909	45.19	91700	518.08	11.2	386.21
1984-85	447407	48.85	74600	421.47	11.4	393.10
1985-86	458583	50.07	32900	185.88	10.8	372.41
1986-87	486311	53.10	49900	281.92	11.1	382.76
1987-88	466799	50.97	44200	249.72	10.3	355.17
1988-89	463434	50.60	13080	73.90	9.3	320.69
1989-90	...	...	5840	32.99	...	...

Source: Central Statistical Agency

A - Production:

Poultry production increased enormously between 1980 and 1985: from 115,900 tonnes to 486,300 tonnes.

In the end, the difficulties caused by the policy contradictions referred to above were a handicap to production, which began to fall slightly from 1989 onwards.

B - Consumption:

The increase in poultry production enabled average consumption to increase from 2.9 kg/person in 1980 to 11.4 kg/person in 1985.

After that, consumption declined, falling to 9 kg/person in 1989, probably for the same reasons as already given for red meat.

C - Trade:

We were unable to obtain any data about the countries exporting to Egypt, so we shall simply examine the change in the volume of imports.

Despite the increase in poultry production, imports increased as well, amounting to 91,700 tonnes in 1983. The volume of imports then declined to 5,800 tonnes in 1990. However, it seems that despite the fall in production and imports demand for chicken meat will rise, since it is relatively cheap as compared to red meat.

3. MILK

Buffalo milk is the most important dairy product in Egypt and the one which consumers prefer, since it is richer in fats than cow's milk.

The volume of milk imports is very low, so we shall confine ourselves to analysing production and consumption.

A - Production:

Table 51 - Production and imports of milk 1980 - 1990

Year	Production		Imports		Av. consumption/ person/year	
	Volume (T)	Index	Volume (T)	Index	Volume (kg)	Index
1980	1905000	100.00	1866	100.00	47.0	100.00
1980-81	1927000	101.15	2476	132.69	46.9	99.79
1981-82	1948000	102.26	2099	112.49	46.2	98.30
1982-83	2015000	105.77	3341	179.05	46.5	98.94
1983-84	2064000	108.35	3566	191.10	46.4	98.72
1984-85	2087000	109.55	1379	73.90	45.1	95.96
1985-86	2110000	110.76	196	10.50	44.8	95.32
1986-87	213000	111.86	-	-	44.1	93.83
1987-88	2169000	113.86	-	-	43.7	92.98
1988-89	2178000	114.33	-	-	42.7	90.85
1989-90	...	...	-	-	...	...

Source: Central Statistical Agency

Milk production grew slowly but steadily during the 1980s.

It rose from 1,905,000 tonnes in 1980 to 2,178,000 tonnes in 1989, an annual growth rate of 1.59% a year, which is less than the rate of population growth (2.7% a year).

B - Consumption:

Average consumption per person has declined from 47 kg per person per year in 1980 to 42.7 kg per person per year in 1989.

The rise in the price of milk and the decline in real incomes have caused the level of consumption to fall.

CHAPTER III - CHANGES IN AGRICULTURAL POLICIES AND THE FUTURE OF EGYPTIAN AGRICULTURE

INTRODUCTION

Since the middle of the 1980s the Egyptian economy has been undergoing major transformations known as the "programme of stabilisation and structural adjustment policies".

The implementation of this programme has been made necessary by the difficulties that have afflicted the Egyptian economy since the end of the 1960s; it is perceived as a programme of economic reform that will enable the efficiency of the economic structures to be improved.

In the field of agriculture this reform programme has led to a series of new agricultural policies.

As a result, Egyptian agriculture is at present in the throes of change: survivals from the past exist side by side with the new policies, which are radically different in their philosophy. This period of transition is quite difficult to analyze and its consequences are neither evident nor easy to foresee.

However, in this chapter we shall present the new economic policies, in particular the agricultural policies, and then we shall try to analyze the initial effects of those policies and the prospects for the development of agriculture.

3.1. ECONOMIC REFORM: WHY?

At the end of the 1950s and during the 1960s the Egyptian economy was characterised by massive State intervention in production and marketing.

The economic development strategy was known under the name of "import substitution strategy". To improve the standard of living of the disadvantaged strata of society, the State had put in place a policy of subsidising basic services and commodities.

Starting in the mid 1970s, the policy of "Infitah" or economic opening was proclaimed and inaugurated with the implementation of the "investment code" (law of 1974). This new economic direction went hand in hand with numerous social and political changes.

This period witnessed a number of phenomena:

- massive emigration of Egyptian labour (all qualifications together) to the oil-producing countries. The financial transfers from these workers were an important source of revenue and foreign currency;

- increase in oil earnings as a result of the rise in the price of oil, and recovery in income from the Suez Canal following its reopening;

- the (timid) arrival of foreign capital, particularly from the Arab oil-producing countries, for investment.

In this context, GDP grew markedly (in constant prices) between 1974 and 1985, with an estimated growth rate of 8.5% a year.

After this short period of growth, the conditions for such growth changed, especially the level of external financial flows. External flows, by which the growth was financed, fell significantly as a result of the drop in oil prices in 1982, the smaller volume of monetary transfers from Egyptian labour in the oil-producing countries (because workers had begun to return home) and the slowing down in foreign investment.

Faced with this situation, which increased the budget deficit, the State took out new loans and went for inflationary financing. This policy aggravated the economic crisis and caused living standards to decline.

The main indicators of this crisis are as follows[19] :

- a decline in the growth rate to below the rate of population growth during the second half of the 1980s. In 1990/91 the economic growth rate was 2.1%, whilst the population growth rate was 2.7%. Falling further, the economic growth rate in 1992 is likely to have been 0.3%;

- a budget deficit of around 20% of GDP between 1986/87 and 1991/92;

- a trade deficit of $8.3 billion in 1989/90;

- an inflation rate not falling below 20% during the second half of the 1980s;

- an external debt of 46.1 billion in 1990, equal to the GDP;

- a balance of payments deficit of 11.4% of GDP;

-a fall in the agricultural sector's growth rate to 1.7% in 1990.

3.2. THE ELEMENTS OF THE NEW ECONOMIC POLICY

The reform and the new economic policies actually began to be put into place in the mid 1980s.

Negotiations with the IMF and the World Bank ended in a structural reform programme supported by a loan from the World Bank (Structural Adjustment Loan) and centred on a liberalisation of the economy, total abolition of State intervention in economic activities and a broad privatisation programme.

The drawing up and implementation of the reform programme enabled the external debt to be renegotiated and part of it to be cancelled. Another part of the Egyptian debt was also cancelled at the time of the Gulf War.

[19] - International Monetary Fund: Arab Republic of Egypt, Recent Economic Development, Washington D.C., August 1992.

The elements of the new economic policy drawn up in this reform programme are:

- limitation of the external debt;
- devaluation of the Egyptian pound (which was overvalued) and setting exchange rates according to the market;
- freeing of interest rates (which resulted in them rising);
- the introduction of new taxes such as VAT in May 1991;
- the freeing of prices for most industrial products in June 1990 and May 1992;
- the freeing of prices for all agricultural products with the exception of cotton and sugar cane. Cotton prices and cotton trading are to be freed in 1993 and those of sugar cane in 1995;
- energy prices (fuel, electricity, etc.) started to rise in May 1991, reaching 80% of international prices in June 1992;
- abolition of administrative constraints and export and import controls;
- sale of public sector enterprises under the privatisation programme.

These measures have not all been implemented with the same degree of effectiveness and success.

Moreover, they have not brought about the complete disappearance of the former policies and the way things were done under them: the Egyptian economy is at present a mixture of market economy and command economy. A large part of GDP is still generated by public enterprises and projects, and the State continues to be involved in setting the prices of certain services and some industrial and agricultural products.

3.3. THE CRISIS IN THE AGRICULTURAL SECTOR

The history and development of the agricultural sector reflect the development of the Egyptian economy as a whole. During the 1950s, 1960s and 1970s the agricultural sector experienced a great deal of State intervention in its production and marketing.

State intervention took a variety of forms:

- a monopoly on the sale of agricultural inputs (seed, fertilizers and pesticides);
- setting the prices of the main agricultural products or of so-called "strategic" crops such as cereals, cotton, sugar cane, etc. The prices set by the State were much lower than international prices;
- a monopoly on the import and export of agricultural products;
- determination of crop rotation and the areas to be planted with the main crops (strategic crops);

- subsidies on agricultural inputs and agricultural credits and a monopoly on the latter;

- control of agricultural cooperatives;

- State monopoly in the reclamation of new land.

Agricultural policies created major distortions in the agricultural sector[20]:

- growth in demand for subsidised agricultural products and wastage of them (especially wheat);

- poor use, wastage and diversion of agricultural inputs;

- reduction in areas under wheat and cotton, the main products controlled by the State, in favour of other crops such as berseem;

- stagnation in yields of the main crops;

- farming given up by very small farmers and emigration of agricultural labour to oil-producing countries;

- subsidies an increasing burden on the budget deficit;

- increased imports and lower exports, resulting in a growing agricultural trade deficit;

- increase in the food deficit.

This structural crisis in the agricultural sector required agricultural policies to be reformed as part of the new economic policies.

3.4. THE ELEMENTS OF THE NEW AGRICUTLURAL POLICIES

The new agricultural policies form part of the general pattern of abolishing State intervention and freeing prices.

The main elements specific to the agricultural sector are:

- except for cotton and sugar cane, the State will no longer determine the areas to be cultivated;

- except for cotton and sugar cane, the State will no longer set the prices of agricultural products;

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[20] - Hassan KHEDR (et al): Evaluation of the Egyptian agricultural sector for further decontrol. Conference on Agricultural Policy Reform in Egypt: Current Status and Future Strategy, Ministry of Agriculture, Cairo, June 1989.

- Adel BESHAY: An evaluation of prices of major agricultural commodities in relation to world prices. Conference ...

- Adel BESHAY (et al): Agricultural input subsidies in Egypt: Magnitudes and consequences. Conference ...

The price set by the State for cotton was increased to 66% of the international price in 1992/93;

- subsidies abolished on interest rates and agricultural inputs, except for pesticides for cotton, where subsidies are to be abolished in 1995;

- State monopoly on the import and marketing of agricultural inputs abolished;

- public agricultural enterprises put up for sale;

Clearly, most of these policies came into force recently and some will do so in the near future. As a result, the agricultural sector in Egypt is currently in a transitional phase. This makes it difficult to analyze the consequences and effects of the new agricultural policies.

3.5. THE FIRST EFFECTS OF THE NEW AGRICULTURAL POLICIES

Despite the short time that has elapsed since the introduction of the new economic policies, the initial effects of those policies can be analyzed.

The main effects are:

- A decline in the level of taxation borne by the agricultural sector for the first time in nearly 35 years. This is the indirect taxation levied through the system of prices for agricultural products (difference between local prices and international prices) which was the means of tapping the agricultural surplus and transferring it to other sectors. The value of that surplus fell from 5.5 billion in 1985 to 1 billion in 1991;

  If we consider that irrigation water currently being free of charge is a kind of subsidy, we can say that for the first time agriculture is being subsidised by the State instead of subsidising it[21].

  The rise in local prices, bringing them closer to international prices, could encourage private investment in the agricultural sector, improve productivity and increase agricultural production.

- The freeing of prices, once set by the State, for agricultural products that are very much in demand has encouraged producers to increase the areas under those products, now profitable, and to use high-yield varieties.

  The area under wheat increased by 65% between 1985 and 1990, that under rice by 12% and that under maize by 11% over the same period. As a result of the increase in areas and yields, the total volume of production increased by 128% for wheat and 30% for rice and maize.

  However, we must ask ourselves whether the freeing of prices will have a lasting effect on the increase in production. It seems to us that increased production will quite soon have reached its limits, for both economic and technical reasons.

  The technical constraints are those afflicting Egyptian agriculture: the scarcity of water and land resources, and the economic constraints come from the way the agricultural sector as a whole is organised.

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[21] - World Bank, Arab Republic of Egypt: An Agricultural Strategy for the 1990s, Report No11083, Washington DC, December 1992.

In other words, increasing the prices for agricultural products is not enough to achieve a lasting increase in production if the production structures and their environment are not capable of ensuring a new pattern of working.

Indeed, given the present production structures (cf. Chapter I) and in the absence of effective extension services and of producer institutions capable of managing the development of the agricultural sector (credit, investment, inputs, etc.), the increase in production would seem to be compromised in the long term.

The effects of the new agricultural policies are less visible when it comes to improving management and the efficiency of production structures and institutions.

- Abolishing the limit on agricultural ownership (agrarian reform law) has enabled large farms to appear, especially on new land. These large farms operate differently, of course: they are highly mechanised and are introducing new techniques and new crops.

  It is too early to say whether the change in the law on tenant farming (cf. Chapter I) is likely to see the appearance of such large farms on the old lands. But the question that comes to mind is: will one of the effects of the new agricultural policies be the creation of two agricultures? What will be the long-term effects of such dualism in Egyptian agriculture?

- The abolition of the subsidies on inputs and the freeing of prices for agricultural produce have made it possible to measure the cost of using local resources, the level of competitiveness and the rate of protection of the main crops.

Table 52 - Comparative advantages and rates of protection of the main crops on the old lands in 1991

Crop	Cost of using local resources	Nominal rate of protection	Actual rate of protection
Sugar beet	0.9	-0.3	-0.3
Wheat	0.6	-0.2	-0.2
Maize	0.8	-0.3	-0.2
Rice	1.0	-0.4	-0.3
Cotton	0.6	0.2	0.6
Sugar cane	1.4	0.0	0.1
Tomatoes	0.4	0.0	0.1
Oranges	0.6	0.0	0.1
Potatoes	0.7	0.0	0.1

Source: World Bank, Arab Republic of Egypt: Agricultural Strategy for 1990, Report no 11083, Washington DC, December 1992.

We see from the indicators in Table 52 that:

a - According to the coefficient of cost of local resources[22], Egypt has a clear advantage as regards the production of fruit and vegetables (coefficient less than 0.7) and the production of cotton (coefficient 0.4). The coefficient for cotton would have been lower if the year taken as the base year for the calculation had not been 1991, when cotton yields were particularly low.

Egypt has a comparative advantage for the production of crops that consume little water, such as maize, beans, potatoes and oil plants. On the other hand, there is no such comparative advantage for water-consuming crops such as rice and sugar cane.

The new lands (lands reclaimed in the desert regions) have a comparative advantage for fruit and vegetable crops (such as tomatoes, green beans, water melons, melons, etc.).

b - Despite the freeing of prices, the nominal rate of protection shows that, for all crops, the market mechanisms are not yet operating with total efficiency and that producers are still obtaining prices lower than the economic prices for their products.

c - The rate of actual protection shows that all crops are benefitting from a subsidy on agricultural inputs (free irrigation water for all crops and pesticides for cotton).

22 - This index is calculated for the old agricultural lands, that is the lands located in the Nile Delta and Nile Valley.

3.6. PROSPECTS FOR THE DEVELOPMENT OF AGRICULTURAL PRODUCTION AND TRADE

3.6.1. Development of agricultural production

A - Development of agricultural production in relation to the compartative advantages of Egyptian agriculture:

On the assumption that present conditions will not change (same demand, same constraints), we can foresee a few trends in the development of agricultural production in Egypt, especially the production of crops for which Egypt has a comparative advantage or a major deficit.

a - Despite Egypt's comparative advantage in fruit and vegetable production, the areas under these crops and the production of them are unlikely to increase, because of problems relating to marketing rather than production.

Indeed, marketing these products is encountering difficulties both locally (transport, packaging, storage, etc.) and internationally (market saturation, competition, etc.). The development of fruit and vegetable crops will therefore depend on new foreign markets being opened and efficient export chains being established.

b - To reduce its deficit in vegetable oils Egypt will have to develop sunflower growing, for which it has a comparative advantage. It is thought that the production from around 400,000 ha (of high-yield varieties) could satisfy the country's vegetable oil needs. The extension of the areas under sunflowers would be at the expense of berseem and not of crops with a high economic value like wheat or cotton.

c - Rice is a crop for which Egypt has no comparative advantage (the crop uses a lot of water), even if yields are improved. It would therefore not be possible to increase the areas under crop or production in order to increase the volume of rice exports.

d - Like rice, sugar cane is a crop for which Egypt has no comparative advantage. However, maintaining a national sugar production is part of the "food security" strategy, so an alternative to sugar cane must be found. This alternative is sugar beet: not only does this crop use less water, but it is also seasonal, which is a further advantage over sugar cane (which occupies the soil for 5 years).

e - Generally speaking, Egypt has no comparative advantage so far as animal production is concerned. However, if we refine this analysis according to the different types of animal production, we find a larger relative advantage for the production of foreign breeds of cattle than for buffalo and local cattle breeds.

B - Development of the main factors and of demand:

We shall set out the data from a study made by researchers of the National Planning Institute concerning the development of Egyptian agriculture in the year 2000[23], the base year being 1992.

It must be pointed out that we find the data in this study quite contradictory and optimistic. We have therefore used the data with caution, surrounding them with a more qualitative analysis closer to socio-economic realities.

a/ Development of agricultural GDP, area under crop and agricultural intensification

The study envisages that between 1992 and the year 2000 agricultural GDP will grow at a rate of 4% a year as compared to an annual rate of 6% for the other sectors and an overall annual rate of 5.66%.

As to the development of the area under crop, according to the data in Table 53 this will reach 3,287,000 ha in the year 2000 with a growth rate of 1.23% a year.

The area harvested (which expresses the rate of agricultural intensification) will increase from 1.844 ha to 1.856 ha in the year 2000, which will mean an increase in the total area harvested from 5,497,000 ha in 1992 to 6,102,000 ha in the year 2000, with a growth rate of 1.31% a year.

Table 53 - Forecast development of the area under crop and area harvested in the year 2000

Area under crop (1000 ha)	Old lands	New lands	Total
In 1992	2442.3	539.2	2981.5
In 2000	2515.5	771.5	3287.0
Growth rate	*0.37*	*4.58*	*1.23*
Area harvested (1000 ha)			
In 1992	4823.5	674.0	5497.5
In 2000	5072.5	1029.5	6102.0
Growth rate	*0.63*	*5.44*	*1.31*

Source: National Planning Institute, Cairo, October 1992.

[23] - This study was made using the CAPPA model: Computerized system for agricultural and population planning assistance and training.

b/ Development of agricultural production and yields of the main crops

Table 54 - Forecast development of areas, yields and production of the main crops

Crop	1991			2000		
	Area (1000 ha)	Yield (t/ha)	Production (1000 t)	Area (1000 ha)	Yield (t/ha)	Production (1000 t)
Wheat	816	5.50	4483	708.3	5.63	3985.3
Rice	460	7.50	3448	530.5	6.69	2546
Maize	867	5.9	5122	822.8	6.81	5601.8
Beans	136	3.24	439	167.4	3.10	519.6
Potatoes	84	19.87	1663	87.7	27.08	2375.4
Soya	42	2.84	120	74.7	3.13	234
Citrus fruits	-	-	-	166.8	21.47	3577.8
Table grapes	35.5	14.82	526.7	68.8	15.49	1065.5
Sugar cane	112	102.5	11495	122.3	106.56	13031.5
Cotton	358	2.3	823.72	533.2	3.06	1629.8

Source: Ministry of Agriculture data for 1991 and Cairo National Planning Institute (for the year 2000).

From the National Planning Institute forecasts it appears that yields of most crops will increase significantly, especially soya, cotton and table grapes. Potatoes (the leading export crop among vegetables) will see a spectacular increase in yields and production volume.

Wheat and rice (the main cereals), on the other hand, will decline.

In the case of wheat the area under crop will be smaller than in 1991, and the slight increase in yields will not be enough to make up for the decline in area: wheat production is therefore expected to be around 500,000 tonnes less than in 1991.

The area under rice will increase by comparison with 1991, but yields will be down, and the anticipated overall production volume of rice in the year 2000 will be about 1 million tonnes less than in 1991.

c - Development of demand

Despite these forecast data, it must be admitted that the development of agricultural production will not be determined solely by agricultural policies and technical constraints. The weather is not a risk or uncertainty factor for Egyptian agriculture. On the other hand, certain economic and social uncertainties could affect the way in which agricultural production develops. Such uncertainties lie in particular in the volume of demand and the level of consumption of certain agricultural products (meat, milk, fruit, etc.).

Table 55 - Forecasts of demand for the main food and non-food products

Product	Average amount per person (kg/year)		Overall demand (1000 t)		Growth rate
	1992	*2000*	*1992*	*2000*	
Food demand					
Bread	99.73	100.44	5398.3	6543.9	0.09
Pasta products	9.97	10.04	539.8	654.4	0.09
Rice	33.17	37.98	1795.3	2474.6	1.71
Maize	58.28	59.31	3154.7	3864.7	0.22
Beans	4.95	5.28	267.8	344.0	0.81
Potatoes	26.96	28.62	1459.3	1864.6	0.75
Citrus fruits	35.89	43.07	1942.5	2806.3	2.31
Sugar	35.60	36.75	1927.1	2394.2	0.40
Vegetable oils	6.25	11.29	446.4	735.6	4.01
Milk	34.36	41.89	1859.7	2729.6	2.51
Non-food demand (industrial)					
Rice	-	-	73	113.4	5.66
Maize	-	-	109.4	170.0	5.66
Vegetable oils	-	-	167.1	259.6	5.66
Cotton	-	-	225.7	350.7	5.66

Source: National Planning Institute, Cairo, October 1992

We find these forecasts particularly optimistic as regards the average consumption per person.

Indeed, whilst some economists claim that the population growth will ensure an increase in overall demand, others stress the declining purchasing power of a large section of the population, which could cause demand and the level of consumption to fall.

This may be true in the short to medium term, since we are already witnessing the start of a decline in consumption resulting from the fall in purchasing power, itself the outcome of a number of factors: unemployment, return of large numbers of Egyptian migrant workers from the oil-producing countries, inflation, etc.

In the long term there are many uncertainties affecting the development of demand, in particular the question of how the population's purchasing power will develop, given that the present characteristics of the Egyptian economy (payment economy) are such that the development is determined mainly by external factors (oil price, tourism, etc.) not affected by national policies.

The development of agricultural production will be linked to the development of the economy as a whole. On the one hand, the development of the economy as a whole will mean that demand for agricultural products is maintained and developed, and on the other hand the development of certain sectors of the economy such as the agri-foodstuffs industry may stimulate the development of agricultural production.

Another uncertainty factor is the development of external markets. The development of agricultural production will depend very much on the potential for developing Egyptian exports.

3.6.2. Development of agricultural trade

Table 56 - Agricultural exports and imports in the year 2000

Product	Volume (1000 t)		Growth rate
	1992	*2000*	
Imports			
Wheat	7507.3	9194.9	2.57
Maize	10.2	14.0	3.87
Sugar	760.9	1084	4.52
Vegetable oils	410.2	794.2	5.69
Milk	82.1	93.3	2.53
Beef	182.8	243.8	4.45
Exports			
Rice	244.1	-	-
Beans	67.2	42.3	- 5.62
Lentils	43.5	56.1	3.61
Citrus fruits	762.9	459.3	5.98
Table grapes	191.9	120.6	- 5.64
Cotton	240.4	189.9	- 2.50

Source: National Planning Institute, Cairo, October 1992.

According to the National Planning Institute's forecasts mentioned above, Egypt's agricultural imports will have an average growth rate of 3% for the main crops, with a particularly high rate of growth for vegetable oils and sugar.

Egypt's agricultural exports will tend to fall in the case of the main crops, cotton, rice and table grapes in particular, with the exception of citrus fruits, which will experience a 5.98% growth rate. The agricultural trade balance will still be in deficit.

Leaving aside figures and forecasts, we need to analyze the structure of Egyptian exports and the difficulties they are up against.

At present, Egypt's agricultural exports depend essentially on three products which account for 90% of the value of agricultural exports, viz: cotton, oranges and potatoes.

Cotton alone represents 60% of the value of agricultural exports. As the international market develops, Egypt, which has always been well placed as regards long staple cotton, could encounter difficulties, especially in the matter of price levels.

Turning to the second export crop, oranges, we find that the volume of exports rose slightly by about 1.8% during the 1980s. Since the biggest importer was the former USSR, orange exports are likely to fall sharply until new markets are found, and it will be difficult to gain access to them because of competition from Morocco and Israel.

Exports of other products (tomatoes, rice, onions and lemons), representing about 10% of the total value of agricultural exports, have increased markedly in recent years. The destinations of Egyptian exports are in a state of flux.

Over the last 30 years most of Egypt's agricultural exports went to the countries of Eastern Europe, especially the former USSR. The collapse of the USSR and the break-up of the countries of the East mean that new markets must be sought.

Exports to the countries of the Middle East, Saudi Arabia in particular, increased during the 1970s and 1980s.

The EEC is an important market for Egyptian agricultural produce: it currently imports 35% of cotton exports, 50% of rice exports, 45% of vegetable exports and 2.5% of fruit exports. Having said that, exports to the EEC are limited by the trade agreement (signed in January 1977). In 1991 they amounted to about ECU 95 million, whereas it is thought that the EEC market is capable of absorbing more Egyptian exports (to the value of possibly ECU 400 million[24]).

Despite Egyptian agriculture's comparative advantages, especially for the production of fruit and vegetables, Egyptian exports remain at a level far below their potential. Egyptian exports are up against keen competition on the markets of the EEC and the Middle Eastern countries and are encountering difficulties on the markets of the countries of Eastern Europe.

Egyptian exports are currently also handicapped by local factors:

- storage and transport problems
- the quality of the packaging used for agricultural produce
- the poor organisation and general inefficiency of export channels (poor circulation of information, failure to meet delivery dates, etc.)
- lack of care given to product quality and failure to comply with health and other standards.

Under the new agricultural policies measures have been taken to improve the efficiency of export channels in Egypt, but these measures are very inadequate when compared to the problems and needs, which include for example the need to:

- organise the circulation of information, making it more readily available to exporters, in particular information about standards required, procedures, etc.;
- invest in the necessary infrastructures for export;
- reduce administrative and customs controls;
- improve technical training to help exporting producers to improve the quality of their produce and combat attacks on their crops effectively and above all speedily;
- put in place the fiscal measures necessary to encourage investment in marketing projects.

The withdrawal of the State, which is the main thrust of the new economic policy, has created an organisational vacuum. One of the urgent needs is the establishment of alternative structures such as groups or federations of producers. These structures would conduct negotiations and also manage and organise distribution channels.

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[24] - Ministry of Economic Affairs and Foreign Trade: memorandum on agricultural and industrial exports to the EEC in the next 5 years. Cairo, March 1993.

In conclusion let us recall that the development of agricultural production in Egypt depends on a number of internal and external factors:

- the ability to reorganise agricultural production structures, putting in place alternative structures to replace the State;
- the establishment of efficient structures capable of acting quickly to solve technical problems;
- the development of the economy as a whole;
- the development of international trade and Egypt's place in that trade.

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