

## CITRUS OVERVIEW OF THE EUROPEAN UNION-15 AND TURKEY

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### *Abstract*

*The citrus is important for Turkish fruit sector; it provides approximately 42% of export value to Turkish economy in total fruit sector, 15% of quantity producing in EU. The citrus sector occupies a central place in agriculture of the Mediterranean area in Turkey, and it provides about 70% of total citrus production. The majority of Turkish Citrus fruit export to countries in the European Union-15. The entry price system applies to a subset of fruit and vegetables considered particularly "sensitive" in the EU. It provides a high degree of protection to EU growers of citrus products. In Turkey, citrus growers have not protection, citrus prices is formed by supply and demand, this cause seasonal price fluctuation. Turkish incorrect policies on the part of the government the citrus sector started to show severe signs of weaknesses and the productivity and quality of citrus in Turkey decreased. The main reasons for this, is the lack of support on the part of growers and exporter, and the attitude of the state toward the sector. There is a huge lack of support in all aspects of citrus production and marketing.*

**Key word:** citrus, export, import, consumption, prices

### INTRODUCTION

Citrus fruit is the first fruit crop in European trade in terms of value in Turkey. There are two clearly differentiated markets in the citrus sector: fresh citrus fruits market, with a predominance of oranges, and processed citrus products market, mainly orange juice. A major development over the last two decades of the XX century was the growth in trade in small citrus fruits, which include tangerines, Clementine, mandarins and Satsuma, at the expense of fresh oranges.

Turkey applied for association with the European Economic Community already in 1959, one year later the enforcement of the Treaty of Rome. The Ankara Agreement of 1963 and the Additional Protocol of 1970 were two important documents, which identified modalities and calendars ensuring the future customs union and confirmed the ultimate aim of full membership

Turkey has been in a Customs Union with the European Union since December 31, 1995. In December 1997, the Luxemburg European Council confirmed Turkey's eligibility for accession into the European Union and that the accession decision will be judged on the basis of the same criteria as the other applicant states. The accession procedure requires Turkey's preparation and commitment to bring itself closer to the European Union in every aspect.

During the preparation for the accession process, one issue of particular importance for the Turkish economy is free movement of goods and, particularly, products of agricultural origin. The related chapter, as laid out in decision No. 1/95 of the EC-Turkey Association Council on implementing the final phase of the customs union, excludes agricultural products from eliminating customs duties, quantitative restrictions, and measures having equivalent effects. The association council puts

special provisions related to agricultural products and notes that an additional period is required to put in place the conditions necessary to achieve free movement of agricultural products (Akgüngör et al., 2002).

EU-15 – Turkey citrus production and consumption has witnessed a period of strong growth since the mid-1980s. Production of oranges, grapefruit, mandarins, and lemons and limes has all expanded rapidly. Larger production levels have enabled higher levels of total as well as per capita consumption of citrus. Even faster growth has been realized for processed citrus products as improvements in transportation and packaging have lowered costs and improved quality (DEFRA, 2001).

With rapid output expansion and slower demand growth for some citrus products, however, has come lower prices for both fresh and processed citrus products, especially at the grower level. As a result, the rate of new plantings has slowed. Hence, projected growth rates in both production and consumption over the next ten years are expected to be lower than those realized over the past ten years. Meanwhile, one of the largest citrus producing countries, Turkey has struggled to join EU.

The European Union (EU-15) has always been one of the world's largest importers of citrus. Even the accession of some significant net-exporters of citrus, Greece in 1980 and Portugal and Spain in 1986, did not alter this situation fundamentally. EU policies for the citrus sector have changed in a number of ways in recent years. Due to the results of the Uruguay Round Agreement on Agriculture, the EU had to reduce its tariffs and to adjust the former reference price system in accordance with the request for "tariffication". The result is the new entry price system which has been in force since 1995. In addition, a safeguard clause (SSG) was agreed in the WTO (World Trade Organization) for

those products which were subject to tariffication and the EU has introduced related changes into its trade regime for citrus products. Moreover, a separate WTO Agreement specifies new rules on Sanitary and Phytosanitary measures.

This paper aims to provide a comprehensive overview of Turkey and main European Union (15) Countries' citrus sectors, and the situation in their citrus markets, which is then used to examine potential, using EUROS-TAT and FAO data, with calculating standard deviation, variation coefficient, minimum and maximum value. In this paper, it was examined the structure of Turkish citrus sector in relation to that of the EU-15.

## CITRUS SECTOR IN TURKEY AND IN THE EUROPEAN UNION

### *Production and consumption*

Within the European Union-15, citrus production increased in the last two decades. Production from oranges and mandarin rose in the European Union-15 in this period approximately 55% (Table 1 in the appendix). While it decreased in France in this period around 15.8%, it increased in Greece by 43.5%, in Italy by 9.2%, in Portugal by 120.2%, in Spain by 83.8% and in Turkey in the same period approximately 82.2%. During the last two decades the total production of the EU-15 at oranges and mandarin over 8 million tons, whereby Spain with 4.5 million tons leads, amounted to followed of Italy with 2.1 million tons. In third place, candidate country Turkey follows Italy.

Orange and mandarins productions area of Turkey is forecast to be lower in future because of building on citrus area in Mediterranean province. But, the production area is expanded in black sea province such as Rize province. However, orange and mandarins production is expected to rise in Turkey and EU-15.

During the last two decades, in the production of lemons of European Union-15 became drop 6.9% (Table 2 in the appendix). The rate of growth is smaller than with the orange and mandarin production. Obviously this rate is only insignificantly smaller, since the falling off in production in Greece, Italy and France becomes nearly completely by the lemon production in Spain, Portugal and candidate country Turkey balanced. Also in the lemon and limes, Turkey lies beside Spain and Italy puts in third place. Turkey produces 28% of the total quantity at lemons and limes in the European Union-15. 54% of production comes from Spain, 33% from Italy. While the last two decades, Spain increased its lemon and limes by 121.3%. This increase is larger than the yield at oranges and mandarin in Spain.

The entire grapefruit yield in the European Union-15 was increased in the last two decades by 56 000 t (Table 3 in the appendix). In this period the grapefruit yield in France increased by 18.25%, in Turkey by 547.5%, in Greece by 170.5% and in Spain by 162.5%. In grapefruit production stands Turkey within that for Europe in

the first place. Turkey produces 2.5 times as much grapefruit as the entire remainder of European Union-15. In Italy and Portugal grapefruit production decreased during the last decade.

The entire citrus production in the European Union-15 the production of oranges and mandarin constitutes 83%, lemons and limes 16%, the remainder of 1%. In Turkey constitute oranges and mandarin 73%, lemons and limes 21%, grapefruit 10% and remainder of 1%.

Which concerns consumption, then consumption on fresh oranges and mandarin in the European Union-15 was increased during the last two decades by 54.2%. This change is more largely than the production period. On the other hand, the domestic market supply is with 44.6% that it means that the European Union-15 is dependent outside of the European Union-15 on orange and mandarin yields. In Turkey consumption increased on fresh oranges and mandarin by 86.9%, which corresponds to the offer of the domestic market. That means Turkey is independent production of oranges and mandarin. The proportional yield at oranges and mandarin is higher than that of France, Italy and Portugal. In these countries the domestic market offer does not cover consumption. Spain is a largest producer of oranges and mandarin in the European Union-15. In Spain the proportional growth of consumption is smaller than the proportional growth of the yield at oranges and mandarin.

In Turkey also the proportional growth of grapefruit production is smaller than the proportional increase of consumption in fresh grapefruit. In contrast to it the proportional growth of grapefruit production lies more highly than the proportional increase of the consumption of fresh grapefruit in the European Union-15. The largest proportional increase in grapefruit production exhibits France, follow in Greece and Spain with 170.5%. The largest proportional increase of consumption in fresh grapefruit is Greece, follow Netherlands, shows 162.5% Portugal and Germany with in each case 270.2%, 255.1% and 236.2%. Table 4 shows the per-capita consumption on fresh citrus in the year 2002. Turkey lies above it in the per-capita consumption at grapefruit, oranges and mandarin under the average per-capita consumption of the European Union-15.

### *Citrus export and import in the European Union-15 and Turkey*

Turkey is a free market economy with a large import sector. Turkey's total imports for 2000 were US\$53.5 billion, an increase from US\$39.2 billion in 1999. Turkey's key imports are mineral fuels and lubricants 16.3%, non-electrical machinery 16.1%, crude oil 10.4%, iron and steel 10.2% and electrical machinery 7.8%. Turkey's principle import sources are Germany 14.5%, Italy 7.8%, France 7.7%, and United States 5.8% and Russia 7.6%. Turkey's total exports for 2000 were US\$ 53.5 billion, an increase from US\$ 26.2 billion in 1999. Turkey's key exports are knitted fabrics 22.7%, iron and steel 11.1%, fruits and vegeta-

bles 8%, machinery 7.1% and ceramics 6%. Turkey's principle export sources are Germany 20.6%, United States 19.2%, United Kingdom 6.9%, Italy 6.3% and France 5.9% (Allen, 2000).

Due to the liberalization of the Turkish market, both the import and the export of citrus have end of the eighties are increased. Between 1980 and 2000, Turkish orange and Mandarin export rose around 144%. The orange and Mandarin export of the European Union-15 increased in this time around 271.6%, the import by 139.1% (Table 1 in the appendix). While the Turkish lemon and limes export rose in the last two decades around 33.8%, the European Union-15 export rose around 19.8%. Proportional export growth lies in the European Union-15 lower than proportional import growth with 28.8% (Table 2 in the appendix). The grapefruit export takes an important position in the European Union. This export of grapefruit rose in the last two decades around 523.4%, amounted to the growth rate with the import only 106.3%. Turkey imports grapefruit occasionally. The alteration rate with the Turkish grapefruit import lay in the last two decades with 689.4% more highly than those of the export with 429.7% (Table 3 in the appendix).

Citrus is mainly supplied to EU-15 by Greece, Italy, Spain, and Turkey. At times, Turkey receives grapefruit from Spain, Greece and Italy. Generally, Turkey export to EU-15 orange, lemon and mandarin. Turkish grapefruit export to EU-15 is low. Concentrates are imported to Turkey, mainly from Germany (re-export) for orange, and from the Netherlands (re-export). Single strength juices are produced and retailed in Turkey. A few of citrus production is produced in Turkey for approximately 10%. Russian and Ukraine receive citrus juice from Turkey due to increase demand in there. Besides, these countries receive the second grade citrus product from Turkey. Generally, the first grade citrus product is supplied to EU-15's countries. EU-15's citrus demand from Turkey becomes intense on Entrecote lemon, Star Ruby grapefruit and Satsuma. In this respect, Turkey must be enlarged production of this product for EU members (DPT, 2000).

Spain is the EU-15's largest citrus exporter, accounting for approximately 33 percent of total EU-15's exports. Turkish citrus export to EU-15 is decreased due to rival with Spain, Italy and Greece. Those countries rival power is increased due to help from EU-15 (Argilos, 1999). The majority of Spanish citrus is exported to other European Union countries, accounting for 85 percent of total citrus exports. The bulk of these exports go to traditional markets such as Germany, France, the Netherlands, and the United Kingdom. Between Turkey and EU-15 citrus trade is effected Custom Union Agreement. The most important cause of this, EU-15's countries take outside of the Custom Union Agreement Entry Price System. The country receiving the most comprehensive preferences for citrus fruit exports to the EU-15 is Turkey. The entry price system

is fully in force but almost all advalorem tariffs are reduced to zero. In the area of processed agricultural products advalorem tariffs are also abolished.

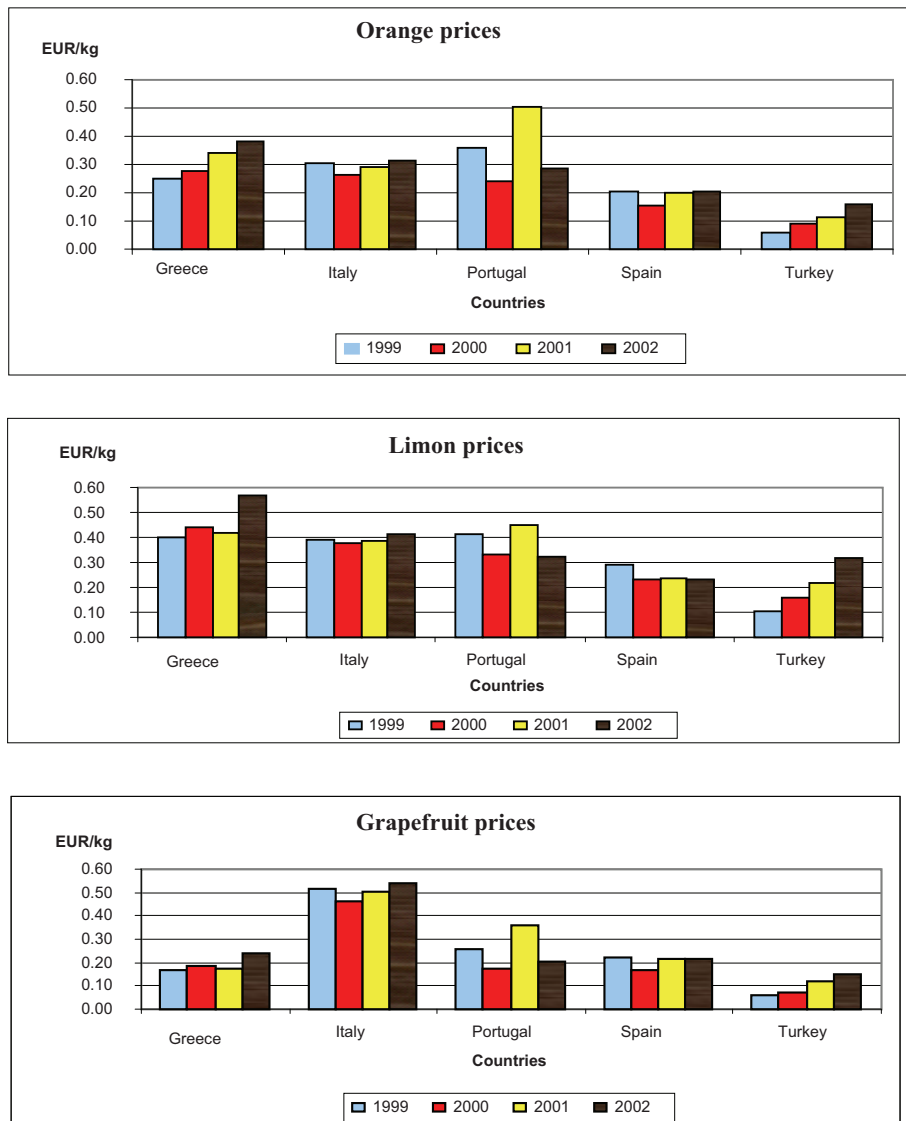
The EU-15 is an active operator on the world market. Among fresh products, main imports are citrus, apples (60% coming from New Zealand, Chile and South Africa), tropical/exotic fruit and grapes. Fruit juices, mostly concentrated frozen citrus and apple juice, also represent important imports. The EU-15 mainly exports citrus fruit (oranges, Clementine and lemons) apples and grapes while onions and tomatoes are the most exported vegetables. Traditional destinations are Russia, CECs, Switzerland and Norway (CEC, 2001).

Table 5 (in the appendix) shows the variation coefficient in production, import, export, native offer, committee and food between 1980 and 2003. In the European Union-15 and in Turkey, in the main change in citrus production, grapefruit production took an important place. The variation coefficient amounted to 8.24 in the EU-15 and 54.44 in Turkey. The variation coefficients for the import amounts to in the European Union-15 are 21.30 for grapefruit, 21.40 for oranges and mandarin, 9.89 for lemons and limes. These variation coefficient amount to accordingly in Turkey is 209.93, 112.54 and 108.53. The variation coefficient for the export is accordingly in the European Union-15 48.90, 31.20, 9.79 and in Turkey is 49.34, 30.87 and 30.50. This shows that the Turkish citrus import changed more strongly than the export, completely in contrast to the EU-15, where the citrus export changed more strongly than the import. The citrus export and import in Turkey are more dynamic than in the EU-15.

#### *Citrus prices in the European Union-15 and in Turkey*

The entry price system applies to a subset of fruit and vegetables considered particularly "sensitive" in the EU. It provides a high degree of protection to EU growers of these products (Harolt and Stefan, 1998). In Turkey, citrus growers have not protection, citrus prices is formed by supply and demand, this cause seasonal price fluctuation (DPT, 1997). Price trends over the last four reporting years (1999–2002) for means of production showed a rise similar to producer prices in EU-15. In this respect, there is opposite between Turkey and EU-15. Citrus grower prices showed to lessen at the same time in Turkey. Figure 1 show citrus producer prices between 1989 and 2002 years. As can showed in Figure 1, mandarin and orange producer prices is low in Turkey in respect of EU-15 is also input prices higher than Turkey (Gorton et al., 2000). Lemon producer prices are higher than Greece, Italy and Portugal in Turkey. But, it was showed to lessen between 1999 and 2002 years.

Turkey has the lowest citrus import prices (excluded Greece). Generally Turkey and Greece have citrus for fresh consumption import and these lie too low. In the periods March and September, Turkey usually imports citrus with the second quality.

**Figure 1:** Citrus producer prices

Source: EUROSTAT 2005; DİE 2005; State Institute of Statistics (SİS)

Note: Local prices were changed to EUR according to the FAO'S data

In this regard, the citrus prices in Turkey are lower than in the European Union-15 countries. The lowest citrus prices are applied in Turkey for citrus export of first quality into the European Union-15. Turkey cannot compete due to the European Union-15 production with Spain and other European Union citrus export. With the export of fresh fruit and vegetable stands in Turkey in the first place. But Turkey does not give enough incentives for the citrus export.

Table 6 (in the appendix) clearly makes that import and export prices for oranges in the European Union-15 and Turkey showed a larger variability during the period of 1980 to 2003. In each case the average import price for oranges in Turkey is lower than in the European Union-15. The variation coefficient of Turkish export prices amounted to 21, 16, which was

lower than variation coefficient of the European Union-15. The export price for oranges is (re-exportation) more stably in the Netherlands and Germany than in other countries regarding variation coefficient shows the lemon import and Export price the same characteristic as the import and export prices for oranges. The variation coefficient of Turkish lemon import price is 55.45 compared with 23.37 with the obtained lemon export prices. The variation confident with lemon import prices of the European Union-15 is appropriate lower than Turkey; in contrast to it is higher variation coefficient than lemon export prices. The variation coefficient for the Turkish grapefruit import and export prices is appropriate more highly than the European Union-15. The changes played a smaller role in the grapefruit import prices with comparison to the



level of the orange and lemon import prices in Turkey for the Turkish grapefruit import prices amounted to 107.16 in this period.

*European Union-15 and Turkish agricultural policy for citrus*

Policies	EU	Turkey
Price	<p>– <b>The Entry Price System:</b> The entry price system applies to a subset of citrus considered Particularly “sensitive” in the EU. It provides a high degree of protection to EU growers of these products. (Oranges 01.12.–31.05, Clementine/mandarins 01.11.–28.02, Lemons 01.01.–31.12) The principle of Community preference is responsible for this price. It is the price set at the frontier such that the products imported by the community do not flood the domestic market and do not jeopardize sectoral regulations. This price seeks to avoid imported products being sold on the Community market at prices below a certain threshold.</p> <p>– <b>Trigger prices</b> were even manipulated with so that countries could more easily qualify to use the Special Safeguard Provision and hence impose additional duties over the bound tariff rates.</p> <p>In the Modalities, it is specified that the trigger price chosen should be very similar to that of the external price countries were supposed to use for tariffication. However, the EU, for example, appended a list of trigger prices they intended to use. Prices in this list are generally much higher than the external prices the EU used for tariffication. These prices would allow the EU to use the special safeguard provision often, and hence diminish further the intended implications of tariffication.</p>	<p>Citrus prices are determined by supply and demand. In export and import, CîF and FOB prices is applied in respect of agreement.</p>
Tariffs	<p>Fruit and vegetables in the EU are typically protected by advalorem tariffs in the range between 10 and 20 per cent. After the Uruguay Round, these tariffs are reduced by 20 per cent for most products during the implementation period. However, tariffs are only one element in the protective trade regime the EU applies to this sector. Additional import barriers to citrus.</p> <p>– <b>Product Base entry price (ECU/t):</b> Oranges 372, Lemons 526, – <b>Base advalorem tariff:</b> Oranges 20%, lemon 8%. – <b>Base rate MTE (ECU/t):</b> Orange 89, Lemon 320</p>	<p>Maximum paid rate is 15 percent of FOB(up to 35 \$/tons)</p>
Aids	<p>– <b>Citrus processing aid</b> The modification of the support regime for processed citrus approved in 1996 had a double aim:</p> <ul style="list-style-type: none"> <li>– on the production side to avoid that processing become a systematic market outlet for production initially oriented to the fresh market</li> <li>– On the processing industry side to allow re-orienting towards new products (eg. chilled citrus juice) for which EU industry may be competitive.</li> </ul> <p>The reformed system of aid for the processing of citrus fruit is based on the following elements:</p> <ul style="list-style-type: none"> <li>– contracts between processors and producers through their producer organizations</li> <li>– an aid for producers granted through their producer organizations</li> <li>– a free negotiation of purchase price for the raw material between producer organizations and the processing industry</li> <li>– a system of thresholds for each product (oranges, lemons, grapefruit and small citrus fruits).</li> </ul> <p>– <b>PRODUCTION REFUNDS:</b> These refunds are granted to processors who obtain their supplies from Community producers in certain sectors. These refunds allow the processors to be competitive in relation to imported processed products made from raw materials purchased more cheaply on the world market.</p>	<ul style="list-style-type: none"> <li>– Occasionally, inputs such as fertilizer, drug is supported by government</li> <li>– KKDF(Fountain Usage Support Fund) is used for foundation of garden</li> <li>– credit with cheap interest is gave to producer by Credit Cooperatives and Agricultural Bank</li> </ul>
Export	<p><b>Export refunds:</b> Export refunds allow Community producers to sell their products on the world market. The aim is to cover the difference</p>	<p>Export credit is applied (up to 35 \$/tons).</p>

	<p>between the Community price and the world market price. It allows dealers to participate in international trade at competitive prices. The refunds are set by the Commission either for a certain period, or as a supplement and for limited amounts by means of tendering for those products for which this procedure appears appropriate. Except in this last case, the list of products and the amount of the refund are set at least once every three months.</p>	
Import	<p><b>IMPORT AND EXPORT CERTIFICATES :</b> This certificate, for which there is a standard Community form, is issued by the Member States to any Community undertaking which requests it. All import or export operations are subject to the presentation of a certificate and the issue of this certificate is subject to the payment of a deposit which guarantees that the undertaking to import or export during the term of the certificate is fulfilled.</p> <p>– <b>PREFERENTIAL IMPORT QUOTAS:</b> These quotas limit the amounts of agricultural products which can be imported from certain third countries enjoying preferential conditions as a result of the Community's unilateral, bilateral or multilateral relations.</p> <p>– <b>Minimum access:</b> the GATT agreement provides that each signatory country will open quotas to third countries. The import possibilities which are offered are, for each group of products, 5% of consumption of the base period 1986–1988</p> <p>– <b>Current access:</b> Import tariff concessions already granted prior to the entry into force of the agreement must be maintained at least at their 1986–1988 level.</p> <p>– <b>QUANTITATIVE IMPORT RESTRICTIONS:</b> These restrictions allow the quantity of imports to be limited and they apply to certain fresh citrus fruit (import calendars). In the list of undertakings made to the WTO, the European Union included Adjustments to the calendars for application of the entry prices, with the calendars for citrus being extended to cover the whole year.</p>	<p>Turkish safeguards legislation sets forth the rules for application of safeguard measures and surveillance for imports. Safeguard measures are actions taken on the increased imports of a certain product, where such imports have caused or threaten to cause serious injury to the domestic industry. They can take the form of a quantitative restriction (quota). Surveillance is a tool for finding out quickly the trend in current and foreseeable imports, when the trend threatens to cause injury to the domestic producers.</p>
Premiums	<p>– <b>MARKET PROMOTION PREMIUMS:</b> These premiums are paid by the Member State and can be reimbursed under the EAGGF to increase Community outlets by promoting the marketing of <b>citrus fruit</b> produced in the Community on Community markets other than those of the producer country</p>	

Source: Harold and Stefan (1998), Garaulet (2000), EC (1998), DPT (2000), 5. FAO (2005; [www.fao.org](http://www.fao.org))

## CONCLUSIONS

This paper has provided an overview of Turkish Citrus sector. Using the most recently available statistics, the citrus sector has been summarized in relation to production and consumption, prices and trade. The citrus has a much larger role in the Turkish fruit sector than in either the EU-15, with high shares in citrus production. Trends in citrus land area are difficult to capture since estimates vary significantly according to data source. Trees number in trends can be identified in citrus sector. Citrus trees number have decreased, but, citrus production has increased slightly. At this stage, it is difficult to reach a conclusion regarding trends in total citrus area, since sources indicate conflicting trends. Turkey is a major citrus producer by EU standards; it is one of the largest producers of citrus, grape fruit, orange and mandarin, lemon and limes. In Turkey, citrus production varies across regions, according to climatic

conditions. The highest production occurs in the Mediterranean and Aegean regions, which are ideally suited to citrus production. The citrus sector is most important in Turkey and has a much higher share of total fruit production than in the EU-15.

Prices in Turkey are declining in real terms for citrus products, mainly reflecting the reduction in agricultural support. Prices of outputs have declined relative to inputs and also relative to prices in other sectors, indicating a reduction in profitability in the citrus sector. Prices for citrus products were much lower in Turkey than the EU-15.

Predator problems, not become full member of Turkey to EU, Out of Custom Union agreement of Entry Price System, the elimination of government incentive payments, and the rise of market liberalization, are all actors that seem to have contributed to a steady decline in citrus market share. These problems are hardly unique to the Turkey. Several citrus producing countries in EU

facing similar circumstances have managed to maintain their preeminence in the EU's market. The EU-15 is the major destination for Turkish citrus exports. Exports of citrus fruits represent roughly 42% of total fruit production. The exports of citrus fruits are situated in the Mediterranean countries, accounting for around over 90% of EU fresh citrus fruit exports.

EUROSTAT and FAO data show that, the four largest citrus producing EU-15 candidate countries: Spain, Greece, Italy and Portugal will continue to be citrus producing countries in EU. With the growth of Clementine consumption, Spain is expected to expand its production of mandarin. Italy will also realize expanded production and consumption of Satsuma. Other EU-15 countries such as Austria, Belgium- Luxembourg, Denmark, Finland, Germany, Ireland, Nederland, Sweden and United Kingdom are important import countries. So, EU-15 may also become an important market for citrus production. France are also expected to continue to expand citrus production, but at a slower rate.

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**Tab. 1:** Development of supply and demand of the orange and mandarin

		<b>EU (15)</b>	<b>Turkey</b>
<b>Production (Mt)</b>	1980–1982	5 324 485.7	850 000.0
	2000–2002	8 254 055.0	1 725 000.0
	Change (%)	55.0	102.9
<b>Import (Mt)</b>	1980–1982	5 021 681.0	8 687.7
	2000–2002	12 216 242.0	19 258.0
	Change (%)	143.3	121.7
<b>Export (Mt)</b>	1980–1982	2 531 033.3	93 433.3
	2000–2002	9 136 302.0	298 536.0
	Change (%)	260.9	219.5
<b>Domestic Supply (Mt)</b>	1980–1982	7 882 779.7	756 566.7
	2000–2002	11 398 587.0	1 424 184.0
	Change (%)	44.6	88.2
<b>Waste (Mt)</b>	1980–1982	851 297.7	59 500.0
	2000–2002	765 923.0	121 669.0
	Change (%)	-10.0	104.5
<b>Food (Mt)</b>	1980–1982	6 997 456.3	697 066.7
	2000–2002	10 788 547.0	1 302 517.0
	Change (%)	54.2	86.9

Source: Own computations based on data from FAO

**Tab. 2:** Development of supply and demand of the lemon and limes

		<b>EU (15)</b>	<b>Turkey</b>
<b>Production (Mt)</b>	1980–1982	1 313 067.7	294 668.7
	2000–2002	1 221 971.0	498 333.0
	Change (%)	-6.9	69.1
<b>Import (Mt)</b>	1980–1982	503 696.3	1 640.3
	2000–2002	696 837.0	2 289.0
	Change (%)	38.3	39.5
<b>Export (Mt)</b>	1980–1982	586 417.3	122 667.3
	2000–2002	737 777.0	191 392.0
	Change (%)	25.8	56.0
<b>Domestic Supply (Mt)</b>	1980–1982	1 230 346.7	171 999.3
	2000–2002	1 573 947.0	308 474.0
	Change (%)	27.9	79.3
<b>Waste (Mt)</b>	1980–1982	134 574.0	20 626.7
	2000–2002	157 141.0	34 970.0
	Change (%)	16.8	69.5
<b>Food (Mt)</b>	1980–1982	1 086 041.7	151 370.3
	2000–2002	1 440 880.0	273 504.0
	Change (%)	32.8	80.7

Source: Own computations based on data from FAO



**Tab. 3:** Development of supply and demand of the grapefruit

		<b>EU (15)</b>	<b>Turkey</b>
<b>Production (Mt)</b>	1980–1982	25 154.3	20 333.3
	2000–2002	81 017.0	131 667.0
	Change (%)	222.1	547.5
<b>Import (Mt)</b>	1980–1982	713 545.7	72.7
	2000–2002	1 467 581.0	5 517.0
	Change (%)	105.7	7 488.7
<b>Export (Mt)</b>	1980–1982	97 049.7	12 590.0
	2000–2002	591 100.0	87 220.0
	Change (%)	509.1	592.8
<b>Domestic Supply (Mt)</b>	1980–1982	641 650.0	7 743.3
	2000–2002	701 649.0	49 964.0
	Change (%)	9.4	545.3
<b>Waste (Mt)</b>	1980–1982	24 512.0	1 423.3
	2000–2002	21 700.0	13 627.0
	Change (%)	–11.5	857.4
<b>Food (Mt)</b>	1980–1982	617 305.7	6 320.0
	2000–2002	817 858.0	40 403.0
	Change (%)	32.5	539.3

Source: Own computations based on data from FAO

**Tab. 4:** Per capita citrus fresh food consumption (kg/years) for 2000 years

<b>Countries</b>	<b>Grapefruit</b>	<b>Orange and mandarin</b>	<b>Limon and limes</b>
EU (15)	1.99	31.27	4.06
Austria	0.74	26.55	2.60
Belgium-Luxemburg	2.77	4.36	2.10
Denmark	0.81	33.61	3.78
Finland	1.39	38.38	0.82
France	4.12	40.75	2.53
Germany	1.26	10.59	1.69
Greece	1.48	61.15	12.91
Ireland	3.90	39.22	0.97
Italy	1.09	37.97	8.29
Nederland	6.59	41.75	0.90
Portugal	0.76	43.16	1.51
Spain	0.25	38.82	10.82
Sweden	1.27	49.80	2.09
United Kingdom	2.04	31.55	1.33
Turkey*	0.41	19.33	4.34

\*candidate country

Source: Own computations based on data from FAO

**Tab. 5.** The change% of variation coefficient for citrus (1988–2002)

		<b>EU (15)</b>	<b>Turkey</b>
<b>Production (Mt)</b>	<i>Grapefruit</i>	8.24	54.44
	<i>Orange, mandarin</i>	6.56	18.05
	<i>Limes, lemon</i>	7.89	16.51
<b>Import (Mt)</b>	<i>Grapefruit</i>	21.30	209.93
	<i>Orange, mandarin</i>	21.40	112.54
	<i>Limes, lemon</i>	9.89	108.53
<b>Export (Mt)</b>	<i>Grapefruit</i>	48.90	49.34
	<i>Orange, mandarin</i>	31.20	30.87
	<i>Limes, lemon</i>	9.79	30.50
<b>Domestic Supply (Mt)</b>	<i>Grapefruit</i>	8.18	80.51
	<i>Orange, mandarin</i>	6.15	16.84
	<i>Limes, lemon</i>	6.83	12.91
<b>Waste (Mt)</b>	<i>Grapefruit</i>	16.41	54.34
	<i>Orange, mandarin</i>	16.66	18.14
	<i>Limes, lemon</i>	14.05	16.51
<b>Food (Mt)</b>	<i>Grapefruit</i>	8.57	88.29
	<i>Orange, mandarin</i>	6.83	16.75
	<i>Limes, lemon</i>	6.81	12.79

Source: Own computations based on data from FAO

**Tab. 6:** Import and export prices for citrus (\$/ton) 1980–2003

<b>Grapefruit – Import prices</b>	<b>Mean</b>	<b>Standard division</b>	<b>Variation coefficient</b>	<b>Min</b>	<b>Max</b>
Austria	544.81	107	19.70	353	766
Belgium	646.58	161	24.84	496	867
Denmark	524.37	105	20.11	317	687
Finland	639.97	124	19.42	416	882
France	622.00	110	17.76	460	851
Germany	560.20	112	19.98	373	848
Greece	613.30	142	23.16	389	876
Ireland	615.25	150	24.45	363	959
Italy	527.73	141	26.71	327	1.051
Luxemburg	942.85	194	20.57	782	1.214
Nederland	561.91	99	17.59	406	861
Portugal	688.99	138	20.03	481	938
Spain	768.56	297	38.64	381	1.400
Sweden	648.38	124	19.12	459	894
United Kingdom	526.52	97	18.38	367	769
Turkey*	59.82	64	107.16	0	222

**Tab. 6:** Import and export prices for citrus (\$/ton) 1980–2003

<b>Grapefruit – Export prices</b>	<b>Mean</b>	<b>Standard division</b>	<b>Variation coefficient</b>	<b>Min</b>	<b>Max</b>
Austria	570.39	145	25.47	195	811
Belgium	640.23	173	27.05	481	881
Denmark	762.16	276	36.28	498	1.294
Finland	802.02	292	36.36	0	1.333
France	699.41	126	18.04	456	958
Germany	625.66	175	28.01	1	1.040
Greece	452.35	222	49.06	255	1.000
Ireland	674.11	233	34.52	359	1.143
Italy	583.95	171	29.20	368	1.054
Luxemburg	1 900.00	762	40.08	800	2.500
Nederland	621.44	94	15.19	497	871
Portugal	714.47	351	49.06	0	1.000
Spain	720.40	1 136	157.66	271	6.028
Sweden	672.18	225	33.43	363	1.167
United Kingdom	537.40	124	23.01	387	774
Turkey*	298.98	98	32.72	0	467

<b>Lemon – Import prices</b>	<b>Mean</b>	<b>Standard division</b>	<b>Variation coefficient</b>	<b>Min</b>	<b>Max</b>
Austria	546.51	132	24.09	294	837
Belgium	709.77	130	18.35	590	875
Denmark	603.91	137	22.62	319	922
Finland	681.65	135	19.88	429	1 024
France	621.72	170	27.27	297	995
Germany	594.24	140	23.54	329	917
Greece	651.07	147	22.51	335	1 011
Ireland	1 035.22	1 620	156.49	101	8 568
Italy	741.22	154	20.83	559	1.026
Luxemburg	1 233.17	145	11.79	1 115	1 442
Nederland	553.81	135	24.37	271	823
Portugal	675.87	182	26.93	333	1 000
Spain	853.02	828	97.06	297	4 000
Sweden	669.16	141	21.06	349	1 017
United Kingdom	631.23	148	23.37	317	869
Turkey*	363.91	427	117.42	0	1 365

<b>Lemon – Export prices</b>	<b>Mean</b>	<b>Standard division</b>	<b>Variation coefficient</b>	<b>Min</b>	<b>Max</b>
Austria	629.40	231	36.76	374	1.508
Belgium	730.70	54	7.41	671	802
Denmark	939.84	563	59.90	520	3.136
Finland	829.70	275	33.18	333	1.429
France	800.97	229	28.62	417	1.497
Germany	766.66	418	54.53	464	2.652
Greece	345.28	68	19.79	259	490
Ireland	994.27	491	49.39	360	2.500
Italy	451.23	124	27.42	239	676
Luxemburg	2 115.05	388	18.34	1.722	2.647
Nederland	689.23	108	15.60	449	929
Portugal	733.22	250	34.07	364	1.200
Spain	501.30	112	22.39	281	765
Sweden	694.65	196	28.28	395	1.239
United Kingdom	716.95	139	19.38	510	1.012
Turkey*	340.06	189	55.45	0	561

<i>Orange – Import prices</i>	Mean	Standard division	Variation coefficient	Min	Max
Austria	460.46	99	21.60	285	632
Belgium	566.03	89	15.67	461	677
Denmark	465.38	94	20.19	297	666
Finland	598.80	111	18.48	397	782
France	488.97	109	22.38	291	702
Germany	456.68	87	19.09	293	632
Greece	631.95	135	21.43	376	945
Ireland	573.96	122	21.24	357	802
Italy	576.15	191	33.15	100	815
Luxemburg	631.80	267	42.24	232	770
Nederland	423.43	67	15.88	296	570
Portugal	449.14	86	19.17	226	590
Spain	480.78	121	25.25	200	692
Sweden	558.83	81	14.43	409	705
United Kingdom	463.45	72	15.62	315	591
Turkey*	218.68	108	49.30	79	360

<i>Orange – Export prices</i>	Mean	Standard division	Variation coefficient	Min	Max
Austria	490.10	131	26.63	221	842
Belgium	559.59	100	17.84	443	683
Denmark	647.71	138	21.35	417	893
Finland	640.63	218	33.99	273	1.276
France	590.13	107	18.21	395	812
Germany	587.65	328	55.77	346	2.076
Greece	302.15	64	21.27	221	482
Ireland	660.01	171	25.83	357	993
Italy	417.96	94	22.57	245	629
Luxemburg	1 015.23	206	20.28	846	1.309
Nederland	526.91	49	9.28	425	626
Portugal	617.23	175	28.35	366	1.000
Spain	457.84	106	23.17	281	671
Sweden	574.98	122	21.13	363	948
United Kingdom	591.51	83	14.00	464	738
Turkey*	336.88	71	21.16	205	474

\*Candidate country

Source: Own computations based on data from FAO

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