



SECTORAL RESEARCH AND INTELLIGENCE UNIT

RESEARCH  
TEAM : FOOD AND BEVERAGES

③

SECTORAL REPORT 1981

- Canned Vegetables
- Canned Fruits
- Frozen Vegetables

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## The SECTORAL RESEARCH AND INTELLIGENCE UNIT

This newly established research Department, which is directly related to the Industrial Research Dpt., was set up jointly by IOBE and the two major Greek industrial Development banks, both members of the Institute - The Hellenic Bank for Industrial Development (ETVA) and the National Investment Bank for Industrial Development (ETEVA/NIBID).

The UNIT, which started operating at the beginning of 1980 is involved in continuous monitoring of developments in specific manufacturing sectors at a domestic as well as European Community level. To achieve this, the Unit has established contacts on an exchange of information basis with a large number of similar research centers and sectoral organizations both domestically and in other European countries. Besides, a large number of trade journals and periodicals is also being monitored.

The results of this continuous sectoral research operation are disseminated to all interested companies and organizations at home or abroad, through regularly published Sectoral Reports as well as through Occasional Sectoral Reports dealing with specific issues of sectoral interest.

The Unit is internally organized in Research Teams. In collaboration with the sponsoring development banks, a 3-year expansion plan has been formulated and the Unit, consisting of eight Teams covering most of greek manufacturing activities, is being scheduled to become fully operative by the end of 1982.

## FOREWORD

This is the first Sectoral Report produced by the FOOD AND BEVERAGES RESEARCH TEAM of the IOBE'S SECTORAL RESEARCH AND INTELLIGENCE UNIT (SRIU).

Products investigated by the Report are the following:

- Canned and Frozen Vegetables and
- Canned Fruits

A Second Report covering the Greek Beer Industry is simultaneously published.

Topics covered include levels and the evolution of Demand and Production of the above products over time, the Greek Sector's productive capacity, certain issues associated with the distribution of production in the domestic as well as foreign markets and, finally, analysis of certain legal and institutional aspects of either national or EEC policy affecting the respective sectors' activity. Although the largest part of the Report aims at a detailed description of the prevailing situation (regarded as a prerequisite for all further sectoral analyses) a number of forecasts based on sectoral business sources has also been included in the Report. Such estimates and forecasts will be subject to regular reassessment and updating and the revised situation will be published in follow-up SRIU Sectoral Reports.

As indicated, this Report, being a Summary one, has been derived from a much more extended Greek original version in which comparative analyses of the sector's situation to that of respective sectors in other European (or, if relevant, non-European) countries have also been presented. Information on conditions for obtaining the original Greek Report is available from IOBE.

## CONTENTS

	<u>Page</u>
I. <u>CANNED VEGETABLES</u>	
1. <u>DEMAND AND SUPPLY OF CANNED VEGETABLES IN THE DOMESTIC MARKET</u> .....	1
1.1 Factors determining demand .....	1
1.1.1 Tomato paste and peeled tomatoes .....	1
1.1.2 Canned vegetables .....	2
1.2 The size of the domestic market for canned vegetables .....	2
1.2.1 Tomato paste-peeled tomatoes .....	2
1.2.2 Canned vegetables .....	5
1.3 Quality of products .....	7
1.3.1 The quality of greek tomato paste .....	7
1.3.2 The quality of greek canned vegetables .....	7
1.4 Production of Canned Vegetables in Greece .....	7
1.4.1 Factors influencing production of processed tomato products and vegetables .....	7
1.4.2 Tomato paste production .....	8
1.4.3 Peeled tomatoes production .....	10
1.4.4 Canned vegetables production .....	10
2. <u>EXPORTS OF GREEK PROCESSED TOMATO PRODUCTS AND CANNED VEGETABLES</u> .....	13
2.1 Distribution of Processed Tomato Products Abroad ..	13
2.1.1 Exports of tomato paste and peeled tomatoes.	13
2.1.2 Destination of greek processed tomato products exports .....	13
2.1.3 Competition in foreign markets .....	15
2.1.4 Outlook for greek exports of processed tomato products .....	16
2.2 Distribution of Greek Canned Vegetables Abroad ....	17
2.2.1 Canned vegetables exports .....	17
2.2.2 Outlook for greek canned vegetable exports .	17

	<u>Page</u>
3. <u>PRODUCTIVE CAPACITY IN THE GREEK TOMATO PASTE AND CANNED VEGETABLES INDUSTRIES</u> .....	19
3.1 Number of companies and plants .....	19
3.2 Productive Capacity-Rate of Utilization .....	19
3.3 Greek Enterprises' Size .....	21
3.4 New investment in the sector .....	21
4. <u>THE LEGISLATIVE FRAMEWORK FOR PROCESSED FRUITS AND VEGETABLES</u> .....	25
4.1 The Greek Legislative Framework for Processed Fruits and Vegetables .....	25
4.2 Treaty of Greece's Accession to the European Community and adjustments of the Greek legislative framework for processed fruits and vegetables to the respective Community framework .....	25
II. <u>CANNED FRUITS</u>	
1. <u>DEMAND FOR AND PRODUCTION OF CANNED FRUITS</u> .....	27
1.1 Demand .....	27
1.1.1 Factors determining demand .....	27
1.2 Canned fruit Production in Greece .....	28
2. <u>DISTRIBUTION OF THE GREEK CANNED FRUITS PRODUCTION IN THE DOMESTIC AND INTERNATIONAL MARKET</u> .....	30
2.1 Distribution of Canned Fruits in the Domestic Market .....	30
2.1.1 Size of the domestic market .....	30
2.2 Distribution of Greek canned Fruit abroad .....	33
2.2.1 Destination of greek exports of processed fruit .....	33
2.2.2 Competition in the international market for canned fruits .....	35

III. FROZEN VEGETABLES

1.	<u>FACTORS DETERMINING DEMAND FOR FROZEN VEGETABLES AND THE SITUATION PREVAILING IN THE GREEK MARKET</u> .....	37
1.1	Factors determining demand .....	37
1.1.1	Seasonal character of the supply of fresh vegetables-competition with canned vegetables .....	37
1.1.2	Quality and variety of frozen vegetables as a factor affecting demand .....	37
1.2	The Greek Market for Frozen Vegetables .....	38
1.2.1	Level of Production .....	38
1.2.2	Domestic consumption .....	40
1.2.3	Characteristics of the Greek market as factors determining demand and production of frozen vegetables .....	40
2.	<u>DISTRIBUTION OF FROZEN VEGETABLES IN THE GREEK MARKET</u> .....	43
2.1	Marketing of Frozen Vegetables .....	43
2.2	Frozen Vegetables Retail Prices .....	43
2.3	Competition in the Greek Market Enterprises' Market Shares .....	45
3.	<u>FROZEN VEGETABLES PRODUCTIVE CAPACITY AND MARKET OUTLOOK</u> .....	46
3.1	Established Units .....	46
3.2	The Outlook for the Greek Frozen Vegetables Market .....	46

IOBE/SECTORAL RESEARCH AND INTELLIGENCE UNIT

TEAM 1: FOOD AND BEVERAGES

CANNED VEGETABLES

SECTORAL REPORT 1981



## 1. DEMAND AND SUPPLY OF CANNED VEGETABLES IN THE DOMESTIC MARKET

### 1.1 Factors determining demand

#### 1.1.1 Tomato paste and peeled tomatoes

Tomato paste is the product of the dehydration of tomatoes. It is considered as <sup>an</sup>"intermediate" product, since its direct consumption is rather impossible.

Demand for these products is determined by:

- i) the development in the demand originating from the ready meals industries, and
- ii) by the evolution in the household market which, in turn, is affected by consumers' preferences, income, availability of substitutes etc.

Most of the industries using tomato paste as a raw material manufacture products classified as "convenience foods". The demand for such products is determined by the number of working women, the extent of population urbanization and the lifespan of the products themselves. The effect of income on the formation of final demand for convenience foods is considered to be rather low.

The fact that consumers get accustomed to consuming certain foods cooked in a particular manner is probably the most important factor in determining tomato paste final consumption. In the Arab countries, for example, consumers <sup>are</sup> used to what could be defined as "heavy foods", as is also the case in Greece, where the use of tomato paste or fresh tomatoes in cooking is quite widespread. In other countries the consumer seems to prefer a different -"lighter"- cuisine, thus resulting in a relatively reduced final consumption of processed tomato products.

Ready meals industries and households, constitute two different -from many aspects- markets. Consumers' preference for home cooked meals obviously inhibits the promotion of convenience food products, and, as a result, industries producing such products have restricted possibilities. The Arab countries are typical example of such a market.

While an estimation of the participation of each source of demand to total demand is difficult, if not impossible, it is quite obvious that the existence and relative rate of growth of these two -typically independent- markets is of particular importance to tomato paste producing industries.

Demand for peeled tomatoes on the other hand, is exclusively determined by the household market.

The availability or the scarcity of low-priced fresh tomatoes also plays a certain role in the formation of household demand for tomato paste or peeled tomatoes.

### 1.1.2 Canned vegetables

Demand for canned vegetables is determined by the terms at which fresh vegetables are supplied and by the competition prevailing among fresh, frozen and canned vegetables.

The substitution tendencies existing among these three product categories eventually determine the development of demand for each individual category.

As far as canned vegetables of greek origin are concerned, one must also mention the fact that their "greekness" also constitutes a determining factor, for the demand for some of them, such as okra, sweet peppers, especially in foreign markets.

Finally, the factors which determine the demand for fresh vegetables, are also relevant for the formation of demand for preserved ones (frozen and canned).

Table 1 below illustrates the relationship observed between consumption of canned vegetables and total monthly household consumer expenses, as measured in Greece by the 1974 Family Budgets Survey.

## 1.2 The size of the domestic market for canned vegetables

### 1.2.1 Tomato paste - peeled tomatoes

Domestic tomato paste consumption is estimated at about 18,000 tons per year. Apparent consumption of peeled tomatoes is approximately 20,000 tons per year. No significant increase or decrease of domestic consumption

TABLE 1

TOTAL MONTHLY CONSUMER EXPENDITURE AND EXPENDITURE FOR PROCESSED VEGETABLES1974

Total consumer expenditure (drs.)		Average monthly expenditure for processed vegetables (drs)
up to	999	-
from	1.000 - 1.999	-
"	2.000 - 2.999	2
"	3.000 - 4.999	1
"	5.000 - 6.999	6
"	7.000 - 9.999	6
"	10.000 -13.999	9
"	14.000 -19.999	10
"	20.000 -29.999	14
more than	30.000	19

Source: Family Budgets Survey (1974).

of tomato paste has been observed during the last decade, while on the contrary a steady increase is observed in the consumption of peeled tomatoes.

The largest part of domestic demand for tomato paste and peeled tomatoes comes from households and not from the food industries, which could be using them as inputs for the production of their own products. This is due to the fact that the per capita consumption of convenience foods in Greece, compared to that of other European countries, with the exception of Italy, is low. For example, indicative figures of per capita convenience food consumption which have been reported for 1978 are the following:

Greece - around 1.7 Kg.

Germany - 7.2 Kg.

Denmark - 6.0 Kg.

France - 6.6 Kg. and

England - 8.1 Kg.

This above fact also explains to a certain degree, the stagnation observed in the consumption of tomato paste in Greece. The increased demand for processed tomato products created every year, either because of population growth or because of generally increased consumer expenditure, comes exclusively from households, which primarily direct it toward peeled tomatoes and not tomato paste. That is, in the domestic market there appears to be a tendency for substitution between tomato paste and peeled tomatoes, in favor of the latter. Despite however these tendencies, further emphasis on substitution of this type should not be expected in the future. On the contrary, it is expected that demand for tomato paste will be kept at relatively stable levels, particularly among the low-income classes.

Possibilities for a considerable increase of domestic demand for tomato paste could only be created if the greek market for convenience foods is further developed. This, however, is a prospect which cannot as yet be considered effective, even on a medium-term basis.

The outlook for domestic demand for tomato paste and peeled tomatoes is that future increases will be slow, and they will be rather restricted to following the population growth rate.

### 1.2.2 Canned vegetables

Domestic market for canned vegetables is considered to be very restricted. Table 2 provides some indicative figures.

Although per capita consumption is already very low, the absorption rate of canned vegetables by the domestic market constantly decreases. For example, while in Germany per capita consumption in 1978 reached 13.9 Kg. in France and Holland 16.2 Kg. and approximately the same level in the other Western European countries, the respective consumption in Greece for the same period was as low as 0.26 Kg.

The main reason for this low consumption of canned vegetables is the traditionally developed production of fresh vegetables which are available in the greek market throughout the year. The consumer on the other hand, is used to buying "fresh", in contrast to the consumer in other European countries, where scarcity of fresh vegetables during the various seasons of the year is compensated by increased consumption of canned or frozen ones.

The drop in domestic consumption of canned vegetables may also be attributed to the increase observed in the consumption of frozen vegetables, taking of course into account that the two products are regarded as close substitutes. For example, in 1978 per capita consumption of canned vegetables in Greece reached 0.26 Kg., while consumption of frozen ones 0.28 Kg. Thus, total consumption of preserved (canned and frozen) products reached 0.54 Kg. It is worth noting that, six years earlier, total per capita consumption was again 0.54 Kg., but concerned consumption of canned vegetables only.

The gradual change in relative prices between canned and frozen vegetables observed in recent years will probably continue favouring frozen vegetables. The opinion that this will be a basic determining factor of the degree of substitution is expressed, given the fact that the size of the total domestic market for each type of preserved vegetable will, in all probability, show no spectacular change. The basic outlook for the relative position of the various products is that competition will result in favor of frozen vegetables.

TABLE 2

Domestic consumption of canned vegetables, 1972-1979

Year	Tonnes	Per capita consumption (kgr)
1972	4.800	0.53
1973	4.800	0.53
1974	4.800	0.53
1975	3.800	0.42
1976	3.615	0.40
1977	3.000	0.33
1978	2.400	0.26
1979	2.250	0.25

Source: NSSG Calculations.

### 1.3 Quality of products

The basic factors determining the quality of canned vegetables are:

- a) the quality of available raw materials and
- b) the availability of efficient mechanical equipment and trained personnel, especially in the quality control stage.

#### 1.3.1 The quality of greek tomato paste

Conditions prevailing in transportation and packaging of fresh tomatoes and the rate at which the processing plant is able to absorb fresh tomatoes reaching it, constitute factors usually causing qualitative degrading of the end product.

There do not seem to exist substantial possibilities for the improvement of the raw material per se. There are however, possibilities for improving the quality of raw material reaching the factories. A possible development in this direction would be the cultivation of special varieties of greater endurance during transportation and of better colour. Another problem in the field of quality is many companies' inability to produce tomato paste of a consistent and predetermined degree of concentration. Their inability is in most cases due to the lack of suitable mechanical equipment and trained quality-control personnel.

#### 1.3.2 The quality of Greek canned vegetables

For processed vegetables the quality of the raw material is also the most important factor for the quality of the final product. It is noted that in Greece the cultivation of "industrial" varieties of vegetables is nonexistent.

### 1.4 Production of Canned Vegetables in Greece

#### 1.4.1 Factors influencing production of processed tomato products and vegetables

Supply of fresh tomatoes (quantities available, price) constitute one of the two basic factors influencing total production of processed products. Another factor is the development of domestic demand for processed products.

The operation of the branch during its early development phase was crucially dependant on the relatively abundant supply of low-priced fresh raw material. Later, its substantial exports possibilities created the forces which pushed toward the adaptation of the primary production to the demands of the processing industry. We have thus reached the point where production of processed tomato products does not depend on total fresh tomato production, but only on the level of production of tomato for industrial use.

The fact, however, that the production of fresh tomatoes frequently in the past resulted in excess supply, created problems and Greek Governments were forced to intervene by setting quantitative restriction on the level of annual production of fresh tomatoes for industrial use. Obviously, by imposing quotas on the raw material production, the Government in effect imposed quotas on the production of processed goods. This explains the fact that the annual production of processed products hardly exceeds a certain fixed amount.

Production of other processed vegetables depends on the development of domestic demand and, therefore, as long as the greek market remains small, the production of canned vegetables will itself remain restricted.

#### 1.4.2 Tomato paste production

As can be seen in Table 3, greek production of tomato paste between the years 1966 and 1979, showed a continuous and marked increase. The explanation lies in the development of exports, since 90% of production is exported. In 1975 Greece held third position in the international production of tomato paste, following the United States and Italy.

The outlook for the development of the production of tomato paste in Greece is based on forecasts for the development of external demand, since the domestic market absorbs a small percentage of the production only, while, at the same time, no substantial change is expected in its absorption capacity.

Greece's accession to the EEC is expected to have a favorable impact on the production of greek tomato paste. Until 1976, the European market was the major importer of greek tomato paste, while in the following few years its place was taken by Africa and the Arab countries. Upon Greece's accession to the EEC, greek tomato paste is expected to regain its lost



TABLE 3

Greek production of tomato paste, 1966-1979 (thous. ton.)

1966	1970	1972	1973	1974	1975	1976	1977	1978*	1979*
14.6	47.6	42.0	89.5	127.5	108.0	51.0	95.0	172.0	180.0

Source: Ministry of Agriculture.

\* It is probable that 1978-1979 Data overestimate actual production level, because they refer to gross weight of production.

TABLE 4

Greek production of peeled tomatoes, 1966-1979 (thous. tonnes)

1966	1970	1972	1973	1974	1975	1976	1977	1978	1979
2.6	7.6	8.2	14.5	23.8	10.8	10.9	25.0	25.0	30.0

Source: Ministry of Agriculture.

ground in that specific market, while maintaining the markets won over during the last three years.

#### 1.4.3 Peeled tomatoes production

Table 4 shows the production of peeled tomatoes in Greece. During the 1966-1974 period a continuous increase in production can be observed. This is mainly attributed to the development of domestic demand and the increase in exports which reached 6.5 thousand tons in 1974, compared to 2.5 thousand tons in 1971.

Since 1976, domestic demand for peeled tomatoes is on the increase, resulting during the last three years in the stabilization of production at relatively high levels (25-30.000 tons p.a.).

However, the small as yet participation of greek peeled tomato production in total tomato products production is pointed out.

The outlook for greek peeled tomato production is rather favorable. It is expected that substitution in the domestic market of peeled tomatoes for tomato paste will continue, as population and incomes increase, while the development of foreign demand will also be affected by the development of transportation costs and the improvement of quality.

#### 1.4.4 Canned vegetables production

In recent years, greek canned vegetables production has followed a decreasing tendency. Table 5 below illustrates the development of greek canned vegetable production during the past decade.

The decreasing tendency noted in Table 5 is due to the fact that production primarily depends on the development of domestic demand. The appearance of frozen vegetables in the greek market was accompanied by a considerable increase of their market share combined with a respective reduction of the market share occupied by canned vegetables.

The outlook for greek processed vegetable production does not appear to be particularly optimistic. The substitution in the domestic market in favor of frozen vegetables is expected to continue, while the interest of canning industries has already been shifted to the production of other products.

Certain possibilities would be created, if the greek processed vegetable industry turns toward the production of canned vegetables which are, by their nature, hard to freeze (e.g. asparagus, green and red peppers). Furthermore, the opinion is expressed that if these products are packaged in glass instead of tin containers, foreign demand will be stronger and exports possibilities would therefore improve.

TABLE 5

Greek production of canned vegetables, 1970-1979 (thous. tonnes)

Product	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Peas	4.2	2.5	1.4	2.9	3.8	1.8	0.8	:	:	:
Beans	3.1	2.8	2.2	2.1	2.4	0.9	1.1	:	:	:
Okra	3.7	3.4	4.7	4.7	2.9	1.8	0.9	:	:	:
Asparagus	-	-	-	-	0.05	0.04	0.1	:	:	:
Other vegetables	1.7	2.0	0.5	2.1	1.0	0.5	1.5	:	:	:
Total	12.7	10.7	7.1	11.8	10.1	5.0	4.3	5.4	6.8	5.5

Source: Ministry of Agriculture.

## 2. EXPORTS OF GREEK PROCESSED TOMATO PRODUCTS AND CANNED VEGETABLES

### 2.1 Distribution of Processed Tomato Products Abroad

#### 2.1.1 Exports of tomato paste and peeled tomatoes

The greatest part of greek tomato paste production and 25-30% of peeled tomato production is exported. Table 6 presents exports of greek processed tomato products for the period 1972-1980.

It is noted that tomato paste exports increase constantly and that the increase in total exports is primarily due to exports of greek tomato paste to non-EEC markets. On the other hand, a reduction in imports from Greece was noted in Community markets.

In contrast to the situation for tomato paste, exports of peeled tomatoes are maintained at rather low levels, given the fact that competition faced in foreign markets from products of competitor countries (Italy-Spain) makes market penetration by newly appeared products very difficult.

#### 2.1.2 Destination of greek processed tomato products exports

The EEC and the Arab countries are the major customers for greek tomato paste.

Among the EEC countries, the most important buyer of greek tomato paste is the United Kingdom, followed by the Netherlands and W. Germany.

Among the Arab countries of the Middle East, Iraq and Saudi Arabia have been, for the past few years, the main buyers of greek tomato paste, while the main customer among the African countries is Libya, followed, at a considerable distance, by Sudan, Algeria and Zaire.

Until 1974 exports of greek tomato paste to the Community accounted for 75% of total exports. From 1975 onward, the Community absorbs smaller quantities, while greek exports to the African countries constantly increase.

In relation to the morphology of the markets to which greek tomato paste is primarily directed, the following are mentioned: The European market is generally characterized as a market of particularly high quality standards. European customers insist on receiving tomato paste of the exact and predetermined degree of concentration. The German market presents a

TABLE 6

Exports of greek processed tomato products (thous. tonnes)

Product	1972	1973	1974	1975	1976	1977	1978	1979	Jan.-July 1980
Tomato paste	59.6	62.2	62.6	76.1	100.2	89.3	83.3	103.1	59.3
Peeled tomatoes	4.9	6.5	6.5	9.1	5.6	4.6	5.7	8.0	1.6
% production exported (to- mato paste)	141.9	70	49	70	196	93	50	57	..
% production exported (pee- led tomatoes)	59	44	27	84	51	18	23	26	..

Source: Ministry of Agriculture - NSSG.

certain peculiarity since it may be considered as consisting of two separate markets (of high and of low or medium quality), with the income level of consumers in each category constituting the differentiating factor.

On the other hand, the Middle Eastern countries and Libya do not have any particular quality standards. The tomato paste exported to these markets is packaged in small tin containers of 100 gr., 150 gr. and 500 gr., which could be defined as "of one use". This preference toward small packages is a consequence of the lack in these markets of adequate refrigeration facilities suitable for the preservation of tomato paste.

Greek peeled tomatoes are mainly exported to France and Germany, but in small quantities.

### 2.1.3 Competition in foreign markets

The main tomato paste-exporting countries worldwide are Italy, Greece, and Portugal, and, to a lesser extent, France, Turkey, Spain, Bulgaria, Romania and others. These countries share among themselves the three basic international markets for tomato paste (EEC, the Arab countries and Africa).

In 1973, the three markets mentioned above imported a total of approximately 400 thousand tons of tomato paste, while in 1979 their imports are estimated to have reached approximately 650 thousand tons. Furthermore, total available quantity for exporting by the producing countries is estimated to have been of the order of 750-800 thousand tons.

In the European market competitiveness of tomato paste depends on its quality, along with its price. As far as the EEC market is concerned one must however also mention the effect on relative competitiveness exercised by the Community's Common Agricultural Policy, especially of its provisions concerning prices, costs and subsidies to Community producers.

More specifically, it is noted that the Community's tomato paste has been subsidised to a significant degree. The subsidy resulted in over-compensating community producers' production cost disadvantage vis-a-vis third countries. Distribution of EEC tomato paste is therefore done at prices lower than those of the competitor countries. The decrease in

production of tomato paste in Portugal and Spain, and the loss of part of the Community market for Greece, are almost exclusively due to this unequal conditions of competition in favour of French and Italian producers created by this Community subsidies system.

In the Middle Eastern and African markets competition is exclusively based on price and the marketed tomato paste is of rather low quality. In these markets also, Italian producers retain a comparatively advantageous position.

#### 2.1.4 Outlook for greek exports of processed tomato products

Greece's accession to the EEC creates favorable conditions for the development of exports of greek processed tomato products. The granting of subsidies by the Community to the production of processed tomato products as of 1.1.81, is expected to favorably affect the competitiveness of greek products, since the until recently prevailing low competitiveness was due to the rather low, by Community standards, national subsidy granted to greek producers.

The regaining of the Community market in a relatively short period of time, must be considered as a rather easy goal for Greek processed tomato products.

At the same time, possibilities for the promotion of Greek tomato paste in the markets of the Arab world and of various African countries are improving.

It is estimated that total greek tomato paste exports for the two year period 1981-1982, will show an increase of the order of 30%, which will be followed by a stabilization at the higher level of 130 thousand tons.

On the other hand, it is more difficult to forecast potentials for greek peeled tomatoes exports. The outlook however seems to be rather unfavorable, given the fact that the Community market has already been penetrated by well positioned Italian and Spanish similar products.



## 2.2 Distribution of Greek Canned Vegetables Abroad

### 2.2.1 Canned vegetable exports

Table 7 presents greek processed vegetables exports by country of destination.

Exports during the seven-year period 1972-1978 were maintained at rather constant levels (c. 3.5 thousand tons).

The EEC is the main buyer and absorbs over 50% of greek exports. Among the EEC countries, West Germany absorbs the largest percentage. Exports to Germany primarily concern processed vegetables characterized by their "greekness". For exactly the same reason, certain quantities of processed "greek" vegetables are also absorbed by the United States.

### 2.2.2 Outlook for greek canned vegetable exports

Assuming unchanged product-mix, the situation is not expected to change drastically upon Greece's entrance to the Community. It is estimated that further quality improvement combined <sup>with</sup> additional reductions in production and distribution costs is a combination very difficult to be achieved. It is expected however that the foreign markets to which greek products are distributed today will be maintained, without however any foreseeable spectacular change.

If presently available product-mix changes, it is possible that prospects for exports will be greatly improved.

TABLE 7

Greek exports of canned vegetables by country of destination (thous. tonnes)

Destination	1972		1973		1974		1975		1976		1977		1978	
	quant.	%	quant.	%	quant.	%	quant.	%	quant.	%	quant.	%	quant.	%
EEC	2.4	66.7	2.0	66.7	2.4	57.1	1.6	48.5	2.4	53.3	1.6	61.5	2.6	60.5
/W. GERMANY/	/1.8/		/1.4/		/1.5/		/1.0/		/1.4/		/1.2/		/1.4/	
ARAB COUNTRIES	0.05	1.3	-	-	0.3	7.2	0.6	18.2	0.8	17.8	0.3	11.5	0.6	14.0
U.S.A.	0.5	13.9	0.5	16.6	0.5	11.9	0.4	12.1	0.4	8.9	0.1	3.8	0.4	9.3
OTHER	0.6	18.1	0.5	16.7	1.0	23.8	0.7	21.2	0.9	20.0	0.6	23.2	0.7	16.2
TOTAL	3.6	100.0	3.0	100	4.2	100	3.3	100	4.5	100.0	2.6	100.0	4.3	100.0

Source: NSSG - Ministry of Agriculture

### 3. PRODUCTIVE CAPACITY IN THE GREEK TOMATO PASTE AND CANNED VEGETABLES INDUSTRIES

The strongly seasonal character of the factories' operation constitutes the basic reason for the observed low degree of specialization. This does not of course, mean that enterprises specialized in the production of only one product are completely absent from the branch. The percentage however of production plants characterised by differentiated production is significant.

Thus, the analysis of the sector's productive capacity and number of units cannot concern only the tomato paste or the canned fruit industry, but the whole "fruits and vegetables-canning complex".

#### 3.1 Number of companies and plants

Table 8 shows for the period 1970-1979 the development in the number of companies and factories operating in the sector. The number of non-operative enterprises is also shown.

Non-operative fruit and vegetables processing plants are, in general, described as small capacity industrial units which failed to adapt themselves to technological developments.

During the 1970-1979 period, the number of companies and plants increased by 3.7% and 7.19% respectively. This increase is mainly due to the increase of private processing plants.

#### 3.2 Productive Capacity - Rate of Utilization

The increase in capacity for the basic products of the sector (peaches-apricots and tomatoes), between 1970-1979, was greater than the total increase of the sector's capacity.

The increase in the capacity of cooperative canning factories is particularly characteristic. In 1970, 78% of total capacity was concentrated in private canneries and the remaining 22% in cooperative ones. By 1979 these percentages had changed into 73% for private and 27% for cooperative canneries. At the same time, non-operative capacity also increased significantly. It is estimated that the industry's productive potential is utilized at a rate of 60-70%.

TABLE 8

Number of fruits and vegetables processing companies and plants in Greece

Year	Number of companies	Number of plants	Co-operative companies	Co-operative plants	Non-operative companies (plants)
1970	170	177	12	14	10 (10)
1975	188	202	12	14	30 (30)
1979	205	221	13	16	39 (42)

Source: Ministry of Agriculture.

### 3.3 Greek Enterprises' Size

In 1979, according to data provided by the Ministry of Agriculture, there exist:

- 119 "small" companies (i.e. 72% of the total), each with an annual fruit and vegetables processing capacity of up to 10,000 tons of fresh tomatoes and 2,000 tons for other fresh fruit and vegetables.
- 24 "medium" companies (i.e. 14% of the total), each with an annual capacity for the processing of fresh fruit and vegetables of up to 35,000 tons for tomatoes and 4,000 tons for the other fruit and vegetables, and
- 23 "large" companies (i.e. 14% of the total), each with an annual capacity of over 35,000 tons of fresh tomatoes and 4,000 for other vegetables and fruit.

The industry's ten largest enterprises (ranked by sales) are presented in the following Table 9.

### 3.4 New investment in the sector

Despite the large number of enterprises already in operation and the relatively large established capacity, new units are continuously being created, given the fact that the high subsidy rate provided to producers render the operation of even marginal units relatively profitable. At the same time, foreign companies are expressing some interest for investing in the Greek sector.

Table 10 presents a picture of investment taken place in industry during the three-year period 1977-1979.

For the next few years, however, there will be an explicit state intervention as far as new investment in the sector is concerned. The Ministry of Agriculture has already prepared a Sectoral Program for Fresh and Processed Vegetables, according to which, for the 1981-1984 period only nine new processing plants of a total raw material processing capacity of 234,000 tons per year, will be allowed to be established. At the same time, twenty-two existing small units are expected to cease operation. Therefore, net increase

TABLE 9

## Main fruit and vegetables processing companies in Greece

(thous. drs.)				
Company Name	Products	Location	Employment	Total Assets
1. SECOVE	Tomato paste Canned fruits	SALONICA	160 - 2.500	1,988,897
2. VECO S.A.	Peeled tomato Canned fruits	ATHENS	100 - 1.200	1,131,152
3. ASTERIS S.A.	Tomato paste	ATHENS	500 - 1.500	1,209,539
4. VITOM S.A.	Tomato paste Canned fruits	SALONICA	60	784,882
5. KYKNOS S.A.	Tomato paste Canned fruits	NAFPLIO	160 - 1.500	732,872
6. KRONOS LTD.	Canned fruits Vegetables	EDESSA	80 - 500	420,966
7. SEVATH S.A.	Tomato paste Canned fruits	XANTHI	170 - 700	1,635,270
8. INTRA S.A.	Tomato paste Canned fruits	ATHENS	40 - 350	375,403
9. LAZOS S.A.	Exports of fresh vegetables-Canned fruits	VERIA	25 - 450	222,245
10. PELARGOS S.A.	Tomato paste Canned fruits	NAFPLIO	80 - 700	377,976

Source: ICAP Directory 1981.

TABLE 10

Investment in fruit and vegetables processing plants 1977-1979 (Drs. Million)

Year	Total investment	Private sector	Cooperatives
1977	395.1	227.3	167.8
1978	559.9	367.8	192.1
1979	1,429.3	863.1	566.2
Total	2,334.3	1,458.2	926.1

Source: Ministry of Agriculture.

of processing capacity is expected to be of the order of 158,000 tons of raw material per annum, while the total number of enterprises will decrease by 13 units.

Modernization of fifty companies will also take place, factories' operation time will increase, the quality of products will be improved, while the number of medium size and large enterprises will increase.

Total investment for the creation of the nine new units mentioned above will reach 2,387 million Drs., while it is estimated that an additional amount of 3,000 million drs. will be required for the expansion and modernization of the existing plants. Especially in the case of the new units their carriers will most probably be cooperatives.



#### 4. THE LEGISLATIVE FRAMEWORK FOR PROCESSED FRUITS AND VEGETABLES

##### 4.1 The Greek Legislative Framework for Processed Fruits and Vegetables

Until 1970, greek manufacturers of processed agricultural products were not entitled to any financial assistance from the Government, neither for exports nor for production.

In 1978, Decision No 1574/22.8.70 of the Currency Committee, introduced the granting of incentives for exports of industrial products (subsidized interest rates).

In 1978, however, and further to the Community's decision concerning the granting of assistance to the production of basic processed agricultural products, the Greek Government also decided to grant similar subsidies to the manufacture of certain products, aiming toward increasing their competitiveness in the international market.

##### 4.2 Treaty of Greece's Accession to the European Community and adjustments of the Greek legislative framework for processed fruits and vegetables to the respective Community framework.

As of January 1, 1981, Greece became a member of the Community. This, does not, of course, imply automatic enforcement of all Community Regulations.

Concerning products derived from tomatoes or peaches processing, it was agreed that the approximation to Community patterns will be effected gradually over a period of seven years (deviating from the general five-year transition period granted for manufactures). Differences existing between Community and national prices, are to be eliminated according to the following timetable:

In the first year, i.e. the commercial year 1980-1981, greek prices would be increased by the Community price increase plus 1/7th of the difference between "base" prices.

For the 2nd year, by 1/6 of the previous year's price difference plus the Community proportionate increase and soon. Finally, in the sixth year

Greek prices will be increased by  $\frac{1}{2}$  of the above mentioned difference plus that particular year's Community price increase. Thus, by the seventh year, Community and national prices will be completely aligned. Article 50 par. 4 of the Treaty of Accession provides for the possibility of certain deviations from these general guidelines for the approximation of prices.

The Community's aid to Greek producers as of January 1, 1981 was defined in such a way as to counterbalance the difference between prices of third country products and respective prices of Greek products. However, this aid does not cover all products covered by national grants. More specifically, all Greek preaccession subsidies considered "incompatible" with the Community Policy will have to be abolished gradually (as is the case for apricots) over a five-year transition period.

IOBE/SECTORAL RESEARCH AND INTELLIGENCE UNIT

TEAM 1: FOOD AND BEVERAGES

CANNED FRUITS

SECTORAL REPORT 1981

## 1. DEMAND FOR AND PRODUCTION OF CANNED FRUITS

### 1.1 Demand

#### 1.1.1 Factors determining demand

The products of the industry are essentially substitutes for the respective fresh fruits. Demand, therefore, for processed fruits is determined by:

- a) those same factors, determining demand for fresh products (consumers, income, eating habits, etc.).
- b) conditions of supply of the respective fresh fruits (availability and price), and
- c) special properties of canned fruits.

A factor determining the terms at which fresh fruits are made available to the market is the seasonal character of their production. In the case of fresh peaches and apricots, for example, their production and respective fresh consumption lasts for only 2-3 months per year, while for the rest of the year demand is channeled toward their processed equivalent. This is also the major reason for which the processed fruits industry has concentrated most of its interest in the processing of "summer" fruits.

The results of a sample survey conducted in 1977 among 400 households in Athens and 400 in Thessaloniki are indicative of the relative importance of the factors mentioned above as determining demand for processed fruits. The study showed, for example, that the largest part of demand for processed fruits comes from high-income households, adult consumers and households with working women. On the other hand, the primary reason for non-consumption was the existence of fresh fruits and, as the questionnaire puts it, "the presence of chemical preservatives in the canned variety", which was suggested by consumers answering the questionnaire as a factor inhibiting consumption.

## 1.2 Canned fruit Production in Greece

The greek production of canned fruits is presented in Table 1. It can be seen from the data in the Table, that the production of canned fruits during the 1970-1973 period has been more than tripled. This increase in production was the result of the successful placing of greek products in the international market, at a time when international agricultural production was suffering a setback. The restoration of international agricultural production levels in 1973 intensified competition and adversely affected distribution possibilities of greek products, leading to the creation of large reserves. Consequently, a reduction in greek production, of approximately 28%, was noted in 1974.

Canned peaches are the industry's major product and, together with apricots, they account, on average, for about 98% of total canned fruits production. The changes, therefore, noted in the size of the industry's total production from year to year, are almost exclusively due to the changes in processed peaches and apricots production. However, it is observed that, while apricots production remained, throughout the 1973-1977 period relatively stable, the respective peaches production was characterized by wide fluctuations.

Factors, which may explain this phenomenon are:

- a) the instability of foreign demand for greek processed peaches, and
- b) the production specialization characterizing canned peaches producers.

Processed apricots, on the other hand, face a rather stable demand. The increase in production observed in 1979 (60,000 tons) is due to the excellent weather conditions prevailing, combined with the fact that all reserves had decreased because of the poor 1978 crop.

TABLE 1

Greek canned fruit production (thous. tonnes)

Year	Peaches	Apricots	Other	Total	Peaches and apricots participation in total canned fruit production
1970	:	:	:	33.5	:
1971	:	:	:	56.0	:
1972	61.0	16.0	7.0	84.0	91.6%
1973	72.0	35.0	12.0	119.0	90.0%
1974	47.0	33.0	6.0	86.0	93.1%
1975	56.0	30.0	9.0	95.0	90.5%
1976	101.4	38.4	7.3	147.1	95.0%
1977	26.5	52.5	9.7	148.7	92.4%
1978	130.0	22.0	13.0	165.0	92.1%
1979	130.0	60.0	15.0	205.0	92.6%

Source: Ministry of Agriculture.

## 2. DISTRIBUTION OF THE GREEK CANNED FRUITS PRODUCTION IN THE DOMESTIC AND INTERNATIONAL MARKET

### 2.1 Distribution of Canned Fruits in the Domestic Market

#### 2.1.1 Size of the domestic market

Domestic consumption of canned fruits is estimated at approximately 11,000 tons annually. Table 2 presents comparative data on the per capita consumption (kilograms per person) in some of the EEC member-countries in 1978.

As it can be seen from Table 2, per capita consumption of canned fruits in Greece and Spain is at significantly lower levels, compared to those in the other EEC countries with the exception of Italy. Low greek consumption is due to the relative good terms at which fresh fruit is supplied. The greek consumer is accustomed to the consumption of fresh fruit and therefore demand for processed fruit depends on rather particular consumption preferences (dietary reasons, preference for a certain fruit during the off season period etc.).

For the next few years no significant enlargement is expected for the domestic market. The only factor which could possibly cause some substitution of fresh fruit by processed ones would be some change of relative prices in favor of processed fruit which, however, is not expected to come about. However, the consumer's tendency to function more rationally, in conjunction with the wider implementation of the five-day working week and the increased number of working women, could possibly lead to a gradual increase in the size of the domestic market.

#### 2.1.2 Marketing of canned fruit in the domestic market

Marketing of canned fruit in the domestic market is characterized by the large number of intermediaries involved in the distribution of the product. The Diagram below illustrates the various channels which canned fruit seem to follow from the canning factory to the consumer.

As it can be seen from this Figure, marketing of processed fruit could follow two alternative channels. The first one, what one could define as the "traditional" channel, consists of two resale phases (two wholesalers). The second, a "more modern" channel, has as its basic element the "company representative", usually established and operating in an urban area as the primary distributor of the company's products. During the past few

TABLE 2

Per capita consumption of canned fruits in EEC (1978)

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Germany	6.5 Kg.
Benelux	6.6 Kg.
Denmark	3.1 Kg.
France	5.3 Kg.
Italy	1.1 Kg.
Netherlands	10.3 Kg.
U.K.	5.0 Kg.
Spain	2.9 Kg.
Greece	1.2 Kg.

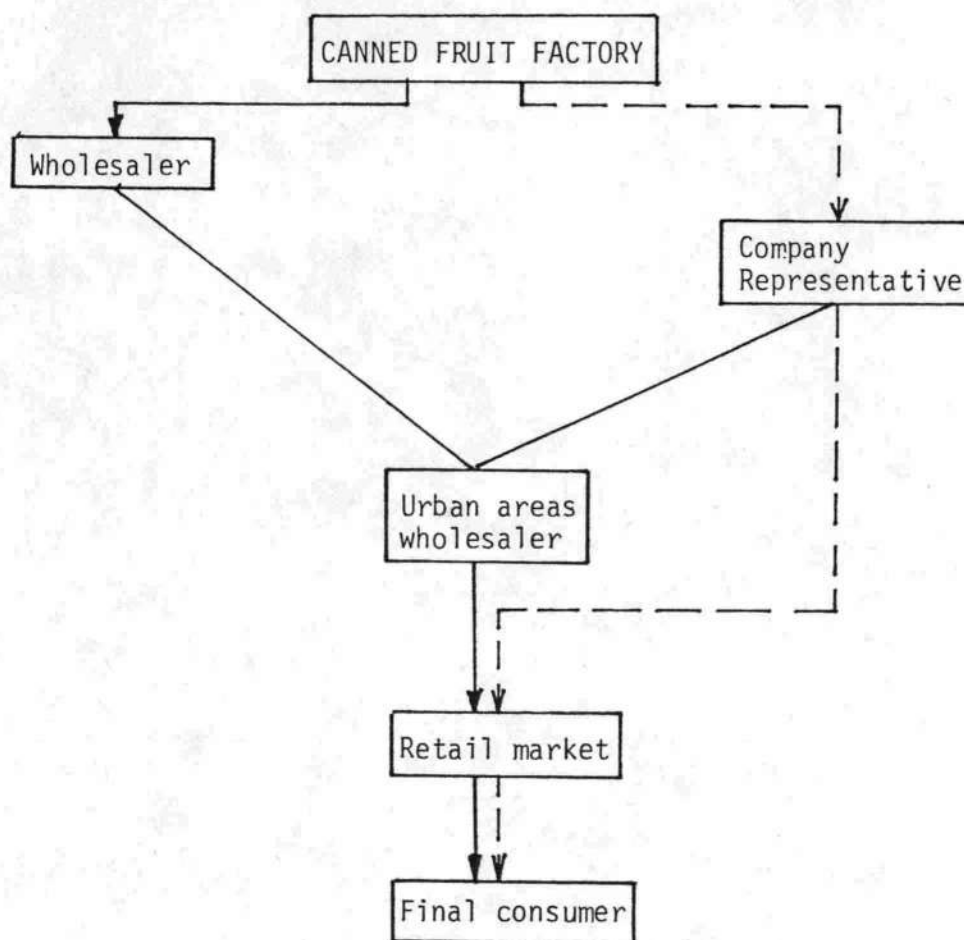
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Source: National Statistics EEC.



DIAGRAM 1

## DISTRIBUTION CHANNELS FOR CANNED FRUITS IN THE GREEK MARKET



\_\_\_\_\_ "Traditional" Channel of distribution.

- - - - - Modern channel of distribution.

years it has also been observed that large retail stores, usually supermarkets, sign direct supply contracts with certain canning industries.

## 2.2 Distribution of Greek canned Fruit abroad.

Table 3 presents the development of greek exports of canned fruits in the eight-year period 1972-1979.

The increase, in exports shown by figures in Table 3, is the result of the development in foreign demand and of the better placement and promotion of greek products in the international market.

From the second part of the same table one may observe the large share of production being exported. This large share confirms the opinion that the development of exports is a determining factor for the height of domestic production of canned fruit.

### 2.2.1 Destination of greek exports of processed fruit

The largest percentage of greek processed fruits exports is directed toward the European market and especially the EEC countries. This percentage range from 94 to 97.5%, depending on the particular year.

The keen competition prevailing in all processed fruits importing countries (Europe, Canada, Japan), forces exporters to charge competitive prices. Greek products, therefore, because of relative high transportation costs, find themselves at a disadvantage in the markets of Canada and Japan. It is for these reasons, that no significant efforts are being made for the promotion of greek canned fruits exports to transatlantic markets. It is estimated, however, that the qualitative improvement of greek products, along with the production subsidy to be granted by the Community, may assist the promotion of greek processed products in these markets also.

The German market absorbs over 60% of greek processed peaches exports directed toward the Community. Processed apricots exports to France are also significant. On the other hand, despite the size of its market, United Kingdom absorbs relatively small amounts of greek processed fruit.

TABLE 3

Exports of canned fruits (thous. tonnes) and share of production exported

Product	1972	1973	1974	1975	1976	1977	1978	1979	1980(Jan.-July)
Canned peaches	:	:	:		82.5	68.8	85.8	94.9	38.1
Canned apricots	:	:	:	:	37.0	29.2	30.4	37.5	15.2
Total exports of canned fruits	64.7	82.5	70.5	108.4	128.4	102.1	133.8	152.5	57.6
% of production of canned peaches exported	:	:	:		82	79	67	73	:
% of production of canned apri- cots exported	:	:	:	:	96	52	137	63	:
% of total can- ned fruits pro- duction exported	77	70	82	114	87	69	82	75	:

Source: Ministry of Agriculture - NSSG.

### 2.2.2 Competition in the international market for canned fruits.

Greece's major competitors in the canned fruits industry are primarily Australia and South Africa, and, to a lesser extent, the United States, Italy and Spain. For reasons explained earlier in this Report, the area in which most of the competition between Greek canned fruit and other countries' similar products takes place is the EEC market. Table 4 presents recent data on the Community's processed fruit imports from Greece, Australia, South Africa and the United States.

Greece's most important competitor in the EEC markets is South Africa, followed by Australia.

Product quality is the most important factor determining the type of competition. With the exception of Germany, all other European markets are very demanding on the quality of canned fruits.

Greek products attempt to penetrate international market with a combination of high quality and low price. The effort of greek canning industries to reduce their excessive reserves has led them to supplying their products at prices substantially lower than those of their competitors.

It must also be mentioned that both the greek and the Community's production of processed fruit is being subsidised to a high degree. Therefore, sales prices of greek (and Community) products are de facto lower than the respective prices of non-EEC countries.

Greek exports, as a rule, are promoted through an importer who undertakes, usually at a 3-4% commission rate, to promote the products of one canning industry in a certain market. Certain companies have signed contracts for the production of products on a FAÇON basis. HEINZ, UNILEVER, LIBBY'S, the Japanese MITSUI, ICI and DEL MONTE are some of the companies, which cooperate with greek producers.

TABLE 4

Imports of canned fruits in EEC (thous. tonnes)

Country of origin	1975	1976	1977	1978	1979
Greece	103.6	120.3	82.2	101.8	88.1
U.S.A.	:	18.2	20.5	38.7	17.0
Australia	:	72.8	34.8	47.6	59.5
South Africa	134.2	154.0	142.2	118.6	137.4
Total	:	365.3	279.7	306.7	302.0

Source: National Statistics.

IOBE/SECTORAL RESEARCH AND INTELLIGENCE UNIT

TEAM 1: FOOD AND BEVERAGES

FROZEN VEGETABLES

SECTORAL REPORT 1981

## 1. FACTORS DETERMINING DEMAND FOR FROZEN VEGETABLES AND THE SITUATION PREVAILING IN THE GREEK MARKET

### 1.1 Factors determining demand

Independently of the general factors, such as income, population growth etc., determining demand for consumer products, demand for frozen vegetables is also affected by considerations closely related to social rather than economic phenomena. Such factors are, for example, the decrease in women's free time, the need for easy and quick meals preparation, as well as various other developments leading to the necessity for food preservation.

#### 1.1.1 Seasonal character of the supply of fresh vegetables-competition with canned vegetables

Availability or short supply of fresh vegetables is, generally speaking, the most important factor influencing the demand for all kinds of vegetables.

The derivative question which is created is about the relative advantages associated with various methods of vegetables processing and in particular with freezing or canning. The question can be answered either in quality or in production cost terms.

As far as production cost is concerned and the argument that freezing of vegetables requires more energy than canning, it has been shown that such differences are minimal.

As far as quality is concerned, various studies have concluded in favor of frozen vegetables (comparisons have been conducted with canned and dehydrated vegetables).

#### 1.1.2 Quality and variety of frozen vegetables as a factor affecting demand

Apart from the quality of the raw material, other important factors in the formation of the final quality of frozen vegetables are:

- a) the production process employed.
- b) the extent to which various specifications concerning transportation of products are being met.
- c) the availability of suitable in form and numbers storage facilities in households, also affects the formation of a market for frozen products.
- d) the available variety of frozen vegetables and therefore the extent to which consumer's preferences for vegetables in general can also be met by purchasing frozen ones.

## 1.2 The Greek Market for Frozen Vegetables

### 1.2.1 Level of Production

The entry of frozen vegetables into the greek market coincides with the beginning of the decade of the '70s. Table 1 shows the development of greek frozen vegetables production for the 1970-1980 period.

The development of greek frozen vegetable production was slow until 1977. From 1978 onward, as a result of better marketing of the products, a great increase is observed. Domestic demand is essentially the only determining factor of <sup>the</sup> level of production, given the fact that exports are insignificant.

A second factor influencing the size of greek frozen vegetables production is the supply of fresh product, which constitutes the raw material for the industry. It is observed that manufacturers face qualitative and quantitative problems in securing raw material.

From the aspect of variety of types of products, available in the market, supply consists of about 20 kinds of vegetables. The basic product of the Greek sector are peas. The participation of frozen peas in total frozen vegetables production is approximately 45-50%. Second in importance is okra, which accounts for about 30% of total production, while a third product is green beans. The above three products account for 90% of total frozen vegetables production. In any case, the greek industry covers the whole spectrum of freezeable products, independently of the fact that production of some of these is insignificant.



TABLE 1Greek frozen vegetables production (tonnes)

<u>Years</u>	<u>Tonnes</u>
1970	320
1971	755
1972	1,148
1973	1,545
1974	1,564
1975	1,901
1976	3,350
1977	3,006
1978	6,746
1979	8,095
1980	10,500

Source: Up to 1978: NSSG.  
For 1979-1980: SRIU estimations.

### 1.2.2 Domestic consumption

Data on imports, exports and apparent consumption of frozen vegetables in Greece are presented in Table 2.

Although per capita consumption steadily increases, it still remains at relatively low levels compared to frozen vegetables consumption in other European countries.

Exports and imports have also remained at low levels.

### 1.2.3 Characteristics of the Greek market as factors determining demand and production of frozen vegetables

Competition between fresh and frozen vegetables is quite intensive, particularly during the period from April through August. Competition between canned and frozen vegetables during the past few years seems to have turned out in favor of frozen vegetables.

A factor which has so far delayed the extensive market penetration by frozen vegetables was their low quality during the first few years of the industry's development. This low quality was due to technological deficiencies and the producers' failure to apply the specifications required during transportation of products. In recent years the improvement in quality of greek products was the major factor which led to the increase in consumption (at least as far as the "household market" is concerned).

Institutional catering in Greece absorbs approximately 40% of total frozen vegetables production, while the remaining 60% is absorbed by the household market. Catering consumption comes primarily from hotels, hospitals etc., while the fast food restaurant business is not as yet adequately developed in Greece. The consumption of frozen foods in factory canteens is minimal, if not nonexistent.

The greek household market is also characterized by behavioural peculiarities inhibiting the increase in consumption of frozen vegetables. The lack of satisfactory freezing-storage space in retail stores is, on the other hand, considered as the most serious problem, which is directly related to the relatively small number of large and fully organized supermarkets.

TABLE 2

Domestic consumption of frozen vegetables

Years	Imports (tonnes)	Exports (tonnes)	Apparent consumption (per capita) in Kg.
1972	145	17	0.18
1973	355	147	0.21
1974	627	133	0.24
1975	468	35	0.27
1976	545	301	0.41
1977	550	148	0.40
1978	580	71	0.82
1979	500	-	0.97
1980	500	-	1.20

Source: Ministry of Agriculture - NSSG - SRIU estimations.

Summarizing the conclusions of the analysis of greek market conditions, we again note that the relatively low consumption of frozen vegetables in Greece is, for the time being, attributed to the following factors:

- a) the greek market is characterized by relative abundance of fresh vegetables for the largest part of the year.
- b) the quality of greek frozen vegetables had not, until recently, reached the point where it could effectively compete with fresh ones.
- c) the greek consumer is not accustomed to eating "pre-cooked" meals during the day, and
- d) the lack of freezing facilities in both retail stores and households, refrains the consumer from buying frozen foods in general.

## 2. DISTRIBUTION OF FROZEN VEGETABLES IN THE GREEK MARKET

### 2.1 Marketing of Frozen Vegetables

The greatest part of domestic frozen vegetable consumption is concentrated in the two major urban centers: Athens and Thessaloniki. Apart from urbanization, which in itself is a factor for increased consumption, Athens and Thessaloniki also have suitable commercial infrastructure for the supply of their markets with frozen vegetables, i.e. a sufficiently large part of retail shops is equipped with suitable freezing facilities.

Problems faced by the frozen vegetable trade in general are:

- a) lack of suitable freezing space. The volume allocated to frozen vegetables is relatively small. Space allocation is estimated to be on average  $1 \text{ m}^3$  per distribution outlet, while in other countries it approximates  $8 \text{ m}^3$ .
- b) In Athens and Thessaloniki, where products are delivered to retail shops by manufacturers, frozen vegetables are transported in relatively good condition, at least until they reach the retailer's store. Frequently, however, due to shortage of time or hands, frozen vegetables remain unattended at the spot where they were left by the transporter, for a certain length of time, which results in partial defrosting and a respective reduction in quality.
- c) In rural Greece, the manufacturer's sales agents, uses the same storing rooms for storage of all kinds of frozen products (vegetables, meat, fish etc.). A certain migration of smell is inevitable and therefore, quality and attractiveness to consumer is seriously affected.

### 2.2 Frozen Vegetables Retail Prices

Table 3 presents a series of indicative frozen vegetables retail prices.

A difference of approximately 10% is observed between prices in selfservice shops and supermarkets. The prices of respective canned vegetables observed in the same retail outlets were slightly higher. (Date of investigation: March 1981)

Concerning the catering market, prices, compared to retail ones, should be lower by 20-25%.

TABLE 3

## Frozen vegetables prices in Athens (March 1981)

	SUPER-HYPER MARKETS			SELF SERVICE		
	BARBA STATHIS	KARAVASSILIS DIMITROPOULOS	KARELLAS	BARBA STATHIS	KARAVASSILIS DIMITROPOULOS	KARELLAS
<u>FROZEN</u>						
Peas 450 gr.	43 drs.	48 drs.	--	52 drs.	54 drs.	--
Peas 750 gr.	--	--	78 drs.	--	--	84 drs.
Green beans 450 gr.	39 drs.	38 drs.	--	42 drs.	42 drs.	--
Green beans 750 gr.	--	--	70 drs.	--	--	77 drs.
Okra 450 gr.	58 drs.	59 drs.	--	68 drs.	70 drs.	--
Okra 750 gr.	--	--	88 drs.	--	--	93 drs.

### 2.3 Competition in the Greek Market Enterprises' Market Shares

The distribution of frozen vegetables is primarily carried out under own "brand name".

Most of the enterprises in the industry have developed some geographical specialization.

The major companies in the industry are the following:

- EVIE A. MICHAELIDIS S.A. (BARBASTATHIS)
- KARAVASSILIS I. - P. DIMITROPOULOS S.A.
- COLD STORAGE OF GREECE S.A. (KARELLAS)

as well as two cooperatives (SEKOVE and UNION of Northern Greece Agricultural Cooperatives).

Based on information on each company's productive capacity and on various other estimations, the market shares of the major enterprises in the sector are estimated at approximately the following levels:

	<u>Shares in the Greek Market</u>	<u>Shares in the Athens Market</u>
EVIE MICHAELIDIS S.A.	57%	52%
COLD STORAGE OF GREECE S.A.	17%	23%
KARAVASSILIS-DIMITROPOULOS S.A.	9%	16%
OTHER COMPANIES	17%	9%

Competition between the various companies is focused in securing the exclusive supply of retail shops. Many supermarkets or self-service stores stock only one or at most two manufacturers' products. Competition is conducted through the furnishing of refrigeration units to retail shops by the manufacturer, for exclusive storage of his own products.

### 3. FROZEN VEGETABLES PRODUCTIVE CAPACITY AND MARKET OUTLOOK

#### 3.1 Established Units

At present, there are over ten frozen vegetables producing units in operation. Two of them are cooperatives and the rest private ones. Almost all units are located in Thessaly and Northern Greece.

Total established productive capacity is estimated to reach 22 tons per hour, which definitely covers domestic demand. The established capacity is able of producing, during the plants' operation (210 days per year), 37,000 tons on frozen products. This quantity is substantially larger than the present absorption rate of the greek market, which is estimated at 11,000 tons.

The rate at which domestic market for frozen vegetables has been expanding in the last few years, has induced many new small firms to enter the industry. However, it was observed that, while older units maintained their market share, new units face serious production as well as marketing problems which force them to retain a rather marginal role.

Concerning size, most of the units have two or three fruits and vegetables preparation lines and a freezing tunnel. Their mechanical equipment is relatively modern. The largest plant in the industry is EVIE MICHAELIDIS S.A., which has three freezing tunnels with an annual capacity of 14,000 tons and satisfactory storage space. The other units do not show any significant differences among themselves from the point of view of size.

#### 3.2 The Outlook for the Greek Frozen Vegetables Market

Per capita consumption of frozen vegetables in other Western European countries is as follows: Switzerland 2.3 Kg., Belgium 3.3 Kg., France 2.3 Kg., Denmark 5.1 Kg., England 5 Kg., Italy 1.5 Kg. It is estimated that the greek market for frozen vegetables will continue to increase at a rate of at least 15% per year, until per capita consumption reaches, in the next three or four years, approximately 2 Kg. or a total of 20,000 tons. Beyond this point the increase will be relatively slow (estimated around 5-8% annually). The increase in the greek market will be primarily a result of an increase in the household market, while the form in which the catering market is today functioning in Greece offers small possibilities only.



In relation to the development of domestic production, it is expected that it will increase at a significantly slower rate than the market and that producers' main concern will be to increase their equipment utilization rate, improve the product's quality and successfully compete against foreign products, which might be attracted to the Greek market.