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Consumption of Mediterranean fruit and vegetables: Outlook and policy implications

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Résumé. Consommation des fruits et légumes méditerranéens, perspectives et implications politiques. *Développements récents et tendances des cultures méditerranéennes principales du point de vue de la consommation, demande, offre et caractéristiques du commerce des fruits et légumes méditerranéens, développements principaux du marché des oranges, des tangerines, des citrons, des tomates et des pêches.*

La dernière partie résume les tendances émergentes du marché des produits horticoles méditerranéens et les conséquences pour les producteurs méditerranéens : nécessité de l'accroissement de la capacité de transformation, services améliorés de marketing, collaboration étroite et coopération entre les producteurs méditerranéens, restructuration des cultures horticoles et recherche intensive de marchés nouveaux.

Abstract. Recent trends and developments for major Mediterranean commodities are presented. They cover: consumption, demand, supply, and trade of Mediterranean fruit and vegetables; major developments in the orange, tangerine, lemon, tomato, and peach sectors.

Emerging trends in the markets for Mediterranean horticultural products are reviewed. The implications for growers include: need to increase processing capacity, improvement of marketing services, close collaboration and cooperation between Mediterranean growers, restructuring of horticultural crops, and intensive search for new markets.

Key words. Fruit – Vegetables – Consumption – Agricultural policy.

Introduction

Horticulture is a major agricultural activity in all countries along the southern and northern shores of the Mediterranean. It constitutes a significant proportion of total agricultural production and a primary source of income for farmers. Furthermore, fruit and vegetables are widely exported by many Mediterranean countries and thus provide an important source of foreign exchange earnings.

A factor of paramount importance for developments in the world market of horticultural products, particularly Mediterranean fruit and vegetables, is the European Community (EC). The EC is the single largest importer of fresh fruit and vegetables in the "free trade" world, accounting for about 60% of total world imports (Bale, 1986). It is evident therefore, that policies of the European Economic Community (EEC) on fruit and vegetables are of great consequence for world production and trade patterns of horticultural products.

Two issues emerge from a large number of recent studies on the economics of Mediterranean fruit and vegetables (McNitt, 1983; Minerbi, 1983; Bergman, 1984; Sarris, 1984; Woehlken, 1984; Maddock 1985 Barcelo and Fernandez-Cavada, 1987). The first issue refers to the fact that some major producers of Mediterranean fruit and vegetables do not belong to the EC—all southern Mediterranean countries, the United States, Latin America, and Australia—and do not benefit from the advantages offered by the common agricultural policy (CAP) to its members. Consequently, these producers are forced to operate at a competitive disadvantage in the most important market of the world for fruit and vegetables. The second issue refers to the southern enlargement of the EC that started in 1981 with the accession of Greece, which was followed by Spain and Portugal in 1986. These three countries—Spain and Greece in particular—are major producers of Mediterranean fruit and vegetables. These developments are expected to have serious implications for all non-EC exporting countries. The seemingly unlimited EC

market has already started showing signs of rapid saturation and the struggle for safeguarding traditional market shares is becoming very keen. The economic consequences for the less developed countries of the Mediterranean south with their rapidly increasing balance of payments deficits are predicted to be at least serious (Lauret, 1989).

The pressure on EC producers is also increasing. In order to cope with the problem of over-production, recent CAP measures aim at restricting the Mediterranean agricultural potential. Mediterranean producers are confronted with price reductions and income deterioration. The total number of agricultural holdings is decreasing and total cropped area is shrinking; pressure is mounting to depress returns to agricultural labor. Rural exodus, which has been devastating large areas of the Mediterranean basin, is expected to soar.

The objective of this paper is to review recent developments and trends of major Mediterranean horticultural crops, with emphasis on consumption. The paper is divided into three parts. In the first part we outline the major characteristics of demand, supply, and trade of Mediterranean fruit and vegetables. The impact of socioeconomic changes on the composition of the European fruit and vegetable basket is also outlined. The second part presents major developments in the markets for citrus fruit (orange, tangerine, lemon), tomato, and peach. The final part summarizes emerging trends in the market for Mediterranean horticultural products and attempts to set forth policy implications for Mediterranean producers.

I. – General overview

Fruit and vegetables exhibit substantial heterogeneity with regard to demand, supply, and trade characteristics. Nevertheless, certain general facts are valid for the vast majority of Mediterranean fruit and vegetables.

1. Demand characteristics

• Most fruit and vegetables exhibit higher income elasticities than that for overall food consumption. This implies that as income rises, the share of fruit and vegetables within the food budget also rises. The overall demand for fruit and vegetables is, however, income inelastic despite the relatively high share of fruit and vegetables in the food budget. Further increases in per capita available income will result in less than proportional increases in per capita consumption.

The demand for traditional fruit and vegetables is also price inelastic. This implies that price changes lead to less than proportional changes in quantities consumed. Conversely, small changes in supply prompt large price changes.

A noticeable exception are the categories of exotic fruit (e.g., kiwifruit, avocado, mango, etc.), and organic fruit and vegetables (Werner and Alvensleben, 1984). These categories exhibit elastic demand with respect to price and income. Small price changes lead to large changes in the quantity demanded and, therefore, in farmers' income.

In addition, near-zero growth rates are recorded for the consumer populations in the most important markets for fruit and vegetables. The demand for traditional Mediterranean fruit and vegetables by the traditional consumers of these products is therefore not expected to change appreciably in the coming years.

• Consumer preferences are shifting toward processed, semi-prepared, and ready-to-eat fruit and vegetables. Empirical evidence suggests that most of the increase in consumption of fruit and vegetables observed over the past 2 decades is due to higher consumption of processed products. In the United

States, for example, per capita consumption of vegetables has remained constant since 1960 but processed vegetable consumption has increased by 25%. The same pattern also appears in citrus fruit consumption (Shepherd and Futrell, 1982).

The reasons behind the increasing consumption of processed fruit and vegetables lie in the new life style brought about by the prevailing urban-industrial model of development. The multinationalization process has had a considerable influence on consumption and has accelerated the modification of eating habits of the population. The increased female labor force and aging population in major markets; loosening of the strict, traditional family structure; growth of urban centers; increased value attached by contemporary societies to time: these are all phenomena which have led to a change in eating habits (McIntosh, 1977; Hoos, 1979; Demoussis, 1981; Cannata, 1982). The demand for convenient processed, prepared, and frozen food items with low-time cost components has really soared. The return to fresh and untreated fruit and vegetables by health-conscious consumers (Werner and Alvensleben, 1984), cannot apparently reverse the trend toward processed food items which, if anything, is expected to increase further.

• Despite the constant state of per capita consumption of fruit and vegetables in the most important markets, the marketing business is thriving. Two reasons appear to explain this important development. First, during the past 2 decades high internal migration and concentration in urban centers have increased the demand for marketing services (Shepherd and Futrell, 1982). The fresh fruit and vegetables markets in urban centers are expanding rapidly. In France, over 30% of fresh fruit and vegetables are sold in big retail stores in urban centers compared with 20% in England, where the percentage is still rising. The second reason is linked to changing consumer tastes. Consumers today demand higher quality and fresher fruit and vegetables. There is a rapidly growing demand for new varieties that can be stored for longer periods in better conditions than in the past and can be transported more easily. Standardization for more efficient quality control also seems to be important. This demand has raised the market margin for fresh and processed fruit and vegetables to record highs. In the United States, for example, the market margin for oranges is 70% and for lettuce, close to 90% (Shepherd and Futrell, 1982).

2. Production characteristics

• Fruit and vegetable production is characterized by a strong seasonal dimension at local level, leading to substantial price fluctuations and income instability during the marketing period. Quality and appearance of the produce also vary substantially.

• Horticultural production exhibits price-elastic supply responses. A small increase in price can result in huge production increases.

Horticultural produce is perishable, which makes transport and storage extremely difficult and costly.

These are the chief reasons behind the low customs rates provided by national and CAP measures to fruit and vegetables (Bergman, 1984). The argument is that price supports for most fruit and vegetables will bring about within a very short time—1 or 2 years—large production increases. If prices were allowed to fall to accommodate the increased supply, fruit and vegetables that exhibit inelastic demand would record a reduction in income. Thus, the argument goes, fruit and vegetables with inelastic demand should not be supported. If, on the other hand, the demand is elastic, a drop in prices caused by increased supply will be followed by a more than proportional increase in the quantity demanded and an increase in total revenues. Consequently, fruit and vegetables with elastic demand need not be supported (Bergman, 1984).

Recent technological innovations have led to the development of new varieties that are resistant and easier to transport. The marketing period has been extended by restructuring the crop mix in many Mediterranean countries. Agricultural holdings have grown in size although their number has decreased. Production has reached new highs. Specialization has emerged at the regional and international levels.

Over the past 2 decades extensive capital investments have been made in innovative technology (e.g., for glasshouse crops) in northwestern Europe, particularly in The Netherlands (McIntosh, 1977; Cannata, 1982). At the same time, production of processed vegetables has shifted southward where the labor costs are lower. A high degree of expansion, production concentration, and vertical integration is observed in the processing of fruit and vegetables, with deep-freezing emerging as the most dynamic subsector.

A relatively recent development in the production of Mediterranean fruit and vegetables is the control gained by a small number of buyers and processors over a substantial segment of the market (Lauret, 1989). They promote production on the basis of "transferred management" contracts (Chern, 1976). With their sound monopsonistic practices, they are in a position to dictate produce prices; to control the means of production; and to impose specific production methods, techniques, and even schedules (Cannata, 1982). In some instances yields rose by as much as 50% bringing substantial benefits to the companies that impose such practices (McIntosh, 1977).

Mediterranean horticulturists lack the know-how developed by the rich industrial countries, which channel vast amounts of resources into agricultural production. This makes them more vulnerable to multinational control and the lack of strong agricultural cooperative organizations in the Mediterranean basin only increases the risk (McIntosh, 1977).

3. Trade issues

As the EC is the most important market for Mediterranean fruit and vegetables, the trade flows of these products are largely determined by EEC trading policies (McNitt, 1983; Sarris, 1984; Woehlken, 1984; Hinton, 1985; Pomfret, 1986; McMahon, 1988).

The EEC has established special trade agreements, dating back to 1972, with most countries of the Mediterranean basin. These agreements refer mainly to significant tariff reductions, up to 80% of the common external tariff. They are applied to Mediterranean agricultural products, including fruit and vegetables, olive oil, and wine from non-EC Mediterranean countries entering the EC markets. A detailed study of the tariff structure is presented by Wolhken (1984).

In recognition of the dominant role of Greece, Portugal, and particularly Spain, in Mediterranean fruit and vegetable trade and of the importance of these products to the economic and social stability of non-EC Mediterranean countries, the Commission of the European Communities has wished to maintain and enforce trade agreements with non-EC Mediterranean countries (Maddock, 1985; Barcelo and Fernandez-Cavada, 1987).

The stated objective of both EC and non-EC Mediterranean countries is to ensure, through tariff differentiation and manipulation, that the trade shares of horticultural products from non-EC countries remain unaffected by the southern enlargement of the Community (Barcelo, 1987).This objective is based on the assumption that relative competitiveness can be achieved and maintained through tariff manipulation alone, whereas it is widely accepted that other factors such as marketing services and processing ability are equally important (Barcelo, 1987).

The specialization of Mediterranean countries in horticultural products has necessarily increased imports of typical northern products such as meat, dairy products, and cereal feeds. Italy and Greece are experiencing negative agricultural trade balances and even Spain is a net importer of agricultural products. Egypt's and Algeria's agricultural trade deficits have exceeded US$3 billion (Lauret, 1989).

The Uruguay round of GATT trade talks is expected to include a review of the EEC mechanisms for keeping out agricultural imports from the rest of the world. The possibility that these mechanisms will be abandoned appears very weak at this moment. Nevertheless, increased competition from non-EC, non-Mediterranean countries is a distinct possibility in the near future.

II. – Trends for selected Mediterranean fruit and vegetables

This section reviews production, trade, and consumption trends of some basic Mediterranean fruit and vegetables (orange, tangerine, tomato, and peach).

1. Citrus fruit

A. Production and trade

World production of citrus fruit has been steadily rising for the past 50 years. This upward trend has become steeper since the early 1970s. Current production is up by around 35% compared with the first half of the 1970s. All major producing areas in the world have contributed to this rise. In the Mediterranean region (Greece, Italy, Spain, Israel, Algeria, Morocco, Tunisia, Cyprus, Egypt, Lebanon, and Turkey) production has followed the same general trend, albeit at a slower rate. From approximately 11 million t in 1970, production went up to over 14 million t in 1988. However, the Mediterranean share in world production decreased from 28% to 23% during the same period.

About 40% of total world production of citrus fruit is currently intended for processing. Mediterranean citrus fruit processing accounts for 10% of the world total, which is considered very low since Mediterranean output of fresh produce accounts for more than 20% of world production.

Orange is the most important of all citrus crops on the basis of worldwide production figures. It accounts for 70% of total world production of citrus fruit. Mediterranean orange production has increased by approximately 13% since the early 1970s whereas world production has increased by almost 40%. The opposite is true for small citrus. Mediterranean production has increased by 80% compared with 24% for world production. Spain accounts for most of the increase; its production potential is expected to increase further given the large number of younger trees that have not yet reached their full production capacity. Orange cultivation is currently maintained at a steady level in southern Europe (CEC, 1989b).

The increase since the early 1970s in world lemon production (34%) lags behind that in the Mediterranean region (125%). Spain and Egypt account for most of this increase.

International trade in citrus fruit has increased during the past 15 years due to technological and economic developments. A large part of the production in most citrus-growing areas is export-oriented.

Orange and tangerine are exported by Spain, Morocco, Israel, and the United States; for lemon exports the major countries are Spain, Turkey, Italy, and the United States. The leading importer of citrus, both fresh and processed, is the EC, primarily Germany, France, and the UK. Eastern European countries and Japan are also important importers.

Western Europe received over 80% of total world exports of oranges in the early 1960s. Currently the EC imports 20% of fresh orange and almost 100% of orange juice exports. There has been practically no change in the quantity of fresh produce imported since the mid-1970s. Factors such as varieties, seasonal availability, marketing services, and prices have brought about significant structural changes in imports. Former undisputed exporters (Israel, Republic of South Africa, USA) experienced a sharp decline in their exports (Hunt, 1979).

EC imports of small citrus accounted for just over 10% of total EC consumption. Morocco, the main supplier, has a market share of 60% of total imports. Lemon imports currently cover approximately 4% of total EC requirements. Since the mid-1970s lemon imports into the EC from non-EC countries (mainly Cyprus, Argentina, Republic of South Africa, and Turkey) have been reduced to half following an increase in shipments from Spain.

B. Consumption

Consumption of fresh and processed orange in the EC has gone up from 8.27 million t in 1976 to 12.02 million t in 1987, an impressive increase of almost 50% *(Table 1)*. The Netherlands, Greece, Italy, Spain, and Germany have the highest per capita consumption of citrus fruit *(Table 2)*.

Table 1. Balance sheet for citrus fruit in the 12 EC countries (in '000 t)

	1976			1981			1987		
	O[a]	T[a]	L[a]	O	T	L	O	T	L
Production	4 262	1 096	1 170	4 009	1 206	1 464	4 466	1 543	1 488
Imports									
Fresh	1 018	141	94	920	127	81	891	169	56
Total	4 674	173	344	6 166	143	343	8 502	175	317
Exports									
Fresh	224	101	223	197	92	249	303	133	223
Total	346	101	296	683	92	554	950	133	346
Consumption									
Fresh	4 508	1 131	993	3 962	1 175	858	4 588	1 585	1 076
Total	8 268	1 099	1 466	9 422	1 157	1 738	12 016	1 578	1 647

a. O: Orange, T: Tangerine, L: Lemon

Source: CEC, 1989b

Table 2. Per capita consumption (in kg) of citrus fruit and orange in the 12 EC countries

Country	Citrus fruit		Orange[a]	
	1973/74	1983/84	1973/74	1983/84
Bel./Lux.	18	19	15	16
Denmark	12	9	7	5
Germany	24	27	10	7
Greece	50	64	35	33
Spain	–	35	–	17
France	18	20	11	11
Ireland	10	14	6	11
Italy	35	36	20	21
Netherlands	29	85	26	78
Portugal	–	14	–	10
UK	15	14	10	9
EC-10	24	28	14	16
EC-12	–	28	–	16

a. Including processed fruit

Source: CEC, 1987

While overall consumption increased substantially, consumption of fresh orange and lemon remained unchanged. Thus, the increase is solely due to higher consumption of orange juice, which is supplied exclusively through imports. Tangerine consumption shows a significant upward trend. Imports of fresh produce show very little change, except in the drastic shift away from non-EC suppliers.

Citrus consumption and marketing is becoming more complicated than before. Fresh orange is processed into a wide range of products: canned single strength juices, frozen orange juice concentrate, various types of orange drinks, and mixed fruit drinks. The extraction of orange flavor is a technological innovation; it is used for making various new drinks that are likely to threaten existing ones.

2. Tomato

A. Production and trade

World tomato production almost doubled between 1965 and 1975. Since 1975, however, the rate of increase has declined substantially and is presently approaching zero. The major producing countries include the United States, Italy, Greece, and Spain. Overall EC production increased from 8.6 million t in 1977 to 11.3 million t in 1987. In 1986/87 the combined production of Italy, Spain, and Greece accounted for over 60% of total EC production.

The rise in international trade in tomato is exactly proportional to production increase. Major exporting countries include The Netherlands, Spain, Jordan, Mexico, Morocco, Turkey, and the United States. Germany, France, the UK, and the Soviet Union are major tomato importers. The EC is not only self-sufficient in tomato but has excess production *(Table 3)*.

Table 3. Balance sheet for tomato in the 12 EC countries (in '000 t)

	Fresh 1986/87	**Processed** 1986/87
Production	11 377	5 263
Imports	2 603	6 618
From non-EC countries	778	1 628
Exports	2 458	9 263
To non-EC countries	820	2 211
Consumption	4 845	3 396

Source: Eurostat, 1990

Over 45% of total EC tomato production is intended for processing. Italy is the leading processor and in 1986/87 its production level reached close to 3 million t. Spain and Greece follow at a distance.

The accession of Spain will have a significant impact on all other EC suppliers, especially those from the Mediterranean region (Bale, 1986). Producers of winter tomato will face increased competition from Spain. Morocco in particular will lose market share. It is projected that all non-EC producers will suffer significant price reductions.

B. Consumption

Overall tomato consumption in the EC increased by 7% between 1977 and 1987 *(Table 4)*. However, it is the consumption of fresh tomato that is responsible for this moderate increase since consumption of processed tomato declined by almost 10%. The decline in processed tomato is almost entirely due to the drastic fall in Greek consumption. In contrast, Belgium, France, Ireland, Luxembourg, and The Netherlands substantially increased their consumption levels. The highest increases in fresh tomato consumption are observed in Greece (65%), Denmark (43%), and France (40%).

Table 4. Tomato consumption (in '000 t) in the 12 EC countries

Country	Fresh		Processed	
	1977	1987	1977	1987
Bel./Lux.	107	88	65	159
Denmark	23	33	40	55
Germany	335	388	536	565
Greece	337	556	601	293
Spain	1 005	996	482	542
France	446	627	294	568
Ireland	22	20	10	18
Italy	1 168	1 413	881	898
Netherlands	63	77	137	219
Portugal	152	173	170	156
UK	321	395	494	479
Total	**3 979**	**4 845**	**3 710**	**3 396**

Source: Eurostat, 1990

3. Peach

A. Production and trade

World peach production grew by 13% in the period between 1965 and 1975 and by 20% between 1975 and 1985. Total EC production recorded substantially higher rates of increase. Between 1977 and 1987 fresh peach production increased by almost 45%. Italy is the major EC producer, presently accounting for over 50% of total EC production. The remaining 50% is produced by Spain, Greece, and France. The United States is also a major producer, accounting for more than 20% of world production.

The leading world exporter of peach is Italy (over 50% of total world exports) followed by Greece, the United States, and France. The leading importer of peach is Germany, accounting presently for 40% of world imports. Other major importers include the UK, France, Belgium and Luxembourg, and Canada.

Currently, close to 20% of total EC production is intended for processing (*Table 5*). This represents an increase of almost 400% compared with 1977. Italy and Spain are the major processors of peach in the EC.

Table 5. Balance sheet for peach in the 12 EC countries (in '000 t)

	Fresh 1986/1987	**Processed** 1986/1987
Production	2 892	623
Imports	3 999	1 543
From non-EC countries	444	152
Exports	3 887	1 622
To non-EC countries	442	195
Consumption	1 677	584

Source: Eurostat, 1990

The enlargement of the EC will significantly improve Spain's export position especially in the early season (May–June), while Greece's position will improve in the main and late season (July–September). Italy and France are expected to experience a decline in export shares. The effects on other countries are expected to be small since their exports to the EC are negligible. The introduction of the intervention system in Greece has resulted in a high number of market withdrawals. The same is expected to occur in Spain. Producer prices are expected to decrease further.

B. Consumption

Overall peach consumption in the EC increased by a modest 4% between 1977 and 1987 *(Table 6)*. Fresh peach consumption remained practically unchanged while processed peach consumption increased by almost 80%. It is interesting to note that fresh peach consumption in Greece, France, and Italy fell in contrast to Spain where it more than doubled. Consumption of processed peach increased substantially in Italy, the UK, and Spain.

Table 6. Peach consumption (in '000 t) in the EC countries[a]

Country	Fresh		Processed	
	1977	1987	1977	1987
Bel./Lux.	33	37	11	10
Denmark	7	14	6	4
Germany	234	253	116	72
Greece	149	71	81	32
Spain	136	316	30	126
France	343	279	35	80
Italy	770	554	27	206
Netherlands	23	28	12	15
UK	1 350	1 366	41	96
Total	3 045	2 918	359	614

a. Ireland and Portugal consume marginal quantities

Source: Eurostat, 1990

III. – Summary and policy implications

- Consumption of Mediterranean fruit and vegetables in the EC is not expected to increase as fast as in the past for two reasons: (a) EC population growth is presently very low and is not expected to increase in the foreseeable future, and (b) income growth, while positive, is projected to be much slower than that experienced in the previous decades. But, even if this projection is wrong and income rises as fast as or faster than before, the income elasticity of demand for fruit and vegetables is relatively low and decreases further as income continues to rise. This consumption outlook applies more to fresh produce than to processed products.

- As more women enter the work force and as consumers place high value on their time, it is reasonable to assume that consumption of processed convenience fruit and vegetables, particularly frozen, is expected to increase further and faster. The growing number of freezers and microwave ovens in European households also points to that direction. The market for exotic fruit (kiwifruit, mango, avocado) also shows signs of great vigor.

- The worldwide trend toward overproduction is observed for most Mediterranean fruit and vegetables, particularly citrus fruit. The widening gap between consumption and production is expected to depress prices paid to growers (particularly non-EC suppliers), whose income will be reduced.

- The gradual lifting of trade barriers between Spain and the EC is expected to further strengthen Spain's competitive position in production and marketing of Mediterranean fruit and vegetables at the expense of other EC and non-EC Mediterranean producers.

- The 12 EC countries are rapidly reaching very high levels of self-sufficiency in Mediterranean fruit and vegetables. "Should EC achieve supply levels in excess of domestic needs it can be expected they will become aggressive exporters. EC's suppliers may face new and intensified competition in non-European markets" (Martin, 1985).

Given the above developments in and outlook for the Mediterranean fruit and vegetable industry what are the likely implications for major Mediterranean producers?

- Emphasis should be placed on the processing of fresh fruit and vegetables. The monopsonistic position that multinational companies have started to gain in the Mediterranean basin and their impact on prices received by growers could be weakened and controlled through cooperative organization of production and processing.

- There is no doubt that price differentials play a major role in determining trade flows. However, marketing services are also important. Consumers in the markets of interest to Mediterranean suppliers should be offered high-quality produce in all aspects. Exports of Spanish fruit and vegetables would have risen even if Spain had not become an EC member (Sarris, 1984; Barcelo and Fernandez-Cavada, 1987).

- Close collaboration and cooperation are required among producer and exporting countries around the Mediterranean (Pisani, 1982) to ensure: implementation of mutually beneficial research programs (development of new varieties through genetic engineering; promotion of new, more efficient production techniques; improvement of processing and packaging technology), establishment of quality standards for exports, development of a distribution structure to control all stages of marketing, coordination of data collection to identify market requirements, advertising and promotion.

- Mediterranean countries with the appropriate climatic conditions should take advantage of the expected though timid growth in the demand for exotic subtropical fruit and organically grown produce or out-of-season produce. These products exhibit high price elasticity because consumers are willing to absorb larger quantities as prices decline with the expansion in production capacity.

- The search for new outlets for Mediterranean products should be pursued more intensively. The differences in per capita consumption of fruit and vegetables among EC countries with similar living standards indicate "ample opportunity for increasing consumer demand" (Islam, 1990). The potential for exports to developing countries should be explored; in these countries rapid population and income growth would ensure high income elasticity for horticultural products. Eastern Europe and eastern Germany, in particular, offer potential outlets for Mediterranean products. Political and economic developments are most likely to determine the outcome. Finally, Japan and the fast developing countries of the Far East also represent promising potential export markets.

Technological improvements in agricultural production combined with price (and income) inelastic demand have a depressive effect on prices paid to growers and their income. This universal fact has caused farm populations to shrink in all developed and developing countries over the past 30 years. Mediterranean growers also suffer from yield uncertainty and price instability and will not escape this reality. The traditional family smallholding in the Mediterranean basin is under increasing pressure. The effectiveness with which large capitalist firms organize and control all stages of production, processing, and marketing of Mediterranean fruit and vegetables may be considered contrary to policies that take into account the welfare of Mediterranean smallholders and the need for integrated socioeconomic development in rural areas.

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