



Project no. **SSPE-CT-2004-502457**

Project acronym : : **EU-MED AGPOL**

Project full name :  
**Impacts of agricultural trade liberalization between the EU  
and Mediterranean countries**

**Instrument type : Specific Targeted Project**

**Priority name : 8.1 Policy-oriented research**

**Deliverable D21  
Mediterranean Production and Export Potential for Fruit, Vegetables, Olive Oil**

Due date of deliverable: May 2006  
Actual submission date: October 2006

Start date of project: 01 March 2004

Duration: 36 months

**Organisation name of lead contractor for this deliverable :**  
CIHEAM-IAM Montpellier

<b>Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)</b>		
<b>Dissemination Level</b>		
<b>PU</b>	Public	PU
<b>PP</b>	Restricted to other programme participants (including the Commission	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

**Wallace TYNER**  
Purdue University, USA

## Table of Contents

Expert Opinion Analysis .....	4
Approach rationale .....	4
General approach.....	5
Similarities and differences among country approaches .....	5
Products studied and liberalization scenarios .....	6
Country Summaries .....	8
Egypt .....	9
Israel .....	12
Morocco .....	15
Tunisia.....	17
Turkey .....	20
Summary of Results.....	25

## List of Figures

Figure 1: Project Overview.....	3
Figure 2: Distribution of Answers Regarding Problems with Turkish Exports .....	23
Figure 3: Distribution of Proposed Solutions to Turkish Export Problems.....	24

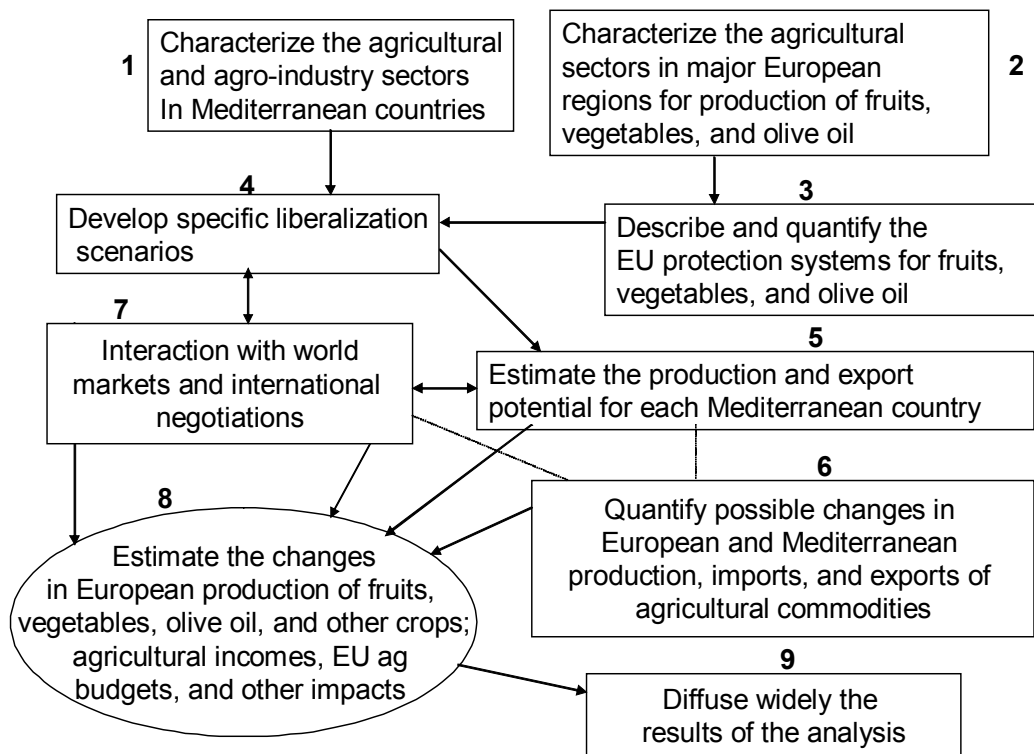
## List of Tables

Table 1: List of Products Selected and EU % in Med country exports (2004-1000\$).....	7
Table 2: Annual Growth Rate of EU Imports of Studied Products from Egypt Compared to EU total, 1992-2003 .....	9
Table 3: Egyptian Expert Panel Export Increase Estimates Under Partial and Total Liberalization.....	11
Table 4: Israeli Vegetable Production Data – 2004.....	13
Table 5: Israeli Fruit Production Data, 2004.....	14
Table 6: Delphi Analysis Results for Israel.....	15
Table 7: Turkish Exports of Fresh Fruits & Vegetables, 2002-2004.....	21
Table 8: Turkish Exports of Fresh Fruits and Vegetables by Destinations.....	22
Table 9: Effects of Trade Liberalization Scenarios on the Total Exports of Turkey .....	25
Table 10: Current and Possible Future Mediterranean Exports of Fruits and Vegetables (tons and %).....	26
Table 11: Possible Tonnage and Percentage Increase in Exports for the Five Mediterranean Countries Under Partial and Total Liberalization.....	27
Table 12: EU and Mediterranean Trade and Production Statistics .....	0

## SUMMARY OF EXPERT OPINION ANALYSES IN THE FIVE MEDITERRANEAN COUNTRIES

Work package 5 in this project consists of estimating the production and export potential to the European Union for fruits, vegetables, and olive oil for each of our five Mediterranean countries: Egypt, Israel, Morocco, Tunisia, and Turkey. Figure 1 illustrates how WP5 is integrated into the rest of the project. The liberalization scenarios developed in WP4 are used in WP5 to estimate the potential increase in Mediterranean exports to the EU based on obtaining expert opinion of the potential.

**Figure 1: Project Overview**



This document (D21) provides a summary of the expert opinion analysis conducted in the five countries. Being a summary, it obviously cannot convey the richness and detail of the individual country reports, which are as follows:

- D16 Moroccan Production and Export Potential for Fruits, Vegetables, and Processed Foods – An Expert Panel Analysis
- D17 Turkish Production and Export Potential for Fruits, Vegetables, Olive Oil, and Processed Foods – An Expert Panel Analysis

- D18 Tunisian Production and Export Potential for Olive Oil – Expert Panel Analysis
- D19 Egyptian Production and Export Potential for Fruit and Vegetables – An Expert Panel Analysis
- D20 Effects of EU Liberalization Scenarios on Israel-EU Trade in Agricultural Products – Israeli Production and Export Potential for Fruits and Vegetables: Expert Panel Analysis Using the Delphi Technique

All of these reports are available on the project Web site, <http://eumed-agpol.iamm.fr>, and this report draws upon these reports.

### **Expert Opinion Analysis**

This section provides the rationale for use of expert opinion in this research, a description of the general approach, an overview of the similarities and differences among the five countries in the approaches finally adopted, and a description of the liberalization scenarios and products chosen for each of the five countries (D15 – Alternative Liberalization Scenarios for EU – Mediterranean Country Trade).

#### Approach rationale

It would be very difficult, if not impossible, for any modeling approach to reliably estimate the impacts of prospective policy changes regarding fruits and vegetables. Quantitative models are best when the products are relatively homogeneous, when the policy instruments are straight-forward, and when the envisioned changes are not large. None of those conditions exist for fruits and vegetables, so it would not be wise to use such techniques for this impact estimation.

Thus, given the huge problems obtaining estimates of future export potential under trade liberalization from quantitative modeling approaches, we determined that a better route would be to obtain expert opinion on what could be the future increases in Mediterranean country exports under alternative trade liberalization scenarios. Our original ideas were to use the pure Delphi approach to obtain this expert opinion, and that approach was used pretty much as planned in two of the five countries. In two of the other countries a somewhat modified Delphi approach was used, and standard expert interviews were used in the other country. The changes were made to obtain the expert opinion in the manner deemed most appropriate for each country. In some cases, logistics played an important role in the final approach, and in others, the factors were different. But the main point is that one approach or another was used in each case to obtain expert opinion on the future increases in exports with EU trade liberalization.

## General approach

The starting point for the work in this work package was the results from WP1, the characterization of the fruit, vegetable, and olive oil sectors in the Mediterranean countries. Based in part on that work, we selected the most important fruit and vegetable products for each major exporting country. We prepared questionnaires appropriate for the precise method being used in each country and assembled expert panels and asked them to provide their assessment of the future production and export potential of major fruits, vegetables, and olive oil under alternative liberalization scenarios.

The production and export potential generally was estimated for a medium term horizon of ten years or less. This analysis was focused on the five countries that account for about 95 percent of the EU imports from Mediterranean countries of fruits, vegetables, processed fruits and vegetables, and oils: Turkey, Morocco, Tunisia, Israel, and Egypt. For olive oil, the only countries with significant exports to the EU are Tunisia and Turkey. Our olive oil analysis focused on Tunisia. For Egypt, Morocco, Turkey, and Israel, the expert panels covered both fruits and vegetables.

The Delphi and interview approaches yielded more information than originally planned. The researchers in most of the countries decided to conduct SWOT (Strengths, Weaknesses, Opportunities, and Threats) analyses in addition to the estimation of export potential. These analyses, again based on expert opinion, provided a rich assessment of the major constraints and opportunities in the key fruit, vegetable, and olive oil sectors in each country. In a sense, this information provides a description of the policy or technical barriers that must be overcome before the export potential can be realized in each country.

## Similarities and differences among country approaches

Something approaching the pure Delphi method was used in Israel and Tunisia. In Israel, the method used two rounds of questions to obtain good estimates of expected increases in exports under the chosen liberalization scenarios. In Tunisia, two rounds also were used, but in addition to the estimations of export potential, a SWOT analysis also was conducted. The results of this analysis provide a good description of the major issues faced by the olive oil sector in Tunisia.

In Morocco, expert interviews were used. For each of the selected product groups, four general topics were covered:

- SWOT analysis
- Factors determining market access
- Obstacles that must be overcome

- Future perspectives

There were eight participants in the interviews in Morocco (a relatively low number).

In Egypt and Turkey a somewhat modified Delphi approach was used, a bit different in each country. Turkey had a panel of 23 experts from the public and private sectors. Egypt had a much smaller panel of 8 experts, half public and half private. In both cases, major constraints for export increases were identified.

#### Products studied and liberalization scenarios

For analytical purposes, two scenarios in addition to a reference one have been considered in this research: a total liberalization scenario which is probably not politically feasible in the foreseeable future but which may provide a useful benchmark, and a partial liberalization scenario. Specifying the latter has been fraught with many difficulties because, first, defining general guidelines to be used is not obvious and straight-forward and, secondly and more importantly, because to be meaningful such a partial liberalization must be both country and product-specific. Indeed, the long history of trade relationships and negotiations between the EEC, and then the EU, with other Mediterranean countries and the diversity and complexity of product-specific border measures, as discussed in the D14 report, impose such a level of detail. In addition, the experts to be consulted and who are to use the scenarios, as discussed above, are familiar with the existing border measures, which are country and product specific.

**Table 1** provides the list of products which have been selected for study in the five countries where expert consultations were held. This selection is based upon the following criteria:

- 1) relative importance of a given product in the total exports of a country to the EU
- 2) potential competition with domestic production in the EU

Within these criteria, several products, however, were ignored: those products benefiting from a TRQ but for which the volume of exports is less than the allowed quota {ex. Moroccan oranges for which exports are only 72% of the TRQ or potatoes (40%) or products which benefit from a preferential access to the European market but for which exports are small (ex. table grapes from Morocco).

**Table 1: List of Products Selected and EU % in Med country exports (2004-1000\$)**

Country	CN	Product	Total export	EU
Egypt	70200	Tomatoes	1 642	37%
	70190	Potatoes	67 200	73%
	70310	Onions	36 526	74%
	70820	String Beans	4 656	85%
	80510	Oranges	76 900	25%
	81010	Strawberries	2 134	37%
	80610	Table grapes	11 424	87%
	80710	Melons	2 779	48%
Morocco	80520	Clementines	149 000	44%
	70200	Tomatoes	113 000	87%
	70820	String beans	69 903	99%
		Courgette	(*)	(*)
	81010	Strawberries	25 251	95%
	80710	Melon	26 341	99%
Israel	70200	Tomatoes	47 433	84%
	70960	Sweet Peppers	42	100%
	70190	Potatoes	90 512	92%
	81010	Strawberries	10 565	98%
	80610	Table grapes	13 694	98%
Tunisia	150910	Olive oil	568 778	92%
Turkey	80520	Clementines	95 600	19%
	70200	Tomatoes	109 500	17%
	80610	Table grapes	81 800	37%
	80550	Lemons and limes	99 200	68%
	70310	Onions	10 347	14%
	70190	Potatoes	14 535	36%
	80710	Melons	9 256	59%
	80920	Cherries	118 408	96%
	70700	Cucumbers	12 667	46%
	80810	Apples	9 950	3%

Source : Comtrade  
 (\*) Unavailable



For each product in each country, current EU protection instruments are provided in the D15 report. For each product, assumptions were made on how it could evolve under a partial liberalization scenario, bearing in mind the Commission's current frame of mind on Euro/Med liberalization, as expressed in the 'road-map'<sup>1</sup>. EU protection can take the form of import windows, quotas, minimum import prices, and tariffs, most often entailing some combination of these instruments. Some degree of arbitrariness is necessarily involved in the formulation of these liberalization assumptions. However, in order to achieve some measure of consistency, the following principles were used:

- When the major instrument is a quota, we checked to see if actual country exports were greater than or less than twice the quota. If actual exports are more than twice the quota, the partial liberalization assumption for that country and commodity is an expansion of the quota to 1.5 times the current level of exports. If actual exports are less than twice the quota, the liberalization assumption is to double the quota.
- If it appears that the binding export constraint was the length of the import window, we added one month to each side of the import window for the partial liberalization scenario for that country and product.
- If it appeared that the most important barrier is the minimum import price, we lowered the minimum import price by 25 percent for that product and country.
- If the major export impediment appeared to be a tariff or a tariff in certain periods, we either eliminated the tariff or reduced it by 50 percent, whichever seemed more reasonable for that product and country.

The specific partial liberalization scenarios for each product and country, based upon these criteria, are provided in the D15 report.

## Country Summaries

For each of the country assessments, we will provide in this summary a brief overview of the current situation (if that was covered in the country report), diagnostic analyses (SWOT or otherwise), quantitative results regarding expert opinion on export increases, and any general conclusions reached in the analysis.

---

<sup>1</sup> "Within the framework of strengthening the Barcelona process, the Euro-Mediterranean foreign ministers have asked the Commission to draw up, at senior level, a roadmap for the process of liberalizing agricultural trade. In this connection, one of the conclusions of the foreign ministers at The Hague (November 2004), following the Dublin Declaration (May 2004) and the conclusions of the Venice conference of agriculture ministers (November 2003), was that: *"the strategy for accelerating the liberalization of trade in agriculture has begun to be addressed through a meeting at senior expert level, with a view to Ministers agreeing later on measures for reciprocal agricultural trade liberalization within a package – containing a specific roadmap – including trade in processed agricultural products and non-trade aspects (rural development, quality policy, etc.)"*.

## Egypt

Annual growth rates of EU imports of studied commodities from Egypt and in total for the period 1992-2004 are presented in Table 2. Egypt's exports of potatoes have been flat over this period, and Egypt's share has declined as total EU imports have grown modestly over this period. For oranges, EU imports from Egypt grew at 7.4% in value, which is higher than growth rate of EU total imports (4.2% in value). For the other commodities, growth rates of EU imports from Egypt have been much higher, between 13-46 percent in value terms, even in comparison with EU total imports of each commodity.

**Table 2: Annual Growth Rate of EU Imports of Studied Products from Egypt Compared to EU total, 1992-2003**

Crops	Egypt		EU Total	
	Value	Quantity	Value	Quantity
Orange	7.4%	3.3%	4.2%	1.4%
Strawberries	32.2%	33.8%	4.4%	5.2%
Onions	17.0%	15.9%	5.8%	2.8%
Table grapes	35.0%	35.6%	9.2%	6.5%
Melons	20.4%	25.5%	6.4%	0.6%
Tomatoes	46.1%	42.6%	6.8%	4.0%
Potatoes	0.0%	-0.3%	3.4%	3.1%
Green beans	13.4%	10.3%	8.4%	8.4%

The principal constraints to continued development of Egypt's emerging non-traditional export sector relate to delivered product cost and quality. With total supply from Egypt and other countries increasing and Egypt increasing its market shares, delivered (CIF) costs are becoming a significant issue. Increased supply and importer quality requirements also increase the need to produce and deliver product that meets buyer specifications. Many of the quality and cost issues are impacted by GOE policies, regulations, and actions.

Quality constraints include the lack of adequate post harvest facilities, including cooling/packing sheds, refrigerated transport, and cold storage. Large growers/exporters are establishing their own facilities and acquiring refrigerated trucks. The availability of refrigerated containers has increased significantly in recent years and regulations have been changed to facilitate their use and movement at Alexandria port. A new cold store facility is being constructed at Cairo International Airport. However, increasing production and export volumes will require more investment in support facilities. Particular challenges will be faced in extending these facilities to medium and smallholder growing areas.

The transportation issue goes beyond the relatively simple acquisition of additional refrigerated trucks. Egyptian law does not permit efficient use of non-Egyptian trucks, thereby increasing the cost and availability of refrigerated

transportation. Roads are often rough, slowing down the speed and/or reducing the quality of shipments.

Other quality factors include product variety and pesticide issues. Most horticulture crop seeds and planting materials are imported. GOE time requirements for the registration of new varieties, while recently improved, still prevent rapid adoption of improved varieties by growers. Most horticulture crop seeds compete with other suppliers with less time-consuming registration requirements, GOE requirements can be further changed to benefit growers and exporters without harm to Egyptian agriculture.

The pesticide issue is of very immediate concern given the EU's decisions in 2002 specifying by name the chemicals that are acceptable for use on fresh fruits and vegetables consumed in the EU. The GOE's recent adoption of a "fast-track" system, allowing approval of chemicals without proper documentation has moved it away from earlier protocols that brought its regulation of pesticides more in line with international standards. It is especially worrisome that the "fast track" approval system, may result in use of products that do not meet EU standards. Should imports from Egypt be found in violation of EU regulations, further imports will be endangered until producers come into compliance.

One of the largest problem facing exporters is the lack of good agricultural, practices and post-harvest handling. In this regard, F and V exports to EU should comply with the EUREPGAP standards which in turn demand skilled labor. However, as the expert panel indicated, the F&V sector suffers from a lack of skilled labor needed to apply good agricultural practices for larger production scales.

In addition to the low quality produce resulting from poor cultural practices, these practices also impose a significant cost to the exporter. The major cost areas are lack of mechanization, poor growing practices, poor harvesting and poor-harvest techniques. Soil preparation is done very poorly and therefore the crops suffer in quality and yield.

To sum up, Egyptian exporters of fruits and vegetables in general and the studied products in particular, still face serious constraints on increasing sales in EU markets. Domestically, the countries include: low-quality domestic inputs, backward cultural practices, cumbersome duty-drawback and admission regimes, excessive paperwork, fees and delays for customs and various inspections during export and import, workers that are poorly prepared for the jobs available; insufficient incentives to export and a lack of access to information on foreign markets and product standards.

Protection measures also play a significant role in constraining Egypt's exports of fruits and vegetables to EU, particularly the studied products. Relaxing the quota or window measures for the studied products would result in increasing exports of these products to EU. Evidence on that could be seen either from the expert panel opinion or from data of exports for 2004, as the first year of EUEPA enforcement under which some protection measures (quota, entry price, window and tariffs) have partially been liberalized.

Technical barrier-related measures applied by the EU also affect Egyptian exports to the EU. Following the establishment of the EU single market EU-wide standards were raised in 1998 to protect the Union's southern members, which essentially meant that exporters for fruits and vegetables faced higher standards overall. Two particular cases have been experienced. Egypt's orange exports have been prevented in Italy because of infection of white fly. The second case is the restriction of the export of "baby" potatoes because of brown rot disease. Egypt has taken certain technical regulations and specifications prepared in consultation with the EU to avoid export penalties.

Table 3 provides a summary of the possible export increases envisioned by the Egypt expert panel. With the exception of strawberries, rather substantial export increases are foreseen under partial (51-120%) or total (82-230%) liberalization.

**Table 3: Egyptian Expert Panel Export Increase Estimates Under Partial and Total Liberalization**

Product	Current	Partial	Total	% incr P	% incr T
Tomatoes	909	2,000	3,000	120%	230%
Potatoes	206,202	450,000	540,000	118%	162%
Melons	1,192	2,000	3,000	68%	152%
Strawberries	3,887	5,500	5,500	41%	41%
Onions	20,234	42,500	42,500	110%	110%
Oranges	66,055	100,000	120,000	51%	82%
Grapes	17,157	32,594	34,314	90%	100%
green beans	28,098	45,000	56,000	60%	99%

The EU – Egypt Partnership Agreement (EU EPA) came into effect in 2004 with partial liberalization of agricultural trade between the two parties. Shifting from the old preferences to the EUEPA has implied significant improvement in market access for Egypt's exports of the studied products to EU markets, either through enlargement of zero-tariff quotas or extending the windows or reducing tariffs and entry prices. Data available for actual exports in 2004 shows that Egypt's exports of most of fruit and vegetable products have responded positively to improvement of EU market access within the context of EUEPA. The Delphi results indicate that Egypt's export potential of the studied products would respond in a significant manner to higher levels of liberalizations.

## Israel

Vegetable output has increased quite significantly between 2002 and 2005 (with a 5% increase between 2004 and 2005). This is mostly due to growing demand for export associated with the growing healthier food awareness. Production of potatoes and melons increased over time, but for different reasons. Potatoes are grown in the Negev (the southern, arid part of Israel) where land is abundant (so its opportunity cost is low), the desert climate enables out of season production, and the new potatoes varieties are not water intensive. These new varieties are of high demand in Europe, particularly in France and the UK. Most importantly, the previously uncultivated areas in the Negev allow for organic production. The combination of new varieties, low water consumption, technology oriented production, virgin land suitable for organic products, and favorable climatic conditions all act to support a successful crop.

Melons, grown mainly in the Arava valley, located at the southern most tip of the Negev, where in high demand during the 1980's but lost their glitter recently for a variety of reasons. Tomatoes and peppers are grown all over the country, but a large share of the export of these crops is grown in the Arava valley.

Table 4 indicates that the share of export is larger in the vegetable group relative to the agricultural sector as a whole, and the share of vegetables for industrial processing is smaller.

**Table 4: Israeli Vegetable Production Data – 2004**

	Intermediate For produce and other	For export	For local Processing	For local consumption	Total
NIS millions, at current prices(3)					
TOTAL – Agricultural sector	1,659.0	4,101.0	5,341.7	6,408.0	17,509.7
Vegetables, potatoes and melons	49.4	1,348.4	243.7	2,671.3	4,312.8
Percent of quantitative change in relation to previous year					
TOTAL Agricultural sector	9.6	31.1	2.6	4.7	9.3
Vegetables, potatoes and melons	64.1	38.3	10.0	1.6	9.9
Percent of price change in relation to previous year					
TOTAL Agricultural sector	-2.8	-1.2	4.5	-4.6	-0.6
Vegetables, potatoes and melons	27.0	29.5	-3.7	1.5	8.6

The total area used for agricultural production increased during the last five year. The area used for growing peppers, potatoes and tomatoes increased modestly in the last five years and in the last three years it was pretty stable. While the area in fruit orchards has hardly changed between 1990 and 2004, output dropped by 41%. However, production of fruits excluding citrus actually recovered between 2002 and 2004. Table 6 illustrates these trends.

**Table 6: Israeli Fruit Production Data, 2004**

	Intermediate For produce and other	For export	For local manufacturing	For local consumption	Total
NIS millions, at current prices(3)					
TOTAL Agricultural Productions	1,659.0	4,101.0	5,341.7	6,408.0	17,509.7
Citrus	22.0	358.7	82.0	252.5	715.1
Plantations, excluding citrus	285.4	525.3	218.1	1,320.1	2,348.9
Percent of quantitative change in relation to previous year					
TOTAL Agricultural Productions	9.6	31.1	2.6	4.7	9.3
Citrus	10.4	15.4	-22.4	0.8	-1.0
Plantations, excluding citrus	35.0	18.8	52.1	8.7	15.7
Percent of price change in relation to previous year					
TOTAL Agricultural Productions	4.2	7.1	-0.9	-0.3	8.3
Citrus	-18.1	-6.2	-15.1	-24.4	-18.9

The share of fruit exports increased. Production of avocados and persimmons alternate between abundance years and shortage years. The difference between high and low production years is about 50% (20000-22000 tons).

The results of the Delphi analysis are shown in Table 7. For partial liberalization, the projected increases range between 12 and 63 percent. For total liberalization, the increases range between 35 and 154 percent, with grapes being highest and potatoes lowest.



**Table 7: Delphi Analysis Results for Israel**

Product	Current	Partial	Total	% incr P	% incr T
Tomatoes	15,333	21,647	26,000	41%	70%
sweet peppers	40,929	66,789	85,316	63%	108%
Potatoes	224,156	260,500	302,500	16%	35%
Strawberries	3,001	3,353	4,143	12%	38%
Grapes	7,568	10,931	19,250	44%	154%

Another interesting outcome of the Delphi analysis was that the experts were concerned about import increases that could occur as a result of trade liberalization. Also, the experts expected that trade liberalization would result in price declines ranging between 3 and 15 percent.

#### Morocco

The Moroccan analysis consisted of structured with eight experts on the sectors of interest. Of the eight, three were experts on clementines (two government officials and one association official), two were experts on tomatoes, green beans, and courgette (one government and one private), and one each were expert in melons, strawberries, and industrial tomatoes, all private sector. Each of the interviews covered a SWOT analysis, factors determining market access, major obstacles, and future perspectives.

The first product was clementines. The results of the SWOT analysis can be summarized as follows:

- Strengths – Morocco has a real comparative advantage in Clementine production. Other strengths include proximity to the EU market and good marketing organization.
- Weaknesses – The major weakness is insufficiency of production. One aspect of that is the yield, which is currently 18 t/ha but should be around 40 t/ha. There were also other structural and marketing weaknesses cited.
- Opportunities – The major opportunity is that Morocco possesses a climate and other resources quite adapted to Clementine production. There is also considerable area not yet exploited.
- Threats – Just as climate is an opportunity, it was also judged to be a threat because of drought. Another threat is the possibility of disease due

to the production technique widely used. Competition from other exporting countries and from the domestic market is a threat to increased exports.

In terms of factors determining market access, the quality of the product was most important. Border protection was not mentioned as a significant factor in determining market access. The major obstacles also are not EU but Moroccan problems that must be solved.

In terms of possible future increases in Clementine exports, the experts resorted to a government plan which indicates that 310,000 tons of exports could be achieved. In addition, with the privatization of SODEA lands, it might be possible to add an additional 150,000 tons of Clementine exports.

Tomatoes, green beans, and courgettes were treated as a group. The major strengths for these products were favourable climate, technical know how of producers, proximity of EU market, modern infrastructure, and export coordination. The main weaknesses were lack of profession organization, increasing (often imported) input costs, land and water availability, farmer debt, concentration on one market (France), and lack of progress in processing industry. For tomatoes, the greatest opportunity is Spanish investment in Moroccan production. There is also opportunity to diversify to other markets such as North America, Russia, and the Middle East. For both tomatoes and green beans, there are also opportunities to expand into other varieties. The biggest risk concerns water availability. Also, ensuring pesticide residues are in conformance with EU standards is a perennial problem.

For tomatoes, the biggest factors determining market access are the minimum entry prices and quotas. There are no such major constraints for green beans. Courgette is somewhere between with some important entry barriers. For all products, maintaining high quality is always a problem. In the case of total liberalization with elimination of monthly quotas and minimum import prices, the experts predicted that Moroccan exports could increase to 400,000 or 450,000 tons per year. For courgette, the expected level could climb to 60,000 to 80,000 tons per year. For green beans, the projection is 200,000 tons, even without substantial additional liberalization. For all the products, there are many Moroccan changes that must occur if these levels are to be achieved, namely those associated with removing the constraints and obstacles described above.

For strawberries, the main advantages are labor availability, product quality, and early availability. The major weaknesses were high dependence on imports for inputs, high transport costs, customs costs and delays, and high production cost. The main opportunity is that strawberry production in France and Spain is likely to decline giving Morocco and opportunity. The major threat concerns frozen strawberries and competition from Poland and China.

The factors determining market access are precocity, quality, and certification. Morocco needs to be first to market with a high quality product. The major obstacles to overcome are production and transport cost. Expanding the quota period also is important. In terms of export expansion, the experts indicated that the limit is probably about 150% of current exports.

For melons, the main strengths are the quality of the product and the market niche just before the arrival of French melons. The biggest problems are an excess supply that causes prices to be low and transport and logistic costs getting to the French market. The only opportunity mentioned is the possibility to extent production more to the south. The main threats are market fluctuations and the short import window. The constraints to market development are really Moroccan, and the expert does not believe it likely that exports will increase.

For processed tomatoes, the major strengths are high yields and knowledge of production technology and good contractual relations between the firm and the farmers. There are no major weaknesses, but the necessity to monitor closely the contracts with farmers is a continuous issue. It has been necessary to change about a dozen contacts each year for one reason or another. In terms of opportunities, expansion of the local market is important. If the EU were to eliminate its export subsidies for processed tomatoes, that also would open an opportunity. That EU “prime de restitution” also constitutes the major threat. If that subsidy were eliminated, the expert estimated that the volume could go from 200,000 tons currently to 1,000,000 in five years.

## Tunisia

Tunisia is a large producer and exporter of olive oil, and the Tunisian analysis focuses exclusively on olive oil. Between 1991 and 2005 Tunisia produced on average 159,000 tons of olive oil with a large variability from one year to the next. In fact, it varied from 30,000 tons in 2001 to 310,000 in 1996, with the variability being due mostly to fluctuations in rainfall. Most of the olive oil is exported in bulk form (99%), and most of the exports go to the European Union.

Globally, Tunisian olive oil represents 4.4 percent of world production and 7.8 percent of global exports. The Tunisian share of the EU market is 8.8 percent. Olive oil production occupies 1,667,000 hectares, which is 40 percent of cultivated area in Tunisia. The processing industry is largely relatively small scale but with a wide range in capacity among the installations.

The Tunisian study conducted a SWOT analysis. The major strengths of the Tunisian olive oil industry may be summarized as follows:

- The emergence of private operators in the purchase and processing of olives for olive oil. There are now 93 private companies working in the industry.
- The emergence of private companies producing refined oil of high quality. These firms have created Tunisian brands and are exported under these brands. This is quite a departure from the historic dominance of bulk exports by the Tunisian National Oil Company. Some private companies also are producing and exporting organic olive oil. The government is assisting with publicity for the Tunisian brands.
- Labor and mechanical traction are relatively less expensive in Tunisia compared to European competitors.
- Government is assisting with programs to combat the major olive pests.
- The geographic position of Tunisia with proximity to the European market.
- There is a strong institutional structure for the olive oil sector, which provides support in many areas, especially research to improve productivity and quality of Tunisian olive oil.
- The tourist industry offers opportunities both for sales and for promotion of Tunisian olive oil.

The following weaknesses were identified by the Tunisian experts:

- Variability of production due to drought and also to a low level of maintenance of productivity of the olive plantations.
- Absence of a long-term strategy for development of the sector.
- Concentration on the European market with 87% of exports destined for Europe, especially Italy and Spain.
- Absence of horizontal and vertical integration of the supply chain.
- Absence of reserve stocks and also of any mechanism to compensate private operators to hold stocks.
- Weak efforts to improve quality.
- Lack of good information and circulation of information through all levels in the supply chain.
- The great preponderance of bulk exports.
- Difficulty of gaining access to credit.
- Concentration of 70% of the plantations in drought-prone regions.

The following opportunities were identified:

- Growth in European demand for olive oil.
- Growth in demand for olive oil in emerging markets such as the USA, Canada, Japan, and Australia.
- The European system of exonerating from import duties olive oil that is imported in bulk, processed, and then re-exported. Other tariff preferences also are important opportunities.
- Improvement of the Tunisian olive oil image.

The major threats identified by the experts are as follows:

- Emergence of new competitive producers and exporters of olive oil.
- EU subsidies pay to European olive oil producers.
- Adoption by the EU of more restrictive standards regarding traceability, labelling, packaging, etc.
- Import duties applied by the EU for olive oil imports from outside countries.

In the Delphi analysis, the Tunisian experts estimated that production would increase to 190,000 tons by 2010 and to 250,000 tons by 2015. These numbers represent increases of 34 and 76 percent respectively. These increases would be made possible through several important actions:

- Yield increases due to improved production practices.
- An integrated sector strategy founded on good scientific practices.
- Increase in irrigated production.
- Increase in financial resources available to the sector.
- Restructuring of the plantations with replanting and improved densities.
- Increase in dryland area with improved densities.
- Promotion of intensive plantations.
- Encouragement of improved Tunisian varieties.

Under the partial liberalization scenario, the following possible modes of liberalization were assumed:

- Increase in the quota with monthly increases in January, February, and March.
- Reduction of duties applied under the normal import regime.
- Maintaining the re-export regime.
- Increase in the quota without modification of the monthly limits.

If all these partial liberalization moves were applied, the experts estimated that bulk and processed exports to the EU could attain 180,000 and 6,000 tons respectively by 2010, and 211,000 and 13,000 by 2015. Thus, Tunisian exports to the EU could double in the next 5-10 years under partial liberalization.

Under total liberalization, bulk and processed exports to the EU could attain 148,000 and 5,000 by 2010, and 191,000 and 15,000 respectively by 2015. Compared to 2001-05, the increase would be 84 and 147 percent respectively. Note that the total liberalization scenario results for bulk olive oil are less than the partial. This is because the partial liberalization assumed Tunisia keeps its preferential quota. Under the total liberalization scenario, this preferential access for Tunisia is lost, and the experts assumed that Tunisia would lose market share to competitors like Turkey and Morocco.

### Turkey

Field crop production constitutes 75 percent of the value of agricultural production, while fruits and vegetables amount to 25 percent using 11 percent of the cultivated area. Table 8 provides the major exports of fruits and vegetables. Table 9 provides the total fruit and vegetable exports by destination. For 2004, the EU countries represented 27 percent of the tonnage and 42 percent of the value of Turkish fruit and vegetable exports.

**Table 8: Turkish Exports of Fresh Fruits & Vegetables, 2002-2004**

PRODUCTS	2002		2003		2004		Average <sup>a</sup>	
	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)
<i>Citrus Fruits</i>								
Oranges	190	56,490	177	59,021	134	51,573	167	55,695
Soft Citrus <sup>b</sup>	270	86,262	203	87,532	216	9,559	230	61,118
Lemons	239	85,933	168	79,807	169	80,063	192	81,934
Grapefruits	112	29,122	87	32,560	117	51,975	105	37,886
<i>Grape-like Fruits</i>								
Grapes (Table)	81	34,681	99	51,233	159	81,747	113	55,887
Figs	8	8,120	9	11,374	10	13,643	9	11,046
<i>Pome Fruits</i>								
Apples	15	6,088	20	10,254	20	9,950	18	8,764
Pears	13	5,711	11	6,930	5	3,852	10	5,498
<i>Stone Fruits</i>								
Cherries	20	52,493	34	77,696	39	118,000	31	82,730
Peaches	28	8,076	44	24,234	20	11,838	31	14,716
Apricot	5	3,524	6	7,443	8	9,578	6	6,848
<i>Fruit Bearing Vegetables</i>								
Melons	11	2,368	7	2,832	7	2,871	8	2,690
Watermelons	11	1,821	27	7,000	17	4,239	18	4,353
Cucumber & Gherkins	24	8,371	23	10,475	27	12,667	25	10,504
Capsicum	51	25,200	44	35,374	51	46,196	49	35,590
Eggplants	5	2,491	5	4,074	5	4,053	5	3,539
Tomatoes	253	70,001	228	88,651	235	109,563	239	89,405
<i>Tuber Crops</i>								
Potatoes	34	2,472	176	16,620	155	14,535	122	11,209
Onions (dry)	160	17,028	152	20,216	82	13	131	12,419
<b>Fresh Fruits</b>	<b>1,023</b>	<b>392,000</b>	<b>917</b>	<b>475,000</b>	<b>991</b>	<b>569,000</b>	<b>977</b>	<b>478,667</b>
<b>Fresh Vegetables</b>	<b>567</b>	<b>140,000</b>	<b>694</b>	<b>197,000</b>	<b>604</b>	<b>221,000</b>	<b>622</b>	<b>186,000</b>
<b>TOTAL</b>	<b>1,591</b>	<b>533,000</b>	<b>1,611</b>	<b>672,000</b>	<b>1,595</b>	<b>790,000</b>	<b>1,599</b>	<b>665,000</b>

Notes: <sup>a</sup> Average from 2002 to 2004.

<sup>b</sup> Clementine, Mandarin and Satsuma

Sources: UFT (2005), FAOSTAT (2005).

**Table 9: Turkish Exports of Fresh Fruits and Vegetables by Destinations**

COUNTRIES	2001		2002		2003		2004	
	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)	Quantity (1000t)	Value (\$1000)
Russian Federation	272	83,374	403	117,771	410	146,940	456	189,157
Germany	106	65,152	98	73,375	111	101,508	116	130,924
Saudi Arabia	29	58,536	285	57,990	204	60,029	157	57,152
Netherlands	37	20,373	46	27,824	42	36,614	46	47,416
Romania	10	27,972	116	29,352	127	36,227	123	46,179
Ukraine	85	29,177	99	32,017	99	40,885	98	42,054
United Kingdom	38	18,734	48	28,732	38	29,005	44	39,054
Greece	7	2,593	45	14,572	50	22,411	74	34,776
Mersin Free Trade Zone	42	13,218	76	21,652	66	31,265	44	21,533
Austria	51	27,037	38	23,336	33	23,013	22	17,893
Italy	5	2,578	4	5,011	9	10,894	10	17,832
<b>WORLD</b>	<b>1,420</b>	<b>459,000</b>	<b>1,591</b>	<b>533,000</b>	<b>1,611</b>	<b>672,000</b>	<b>1,595</b>	<b>790,000</b>

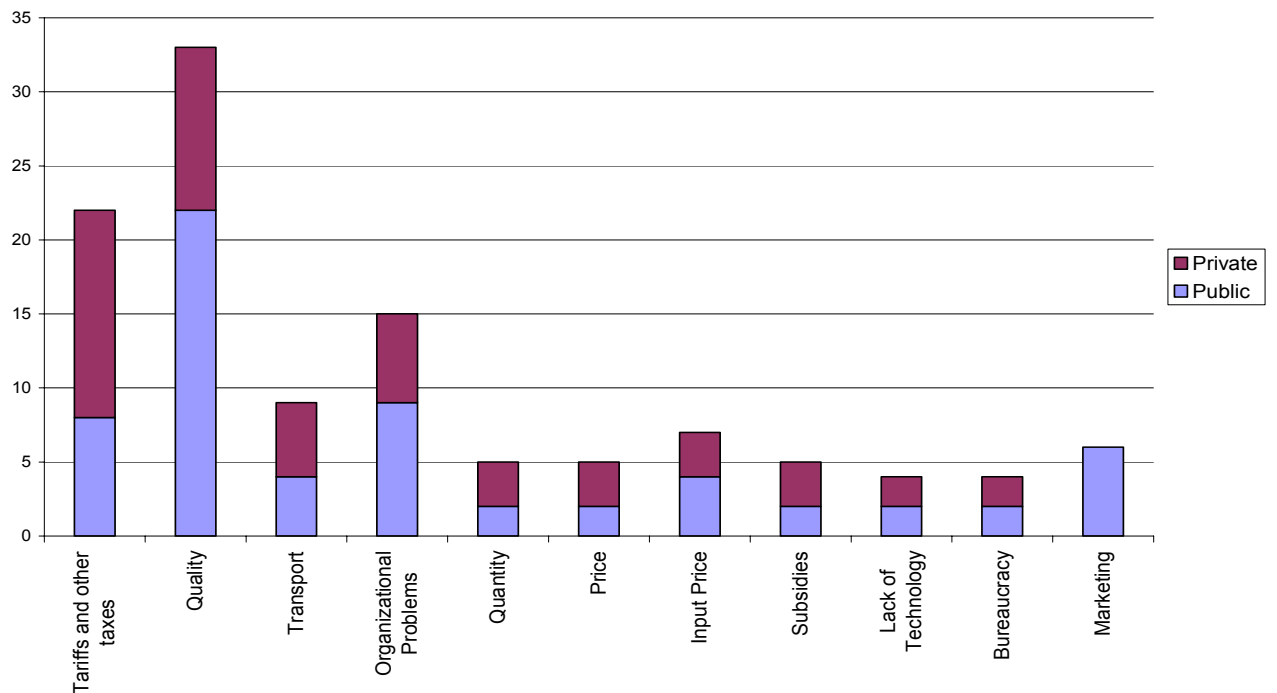
Source: UFT (2005).

The Delphi analysis in Turkey concerned both an analysis of the major problems concerning exports and the expected increases in exports with liberalization.

Figure 2 contains a summary of the answers provided by the expert panels regarding problems with Turkish exports. The most frequent response concerned quality or the mismatch between Turkish production technology and EU quality standards. The second most frequent response concerned EU protection, both the level of protection and the seasonality. The third most frequent response was organizational problems which relate to production planning, small land holdings and ineffectiveness of producer associations. The other problems were cited less frequently.

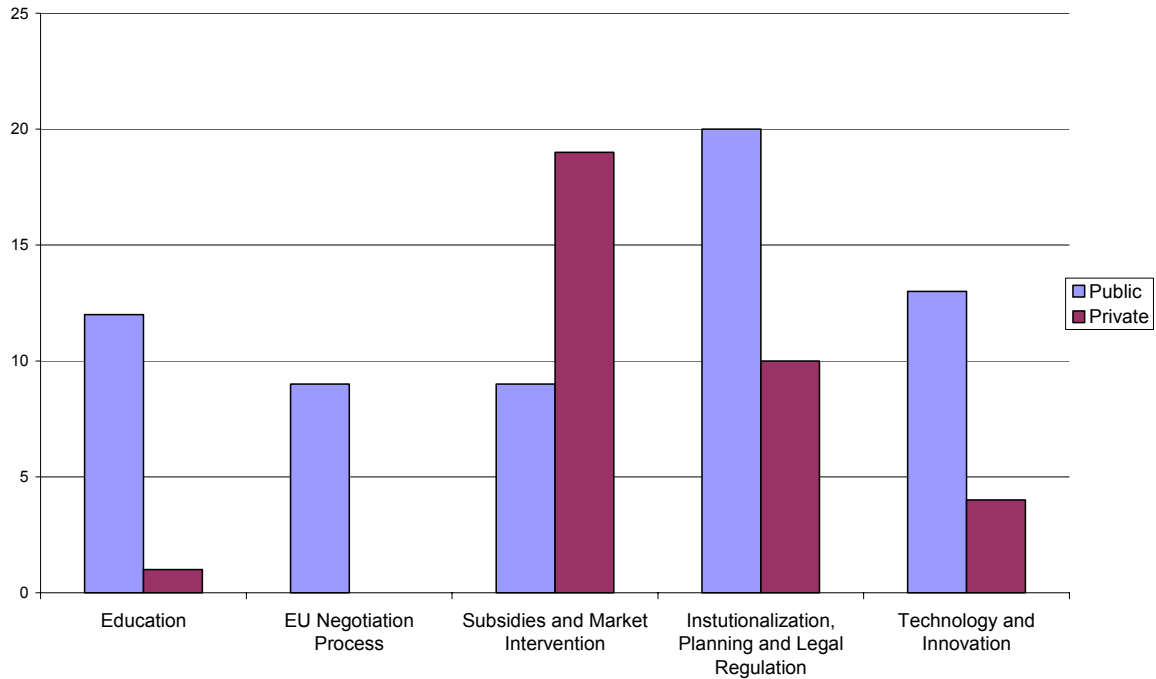
**Figure 2: Distribution of Answers Regarding Problems with Turkish Exports**





The distribution of solutions to these problems is illustrated in Figure 3. In general, public experts focused on production related solutions while private experts focused on marketing related solutions. Solutions related to institutional, planning, and legislation were emphasized by both groups. The subsidies and market intervention category focuses on export, transportation, and production subsidies. The public sector experts put much more emphasis on negotiations with the EU as possible solutions to export problems than did the private sector experts.

**Figure 3: Distribution of Proposed Solutions to Turkish Export Problems**



The Turkish expert panel estimated the impacts of EU liberalization on Turkish exports under partial and total liberalization. Table 10 provides the quantitative results. Under partial liberalization, the results range from virtually no change for potatoes, clementines, and apples to 57 percent increase for cherries and 90 percent increase for melons. Under full liberalization, the range is again no change for potatoes and clementines to 122 percent for melons and 130 percent for cherries. The expected changes with full liberalization generally are twice those of partial liberalization. The public experts tend to be more optimistic than the private sector experts.

**Table 10: Effects of Trade Liberalization Scenarios on the Total Exports of Turkey**

Crops	Full liberalization		Partial liberalization	
	Total Exports (tons) <sup>a</sup>	Percent Change <sup>b</sup>	Total Exports (tons) <sup>a</sup>	Percent Change <sup>b</sup>
Apples	21 435	7.18	20 262	1.31
Cherries	86 691	122.28	61 113	56.70
Cucumbers	31 604	17.05	29 594	9.61
Onions	95 127	16.01	87 902	7.20
Lemons	211 298	25.03	190 150	12.51
Melons	16 129	130.42	13 275	89.64
Potatoes	157 350	1.52	157 350	1.52
Clementine	217 577	0.73	216 942	0.44
Grapes	195 531	22.98	176 145	10.78
Tomatoes	295 144	25.59	262 176	11.56

Notes: <sup>a</sup> with no change in the exports to the non-EU countries.

<sup>b</sup> based on 2002-2004 averages.

Sources: Authors' calculations from survey results and Table 8.

## Summary of Results

This section summarizes the results on the expert opinion analysis from the five countries. Table 12 contains the expert opinion results for each country and the sum by product. In some cases, a product was selected for only one country, while in other cases, it may have been selected for multiple countries. The last two columns in Table 12 contain the percentage increase due to partial and total liberalization. Table 13 contains the summed tonnage and percentage increase in exports for the five Mediterranean countries by product. The columns labelled partial and total contain the difference between current and projected future exports for each product. The last two percentage increase columns are the same data as in the total row in Table 12.

**Table 12: Current and Possible Future Mediterranean Exports of Fruits, Vegetables, and Olive Oil (tons and %)**

Country	Product	Current	Partial	Total	% incr P	% incr T
Turkey	Apples	392	654	1,827	67%	366%
Turkey	Cherries	35,709	57,822	71,506	62%	100%
Morocco	Clementines	95,220	310,000	310,000	226%	226%
Turkey	Clementines	1,078	2,020	2,655	87%	146%
total		96,298	312,020	312,655	224%	225%
Morocco	Courgettes	31,764	60,000	80,000	89%	152%
Turkey	Cucumbers	4,274	6,868	8,878	61%	108%
Egypt	Grapes	17,157	32,594	34,314	90%	100%
Israel	Grapes	7,568	10,931	19,250	44%	154%
Turkey	Grapes	47,795	64,940	84,326	36%	76%
total		72,520	108,465	137,890	50%	90%
Egypt	green beans	28,098	45,000	56,000	60%	99%
Morocco	green beans	84,728	200,000	200,000	136%	136%
total		112,826	245,000	256,000	117%	127%
Turkey	Lemons	46,312	67,462	88,610	46%	91%
Egypt	Melons	1,192	2,000	3,000	68%	152%
Morocco	Melons	28,260	28,260	28,260	0%	0%
Turkey	Melons	3,282	9,557	12,411	191%	278%
total		32,734	39,817	43,671	22%	33%
Egypt	Onions	20,234	42,500	42,500	110%	110%
Turkey	Onions	7,868	13,771	20,995	75%	167%
total		28,102	56,271	63,495	100%	126%
Egypt	Oranges	66,055	100,000	120,000	51%	82%
Egypt	Potatoes	206,202	450,000	540,000	118%	162%
Israel	Potatoes	224,156	260,500	302,500	16%	35%
Turkey	Potatoes	21,829	30,909	31,894	42%	46%
total		452,187	741,409	874,394	64%	93%

Country	Product	Current	Partial	Total	% incr P	% incr T
Egypt	Strawberries	3,887	5,500	5,500	41%	41%
Israel	Strawberries	3,001	3,353	4,143	12%	38%
Morocco	Strawberries	24,334	36,501	36,501	50%	50%
total		31,222	45,354	46,144	45%	48%
Israel	sweet peppers	40,929	66,789	85,316	63%	108%
Egypt	Tomatoes	909	2,000	3,000	120%	230%
Israel	Tomatoes	15,333	21,647	26,000	41%	70%
Morocco	Tomatoes	191,168	400,000	450,000	109%	135%
Turkey	Tomatoes	23,967	51,143	84,111	113%	251%
total		231,377	474,790	563,111	105%	143%
Tunisia	bulk olive oil	79	211	191	167%	142%
Tunisia	conditioned olive oil	4	13	15	225%	275%

**Table 13: Possible Tonnage and Percentage Increase in Exports for the Five Mediterranean Countries Under Partial and Total Liberalization**

Product	Partial (MT)	Total (MT)	Partial %	Total %
Apples	262	1,435	67%	366%
Cherries	22,113	35,797	62%	100%
Clementines	215,722	216,357	224%	225%
Courgettes	28,236	48,236	89%	152%
Cucumbers	2,594	4,604	61%	108%
Grapes	35,945	65,370	50%	90%
green beans	132,174	143,174	117%	127%
Lemons	21,150	42,298	46%	91%
Melons	7,083	10,937	22%	33%
Onions	28,169	35,393	100%	126%
Oranges	33,945	53,945	51%	82%
Potatoes	289,222	422,207	64%	93%
Strawberries	14,132	14,922	45%	48%
sweet peppers	25,860	44,387	63%	108%
Tomatoes	243,413	331,734	105%	143%
bulk olive oil	132	112	167%	142%
conditioned olive oil	9	11	225%	275%

Finally, Table 14 contains the Mediterranean exports to the world, Mediterranean exports to the EU, EU imports from the world, EU production, EU imports as a percentage of EU production, and EU imports from Mediterranean countries as a percent of EU production. From Table 14 one can discern that there are some products that will not pose a problem under either partial or total liberalization. For example, apples, grapes, onions, cucumbers, tomatoes, lemon, and potato imports from the Mediterranean countries represent 0.0, 0.4, 0.9, 1.1, 1.6, 2.5 and 2.8 percent of EU production respectively. From the expert opinion results in Table 13, we see that grape, onion, cucumber, lemon and potato exports could double under total liberalization, but the current level of Mediterranean exports of these products represents such a small fraction of EU production, that even doubling should not cause significant adverse impacts on EU producers. For tomatoes, exports could increase by one and one-half times, which could make Mediterranean imports about 2.5% of EU production. For apples, the Mediterranean exports are projected to possibly multiply by 366%, all from Turkey. However, the current level of exports rounds to 0% of EU production, so even that large increase should not pose any significant problem.

For other products, Mediterranean exports do represent a significant portion of EU production, and further analysis is warranted. The only products for which Mediterranean imports represent double digit percentages of EU production are cherries (13.4%) and green beans (14.2%). Clearly, further analysis is warranted for these products. The other two products are oranges and strawberries for which Mediterranean exports to the EU represent 4.3 and 5.2 percent of EU production respectively.

For olive oil, significant increases (112-132 thousand tons or 142-167%) in bulk olive oil would be possible according to the Tunisian experts. However, much of this olive oil goes to Italy and Spain, where it is conditioned and re-exported. There is a much smaller absolute increase in refined value-added olive oil – from 9 to 11 tons, an increase of 225-275% on a small base.

These results will all be carried forward to the analyses that follow in WP7 and WP8. Clearly, the expert opinion approach has provided some very useful information that could not have been obtained otherwise.

**Table 14: EU and Mediterranean Trade and Production Statistics**

Products	Med Exp to World		Med Exp to EU		External imp of EU		EU Prod.	Imp/Prod	Med Imp/Prod
	\$	kg	\$	Kg	\$	kg			
Tomatoes	460,000,000	1,030,000,000	223,000,000	267,000,000	260,000,000	310,000,000	17,210,606	1.8%	1.6%
Potatoes	367,000,000	1,730,000,000	300,000,000	1,360,000,000	350,000,000	1,480,000,000	48,479,576	3.1%	2.8%
Melons	70,900,000	142,000,000	56,100,000	77,500,000	290,000,000	460,000,000			
Strawberries	57,300,000	46,600,000	53,900,000	42,200,000	90,000,000	73,000,000	811,967	9.0%	5.2%
Onions	52,200,000	437,000,000	11,500,000	40,200,000	174,000,000	510,000,000	4,445,859	11.5%	0.9%
Oranges	297,000,000	688,000,000	128,000,000	251,000,000	410,000,000	1,110,000,000	5,818,967	19.1%	4.3%
Grapes	160,000,000	241,000,000	100,000,000	111,000,000	660,000,000	630,000,000	27,210,106	2.3%	0.4%
Green beans	110,000,000	133,000,000	101,000,000	120,000,000	202,000,000	166,000,000	844,359	19.7%	14.2%
Fresh Clementine	286,000,000	437,000,000	106,000,000	131,000,000	220,000,000	330,000,000			
Courgettes	484,000,000	296,000,000	326,000,000	191,000,000	420,000,000	270,000,000			
Sweet peppers	105,000,000	154,000,000	78,200,000	98,100,000	130,000,000	140,000,000			
Apples	21,400,000	49,300,000	391,941	503,512	750,000,000	1,270,000,000	8,622,571	14.7%	0.0%
Cherries	187,000,000	66,300,000	180,000,000	58,700,000	274,000,000	134,900,000	436,644	30.9%	13.4%
Cucumbers	48,300,000	105,000,000	13,300,000	18,400,000	30,000,000	40,000,000	1,747,709	2.3%	1.1%
Lemons	109,000,000	249,000,000	20,100,000	35,200,000	196,000,000	440,000,000	1,409,722	31.2%	2.5%
Olive oil, virgin	712,086,252	273,989,954	577,131,922	222,135,728	580,211,023	223,163,096			
Olive oil, fraction	85,588,388	33,256,356	63,828,190	24,825,829	64,347,950	25,262,576			