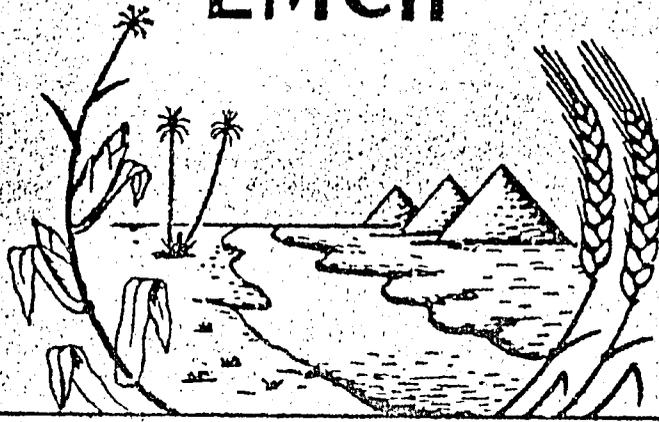


# EMCIP



المشروع المصري لتحسين محاصيل الحبوب الرئيسية  
EGYPTIAN MAJOR CEREALS IMPROVEMENT PROJECT

## RESEARCH - EXTENSION

Research Report

"AN ANALYTICAL ECONOMIC STUDY  
OF MAIZE PRODUCTION IN EGYPT"

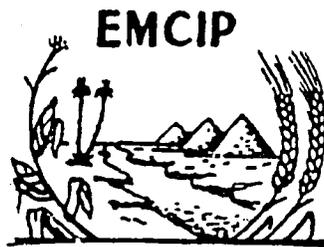
by

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ECONOMICS & STATISTICS

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#### ABREVIATIONS

f	Feddans
mf	Million feddans
t	Tons
mt	Million tons
t/f	Tons per feddan

AN ANALYTICAL ECONOMIC STUDY  
OF MAIZE PRODUCTION IN EGYPT

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I. Consumption of Maize in Egypt in 1980 and 2000.

Maize is the principal bread cereal for the rural population in Egypt. Besides increasing urbanization, the number of rural population will continue to increase until sometime in the future. A relatively small proportion of total maize consumption is used for animal feed at present. This proportion is expected to increase in the future due to the expected increase in the production of animal products, poultry and livestock meat, milk and eggs, to satisfy the fast increase in the demand for such products for food consumption.

Maize is mainly a summer crop planted after the harvest of wheat, full-term clover and some other winter and early summer crops. In 1980, maize occupied 1.9 million feddans or 33% of the total cultivated area in the old land of 5.8 million feddans or 17% of the total cropped area of 11.2 million feddans. The area of maize exceeds the area of any other crop in Egyptian Agriculture. In 1980, the area of maize exceeded the area of cotton by 52%, the area of rice by 90%, the area of wheat by 44%, and the area of full-term clover by 11%.

Available statistics show that maize production and imports in Egypt have increased significantly in recent years. Total consumption of maize more than doubled in the past twenty years. It increased from 1.74 million tons in 1960 to 2.51 million tons in 1972 and to 4.15 million tons in 1980. It increased by 130% through the period 1960-1980 at an annual growth rate of 4.3%. Through the last eight-year period, 1972-1980, total consumption of maize increased by 66% at an annual growth rate of 6.5%. Total per capita consumption of maize increased at 2% per year through the period 1960-1980, and at 4% per year through the period 1972-1980.

In the last three years, 1978-1980, the average annual production of maize was 3.1 million tons, the average amount of imports was 0.7 million tons and the average annual total consumption was 3.8 million tons. The latter might be roughly distributed as 85% for human consumption and 15% for animal feed. Total consumption per capita of the total population was about 95 Kg per year. This might be roughly distributed to 150 Kg as consumption per capita of the rural population and 30 Kg as consumption per capita of the urban population.

The Ministry of Supply estimates the expected consumption of maize in the year 2000 at 5.4 million tons assuming a decline in the consumption per capita of the total population to 82 Kg per year. The present writer believes that estimate is reasonable for human consumption in view of the expected increase in total population, urbanization and per capita income. Another 50% should be added for feed requirements, however, and this brings the expected total consumption of maize in the year 2000 up to 8.0 million tons. This is double

the present total consumption and 2,6 times the present production. If yield, area and production of maize remained constant at present levels, 5.0 million tons of maize would have to be imported in the year 2000. If yield of maize remained constant at the present level and self sufficiency was desired, the area of maize would have to be increased to 5.0 million feddans by 2000 or two and half times its present level. Both alternatives, however, are nonfeasable economically.

The above show the importance of the realization of major increases in the yield of maize over its present level to provide the expected enormous increase in future consumption requirements without increasing the present area of maize. This would require an increase in maize yield in the year 2000 by 160% over its present level. The increase in the yield per feddan of summer maize in Egypt through the last twenty-five years, 1955-1980, was 80% only and the starting yield was low. A number of maize-producing countries such as the United States, Canada and Italy, however, have present yields which exceed that of Egypt by 50% (Table 1). Programs for the improvement of maize yields carried out in Egypt in 1980 covering enlarged demonstration areas in farmers' fields gave yields which were twice or more than local and national averages, with the increase taking place in one year.

Principal constraints to improvement of maize yield in Egypt include the absence of local mass production of seeds of high-yielding varieties, delay in planting of maize due to delay in harvesting wheat and clover, lack of mechanization as well as hand labor, especially in busy periods and some unfavorable farming practices. Efforts of the Egyptian Ministry of Agriculture are presently directed to tackling these problems in order to realize the urgently needed significant increase in the national average yield of maize.

## II. Changes in the Total Area of Maize Through the period 1950-1980

The total area of maize was around 1.6 mf\* in 1950-1952. It increased to an annual average of 1.8 mf through the period 1953-1960 and declined to an average of 1.7 mf through 1961-1964. The period 1965-1972 witnessed the major switch from nili maize to the higher-yielding summer maize. It witnessed also a sharp decline in the total area of maize to an annual average of 1.5 mf. Total production of maize increased however because of the switch to summer maize. The total area of maize started to increase again in 1973 and increased at a fast rate through the period 1973-1980. It increased from 1.53 mf in 1972 to 1.65 mf in 1973, 1.89 mf in 1976 and to 1.91 mf in 1980. The increase in the total area of maize through the last eight-year period, 1972-1980, amounted to 0.38 mf or 25% (Tables 2 & 5).

## III. Changes in the Area of Summer and Nili Maize Through the Period 1950-1980

Maize is grown in the summer and the nili seasons. Summer maize is planted in May and June while nili maize is planted in July and August. The yield of summer maize exceeds that of nili maize by about 50% because weather is

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\* Note list of abbreviations at the beginning of this report.

more favorable and plants escape the attack by borers. Before the construction of the High Dam and up to 1965, the planting of maize had to await the arrival of the Nile flood water in July and August. Consequently, most of the area was planted to nili maize. The area of summer maize was limited to less than 50,000 f up to 1959 and increased to 150,000 f in 1960-1961, representing 9% of the total area of maize. The area of nili maize was around 1.7 mf or 91% of the total area of maize.

Following a campaign by the Ministry of Agriculture encouraging earlier planting of maize, the area of summer maize increased through the period 1962-1964 to an average of 353,000 f, representing 20% of the total area of maize. Beginning in 1965, the Nile flood water was stored by the High Dam and irrigation water became available the year round. Farmers were encouraged to switch from nili to the higher-yielding summer maize. Consequently, the area of summer maize increased by two and half times and the area of nili maize was cut in half. The two changed places in one year, and summer maize became the principal maize crop while nili maize became the smaller in area and production. The area of summer maize increased from 365,000f in 1964 to 930,000f in 1965, increasing by 565,000f or 155%. The area of nili maize dropped from 1,295,000 f to 520,000 f, a decline of 775,000 f or 60%. The share of summer maize in the total area of maize increased from 22.0% in 1964 to 64.1% in 1965 while that of nili maize dropped from 78.0% to 35.9%. The switch from nili to summer maize continued at a slower rate in the three following years, and in 1969 the area of summer maize was 1.14 mf and the area of nili maize was 341,000 f and their shares in the total area of maize were 77.0% and 23.0% respectively. Through 1970-1972 the area of summer maize increased slightly and figured at 1.21 mf in 1972 while that of nili maize remained unchanged and figured at 321,000 f in 1972. Through the period 1960-1972 the area of nili maize declined by 1.37 mf while that of summer maize increased by 1.08 mf. Consequently, the total area of maize declined from 1.82 mf to 1.53 mf, a decline of 0.29 mf or 16.0%. Since 1973, the areas of both summer and nili maize increased. Through the period 1972-1980, the area of summer maize increased from 1.21 to 1.43 mf or by 220,000 f or 18.4%, while its share in the total area of maize declined from 79.0% to 75.0%. The area of nili maize increased from 321,000 to 473,000 f or by 150,000f or 47.4% and its share in the total area of maize increased from 21.2% to 24.9% (Tables 3-5). Consequently, the total area of maize increased from 1.53 mf in 1972 to 1.91 mf in 1980 with an increase of 375,000 f or 24.5%.

#### IV. Changes in Maize Yields Through the Period 1950-1980

##### a. Changes in Yield of Summer Maize

Yield of summer maize increased from 0.98 t/f in 1950 to 1.84 t/f in 1980 with a total increase of 0.86 ton or 88% through the past thirty years. This gives an average annual rate of increase in yield of 2.0% throughout the whole period. About 90% of the mentioned total increase took place, however, through the ten-year period 1953-1963 when yield increased by 82% at an annual rate of growth of 6%. Again 72% of the total increase took place through the five-year period 1958-1963 when yield per feddan increased by 65% at an average annual rate of growth of 10%.

In other words, the increase in yield of 88% through the past thirty years, 1950-1980, did not come regularly throughout the whole period. Rather, it came in a few spurts, each in the form of a relatively high increase in a few

years after which the increase leveled off and the reached level was maintained thereafter for a relatively long span of years,

The yield of summer maize did not change through 1950-1953 and its average was 0.96 t/f. It increased to 1.0 t/f in 1954 and to 1.11 t/f in 1958 with an increase of 16% in four years. Thereafter, yield (in t/f) increased from 1.21 in 1959 to 1.38 in 1960-61, jumped to 1.66 in 1962 and reached 1.73 t/f in 1963. Thus, through the five-year period 1958-1963 yield increased from 1.11 to 1.73 t/f with an increase of 0.62 tons or 56% at an annual growth rate of 10%. Average yield was 1.68 t/f through 1962-1964, and reached 1.72 tons in 1965 and 1966. No increase in yield of summer maize took place through the eleven-year period 1967-1977 and yield fluctuated slightly around an average of 1.67 t/f. The average yield (in t/f) was 1.60 in 1967-1968, 1.72 through 1969-1972, and 1.65 through 1973-1977. Through the last three years, 1978-1980, average yield increased to 1.77 t/f, or 5.3% higher than the previous level. In the last mentioned period, while the yield in 1979 was normal (1.68 t/f), two record yields were registered as 1.78 t/f in 1978 and 1.84 t/f in 1980 (Tables 3 & 6).

#### b. Changes in Yield of Nili Maize

The yield of nili maize increased from 0.9 t/f in 1950 to 1.24 t/f in 1980, marking a total increase of 0.34 ton or 38% throughout the thirty-year period at an average annual rate of growth of 1.1%. Through the period 1950-1960, the yield was stagnant, however, and the mentioned total increase in yield materialized slowly through the last twenty-year period 1961-1980 at an average annual rate of growth of 1.6%. The average yield (in t/f) increased from 0.89 in 1960 to 1.03 in 1964, 1.07 in 1968 and 1.15 in 1970. Through the mentioned ten-year period, 1960-1970, the yield increased by 0.26 t/f or 28.0% at an average annual rate of growth of 2.5%. There was a slack in yield in 1971-1973 when it averaged 1.03 t/f. Yield (in t/f) increased to 1.16 in 1974, 1.23 in 1976 and to 1.24 in 1980. The total increase in yield in the last decade, 1970-1980, was 0.09 t/f or 8.0%. This increase materialized, however, through the last six years, 1974-1979 (Table 4 & 6).

#### c. Changes for the Increase in Yield of Summer Over Nili Maize

Up to 1955, the yield per feddan of summer maize exceeded that of nili maize by 80 kg only or 9.0%. Thereafter, the yield of summer maize increased faster than the yield of nili maize so that the increase in the former over the latter became larger. The yield per feddan of summer maize exceeded that of nili maize by 326 kg or 39% in 1958-1959, by 463 kg or 50% in 1960-1961 and by 690 kg or 70% in 1962-1965. The increase in yield per feddan was around 600 kg or 57% through 1966-1972, and was around 520 kg or 45% through the past seven years, 1973-1980.

It should be mentioned that, in most cases, farmers who grow nili maize benefit from growing an additional short-term summer crop like vegetables. They also might follow a crop rotation different from that including summer maize (e.g. including soybeans instead of cotton).

#### d. Changes in the Yield Per Feddan of the Total Area of Maize

Changes in the average yield per feddan of the total area of maize, including

summer and nili maize, are affected by changes in yields of both summer and nili maize and the relative shares of their areas in the total area of maize.

Through the past thirty years, 1950-1980, the yield per feddan of the total area of maize increased from 0.9 to 1.7 tons, making an increase of 0.8 t/f or 90%. This total increase gives an average annual rate of growth of 2.2%. Yield per feddan of total maize was stagnant through the period 1950-1960, however, reflecting the yield of the more dominant nili maize. The mentioned total increase in yield took place during the period 1960-1980.

The period 1960-1970 witnessed an increase in the yield of summer maize from 1.38 to 1.73 or 0.35t/f or 25%. The yield of nili maize increased also from 0.90 to 1.15 t/f or by 0.25 t/f or 28%. The same period witnessed also the major shift from the nili maize to the higher-yielding summer maize as mentioned earlier. The share of summer maize in the total maize area increased from 7% in 1960 to 77% in 1970 while the share of nili maize dropped from 93% to 23%.

The changes mentioned resulted in an increase in the yield per feddan of the total area of maize from 0.93 ton in 1960 to 1.59 tons in 1969 and 1970, making a total increase of 0.66 ton or 71%, which gives an average annual rate of growth in yield of 5.5%. The mentioned total increase in yield per feddan of the total maize area of 0.66 ton might be distributed as 0.26 ton or 28% increase in yield due to the increase in yields of both summer and nili maize and 0.40 ton or 43% increase in yield due to the switch from nili to summer maize.

Changes in the yield per feddan of total maize has followed that of the more dominant summer maize since 1970. No significant changes took place in yields through 1970-1977. During the last three years, 1978-1980, yield per feddan of total maize was 1.63 tons compared with 1.56 tons in 1975-1977, an increase of 0.13 t/f or 4.6% (Tables 2, 5 and 6).

#### V. Improved Maize Varieties

The limited increase in yields of summer and nili maize through 1950-1980 might be attributed to earlier planting, more fertilizer application, and limited varietal improvement. About 80% of the total area of maize is grown in local varieties from farmers seeds. Improved varieties have been introduced in Egypt since the 1940's. Two improved varieties have continued to the present but their areas have been limited to about 20% of the total area of maize. These are the Hybrid and the American Early. The area of each fluctuated around 120,000 feddans in the summer season while in the nili season the area of American Early fluctuated around 70,000 feddans and that of the Hybrid fluctuated around 10,000 feddans.

About half the area of the American Early has been located in Beni Suef and about half the area under the Hybrid variety is located in Minya and Assiut Governorates.

The increase in yield of the two improved varieties over that of the local variety has been very limited. Through the period 1976-1980, the yield of summer maize was 1.68 t/f for the local variety, 1.79 t/f for the American Early and 1.96 t/f for the Hybrid. In other words, the yield increase over the local variety was 0.11 t/f or 6.5% for the American Early and 0.28 t/f or 16.7% for the Hybrid. In the nili season, the yield increase over the local variety was 7.5% for the American Early and 25.0% for the limited area of Hybrid Maize.

In 1980 and 1981, three new high-yielding varieties have been introduced. These are Hybrid Pioneer 514 and composites G2 and GH 19. A project was launched by the Egyptian Academy of Science in cooperation with the Ministry of Agriculture for the improvement of maize yield in Daqahliya Governorate in 1980. About 600 f in different Districts of the Governorate were planted by farmers in seeds of the new high-yielding maize varieties and recommended farming practices were provided to farmers by extension agents. The average yields obtained by farmers in the project were 3.0 - 3.5 t/f, exceeding yields obtained by non-participating farmers by about 70% in one year. In 1981, this project has been extended to two more Governorates, Gharbiya and Minufiya besides Daqahliya, covering a total area of 2,000 feddans. Another 1,700 feddans of maize will be covered by EMCIP in six Governorates, plus 630 feddans of sorghum in two Governorates.

Efforts of the Ministry of Agriculture are presently directed to increasing the local production of seeds of these varieties to expand the area planted in high-yielding varieties.

#### VI. Changes in Total Maize Production Through the Period 1950 - 1980

Changes in total maize production are affected by changes in the production of both summer and nili maize and these in their turn are affected by changes in their areas and yields. In addition, the switch from the nili to the higher-yielding summer maize, completed through the period 1962 - 1969, contributed greatly to the increase that took place in total maize yield and production.

Annual production of total maize was more than doubled through the past thirty-year period 1950 - 1980. It increased from 1.51 mt in 1952 to 3.23 mt in 1980, increasing by 1.72 mt or 114%. This gives an annual growth rate of 2.5%, which is about equal to the rate of total population growth. Most of the total increase in maize production took place through the period 1960-1980 when production increased from 1.69 to 3.23 mt or by 1.54 mt or 91.1% at an annual growth rate of 3.3% (Tables 2 and 7).

The period 1950 - 1960 was characterized by wide annual fluctuations in the total area and total production of maize. Total area increased from 1.45 mf in 1950 to 1.82 mf in 1960 or by 25.5% and total production increased from 1.30 to 1.69 mt or by 29.5%. The yield per feddan of the total area of maize remained unchanged and was around 0.9 t/f reflecting the yield of the dominant nili maize.

Through the period 1960 - 1972, total production of maize increased from 1.69 to 2.42 mt or by 0.73 mt or 43.0%. Total area of maize declined from 1.82 to 1.53 mf or by 0.31 mf or 16%. Yield per feddan of the total area of maize increased from 0.93 to 1.58 t/f or by 0.65 t/f or 70.0%. Through the same period yield of summer maize increased by 25.2% and yield of nili maize increased by 14.3%. The switch from the nili to the higher-yielding summer maize that took place through the mentioned period was the main factor in the significant increase in production from a smaller area of maize. The shares of summer maize in the total area and total production of maize increased from 7.0% and 10.4% in 1960 to 79.0% and 86.4% respectively in 1972, while the shares of nili maize declined from 93.0% and 89.6% in 1960 to 21.0% and 13.6% in 1972.

Through the last eight-year period, 1972 - 1980, total production of maize increased from 2.42 mt in 1972 to 3.23 mt in 1980, increasing by 0.81 mt or

34% at an annual rate of growth of 3.7%. The total area of maize increased from 1.53 to 1.91 mf or by 0.38 mf or 25% at an annual rate of growth of 2.7%. The area of both summer and nili maize increased and so did the production of maize through the mentioned period. The area of summer maize increased from 1.21 to 1.43 mf or by 18.4% and its production increased from 2.09 to 2.64 mt or by 26.3%. The area of nili maize increased from 321,000 f or by 47.4% and its production increased from 328,000 tons to 590,000 tons or by 80.0% (Tables 2 - 7). Through the mentioned period, 1972 - 1980, summer maize accounted for 76% of the total area and 82% of the total production of maize, while nili maize accounted for 24% of the total area and 18% of the total production of maize.

#### VII. Changes in the Production of Summer and Nili Maize Through the period 1950-1980

Up to 1961, maize production in Egypt was mainly in the nili season. Through the period 1953 - 1959 the average annual area of nili maize was 1.83 mf and its production was 1.62 mt. These made up 97% and 96% of the total area and total production of maize. Summer maize increased in area from 32,000 f in 1955 to 84,000 f in 1959 and its production increased from 33,000 to 102,000 tons. Its shares in the total area and total production of maize in 1959 were 4.5% and 6.8% respectively.

In 1960 - 1961, summer maize increased and nili maize declined in area and production. Total area of maize declined in 1961 by 12.0% but total production declined by only 4.4% due to the improvement in the yields of both nili and summer maize.

The three years, 1962 - 1964, witnessed an important switch from nili maize to the higher-yielding summer maize. The area of summer maize increased from 170,000 f in 1961 to 348,000 f in 1962 and 1963 and to 365,000 f in 1964. Its production increased from 237,000 tons in 1961 to 578,000 tons in 1962 and 603,000 tons in 1964. The share of summer maize in the total area and total production of maize increased from 8.7% and 12.5% in 1960 - 1961 to 20.3% and 30.2% in 1962 - 1964 (Tables 4 and 6). On the other hand, the area of nili maize declined from 1.69 mf in 1960 to 1.43 mf in 1961 and to 1.30 mf in 1964. Production of nili maize declined from 1.58 to 1.38 mt and to 1.27 mt respectively. The shares of nili maize in the total area and total production of maize declined from 91.3% and 87.5% in 1960 - 1961 to 79.7% and 69.8% in 1962 - 1964.

The major switch from the nili maize to the higher-yielding summer maize came with the first High Dam stored water in 1965. The area of summer maize increased to 930,000 feddans and its production increased to 1.6 million tons, two and a half times the 1964 levels.

On the other hand, the area of nili maize declined to 520,000 feddans and its production declined to 542,000 tons and these were 60% less than the 1964 levels. For the first time, summer maize became in 1965 the most important, accounting for 64% of the total area and 75% of the total production of maize. The switch continued at a slower rate up to 1969 when the area of summer maize increased to 1.14 mf and that of nili maize reached a low of 341,000 feddans. In the same year, the production of summer maize increased to 1.98 mt and that of nili maize declined to 0.39 mt. Summer maize accounted for 77.0% of the total area and 83.6% of the total production of maize in 1969 while nili maize accounted for 23.0% and 16.4% respectively. Through 1970 - 1972 no change

took place in the area and production of nili maize, while summer maize increased by 6.0%.

As mentioned earlier, the period 1965 - 1972, which witnessed the major switch from the nili maize to the higher-yielding summer maize, witnessed also a sharp decline in the total area of maize caused by a decline in the area of nili maize greater than the increase in the area of summer maize. The total area of maize declined from 1.72 mf in 1963 to 1.45 mf in 1965 and was 1.53 mf in 1972. Total production of maize increased from 1.87 to 2.14 and 2.42 mt in the three mentioned years respectively. In other words, while the total area declined by 11.0%, total production of maize increased by 29% in 1972 as compared with 1963 levels. No increase in yields of summer and nili maize took place. Through the same period, the yield per feddan of the total area of maize increased from 1.08 to 1.58 tons or by 0.5 ton or 46.3%. The mentioned increase in yield and production of total maize were due to the switch from nili to summer maize that took place through the period 1965 - 1972.

Since 1973, the area and production of both summer and nili maize have been increasing. The area of summer maize increased from 1.21 mf in 1972 to 1.43 mf in 1980 or by 18.4% and its production increased from 2.09 to 2.64 mt or by 26.3%. The area of nili maize increased from 321,000 to 473,000 f or by 47.4%. Its production increased from 328,000 to 590,000 tons or by 80.0%. Consequently, the total area of maize increased from 1.53 to 1.91 mf or by 25.0% and total maize production increased from 2.42 to 3.23 mt or by 34% (Tables 2 - 7).

#### VIII. Changes in Areas of Other Crops through the Period 1960-1980

The limited increase in the total cultivated area and the total cropped area in Egypt through the period 1960 - 1980 were about equal to the increase in the areas of vegetables, fruit orchards and sugarcane. Consequently, the total area of field crops remained unchanged throughout the mentioned period. It figured at about 5.0 mf of cultivated area equal to 10.0 mf of cropped area. Principal field crops occupying the mentioned areas are full-term clover, short-term clover, wheat and broad beans in the winter season and maize, cotton, rice and sorghum in the summer and nili seasons. There are, in addition, a number of other crops occupying smaller areas such as onions, lentils, flax, soybeans, groundnuts, sesame, non-clover green fodder and aromatic crops.

While the total area of field crops remained unchanged through the period 1960 - 1980, the mentioned period witnessed radical changes in the areas of individual crops. Such changes included declines in the areas of cotton, short-term clover, and wheat, an increase in the area of full-term clover, rice, non-clover green fodder, aromatic crops, and soybeans, the switch from nili to summer maize, and a decline followed by an expansion in the total area of maize.

The area of cotton declined from 1.87 mf in 1957 - 1961 to 1.60 mf in 1962 - 1973, excluding the two years 1965 and 1966 which had the previous high area level. A further decline took place in the area of cotton after 1973 and its area reached 1.20 mf for 1978 - 1980.

The area of short-term clover declined from 1.3 mf in 1960 - 1966 to 1.2 mf in 1967 - 1974 to 1.0 mf in 1975 - 1980.

The area of full-term clover increased from 1.13 mf in 1960 to 1.23 mf in 1966 and to 1.47 mf in 1967. Its area increased further to 1.59 mf in 1971-1973, to 1.70 mf in 1976-1977 and to 1.72 mf in 1978-1980.

The area of wheat declined from 1.46 mf in 1960 to 1.30 mf in 1964 and to an annual average of 1.28 mf for the period 1965-1973. It increased thereafter to an annual average of 1.38 mf for the period 1974-1980.

The area of broad beans declined from an average of 365,000 f in 1960-1964 to 300,000 f for 1967-1972 and to an average of 250,000 f for 1973-1980.

The area of rice increased from 650,000 f for 1957-1961 to 890,000 f for 1962-1966 and to 1.15 mf in 1968-1972. It declined thereafter to an average of 1.04 mf for the period 1973-1980.

The switch from nili to summer maize was associated with a decline in the total area of maize from 1.83 mf for 1952-1962 to 1.70 mf in 1963-1965 and to 1.51 mf for 1965-1972. The total area of maize increased thereafter to 1.65 mf in 1973, 1.83 mf in 1975 and to 1.91 mf in 1980.

It goes without saying that, since the total area is nearly fixed, a change in the area of one crop affects a change in the area of one or more other crops.

As mentioned earlier, the period 1965-1972 which witnessed the switch from the nili maize to the higher-yielding summer maize witnessed also a decline in the total area of maize to 1.51 mf, a decline of 0.30 mf from the 1960 level. Total production of maize increased by 0.6 mt in 1965-1972 compared with 1960 in spite of the decline in the total area of maize. The mentioned decline in the total area of maize was confined to Lower Egypt where the total area of maize declined from 1.20 to 0.95 mf for the period 1960-1972 or a decline of 0.25 mf. This was due to a decline in the area of nili maize greater than the increase in the area of summer maize in Lower Egypt while in Middle and Upper Egypt, the switch from nili to summer maize was not associated with significant changes in the total area of maize.

The decline in the area of total maize, coupled with an increase in maize production in Lower Egypt for 1965-1972, was associated with and assisted the expansion in the area of rice through the mentioned period. The area of rice in Lower Egypt increased from 700,000 f in 1959-1961 to 870,000 f for 1962-1966 and to 1.5 mf for the period 1967-1972.

The total area of maize increased through the last eight-year period, 1972-1980, in the three main regions of Egypt from 1.53 to 1.91 mf or by 0.4 mf. Through the same period, the following changes took place in the areas of other crops: a significant decline in the area of cotton, smaller declines in the area of short-term clover, rice, sorghum and broad beans, and an increase in the area of full-term clover, wheat and soybeans.

For the period 1972-1980, the area of cotton declined from 1.60 to 1.25 mf, the area of short-term clover declined from 1.25 to 1.00 mf, the area of full-term clover increased from 1.65 to 1.72 mf, the area of wheat increased from 1.27 to 1.37 mf, the area of broad beans declined from 0.30 to 0.25 mf, the area of rice declined from 1.15 to 1.00 mf, the area of sorghum declined from 0.5 to 0.4 mf and the area of soybeans increased from 3,000 to 83,000 f.

Some of the economic implications of changes in the areas of competing crops are touched upon in the last part of the present study.

### IX. Area and Production of Maize in Egypt,

#### 1975-1979 Average

##### A. Area and Production of Maize in Egypt

For the period 1975-1979, the annual average of the total area of maize was 1.85 mf, annual maize production was 2.92 mt, and average yield was 1.58t/f (equal to 3.75 tons per hectare). Of this total, the area of summer maize was 1.41 mf or 76%, its production was 2.39 mt or 82% and average yield was 1.69t/f. Annual area of nili maize was 442,000 f or 24%, its annual production was 533,000 tons or 18% and yield was 1.21t/f (table 8). Summer maize accounted for 76% of total area and 82% of total production of maize while nili maize accounted for 24% of total area and 18% of total maize production. The yield of summer maize exceeded that of nili maize by 0.48t/f or 40.0%.

##### B. Area and Production of Maize in Main Regions of Egypt

Lower Egypt accounted for 58.6% of the total area and 61.9% of the total production of maize, Middle Egypt accounted for 30.7% and 28.7% while Upper Egypt accounted for 10.7% and 9.8% of the total area and total production of maize respectively for 1975-1979 (Table 9). The low share of Upper Egypt in the total area and production of maize is due to the fact that sorghum is preferred over maize as a bread cereal in Upper Egypt and yields better in this hot summer climate.

Summer maize is grown more in Lower Egypt, while nili maize is grown more in Middle Egypt. For the period 1975-1979, Lower Egypt accounted for 66.4% of the total area and 67.9% of the total production of summer maize and for 33.7% of the total area and 35.1% of the total production of nili maize. Middle Egypt accounted for 23.9% of the total area and 22.8% of the total production of summer maize and for 52.4% of the total area and 52.8% of the total production of nili maize. Upper Egypt accounted for 9.7% of the total area and 9.3% of the total production of summer maize and for 13.9% of the total area and 12.1% of the total production of nili maize.

Yield per feddan of summer maize is higher in Lower Egypt than in Middle and Upper Egypt by about 7.5% and 6.1% respectively. Yield per feddan of nili maize is lower in Upper Egypt than in Middle and Lower Egypt by about 16% and 20% respectively.

##### C. The Share of Maize in the Total Area of Summer and Nili Field Crops

For the period 1975-1979, the annual total area of maize of 1.85 mf accounted for 31.9% of the total cultivated area in Egypt (5.8 mf) and for 16.5% of the total cropped area (11.2 mf). Excluding the areas of fruits and sugarcane and the areas of summer and nili vegetables and fodders, the total area of summer and nili field crops was 4.76 mf. This area included 1.85 mf or 38.9% under maize, 1.28 mf or 26.9% under cotton, 1.05 mf or 22% under rice, 442,000 f or 9.3% under sorghum and 140,000 f or 2.9% under other field crops (groundnuts, sesame, soybeans and onions).

The share of maize in the total area of summer and nili field crops, figuring

at 38.9% for all Egypt, was 35.8% in Lower Egypt, 58.7% in Middle Egypt and 26.0% in Upper Egypt (Table 10). In respect to the other field crops, rice is grown in Lower Egypt and Fayum, while sorghum is concentrated in Upper Egypt and Fayum. The shares of cotton in the area of summer and nili field crops were 29.6% for all Egypt, 28.5% in Lower Egypt, 26.4% in Middle Egypt and 21.2% in Upper Egypt (Table 10). The share of cotton in Upper Egypt is lower because cotton is a principal crop in Assiut and Sohag Governorates while in Qena and Aswan Governorates sugarcane is the main crop. Cotton is grown in a limited area in Qena and no cotton is grown in Aswan.

X. Area and Production of Maize in Egypt Governorates  
For the Period 1975-1979

Tables 14 and 15 show the classification of Egypt Governorates according to total annual area and production of maize for 1975 - 1979. The first group includes Sharkiya, Minufiya, Minya and Beheira. The four Governorates accounted for 45.1% of the total area and 46.3% of the total production of maize. The second group includes Gharbiya and Beni Suef, having 15.5% of the total area and 16.2% of total production. The third group includes Giza, Fayum, Daqahliya, Qalyubia, Qena and Kafr-El-Sheikh. The six Governorates accounted for 30.2% of the total area and 28.6% of the total production. The fourth and fifth groups include Assiut, Sohag, Ismaliya, Alexandria, Aswan, Domyat and Suez. The seven Governorates had 9.2% of the total area and 8.9% of the total production of maize.

The areas of maize in the Governorates are affected by the total cultivated area and the areas of competing crops, mainly rice, sorghum and cotton. The first four Governorates having the largest area of maize, namely Sharkiya, Minya, Minufiya and Beheira, are among the largest Governorates in total cultivated area. The shares of maize in the total area of summer and nili field crops were as high as 74% in Minufiya and Qalyubiya, 60% in Beni Suef, 58% in Minia, 48% in Qena, 83% in Giza and Suez, 77% in Alexandria and 59% in Ismaliya. All these Governorates had low percentages of their cultivated areas under cotton and were not rice producers. Daqahliya Governorate had the highest percentages of both cotton and rice and had a low percentage (16.6%) for maize. It was followed in this attribute by Beheira, Gharbiya and Sharkiya, with shares for maize of 34.6%, 38.4% and 42.4% in the three Governorates respectively. In Sohag, Assiut, Qena, Aswan and Fayum, sorghum and other crops had higher shares while maize shares ranged from 18.4% to 47.8% of the total area of summer and nili field crops (Table 16).

The eight Governorates covered by EMCIP are Gharbiya, Kafr El-Sheikh, Daqahliya and Minufiya in Lower Egypt; Beni Suef and Minya in Middle Egypt; and Assiut and Sohag in Upper Egypt. In terms of the total area and total production of maize, the eight Governorates are distributed among the first four of the five groups of Tables 14 and 15.

During the period 1975-1979 the eight Governorates together had a total area of maize of 977,000 f or 52.7% of the total area of maize in Egypt and had a total maize production of 1.64 mt or 56.1% of the total maize production in Egypt.

#### XI. Maize Yield in Egypt Governorates

##### For the Period 1975-1979

Average yield for the total area of maize in each Governorate is affected by three main factors, namely the yield of summer maize, the yield of nili maize and the percentage shares of summer and nili maize in the total area of maize in the Governorate. Because summer maize has a significantly higher yield and larger area than nili maize in most Governorates, the classification of Governorates into groups according to yield per feddan of total maize area is close to the classification of the Governorates into groups according to yield per feddan of summer maize for 1975-1979.

The classification of Governorates into groups according to yield per feddan of total area of maize for 1975-1979 is indicated in Table 17. The highest-yielding group includes Gharbiya, Assiut, Qalyubia and Daqahliya, having yields ranging from 1.85 to 1.77 and averaging 1.80 t/f. The four Governorates had 21.0% of the total area and 24.1% of the total production of maize in Egypt.

The second group includes Sohag, Minufiya and Kafr-El-Sheikh. These had yields of 1.68-1.75 t/f with a group average of 1.71 t/f. The three Governorates accounted for 17.5% of the total area and 19.0% of the total production of maize.

The third group includes five of the largest maize-producing Governorates, namely Sharqiya, Beheira, Minya, Giza and Beni Suef. Yields were 1.44-1.60 t/f, with an average of 1.56 t/f. The five Governorates accounted for 47.9% of the total area and 47.3% of the total production of maize.

The fourth and fifth groups include seven Governorates, two of which, namely Fayum and Qena, grow relatively large areas of maize and the other five (Domyat, Suez, Ismailiya, Aswan, and Alexandria) grow relatively small areas of maize. The group yield average are 1.14 and 1.07 t/f. The two groups accounted for 13.6% of the total area and 9.6% of the total production of maize.

#### XII. Area Production and Yield of Summer Maize

##### in Egypt Governorates for the Period 1975-1979

Summer maize accounted for 76% of the total area and 82% of the total production of maize in Egypt for the period 1975-1979. Its yield was 1.69 t/f, exceeding that of nili maize by 0.48 t/f or 40.0%.

Table 18 indicates the classification of Egypt Governorates according to annual area and production of summer maize for the period 1975-1979. Groups 1 and 2 include five Governorates that accounted for 60.2% of the total area and 61.4% of the total production of summer maize. These are Sharqiya, Minufiya, Minya, Beheira and Gharbiya. They were followed by five Governorates in group 3 that accounted for 26.1% of both the total area and the total production of summer maize. These are Qalyubiya, Beni Suef, Kafr El Sheikh, Giza and Daqahliya.

The fourth group includes Assiut, Sohag, Kena and Fayum, accounting together for 11.2% of the total area and 10.8% of the total production of summer maize. The fifth group included the smallest five Governorates namely Ismailiya, Alexandria, Domyat, Aswan and Suez. These accounted for 2.5% of the total area and 1.7% of the total production of summer maize.

Yield of summer maize was highest in Gharbia, Dakahlia and Assiut, having an average yield of 1.9 t/f. These were followed by Sohag and Qalyubiya having an average yield of 1.78 t/f. The four Governorates accounted for 26.3% of the total area and 28.8% of the total production of summer maize (Table 19).

The third and fourth yield groups had yield averages of 1.72 t/f and 1.59 t/f respectively. They embraced the largest maize-producing Governorates. In descending order in terms of yield level these are Minufiya, Kafr-El-Sheikh, Beheira, Minya, Sharqiya, Beni Suef, Fayum and Giza. The eight Governorates accounted for 68.5% of the total area and 67.5% of the total production of summer maize.

The fifth yield group, with an average yield of 1.19 t/f, included Qena, a relatively large maize producer, together with the five small governorates of Ismailiya, Suez, Domyat, Aswan and Alexandria.

#### XIII. Area, Production and Yield of Nili Maize in Egypt Governorates for the period 1975-1979

The four Governorates of Middle Egypt plus Qena in Upper Egypt accounted for 62.0% of the total area and 60.6% of the total production of nili maize in Egypt for the period 1975-1979. These in descending order, were Beni Suef, Fayum, Minya, Giza and Qena (Table 20). These were followed by five Governorates in Lower Egypt, namely Dakahlia, Sharkia, Gharbia, Beheira, and Ismailia. These accounted for 29.4% of total area and 31.3% of total production of nili maize. Another five Governorates in Lower Egypt accounted for 4% of total area and production. In Upper Egypt, Assiut, Aswan and Sohag accounted together for 4.3% of total area and total production of nili maize in Egypt for the period 1975-1979.

Yield of nili maize was highest in Dakahlia at a level of 1.57 t/f. It was followed by Giza, Minufiya and Gharbiya, having an average yield of 1.46 t/f (Table 21). The third yield group had a yield average of 1.34 t/f and included Assiut, Sharkia, Beni Suef and Sohag. The eight Governorates of the three mentioned yield groups accounted for 48.1% of the total area and 56.3% of the total production of nili maize.

The fourth and fifth yield groups had low yield averages of 1.16 t/f and 1.21 t/f respectively. These included four of the large maize producing Governorates, namely Minya, Fayum, Qena and Beheira, together with six smaller producing Governorates. These include Kafr El Sheikh, Domyat, Suez, Aswan, Ismailia and Alexandria. The ten Governorates in the lowest two yield groups accounted for 51.9% of the total area and 43.7% of the total production of nili maize.

#### XIV. Changes in Total Maize Consumption in Egypt for the Period 1960-1980

Through the period 1953-1960, no significant change took place in the annual production and consumption of maize. Average production figured at 1.68 mt, average imports were 70,000 t, and average annual consumption was 1.75 mt.

Production of maize increased in 1962 to 2.0 mt, imports increased to 264,000 t and consumption increased to 2.27 mt.

Production of maize increased in 1973 to 2.5 mt, imports figured at 67,000 t and consumption increased to 2.57 mt. In other words, local consumption of maize increased by 0.30 mt or 13.5% through the eleven-year period 1962-1973. Through the period 1960-1973, however, the increase in maize consumption was 0.83 mt or 96%.

Through the last seven-year period, 1973-1980, production, imports and consumption of maize increased at fast rates. Maize production increased from 2.5 mt to 3.2 mt, imports increased from 67,000 t to 916,000 t and total consumption of maize increased from 2.57 to 4.15 mt (Table 22). Thus, in the last eight-year period, total consumption of maize increased by 1.58 mt or 61.5% at an annual growth rate of 6.17%.

Through the period 1962-1980, total consumption of maize increased from 2.27 to 4.15 mt, or by 1.88 mt or 82.8% at an annual rate of growth of 3.4%. Per capita total consumption of maize increased from 66.5 kg in 1962 to 72.0 kg in 1973 and to 98.0 kg in 1980.

#### XV. Production Cost of Maize in 1980

According to estimates of the Statistics Department, the average production cost per feddan in Egypt in 1980 was LE 140 for summer maize and LE 123 for nili maize. The excess of LE 17 in the production cost per feddan of summer over nili maize included LE 7 in land rent and LE 10 in the cost of labor wages, draft animals, manure, chemical fertilizers and insecticides.

The production cost per feddan of summer maize in 1980, estimated at LE 139.7, included LE 34.7 for land rent and LE 105.0 for cost items. Of the latter, labor wages accounted for LE 49.4 or 47.1%, machinery cost accounted for LE 12 or 11.5%, cost of draft animals was LE 8.6 or 8.2%, cost of manure was LE 11.8 or 11.3%, cost of chemical fertilizers was LE 12.6 or 12.0%, cost of seeds was LE 3.4 or 3.2%, cost of insecticides was LE 1.8 or 1.7% and miscellaneous cost was LE 5.3 or 5.0% (Table 23).

Average production cost per feddan of summer maize in 1980, estimated at LE 139.7 for all Egypt, varied among different Governorates due to variation in different cost items. It ranged from LE 105.5 in Fayum and LE 109.5 in Beheira to LE 122-133 in Daqahliya, Giza, Kafr El Sheikh, Minya, Qena, and Sharqiya, LE 148-149 in Beni Suef and Gharbiya, LE 159 in Minufiya, LE 176 in Qaliubiya and Assiut and LE 194 in Sohag. Land rent varied from LE 24 in Beheira, LE 30-40 in most Governorates and increased to LE 50 in Qaliubiya and Sohag. Labor wages varied from LE 30 in Beheira, LE 36 in Qena, LE 40-60 in most Governorates and increased to LE 88 in Assiut and LE 95 in Sohag. Machinery cost varied from LE 4 in Fayum, LE 7 in Giza and Gharbiya to LE 12-14 in most Governorates and went up to LE 23 in Assiut and LE 29 in Qena. The cost of chemical fertilizers was LE 9.5 in Giza, LE 11.0 in Beheira, Kafr El Sheikh and Daqahliya, LE 12-14 in most Governorates and was LE 14.8 in Qena and LE 15.6 in Qaliubiya. Manure was not applied in Minya, Sohag and Qena. Its cost was LE 7.0 in Fayum, LE 10-12 in most Governorates but increased to LE 20.0 in Gharbiya and Minufiya and to LE 24.0 in Qaliubiya. The cost of insecticides was LE 10 in Gharbiya, LE 4.1 in Minufiya, LE 3.5 in Daqahliya but no insecticides were used in any other Governorates.

XVI. Changes in the Production Cost of Maize through the Period 1973-1980

Production cost per feddan of summer maize, like other crops, increased by more than three fold in the last eight-year period, 1973-1980. It increased from LE 45.0 to LE 139.7 or by 210%. Of this total, the land rent increased from LE 12.6 to LE 34.7 or by 175% and production cost excluding land rent increased from LE 32.5 to LE 105 or by 223% (Tables 24 and 25). Labor wages increased from LE 11.6 to LE 49.4 or by more than four times. The cost of draft animals increased from LE 3.8 to 8.6 or by 126%, while the cost of mechanical power increased from LE 2.4 to LE 12.1 or by five times, reflecting a good deal of replacement of animal power by mechanical power due to the increase in the use of tractor plowing and pump irrigation by farmers. Miscellaneous cost increased from LE 0.5 to LE 5.3 through that period. In other words, the cost per feddan of labor, animal power, mechanical power and miscellaneous cost increased from LE 18.3 in 1973 to LE 75.4 in 1980 or by more than four times and its share in the total production cost per feddan (excluding land rent) increased from 56.3% to 71.8% respectively. Other production cost items, including seeds, manure, chemical fertilizers and insecticides, increased from LE 14.2 in 1973 to LE 30.6 in 1980, or more than doubled. The cost of seeds increased from LE 1.2 to LE 3.4, the cost of chemical fertilizers increased from LE 7.2 to LE 12.6 and the cost of manure increased from LE 5.8 to LE 7.2 to 12.6 and the cost of insecticides increased from LE 5.8 to LE 11.8. The cost of insecticides appeared only in the last two years and was LE 1.8 in 1980 (Table 24).

XVII. Changes in the Farm-Gate Price of Maize through the Period 1973-1980

The average farm-gate price per ton of maize increased from LE 33.5 in 1970-1971 to LE 36.8 in 1972 and to LE 45.0 in 1973. It increased to LE 50.3 in 1974-1976 and to LE 74.0 in 1977-1979 (Table 26). In 1980, the farm-gate price of maize reached LE 123 per ton. This represents a 66% increase over the 1979 level and is three times the price in 1973.

The period 1973-1980, which witnessed sharp increases in production cost and farm-gate prices, witnessed also large increases in the area, production, imports and consumption of maize as mentioned earlier.

XVIII. Changes in Net Farm Income Per Feddan of Summer and Nili Maize Through the Period 1973-1980

About 40% of the total number of farm holders in Egypt (about three million) are very small farmers, having farms of one feddan or less and another 40% have farms of no more than three feddans. To this majority of small farmers, maize is a subsistence crop grown mainly for the bread of the farm family. These, however, might account for one half of the total area of ~~maize~~ while the other half is grown by farmers having larger farms (4-50 feddans). These sell most of their maize production in the market, directly or indirectly, to small farmers, landless laborers, and for animal feed.

Table 27 indicates that both farm-gate price and production cost of maize about trippled from 1973 to 1980 and so did the gross income and net income per feddan. The latter increased from LE 35 to LE 106. The benefit/cost ratio did not change. Similar inflationary effects took place with many products, and the results were close to those of maize. The sharp increase in the farm-gate price of maize in 1980, however, caused a larger increase in the net farm income per feddan of summer maize.

For nili maize, the grain output per feddan is less than that of summer maize by 0.5 ton and the production cost was less by LE 10 in 1973 and by LE 17 in 1980. Net farm income per feddan of nili maize amounted to LE 23.0 in 1973 and LE 62.0 in 1980 and was less than that of summer maize by LE 12.5 in 1973 and by LE 44.5 in 1980. Farmers who grow nili maize benefit from an additional summer crop, such as vegetables, or follow a crop rotation different from that with summer maize.

XIX. Changes in the Import Price of Maize  
Through the Period 1960-1980

For the period 1960-1980, annual imports of maize in Egypt averaged 184,000 tons, with an average value of LE 5.3 million. Maize imports in 1969-1973 averaged 62,000 tons, with an average value of LE 1.8 million. Since 1974, annual amounts, price and value of imported maize increased greatly. For the period 1974-1979, average annual imports were 0.5 mt at an average value of LE 30 million. In 1980, maize imports increased to 0.92 mt and its value amounted to LE 114 million.

Import price per ton of maize was LE 21 through 1960-1962. It increased to LE 25.8 in 1963 and its average was LE 28.0 through the period 1964-1972. Import price per ton of maize increased to 37.3 in 1973 and to LE 68.8 in 1974, a level which was two and half times the 1964-1972 average. The 1974 level was maintained up to 1979 but in 1980 the import price per ton almost doubled and reached LE 124. The following table compares the import price with the local farm-gate price of maize in LE/t in selected years :

Price	1970-72	1973	1974-76	1977-79	1980
Import	28	37	69	69	124
Farm-gate	33	45	50	75	123

XX. Farm Income Per Feddan of Principal Crops in 1980

Table 28 indicates yields, farm-gate prices, value of output, cost of production, and net farm income per feddan for principal field crops in 1980. For winter crops, full-term clover had the highest net income per feddan of LE 105. Broad beans and wheat gave a net income per feddan of LE 77 and LE 73, respectively. Net income per feddan figured at LE 53 for short-term clover and LE 48 for barley.

For summer crops, net income per feddan in 1980 was LE 116 for cotton and LE 106 for maize. Cotton exceeded summer maize by LE 10 only. Considering the length of the growing season, risk, and the efforts required from farmers in farm operations, summer maize was more profitable than cotton. Sorghum was third in profitability, with a net income per feddan of LE 75. Rice was the least profitable summer crop, giving a net income per feddan of LE 49. Summer maize and rice are

competing crops, especially in the northern Governorates of Lower Egypt (Dakahliya, Kafr El Sheikh and Beheira) where rice is mostly grown. In 1980, the net farm income per feddan of maize was more than double the net farm income per feddan of rice.

Table 29 gives the net farm income per feddan in one agricultural year from principal two-crop combinations, i.e. one winter and one summer crop. Full-term clover and maize gave the highest net farm income per feddan of LE 211. Next in profitability to farmers were the combination of full-term clover and sorghum and the combination of wheat and maize, giving a net income per feddan of LE 180 and LE 179, respectively. Cotton and short-term clover gave a net farm income per feddan of LE 169 and this was below wheat and maize by LE 10 and below full-term clover and maize by LE 42. The least profitable combinations to farmers in 1980 were the two including rice, namely full-term clover and rice, and wheat and rice. These gave a net farm income per feddan of LE 154 and 122, respectively.

The above analysis shows that the relatively low farm-gate prices of cotton and rice in 1980 made them the lowest in profitability to farmers. Consequently, farmers would tend to invest less land, less capital and less labor in the two mentioned crops, preferring other more profitable crops.

Announced increases in government prices for 1981 included LE 10 per kantar of cotton and LE 10 per ton of paddy rice over 1980 levels. Putting this price increase in the above picture, the profitability of cotton improves but that of rice continues to be the lowest.

#### XXI. The Comparative Advantage of Cereals Versus Cotton for Egypt

One main economic principle for the maximization of returns from the national agricultural resources is the principle of comparative advantage. According to this principle, the nation should specialize in producing those products in which it has the highest comparative advantage or the least comparative disadvantage. The national economy trades with other world economies. It exports commodities to and imports commodities from international markets. National returns can be maximized by increasing the area, production and exports of products in which the nation has high comparative advantage while reducing the area and production and increasing the imports of the products in which the nation has low comparative advantage or high comparative disadvantage. Products of the two groups can be identified by estimating the net value added to the national economy per unit of the limiting input of various competing products using the international market price for both the units of the products and the production costs. Certain products give higher returns than other products. The former products tend to be those of high comparative advantage while the latter products tend to have low comparative advantage. In Egypt, land is believed to be the limiting factor and thus net returns per feddan are the ones examined.

The principle of comparative advantage, as outlined briefly above, has affected agricultural production in Egypt through foreign trade since a long time ago. More recently, since the beginning of the 1960's, agricultural policy in Egypt has been trying to increase gains through the guided application of the principle of comparative advantage. This philosophy underlies agricultural research

and policy activities towards annual and mid-term projections and applications of national and regional use of more economically optimum agricultural cropping patterns that maximize national returns from agricultural resources, maximize national agricultural income, and maximize the net proceeds of foreign currency from Egyptian trade in agricultural products. A number of research papers on this subject have been published by the present writer in the Ministry of Agriculture through the past twenty years.

Table 30 indicates estimates of the value added to the national economy from one feddan under cereals according to yields and international prices of products and inputs in 1980. The value added per feddan of cotton figured at LE 630 as against LE 378 per feddan of wheat and maize, with an increase in favor of cotton of LE 252 per feddan or 67%. The value added per feddan of rice figured at LE 375 as against LE 200 per feddan of maize, with an increase in favor of rice of LE 175 per feddan or 88%. These comparisons shows that cotton has a high comparative advantage to the national economy compared with a combination of wheat and maize, while rice as a summer crop has a high comparative advantage to the national economy compared with maize. A switch of 100,000 feddans from wheat and maize production to cotton production, while exporting the produced cotton and importing the resulting deficit in wheat and maize grains, would increase the national income and the net proceeds of foreign trade by LE 25.2 million annually. As for the resulting shortage in the straw of wheat, it might be balanced by the increase in short-term clover associated with the expansion in the cotton area. Similarly, the switch of 100,000 feddans from summer maize production to rice production, while exporting the produced rice and importing the resulting deficit in maize grains, would increase the national income and the net proceeds of foreign trade by LE 17.5 million annually.

A number of factors should be considered to determine the possible extent of the switch from one crop to another to benefit from the high economic comparative advantage of certain crops. Such factors include the technical requirements of the crop rotation and soil conservation, irrigation and drainage requirements, especially for rice and the limiting of rice-growing to Lower Egypt, the present and future demand in foreign markets for Egyptian long-staple cotton, the availability of silos for storing grains to provide for a certain security reserve when increasing dependence on imports, and feed requirements for farm animals.

Another important factor that should be considered is the local prices received by farmers and other incentives to induce them to implement the desired national and regional cropping patterns. Individual farmers usually apply the principle of comparative advantage for their own interest and they are guided by the farm-gate prices they receive for their products, the prices they pay for their inputs, and the net return they get from alternative products. Therefore, to ensure the cooperation of the large number of individual farmers in implementing a cropping pattern in the interest of the national economy, such a cropping pattern should be made more profitable to farmers than other competing cropping patterns through agricultural price policy and other incentives. While providing farmers with good prices for all their crops to improve their incomes and induce them to increase yields of all crops, it is important that relative prices and relative net returns of different crops to farmers should be made consistent with relative prices and relative net returns of different crops to the national economy. For example, if farmers are to be encouraged to expand the area of cotton and rice, the farm-gate prices of these two crops should be increased faster than the farm-gate prices of wheat and maize so that the net farm income per feddan of cotton would be higher than that of wheat and maize and the net income per feddan of rice would be higher than that of maize - as explained earlier. Farmers should be provided also with wheat and maize for their own consumption at reasonable prices.

It should be mentioned that the relative comparative advantage of alternative crops are the result of certain yields and certain price relations at a certain time. They likely would change with changes in crop yields and/or international prices. The relative comparative advantage of crops should, therefore, be reinvestigated from time to time. The fact that Egypt has relatively high yields of cotton and rice and relatively low yields of wheat and maize, together with the fact that the cultivated area in Egypt is very small, are two main factors in the present situation and the importance of the comparative advantage of competing crops to the national economy.

#### Conversion Factors

1 Feddan = 1.04 acres = 0,42 ha.  
All tons are metric.

To convert yields to tons/ha,  
multiply by 2.38.

Table 1. Area, yield and production of maize in the first twenty producing countries and the world total, averages 1969-1971 and 1976 - 1978

Country	Area (1,000 hectares)		Yield (Kg/h)		Production (1,000 tons)	
	1969-1971	1976-1978	1969-1971	1976-1978	1969-1971	1976-1978
* U.S.A.	23,749	28,616	5,614	5,851	123,649	167,424
China	10,521	11,046	2,644	2,907	27,820	32,116
Brazil	10,021	11,380	1,365	1,483	13,680	16,874
Romania	3,170	3,306	2,320	3,214	7,354	10,625
U.S.S.R.	3,617	3,067	2,763	3,273	9,993	10,039
Mexico	7,412	7,114	1,218	1,296	9,025	9,219
South Africa	5,290	8,500	1,265	1,544	6,691	8,957
Yugoslavia	2,391	2,274	3,095	3,829	7,399	8,844
Argentina	3,880	2,653	2,247	2,997	8,717	7,952
* France	1,436	1,613	5,148	4,464	7,394	7,201
Hungary	1,272	1,315	3,570	4,524	4,542	5,949
* Italy	986	930	4,664	6,384	4,601	5,937
India	5,794	5,900	1,051	1,006	6,087	5,936
* Canada	490	738	5,073	5,502	2,487	4,061
Philippine	2,415	3,392	832	898	2,009	3,046
Egypt	634	780	3,741	3,833	2,370	2,990
Indonesia	2,667	2,387	965	1,182	2,575	2,822
Bulgaria	623	695	3,913	3,827	2,436	2,660
Kenya	1,467	1,550	1,562	1,614	2,292	2,501
Thailand	771	1,268	2,567	1,940	1,979	2,460
<b>Total, 20 countries</b>	<b>88,606</b>	<b>95,824</b>	<b>2,845</b>	<b>3,315</b>	<b>252,100</b>	<b>317,613</b>
All other countries	137,316	137,600	561	712	77,067	98,011
<b>World total</b>	<b>215,922</b>	<b>223,424</b>	<b>1,524</b>	<b>1,781</b>	<b>329,167</b>	<b>415,624</b>

Source : FAO Production Year Book.

\* Countries having the highest yields.

Table 2. Area, Yield & Production of Total Maize  
In Egypt through the period 1950 - 1980

Year	Area (1,000 Feddans)	Yield (t/f)	Produc- tion (1,000 tons)	Year	Area (1,000 Feddans)	Yield (t/f)	Produ- tion (1,000 tons)
1950	1,451	0.900	1,306	1966	1,575	1.509	2,376
1951	1,655	.859	1,421	1967	1,485	1.456	2,163
1952	1,704	.884	1,506	1968	1,554	1.478	2,297
1953	2,015	.920	1,853	1969	1,484	1.594	2,366
1954	1,904	.920	1,753	1970	1,504	1.592	2,393
1955	1,834	.935	1,714	1971	1,522	1.539	2,342
1956	1,836	.900	1,652	1972	1,531	1.579	2,417
1957	1,769	.845	1,495	1973	1,654	1.595	2,507
1958	1,955	.899	1,758	1974	1,755	1.505	2,640
1959	1,859	.807	1,500	1975	1,830	1.520	2,781
1960	1,821	.929	1,691	1976	1,891	1.611	3,047
1961	1,603	1.009	1,617	1977	1,765	1.543	2,724
1962	1,832	1.094	2,004	1978	1,898	1.642	3,117
1963	1,721	1.085	1,867	1979	1,885	1.559	2,939
1964	1,660	1.165	1,934	1980	1,906	1.695	3,231
1965	1,450	1.476	2,141				

Source : Department of Statistics, Ministry of Agriculture,  
Dokki, Cairo, Published in Bulletin of Agricultural Economics,  
in Arabic.

Table 3. Area, Yield and Production of Summer Maize through the period 1950 - 1980

Year	Area (1,000 Feddans)	Yield (t/f)	Produc- tion (1,000 tons)	Year	Area (1,000 feddans)	Yield (t/f)	Produc- tion (1,000 tons)
1950	25	0.978	24	1966	1,053	1.724	1,816
1951	32	.958	31	1967	1,095	1.602	1,754
1952	27	.971	26	1968	1,169	1.612	1,884
1953	30	.950	29	1969	1,143	1.730	1,978
1954	32	.999	32	1970	1,153	1.726	1,990
1955	32	1.008	33	1971	1,170	1.690	1,978
1956	47	1.072	50	1972	1,210	1.726	2,089
1957	47	1.093	52	1973	1,303	1.645	2,144
1958	72	1.112	80	1974	1,387	1.596	2,213
1959	84	1.210	102	1975	1,426	1.619	2,308
1960	128	1.379	176	1976	1,490	1.714	2,555
1961	170	1.392	237	1977	1,323	1.659	2,195
1962	348	1.664	578	1978	1,404	1.785	2,507
1963	347	1.733	601	1979	1,413	1.681	2,375
1964	365	1.653	603	1980	1,433	1.844	2,641
1965	930	1.718	1,599				

Source : Department Of Statistics, Ministry Of Agriculture,  
Dokki, Cairo, published in Bulletin Of Agricultural Economics,  
In Arabic.

Table 4. Area, Yield and Production of Nili Maize through the period 1950 - 1980

Year	Area (1,000 feddans)	Yield (t/f)	Production (1,000 tons)	Year	Area (1,000 feddans)	Yield (t/f)	Production (1,000 tons)
1950	1,426	0.899	1,252	1966	522	1.074	560
1951	1,623	.857	1,390	1967	390	1.048	408
1952	1,677	.882	1,480	1968	385	1.073	414
1953	1,985	.919	1,824	1969	341	1.139	388
1954	1,872	.919	1,720	1970	351	1.152	404
1955	1,801	.933	1,681	1971	351	1.034	363
1956	1,789	.896	1,602	1972	321	1.022	328
1957	1,721	.838	1,443	1973	351	1.034	363
1958	1,883	.891	1,678	1974	368	1.161	427
1959	1,774	.788	1,397	1975	404	1.170	473
1960	1,693	.894	1,575	1976	401	1.228	492
1961	1,433	.963	1,380	1977	442	1.196	529
1962	1,434	.960	1,425	1978	494	1.236	610
1963	1,374	.921	1,266	1979	492	1.195	564
1964	1,295	1.028	1,331	1980	473	1.247	590
1965	520	1.043	542				

Source : Department of Statistics, Ministry of Agriculture,  
Dokki, Cairo , published in Annual Bulletin of Agricultural Economics  
( In Arabic).

Table 5. Summary of Changes In the Area of Maize through the period 1950 - 1980

Period		Annual Area of Maize, Period average			Percent Of Total maize area	
Year (No.)	From - to	Summer maize	Nilii maize	Total maize	Summer maize	Nilii maize
		(1,000 Feddans)			(Percent)	
3	1950-1952	28	1,575	1,603	1.7	98.3
5	1953-1957	38	1,834	1,872	2.0	98.0
2	1958-1959	78	1,829	1,907	4.1	95.9
2	1960-1961	149	1,563	1,712	8.7	91.3
3	1962-1964	353	1,384	1,737	20.3	79.7
1	1965	930	520	1,450	64.1	35.9
4	1966-1969	1,115	410	1,525	73.1	26.9
3	1970-1972	1,178	341	1,519	77.6	22.4
2	1973-1974	1,345	360	1,705	78.9	21.1
3	1975-1977	1,413	416	1,829	77.2	22.8
3	1978-1980	1,417	481	1,898	74.7	25.3

Source : Calculated from Tables 2,3 and 4.

Table 6. Summary of Changes in the Yield of Maize through the period 1950 - 1980

Period		Yield Of Maize, Period Average			Increase In Yield Of Summer Maize Over Nili Maize	
Years (No.)	From - to	Summer maize	Nili maize	Total maize	t/f	%
		( Ton / feddan )				
3	1950-1952	0.964	0.879	0.880	0.085	9.7
5	1953-1957	1.026	.902	.904	.124	13.7
2	1958-1959	1.167	.841	.854	.326	38.8
2	1960-1961	1.389	.926	.966	.463	50.0
3	1962-1964	1.683	.991	1.131	.692	69.8
1	1965	1.718	1.043	1.476	.675	64.7
4	1966-1969	1.667	1.078	1.508	.589	54.6
3	1970-1972	1.714	1.070	1.569	.644	60.2
2	1973-1974	1.619	1.097	1.509	.522	47.6
3	1975-1977	1.665	1.197	1.559	.468	39.1
3	1978-1980	1.770	1.220	1.631	.550	45.1

Source : Calculated from Tables 2,3 and 4.

Table 7. Summary of Changes In Maize Production through the period 1950 - 1980

Period		Annual Production of Maize, Period Averages			Percent of Total Maize Production	
Years (No.)	From - to	Summer maize	Nili maize	Total maize	Summer maize	Nili maize
		(1,000 tons)				
3	1950-1952	27	1,384	1,411	1.9	98.1
5	1953-1957	39	1,654	1,693	2.3	97.7
2	1958-1959	91	1,538	1,629	5.6	94.4
2	1960-1961	207	1,447	1,654	12.5	87.5
3	1962-1964	594	1,371	1,965	30.2	69.8
1	1965	1,599	542	2,141	74.7	25.3
4	1966-1969	1,858	442	2,300	80.8	19.2
3	1970-1972	2,019	365	2,384	84.7	15.3
2	1973-1974	2,178	395	2,573	84.6	15.4
3	1975-1977	2,353	498	2,851	82.5	17.5
3	1978-1980	2,508	587	3,095	81.0	19.0

Source : Calculated from Tables 2,3 and 4.

Table 8 . Area, Yield and Production of Maize in Egypt By Types, Average 1975 - 1979

Type	Area (1,000 feddans)	Yield* (t/f)	Production (1,000 tons)
Summer	1,411	1.692	2,388
Nili	442	1.206	533
<b>Total</b>	<b>1,854</b>	<b>1.576</b>	<b>2,921</b>
	<u>Percent of Total maize*</u>		
Summer	76.13	107.36	81.74
Nili	23.87	67.52	18.26
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Source : Calculated from annual data published by Department of Statistics, Ministry of Agriculture.

\* Based on unrounded data.

Table 9. Area, Yield and Production Of Maize  
in Main Regions Of Egypt,  
Average 1975 - 1979

Region & type	Area (1,000 feddans)	Yield (t/f)	Production (1,000 tons)	Percent of all Egypt		
				Area	Yield	Production
( Percent )						
<u>Lower Egypt</u>						
Summer	938	1.73	1,621	66.4	102.4	67.9
Nili	149	1.26	187	33.7	104.1	35.1
Total *	1,087	1.66	1,808	58.6	105.1	61.9
<u>Middle Egypt</u>						
Summer	337	1.61	544	23.9	95.3	22.8
Nili	232	1.22	282	52.4	100.8	52.8
Total *	569	1.45	826	30.7	91.8	28.3
<u>Upper Egypt</u>						
Summer	136	1.63	223	9.7	96.4	9.3
Nili	62	1.05	65	13.9	86.8	12.1
Total *	198	1.45	287	10.7	91.8	9.8
<u>All Egypt</u> *						
Summer	1,411	1.69	2,388	100.0	100.0	100.0
Nili	442	1.21	533	100.0	100.0	100.0
Total	1,854	1.58	2,921	100.0	100.0	100.0

Source : Calculated from annual data published by Department of Statistics,  
Ministry of Agriculture .

\* Based on unrounded data.

Table 10. Area of Principal Summer and Nili Field Crops in Main Regions of Egypt, Average 1975 - 1979

Region	Area Of Crops ( 1,000 feddans )					
	Cotton	Rice	Maize	Sorghum	Other*	Total
Lower	864	1,028	1,087	0	56	3,035
Middle	255	20	569	82	42	968
Upper	161	0	198	360	42	761
ALL Egypt	1,280	1,048	1,854	442	140	4,764
<u>Percent Of total area</u>						
Lower	28.5	33.9	35.8	0	1.8	100.0
Middle	26.4	2.1	58.7	8.4	4.4	100.0
Upper	21.2	0	26.0	47.4	5.4	100.0
All Egypt	26.9	22.0	38.9	9.3	2.9	100.0
<u>Percent of all Egypt</u>						
Lower	67.5	98.1	58.6	0	40.0	63.7
Middle	19.9	1.9	30.7	18.6	30.0	20.3
Upper	12.6	0	10.7	81.4	30.0	16.0
ALL EGYPT	100.0	100.0	100.0	100.0	100.0	100.0

Source : Calculated from annual data published by the Department of Statistics, Ministry of Agriculture.

\* Others are : Groundnuts, sesami, soybeans and onions.

Table 11. Area, Production and Yield of Maize  
in Egypt Governorates, Average 1975 - 1979

Governorate	Area ( 1,000 feddans)	Production ( 1,000 tons)	Yield ** (t/f)	Percent of Egypt total **		
				Area	Prod.	Yield
				( Percent )		
Alexandria	14	14	0.989	0.7	0.5	62.8
Beheira	190	302	1.592	10.3	10.4	101.0
* Gharbiya	144	267	1.850	7.8	9.1	117.4
* Kafr El-Sheikh	77	130	1.676	4.2	4.4	106.3
* Daqahliya	97	172	1.772	5.2	5.9	112.4
Domyat	11	12	1.133	.6	.4	71.9
Sharqiya	234	373	1.597	12.6	12.8	101.3
Ismailiya	27	31	1.121	1.5	1.1	71.1
Suez	3	3	1.123	.1	.1	71.2
* Minufia	198	340	1.721	10.7	11.6	109.2
Qalyubiya	92	163	1.777	4.9	5.6	112.8
Lower Egypt **	1,087	1,808	1.663	58.6	61.9	105.5
Giza	109	164	1.503	5.9	5.6	95.4
* Beni Suef	143	205	1.440	7.7	7.0	91.4
Faiyum	104	119	1.138	5.6	4.1	72.2
* Minya	212	338	1.589	11.5	11.6	100.8
Middle Egypt **	569	826	1.452	30.7	28.3	92.1
* Assyut	56	101	1.804	3.0	3.5	114.5
* Sohag	49	86	1.747	2.6	2.9	110.9
Qena	81	88	1.090	4.4	3.0	69.2
Aswan	12	13	1.028	.7	.4	65.2
Upper Egypt **	198	287	1.451	10.7	9.8	92.1
Egypt total **	1,854	2,921	1.576	100.0	100.0	100.0

Source : Calculated from annual data published by Statistical Dept., Ministry of Agric,  
Dokki- Cairo, Bulletin of Agricultural Economics, in Arabic.

\* Governorates covered by EMCIP. \*\* Based on unrounded data.

Table 12. Area, Production and Yield of Summer Maize in Egypt Governorates, Average 1975 - 1979

Governorate	Area (1,000 feddans)	Production (1,000 tons)	Yield** (t/f)	Percent of Egypt total **		
				Area	Prod.	Yield
				( Percent )		
Alexandria	8	9	1.036	0.6	0.4	61.2
Beheira	163	280	1.717	11.5	11.7	101.5
Gharbiya	123	237	1.922	8.7	9.9	113.6
Kafr El-Sheikh	72	124	1.724	5.1	5.2	101.9
Daqahliya	61	116	1.893	4.3	4.9	111.9
Domyat	6	7	1.184	.4	.3	69.9
Sharqiya	200	327	1.639	14.2	13.7	96.9
Ismailiya	16	20	1.245	1.2	.8	73.6
Suez	1	2	1.210	.1	.1	71.5
Minufiya	195	337	1.725	13.8	14.1	101.9
Qalyubiya	92	163	1.777	6.5	6.8	105.0
Lower Egypt **	938	1,621	1.728	66.4	67.9	102.1
Giza	71	108	1.518	5.1	4.5	89.7
* Beni-Suef	72	112	1.550	5.1	4.7	91.6
Faiyum	26	39	1.520	1.8	1.6	89.8
* Minya	168	286	1.698	11.9	12.0	100.4
Middle Egypt **	337	544	1.614	23.9	22.8	95.4
* Assyut	49	92	1.861	3.5	3.9	110.0
* Sohag	45	80	1.790	3.2	3.3	105.8
Qena	38	46	1.208	2.7	1.9	71.4
Asswan	4	4	1.093	.3	.2	64.6
Upper Egypt **	136	223	1.634	9.7	9.3	96.6
Egypt Total **	1,411	2,388	1.692	100.0	100.0	100.0

Source : Calculated from annual data published by Statistics Department, Ministry of Agriculture, Dokki, Cairo ( Bulletin of Agricultural Economics , in Arabic ).

\* Governorates covered by EMCIP . \*\* Based on unrounded data.

Table 13. Area, Production and Yield Of Nili Maize  
In Egypt Governorates, Average 1975-1979

Governorate	Area (1,000 feddans)	Production (1,000 tons )	** Yield (t/f)	Percent of Egypt total **		
				Area	Prod.	Yield
				(Percent)		
Alexandria	5	5	0.915	1.2	0.9	75.9
Beheira	27	23	.841	6.1	4.3	69.7
* Gharbiya	21	30	1.431	4.8	5.7	118.6
* Kafr El-Sheikh	6	6	1.088	1.3	1.2	90.2
* Daqahliya	36	57	1.569	8.2	10.7	130.1
Domyat	5	5	1.065	1.1	.9	88.3
Sharqiya	34	46	1.354	7.7	8.6	112.3
Ismailiya	11	11	.944	2.6	2.0	78.3
Suez	1	1	1.002	.2	.2	83.1
* Minufia	2	3	1.438	.5	.6	119.2
Qalyubiya	0	0	---	0	0	---
Lower Egypt **	149	187	1.256	33.7	35.1	104.2
Giza	38	57	1.476	8.7	10.6	122.4
* Beni-Suef	70	93	1.327	15.9	17.5	110.1
Faiyum	79	80	1.014	17.8	15.0	84.1
* Minya	44	52	1.175	10.0	9.7	97.4
Middle Egypt **	232	282	1.216	52.4	52.8	100.8
* Assyut	6	9	1.367	1.4	1.7	113.4
* Sohag	4	5	1.295	1.0	1.0	107.4
Qena	42	42	.984	9.6	7.8	81.6
Aswan	9	9	1.000	1.9	1.6	82.9
Upper Egypt **	62	65	1.047	13.9	12.1	86.8
Egypt Total **	442	553	1.206	100.0	100.0	100.0

Source : Calculated from annual data published by Statistics Department,  
Ministry of Agriculture, Dokki, Egypt (Bulletin of Agricultural Economics).

\* Governorates covered by EMCIP. \*\* Based on unrounded data.

Table 14. Egypt Governorates Classified into Groups According to Annual Total Area and Production of Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					( Percent )		
1	Sharqiya	2,336	3,732	1.60	12.6	12.8	101.3
	* Minufiya	1,976	3,402	1.72	10.7	11.6	108.9
	* Minya	2,125	3,376	1.59	11.5	11.5	100.6
	Beheira	1,900	3,024	1.59	10.2	10.4	100.6
	Group Total	8,337	13,534	1.62	45.0	46.3	102.5
2	* Gharbiya	1,444	2,671	1.85	7.8	9.2	117.1
	* Beni-Seuf	1,426	2,053	1.44	7.7	7.0	91.1
	Group Total	2,870	4,724	1.65	15.5	16.2	104.4
3	* Daqahliya	973	1,724	1.77	5.2	5.9	112.0
	Giza	1,094	1,644	1.50	5.9	5.6	94.9
	Qalyubiya	919	1,633	1.78	5.0	5.6	112.7
	* Kafr El-Sheikh	775	1,299	1.68	4.2	4.4	106.3
	Faiyum	1,044	1,188	1.14	5.6	4.1	72.2
	Group Total	4,805	7,488	1.56	25.9	25.6	98.7
4	* Assyut	559	1,009	1.80	3.0	3.5	113.9
	Qena	808	880	1.09	4.4	3.0	69.0
	* Sohag	491	858	1.75	2.6	2.9	110.8
	Ismailiya	274	307	1.12	1.5	1.1	70.9
	Group Total	2,132	3,054	1.43	11.5	10.5	90.5
5	Alexandria	137	136	.99	.7	.5	62.7
	Aswan	123	126	1.03	.7	.4	65.2
	Domyat	108	122	1.13	.6	.4	71.5
	Suez	25	29	1.12	.1	.1	70.9
	Group Total	393	413	1.05	2.1	1.4	66.5
Total Egypt		18,537	29,213	1.58	100.0	100.0	100.0

Source : Classified from Table 11.

\* : Governorates covered by EMCIP.

Table 15. Egypt Governorates Classified into Groups According to Annual Total Area and Production of Maize, and the shares of Summer & Nili Maize in Each, Average 1975 - 1979

Group No.	Governorate *		Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt total			
						Area	Prod.	Yield	
						(Percent )			
1	Sharqiya	S	1,998	3,274	1.64	14.2	13.7	97.0	
		N	338	458	1.35	7.6	8.6	111.6	
		T	2,336	3,732	1.60	12.6	12.8	101.3	
	Minufiya	S	1,952	3,367	1.72	13.8	14.1	101.8	
		N	24	35	1.44	.5	.6	119.0	
		T	1,976	3,402	1.72	10.7	11.6	108.9	
	Minya	S	1,682	2,856	1.70	11.9	12.0	100.6	
		N	443	520	1.17	10.0	9.7	96.7	
		T	2,125	3,376	1.59	11.5	11.5	100.6	
	Beheira	S	1,628	2,796	1.72	11.5	11.7	101.8	
		N	272	228	.84	6.2	4.3	69.4	
		T	1,900	3,024	1.59	10.2	10.4	100.6	
	Group Total		S	7,260	1,2293	1.69	51.4	51.5	100.0
			N	1,077	1,241	1.15	24.3	23.2	95.0
			T	8,337	1,3534	1.62	45.0	46.3	102.5
2	Gharbiya	S	1,232	2,368	1.92	8.7	9.9	113.6	
		N	212	303	1.43	4.8	5.7	118.2	
		T	1,444	2,671	1.85	7.8	9.2	117.1	
	Beni-Suef	S	723	1,120	1.55	5.1	4.7	91.7	
		N	703	933	1.33	15.9	17.5	109.9	
		T	1,426	2,053	1.44	7.7	7.0	91.1	
	Group Total		S	1,955	3,488	1.78	13.9	14.6	105.3
			N	915	1,236	1.35	20.7	23.2	111.6
			T	2,870	4,724	1.65	15.5	16.2	104.4

Table 15.( Continued )

Group No.	Governorate	Area (100 fed)	Production (100 tons)	Yield (t/f)	% of Egypt Total		
					Area %	Prod. %	Yield %
3	Daqahliya	S 611	1,156	1.89	4.3	4.9	111.8
		N 362	568	1.57	8.2	10.6	129.8
		T 973	1,724	1.77	5.2	5.9	112.0
	Giza	S 711	1,079	1.52	5.0	4.5	89.9
		N 383	565	1.48	8.7	10.6	122.3
		T 1,094	1,644	1.50	5.9	5.6	94.9
	Qalubiya	S 919	1,633	1.78	6.5	6.8	105.3
		N 0	0	----	0	0	----
		T 919	1,633	1.78	5.0	5.6	112.7
	Kafr El-Sheikh	S 717	1,236	1.72	5.1	5.2	101.8
		N 58	63	1.09	1.3	1.2	90.1
		T 775	1,299	1.68	4.2	4.4	106.3
	Faiyum	S 256	389	1.52	1.8	1.6	89.9
		N 788	799	1.01	17.8	15.0	83.5
		T 1,044	1,188	1.14	5.6	4.1	72.2
	Group Total	S 3,214	5,493	1.71	22.8	23.0	101.2
		N 1,591	1,995	1.25	36.0	37.4	103.3
		T 4,805	7,488	1.56	25.9	25.6	98.7
4	Assyut	S 495	921	1.86	3.5	3.9	110.1
		N 64	88	1.37	1.4	1.7	113.2
		T 559	1,009	1.80	3.0	3.5	113.9
	Qena	S 383	462	1.21	2.7	1.9	71.6
		N 425	418	.98	9.6	7.8	81.0
		T 808	880	1.09	4.4	3.0	69.0
	Sohag	S 449	804	1.79	3.2	3.4	105.9
		N 42	54	1.30	.9	1.0	107.4
		T 491	858	1.75	2.6	2.9	110.8
	Ismailiya	S 161	200	1.24	1.1	.8	73.4
		N 113	107	.94	2.6	2.0	77.7
		T 274	307	1.12	1.5	1.1	70.9
	Group Total	S 1,488	2,387	1.60	10.5	10.0	94.7
		N 644	667	1.04	14.5	12.5	86.0
		T 2,132	3,054	1.43	11.5	10.5	90.5

Table 15, ( Continued )

Group No.	Governorate		Area (100 fed)	Production (100 tons)	Yield (t/f)	% of Egypt Total		
						Area %	Prod. %	Yield %
5	Alexandria	S	83	87	1.03	0.6	0.4	61.0
		N	54	49	.91	1.2	.9	75.2
		T	137	136	.99	.7	.5	62.7
	Aswan	S	37	40	1.09	.3	.2	64.5
		N	86	86	1.00	2.0	1.6	82.6
		T	123	126	1.03	.7	.4	65.2
	Domyat	S	61	72	1.18	.4	.3	69.8
		N	47	50	1.06	1.1	.9	87.6
		T	108	122	1.13	.6	.4	71.5
Suez	S	15	18	1.20	.1	.1	71.0	
	N	10	11	1.00	.2	.2	82.6	
	T	25	29	1.12	.1	.1	70.9	
Group Total	S	196	217	1.18	1.4	.9	69.8	
	N	197	196	1.00	4.5	3.7	82.6	
	T	393	413	1.05	2.1	1.4	66.5	
Egypt Totals	S	14,113	23,878	1.69	100.0	100.0	100.0	
	N	4,424	5,335	1.21	100.0	100.0	100.0	
	T	18,537	29,213	1.58	100.0	100.0	100.0	

Source : From Tables 11,12,13 and 14.

\* S - summer, N- nili , T - total.

Table 16. Percentage Shares of Maize, Cotton, Rice & Sorghum in the Total Area of Summer & Nili Field Crops in Egypt Governorates, Average 1975 - 1979

Governorate	Cotton	Rice	Maize	Sorghum	Other ** field crops	Total
Alexandria	0.5	21.9	76.8	...	0.8	100.0
Beheira	30.3	33.5	34.6	...	1.6	100.0
* Gharbiya	34.5	24.9	38.4	...	2.2	100.0
* Kafr El-Sheikh	27.7	54.2	17.8	0.1	.2	100.0
* Daqahliya	33.8	48.7	16.6	...	.9	100.0
Domyat	21.4	63.5	13.4	...	1.7	100.0
Sharqiya	25.8	30.2	42.4	...	1.6	100.0
Ismailiya	1.3	7.6	59.0	...	32.1	100.0
Suez	...	5.5	83.0	...	11.5	100.0
* Minufiya	24.2	.2	74.3	...	1.3	100.0
Qalyubiya	19.6	3.2	74.3	...	2.9	100.0
Lower Egypt	28.5	33.9	35.8	..	1.8	100.0
Giza	.4	.3	83.8	7.9	7.6	100.0
* Beni-Suef	29.7	.1	60.0	6.4	3.8	100.0
Faiyum	26.1	8.2	44.0	21.1	.6	100.0
Minya	33.7	.1	58.5	1.7	6.0	100.0
Middle Egypt	26.4	2.1	58.7	8.4	4.4	100.0
* Assyut	32.5	....	19.5	45.3	2.7	100.0
* Sohag	24.6	....	18.4	55.2	1.8	100.0
Qena	1.0	....	47.8	35.7	15.5	100.0
Aswan	....	....	33.1	59.4	7.5	100.0
Upper Egypt	21.2	....	26.0	47.4	5.4	100.0
Egypt Total	26.9	22.0	38.9	9.3	2.9	100.0

Source : Calculated from annual data published by Department of Statistics, Ministry of Agriculture, Dokki.

\*\* Other crops are : Groundnuts, sesame soybeans and onions.

\* Governorates covered by EMCIP.

Table 17. Egypt Governorates Classified into Groups According to Yield of Total Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					( Percent )		
1	Gharbiya	1,444	2,671	1.85	7.8	9.2	117.1
	Asyut	559	1,009	1.80	3.0	3.5	113.9
	Qalyubiya	919	1,633	1.78	5.0	5.6	112.7
	Daqahliya	973	1,724	1.77	5.2	5.9	112.0
	Group total	3,895	7,037	1.81	21.0	24.1	114.6
2	Sohag	491	858	1.75	2.6	2.9	110.8
	Minufiya	1,976	3,402	1.72	10.7	11.6	108.9
	Kafr El Sheikh	775	1,299	1.68	4.2	4.5	106.3
	Group total	3,242	5,559	1.71	17.5	19.0	108.2
3	Sharqiya	2,336	3,732	1.60	12.6	12.8	101.3
	Beheira	1,900	3,024	1.59	10.2	10.4	100.6
	Minya	2,125	3,376	1.59	11.5	11.5	100.6
	Giza	1,094	1,644	1.50	5.9	5.6	94.9
	Beni Suef	1,426	2,053	1.44	7.7	7.0	91.1
	Group total	8,881	13,829	1.56	47.9	47.3	98.7
4	Faiyum	1,044	1,188	1.14	5.6	4.1	72.2
	Domyat	108	122	1.13	.6	.4	71.5
	Suez	25	29	1.12	.1	.1	70.9
	Ismailiya	274	307	1.12	1.5	1.1	70.9
	Group total	1,451	1,646	1.14	7.8	5.7	72.1
5	Qena	808	880	1.09	4.4	3.0	69.0
	Aswan	123	126	1.03	.7	.4	65.2
	Alexandria	137	136	.99	.7	.5	62.7
	Group total	1,068	1,142	1.07	5.8	3.9	67.7
Egypt total		18,537	29,213	1.58	100.0	100.0	100.0

Source: Classified from table 11.

Table 18. Egypt Governorates Classified into Groups According To Annual Area and Production of Summer Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					( Percent )		
1	Sharqiya	1,998	3,274	1.64	14.2	13.7	97.0
	Minufiya	1,952	3,367	1.72	13.8	14.1	101.8
Group Total		3,950	6,641	1.68	28.0	27.8	99.4
2	Minya	1,682	2,856	1.70	11.9	12.0	100.6
	Beheira	1,628	2,297	1.72	11.5	11.7	101.8
	Gharbiya	1,232	2,368	1.92	8.7	9.9	113.6
Group Total		4,542	8,020	1.77	32.2	33.6	104.7
3	Qalyubiya	919	1,633	1.78	6.5	6.8	105.3
	Beni-Suef	723	1,120	1.55	5.1	4.7	91.7
	Kafr El-Sheikh	717	1,236	1.72	5.1	5.2	101.8
	Giza	711	1,079	1.52	5.0	4.5	89.9
	Daqahliya	611	1,156	1.89	4.3	4.9	111.8
Group Total		3,681	6,224	1.69	26.1	26.1	100.0
4	Assyut	495	921	1.86	3.5	3.9	110.1
	Sohag	449	804	1.79	3.2	3.4	105.9
	Qena	383	462	1.21	2.7	1.9	71.6
	Faiyum	256	389	1.52	1.8	1.6	89.9
Group Total		1,583	2,576	1.63	11.2	10.8	96.5
5	Ismailiya	161	200	1.24	1.1	.8	73.4
	Alexandria	83	87	1.03	.6	.4	75.2
	Domyat	61	72	1.18	.4	.3	69.8
	Aswan	37	40	1.09	.3	.2	64.5
	Suez	15	18	1.20	.1	.1	71.0
Group Total		357	417	1.17	2.5	1.7	69.2
Egypt Total		14,113	23,878	1.69	100.0	100.0	100.0

Source : Classified from Table 12.

Table 19. Egypt Governorates Classified into Groups According to Yield of Summer Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					Percent		
1	Gharbiya	1,232	2,368	1.92	8.7	9.9	113.6
	Daqahliya	611	1,156	1.89	4.3	4.9	111.8
	Asyut	495	921	1.86	3.5	3.9	110.1
	Group total	2,338	4,445	1.90	16.6	18.6	112.4
2	Sohag	449	804	1.79	3.2	3.4	105.9
	Qalyubiya	919	1,633	1.78	6.5	6.8	105.3
	Group total	1,368	2,437	1.78	9.7	10.2	105.3
3	Minufiya	1,952	3,367	1.72	13.8	14.1	101.8
	Kafr El Sheikh	717	1,236	1.72	5.1	5.2	101.8
	Beheira	1,628	2,796	1.72	11.5	11.7	101.8
	Minya	1,682	2,856	1.70	11.9	12.0	100.6
	Group total	5,979	10,255	1.72	42.4	43.0	101.8
4	Sharqiya	1,998	3,274	1.64	14.2	13.7	97.0
	Beni Suef	723	1,120	1.55	5.1	4.7	91.7
	Faiyum	256	389	1.52	1.8	1.6	89.9
	Giza	711	1,079	1.52	5.0	4.5	89.9
	Group total	3,688	5,862	1.59	26.1	24.5	94.1
5	Ismailiya	161	200	1.24	1.1	.8	73.4
	Suez	15	18	1.20	.1	.1	71.0
	Qena	383	462	1.21	2.7	1.9	71.6
	Domyat	61	72	1.18	.4	.3	69.8
	Aswan	37	40	1.09	.3	.2	64.5
	Alexandria	83	87	1.03	.6	.4	75.2
	Group total	740	879	1.19	5.2	3.7	70.4
Egypt total		14,113	23,878	1.69	100.0	100.0	100.0

Source : Classified from table 12.

Table 20. Egypt Governorates Classified into Groups According to Area and Production of Nili Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					(Percent)		
1	Faiyum	788	799	1.01	17.8	15.0	83.5
	Beni-Suef	703	933	1.33	15.9	17.5	109.9
	Group Total	1,491	1,732	1.16	33.7	32.5	95.9
2	Minya	443	520	1.17	10.0	9.7	96.7
	Qena	425	418	.98	9.6	7.8	81.0
	Giza	383	565	1.48	8.7	10.6	122.3
	Daqahliya	362	568	1.57	8.2	10.6	129.8
	Sharqiya	338	458	1.35	7.6	8.6	111.6
	Group Total	1,951	2,529	1.30	44.1	47.4	107.4
3	Beheira	272	228	.84	6.2	4.3	69.4
	Gharbiya	212	303	1.43	4.8	5.7	118.2
	Group Total	484	531	1.10	11.0	10.0	90.9
4	Ismailiya	113	107	.94	2.6	2.0	77.7
	Aswan	86	86	1.00	2.0	1.6	82.6
	Assyut	64	88	1.37	1.4	1.7	113.2
	Kafr El-Sheikh	58	63	1.09	1.3	1.2	90.1
	Alexandria	54	49	.91	1.2	.9	75.2
	Domyat	47	50	1.06	1.1	.9	87.6
	Sohag	42	54	1.30	.9	1.0	107.4
Group Total	464	497	1.07	10.5	9.3	88.4	
5	Minufiya	24	35	1.44	.5	.6	119.0
	Suez	10	11	1.00	.2	.2	82.6
	Qalubiya	0	0	----	0	0	----
Group Total	34	46	1.35	.7	.8	111.6	
Egypt Total		4,424	5,335	1.21	100.0	100.0	100.0

Source : Classified from Table 13.

Table 21. Egypt Governorates Classified into Groups According to Yield of Nili Maize, Average 1975 - 1979

Group No.	Governorate	Area (100 fed.)	Production (100 tons)	Yield (t/f)	Percent of Egypt Total		
					Area	Prod.	Yield
					Percent		
1	Daqahliya	326	568	1.57	8.2	10.6	129.8
2	Giza	383	565	1.48	8.7	10.6	122.3
	Minufiya	24	35	1.44	.5	.6	119.0
	Gharbiya	212	303	1.43	4.8	5.7	118.2
	Group total	619	903	1.46	14.0	16.9	120.7
3	Asyut	64	88	1.37	1.4	1.7	113.2
	Sharqiya	338	458	1.35	7.6	8.6	111.6
	Beni Suef	703	933	1.33	15.9	17.5	109.9
	Sohag	42	54	1.30	.9	1.0	107.4
	Group total	1,147	1,533	1.34	25.9	28.8	110.7
4	Minya	443	520	1.17	10.0	9.7	96.7
	Kafr El Sheikh	58	63	1.09	1.3	1.2	90.1
	Domyat	47	50	1.06	1.1	.9	87.6
	Group total	548	633	1.16	12.4	11.9	95.9
5	Faiyum	788	799	1.01	17.8	15.0	83.5
	Suez	10	11	1.00	.2	.2	82.6
	Aswan	86	86	1.00	2.0	1.6	82.6
	Qena	425	418	.98	9.6	7.8	81.0
	Ismailiya	113	107	.94	2.6	2.0	77.7
	Alexandria	54	49	.91	1.2	.9	75.2
	Beheira	272	228	.84	6.2	4.3	69.4
	Group total	1,748	1,698	.97	39.5	31.8	80.0
Egypt total		4,424	5,335	1.21	100.0	100.0	100.0

Source : Classified from table 13.

Table 22. Production, Imports and Consumption of Maize in Egypt  
through the Period 1960 - 1980

(1,000 tons)

Year	Production	Imports	Total Consumption
1960	1,691	51	1,742
1961	1,617	101	1,718
1962	2,004	264	2,268
1963	1,867	179	2,046
1964	1,934	425	2,359
1965	2,141	137	2,278
1966	2,376	166	2,542
1967	2,163	201	2,364
1968	2,297	132	2,429
1969	2,366	43	2,409
1970	2,393	73	2,466
1971	2,342	39	2,381
1972	2,417	88	2,505
1973	2,507	67	2,574
1974	2,640	388	3,028
1975	2,781	418	3,199
1976	3,047	459	3,506
1977	2,724	591	3,315
1978	3,117	730	3,847
1979	2,938	494	3,432
1980	3,230	916	4,146

Table 23. Production Cost Per Feddan of Summer Maize By Input Factor  
Costs and Governorates, 1980

(LE)

Governorate	Labor wages	Draft animals	Machinery	Seeds	Manure	Chemical fertilizers	Insecticides	Miscellaneous	Total costs	Land rent	Grand Total
Beheira	30.17	11.73	12.31	2.96	11.37	11.00	0	6.00	85.54	24.00	109.54
Gharbiya	40.40	16.00	7.00	5.00	20.00	14.80	10.00	6.00	119.20	30.00	149.20
Kafr El-Sheikh	49.80	9.00	11.79	3.00	12.00	10.56	0	5.00	101.15	26.63	127.78
Dakahliya	40.90	7.00	10.50	2.00	10.00	11.20	3.50	6.44	91.54	30.00	121.54
Sharqiya	42.80	8.00	12.00	3.00	10.00	12.00	0	5.00	92.80	40.00	132.80
Minufia	50.76	8.09	8.80	3.60	20.00	12.67	4.74	5.00	113.66	45.00	158.66
Qalubiya	56.41	11.05	10.00	4.00	24.00	15.64	0	5.00	126.10	50.00	176.10
Lower Egypt	43.34	10.12	10.38	3.42	15.18	12.51	2.67	5.42	103.04	35.85	138.89
Giza	51.04	7.00	7.00	3.00	12.00	9.50	0	4.00	93.54	30.00	123.54
Beni-Suef	55.00	9.00	16.00	4.00	15.00	13.68	0	5.00	117.68	30.00	147.68
Faiyum	40.50	11.00	4.00	4.00	7.00	14.00	0	5.00	85.50	30.00	105.50
Minya	59.30	3.00	15.00	3.50	0	12.80	0	5.00	98.60	30.00	128.60
Middle Egypt	55.29	5.64	12.70	3.54	5.97	12.40	0	4.80	100.34	30.00	130.34
Assyut	88.00	4.00	22.90	2.00	10.00	14.00	0	5.00	145.90	30.00	175.90
Sohag	95.45	7.65	17.25	3.16	0	14.04	0	6.65	144.20	50.00	194.20
Qena	36.02	8.00	28.66	4.00	0	14.80	0	4.00	95.48	37.00	132.48
Upper Egypt	77.33	6.34	22.35	2.93	3.83	14.22	0	5.34	132.34	38.99	171.33
Egypt total	49.43	8.64	12.05	3.41	11.82	12.64	1.75	5.26	105.00	34.65	139.65

Source : Department of Statistics, Ministry of Agriculture.

Table 24. Production Cost Per Faddan Of Summer Maize By Input Factor Costs, 1970 - 1980

Input Factor Year											(LE)	
	Labor wages	Draft animals	Machinery	Seeds	Chemical fertilizers	Manure	Insecticides	Miscellaneous	Total	Land rent	Grand total	
1970	9.56	4.01	1.71	1.24	6.93	5.01	0	0.58	29.04	12.50	41.54	
1971	9.84	3.85	1.68	1.28	6.77	4.85	0.60	.79	29.12	12.26	41.38	
1972	10.43	3.92	2.41	1.19	7.27	5.72	0	.66	31.60	12.08	43.68	
1973	11.63	3.83	2.59	1.20	7.20	5.75	0	.53	32.46	12.58	45.04	
1974	13.65	4.33	2.53	1.57	7.55	6.24	0	.89	37.76	13.29	51.05	
1975	18.23	4.49	4.00	1.58	7.63	7.43	0	1.19	44.55	15.02	59.57	
1976	22.27	5.70	4.61	1.63	7.67	7.88	0	1.52	52.06	18.91	70.97	
1977	26.60	7.94	7.71	1.85	10.40	9.36	0	1.88	65.29	19.71	85.00	
1978	36.52	5.43	10.51	2.17	13.58	10.53	0	2.60	81.34	21.63	102.97	
1979	39.51	8.83	10.13	2.42	10.20	11.77	1.72	3.08	87.66	31.55	119.21	
1980	49.43	8.64	12.05	3.41	12.64	11.82	1.75	5.26	105.00	34.65	139.65	

Source : Department Of Statistics, Ministry Of Agriculture.

Table 25. Production Cost Per Feddan Of Summer Maize By Farming Operations,  
1970 - 1980

Operation Year	Land tillage	Seed plant- ing	Irri- gation	Fertili- zation	Harrowing, weeding, etc.	Harvesting & threshing	Miscella- neous	Total	Land rent	Grand Total
1970	3.79	1.89	3.96	12.75	2.62	3.47	0.58	29.04	12.50	41.54
1971	3.72	1.86	4.00	12.49	2.63	3.63	.79	29.12	12.26	41.38
1972	4.13	1.79	4.36	13.88	2.81	3.97	.66	31.60	12.08	43.68
1973	4.21	1.96	4.70	13.97	2.95	4.14	.53	32.46	12.58	45.04
1974	5.16	2.53	5.46	14.85	3.59	5.28	.89	37.76	13.29	51.05
1975	6.04	2.88	6.89	16.32	4.96	6.27	1.19	44.55	15.02	59.57
1976	7.44	3.36	8.11	17.16	6.35	8.12	1.52	52.06	18.91	70.97
1977	8.64	3.81	11.09	22.29	7.66	9.92	1.88	65.29	19.71	85.00
1978	11.88	4.64	13.10	24.79	11.58	12.75	2.60	81.34	21.63	102.97
1979	12.20	5.05	12.79	26.23	14.20	14.11	3.08	87.66	31.55	119.21
1980	14.06	7.16	14.92	28.72	15.32	24.82	0	105.00	34.65	139.65

Source : Department Of Statistics, Ministry Of Agriculture.

Table 26. Farm-Gate Prices of Maize  
Through the Period 1970-1980

Year	LE/ton
1970	33.41
1971	33.36
1972	33.78
1973	45.21
1974	50.82
1975	50.20
1976	50.45
1977	76.76
1978	70.70
1979	74.07
1980	122.86

Source : Department of Statistics , Ministry of Agriculture.

Table 27. Estimates of Net Farm Income Per Feddan Of Summer Maize in 1973 and 1980

Item	1973	1980
1. Output per feddan :		
Grain, ton	1.64	1.84
Stalks, ton	2.00	2.00
2. Farm-gate Price:		
Grain, LE/ton	45.00	123.00
Stalks, LE/ton	3.20	10.00
3. Gross income per feddan		
Grain, LE.	73.80	226.30
Stalks, LE.	6.40	20.00
Total	80.20	246.30
4. Production cost, LE/f	45.00	140.00
5. Net farm income, LE/f	35.20	106.30
6. Benefit /cost ratio (3/4)	1.78	1.76

Source : Derived from prior tables.

Table 28. Estimates of Average Net Farm Income Per feddan From Principal Field Crops in 1980

Crop	Principal Product				Straw			Total Per Feddan		
	Yield		Farm-gate price	Value	Yield	Farm-gate Price	Value	Value of output	Production Cost	Net income
	Unit	Amount								
		LE per Unit	L.E.	Ton	LE/t	L.E.	L.E.	L.E.	L.E.	
<u>Winter Crops</u>										
Clover :										
Full-term	Feddan	-----	-----	205	-----	-----	-----	205	100	105
Short-term	Feddan	-----	-----	82	-----	-----	-----	82	29	53
Wheat	Ton	1.36	88	120	2.16	44.0	95	215	142	73
Broad beans	Ton	.87	199	173	1.22	20.0	24	197	120	77
Barley	Ton	1.12	86	96	1.51	31.0	47	143	95	48
<u>Summer Crops</u>										
Cotton	Kentar	7.23	47	340	1.50	9.7	15	355	239	116
Rice	Ton	2.45	81	199	1.60	8.3	13	212	163	49
Maize	Ton	1.84	123	226	2.00	10.0	20	246	140	106
Sorghum	Ton	1.58	119	188	2.25	12.4	28	215	140	75

Table 29. Annual net farm income per feddan from principal two-crop combinations in 1980.

Possible Annual two-crop Combinations	Net farm income ( LE/ feddan )			
Full-term clover and maize	105	+	106	= 211
Full-term clover and sorghum	105	+	75	= 180
Wheat and maize	73	+	106	= 179
Short-term clover and cotton	53	+	116	= 169
Full-term clover and rice	105	+	49	= 154
Wheat and rice	73	+	49	= 122

Source : Table 28.

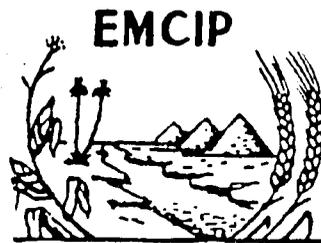
Table 30. Estimates of the Value Added to the National Economy At International Prices From One Feddan Under Cotton and Alternative Cereals in 1980

Crops	Unit of output	Output per feddan	International price per unit of output (LE)	Value of output (LE)	Cost of fertilizers, insecticides & processing (LE)	Value added (LE)
Wheat	Ton	1.4	145	203	25	178
Maize	Ton	1.8	125	225	25	200
<b>Total</b>	---	---	---	---	---	<b>378</b>
Wheat	Ton	1.4	145	203	25	178
Rice (White)	Ton	1.5	300	450	75	375
<b>Total</b>	---	---	---	---	---	<b>553</b>
Cotton lint	Kantar	8.0	95	760	200	560
Cotton seed	Ton	.6	200	120	50	70
<b>Total</b>	---	---	---	---	---	<b>630</b>

Source : See Text.

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