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Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)
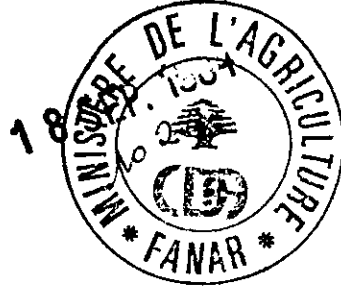
THE PRODUCTION AND EXPORTS OF FRUITS

IN LEBANON

MINISTRY OF AGRICULTURE
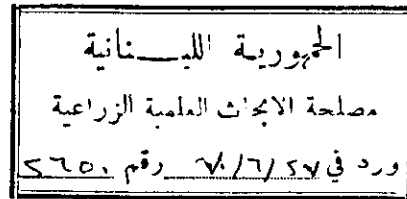GREEN PLAN
SECTION OF ECONOMIC STUDIES
————————

MARKET STUDIES FOR LEBANESE FRUITS
N°. 27

MARKET SITUATION OF FRUITS AND FRUIT PRODUCTS
In
LEBANON

By

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L I S T O F T A B L E S

I.   INTRODUCTION

The Green Plan has been helping the farmers to develop their land. Terraces have been fixed, walls and water reservoirs built, and agricultural roads have been constructed to connect the agricultural fields to the main roads, and fruit seedlings have been distributed to be planted on the developed land.

Till the end of 1968, the area of developed land was 76.8 thousand dunums, the area of built walls was 1650 square meters, the number of water reservoirs was 236 ones having a volume of 40,178 cubic meters, the length of agricultural roads constructed was 77,526 meters, and the number of fruit seedlings given to the farmers at supported prices averaged around one million ones.

In connection with type of work, the Green Plan changed its economic division to conduct economic studies on the market outlets for fruits in Lebanon, in the Arab countries, and in other important foreign countries to see the evolution of the fruit markets in them. The goal is to guide the farmers towards fruit crops which are economical and will have a market outlet in the future.

The objective of this paper is to study the current market situation of fruit crops in Lebanon, and to try to foresee how it might become in 1975 and 1980.

II. THE PLACE OF AGRICULTURE IN THE LEBANESE ECONOMY

The area of cultivated land in Lebanon averages around 391 thousand hectares, equivalent to about 38 percent of the total area of Lebanon. About one fourth of the total cultivated land goes under perennial crops and the remainder goes under annual crops and fallow[x]

Of the total gross national product at market prices, the agricultural sector contribution had been relatively decreasing. While in 1964, it was around 12.89 percent, it reached the 12.23 percent in 1967.

This apparent decrease resulted not from the decrease in the value of agricultural products but from the relatively higher rate of increase in the other sectors. The contribution of the gross values of the fruit crops to the gross values of the total agricultural production averages around 35 percent.

It is difficult to know the proportion of the active population who are working in the agricultural sector. However it is estimated that aside of seasonal variations, about half the active population is occupied in agriculture.

The market situation of the main fruit crops in Lebanon are to be discussed on the following pages.

[x] Anonymous (1967). Recouil de Statistiques Libanaises. Liban, Ministere du Plan. Vol. 3. P. 81

III.   PRODUCTION AND UTILIZATION OF THE MAIN FRUIT CROPS IN LEBANON

CITRUS

The citrus crop is the most important fruit crop in Lebanon. Though the are under citrus fruits ranks fourth among the areas of the different Lebanese fruits and it does not constitute more than 15 percent of the total area under fruits, the value of the citrus crops exceeds by far the value of any other fruit crops and in 1968 it constituted about 30 percent of the total value of all Lebanese fruits.

PRODUCTION

The Lebanese citrus production has been increasing steadily as a result of increase in areas and in yields. While in 1956, the citrus production averaged slightly more than 100 thousand tons, it reached the 238 thousand tons in 1968. The rate of increase in the area under citrus is relatively lower than that in the average yield.

Of the 11 thousand hectares which are under citrus, about 59 percent are located in South Lebanon, 27 percent are located in North Lebanon, and 14 percent are located in Mount Lebanon. Area under oranges constitutes more than 70 percent of the total citrus area . Area under Lemons follows with about 18 percent, then tangerines with about ten percent and lastly grapefruit with about one percent

ORANGES

In 1968, the area under oranges was about 7,869 hectares of which 3,995 hectares were located in South Lebanon, 2,745 hectares were in North Lebanon and about 1,129 hectares were in Mount Lebanon. The young orange plantation was still taking place at a relatively much higher rate in the South of Lebanon than in the other places. Of the 980 hectares of non-producing oranges in Lebanon, about 841 hectares were in South Lebanon, 115 hectares were in North Lebanon, and only 24 hectares were in Mount Lebanon.

For tho yield, also South Lobanon ranked first with an avorago
of about 25,5 tons per hoctaro; it was followed by Mount Lobanon
with an avorago of about 24.4 tons por hoctaro; and finally North
Lobanon with an avorago of 19o6 tons por hoctaro.

Thus, of tho 158.8 thousand tons constituting tho total
orango production in Lobanon in 1968, about 80.3 thousand tons
camo from South Lobanon, 51o5 thousand tons camo from North Lobanon,
and about 27.0 thousand tons camo from Mount Lobanon.

LEMONS

Lomon was tho noxt most important citrus crop in Lobanon.
Though, tho aroa undor it did not constituto moro than 10 porcont
of tho total citrus aroa, its production in 1968 constitutod moro
than 24 porcont of tho total citrus production. South Lobanon hold
moro than 84 porcont of the lomon aroa, followod by Mount Lohanon
with about 11 porcent and the romaindor was loft for North Lobanon.
South Lobanon was only district having young plantations of lemons
covoring an aroa of about 180 hoctaros.

Tho yield of lomons was highost in South Lobanon with about
32o0 tons por hoctaro, followod by that of Mount Lobanon with about
29.5 tons por hoctaro, and finally camo North Lobanon with an
avorago yiold of about 23.7 tons por hoctaro.

Of tho 55,752 tons of lomons producod in 1968, about 47,257
tons camo from South Lobanon, 6,369 tons from Mount Lobanon, and
tho romaindor 2,126 tons camo from North Lobanon. To this lomon
production from compact plantations, about 3600 tons woro addod from
scattorod lomon troos and mado tho total lomon production in 1968
roach tho figuro 59 thousand tons.

TANGERINES

The area under tangerines constituted about ten percent of the total citrus area. About 70 percent of this tangerine area were held by South Lebanon, 20 percent are held by Mount Lebanon, and about 10 percent were held by North Lebanon. Of the 10,600 dunums of tangerines, about 700 dunums were not yet in the bearing stage and were located in South Lebanon.

The tangerine yield averaged about 13.4 tons per hectare for all Lebanon in 1968. Similar to other citrus fruits, South Lebanon had the highest yield followed by Mount Lebanon and then North Lebanon.

Of the 13.265 tons of tangerines produced in 1968, about 9 thousand tons came from South Lebanon, 3 thousand tons from Mount Lebanon, and 1.25 thousand tons came from North Lebanon. The production of tangerine scattered trees averaged about one thousand tons, making the total tangerine production in 1968 average around the 14 thousand tons.

GRAPEFRUIT

The area under grapefruit was relatively negligeable. It constituted about one percent of the total area under citrus. Almost all the area under grapefruit was located in the Southern district of Lebanon. About 13 hectares were in the unbearing stage in 1968.

The grapefruit yield averaging about 31.6 thousand tons per hectare for the whole of Lebanon in 1968, averaged first in Mount Lebanon with about 32.7 thousand tons per hectare, second in South Lebanon with about 32.0 thousand tons per hectare, and lastly in North Lebanon with about 26.9 thousand tons per hectare.

In 1968, the grapefruit production coming mainly from South Lebanon averaged about 3700 tons from compact plantations and about 300 tons from scattered trees.

CONSUMPTION

The citrus net supply in Lebanon had been increasing steadily. While it averaged around the 61 thousand tons in 1956, it reached the 154 thousand tons in 1966. This increase in consumption resulted from the increase in population and in the per capita income.

The increase in production had increased not only the total local consumption but also the exported quantities. While the Lebanese export for citrus was around the 47 thousand tons in 1956, it reached the 115 thousand tons in 1966. The exported quantity from oranges averaged around the 69.8 percent of the Lebanese citrus exports, while that of lemons around 2.5 percent and the grapefruit around the 1.3 percent. The main importing countries for the Lebanese citrus products had been the Arab countries, followed by the Eastern European countries.

The imports of the Arab countries for the Lebanese citrus products constitute more than 80 percent of the total Lebanese citrus exports, while those of the Eastern European countries constitute more than 14 per cent.

ORANGES

The Lebanese orange exports had been increasing steadily. The gross weight of orange exported quantities in 1961 averaged around the 60 thousand tons while it reached the 115 thousand tons in 1968 (see table 4).

TABLE -1 Lebanese Exports of Oranges. 1961 - 1968
(Thousand tons, gross weight)

COUNTRY	1961	1962	1963	1064	1965	1966	1967	1968
Arab Countries	58.8	87.6	86.1	90.8	93.8	89.4	98.8	115.4
Syria	39.7	60.0	58.4	64.1	60.7	50.4	55.2	67.9
Jordan	10.4	16.4	12.5	7.9	8.8	6.5	1.6	0.6
Saudi Arabia	4.8	7.0	11.7	13.2	18.6	24.7	29.1	31.7
Kuwait	2.9	2.2	1.7	3.3	3.9	3.8	9.3	12.1
Bahrein	.3	1.0	1.0	1.2	1.4	1.8	2.3	2.0
Other Arab countries	.7	1.0	.6	1.1	0.4	2.2	1.3	1.1
Eastern European countries	.6	.2	.1	3.5	3.4	.8	1.9	.1
Czechoslovakia	--	.2	.1	.8	1.7	.8	1.9	.1
Other Eastern European countries	.6	--	--	2.7	1.7	-	-	-
Other countries	.2	1.6	1.2	.1	1.9	.9	.3	.1
Total Lebanese Exports	59.6	89.4	87.4	94.4	99.1	91.1	101.9	115.6

SOURCES: 1) Anonymous (1964). Agricultural Economics, Fruit Office, No. 37
(in Arabic)

2) Anonymous (1966,67,68). Reports on Lebanese Exports of Fruits.
Fruit Office; Economic Division (Unpublished reports in Arabic).

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More than 95 percent of these exported oranges go to the
Arab countries. Syria alone imports about 60 percent of the total
lebanese exports of oranges. Jordan has been decreasing its imports
for the Lebanese oranges. While in 1961, its imports were around
10.4 thounsand tons gross weight, they dropped to less than one
thousand tons in 1968. On the other side, Saudi Arabia has been
increasing its orange imports from Lebanon. Its imports in 1961 were
loss than five thousand tons, gross weight,they reached in 1968 the
32 thousand tons (gross weight). The Kuwaitian imports for Lebanese
oranges are very promissing too. In the very few last years, Kuwait
has more than doubled its imports. Till 1966, the Kuwaitian imports
had been less than four thousand tons, gross weight, per year; then
they moved up to about nine and 12 thousand tons respectively in the
years 1967 and 1968 (see table 1.).

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LEMONS
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The Lebanese exports for lemons have been increasing
steadily. In 1961, Lebanon exported about 22 thousand tons, gross
weight, of lemons, while in 1967, its exports reached the 46
thousand tons, gross weight, then they dropped to about 40 thousand
tons gross weight in 1968. The Arab countries absorb about one
half of the total Lebanese exports of lemons, and the other half
goes to the Eastern European countries, Syria is by far the main
importing country for the Lebanese lemons. Its imports for the
Lebanese lemons have been moving upward. About two thirds of the
Lebanese exported lemons for the Arab countries go to Syria. The
Jordanian imports for the Lebanese lemons have been flactuating
along an almost horizontal general trend averaging around the three
thousand tons per year. The Saudi Arabian imports have been increasing
slowly but steadly. While in 1961, they were around the 300 tons
gross weight they reached the three thousands tons gross weight in
1968, and so were the Kuwaitian imports. For the Eastern European
countries, East Germany came first with a gross weight flactuating
along an almost horizontal general trend averaging around the 5.5
thousand tons per year or about one third of theEastern European
imports for the Lebanese lemons. The Czechoslovakian imports
vary from year to year. While in 1961, they were around the four
thousand tons gross weight, they moved downward to about three
thousand tons in 1962, then upward to about eight thousand tons in
1965, then downward to about two thousand tons in 1968. Similar
to the Czechoslovakian imports are the Romanian, the Polonian and
the Russian ones (see table 2)

TABLE – 2 Lebanese Exports of Lemons. 1961 – 1968

(Thousand tons ; Gross Weight)

COUNTRY	1961	1962	1963	1964	1965	1966	1967	1968
Arab countries:	9.1	12.1	14.1	18.4	21.1	23.3	24.5	19.0
Syria	5.6	7.7	9.6	12.8	14.1	16.6	15.7	12.3
Jordan	2.7	4.3	3.2	3.4	3.7	2.6	3.8	2.0
Saudi Arabia	.3	.5	1.1	1.5	2.5	2.8	2.9	3.0
Kuwait	.5	.3	.2	.6	.7	.4	1.4	1.3
Other Arab countries	–	.1	.1	.1	.1	.9	.7	.4
Eastern European countries	13.1	8.3	14.5	11.7	19.6	21.5	23.2	20.9
U.S.S.R	.6	1.3	–	.6	–	5.8	1.4	3.2
Romania	1.5	1.4	2.0	2.4	3.5	1.9	5.4	2.8
East Germany	5.0	1.3	4.9	3.2	6.6	5.5	5.0	6.5
Czechoslovakia	4.2	2.8	4.7	4.7	8.2	2.8	4.9	2.3
Polonia	1.8	1.4	2.9	–	.7	4.9	3.3	4.9
Other Eastern countries	–	.1	–	.8	.6	.6	3.2	1.8
Other countries	–	.7	4.9	.1	.8	.2	–	–
Total Exports	22.2	21.9	33.6	30.2	41.5	45.0	47.7	39.9

SOURCES:

(1) Anonymous (1964). Agricultural Economics, Fruit Office, No. 37

(2) Anonymous (1966), 67, 68). Reports on Lebanese Exports of Fruits. Fruit Office; Economic Division (unpublished reports in Arabic).

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TANGERINES:

The Lebanese exports of tangerines are relatively small.
They have been increasing at a slow rate. The gross exported
quantity in 1961 was around the 2.5 thousand tons while in 1968,
it reached the 4.5 thousand tons. About two thirds of those
quantities were exported to Syria. Jordan has stopped its imports
of tangerines, while it was importing about seven hundred tons,
gross weight, in 1961. Saudi Arabia and Kuwait have been increasing
their imports of tangerines but at a slow rate (see table 3)

GRAPEFRUIT:

The Lebanese exports of grapefruit are similar to those
of mandarines, but at a smaller scale. While in 1961, they were
around the six hundred tons gross weight, they reached the 3.8
thousand tons, gross weight, in 1967. In 1968, they dropped down
to about seven hundred tons, gross weight.

The East German imports of Lebanese grapefruit have
become noticeable in the recent years. Starting with about seven
hundred tons gross weight in 1964, the East German imports reached
the 2.5 thousand tons in 1967 or about two thirds of the total
Lebanese exports of grapefruit (see table 4).

TABLE - 4 Lebanese Exports of Tangerines, 1961 - 1968
(1000 tons ; Gross Weight)

COUNTRY	1961	1962	1963	1964	1965	1966	1967	1968
Arab countries:								
Syria	1.5	1.5	2.0	2.3	2.2	2.6	2.1	2.7
Jordan	.7	.7	.4	.2	.2	.1	—	—
Saudi Arabia	.2	.2	.3	.6	.7	.8	.9	1.2
Kuwait	.1	—	—	.1	.2	.3	.3	.6
Total Exports	2.5	2.4	2.7	3.2	3.3	3.8	3.3	4.5

SOURCES: (1) Anonymous

(2) Anonymous
Lebanese Exports for Grapefruit. 1961 - 1968 (1 000 tons;
Gross Weight)

COUNTRY	1961	1962	1963	1964	1965	1966	1967	1968
Arab countries	.4	.7	.7	1.1	.7	.7	1.3	.6
Syria	.3	.5	.5	.6	.5	.5	1.1	.5
Jordan	.1	.2	.2	.4	.1	.1	.1	—
S.A.	—	—	—	.1	.1	.1	.1	.1
East Germany	—	—	—	.7	1.1	2.0	2.5	.1
Other countries	.2	.2	.4	—	—	.1	—	—
Total Exports	.6	.9	1.1	1.8	1.8	2.7	3.8	.7

FUTURE OUTLOOK

It is a try to foresee what might become the citrus production and consumption at the end of the 1970's decade.

The statistical data of the past years in combination with some basic assumption are used for the estimation of the future situation.

PRODUCTION

Two methods will be used to foresee the citrus production in 1980. The first method will be based on the statistical data of the recent census conducted by the Fruit Office; while the second method will be based on the time series data.

First method

The statistical data of the 1966 - 1967 citrus census conducted by the Fruit Office showed that the total citrus area in Lebanon averaged around the 109 278 dunums of which about 59.4 percent oranges, 19.2 percent lemons, 11.0 percent mandarines, 9.5 percent bitter oranges and 0.9 percent grapefruit.

Of the 109 278 dunums total citrus area, there were about 10 273 dunums producing less than one ton per dunum on the average and 72 753 dunums producing more than one ton per dunum on the average, thus making the total productive area average around the 83 026 dunums giving a total production of about 218 400 tons. For the non-productive area, there were about 19 914 dunums aging less than three years, and about 6 338 dunums were neglected, or a total non-productive area of about 26 252 dunums (see table 5)

TABLE-5 Area of Productive and Non-Productive Citrus.

Lebanon, 1966

MOHAFAZAT	Productive are (dunums)			Non-productive area (dunums)			Total citrus Area (dunums)
	Productive less than 1 ton/dun	Normal production above 1 ton/dun	Total of productive area	Less than three years old	Neglected	Total of non-productive area	
North Lebanon	4,087	22,019	26,106	2,644	4,420	7,064	33,170
Mount Lebanon	857	12,112	12,969	1,704	508	2,212	15,181
South Lebanon	5,329	38,622	43,951	15,566	1,410	16,976	60,927
Total Lebanon % of the total area	10,273 9.4	72,753 66.6	83,026 76.0	19,914 18.2	6,338 5.8	26,252 24.0	109,278 100.0

SOURCE: Anonymous (1969) Agricultural Statistics 1968, Ministry of Agriculture
Statistics Section, A. E. No. 17. P. 54.

During the last 14 years 1952/53 till 1966/67, the annual increment of area averaged around the 4,257 dunums. If we assume that the same rate will continue till 1980/81, then the citrus area will become around around the 168.9 thousand dunums, from which about 9.8 thousand dunums should be neglected due to a physiological aging and to a distruction by urbanization expension. Assuming the citrus trees start producing at an age of four years, the young citrus area will be around the 17.0 thousand dunums and the citrus bearing area will be around the 142,1 thousand dunums.

The yield of the total citrus area averaged around 20.5 tons per hectare for the three years 1966/67/68 or about 36 percent more than what it was in 1965/57/58. If we assume that the same rate of increase will continue till 1980 then the yield will average around the 26.8 tons per hectare. The total citrus production will be about 426.4 thousand tons.

Second Method

This method uses the time series data of total citrus area to extrapolate the future citrus situation. The least square method will be used to find the regression correlating the evalution of area with time.

It was found that the citrus area was highly correlated with time. In 1980, the citrus area is expected to reach the 17,48 thousand hectares[x]. If we assume that the 1966 - 67 citrus census data were reliable then a correction factor equals the ratio of the citrus area reported by the consus to that reported by the Ministry of Agriculture for the same year, should be used. This correction factor pushes down the above mentioned expected citrus area for 1980 to about 15,53 thousand hectares. If we take the same yield used in the first method then citrus production will average around the 416.1 thousand tons.

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[x] $Y = 0.44 + 9.12$

       $(0.08)\ (0.26)$

     $R = 0.87$

   $xy = 0.86$

Tho results of the two methods came to be relatively close to each other. While the first method led to a fore-casted citrus production of about 426.4 thousand tons, the second method led to an extrapolated citrus production of about 416.1 thousand tons or a difference of about 10.3 thousand tons constituting less than 2.5 percent of the average of the two above calculated figures for the citrus production.

Assuming the same proportion of citrus varieties to be kept in 1980, the production of oranges, lemons, mandarines, and grapefruit will be respectively around 274, 111, 29 and 7 thousand tons.

CONSUMPTION

The Lebanese consumption of citrus products had doubled during the last decade. While the lebanese consumption in 1956 was around the 61 thousand tons, it reached the 115 thousand tons in 1965. Since the 1966 citrus production data reported by the Ministry of Agriculture differ from that reported by the Fruit Office as a result of the census conducted in that year. Thus the 1966 not supply reported by the Ministry of Agriculture is overestimated by about 31.5 thousand tons. Table 6 shows the Lebanese not supply of the different varieties of citrus in 1966.

TABLE - 6   Production, Exports, and Not Supply of the Different
Varieties of Citrus 1966

Variety	Production (1 000 tons)	Exports (1 000 tons)	Not Supply (1 000 tons)
Oranges	142.0	73.6	68.4
Lemons	57.5	36.2	21.3
Tangerines	15.1	3.2	11.9
Grapefruit	3.6	2.3	1.3
TOTAL	218.2	115.3	102.9

Taking the year 1966 as a base year, the Lebanese not supply of
oranges, lemons, tangerines and grapefruit in 1980 will be respectively[=]
122, 38, 22, and 5 thousand tons (table 7).

$$\text{[=]} \quad Log_{10} \; Y_t = 0.4343 \; \theta \; (1 - \frac{X_0}{X_t}) + log_{10} \quad Y_0$$

Y = por caput demand at the base year and at the year "t"

X_0 = por caput gross domestic product at the base year
and at the year "t"

θ = Elasticity of demand:

1) For oranges : θ = 0.603
2) For lemons : θ = 0.491
3) For mandarines: θ = 0.780
4) For grapefruit: θ = 3.013

TABLE-7   The Expected Citrus Market Situation in Lebanon
in 1980.   (thousand tons)

Variety	Production	Exports	Net supply
Oranges	274	152	122
Lemons	111	73	38
Tangerines	29	7	22
Grapefruit	7	2	5
Total Citrus	421	234	187

APPLES

It is true that the apple tree (starking and Goldon)
was introduced to Lebanon in the third decade of the twentieth
century, but its plantation on large scale started after the
second world war.

Area: The statistical data of the period 1956 - 1964 show that
the area under apples had increased from about 7,375 hectars in
1956 to about 11,275 hectars in 1961. And during the period
1961 - 1964 the area had stayed almost constant . As to the
period 1965 - 1968 , the area under apples had stayed more or
less constant though it is less than what it was in the period
1961 - 1964 (see table 8). This drop could be true or it could
be the result of a change in the statistical methods utilized.

Yield: The change in the statistical methods utilized is more
accute in the estimation of average yields. While the average
yield had increased smoothly from 1956 (3,900 kgs/ha.) to 1963
(6,520 kgs/ha), it jumped upward suddenly to 10,930 kgs/ha in
1964, then it almost kept its level with slight decrease till it
reached the 9,540 kgs per hectare in 1966. For the two years
1967 and 1968, the concept of average yield changed to become
standing for the bearing orchards only. Thus its value was
15,790 kgs per hectare in 1967, and 15,830 kgs per hectare in
1968. In 1968, the average yield of Mount Lebanon ranked first
with about 21,750 kgs per hectare, while the Bekaa average yield
ranked last with an average of about 10,360 kgs per hectare. In
1967; The Bekaa average yield ranked first with about 17,060 kgs
per hectar, followed by that of Mount Lebanon (16,270 kgs per
hectar) and South Lebanon average yield ranked last with about
13,590 kgs per hectare.

PRODUCTION

The production, being the result of multiplying the average yield by the area, will be influenced directly by the variations of these two factors. Thus till 1963, the production had been increasing smoothly, then suddenly it jumped upward to more than 50 percent of what it was in the preceeding year. This sudden change in the production resulted from the change in the estimated average yield. For the period 1964 - 1966, the apple production moved downward from 125,0 thousand tons in 1964 to 104,0 thousand tons in 1966. Another phase of changes appeared in the two years 1967 and 1968. The productions of these two years averaged respectively 157 and 163 thousand tons or about 50 percent more than what it was in 1966 (see table 8)

TABLE- 8 Statistical data on Apples in Lebanon 1956 - 1968

YEAR	Area	Average Yield	Production	Imports	Exports	Net supply
	Hectares	Kg / ha	Thousand metric tons			
1956	7,375	3,900	29.0	0.3	17.1	12.2
1957	8,150	4,500	37.0	0.8	23.8	14.0
1958	9,115	4,600	42.0	–	19.8	22.2
1959	9,500	4,800	65.0	0.9	41.4	24.5
1960	10,000	5,300	53.0	0.1	41.7	11.4
1961	11,275	7,500	85.0	0.7	45.0	40.7
1962	11,300	7,100	80.0	0.3	50.3	30.0
1963	11,500	6,520	75.0	0.5	43.4	32.1
1964	11,438	10,930	125.0	0.8	63.9	61.9
1965	10,960	10,500	115.1	0.2	79.8	35.5
1966	10,960	9,540	104.0	0.7	77.7	27.0
1967	10,850	15,790[x]	157.0[xx]	0.8	85.4	72.4
1968	11,322	15,830[x]	162.9	N.A	N.A	?

SOURCES:
1) Saetter, A. and Cortas, A.(1968). Agricultural Statistics 1954-1966. Lebanon, Ministry of Agriculture, A.Ec. No. 10 P 55

The number of apple scattered trees is relatively low. The majority of them is located in Mount Lebanon. The yield of a scattered tree in 1968 averaged 41 kgs in Mount Lebanon, 33 kgs in the Bekaa, 29 kgs in North Lebanon, and 18 kgs in South Lebanon. In 1967 and 1968, the apple production from scattered trees averaged 2,4 and 2,9 thousand tons respectively.

CONSUMPTION

The Lebanese exports of apples have been increasing steadily, while in 1956, it was around the 17 thousand tons, in 1967 it reached the 85 thousand tons.

The Arab countries import more than 80 percent of the Lebanese apple exports. The Irakian imports of the Lebanese apples have been flactuating. While in the period 1959 - 1961, its imports averaged more than 11 thousand tons per year, in the years 1962 and 1963 they dropped down to about half what they were before and in 1967 the Irakian imports were around one thousand five hundred tons only. This fluctuation in the Irakian imports could be due to several reasons of which the political changes in regimes might have the main direct effect.

The Syrian imports for the Lebanese apples have been around the 10 thousand tons. They have been more stable than the Irakian one with the exception of the year 1965 where the Syrian imports of Lebanese apples were almost null.

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2) Anonymous (1968) and 1969). Agricultural Statistics. Lebanon, Ministry of Agriculture.

‡ Average yield was calculated over productive area only.

‡‡ Includes production from productive area and from scattered trees.

The general trend of the Jordanian imports for the Lebanese apples has been moving upward at an average rate of about 1 500 tons per year. The Saudi Arabian trend of the Lebanese apple imports is moving upward at a very promissing rate specially after the year 1962. In this year the Saudi Arabian imports were around the five thousand tons but in 1967, they reached the 22 thousand tons. Kuwait and lybia have increased their imports noticeably during the few last years. While in 1964 the Kuwaitian imports were around the one thousand tons per year and those of Lybia were less than 500 tons per year, they reached the 7.7 and 9.9 thousand tons per year respectively in 1967 (table 9). As to non-Arab countries, while Great Britain and France had almost disappeared from the picture of imports for the Lebanese apples, U.S.S.R came into it, with flactuating figures ranging between less than two thousand tons and more than ten thousand tons per year. (table 9)

Lebanon imports a relatively negligeable amounts from the Syrian early variety apples. The imported quantity has been always less than one thousand tons per year.

TABLE- 9   The Main Importing Countries for the Lebanese Apples.
1958 - 1967

Unit = 1000 tons

COUNTRY	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Arab countries	15.1	37.0	38.8	39.0	42.0	38.9	51.9	60.6	57.2	70.4
Jordan	3.8	7.9	9.6	12.2	12.2	12.6	18.6	21.5	17.0	18.7
Saudi Arabia	2.5	3.5	3.2	3.5	5.1	5.5	8.7	13.2	15.5	22.0
Syria	3.8	10.8	10.8	8.7	14.0	11.1	9.1	-	8.6	9.5
Irak	4.0	11.4	12.2	10.7	6.0	5.4	10.1	15.9	14.3	11.5
Kuwait	.6	1.1	1.0	1.0	.4	.4	1.2	2.1	2.8	7.7
Lybia	-	-	-	-	-	-	.4	2.9	7.9	9.9
Sudan	-	.1	.2	.6	1.3	1.3	1.9	2.2	.8	.8
Egypt	-	-	-	1.7	2.7	2.5	1.9	2.6	.2	-
Other Arab countries	.4	2.2	1.8	.6	.3	.1	-	.2	.1	.3
Other countries	4.7	4.4	2.9	6.0	8.3	4.6	11.0	19.2	10.5	15.0
U.S.S.R	-	1.9	1.3	5.1	1.4	3.0	10.3	2.7	1.6	9.2
East Germany	-	-	-	-	-	-	-	-	-	-
France	3.4	1.4	.5	.2	.2	-	-	1.2	1.7	.5
Great Briatain	1.1	.6	.2	.3	.7	.4	.2	.7	-	-
Others	.2	.5	.9	.4	6.0	1.2	.5	14.6	7.2	5.3
TOTAL	19.8	41.4	41.7	45.0	50.3	43.5	62.9	79.8	77.7	85.4
% of Arab country import	76.3	89.5	93.0	86.5	83.4	89.3	82.5	80.0	86.5	82.4

SOURCE: Anonymous (1958 - 1967) . Statistiques du Commerce Extérieur. Liban, Conseil Superieur des Douanes.

NET SUPPLY

The apple net supply in Lebanon has been fluctuating around an increasing general trend. The average rate of increase in this trend (about 3.4 thousand tons per year) has been greater than that of population growth. This means that the per capita consumption of apples in Lebanon has been increasing as a result of an increase in per capita income, an increase in the availability of products and a decrease in the price of the product .

FUTURE OUTLOOK

The future outlook will be based on the available statistical data. Any future correction in these data should be carried out to the projected figures.

PRODUCTION

To estimate the apple production in 1980 is to try to foresee what might become the area and the yield of apples in that year. Or the general trend of apple area had leveled around the 11 thousand hectares for the period 1961 - 1968. It is very probable to continue along that trend till 1973 or if it had to increase it will not exceed the 12 thousand hectares. This area will be in production in 1980.

Regarding the average yield of apples, the time series data showed two shifts in the reported average yield of apples (table 8). The first shift was in 1963/1964 where the yield moved upward from about seven tons to more than ten tons per hectare. The second upward shift was in 1966/1967 where the yield averaged more than 14 tons per hectare. Due to these shifts resulting from changes in the statistical methods, it is difficult to rely on a time series regression for the average yields to foresee its value in 1980.

However, it might be reasonable to accept an average of 20 tons per hectare of productive area in the year 1980.

On the basis of such estimates for the area and the yield, the Lebanese production of apples in 1980 may average around 2.0 thousand tons.

CONSUMPTION

The Lebanese consumption of apples had been increasing steadily during the past years. While in 1956, it was around the 12 thousand tons, it exceeded the 44 thousand tons in 1968 (table 8). This increase in consumption was due to several factors like the increase of population, the increase of per capita income, the increase of the availability of product beside some other factors. To estimate the Lebanese consumption in 1980, data on the per capita demand, on the per capita gross domestic product, and on the demand elasticity are utilized (table 10).

TABLE-10   Population and per capita gross domestic product in Lebanon.

ITEM	Base year 1965	1980
Population (in thousands)[x]	2050	3080
per capita gross domestic product (U.S. $)	385	585
Demand elasticity for apples is 0.467[xx]		

[x] Anonymous (1966). *Committee on Commodity Problems*. C.C.P. 67/16 vol. II

[xx] Anonymous *Demand Elasticity of Different Commodities*. Ministry of Planning Unpublished Report.

The calculated per capita demand for apples in 1980 averaged around 20.3 kgs[x]. This means that the expected Lebanese consumption of apples in 1980 will average around 62 thousand tons.

CONCLUSION

During the coming few years, the area of apples is expected to stay the same as it is now, because of the high cost of production on one side, and on the other side because of the large spread of prices. It is hoped that producers will be able to reduce their per unit cost of production on one side, and on the other side, it is hoped that the marketing channel will become more efficient so to narrow the price spread. It is expected that after 1975 the apple area will retake its increasing general trend. The rate of increase will depend mainly on the efficiency of the marketing organizations.

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[x] Per capita demand in the year 1980 was calculated, ceteris paribus, on the basis of the following equation.

$$Log_{10} Y_t = 0,4343 \ e \ (1 - \frac{X_o}{X_t}) + Log_{10} Y_o$$

Where Y and X are per capita demand and per capita gross domestic product respectively at the base year and at the year "t", and e is the demand elasticity.

GRAPES
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Tho aroa of grapos in Lobanon ranks socond aftor tho olivo ono. It constitutos about 20 porcont of the total aroa undor fruits.

· Of tho four Mohafazat, tho Bokaa has tho groatost sharo of tho grapo aroa, followed by Mount Lobanon. North Lobanon has tho smallost sharo.

Tho 1966/67 survoy of grapos stratifiod tho grapo aroa according to typo of plantations as follows: grapos on trollisos, grapos alono on ground, and grapos mixod on ground (table 11).

TABLE-11 Aroa Undor Grapos in Lobanon by Typo of Plantation
1966/67

PROVINCE	Grapos on trollisos		Grapos alon on ground		Grapos mixed on ground		Total	
	Aroa	%	Aroa	%	Aroa	%	Aroa	%
Bokaa	13,652	61	73,483	71	4,490	10	91,625	54
Mount Lob.	990	5	16,034	16	14,921	34	31,945	19
South Lob.	6,314	28	10,426	10	7,522	17	24,262	14
North Lob.	1,298	6	3,082	3	17,251	39	21,631	13
Total Lob.	22,254	100	103,025	100	44,184	100	169,463	100
Porcontago	13		61		26		100	

SOURCE: Sattar A. (1968). Survey of Grapos 1966/67. Lebanon, Ministry of Agriculture, Statistics Soction, A. Ec. No. 15.

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The grapos on trellises covered an area of 22,254 dunums, equivalent to about 13 porcent of the total area under grapes. Of the above mentioned area, the Bekaa had about 61 porcent, South Lebanon 28 porcent, Mount Lebanon five porcent, and North Lebanon six porcent.

The grapes alone on ground covered an area of 103,025 dunums equivalent to 61 porcent of the total area under grapes. The Bekaa had a share of 71 porcent, South Lebanon ten porcent, Mount Lobanon 16 porcent, and North Lebanon three porcent.

The grapes mixed on ground covered an area of 44,184 dunums equivalent to 26 porcent of the total area under grapes. Of this area, North Lebanon had 39 porcent, Mount Lebanon 34 porcent, South Lobanon 17 porcent, and finally the Bekaa ten porcent.

For the areas of grape varieties, the Marwahi ranked first with about 32 thousand dunums, followed by the Abaidi with about 29 thousand dunums. While the Abaidi is common in the Bekaa, the Heifavi is common in South Lebanon, and Marwahi in Mount and North Lebanon (table 42)

TABLE-12   Area Under Different Varieties of Grapes.
Lebanon 1966/67

Unit = Dunnum

VARIETY	North Lebanon	Mount Lebanon	South Lebanon	Bekaa	Total Lebanon
Tufaifiki	-	639	1,431	9,804	11,874
Boitamouni	-	319	73	3,765	5,157
Souri	-	32	-	3,207	3,239
Aabaidi	-	287	70	28,587	28,944
Moksasi	-	8,657	1,844	641	11,142
Hoifavi	-	128	10,797	-	10,925
Marwahi	16,872	12,938	388	2,016	32,214
Boyadi	108	6,868	24	275	7,275
Others	2,639	1,565	5,996	28,220	38,420
Mixed	2,012	512	3,639	14,110	20,273
TOTAL	21,631	31,945	24,262	91,625	169,463

SOURCE: Sattar A. (1968). Survey of Grapes 1966/67. Lebanon, Ministry of Agriculture, Statistics Section , A.Ec No. 15.

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Current production

Due to the lack of reliable statistical data, it is difficult to know the actual production of grapes in Lebanon. For the period 1956 - 1963, the area under grapes had increased at a slow rate averaging around two percent per year. The yield had fluctuated within the range of 3.4 to 3.7 tons per hectare except for the year 1960 when the yield dropped down to less than three tons per hectare. Accordingly, the production of grapes had fluctuated with a range of 75 to 90 thousand tons per year. The survey of grapes conducted for the year 1966/67 showed that the area under grapes was overestimated by about 25 percent and the yield was underestimated by about 23 percent, thus making the production fall within the range of the previous years. Probably the criteria used in the survey of grape for estimating the area and the yield were different from those used in the previous years. The same thing could be said for the years 1967 and 1968. The 1966/67 survey of grapes excluded from the area under grapes the area of derelict vineyards and that of fields which had a density less than 200 vines per hectare.

In 1967, the production of grapes averaged around 85,660 tons (the 1967 agricultural statistics, issued by the Statistics Section at the Ministry of Agriculture, reported that the grape production in 1967 averaged around 88,321 tons). The 1968 production of grapes averaged around 83,610 tons.

Current Utilization of Grapes

About 15 percent of the grapes produced in Lebanon are consumed by the producers, 47 percent are sold for table purposes, and 38 percent are sold for industrial uses.

The Lebanese exports of grapes had been increasing at a slow rate averaging around 300 tons per year. Saudi Arabia, Jordan, Syria and Kuwait have been the main importing countries for Lebanese table grapes. They have been importing more than 75 percent of the total Lebanese exports (table 13)

TABLE-13   Main Importing Countries for Lebanese Table Grapes
1959 - 1967

Unit : tons

Year / Country	1959	1960	1961	1962	1963	1964	1965	1966	1967
Saudi Arabia	102	129	175	203	304	582	881	1,185	1,771
Jordan	92	94	119	489	669	262	808	899	1,307
Syria	118	141	7	65	205	243	427	321	1,163
Kuwait	77	85	73	10	27	81	153	175	760
Other countries	24	53	110	113	74	378	269	273	253
TOTAL	413	502	484	880	1,279	1,551	2,538	2,853	5,254

SOURCE:
======   Anonymous (1956 - 1967). Statistiques du Commerce Extérieur Liban, Conseil Supérieur de Douanes.

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The Saudi Arabian imports had been increasing at an increasing rate. In 1959, its imports were around one hundred tons, while in 1967, they reached the 1,771 tons.

The Jordanian imports had been increasing steadily. In 1959, they were around 92 tons, while in 1967 they reached the 1300 tons.

The Syrian imports were similar to the Jordanian ones increasing steadily but at a lower rate. In 1959, they were about 118 tons, while in 1967 they reached the 1163 tons.

Kuwait had noticeably increased its imports during the last few years. During the period 1959 - 1964, its imports stayed within the range of 70 to 85 tons per year, then they shifted upward to 153, 175, and 760 tons during the years 1965, 1966 and 1967 respectively. Like Saudi Arabia, Kuwait is becoming an important importer for the Lebanese table grapes.

The exported quantities of raisins have been relatively negligeable. They have not exceeded the five percent of the exported quantities of fresh grapes. Saudi Arabia and Syria have been the main importers.

The Lebanese imports of raisins come mainly from Syria, Iran, and Turkey. The imported quantities flactuate within the range of 117 to 211 tons per year, equivalent to 350 - 630 tons of fresh grapes (table 14).

TABLE 14 Lebanese Trade of Raisins. 1959 - 1967.

Unit = tons

YEAR	Imports				Exports		Net Lebanese Imports
	Syria	Iran	Turkey	Total Leb. Imports	Saudi Arabia	Total leb Exports	
1959	77	37	19	139	—	—	139
1960	67	17	29	117	2	3	114
1961	90	43	34	172	1	2	170
1962	72	46	16	138	--	14	124
1963	73	32	10	127	2	24	103
1964	96	37	24	163	6	8	155
1965	78	11	70	177	7	15	162
1966	58	40	30	146	1	5	141
1967	86	69	45	211	11	15	196

SOURCE: Anonymous (1958 - 1967). Statistiques du Commerce Exterieur
           Liban, Conseil Superieur des Douanes.

FUTURE OUTLOOK

PRODUCTION:

Tho 1967 survoy of grapos showod that tho total aroa undor grapos avoragod around 167 thousand dunums of which about 143 thousand dunums woro productivo and 26 thousand dunums woro unproductive.

If wo assumo that the same rato of now plantations will continuo till 1980 and if wo assumo that yiold of productivo vinoyards will incroaso from 6.14 to 7.0 and 7.8 tons por hoctaro rospoctivoly for tho yoars 1975 and 1980, thon tho oxpoctod grapo production will avorage around 125 and 160 thousand tons[x] rospoctivoly for 1975 1980.

CONSUMPTION:

Tho forocastod consumption of grapos will bo calculatod by rolating tho por capita domand with that of tho por capita gross domostic product and tho domand olasticity. Tho roquirod data aro compilod in tho following tablo 45.

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[x] Tho annual incroaso in aroa will bo: $\frac{26}{5}$ = 5.2 thousand dunums.

The aroa undor grapos will bo:

in 1975 : 143 + (5.2 x 7) = 179.4 ~ 179 thousand dunums.

in 1980 : 143 + (5.2 x 12) = 205.4 = 205 thousand dunums.

Tho production of grapos will bo:

in 1975 : 179 x 70 ~ 125.3 = 125 thousand tons

in 1980 : 205 x 78 = 159.9 = 160 thousand tons

TABLE - 15   Data on Population, por capita G.D.P. and
              per capita Demand .   Lebanon

ITEM	1965	1975	1980
Population (thousand)	2050	2700	3080
Per capita Gross Domestic Product $	385	502	585

Demand Elasticity of table grapes : o = 0.381

SOURCE: Anonymous (1966): Indicative World Plan For Agricultural Development,
1965 - 85.
Near East. Subrogional Study No. 1. F.A.O. C.C.P. 67/16 Vol II.

Assuming that of the 1965 production of grapes, 38
percent wore sold for industrial uses and 62 percent were sold for
table purposes, then the Lebanese consumption of table grapes was
about 49,5 thousand tons and that of industrial grapes was 37 thousand
tons[x].

The calculated Lebanese consumption of table grapes in
1975 and 1980 will average around 71 and 85 thousand tons respec-
tively[xx]. Assuming that the Lebanese government will keep
following the same policy of limiting the industrial grape imports
at the level of about four thousand tons in 1975 and five thousand
tons in 1980, then the Lebanese consumption of industrial grapes
will average around 46.5 and 54.0 thousand tons in 1975 and 1980
respectively.

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[x] The grape production in 1965 was around 84 thousand tons. The Lebanese
consumption of table grapes was:

$$\frac{84 \times 62}{100} - 2.5 = 49.5 \text{ thousand tons}$$

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As a result, the expected Lebanese market situation in 1975 and 1980 will seem to be as shown in the following table 16.

TABLE-16   Lebanese Market Situation of Grapes in 1975 and 1980.

Unit = 1000 tons

YEAR	Production			Consumption			Exports	
	Table grapes	Industrial grapes	Total	Table grapes	Industrial grapes	Total	Table grapes	Industrial grapes
1975	82.5	42.5	125.0	71	46.5	117.5	11.5	x - 4.0
1980	112.0	48.0	160.0	85	54	139.0	27.0	x - 6.0

x The signe (-) means that Lebanon will import that qunatity.

CONCLUSION:

The area under table grape varieties has been increasing at a much higher rate than that under industrial grape varieties. While Lebanon will become a good exporter of table grapes, it will stay an importer for industrial grapes. It is to be seen in the commodity analysis report the possibilities for marketing such surplus and accordingly the type of varieties that should be planted.

The Lebanese consumption of industrial grapes was:

$$\frac{84 \times 38}{100} + 5.3 = 37 \text{ thousand tons}$$

xx The per capita demand in the years 1975 and 1980 was calculated, ceteris paribus, on the basis of the following equation:

$$Log_{10} Y_t = 0.4343 \ e \ (1-\frac{Xo}{Xt}) + Log_{10} Y_e$$

Where Y and X are per capita demand and per capita gross domestic product respectively at the base year, 1965, and at the year "t" = 1975 and 1980", and e is the demand elasticity.

CHERRIES

The production of cherries on a commercial scale
in Lebanon is of relatively recent origin. Until the second
World war, there were only few scattered trees of cherries in
Lebanon. Fast expansion of the area under cherries took place
in the decade of the fifties and production increased from an
annual average of 2,400 tons in 1956/56 to a peak of 7,000
tons in 1961. In the recent years, there has been further
expansion in area under this crop, and the trend has been more
towards pure plantations rather than mixed with other crops.
Much of the newly planted area has not yet come into production.
The production of 1967 reached a record level of ten thousand
tons whose farm gate value went around the 6.5 million Lebanese
pounds.

CURRENT PRODUCTION OF CHERRIES

The production of cherries is concentrated mainly
in the provinces of Bekaa and Mount Lebanon. About 55 percent
of the total area under cherries are of pure cherry orchards,
while the rest is under cherries mixed with other crops. More
than 94 percent of the pure cherry area are located at the
province of Bekaa, and about 80 of the above mentioned percentage
are located at the caza of Zahle. For cherries mixed with
other crops, the majority of them is located at the province
of Mount Lebanon. (table 17).

A substantial work has been done in the recent years
to replace the old cherry trees (over 15 years old) and to
increase the area under cherries by establishing new orchards.
This could be seen easily from the following table compiling
the data of the productive and un-productive area under cherries
in the different provinces of Lebanon.

TABLE - 17   Productive and Unproductive Area under Cherries in
Lebanon . 1967

PROVINCE	Productive area		Unproductive area		Total	
	Dunums	%	Dunums	%	Dunums	%
North Lebanon	43	.4	30	.4	73	.4
Mount Lebanon	3,386	34.1	2,258	26.6	5,644	30.6
South Lebanon	12	.1	44	.5	56	.3
Bekaa	6,488	65.4	6,160	72.5	12,648	68.7
TOTAL %	9,929	100.0	8,492	100.0	18,421	100.0
	539		46.1		100.0	

SOURCE:
======   Anonymous (1968). Cherries In Lebanon, 1967. Lebanon, Ministry
of Agriculture. A.Ec. No. 14.

Since in actual practice many of the cherry fields are partially
productive and partially unproductive in any given year due to the fact
that all trees in a field may not be of the same age, therefore the
concept of productive and un-productive Trees is more accurate than
productive and unproductive area as the basis for estimating the
production of cherries.

The production of cherries in 1967 averaged around ten thousand
tons of which about 88 percent came from the compact area and the
remainder, 12 percent, came from the scattered trees.

The main varieties of cherries planted in Lebanon are:
Zahr, Banni, Kolb-Uttair Zahr, Nuwari, Kalb-Uttair, and Tabiani.
The harvesting season of cherries starts first in the Bekaa in
the second week of May and continues till the end of July in
Mount Lebanon.

CONSUMPTION

The Lebanese market had been absorbing all the production
of cherries with the exception of a few hundred tons exported to
the surrounding Arab countries namely, Syria, Jordan, Saudi Arabia,
and Kuwait (table 18).

TABLE-18   Lebanese Imports of Cherries. 1959 - 1967.

Unit - tons

COUNTRY	1959	1960	1961	1962	1963	1964	1965	1966	1967
Syria	64	30	211	70	125	180	114	198	134
Jordan	2	2	5	6	20	13	21	13	20
Kuwait	14	20	3	3	2	10	8	22	18
Saudi-Arabia	10	9	5	4	7	5	9	23	13
Others	7	5	9	6	6	16	9	7	2
TOTAL	97	66	233	89	160	224	161	263	200

SOURCE:
======   Anonymous (1960 - 1968). Statistiques du Commerce Extérieur.
Liban, Conseil Supérieur de Douanes.

The wholesale prices of cherries varied from year to
year within the range of 104 to 136 Lebanese piasters per kilogram,
while the average seasonal variations, for the period 1955 - 1964, r
ranged between 111 and 128 piasters per kilogram, and averaged
around 120 piasters per kilogram.
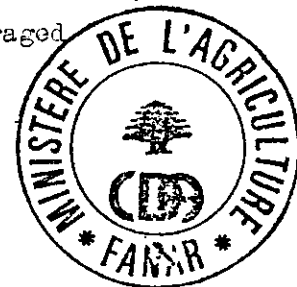
FUTURE OUTLOOK:

PRODUCTION

The production of cherries in Lebanon
had been flactuating around the six thousand tons per
year. The area under cherries had been increasing at
slow rate till it reached its peak of 550 hectares in
1960. After that it followed a decreasing trend till
it reached the 474 hectares in 1966.

The cherry survey of 1967[*] showed that the
area under pure cherry orchards averaged around the one
thousand hectares and that under cherries mixed with
other crops was about 800 hectares. This means that the
area under cherries had been underestimated during the
previous years. While the production of cherries ranged
between 4.3 and 7.0 thousand tons for the period 1965-
1966, the above mentioned survey estimated the production
to be around the ten thousand tons in 1967. This estimate
was based on the productive cherry tree rather than on
the area of productive cherry orchards. The number of
productive cherry trees was estimated at about 500
thousands, while the unproductive ones were estimated
at about 300 thousands. Thus, assuming the cherry tree
tree starts producing at an age of four years and gets
derilect at an age of 15 years; and assuming that the
annual increment of newly planted trees will stay the
same as it was in the previous four years, and the
average yield of a productive

* Sattar A. (1968). Cherries In Lebanon, 1967. Lebanon, Ministry
of Agriculture, A. Ec. No. 14.

tree will stay the same as of 1967. On the basis of these
assumptions, the production of cherries is expected to average
around 166 and 208 thousand tons respectively in the above
mentioned two years[x].

CONSUMPTION

Taking the 1967 as a base year, and taking into
consideration the per capita gross domestic product, the per
capita demand, and the demand elasticity for cherries, the
Lebanese consumption of cherries was estimated to average

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[x] **In 1975:** The number of going cherry trees that will reach the age of
production will be : $(300,000 \times 8) \div 4 = 600,000$ trees.
The number of productive trees that will get old and go out
production will be : $(500,000 \times 8) \div 15 = 270,000$ trees.
The net increase in the number of productive trees will be:
$$600,000 - 270,000 = 330,000 \text{ trees.}$$
The total number of productive trees will become:
$$500,000 + 330,000 = 830,000 \text{ trees.}$$

The estimated production will average around
$$830 \times 20 = 16.6 \text{ thousand tons}$$

In 1980 The net increase in productive trees will be about 542 thousand
trees.

The total number of productive trees will become:
$$500 + 542 = 1,042 \text{ thousand trees.}$$

The estimated production will average around :
$$1042 \times 20 = 20.8 \text{ thousand tons.}$$

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around tho 14.2 and tho 17.5 thousand tons respectively
in 1975 and 1980 [*].

Thus tho market situation of cherries in tho futuro is
expected to bo as it is shown in tho following table — 19

TABLE — 19   Market Situation of Cherries in Lebanon in 1975 and 1980.

YEAR	Production	Consumption	Exports
	Thousand metric tons		
1975	16.6	14.2	2.4
1980	20.8	17.5	3.3

[*]   The per capita consumption of cherries in 1975 and 198C was
calculated, ceteris paribus, on the basis of the following equation:

$$Log_{10} Y_t = 0.4343 \ e \ (1 - \frac{Xo}{Xt}) + Log_{10} Y_o$$

Whore X and Y were respectively tho per capita gross domestic
product and tho per capita demand at tho base year 1967 and tho
year "t". And o is tho demand elasticity of cherries.

PEACHES

Over one half the area under compact plantations
of peaches is located in the Bekaa; the other half is divided
almost equally between North and Mount Lebanon. The scattered
trees of peaches are numerous mainly in North and Mount Lebanon.

PRODUCTION

The time series data of peaches could be divided into
three parts: the first one covers the period 1956 - 1963;
the second one covers the period 1964 - 1966; and the third
part covers the period 1967 - 1968. During the first period,
the area under peaches had increased at a slow rate till 1962
then it made a slight drop in 1963. The average yield followed
a trend similar to that of the area but with a slightly higher
rate of increase, and so did the production. During the second
period, the area shifted downward to an almost one fourth
what it was in 1962. This downward shift in the estimated area
was opposed by a proportional upward shift in the estimated
yield , except for the year 1966. As a result, the production
seemed to stay following the trend of the previous year
production. (table 20)

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TABLE - 20   Statistical Data on Peaches in Lebanon. 1956 - 1966

YEAR	Area	Average yield	Production	Imports	Exports	Net supply
	Hectares	Kg/Ha.	Thousand metric tons			
1956	1,500	2,200	4.2	—	0.7	3.5
1957	1,700	4,100	7.0	—	1.2	5.8
1958	1,800	3,400	6.2	—	—	6.2
1959	1,820	4,400	8.0	—	1.9	6.1
1960	1,950	2,600	5.0	—	1.0	4.0
1961	1,950	5,100	10.0	—	2.6	7.4
1962	1,900	4,200	8.0	—	2.4	5.6
1963	1,500	5,330	8.0	0.2	1.4	6.8
1964	560	19,640	11.0	0.1	2.9	8.2
1965	510	18,630	9.5	—	1.4	8.1
1966	551	9,790	5.4	—	1.2	4.2

SOURCE: Sattar A. and Cortas A. (1968). Agricultural Statistics 1954 -
1966 Lebanon, Ministry of Agriculture. A.Ec. No. 10 P. 60.

As to the third period, the reported data are more elabo-
rated, the area under compact plantations of peaches was devided
into productive and non-productive, and the average yield was
calculated on the basis of productive area only ; the scattered
trees were reported for the first time. They were devided into
productive and non-productive scattered trees, and the yield of
a productive scattered tree was estimated (table ·21)

TABLE - 21   Statistical Data on Peaches in Lebanon in 1967-1968

YEAR	Area			Yield	Produc-tion thou-sand	Scattered trees			Yield	Produc-tion thou-sand	Total Produc-tion thou-sand
	Total	Produc-tive	Non-produc-tive			Total	Produc-tive	Non-Produc-tive			
	Ha.	Ha.	Ha.	T/Ha.	Tons	"1000"	"1000"	"1000"	Kg/T	Tons	Tons
1967	727	621	106	11,840	7.3	87.4	NA[*]	N.A[*]	31	2.7	10.0
1968	487	422	74	20,740	8.6	317.5	295.8	21.7	30	8.7	17.3

SOURCE: Anonymous (1968 and 1969). Agricultural Statistics 1967 and
1968. Lebanon, Ministry of Agriculture. A.Ec.No. 17.

* NA = Not Available.

The above table shows a noticeable decrease in the total
area under compact plantations of peaches on one hand, and on the
other hand it shows a noticeable increase in the yield of produc-
tive area. The production from compact plantations is comparable
but that from scattered trees can not be comparable; this is
because of the un-comparable data of scattered trees. In 1968,
the number of productive scattered trees was more than three times
that of the 1967 total scattered trees.

Several varieties of peaches are cultivated in Lebanon.
The most important ones are: Elberta Giant, J.H. HALE, Red Haven,
Red Bird, Dixie Red, July Elberta, Babcock, Carman, May-Flower,
Elberta, and Amsden. The harvesting season starts in early June and
ends late in September. The wholesale prices in Beirut market vary
from year to year depending on production and other factors. While
the mean of the yearly average prices for the period 1955 - 1965
was 60 piasters per kilogram, its range for the same period was
between 42 and 79 piasters per kilogram.

CONSUMPTION:

The Lebanese market absorbs a very high proportion of the
Lebanese production of peaches. The exports had been going around
the two thousand tons per year for the period 1959 - 1967 (table 22).
The main importing countries for the Lebanese peaches are the Arab
countries namely Syria, Saudi Arabia, Kuwait, Jordan, and Irak.

TABLE - 22   Lebanese Exports of Peaches. 1959 - 1967.

Year / Country	1959	1960	1961	1962	1963	1964	1965	1966	1967
Syria	1313	564	1307	1322	883	1887	655	470	1358
Saudi Arabia	68	47	101	248	182	218	247	239	774
Kuwait	116	108	178	19	5	68	47	56	468
Jordan	89	89	562	631	239	470	99	138	306
Irak	324	198	274	51	79	277	339	264	120
Other countries	36	27	144	142	32	45	47	21	63
TOTAL	1,946	1,033	2,566	2,413	1,420	3,965	1,434	1,188	3,089

SOURCE: Anonymous (1960-1968). Statistiques du Commerce Extérieur. Liban
Conseil Supérieur des Douanes.

FUTURE OUTLOOK

Due to the change in the statistical methods used, the reported data on peaches showed a high variation. The author will use the data of 1968 for estimating the future situation of peaches.

PRODUCTION

The peach tree starts producing at the age of five years. Assuming that the annual increment in the newly planted orchards of peaches averages around 20 hectares, and that the yield will average around 23 and 25 tons per hectare respectively in 1975 and 1980, then the production of peaches in the above mentioned years will average respectively around 12.9 and 16.6 th thousand tons from compact plantations. Assuming the production from compact plantation will stay the same as of 1968, the total production of peaches in 1975 and 1980 will average respectively around 21.6 and 25.3 thousand tons.

CONSUMPTION:

The Lebanese exports had been averaging around the two thousand tons per year for the period 1959 - 1967. Assuming this average will reach the 3.5 and the four thousand tons in 1975 and 1980 respectively, then the Lebanese consumption will average around the 18 and 21 thousand tons respectively in the above mentioned years; or an average per capita consumption of 6.7 and 5.9 kgs respectively.

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PEARS
_____

Tho area undor pears is relatively small. In 1968, it
averaged around 1,079 hectaros whoso major part was located in
North Lobanon. Tho scattored troos of pears, averaging around
582 thousand onos in 1968, aro located mainly in North and Mount
Lobanon.

CURRENT PRODUCTION OF PEARS:
_____

Tho timo sorios data of poars show that tho production
had not boon stablo as a rosult of tho high flactuation in avorago
yiolds mainly. During tho poriod 1956 -- 1962, tho aroa undor poars
was following a slow incroasing gonoral trond (tablo 23). This
trond suddonly changod diroction and movod downward so fast that
it roachod in 1965 half what it was in 1956 and about 40 porcont
what it was in 1962. As to tho yiold, inspito of its high flactuation
its trond could bo brokon into two parts: tho first part covers
the poriod 1956 - 1963, and tho socond part covers tho poriod
1965 - 1966. Tho data of 1964 aro not consistant. In tho first
poriod, tho avorago yiold had flactuatod botwoon 1.6 and 5.6 tons
por hoctaro and avoragod around 3.3 tons por hoctaro. During tho
socond poriod, tho yiold was about six tons por hoctaro.(tablo 23)

TABLE - 23 Statistical Data on Pears in Lebanon
1956 - 1968

YEAR	Area	Average yield	Production	Imports	Exports	Net Supply
	Hectares	Kg/Ha.	Thousand metric tons			
1956	1,700	5,600	9.5	0.1	0.7	8.9
1957	1,800	3,300	6.0	--	0.7	5.3
1958	1,850	2,700	5.0	--	0.1	4.9
1959	1,880	3,200	6.0	--	1.4	4.6
1960	1,885	1,600	3.0	0.1	0.9	2.2
1961	1,900	4,700	9.0	--	2.0	7.0
1962	2,000	2,300	4.5	--	1.1	3.4
1963	1,500	2,670	4.0	--	0.9	3.1
1964	1,085	7,570	14.0	--	3.1	10.9
1965	850	6,000	5.1	--	2.4	2.7
1966	859	6,270	5.4	--	1.4	4.0
1967	945	10,660[x]	11.3[xx]	--	3.8	15.1
1968	1,079	9,420[x]	16.2[xx]	--		

SOURCE: Sattar A. and Cortas A. (1968). Agricultural Statistics 1954 -
1966. Lebanon, Ministry of Agriculture A. Ec. No. 10. P. 62

During the period 1956 - 1966, the production of pears had fluctuated around an almost constant general trend averaging around six thousand tons. The data of 1964 seem to be exceptional specially when the figures of the production are not equal to the multiplication of the average yield figures by the figures of the area under pears. To clarify this ambiguity, the author took the statistical data of 1967 and compared them with those of 1966. He noticed that the total area under compact plantations of pears was about 945 hectares of which 687 hectares were productive. The production of pears from compact plantations averaged 7.3 thousand tons, and that from the 181 thousand scattered trees averaged 4.0 thousand tons. These made the total production of pears in 1967 average 11.3 thousand tons. While the data of 1966 did not mention anything about the scattered trees and their production. The reported area under pears was very close to that of 1967 for compact plantations. This may mean that the reported production for 1966 was the production coming from compact plantations only. In other ward, the production from scattered trees was not mentioned. This conclusion could be applicable to the data of the previous years. In case of 1964, the production of pears from compact plantations was the result of multiplying the average yield by the area under pears (1,085 x 7,570 = 8.2 thousand tons). The difference between the 14.0 thousand tons, registered in face of the year 1964, and the 8.2 thousand tons, coming from compact plantations, could have been the production of scattered trees.

The "Coscia" variety accounts for the bulk of pear production in Lebanon. Other varieties of commercial importance and of recent introduction are the "William's", "Red William's", "Fasso Grassano", "Duchesse d'Angonleme", and "Bourre Hardy". The harvesting season of the two main varieties of pears "Coscia and William's" starts at the first of August and lasts till the end of December in case of "Coscia" and till the end of January in case of "William's.

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x Average yield calculated over productive area only.

xx Includes production from productive area plus production from scattered trees.

CURRENT CONSUMPTION

The Lebanese market absorbs more that 75 per-
cent of the total production of pears, while the rest goes
to the markets of the surrounding Arab countries namely
Saudi Arabia, Jordan, Iraq, and Kuwait (table 24).

TABLE - 24 - Lebanese Exports of Pears. 1959 - 1967

Unit = Ton

COUTRIES	1959	1960	1961	1962	1963	1964	1965	1966	1967
Saudi Arabia	132	150	197	157	211	611	458	464	1,318
Jordan	172	145	749	470	242	907	436	251	645
Iraq	444	258	399	79	63	498	1306	405	311
Kuwait	162	106	141	11	7	114	50	138	861
Others	490	252	515	428	403	988	196	113	724
TOTAL	1,400	911	2001	1145	926	3118	2446	1371	3859

SOURCE:

Anonymous (1960 - 1968). Statistiques du Commerce Exterieur
Liban , Conseil Superieur de Douanes.

Pears are consumed mainly in their fresh form. Their
processing is still of negligeable importance from a commercial
point of view.

The "Coscia" variety receives higher prices than the
"William's". The mean of the yearly wholesale average prices
of "Coscia" for the period 1955 - 1965 was 95 piastors per kilogram,
while that of "William's" for the same period was 81 piastors per
kilogram.

FUTURE OUTLOOK

Due to the high variation in the time series data of pears resulting from the change in the statistical methods utilized, the author will try to base his estimation for the future situation of pears on the statistical data of 1967 and 1968.

PRODUCTION

Some remarks should be mentioned here before going into detailed analysis for the forecasted situation. The statistical data of 1968 show that the productive area under compact plantations of pears averaged more than the total area (productive and unproductive) under compact plantations in 1967. The second remark is that the number of productive scattered trees in 1968 was more than double what it was in 1967 (table 25)

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* Anonymous (1967). Wholesale and Retail Price Series for Fruits and Vegetables in Beirut 1955 - 1965. Lebanon. Ministry of Agriculture.

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TABLE - 25   Statistical Data on Pears in Lebanon in 1967 - 1968

YEAR	Area			Yield	Production thousand Tons	Scattered trees			Yield	Production thousand Tons	Total production 1000 tons
	Total Ha	Productivo Ha	Unproductivo Ha	Ton/ha		Total "1000"	Productivo "1000"	Unproductivo "1000"	Kg/tree		
1967	945	687	258	10.7	7.3	181	N.A	N.A	22	4.0	11.3
1968	1078	983	95	9.4	9.3	582	385	197	18	6.9	16.2

SOURCE: Anonymous (1968 and 1969). Agricultural Statistics 1967 and 1968. Lebanon, Ministry of Agriculture. A. Ec. No. 11 and A. Ec. No. 17

Bearing these remarks in mind, it could be assumed that the statistical data of 1968 are more reliable than those of 1967 as a result of improvement in the statistical methods utilized for collecting the different kind of imformation. Assuming too that the annual increment of pear productive area will average around 30 hectare; and the yield will average around 12 and 13.5 tons per hectare in 1975 and 1980 respectively, and assuming that the production from scattered trees will stay around 7 thousand tons in the above mentioned two years then the production of pears in 1975 and 1980 will average around 22.5 and 26.4 thousand tons respectively[*]

CONSUMPTION

The general trend of Lebanese exports is moving upward at a slow rate. It may range between five and six thousand tons in 1975 and between 7 and 8 thousand tons in 1980. Thus leaving an average of about 17 and 19 thousand tons for Lebanese consumption in 1975 and 1980 respectively.

= __1975__ : Tho productivo aroa will avorago around 1,288 hoctares
Tho production from compact plantations will avorago around
15.5 thousand tons.
Tho total poar production will avorago around: 15.5 + 7.0 = 22.5
thousand tons.

__1980:__ Tho productivo aroa will avorago around 1,438 hoctaros.
Tho production from compact plantations will avorago around
19.4 thousand tons
Tho total poar production will avorago around 19.4 + 7.0 = 26.4
thousand tons.

APRICOTS:

Out of the total apricot area of 1968, about 87 percent were located in the Bekaa, 12 percent in North Lebanon, and one percent in Mount Lebanon. Of this total area about 70 percent were productive and the remainder was unproductive. In addition to this total area of apricots, there were about 205 thousand scattered trees of apricots; the majority of them (77%) was located in North Lebanon. The 1968 production of apricots averaged around 24.5 thousand tons of which more than 40 percent came from scattered trees. During the period 1963 - 1968, the annual price of apricots at the farm gate ranged between 27 and 38 piasters and averaged 33 piasters per kg. The highest price was received by the producers of Mount Lebanon, while the lowest one was received by the producers of North Lebanon.

CURRENT PRODUCTION OF APRICOTS

The time series data of apricots for the period 1956 - 1966 show that the annual increment of area was about 1.2 percent while the average yield as well as the production had flactuated within a narrow margine till 1963, then they made an upward shift (more than the double) for the period 1964 - 1966 (table 26). This shift in the estimation of yield and production made the author suspect the utility of these data.

TABLE- 26   Statistical Data on Apricots in Lebanon 1956 - 1966

YEAR	Area	Average Yield	Production	Imports	Exports	Not Supply
	hectares	kg/ha	Thousand metric tons			
1956	825	7,000	5.8	0.1	—	5.9
1957	850	5,900	5.0	—	—	5.0
1958	850	5,100	4.3	0.1	0.1	4.3
1959	850	6,500	5.5	0.1	0.1	5.5
1960	900	4,400	4.0	0.1	0.1	4.0
1961	900	6,700	6.0	0.1	0.1	6.0
1962	900	4,400	4.0	0.1	0.2	3.9
1963	950	5,260	5.0	0.2	0.2	5.0
1964	1,030	12,140	12.5	0.4	0.2	12.7
1965	945	11,200	10.6	0.1	0.2	10.5
1966	925	11,800	10.9	—	0.6	10.3

SOURCE: Sattar A. and Cortas A. (1968), Agricultural Statistics 1954 - 1966.
Lebanon, Ministry of Agriculture A. Ec. No. 10. P. 61.

The data of 1967 are more developed. The area under apricots is broken down into two parts: the productive area and the non-productive one. The number of scattered trees and their yields were reported too. In 1968, the data were developed one step further and separated the number of productive scattered trees from the non-productive ones, then the production coming from the productive scattered trees was estimated. A comparative look over the statistical data of the two years 1967 and 1968 shows the weak confidence at these data (table 27).

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TABLE - 27   Statistical Data on Apricots in Lebanon. 1967 - 1968.

| YEAR | Area | | | Yield of Productive area Kg/ha | Productive area tons | Scattered trees | | | Yield per scattered tree Kg/tree | Production Scattered trees tons | Total production tons |
	Productive ha	Non-Productive ha	Total ha			Productive	Non-productive	Total			
1967	668	518	1186	9,270	6,192	N.A	N.A	53,273	37	1934	8,126
1968	1,202	566	1,768	11,370	13,669	174,092	30,462	204,554	62	10834	24,503

SOURCE: Anonymous (1968 and 1969). Agricultural Statistics 1967 and
1968. Lebanon, Ministry of Agriculture. A. Ec. No. 11 and A. Ec.
No. 17.

While the non-productive area increased by about nine
percent, the productive area increased by 80 percent. The above
table shows that the productive area of apricots in 1968 was
greater than the sum of the productive and non-productive ones of
1967. If all the non-productive area of apricots of 1967 had
reached the stage of production in 1968 (an assumption that can
not be accepted), still there are an extra 16 hectares that can
not be seen from where they came. An other ambiguous point is the
high increase in the number of total scattered trees and their
production. These ambiguous points in the above statistical data
do not allow the author to rely much on them.

CONSUMPTION:

The Lebanese exports of apricots had been almost equivalent
to its imports of this product. Thus, the Lebanese consumption of
apricots had been equivalent to its production. When the estimated
production of apricots made its upward shift in 1964, the net supply
followed the same type of shift. This was not because the Lebanese
had suddenly doubled their consumption of this product but because
the estimated figures for production were not correct, and the
Lebanese consumption was underestimated as it was the case with
production (table 26).

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The Lebanese imports of apricots flactuated between 0.1 and 0.2 thousand tons, and so it did the exports but with an increasing trend (table 28)

TABLE - 28   Lebanese Trade of Apricots. 1959 - 1967

Unit = tons

COUNTRY	1959	1960	1961	1962	1963	1964	1965	1966	1967
Imports:									
Syria	42	75	92	96	194	362	92	3	22
Jordan	10	30	16	19	11	12	2	4	-
Total	52	105	108	115	205	374	94	7	22
Exports:									
Syria	100	53	65	204	121	176	158	541	148
Saudi Arabia	16	14	7	8	9	2	13	45	45
Kuwait	6	15	1	1	1	1	21	23	43
Jordan	-	-	-	8	3	7	28	22	33
Other countries	6	3	8	6	5	11	6	5	7
TOTAL	128	85	81	227	139	197	226	636	276
Not export	+ 76	-20	-27	+112	-66	-177	+132	629	+254

Syria had been the main country making apricot trade with Lebanon. The Syrian imports of Lebanese apricots had been increasing while its exports of the same commodity to Lebanon had been decreasing. The same thing had been taking place between Jordan and Lebanon. During the last few years, Saudi Arabia and Kuwait had been increasing their imports for the Lebanese apricots (table 28)

FUTURE OUTLOOK

PRODUCTION

If if was difficult to know the current
production of apricots, it will be more difficult
to estimate it for the future. However the author will
try to use some assumptions to estimate the production
of apricots in 1975 and 1980. Any correction in these
assumptions should be transmitted to the estimator.

ASSUMPTIONS:

1. The annual increment in the area of apricots will
    be calculated by averaging the figures standing
    for the 1964 - 67 areas and those standing for the
    1956 - 59 areas taking the difference in these
    resulting averages then dividing it by the number
    of years that separate the two above mentioned
    periods.

2. The average yields are assumed to reach the 13
    tons and 15 tons per hectare in the years 1975
    and 1980 respectively.

On the basis of the above mentioned assumptions, the
area of apricots is expected to reach the 1,237 and 1,345 hectares
in 1975 and 1980 respectively; and the apricot production in
1975 and 1980 is expected to average around the 16,081 and the
20,175 thousand tons respectively.

CONSUMPTION:

The Lebanese consumption of apricots in the future was calculated on the basis of the increase in population, the changes in the per capita demand and in the per capita gross domestic product, and on the basis of the demand elasticity of apricots. It was found that the Lebanese consumption of apricots may average around 15.5 and 19.3 thousand tons in 1975 and 1980 respectively.[*]

CONCLUSION:

Lebanon had been a self-sufficient country in apricots. Its balance of trade tiped positively only in the very few last years. It is very possible to keep this positive balance for the near future, but it will not be much.

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[*] The per capita demand in the years 1975 and 1980 was calculated, coeteris parilus, on the basis of the following equation:

$$\text{Log}_{10} Y_t = 0.4343 \text{ o } (1 - \frac{Xo}{Xt} + \text{Log}_{10} Y_{1965}$$

Where Y and X are per capita demand and per capita gross domestic product respectively at the base year, 1965, and at the year t = 1975 and 1980", and o = 0.385 is the demand elasticity.

ALMONDS

The almond tree grows on the side facing the Mediterranean sea of the Lebanese chain of mountains at a belt ranging between 200 and 800 m of altitude. The Southern part of the Bekaa suits the plantation of this tree too.

PRODUCTION:

In 1968, the area under almonds was 5151 dunums. Mount Lebanon ranked first with about 39 percent, the Bekaa followed with about 31 percent, then North Lebanon came with about 26 percent and finally South Lebanon with about 4 percent. The productive area under almonds was 4,48C dunums (or about 87 percent of the total area under condensed plantation of almonds: 5151 dunums). The highest average yield of almonds was in South Lebanon with an average of 675 kgs per dunum. The Bekaa had the lowest yield with an average of 390 kgs per dunum. The general average yield of almonds in Lebanon was 529 kgs per dunum.

Of the 2,375 tons of almonds harvested in 1968 from the total area under compact plantation in Lebanon, 44 percent came from Mount Lebanon, 27 percent came from North Lebanon, 25 percent came from the Bekaa and 4 percent came from South Lebanon.

The number of almond scattered trees was relatively high (about 140,385 trees). About 37 percent of them were located in North Lebanon, 25 percent in Mount Lebanon, 19 percent in South Lebanon, and an equal percentage to that of South Lebanon is located in the Bekaa. The production of scattered trees was 2182 tons, almost equivalent to that of compact plantation. Thus, the total production of almonds in 1968 was 4,357 tons. The average farm price, varying from one district to another, ranged between 53 pts/kg and 74 pts/kg and averaged 61 pts/kg for all Lebanon.

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CONSUMPTION

Lebanon is a net importer of almonds in their shelled and unshelled forms. The net imports of "whole equivalent" almonds go around one thousand tons per year. Jordan, Palestine and Spain are the main exporters for almonds to Lebanon (table 29) while Saoudi Arabia and West Germany are the main importers for almonds from Lebanon (table 30).

TABLE - 29 Lebanon Imports of Almonds (whole Equivalent).
1959 - 1967

Unit = tons

COUNTRY	1959	1960	1961	1962	1963	1964	1965	1967	196?
Jordan	150	305	170	230	456	192	320	404	789
Palestine	204	303	147	276	147	273	258	413	66
Spain	306	457	657	398	340	357	474	468	629
Other countries	111	112	228	108	141	86	60	92	20
TOTAL	771	1177	1202	1012	1084	908	1112	1377	150?

SOURCE: Anonymous (1958 - 1967). Statistiques du Commerce Exterieur. Liban, Conseil Superieur deS Douanes.

TABLE - 30 Lebanese Exports of Almonds (whole Equivalent)
1959 - 1967

Unit = tons

COUNTRY	1959	1960	1961	1962	1963	1964	1965	1966	1967
Saudi Arabia	9	6	3	6	2	3	—	3	15
West Germani	150	198	—	102	30	—	60	32	—
Other countries	19	27	33	55	31	57	19	37	110
TOTAL	178	231	39	163	63	60	79	72	125

SOURCE: Anonymous (1958 - 1967) . Statistiques du Commerce Exterieur. Liban, Conseil Superieur des Douanes.

The Lebanese consumption of almonds had been going
along an almost constant general trend of about 3.5 thousand tons.

FUTURE OUTLOOK:

PRODUCTION:

The time series data show that the almond
production had been almost the same for the period 1956 –
1966. But the statistical data of the two years 1967 and
1968 show that the area under compact plantations of
almond is equal to one fourth that of the previous years,
and the average yield was almost four times that of the
previous years. Thus the production of almonds from
compact plantations only was equivalent to average total
almond production (2400 tons/year) in the previous years.

The almond production, from scattered trees,
was almost equivalent to that from compact plantation.
Thus, the apparent shift in almond production from 2.4
thousand tons in 1966 to about 4.4 thousand tons in
1968, probably resulted from the include of almond
production from scattered trees in the total almond
production in the two years 1967 and 1968. If this is to
be true then the Lebanese not supply of almond (whole
equivalent) reported for the period 1956 – 1966 was
missing the volume of almond production coming from
scattered trees (table 31).

TABLE - 31 · Statistical Data on Almonds, whole Equivalent
in Lebanon. 1956 - 1968.

YEAR	Area	Average yield	Production	Imports	Exports	Net Supply
	Hectares	Kg/ha	Thousand metric tons			
1956	1,450	1,900	2.7	0.7	0.3	3.1
1957	1,450	1,900	2.8	0.5	0.1	3.2
1958	1,400	1,800	2.6	0.6	0.1	3.1
1959	1,400	1,900	2.6	0.3	0.1	3.3
1960	1,500	1,300	2.0	1.2	0.2	3.0
1961	1,700	1,500	2.5	1.2	-	3.7
1962	2,400	1,200	2.8	1.0	0.2	3.6
1963	2,400	1,250	3.0	1.1	0.1	4.0
1964	1,100	1,640	1.8	0.9	0.1	2.6
1965	1,880	1,300	2.4	1.1	0.1	3.4
1966	1,993	1,200	2.4	1.3	0.1	3.6
1967	515	6,100	5.9[*]	1.5	0.1	7.3
1968	515	5,290	4.6[*]	N.A	N.A	

SOURCE: Sattar A. and Cortas A. (1968) . Agricultural Statistics 1954-66
Lebanon, Ministry of Agriculture, Bureau of Agricultural Economics,
A. Ec. No. 10, P. 67
[*] Includes production from scattered trees.

Accepting the detailed statistical data of 1968, and assuming that:

1. The number of scattered trees in 1980 will remain the same as it was in 1968, namely 140 thousand trees.

2. The non-productive area under almonds in 1968 will become productive in 1980.

3. The average productive life of an almond tree is 60 years. This means that about one fifth of the area under production in 1968 will go out of production in 1980.

4. An almond tree starts producing at an age of seven years.

5. The rate of increase in the newly planted area stays the same.

6. The average yield of a productive hectare will increase by about 20 percent while that of scattered trees will remain the same as that of 1968.

On the basis of such assumptions, the following conclusions could be drawn:

1. The almond area that will go out of production in 1980 will be: $\dfrac{4488 \times 20}{100} = 893$ dunums

2. The young area that will go into production in 1980 will be: $\dfrac{663 \times 12}{7} = 1137$ dunums

3. The productive area of almonds in 1980 will bo
    (4488 - 898) + 1137 = 4727 dunums

4. The avorago yield of compact plantations of
    almonds will bo: $\frac{529 \times 120}{100}$ = 635 kgs por dunum.

5. Tho production from compact plantations of almonds
    will bo: 4727 x 635 = 3.0 thousand tons

6. Tho total production of almonds from compact
    plantations and from scattorod troos will bo:
    3.0 + 2.2 = 5.2 thousand tons.

CONSUMPTION:

        Sinco tho not imports of almonds had boon almost
the samo during tho last docado, it is vory probablo to koop being
around ono thousand tons por yoar till 1980. As a rosult, tho not
supply of almonds (wholo oquivalont) in 1980 will avorago around
(5.2 + 1.0 = 6.2 thousand tons) six thousand tons.

WALNUTS

Walnuts in the form of compact plantation are grown almost exclusively in the Bekaa. In 1968, there were 684 dunums of walnuts in the form of compact plantation. Only four dunums were located in Mount Lebanon and the remainder was located in the Bekaa. Of the 680 dunums located in the Bekaa, only 155 dunums were in their bearing stage and the rest was not bearing. The average yield was 628 kgs per dunum in the Bekaa and 693 kgs per dunum in Mount Lebanon. The general average yield in all Lebanon was 629 kgs per dunum.

Walnut scattered trees were numerous. They counted more than 28 thousand trees of which 11.0 thousands were located in the Bekaa, 6.3 thousands were located in North Lebanon, 5.2 thousands were located in Mount Lebanon, and about 3.5 thousand trees were located in South Lebanon. With the exception of the Bekaa district, the walnut scattered trees were all in the bearing stage. The Bekaa had about two thirds of its walnut scattered trees in the bearing stage, and the rest was not bearing. South Lebanon reported the highest yield per scattered tree averaging about 41 kgs. North Lebanon ranked next with an average yield of about 35 kgs per tree. Mount Lebanon and the Bekaa reported almost the same yield of about 32 to 33 kgs per tree. The average yield for total Lebanon was about 35 kgs per scattered tree of walnut. Thus the total production of walnuts collected from scattered trees averaged 852 tons representing about 90 percent of the 952 tons total Lebanese production of walnuts (table 32).

TABLE - 32   Statistical Data on Walnuts in Lebanon in 1968

ITEM	North Lebanon	Mount Lebanon	South Lebanon	Bekaa	Total Lebanon
Total area under compact plantation (dun).	—	4	—	680	684
Productive (dun).	—	4	—	155	159
Non-productive (dun).	—	—	—	525	525
Average yield (kgs/dun)	—	693	—	628	629
Production (m. tons)	—	3	—	97	100
Scattered trees	8,310	5,228	3,551	10,967	28,064
Productive	8,318	5,228	3,551	7,567	24,664
Non-productive	—	—	—	3,400	3,400
Average yield. kgs/tree	35	33	41	32	35
Production (m.tons)	291	173	146	242	852
Total Production	291	176	146	339	952

SOURCE:
=======   Anonymous (1969). Agricultural Statistics 196f. Lebanon,
           Ministry of Agriculture, Statistics Section, A. Ec. No 17

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CONSUMPTION
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Lebanon is an importing country for walnuts. Its imports during the period 1961 - 1966 averaged around one thousand tons of whole equivalont walnuts per year. About 80 percent of this import came from Syria and Turkey

The net supply of whole equivalont walnuts had been almost constant and averaging around 1.5 thousand tons per year.

FUTURE OUTLOOK
_____

PRODUCTION
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The time sories data on walnuts show a large downward shift in the arca in 1964. While the walnut area was reported to be about 250 hoctaros in 1963, it droped down to 70 hoctaros in 1964. This downward shift in the roported area was conpensatod by an upward shift in the yield to keep the production at its lovel of about four hundrod tons. This change in the roportod data was the rosult of a change in the statistical mothods used (table 33)

To estimate the walnut production in 1980, the author assumos that the 1968 arca of walnuts will be become productive in 1980 and so will become the scattered areas.

The yield is assumed to increaso by 15 porcent of what it was in 1968. Having this in mind, the walnut production in 1980 will avorage around 500 tons from compact plantations and 1100 tons from scattorod trees, making the total walnut production avorage around 1600 tons.

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TABLE - 33   Statistical Data on Walnuts (Whole Equivalent)
in Lebanon . 1956 - 1966

YEAR	Area	Average yield	Production	Imports	Exports	Net Supply
1956	260	3,200	0.8	0.6	–	1.4
1957	250	3,200	0.8	0.6	–	1.4
1958	250	3,000	0.7	0.6	–	1.3
1959	250	2,800	0.7	0.6	–	1.3
1960	230	2,600	0.6	0.7	–	1.3
1961	250	1,200	0.7	0.8	–	1.5
1962	250	1,400	0.4	1.0	–	1.4
1963	250	1,600	0.4	1.0	–	1.4
1964	70	5,300	0.4	1.3	–	1.7
1965	90	5,000	0.5	1.0	–	1.5
1966	90	4,300	0.4	1.0	–	1.4

SOURCE: Sattar A. and Cortas A. (1968). Agricultural Statistics
1954 – 1966 . Republic of Lebanon, Ministry of Agriculture
Bureau of Agricultural Economics. A. Ec. No. 10 P.68.

*   Shelled walnuts converted to whole in the ratio of 1 to 3.

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CONSUMPTION

        The Lebanese imports of whole equivalent walnuts had been averaging around one thousand tons for the period 1961 - 1966. It is very probable that it will not exceed the 1200 tons by 1980. This means that the Lebanese consumption of whole equivalent walnuts in 1980 may average around 2 800 tons.

BANANAS

Banana trees are planted along the coastal area. Usually they are interplanted with citrus trees. About three fourths of the total banana area are located in South Lebanon and the other fourth is located in Mount Lebanon. North Lebanon has a negligeable area of bananas.

PRODUCTION

Of the 29.5 thousand tons, total banana production produced in 1968, about 73.4 percent came from South Lebanon, 25.1 percent came from Mount Lebanon and 1.5 percent came from North Lebanon.

The banana area had reached its maximum of 3.350 hectars; in 1964 after which it dropped to about 2.500 hectares in 1965 and it had almost kept this level till 1968. On the other hand, the average yield per hectar had decreased from 13.5 tons in 1956 to a minimum of about 6.57 tons in 1964, then it moved upward to about 10.0 tons in 1965 and it continued increasing at a very slight rate to reach the 11.9 tons per hectar in 1968.

As a result of this inverse direction of movement in area and average yield, the total production of bananas had moved along an almost horizontal general trend of about 25.4 thousand tons per year during the period 1956 - 1965. For the last three years 1966 - 1968, the production of bananas showed an upward shift to an average of about 28.7 thousand tons per year. This upward shift resulted from the increase in average yield (table 34).

TABLE - 34   Statistical Data on Bananas in Lebanon

YEAR	Area	Average Yields	Production	Imports	Exports	Net Supply
	Hectares	Kg/Ha	Thousand metric tons			
1956	2,000	13,500	27.0	—	12.1	14.9
1957	2,100	12,400	26.0	—	10.8	15.2
1958	2,150	12,800	27.5	—	15.7	11.8
1959	2,300	9,100	21.0	—	12.8	8.2
1960	2,350	11,100	26.0	—	15.3	10.7
1961	2,600	10,000	26.0	—	16.4	9.6
1962	2,600	9,600	25.0	—	15.6	9.4
1963	3,000	9,330	28.0	—	12.8	15.2
1964	3,350	6,570	22.0	—	13.9	8.1
1965	2,527	9,970	25.3	—	9.1	16.2
1966	2,542	11,700	29.8	0.4	10.6[xx]	19.6
1967	2,457	10,950	27.1	—	11.5	
1968	2,452	11,920	29.5[x]	—	7.3[xx]	

SOURCES: 1) Sattar and Cortas (1968). Agricultural Statistics, Ministry of
Agriculture, Lebanon.

2) Anonymous (1967). Agricultural Statistics, Ministry of Agriculture,
A: EC. No. 11.

3) Anonymous (1968). Agricultural Statistics, Ministry of Agriculture,
A: EC. No. 17

x   Includes production from productive area and production from scattered
trees.

xx   Gross weights of exports.

CONSUMPTION

Lebanon is an exporting country for bananas. Almost all the Lebanese exports of bananas go to the Arab countries mainly Syria and Jordan. During the last few years, Syria had decreased its imports of Lebanese bananas to about two thirds of what it used to import. If the Jordanian imports of Lebanese bananas are to continue along the general trend of the passed years, Jordan will stop importing bananas from Lebanon in the very near future (table 35). The general trend of the Irakian imports of the Lebanese bananas does not show any noticeable variation. The imports of the other Arab countries for the Lebanese bananas have been negligeable.

TABLE - 35 Lebanese Exports of Bananas
(Gross weight in 100 tons)

COUNTRY	1961	1962	1963	1964	1965	1966	1967	1968
Syria	6.0	6.8	7.5	6.0	2.5	4.5	6.3	4.7
Jordan	7.9	5.1	7.0	6.0	3.5	2.3	2.3	1.2
Irak	1.1	2.6	1.1	1.6	1.1	1.7	1.4	1.1
S. Arabia	.7	.5	.4	.3	—	.2	.4	—
Other Arab countries	.2	.1	.2	.1	—	1.8	1.1	.3
Total Arab countries	15.9	15.1	16.2	14.0	7.1	9.5	11.5	7.3
Other countries	.6	.8	.5	.8	2.8	2.4	—	—
Total countries	16.5	15.9	16.7	14.8	9.9	11.9	11.5	7.3

SOURCES: 1) Anonymous (1964). Agricultural Economics, Fruit Office, No. 37 (in Arabic).

2) Anonymous (1966, 1967, 1968). Reports on Lebanese Exports of Fruits. Fruit Office, Economic Division. (Unpublished reports in Arabic).

Tho Lobanoso exports of bananas havo boon docroasing bocauso of the strong compotition of tho banana oxporting countrios to tho Arab world on ono hand, and on tho othor hand bocauso of tho limitod volumo of bananas produced in Lobanon whilo tho Lobanoso domand has boon incroasing os a rosult of incroaso in population and por capita incomo.

FUTURE OUTLOOK

During tho last four yoars 1965 - 1968, tho aroa of bananas had docroasod at a vory slow rato avoraging around tho 19 hoctaros por yoar. Sinco tho banana aroa oxtonds along tho coastal aroa, a good part of it is oxpoctod to bo condamnod by construction by 1980. Assuming tho samo rato of docroaso in aroa to hold till 1980, tho banana aroa will avorago around tho 2.2 thousand hoctaros in the abovo montionod yoar.

Gonorally spoaking, tho yiold of bananas is rolatively low. It showed a rolativoly noticoablo incroaso during tho last four yoars. If wo assumo what it will avorago around tho 15 tons por hoctaros in 1980, thon tho banana production will avorago around tho 33 thousand tons in that yoar.

CONSUMPTION

Taking into considoration tho incroaso in population, tho incroaso in por capita incomo, and tho olasticity of banana demand, tho Lobanoso por capita consumption of bananas may avorago around tho 10.24 kgs or a total Lobanoso banana consumption of about 31.5 thousand tons [x].

Thus in 1980, Lobanon will havo a small surplus of bananas avoraging around two thousand tons only.

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[x]   Por capita domand in tho yoar 1980 has boon calculatod cotoris paribus, on tho basis of tho following oquation

$$Log_{10} \quad Yt = 0,4343 \; c \; (1 - \frac{Xo}{Xt}) + Log_{10} Yo$$

Where Y and X are per capita demand and per capita gross domestic product respectively and "c" is the income elasticity. (or bananas: c = 0.766).

FIGS

Figs is a fairly important permanent crop in Lebanon.
The area under figs had increased at a slow rate up till 1962-
1963 where this area reached its peak of about 3.9 thousand
hectares, after which it dropped to about 1.9 thousand hectares
in 1966, and to about 1.5 thousand hectares in 1967 (table 36).
More than one half of this area was located in South Lebanon
and about one third in the Bekaa. The scattered trees averaged
140 thousand in 1967.

TABLE - 36   Statistical Data on Figs in Lebanon . 1956 - 1967

YEAR	Area	Average yield	Production	Imports	Exports	Not supply
	Hectares	Kg/Ha	Thousand metric tons			
1956	2,500	7,600	19.0	0.3	0.4	18.9
1957	2,500	7,800	19.5	0.1	0.2	19.4
1958	2,500	7,200	18.0	-	-	18.0
1959	2,500	6,800	17.0	0.1	0.1	17.0
1960	2,600	5,400	14.0	0.4	0.4	14.0
1961	2,800	6,100	17.0	0.2	0.2	17.0
1962	3,900	6,700	25.0	0.3	0.3	25.0
1963	3,900	6,410	25.0	0.5	0.7	24.8
1964	3,500	6,860	24.0	0.2	0.2	24.0
1965	3,140	4,682	14.7	0.4	0.3	14.8
1966	1,900	6,150	11.7	0.4	0.2	11.9
1967	1,500	5,640	13.4[*]	0.2	-	13.6

SOURCE: Sattar A. and Cortas A. (1968). Agricultural Statistics
1954 - 1966. Lebanon, Ministry of Agriculture. A. Ec. No. 10
P. 58

[*]   Includes production from scattered trees.

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Some effort has been done to uproot the derelict fig orchards and to plant new ones. The main fig varieties in Lebanon are the Bayadi, the Baqarati, the Suweidi, and the Shatawi. The Bayadi is dominant with an area covering about 90 percent of the total area under figs.

The harvesting period of figs extends from the first week of July till the second part of october. The yearly average price has been stable around the 32 piasters per kilogram, and so has been the seasonal price.

CURRENT PRODUCTION OF FIGS

The production of figs followed an increasing general trend during the period 1956 - 1964. This increase in trend resulted from the increase in area though the yield had been decreasing. A downward shift took place in 1965 and 1966, and the production averaged half what it was in the previous years. This shift resulted mainly from a decrease in the estimated area under figs. While this area was estimated at 3, 500 hectares in 1964, its estimation dropped down to 1,900 hectares in 1966. In 1967 and 1968, the area under figs was estimated at 1,500 hectares and the average yield was estimated at 5,640 and 6,440 kgs per hectare respectively. The production from compact plantation of figs was estimated at 8.4 and 9.66 thousand tons respectively to which about 5.0 and 3.7 thousand tons came from scattered trees, making the total fig production in 1967 and 1968 average around 13.4 thousand tons per year.

The 1967 survey of figs shows that though South Lebanon had the highest area under figs and the highest number of scattered trees, the Bekaa had the highest share of production from compact plantations as well as from scattered trees. This was because of the high yield per unit area and per scattered tree (table 37)

TABLE - 37   Statistical Data on Figs in Lebanon in 1967

Province	Area			Yield produc-tive	Produc-	Scattered trees			Total Produc-tion	Percent produc-tion
	Produc-tive	Un-produc-tive	Total			Num-ber	Yield	Produc-tion		
	dun.	dun.	dun.	Kg/du.	Tons		Kg/tree	Tons	Tons	
North Leb.	313	61	374	531	166	3,640	29	1,034	1,200	8.9
Mount Leb.	590	54	644	478	282	21,411	25	535	817	6.1
South Leb.	5,304	3,438	8,742	608	3,225	46,455	36	1,672	4,897	36.4
Bokaa	4,941	366	5,307	970	4,793	37,822	46	1,740	6,533	48.6
Total Leb.	11,148	3,919	15,067	759	8,466	141,328	35	4,981	13,447	100.0

SOURCE:
======   Sattar A. (1968), Survey of Figs 1967. Lebanon, Ministry of
Abriculture. A. Ec, No. 13.

CONSUMPTION

Lebanon is a self- sufficient country in figs. The
small quantities imported mainly from Syria and Jordan had been
compensated by equivalent quantities exported to the Arab countries
mainly to Palestine, Kuwait and Jordan.

FUTURE OUTLOOK:

The author will base his estimate for the fig production
in 1975 and 1980 on the data of the 1967 Survey of figs.

If we assume that all the 1967 fig area will become
productive in 1975 and the average yield for whole Lebanon will
become equivalent to the 1967 average yield in the Bokaa and if we

assume that the production from scattered trees will stay the
same as a result of the inverse way of movement of the number
of scattered trees and their average yields. On the basis of
the above assumptions the fig production in 1975 and in 1980
are expected to average around 20 and 23 thousand tons respectively.

Since the Lebanese trade of figs had been balanced during
the last 13 years, it is very probable to continue like that in
1975 and 1980, and as such the Lebanese consumption of figs will
be equal to that of production.

OLIVES

Tho olivo crop is ono of the major permanent crops in Lebanon. Tho area under olivos ranks first among tho other areas under fruits. In good years, the olivo crop contributos up to about 15 percent of tho value of all permanent crops producod in Lobanon.

In Lovaron, olives aro grown on tho plateaux and lower hill slops along tho Mediterranoan coast. Almost half of tho area under olives lios in tho province of North Lobanon namoly tho Cazas of Koura, Zghorta, Tripoli, and Akkar. About one fourth of tho crop is located in Mount Lobanon mainly in Chouf and Baabda; and tho remaining one fourth is located in South Lobanon mainly in Hasbyia (tablo 38).

TABLE - 38   Distribution of Olivo Aroa and Trees by Province in Lobanon. 1967

PROVINCE	Area		Olivos troos[x]	
	Dunums	Percent of total Lobanon	Number	Porcont of total Lobanon
North Lobanon	120,742	45.1	2,527,130	47.1
Mount Lobanon	57,558	21.4	1,414,584	26.4
South Lobanon	88,608	33.0	1,397,568	26.1
Bokaa	1,460	0.5	22,228	0.4
TOTAL LEBANON	268,368	100.0	5,361,510	100.0

SOURCE:

Sattar A. (1968). Survey of Olives in Lobanon. Lobanon, Ministry of Agriculturo. A. Ec. No. 12. P.11

x Including scattorod troos.

CURRENT PRODUCTION OF OLIVES:

The time series data of olives show that the area under olives had followed a slowly increasing general trend till it reached the peak of 28.6 thousand hectares in 1964. A downward shift in the estimated data took place in the two years: 1965 and 1966. The estimated average yields flactuated greatly as a result of the change in the statistical methods used and as a result of the production pattern characterizing the olive crop by a good production year followed by a bad one (table 39). On the whole, the production of olives had been following an increasing general trend.

TABLE - 39   Statistical Data on Olives in Lebanon 1956 - 1966

YEAR	Area	Average yield	Production	Imports	Exports	Net supply
	Hectares	Kg/Ha.	Thousand			
1956	21,500	2,600	55.0	1.2	–	56.2
1957	22,000	590	13.0	0.9	0.1	13.8
1958	22,500	1,960	44.0	1.2	0.1	45.1
1959	22,600	800	18.0	0.9	–	18.9
1960	27,000	1,110	30.0	4.6	–	34.6
1961	27,000	2,410	65.0	1.9	–	66.9
1962	27,000	1,690	16.0	4.6	–	20.6
1963	27,500	2,180	60.0	1.6	–	61.6
1964	28,618	1,050	30.0	0.9	–	30.9
1965	15,500	3,200	49.0	1.2	–	50.2
1966	15,965	1,840	29.4	0.8	–	30.2

SOURCE: Sattar A. and Cortas A. (1968). Agricultural Statistics 1954-
1966. Lebanon, Ministry of Agriculture A. Ec. No. 10. P. 74,

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The 1967 survey of olives in Lebanon reported that the area under olives averaged around 26,8 thousand hectares of which about 17.5 thousand hectares were under pure olives and 9.3 thousand hectares were under olives mixed with other crops. The number of olive trees in pure olive stands averaged around 3,739 thousand ones, while that in mixed stands averaged around 1,540 thousand ones. The number of olive scattered trees averaged around 83 thousand ones. Of the total olive trees, about 15.1 percent were under eight years, 8.8 percent were between 8 and 15 years old, and about 76.1 percent were over 15 years old. The total productive trees averaged around 4,255 thousand ones. The number of derelict old trees was 32.5 thousand ones whose majority (80%) was in South Lebanon.

The total production of olives in 1967 averaged around 67,773 tons of which 66,448 tons came from compact plantations, and 1,325 tons came from scattered trees.

The main varieties of olives in Lebanon are the Baladi, the Souri, and a small percentage of the Airouni. The Baladi variety is dominant in South Lebanon, while the Souri and the Airouni varieties are dominant in North Lebanon.

CURRENT CONSUMPTION OF OLIVES:

The major part of the annual production of olives is pressed for oil which is used in cooking and as a dressing for many Lebanese food. About 8 to 10 thousand tons of olives are pickled both in the Green and the ripe stages. About one thousand tons of olives are imported annually from Syria and Jordan for table purposes. In Lebanon, there are about 693 olive oil presses of which 329 are in North Lebanon, 207 in Mount Lebanon, and 157 are in South Lebanon. The quantity of the pressed olives varies

from year to year according to the volume of production. In
1967/68 season, the production of olives averaged around 68
thousand tons of which about nine thousand tons were used
for table purposes and the rest about 59 thousand tons were
pressed for oil extraction. The quantity of olive oil extrac-
ted was about 13 thousand tons.

The prices of olives vary from year to year and
within the year. They differ tremendously for the purpose
of uses of olives. The yearly average wholesale prices of
olives flactuated between 73 and 140 Lebanese piastors per
kilogram for the period 1961 - 1965, and between 80 and 118
lebanese piastors per kilogram within the year 1965 [x]. The
form gato price of olives for table purposes averaged 77
piastors per kilogram in 1967, while that for oil ostraction
purposes averaged around 47 piastors per kilogram.[x]

FUTURE OUTLOOK

PRODUCTION:

Due to the high variation in the reported stati-
tical data on olives as a result of the change in
the statistical methods utilized, the author will
rely on the statistical data reported in the survey
of olives in Lebanon[x].

The survey reported that, of the 5,361,510
trees total olive ones in Lebanon in 1966, there were
811,473 trees aging less than eight years, 471,178
ones aging between eight and 15 years, and the
remainder 4,078,859 trees of olives averaged

[x] Anonymous (1967). Wholesale and Retail Price Series for Fruits and
Vegetables in Beirut. 1955 - 1965. Lebanon, Ministry of Agriculture.

[x] Sattar A. (1968). Survey of Olives in Lebanon. Lebanon, Ministry of
Agriculture . A.Ec. No. 12

around 4,255,160 ones, while the unproductive trees averaged
around 1,106,350 ones of which 811,473 trees were young,
32,500 trees were derelict, and 262,377 trees were normally
productive but did not bear in 1966 because of the biennial
cycle or because of strictly localized factors

Assuming the annual increment of newly planted trees
of olive to stay the same till 1980, the average yield per tree
to become around 15 and 16 kgs per tree in 1975 and 1980 respec-
tively, and the olive tree starts producing at an age of eight
years, then the production of olives in 1975 and in 1980 will
be expected to average around 77.5 and 90.8 thousand tons
respectively [x]

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[x] The average annual increment of newly planted trees of olives is:
811,473 ÷ 8 = 101,434 trees.

Year 1975:

The number of production trees of olives will be:
4,255,160 + (101,434 x 9) = 5,168,067 trees
Expected production of olives will average around

15 x 5,168,067 = 77.5 thousand tons.

Year 1980

The number of productive trees of olives will be:
4,255,160 + (101,434 x 14) = 5,675,237 trees

Expected production of olives will average around:

16 x 5,675,237 = 90.8 thousand tons.

CONSUMPTION

The per capita demand of table olives averaged around 3,966 kgs of which 2.718 kgs were local green olives, 0.745 kgs were locally pickled olives and 0.503 kgs were imported olives. The demand elasticity of the local green olives was 0.695, that of locally pickled olives was 0.348, and that of imported olives was 1.548. The weighted average demand elasticity of table olives was 0.738.

Taking into consideration the per capita gross domestic product at the base year and at the year "t", and the per capita demand at the above mentioned time, and the weighted average demand elasticity, taking into consideration these factors, the author calculated the per capita demand and consequently the total Lebanese demand of olives for table uses in 1975 and 1980. He found that, in 1975, the per capita demand and consequently the total lebanese demand will average respectively around 6.03 kgs and 16.3 thousand tons, while in 1980 they will average respectively around 6.56 kgs and 20.2 thousand tons [x]

Since the imported quantity of olives had been averaging around one thousand tons per year during the last decade, it is very probable to stay the same for 1975 and 1980. This means that the quantities of olives that will go for oil extraction in the above mentioned years will average respectively around 61 and 70 thousand tons. Generally the yield of oil averages around 22 percent. Thus the Lebanese consumption of olive oil will average around 13.5 and 15.5 thousand tons in 1975 and 1980 respectively.

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[x] Per capita demand in the years 1975 and 1980 has been calculated, ceteris paribus, on the basis of the following equation:

$$Log_{10} Y_t = 0.4343 \, c \, (1 - \frac{X_o}{X_t}) + Log_{10} Y_o$$

Where Y and X are per capita demand and per capita gross domestic product respectively at the base year, 1967, and at the year "t"=1975 and 1980 and c is the demand elasticity.

S U M M A R Y

The cultivated land in Lebanon covers an area of about 391 thousand hectares, equivalent to about 38 percent of the total area of Lebanon. About one fourth of the above mentioned figure is devoted to perennial crops.

Though the agricultural sector contribution to the total gross national product at market prices averages slightly more than 12 percent, it is estimated that about one half of the total active population in Lebanon is occupied in agriculture, and about 50 percent of the Lebanese exports are agricultural.

Of the total area under fruits, the olive crop covers about 35 percent, the grapes cover about 20 percent, the apples cover 15 percent and so do the citrus crops. The remaining 15 percent are covered by the rest of fruit crops.

The total value of fruits produced in 1968 averaged around 200 million Lebanese pounds of which about 31 percent came from citrus mainly oranges, 13 percent came from apples, another 13 percent came from olives, 12 percent came from grapes, and the remaining 31 percent came from other fruit crops.

Citrus, mainly oranges and lemons, and apples had been the most important fruit crops in Lebanon. Over 85 percent of the total Lebanese fruit exports had been citrus and apples and this percentage is expected to increase in the future.

C O N C L U S I O N

This study was a try to foresee the future market situation
of the Lebanese fruits. The author based his estimates on the
available statistical data which showed a great variation as a
result of the change in the statistical methods utilized. Any
correction in the statistical data on which the future estimates
were based should be transmetted to the findings.

Lebanon has been an exporting country for fruits and it
will continue to be so in 1980. The Lebanese exports of the main
fruits is expected to average around 456.4 thousand tons of which
about 234 thousand tons will be citrus, 178 thousand tons will be
apples, 27 thousand tons will be table grapes, and the rest will
be cherries, peaches and pears (table 40). On the other side, total
Lebanese imports of the main fruits are expected to average around
nine thousand tons of which about six thousand tons will be indus-
trial grapes and the rest will be shared equally between almonds,
walnuts and olives for table uses.

The demand extend of the foreign markets to the different
Lebanese fruits is to be discussed in the commodity reports that
will be conducted after the termination of the reports on the market
outlets in the countries which are importing the Lebanese fruits
or which are competing with the Lebanese fruit markets.

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TABLE 49 - Expected Market Situation of Lebanese Fruits in 1980

CROPS	Production		Consumption		Exports		Imports	
	Thousand tons	%	Thousand tons	%	Thousand tons	%	Thousand tons	%
Citrus	421.0	39.4	187.0	30.1	234.0	51.3		
Oranges	274.0	25.7	122.0	19.7	152.0	33.3		
Lemons	111.0	10.4	38.0	6.1	73.0	16.0		
Tangerines	29.0	2.7	22.0	3.5	7.0	1.5		
Grapefruits	7.0	.6	5.0	.8	2.0	.5		
Apples	240.0	22.5	62.0	10.0	178.0	39.0		
Grapes	160.0	15.0	139.0	22.4	27.0	5.9	6.0	65.2
Cherries	20.8	1.9	17.5	2.8	3.3	.7		
Peaches	25.3	2.4	21.0	3.4	4.3	1.0		
Pears	26.4	2.5	19.0	3.1	7.4	1.6		
Apricots	20.2	1.9	19.3	3.1	.9	.2		
Almonds	5.2	.5	6.2	1.0			1.0	10.9
Walnuts	1.6	.1	2.8	.5			1.2	13.0
Bananas	33.0	3.1	31.5	5.1	1.5	.3		
Figs	23.0	2.2	23.0	3.7	-			
Olives	90.8	8.5	91.8	14.8	-		1.0	10.9
TOTAL	1067.3	100.0	620.1	100.0	456.4	100.0	9.2	100.0

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بيدس س • احصاء الحمضيات في لبنان ١٩٦٦ ــ ١٩٦٧ •
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وزارة التصميم • مرونة الطلب على مختلف الاصناف بالنسبة لاستهلاك الفرد • تقرير غير منشور
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