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# I. INTRODUCTION

The major purpose of this study is to estimate the capability of Turkey to expand the market penetration in the fresh fruits and vegetables under two different trade liberalization scenarios between EU and Turkey. Turkey is a candidate country and the membership negotiations have been started in 2005 with the screening phase. During the membership negotiations, it is inescapable to adopt more liberal trade measures between EU and Turkey in agricultural products which were exempted in the Customs Union Agreement in December 1995. Therefore full or at least a partial liberalization in agricultural products trade will be inevitable for both EU and Turkey in the future decade. In this respect, it is necessary to start pondering about the role of EU protection measures and their impacts on Turkish exports.

To achieve the cited purpose for the fruits and vegetables, a rather different multi-layer methodology which gives more emphasis to the educated estimates of the agents at different decision making points has been preferred. Before proceeding any further, it is necessary to note that the adopted methodology is complementary to any quantitative modeling techniques. It will serve better interpretation of the results obtained in quantitative modeling which may fail to grasp the structure of production and marketing in the fresh fruits and vegetables and the sector specific dynamics that may be operational in case of drastic changes in the trade environment. The study uses both primary and secondary data. Secondary data have been used to determine the structure and evaluate the developments in the production, trade, producer's prices and export unit values of fresh fruits and vegetables in Turkey. Primary data have been used to evaluate the potential impact of EU trade liberalization on the exports of Turkey in fresh fruits and vegetables.

The following section provides a brief overview of the Turkish fruits and vegetables sector. The recent developments in the production and trade including the trading partners are presented in the second section.

The analysis of the various general and crop-specific performance indicators of Turkish fruits and vegetables sector is presented in the third section. It is necessary to examine the production and export market positioning of Turkey in the world in order to study the potential impacts of trade liberalization in the fruits and vegetables. This section is intended to establish the place of Turkey on the world map for the selected fruits and vegetables. The

section is closed by the regional (NUTS2 level) distribution of the selected fruits and vegetables in Turkey. Some preliminary deliberations about the regional implications of the impact of trade liberalization may contribute towards determining the constraining factors that inhibits further market penetration in the fruits and vegetables. Detailed data that have been used in creating the regional fruits and vegetables map of Turkey are provided in the Appendix.

The expert opinions about the potential impacts of trade liberalization with the EU can be found in sections four and five. The trade liberalization scenarios are explained in the fourth section. The analyses of the expert opinions are provided in the fifth section. The section gives more emphasis on the export potential of Turkey in the selected crops. It also provides the constraining factors and suggested solutions of the experts, not only for the selected crops but also for the fruits and vegetables sector in general. The experts were also asked to guess the expected date full membership of Turkey to the EU. The last section is reserved for concluding remarks.



## II. OVERVIEW OF FRESH FRUITS AND VEGETABLES IN TURKEY

The leading sector of Turkish agriculture is crop production with 75 percent share in the total value of agricultural production. The share of the fruits and vegetable in the total value of crop production is 25 percent, occupying only 11 percent of the cultivated area. Main fresh products of Turkey are *grape-like fruits*, *pome fruits*, *citrus fruits* and *stone fruits* (Table 1).

Table 1 Fresh Fruits & Vegetables Production in Turkey (1000 Tons)

PRODUCTS	2003	2004	2005	Average	Share (%)
<b>Citrus Fruits</b>					
Oranges	1,250	1,300	1,250	1,267	3.3
Soft Citrus <sup>a</sup>	550	670	585	602	1.5
Lemons	550	600	600	583	1.5
Grapefruits	135	135	150	140	0.4
<b>Grape-like Fruits</b>					
Grapes	3,600	3,500	3,650	3,583	9.6
Figs	280	275	280	278	0.7
<b>Pome Fruits</b>					
Apples	2,600	2,100	2,550	2,417	7.0
Pears	370	320	340	343	1.0
<b>Stone Fruits</b>					
Peaches	470	372	485	442	1.3
Apricots	499	350	370	406	1.3
Cherries	265	245	260	257	0.7
<b>Fruit Bearing Vegetables</b>					
Melons	1,700	1,700	1,700	1,700	4.6
Watermelons	4,250	3,825	3,800	3,958	11.4
Cucumbers & Gherkins	1,780	1,725	1,725	1,743	4.8
Capsicum	1,790	1,700	1,745	1,745	4.8
Eggplants	935	900	880	905	2.5
Tomatoes	9,820	9,440	9,700	9,653	26.3
<b>Tuber Crops</b>					
Potatoes	5,300	4,800	4,170	4,757	14.2
Onions, Dry	1,750	2,040	2,000	1,930	4.7
<b>Fruits</b>	<b>11,495</b>	<b>10,811</b>	<b>11,481</b>	<b>11,262</b>	<b>30.8</b>
<b>Vegetables</b>	<b>25,868</b>	<b>25,235</b>	<b>25,395</b>	<b>25,499</b>	<b>69.2</b>
<b>Total (Fruits and Vegetables)</b>	<b>37,362</b>	<b>36,046</b>	<b>36,876</b>	<b>36,761</b>	<b>100</b>

Note: <sup>a</sup> Clementine, Mandarin, Satsuma.  
Sources: SIS (2005), FAOSTAT (2005).

Grape-like fruits rank first representing 37 % of fresh fruit production. Within this group, *grapes* are the most important fruits. Pome fruits are the second important group, accounting for 27 % of total production. *Apples* are the most prominent products of pome fruits with an average annual production figure of about 2.4 million tons (Table 1).

Citrus fruits rank third in total fresh fruits production, however they have always been traditional export item of Turkey. The total citrus fruit production is about 2.6 million tons, *oranges*, *soft citrus* (Clementine, Mandarin, Satsuma) and *lemon* being the most important types. Stone fruits rank fourth, with 14 % of overall fresh fruit production. *Apricots*, *peaches*, *plums* and *cherries* (sweet and sour) are included within this group.

Annually 25.5 million tons of vegetables are produced in Turkey. With an output of about 9.7 million tons, *tomato* is the leading product, followed by *potatoes*, *watermelons*, *melons*, *onions* and *cucumbers*. Cucumbers are traditionally grown in green houses. *Melons* occupy an important place in production. They are also a major vegetable grown in green houses. Many of the vegetables are available all year round due to adoption of *undercover* production. Major products grown undercover are *tomatoes*, *cucumbers*, *melons*, *green peppers*, *green beans*, *eggplants*.

The volume of fresh fruit exports reached 977,000 tons according to 2002-2004 average. Citrus fruits rank first among exportable fresh fruits with 64 % in 2004. Turkish lemons are available throughout the year due to natural and modern storage facilities. Major export varieties of lemons are *Interdonato* and *Lamas*. Among the grapes, *Sultana* is the most popular export variety, taking a 14 % share in the overall fruit exports. Turkish sweet cherry exports displayed exceptional performance in the recent years, due to the cherry's high quality, attractive appearance and delicious taste. Turkey exported 604,000 tons of fresh vegetables in 2004. Tomatoes have a significant place in total exports with 50 % share in total. The value of tomato exports reached to US \$ 109 million. Other principle exported vegetables are onions, potatoes, and cucumbers-gherkins.

Table 2 Exports of Fresh Fruits &amp; 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)
<b>Citrus Fruits</b>								
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
<b>Grape-like Fruits</b>								
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
<b>Pome Fruits</b>								
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
<b>Stone Fruits</b>								
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
<b>Fruit Bearing Vegetables</b>								
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
<b>Tuber Crops</b>								
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).

Destination distribution of Turkish exports of fresh fruits and vegetables is provided in Table 3. The major importer of fresh fruits and vegetables is Russian Federation with 456,000 tons amounting to 189 million dollars in 2004. The second main destination of Turkish fresh fruits and vegetables is Germany with 116,000 tons and 130 million dollars, followed by Saudi Arabia, Netherlands, Romania, Ukraine, UK, Greece, Austria and Italy.

Table 3 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).

### III. VARIOUS PERFORMANCE INDICATORS ON THE SELECTED FRESH FRUITS AND VEGETABLES

As it is mentioned before the study aims to determine the impact of EU liberalization of trade measures on Turkey's exports of fresh fruits and vegetables. The selected commodities are: apples, cherries, cucumbers, table grapes, lemons, clementines, melons, onions (dry and green), potatoes, tomatoes and watermelons. Several aggregate and crop specific production, yield, price and trade indicators are calculated to establish the actual positioning of the fresh fruits and vegetable sector of Turkey in the world and in the EU.<sup>1</sup>

Table 4 displays the estimates of annual rates of changes in yields, producer prices and production for the selected products. The annual change rate trends are estimated log-linear growth rates according to equation below.

$$y_t = \beta_0 e^{\beta_1 t + u_t},$$

where  $y_t$  denotes *yield*,  $t$  denotes *year*,  $\beta_0$  is the *intercept*,  $\beta_1$  the *regression coefficient* and  $u_t$  the *disturbance term*. The estimated regression coefficients report rates of changes.

Regarding the yields, apart from melons, green onions, tomatoes and watermelons, all other products have statistically significant annual growth rates (Table 4). The highest per annum yield increase is reported for cucumber with 2.4 percent, followed by dry onions and soft citrus with 2 and 1.7 percents, respectively. The yields of apples and grapes grew on average by 1.2 percent per annum.

The producer's prices (in US \$), of four products registered negative average changes which are statistically significant. The highest average decline occurred in soft citruses (clementine, mandarin and Satsuma) with 4.5 percent per annum from 1991 to 2002 (Table 4). The yields of the citrus products, on the other hand, went up 1.7 percent per annum. Second highest per annum decrease in producer's prices is observed in tomatoes with 4 percent during the

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<sup>1</sup> Apart from trade, detailed statistical information about the table grapes do not exist. Table grapes are not included in the crop specific indicators.

considered period. The growth rate in the yield of tomato is not significant, however the production grew almost by the same rate as the decline in the producer's prices. It seems that the area expended due to the relatively positive changes in the returns to the tomato production. As it is the case for almost all crops in Table 4, cucumbers prices declined by 2.4 percent per year (significant at 10 percent), however both the yield and production grew by 2.4 and 5.0 percent, respectively. Statistically significant drops in the producer prices of these products may improve the export competitiveness of Turkey.

Table 4 Annual Rates of Changes<sup>a</sup> in Yields, Producer's Prices and Production

	Yield <sup>b</sup> (Ton/Ha)		Producer's Prices <sup>c</sup> (\$)		Production <sup>b</sup> (Ton)	
	Annual Change (%)	Prob. <sup>d</sup>	Annual Change (%)	Prob. <sup>d</sup>	Annual Change (%)	Prob. <sup>d</sup>
Apple	1.2	[.000]	0.3	[.825]	1.7	[.000]
Cherry	0.6	[.035]	-0.2	[.898]	4.0	[.000]
Cucumber	2.4	[.000]	-2.4	[.076]	5.0	[.000]
Grape	1.2	[.000]	-2.4	[.057]	0.4	[.022]
Lemon	1.1	[.075]	1.2	[.517]	3.5	[.000]
Soft Citrus <sup>e</sup>	1.7	[.000]	-4.5	[.002]	4.3	[.000]
Melon	-0.5	[.198]	-1.7	[.275]	-0.4	[.209]
Onion (dry)	2.0	[.000]	-3.2	[.207]	2.8	[.000]
Onion (green)	0.3	[.204]	-3.2	[.206]	2.1	[.000]
Potatoes	1.2	[.000]	-0.4	[.809]	1.2	[.001]
Tomatoes	0.2	[.466]	-4.0	[.042]	3.8	[.000]
Watermelon	0.2	[.451]	-1.7	[.275]	1.4	[.000]

Notes: <sup>a</sup> The annual change rates have been estimated as log-linear trends by ordinary least squares regression.

<sup>b</sup> From 1985 to 2005.

<sup>c</sup> From 1991 to 2002.

<sup>d</sup> The figures are the associated probability values. They represent the statistical level of significance of annual rates.

<sup>e</sup> Clementine, mandarin and Satsuma

Source: Authors' calculations from FAOSTAT (2005).

The production of all crops, except melon, registers significant annual rates of changes. The highest per annum growth belongs to cucumber with 5 percent from 1985 to 2005, and then soft citrus products grew by 4.3 percent per year, followed by cherries, tomatoes and lemons with 4.0, 3.8 and 3.5 percent per year growth in production, respectively.

The positioning of the fresh fruits and vegetables sector in Turkey requires further information about the relative standing of the sector relative to other major actors in the world. Crop specific production, price, trade and yield indicators are analyzed to evaluate the potential developments in the fresh fruits and vegetables sector.

World rankings of top ten producers of apples are reported in Table 5, together with prices, exports and yields. Turkey accounts for 3.9 percent of world apple production, ranking third behind China producing more than one third of the world output.

Table 5 Apple Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	23,264	37.6	114	332	349	4	10.0	39	11.2
2	USA	4,323	7.0	350	600	724	5	8.9	13	27.4
3	Turkey	2,417	3.9	311	394	503	27	0.3	17	21.2
4	Iran	2,400	3.9	488	135	214	12	1.8	29	16.0
5	Poland	2,333	3.8	51	139	221	6	5.9	33	14.0
6	France	2,159	3.5	478	598	838	1	12.0	7	36.8
7	Italy	1,981	3.2	361	477	730	2	10.6	11	30.6
8	Russia	1,923	3.1	215	414	456	53	0.0	69	4.9
9	Germany	1,590	2.6	339	490	798	16	1.2	16	22.7
10	India	1,470	2.4	467	229	282	30	0.3	62	5.9
<b>WORLD</b>		61,892			465	574				12.2

EU Trigger price: (1) January-June: 568 Euro (677.8 \$) per ton (2) July-December: 457 Euro (545.4 \$) per ton

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

The biggest apple producer within EU member countries is France with 3.5 percent of world output. Italy and Germany rank seventh and ninth with 3.2 and 2.6 percents, respectively. Poland has the lowest producer's price and export unit value in the top ten. However, it seems Poland export unit value has started to increase as the date of EU membership approached. Turkish producer's price of apples is lower than the prices of USA, France, Italy and Germany, but higher than that of Iran and India. Relatively higher export unit values reveals that the quality differences are significant between domestic and exported apples. Russia also has low producer prices, but it ranks 53<sup>rd</sup> in exports and 69<sup>th</sup> in yields.

In terms of export performance, France is the leading country in the world with 12.0 percent and then comes Italy with 10.6 percent share. Germany is 16<sup>th</sup> and Turkey is reported as 27<sup>th</sup> in this respect. The major competitors of Turkey in apple export would be France, Italy, Germany and Poland from the EU member countries, and China in the rest of the world. Compared to France, Italy and Germany, Turkey is advantageous with her lower producer prices, assuming that the product qualities are similar. Trigger prices of EU are binding and seem to be the main limiting factor in the Turkish exports towards the EU.

Cherry production, prices, export performances and yields for the top ten cherry producers in the world are presented in Table 6. Turkey is the biggest cherry (sweet) producer in the world with 257 thousand tons. Her share in the world production is 13.9 percent. USA and Iran rank second and third behind Turkey with 13.2 and 12.1 percents, respectively. Within EU member countries; Germany, Italy, Spain and France rank fourth, fifth, seventh, and ninth in world output.

Table 6 Cherry Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	<b>Turkey</b>	257	13.9	704	2,184	2,662	2	17.2	4	9.7
2	<b>USA</b>	243	13.2	1,373	4,178	4,083	1	22.5	8	7.8
3	<b>Iran</b>	223	12.1	1,693	210	366	23	0.5	6	8.7
4	<b>Germany</b>	116	6.3	1,844	1,335	2,128	13	1.8	36	3.5
5	<b>Italy</b>	104	5.6	1,914	2,533	3,733	9	2.9	37	3.4
6	<b>Russia</b>	100	5.4	202	512		No Exp.	-	35	3.7
7	<b>Spain</b>	87	4.7	1,287	1,681	2,713	5	6.4	52	2.5
8	<b>Ukraine</b>	80	4.3				31	0.1	22	5.0
9	<b>France</b>	61	3.3	1,580	2,261	3,351	7	4.7	23	4.9
10	<b>Romania</b>	60	3.3	572	497	623	16	1.2	11	6.2
	<b>WORLD</b>	1,843	100.0		2,439	2,871				4.8

EU Trigger price: Between 916 Euro (1093.4 \$) and 1494 Euro (1783.6 \$) per ton; maximum 256 Euro (305.5 \$) per ton duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

USA is leading exporter accounting for 22.5 percent of world cherry exports, followed by Turkey with 17.2 percent. The level of Turkish producer's price of Turkey (704 US\$/ton) indicates that Turkey is relatively advantageous in cherry production and exports. Furthermore, Turkey ranks fourth in the yields, but she is the best in the top ten. The trigger price of the EU is far from binding. On top of the price advantage, high export levels of Turkey prove that the quality and taste of Turkish cherries are compatible with the consumers' preferences. The major limiting factors for the exports in the future seem to be the production capacity and logistics capability of Turkey.

Turkey accounts for 4.2 percent of world cucumber production, ranking second behind China (62.5 percent of world output). Spain, the only country from EU in top ten, ranks ninth with 1.3 percent. Although the yield in Spain is much higher than the Turkey's yield, the producer price in Turkey is quite lower than that of Spain. The difference in the yields and prices can



be explained by the quality differences. Accordingly, export unit price of Spain is much higher than that of Turkey. However, regarding the effect of trigger price of EU, 2003-2004 averages report that export unit price of Turkey is about 458 US \$, adding transportation and handling will increase the import unit value. The trigger price seems to be the major constraint for the Turkish exports towards EU.

Table 7 Cucumber Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	25,726	62.5	83	106	140	11	1.4	55	17.5
2	Turkey	1,743	4.2	230	391	458	10	1.5	33	29.1
3	Iran	1,400	3.4	252	201	269	14	1.2	53	17.6
4	Russia	1,311	3.2	529	475	639	54	0.0	68	14.8
5	USA	985	2.4	347	623	655	5	2.8	72	14.2
6	Ukraine	743	1.8				46	0.0	79	13.1
7	Japan	679	1.6	1,844	2,000		No Exp.	-	25	47.3
8	Egypt	619	1.5	124	266	417	64	0.0	50	21.1
9	Spain	521	1.3	414	658	899	2	22.9	16	72.4
10	Mexico	474	1.2	206	504	739	1	25.0	35	27.9
	<b>WORLD</b>	<b>41,179</b>			<b>585</b>	<b>777</b>				<b>17.2</b>

EU Trigger price: Between 481 Euro (574.2 \$) and 1105 Euro (1319.3 \$) per ton; maximum 378 Euro (451.3 \$) per ton duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Egypt has lower producer prices compared with Turkey in cucumber production, its poor export performance (ranks 64<sup>th</sup> in world exports) combined with its low yield levels (ranks 50<sup>th</sup> in world) points that Egypt would not be an important competitor for Turkey in cucumber exports to the EU under the liberalization of trade between EU and other Mediterranean countries. Furthermore, as it is indicated in Table 4, rather high increases in the cucumber production and yield accompanied by the decrease in the producer prices imply that the convergence towards the EU standards may improve the exports of Turkey.

Table 8 reports the ranking in the lemon production, together with price indicators, exports, yields and shares in the world of the top ten producers.

Table 8 Lemon Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	Mexico	1,825	14.5	181	255	397	2	17.1	29	12.9
2	India	1,420	11.3	245	334	208	18	0.4	32	12.2
3	Argentina	1,279	10.2	80	410	395	3	16.3	4	28.6
4	Iran	1,083	8.6	565	662	591	27	0.1	18	19.7
5	Brazil	994	7.9	101	503	494	8	1.6	19	19.2
6	Spain	864	6.9	215	483	656	1	27.0	8	23.8
7	USA	806	6.4	370	709	731	5	5.8	2	30.5
8	China	613	4.9	115	634	360	20-65	0.3-0.0	30	12.4
9	Turkey	583	4.6	362	383	465	4	10.4	3	29.9
10	Italy	571	4.5	362	533	686	9	1.6	20	18.6
<b>WORLD</b>		12,570			438	527				15.6

EU Trigger price: (1) June-October: 558 Euro (666.1 \$) per ton, (2) November-May: 462 Euro (551.5 \$) per ton; maximum 256 Euro (305.7 \$) per ton duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

The biggest lemon exporter of the world is Spain which accounts for 27.0 percent of world lemon exports, despite the fact that she produces only 6.9 percent of world output and ranks sixth behind Mexico. Turkey is the fourth biggest exporter of lemon with 10.4 percent although in terms of production it ranks ninth with 4.6 percent, implying quality advantage of the Turkish lemon. The producer price in Spain is lower than Turkey. However, the export unit value of Spain is higher than Turkey. Higher yield levels of Turkey with respect to Spain combined with its significant per annum yield growth rates (Table 4) can be seen promising for future improvements in Turkey's competitiveness. Italy ranking tenth in world lemon production is ninth in world lemon exports. Although Italy has about the same producer prices with Turkey, its unit export value is considerable higher than that of Turkey. Since its rank in world exporter list is only ninth, higher profit margins can be seen more probable cause than higher quality of its lemons, and of course with the contribution of being a member of EU. This may imply that the integration of Turkey to the EU with liberalized trade would probably cause to a decline in lemon prices within EU, implying a squeeze for the major producers in the EU. Otherwise, the trigger prices will help Italy and Spain, constraining the exports of Turkey towards EU.

The biggest soft citrus (clementine, mandarin and satsuma) producer within EU member countries is Spain ranking second behind China (47.0 percent of world output), producing 9.4 percent of world output (Table 9). Turkey accounts for 2.6 percent of world production,

ranking eight in the world production. Italy has about the same share as Turkey in world soft citrus output, ranking tenth in the list. Turkey's producer price of soft citrus products is slightly lower than that of Spain and considerably lower than that of Italy.

Table 9 Soft Citrus Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	10,807	47.0	155	246	269	2	8.9	36	9.6
2	Spain	2,154	9.4	263	705	912	1	49.6	18	17.4
3	Brazil	1,282	5.6	120	387	397	18	0.7	12	19.5
4	Japan	1,102	4.8	1,102	871	928	31	0.2	10	20.4
5	Iran	720	3.1	612	114	262	19	0.6	22	16.2
6	Thailand	669	2.9		428	563	44	0.0	15	18.0
7	Egypt	646	2.8	143	191	263	38	0.1	19	17.1
8	Turkey	602	2.6	226	335	437	3	7.3	14	18.9
9	Korea (South)	599	2.6	659	1,195	788	27	0.3	2	26.2
10	Italy	590	2.6	411	464	689	9	1.5	17	17.6
	<b>WORLD</b>	23,010			571	717				12.3

EU Trigger price: Between November-February, 649 Euro (774.8 \$) per ton, maximum 106 Euro (126.6 \$) per ton duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Turkey ranks as 3<sup>rd</sup> biggest exporter in the world after China and Spain with 7.3 percent. Accordingly, low producer prices of Turkey should not be attributed to quality problems of its soft citrus products because of her export performance. Under the prevailing conditions, this implies that Turkey has comparative advantage over Italy and Spain in soft citrus production. In addition to current low producer prices of Turkey, statistically significant high per annum decline rates in the Turkish producer prices (-4.5 percent decrease per annum) was reported in Table 4. This implies encouraging prospects for future improvements in exports of Turkey.

Furthermore, the developments in the yields and production in soft citrus are similar to Lemon. The increase in production (5 percent per year) is much higher than the yields (1.7 percent per year). All changes combined imply that the relative returns of soft citrus is increasing with the help of technological improvements, causing expansion in the area as indicated by rather high per year growth in production. In addition, the yield levels of Turkey are higher than that of Italy and Spain (Table 9). Turkey seems to be improving her advantageous position in soft citrus production, especially compared to the major producers in the EU. However, it seems that Turkey would not be able to benefit from this advantageous

position due to the trigger price of the EU around 775 US \$ per ton. However, a high potential may be realized with the liberalization of trade with the EU.

Although Turkey accounts for 6.2 percent of world melon production, ranking second behind China (52.6 percent of world output), but the performance in exports is dismal, ranking 21<sup>st</sup> with negligible share in total melon exports (Table 10). This may be due to the low quality, marketing and logistic capability.

Table 10 Melon Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	14,402	52.6	79	242	210	15	1.0	11	26.3
2	Turkey	1,700	6.2	208	226	416	21	0.5	32	16.5
3	Iran	1,228	4.5	283	118	248	7	4.1	37	15.4
4	USA	1,181	4.3	398	490	506	3	10.5	10	26.3
5	Spain	1,117	4.1	232	549	718	1	22.5	9	30.0
6	Romania	762	2.8	153	1,000	876	86	0.0	24	19.9
7	India	645	2.4	384	488	407	62	0.0	21	20.5
8	Morocco	625	2.3	335	628	895	13	1.0	12	26.2
9	Italy	608	2.2	267	742	982	14	1.0	18	22.5
10	Egypt	534	1.9	126	142	237	24	0.3	19	22.4
	<b>WORLD</b>	<b>27,398</b>			<b>448</b>	<b>537</b>				<b>21.5</b>

EU Tariff: 8.8 % from June to October, No entry price.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Turkey's yield in melon is below world average, ranking 32<sup>nd</sup> in the world. Producer prices, production yields are all stagnant (Table 4). Producer price of melon is lower than that of Spain and Italy but their export performances and high yield levels quite above the world average make them significant competitors for Turkey in EU market. In addition, compared with Turkey, Egypt with considerably lower producer prices can be an important competitor for Turkey in the case of liberalizing trade between EU and Mediterranean countries. It seems that the potential effects of liberalization for Turkey in terms of melon exports to the EU can be limited. Egypt should not be overlooked as a potential competitor in the market for melons.

Table 11 reports similar world overview for the dry onions. The main producer of dry onion is China again, accounting for 32.5 percent of world output. Turkey is fourth biggest dry onion producer of the world, supplying 3.4 percent of world production and ninth biggest exporter in the world with 2.6 percent share. For dry onion exports to EU, the main inside competitor

of Turkey is Spain which is also the sixth biggest exporter of the world with 4.9 percent share. In case of dry onions, it seems that export subsidies are operational in helping the competitiveness of Turkey. However, the producer prices of Turkey are higher than that of Spain. Combined with considerably higher yield level, Spain may override Turkey in the dry onion market.

Table 11 Dry Onions Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	<b>China</b>	18,210	32.5	215	207	202	3	8.5	45	21.4
2	<b>India</b>	5,500	9.8	94	158	172	1	17.1	95	10.4
3	<b>USA</b>	3,556	6.4	253	326	411	5	7.0	2	52.8
4	<b>Turkey</b>	1,930	3.4	167	112	127	9	2.6	36	24.4
5	<b>Russia</b>	1,626	2.9	138	136	197	53	0.0	79	13.2
6	<b>Pakistan</b>	1,547	2.8	129	112	112	18	1.2	78	13.4
7	<b>Iran</b>	1,467	2.6	288	91	125	23	1.0	17	32.6
8	<b>Japan</b>	1,166	2.1	462	249	272	52	0.0	3	50.3
9	<b>Brazil</b>	1,141	2.0	199			No Exp.	No Exp.	56	18.7
10	<b>Spain</b>	1,021	1.8	131	219	326	6	4.9	7	45.9
	<b>WORLD</b>	55,964			203	236				18.1

EU quota 2,000 tons, between May 16, 2004-February 14, 2005; Over quota tariff 9.6 %.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Turkey's share in world green onion production is 4.9 percent (Table 12). There were no exports from 2002 to 2004. The yield of Turkey is exactly half of the world average and producer price is considerably higher than that of Tunisia which supplies 2.8 percent of world production, ranking 8<sup>th</sup> just after Turkey. Tunisia ranks as 11<sup>th</sup> in the world in terms of yield. Accordingly, it seems that Tunisia is better positioned in the world in green onion production. The information in Table 12 implies that liberalization of trade between EU and Mediterranean countries would not have significant impacts on Turkey's green onion export performance.

Table 12 Green Onions Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	Mexico	1,131	25.0	205	702	691	1	51.3	8	25.5
2	China	700	15.5	112			no data		4	33.3
3	Korea (South)	662	14.7	480	1,222	7,600	38	0.0	7	26.9
4	Japan	500	11.1	2,007			no data		12	21.7
5	New Zealand	235	5.2	129	215	324	2	34.5	3	39.4
6	Nigeria	220	4.9	329			no data		15	20.0
7	Turkey	220	4.9	205			No Exp.		32	10.0
8	Tunisia	125	2.8	117	700	1,856	25	0.0	11	21.9
9	Korea (North)	96	2.1				no data		26	12.6
10	Ecuador	80	1.8	166			no data		33	7.4
	<b>WORLD</b>	<b>4,514</b>			<b>498</b>	<b>529</b>				<b>20.0</b>

Between May 16, 2004-February 14, 2005; Quota: 2 000 tons. Over quota, 9.6 % duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

The biggest potato producer within EU member countries is Germany, producing 3.6 percent of world output and ranking seventh in the world (Table 13). Netherlands and France rank ninth and tenth with 2.1 percent share. Turkey is not involved in the top ten potato producers list of the world, instead it ranks 13<sup>th</sup> with only 1.5 percent of production. Netherlands is the biggest potato exporter of the world accounting for 20.1 percent and Germany and France follow her with 15.1 and 14.9 percents, respectively. Their producer prices are considerably lower than that of Turkey. This situation combined with their significantly high yield levels implies that Turkey may continue to be a minor player in case of trade liberalization.

Table 13 Potato Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	70,651	21.9	80	115	150	12	1.8	71	16.0
2	Russia	36,354	11.3	135	100	117	34	0.2	107	11.5
3	India	25,000	7.7	165	101	100	20	0.7	60	18.0
4	USA	20,188	6.3	139	329	329	7	3.1	5	42.8
5	Ukraine	19,503	6.0		112	251	76	0.0	100	12.6
6	Poland	12,913	4.0	54	60	92	16	1.0	56	18.7
7	Germany	11,478	3.6	65	85	121	2	15.1	7	40.2
8	Belarus	9,051	2.8		114	108	22	0.5	64	17.3
9	Netherlands	6,931	2.1	64	202	262	1	20.1	4	43.0
10	France	6,650	2.1	79	195	269	3	14.9	3	43.0
13	Turkey	4,757	1.5	176	125	94	14	1.3	26	26.7
	<b>WORLD</b>	<b>322,748</b>			<b>181</b>	<b>224</b>				<b>17.2</b>

EU tariff: 9.6 %-13.4 % from April to June for fresh potatoes.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Turkey accounts for 7.9 percent of world tomato production, ranking third behind China and (24.7 percent of world output) and USA (Table 14). Turkey is the fourth biggest tomato exporter in the world with 5.2 percent share. The good performance of Turkey in tomato exportation can be a sign of high quality. Italy and Spain rank sixth and seventh in world potato output with 6.0 and 3.5 percents, respectively. The comparison of producer prices and even yields are not appropriate for tomato, since tomato production figures are not differentiated in fresh tomato and tomato for processing.

Table 14 Tomato Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	30,210	24.7	99	166	184	13	1.3	64	25.2
2	USA	12,018	9.8	144	880	1,083	8	4.2	23	70.1
3	Turkey	9,653	7.9	222	282	426	4	5.2	43	37.4
4	India	7,600	6.2	151	204	152	25	0.2	97	14.1
5	Egypt	7,460	6.1	100	253	241	30	0.1	42	38.4
6	Italy	7,383	6.0	413	1,127	1,522	11	2.5	32	53.1
7	Spain	4,288	3.5	545	718	937	1	21.0	26	63.3
8	Iran	4,200	3.4	216	96	162	17	0.6	47	32.3
9	Brazil	3,500	2.9	211	250	162	43	0.1	28	57.9
10	Mexico	2,148	1.8	314	706	989	2	19.3	48	32.0
	<b>WORLD</b>	<b>122,069</b>			<b>736</b>	<b>927</b>				<b>27.5</b>

EU trigger price: Between 526 Euro (628.2 \$)/ton and 1126 Euro (1344.7 \$)/ ton with maximum 298 Euro (355.9 \$)/ton duty.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

Egypt may arise as a potential major competitor in the tomato market. Considerably high trigger prices within the range of 628.2 \$ - 1344.7 \$ would not probably allow to this trade diversion. The trigger prices of the EU for tomato seem considerably binding for newcomers such as Turkey and Egypt in case of liberalization of trade between the EU and Mediterranean countries.

The major watermelon producer within the EU member countries is Spain, ranking tenth behind China (71.8 percent of world output), producing only 0.8 percent of world output (Table 15). Turkey accounts for 4.2 percent of world production, ranking second in the world production. The Mediterranean competitor, Egypt ranks fifth with 1.7 percent share in world output. However, in terms of export performance, the picture is completely different. Spain

producing only 0.8 percent of world output is the second biggest exporter of water melon accounting for 16.5 percent behind Mexico (17.1 percent). Turkey's share in world exports is only 1.1 percent. Turkey's producer price of watermelon products is slightly lower than that of Spain. Turkey ranks only as 17<sup>th</sup> as exporter in the world behind Mexico. Producer price of Egypt is the lowest of the top ten producers, however her exports are almost non-existent, implying mainly production for domestic consumption. The duties of EU does not seem to be binding, instead marketing abilities and product qualities may determine the direction of trade in case of liberalization.

Table 15 Watermelon Production, Prices, Exports and Yields in the World

PRODUCTION <sup>a</sup>				PRICES (\$/TON)			EXPORTS <sup>b</sup>		YIELDS <sup>a</sup>	
Rank	Country	(1000t)	Share (%)	Producer <sup>c</sup>	Ex. UV-1 <sup>d</sup> (\$)	Ex. UV-2 <sup>e</sup> (\$)	Rank	Share (%)	Rank	Ton/Ha
1	China	67,989	71.8	85	129	134	14	1.4	10	33.7
2	Turkey	3,958	4.2	156	144	247	17	1.1	19	27.7
3	Iran	2,150	2.3	181		160	12	1.7	27	21.5
4	USA	1,691	1.8	158	299	301	4	10.5	15	29.0
5	Egypt	1,598	1.7	90	169	427	47	0.0	24	24.5
6	Brazil	1,050	1.1	93	175	230	19	0.8	67	13.2
7	Mexico	970	1.0	160	271	369	1	17.1	25	22.6
8	Russia	918	1.0	35	99	115	22	0.7	90	7.9
9	Korea (South)	819	0.9	395	1,188	1,419	66	0.0	6	36.1
10	Spain	741	0.8	176	328	507	2	16.5	3	45.9
	<b>WORLD</b>	94,721			240	305				27.6

EU tariff 8.8 % from June to October.

Notes: <sup>a</sup> 2003-2005 average.

<sup>b</sup> 2002-2004 average.

<sup>c</sup> 2000-2002 average.

<sup>d</sup> Ex. UV-1: Export unit value, average from 2000 to 2002.

<sup>e</sup> Ex. UV-2: Export unit value, average of 2003 and 2004.

Source: FAOSTAT (2005).

The position of Turkey in the world for the selected products is presented in the previous part. Turkey is a large country displaying significant regional differences in agro-climatic conditions. The regional impacts of trade liberalization in fresh fruits and vegetables with the EU are as important as the overall impact. The purpose of the following part about the regional distribution of fresh fruits and vegetables is to help gaining a preliminary insight about the potential regional effects of the trade liberalization. Advanced and thorough analytical tools which go beyond the framework of this study are necessary to have refined analysis of this issue.



Table 16 shows the production shares of the selected products by NUTS2 regions of Turkey. Comprehensive data on regional production levels and harvested areas by NUTS2 regions can be found in the Appendix.

Table 16 Production Shares by NUTS2 Regions, 2002-2004 Averages (percent)

NUTS2	Apple	Cherry	Grape	Lemon	S. Citrus	Watermelon	Cucumber	Onion (D)	Onion (G)	Melon	Potato	Tomato
TR1	0.1	0.2	0	0	0	0.4	0.3	1	1.1	0.2	0	0.3
TR2	3.8	2.5	4.7	0	1.9	10.3	2.5	7.4	4.1	9	1.1	11.7
TR3	11.3	31.5	43.2	6	22.7	20.8	19.7	7.8	15.1	21.5	16.5	20.7
TR4	5.7	14	3.8	0	0	4.8	5.3	9.6	19.4	5	8.3	15
TR5	18.2	11.3	6.4	0	0	4.7	3.9	16.8	9	16.3	4	4.9
TR6	34.4	14.1	13.7	93.9	74.5	26.6	45.7	14.5	19.8	14.2	4	30.9
TR7	17.1	3.4	8.4	0	0	2.1	1.2	8.5	4.9	5.1	46.6	1.3
TR8	4.6	15	1.8	0	0	5.4	14.2	26.4	5.4	9.5	6.5	10
TR9	1.4	3.5	0.2	0	0.9	0	0.9	0	0.5	0	6.9	0.1
TRA	1.1	0.7	0.2	0	0	0.9	1.6	1.3	2.4	0.7	3.9	0.9
TRB	2	3.2	1.4	0	0	3.1	1.1	0.9	4.6	2.7	2.1	1
TRC	0.2	0.5	16.3	0	0	20.9	3.6	5.9	13.7	15.6	0.1	3
TURKEY	100	100	100	100	100	100	100	100	100	100	100	100

Source: SIS (2005).

Apple is basically produced in Mediterranean Region which supplies 34.4 percent of national production (Table 16). Second and third largest apple producing regions are Western Anatolia and Middle Anatolia regions. Cherry production is concentrated in the Aegean region supplying 31.5 percent of total production, then comes Western Black Sea and Mediterranean regions, with 15.0 and 14.1 percents, respectively. Eastern and Western Marmara regions are other important cherry production zones with 14.0 and 11.3 percents. The leading region in the grape production is Aegean region representing 43.2 percent of total production. Southeastern Anatolia and Mediterranean regions rank second and third with corresponding

16.3 and 13.7 percent production shares. Almost all Turkish lemon is produced in Mediterranean region (93.9 percent) and a relatively small amount of production is observed in Aegean region accounting for 6.0 percent. Soft citrus production regions are: Mediterranean Region ranking first with 74.5 percent, Aegean Region follows with 22.7 percent, Western Marmara Region with 1.9 percent and Eastern Black Sea Region with only 0.9 percent.

Watermelon production is spread throughout the country. The leading watermelon production region is Mediterranean Region with 26.6 percent share. Southeastern Anatolia and Aegean Regions rank second and third with about 21 percent share in domestic production. Mediterranean Region is also the main production zone of cucumber supplying 45.7 percent of national output. Aegean and Western Black Sea Regions are second and third biggest cucumber producers of Turkey with 19.7 and 14.2 percents, respectively. Dry onion is produced almost in all regions of Turkey except Eastern Black Sea zone. The biggest dry onion producer region is Western Black Sea region with 26.4 percent production share. Second and third regions in the ranking are Western Anatolia and Mediterranean Regions with 16.8 and 14.5 percents. Major Green onion producers of Turkey are Mediterranean (19.8 %), Eastern Marmara (19.4 %), Aegean (15.1 5) and Southeastern Marmara (13.7 %) regions, respectively.

In melon production, four regions are prominent. Aegean Region supplying 21.5 percent of national melon output, and then comes Western Anatolia region with 16.3 percentage share. Southeastern Anatolia region rank third representing 15.6 percent of total production and Mediterranean region is fourth in ranking with 14.2 percent. The leading region in potato production is Middle Anatolia supplying almost half of the national output (46.6 %) and then Aegean region comes with 16.5 percent. Lastly, tomato production concentrated basically in Mediterranean Region with 30.9 percent. Aegean region is second biggest tomato producer of Turkey accounting for 20.7 percent. Eastern Marmara region, in term of tomato production, ranks third and then Western Marmara and Western Black Sea regions come with 11.7 and 10.0 percentage shares, respectively.

## **IV. THE EXPERT OPINION SURVEY ON THE FUTURE OF TURKISH FRUITS AND VEGETABLES EXPORTS**

As it is described in the previous section fruits and vegetable trade of Turkey is significant and EU is one of the major trading partners. However, apart from few recent studies (i.e. Cakmak and Kasnakoglu, 2003), the effects of liberalization in the trade of the sector has not been addressed in the literature. One way to disclose these effects would be using quantitative tools such as partial or general equilibrium models. However, these modeling techniques can hardly handle the sector properly due to the scanty data availability. Furthermore the dynamics that may become operational during the transition phases are always hard to catch in any type of quantitative modeling tools. Besides, quantitative methods that analysis the effects of trade liberalization become quite complicated as the policy simulations under inspection gets complicated. Instead of putting that much effort on quantitative tools, referring to the expert opinions turns out to be a better way to find out the effects of probable trade liberalization. Under this motivation, a survey is held among the experts of fruit and vegetable exporting private firms and departments of state institutions concerned with the regulation of fruit and vegetable trade.<sup>2</sup> In this way, it is targeted to capture the details that usually escape in using quantitative methods.

The survey consists of two parts. The first part comprises the questions about the export quantities of selected items under two different liberalization scenarios, while the second part is composed of questions about sector-wise effects of liberalization, expected and current problems about liberalization process, Turkish agriculture and EU protection regime. In the first part of survey, respondents are asked to make an informed guess about the export quantities of selected items under liberalization scenarios, given the current export levels and

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<sup>2</sup> At the start of the study, a Delphi-like methodology was adopted with at least two round survey. The response rate of the exporters was quite low. Instead, face to face interviews were conducted providing all the necessary information, especially about the protection measures of the EU. Given the low interest and converging responses, it has been decided to evaluate the first responses. A state institution namely Export Promotion Center conducted another study about the food safety issues in fresh fruits and vegetables with the major traders with a shorter and easy to answer questionnaire (IGEME, 2005). Despite the fact that the Center sent the questionnaire in several different ways through internet and surface mail, only 11 out of 150 firms responded the survey. Our prime experience during this study suggests that most of the fruits and vegetables traders consider the EU as the “buyers” market. They seem to be more interested to their routine works than sparing some time to ponder about the potential effects of trade liberalization with EU. The prospect of no significant change in the trade environment in the medium term might have led to this attitude. We gracefully acknowledge the contribution of all the participants who shared their vision with us.

protection scheme of EU for these items. Items such as apples, cucumbers and gherkins, potatoes and onions that are assumed to have a potential for high trade volumes under liberalization are included in the analysis as well as those items such as cherries, lemons, grapes and tomatoes of which current trade volumes are high.

The second part of the survey consists of four questions. In the first of these questions, respondents are asked to state the most important obstacles in front of Turkish fruits and vegetables exports. Secondly respondents are asked to submit their expectation about the Turkey's EU accession date and impact of accession on the entirety of the Turkish agriculture. Lastly, respondents are asked to evaluate the relative importance of EU's protection measures in terms of their effect on Turkish fruits and vegetable exports.

The respondents are sector experts of leading private fruit and vegetable exporting firms and public institutions engaged in regulation of fruit and vegetable exports.<sup>3</sup>

List of selected items and EU's protection scheme for these items are given in Table 17. The most important protection measure used by EU is trigger prices. Trigger price is like an "entry price". When price falls below the trigger price, a specific duty or ad valorem tariff is imposed. Seven out of ten products is protected by trigger prices. Remaining three items, namely onions, melons and potatoes are protected by tariffs and quotas. The common property of both protection measures is that there is an important variation in levels of protection measures through out the year. Trigger prices changes up to six times through out the year for cucumbers and tomatoes. 16 percent of tomato exports and 46 percent of cucumber exports of Turkey are made to EU countries, which show the severity of that problem for Turkish exporters.

Trigger prices for all items except cherries are quite above the unit export prices of Turkey for the whole world. Protection measures for cherries turn out to be non-binding since Turkish unit export prices to EU are quite above the trigger prices. There is a significant protection in the remaining items. Comparison of Turkish unit export prices for the whole world and for

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<sup>3</sup> The respondents are categorized as "public" and "private". "Public" respondents are government white collar workers from Ministry of Agriculture, State Planning Organization, Undersecretariat of Foreign Trade and Treasury, Export Promotion Center and from Exporters' Associations, together with the academicians. "Private" are the representatives of the exporting companies. The respondents are evenly distributed between public and private.

EU also confirms the severity of protection applied by EU on Turkish fruits and vegetables. The difference is between 25% and 150%.<sup>4</sup>

Turkey does not enjoy heavily advantageous trade regime from EU. Some preferences are obtained through bilateral trade agreements, but the most important rivals of Turkey in fruits and vegetable trade with Turkey also benefits from these preferences. Thus, erosion of preferences has occurred. In most cases the protection measures against Turkish exports causes an uncompetitive environment.

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<sup>4</sup> Prices are calculated from Table 3.

Table 17 List of selected items, their export levels and protection schemes

Selected Crops	Exports of Turkey to EU, 2004 (Ton)	Period <sup>a</sup>	Border Measures			SCENARIOS		
			Trigger price (EUR/Tones)	Maximum Specific Duty (EUR/Tones)	Ad-valorem (%)	Quota (Ton)	What would be the level of exports of Turkey to EU in 2015 if the following changes occur?	
Apples	392	Jan-June	568				Trigger price is removed	Trigger price is decreased by 50%
Cherries	35,709	July-Dec	457				Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		21-30 May	1494 <sup>b</sup>	256			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		June-July	1254 <sup>b</sup>	256			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		1-10 Aug	916 <sup>b</sup>			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%	
Clementines	1,078	Nov-Feb	649	106			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
Cucumbers	4,274	Jan-Feb	675	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		Mar-Apr	1105	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		May-Sept	481	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		Oct	683	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		1-10 Nov	703	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		11-30 Nov-Dec	605	378			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
Table Grapes	47,795	22 Jul-Oct	546	96	14.1 <sup>c</sup>		Trigger price and all duties are removed	Trigger price and all duties are decreased by 50%
		1-20 Nov	476	96	14.1 <sup>c</sup>		Trigger price and all duties are removed	Trigger price and all duties are decreased by 50%
Lemons	46,312	21-30 Nov	476	96			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		Nov-May	462	256			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		June-Sept	558	256			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%

Table 17 (cont'd) List of selected items, their export levels and protection schemes

Selected Crops	Exports of Turkey to EU, 2004 (Ton)	Period <sup>a</sup>	Trigger price (EUR/ton)	Border Measures			SCENARIOS	
				Maximum Specific Duty (EUR/ton)	Ad-valorem (%)	Quota (Ton)	What would be the level of exports of Turkey to EU in 2015 if the following changes occur?	
Melons	3,282	June-Oct			8.8		Ad valorem duty is removed	Ad valorem duty is decreased by 50%
Onions	7,868				9.6 <sup>d</sup>	2,000	Quota and ad valorem duty are removed	Quota is doubled Ad valorem duty is decreased by 50%
Potatoes	1,254	16 May 04-14 Feb 05						
(07019050)		Apr-15 May			9.6		Ad valorem duty is removed	Ad valorem duty is decreased by 50%
		15-30 May			11.5		(potential export quantity)	
		June			13.4			
Other potatoes	20,575							
Tomatoes	23,967	Jan-Feb	846	298				
		Mar	866	298			Trigger price and specific duty are removed	Trigger price and specific duty are decreased by 50%
		Apr	1126	298				
		May	726	298				
		June-Sept	526	298				
		Oct-Dec	626	298				

Notes:

<sup>a</sup> For non-indicated periods no border measure is applied.<sup>b</sup> Trigger prices are not binding since import prices of EU are at least twice the trigger prices.<sup>c</sup> If the trigger price is less than or equal to 54.6 EUR/ton the ad valorem duty is 17.6%.<sup>d</sup> Out of quota tariff, in quota tariff is zero.

Source: Authors' calculations from Meditar (2005)

## **V. THE OPINION OF THE EXPERTS ON THE FUTURE OF TURKISH FRUITS AND VEGETABLE SECTOR**

Twenty-three experts from private and public sector participated in the survey. Eleven of the participants are experts of private firms while twelve of them are from public institutions. Private firms are mainly from Southern and Western parts of the country where an important part of fruits and vegetable exports are made from. The public institutions on the other hand are those that regulate the fruits and vegetables production and trade.

The answers of private and public experts differ significantly in the both parts of the survey. Experts from public institutions are more “optimistic” about the increase under liberalization scenarios. The focus of private and public experts is also different about the issues and suggested solutions.

Respondents are asked to make their best guess about the exports levels of selected items under two different liberalization scenarios. The scenarios, as described before, are full liberalization in which all protection measures of EU is eliminated and partial liberalization in which all tariffs are cut by 50percent and quotas are increased by 100 percent. For onions, there are three scenarios, first with full liberalization, second with 50 percent tariff cut, and last with 100 percent quota increase.

Basic descriptive statistics of answers for each item under different scenarios can be seen in Table 18. Both public and private experts are quite optimistic about the effect of full or partial liberalization. Exports of all items are expected to increase according to survey results. Most prominent increase is expected in apples, melons and tomatoes under full liberalization. In case of partial liberalization increase in the exports of melons, tomatoes and potatoes are expected to be significantly higher than the other items. Public experts expect melon, apple, clementines and potato exports to increase more compared to other items under both scenarios, on the average. They also expect onion exports to increase higher than other items when quotas are eliminated. Private experts, on the other hand, expect apple, tomato and potato exports to increase more under both scenarios.

Grapes, other potatoes, lemon and cucumber are expected to increase less under both scenarios. Further, public experts turn out to be pessimistic about the effect of partial liberalization on apples. Private sector experts, however, believes that eliminating quota will



Table 18 Averages of export estimations under different scenarios (Tones)

Item	Scenario	Base Level	Mean			Standard Deviation			% Change		
			Respondent Type			Respondent Type			Respondent Type		
			Public	Private	All	Public	Private	All	Public	Private	All
Apple	Full Lib.	392	1 586	2 207	1 827	2 816	3 455	2 996	305	463	366
	Partial Lib.		611	721	654	291	291	288	56	84	67
Cherry	Full Lib.	35 709	66 468	80 143	71 506	13 938	41 050	26 951	186	224	200
	Partial Lib.		61 052	52 286	57 822	15 339	13 598	14 977	71	46	62
Clementine	Full Lib.	1 078	3 501	1 622	2 655	1 971	495	1 751	225	50	146
	Partial Lib.		2 633	1 272	2 020	1 292	241	1 177	144	18	87
Cucumber	Full Lib.	4 274	9 821	7 463	8 878	4 096	2 338	3 624	130	75	108
	Partial Lib.		7 863	5 375	6 868	3 201	911	2 793	84	26	61
Grapes	Full Lib.	47 795	99 654	63 889	84 326	48 829	15 227	41 630	109	34	76
	Partial Lib.		73 812	53 111	64 940	32 845	5 085	26 718	54	11	36
Lemon	Full Lib.	46 312	94 317	81 000	88 610	40 393	34 355	37 618	104	75	91
	Partial Lib.		71 476	62 111	67 462	30 777	19 277	26 309	54	34	46
Melon	Full Lib.	3 282	16 998	5 531	12 411	13 848	2 347	12 094	418	69	278
	Partial Lib.		13 062	4 300	9 557	10 155	1 346	8 931	298	31	191
Onion	Full Lib.	7 868	23 142	17 314	20 995	8 273	6 426	7 996	194	120	167
	Partial Lib. (quota)		14 417	8 543	12 253	6 215	2 380	5 828	83	9	56
	Partial Lib. (tariff)		16 809	12 681	15 288	7 079	4 275	6 396	114	61	94
Potatoes	Full Lib.	1 254	4 044	2 850	3 604	2 263	1 504	2 058	223	127	187
	Partial Lib.		2 871	2 186	2 619	1 674	1 360	1 564	129	74	109
Other potatoes		20 575	24 310	36 250	28 290	15 537	16 400	16 397	18	76	37
Tomatoes	Full Lib.	23 967	60 561	119 438	84 111	24 529	93 540	66 691	153	398	251
	Partial Lib.		43 655	62 375	51 143	15 902	58 084	38 443	82	160	113

Source: Survey held by authors.

not increase exports of onions and partial liberalization will not affect amount of clementine exported from Turkey to EU.

Public experts are more optimistic about the effects of both full and partial liberalization on Turkish exports to EU. Only exception for this is “other potatoes”, which is already not protected, tomatoes and apples. Private experts expect exports of these three items to increase more compared to public experts. This is something expected since private experts are likely to ignore the production side constraints and focus on demand side opportunities. Exporters, in accordance with the “price taking” behavior, assume an infinitely elastic supply of exportable items such that they can supply the whole demand at the current prices. This assumption cannot be denied when the current production and export levels are taken into account. However, public experts are likely to put more emphasis on production capabilities of Turkish agriculture, implying a non-infinitely elastic supply for Turkish fruits and vegetables.

Table 19 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 2.

Table 19 depicts the effects of partial and full liberalization scenarios on total exports of Turkey, ceteris paribus. Expected exports are calculated by adding the difference between average of estimates of respondents and actual level of exports of a crop to the total export level of this crop. Under full liberalization increase in exports of melons, cherries and tomatoes will be more effective on total exports while cherries and melons exports will

exceed the current total exports of these items. The increase in total amount of exports implies approximately a 25 percent increase total value of fruits and vegetables exports of Turkey, other things being constant. The effect of partial liberalization is rather moderate. Increase in total exports of melons, cherries, potatoes and lemons are higher under partial liberalization. Effect of partial liberalization on total value of exports is about 12 percent.

A high standard deviation<sup>5</sup> in answers would imply lack of consensus among experts. Answers of private sector experts are closer to each other compared to the answers of public sector experts. Half of the answers (i.e. item-scenario combinations) have high standard deviations compared to their means. Standard deviation is high in clementine, melons, potatoes and tomatoes under both scenarios and apples and grapes under full liberalization, for the whole sample. There is also a lack of consensus among public experts in export levels of apples under partial liberalization scenario while deviation in the answers of public experts is relatively lower in tomatoes. Private sector experts, on the other hand, reached a consensus about clementine and melons while there is a divergence in their answers for cherries under full liberalization. Consensus is held for all of the remaining item-scenario combinations.

It is possible to calculate arc price elasticities at the mean of demand<sup>6</sup> for Turkish export by using the quantity estimates under full liberalization scenario. Export level estimates of experts provide the percentage changes of the quantities. The changes in the prices of the Turkish exports after full liberalization can be approximated by making some simplifying assumptions. Without loss of generality, one can assume that unit prices of exports to EU will be equal to the world prices, after full liberalization. The current unit prices to the EU are calculated as a weighted average of different unit prices observed through out the year. Elasticities obtained from full liberalization scenario are given in Table 20. Demand for Turkish fruits and vegetables is highly elastic, implying that a small change in price has a great impact on quantity demanded. Demand for cucumbers, potatoes and cherries are less elastic compared to the other items while grapes, clementine, melons and tomatoes are relatively more elastic.

<sup>5</sup> Items for which ratio of mean to standard deviation is smaller than value of t distribution at 5 percent level and corresponding degrees of freedom. These figures can be found in appendix Table A-40.

<sup>6</sup> Elasticities are calculated according to the following formula:

$$\varepsilon = \frac{\frac{(Q_1 - Q_0)}{\left(\frac{Q_0 + Q_1}{2}\right)}}{\frac{(P_1 - P_0)}{\left(\frac{P_0 + P_1}{2}\right)}}$$

Table 20 Elasticities obtained from full liberalization scenario

Item	Unit price of Turkish exports to ROW	Unit price of Turkish Exports to EU	Price Change (%)	Quantity Change (%)	Arc Elasticity at the mean
Apple	39.08	87.77	-0.77	1.21	-1.57
Cherry	204.96	348.11	-0.52	0.60	-1.16
Clementine	47.98	73.40	-0.42	1.06	-2.53
Cucumber	49.16	121.68	-0.85	0.79	-0.93
Grapes	78.15	98.09	-0.23	0.70	-3.11
Lemon	36.81	59.42	-0.47	0.68	-1.45
Melon	37.65	70.33	-0.61	1.35	-2.23
Onion	17.06	32.33	-0.62	0.99	-1.59
Potatoes	15.21	47.69	-1.03	1.05	-1.02
Tomatoes	61.85	93.15	-0.40	0.87	-2.14

Source: Authors' calculations from survey results, *Meditar* (2005) and Tables from 5 to 15.

The expected process of trade expansion with the EU in fruits and vegetables will have major effect on the cropping pattern in the Aegean (TR3) and Mediterranean (TR6) regions. Almost all of the highly increasing export crops are currently located in these two regions. However, the expansion of the irrigated area, especially in the Southeastern Anatolia, may help to lower down the potential pressure on these two regions, and furthermore to contribute towards the diversification of the crop production in the Southeastern Anatolia Project Region.

## **PROBLEMS RELATED TO AGRICULTURAL TRADE AND OTHER ISSUES**

Second part of the survey consists of questions about the factors that impede Turkish exports to EU and solution suggestions of experts about these obstacles, expected date of EU accession for Turkey, importance of EU protection measures according to their impact on Turkish exports and possible effects of EU accession on Turkish Agriculture.

The answers of experts are classified in eleven groups for problems, five groups for the suggested solutions and six groups for the general effects of EU accession on Turkish agriculture. The classification is made according to the economic implications of the answers. The answers that refer the same economic phenomena are considered in the same group. For example, problems about different inputs are considered in the same group, since in economic

terms they state a specific problem about costs in production side. Another example can be given for solution suggestions. Suggestions such as “state should give export subsidies” and “there should be tax redemptions for transportation costs of the exporters” are considered in the same group since both of these statements are suggestions for state support in one way or other. The list of these groups can be found in Table 21.

Table 21 Classification of Answers

<b>Answers for Problems related to</b>	<b>Code</b>
Tariffs and other taxes	1
Quality of production	2
Transportation	3
Organizational problems	4
Quantity of production	5
Price of domestic suppliers	6
Input prices	7
Subsidies	8
Lack of Technology	9
Bureaucracy	10
Marketing	11
<b>Answers for Solution suggestions related to</b>	
Education of farmers	A
EU negotiation process	B
Subsidies and market intervention	C
Institutionalization, planning and legislation	D
Technology transfer and R&D activities in agriculture	E
<b>Answers for general effect of EU accession on Turkish Agriculture as</b>	
There will be no effect	U
Diary and meat will be effected bad	V
General effect will be good	W
General effect will be good if some transformation is achieved	X
General effect will be bad if some transformation cannot be achieved	Y
General effect will be bad	Z

*Source: Authors' classification from survey results*

There is a lack of consensus between public and private sector experts about the problems and solution suggestions. This difference can also be attributed to the difference in emphasis put on production and supply sides. Private experts who put more emphasis on demand side are interested in the problems about marketing while public experts put more emphasis on problems about production. In the same manner, the suggested solutions of the private experts focus on the measures to increase the competition capabilities of Turkey, while public experts focus on the measures to increase the production capabilities.

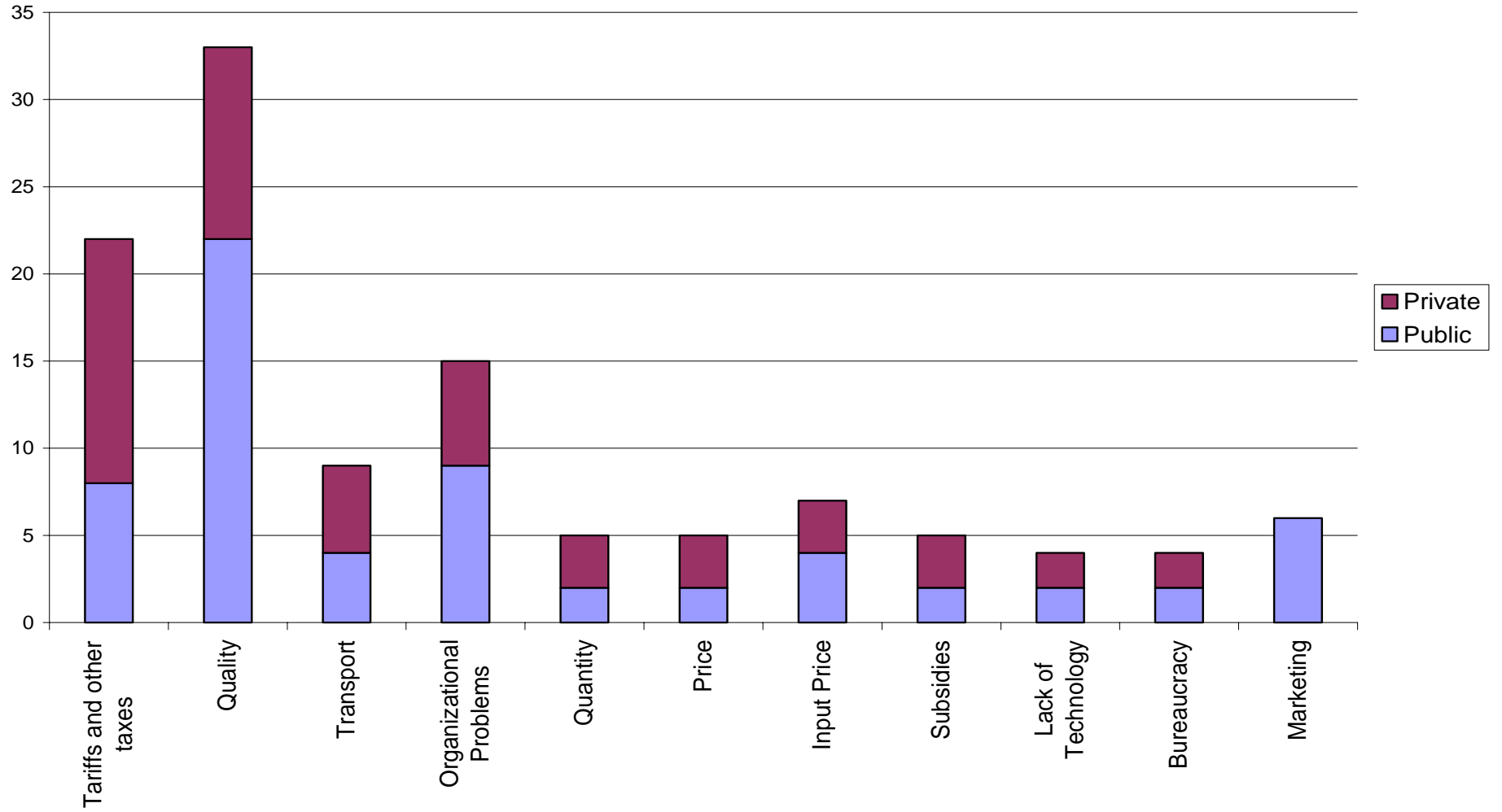


Figure 1 Distribution of answers about the problems hindering Turkish exports

Source: Table A – 41 of appendix

Figure 1 depicts the number of answers in each problem group. Detailed numbers of answers in each problem group can be found in appendix Table A – 41. The focus of the whole sample is on quality of products, tariffs and other taxes and organizational problems. Problems about the quality of production are generally related to the mismatch between Turkish production and EU standards. The deficiency in prevalence of standards accepted by EU is shown as the most important problem in this group. Secondly, lack of species suitable to the EU demand in Turkey is frequently expressed. Difficulties in introducing these species are also commonly stated by experts. Public experts put more emphasis on quality problems. This justifies the prior conclusion of difference in the approaches of different expert types in considering the export process. By putting more emphasis on production capabilities of Turkey, public experts focus more on the quality problems. Besides, private sector experts commonly mentioned the “lack of quality standards” while public experts generally stated the “quality standard requirements” as an obstacle.

The focus of answers in “tariffs and other taxes” group is on protection measures applied by EU. EU is severely criticized for hindering Turkish exports by applying high protection measures to Turkish exports. These measures are also criticized because they change frequently through out the year and this causes an ambiguity for the exporters. Besides, the measures are increased in harvesting seasons of countries that are rivals of Turkish exportable fruits and vegetables and this creates an uneven competition environment. High domestic taxes implied on exporters are also shown as an important obstacle for exports to increase, by private sector experts. None of the public experts, on the other hand, stated domestic taxes as a problem.

Organizational problems are generally related to the production side of Turkish agriculture. Problems that are stated commonly by the respondents are the lack of or ineffectiveness of producer unions, agricultural policy and production planning. Small land holding is also emphasized as an important problem. Public sector experts put more emphasis on the need for producer unions while the private sector experts commonly mentioned the need for production planning.

The most important difference between public and private experts is about the marketing problems. Private sector experts did not state any problems about marketing process. Experts of private sector generally pointed out bureaucratic problems in the Turkish customs system while public sector experts mentioned the Turkish exporters’ inability to integrate into the EU markets.

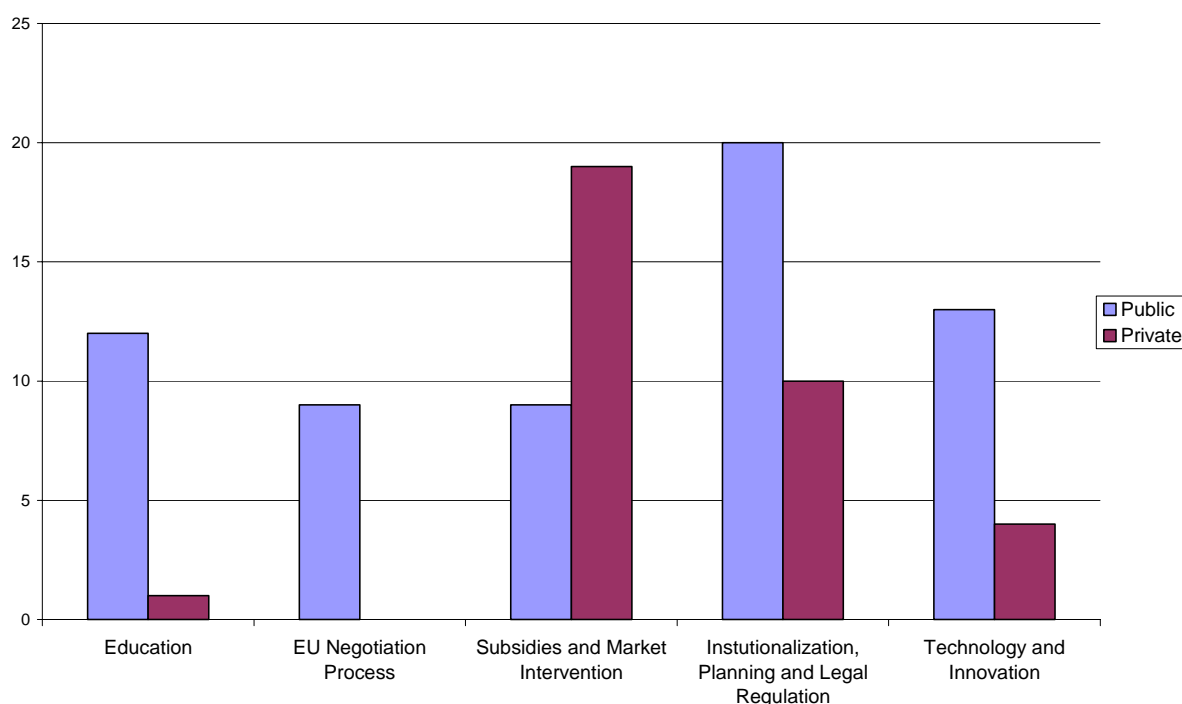


Figure 2 Distribution of suggested solutions

Source: Table A – 42 of appendix

Distribution of solution suggestions among different groups is given in Figure 2. Detailed numbers of answers in each problem group can be found in appendix Table A – 42. The general pattern described afore can also be observed in solution suggestions. Public experts focus production side while private sector experts make solution suggestions about the marketing side.

Suggestion related to institutionalization, planning and legislation is emphasized by both expert groups. Private experts focus on importance exporter unions, production planning and imposition of EU’s food security standards by legislation. Public experts, on the other hand, focus on enhancement of control mechanisms on the quality of agricultural production and reorganization of marketing strategies of Turkish export firms to increase the competition power.

The focus of solution suggestions in the group of “subsidies and market intervention” is on export, transportation and production subsidies. Private sector experts favor the former while public sector experts mention the latter. Some of the private sector experts offered central production planning as a solution to the price, quantity and quality problems in the production.



An interesting result obtained from the survey is that, public experts see the EU negotiation process as a solution to problems hindering the Turkish exports, while private sector experts did not mention about the negotiations as a mean to solve the problems. This shows that public experts put much emphasis on negotiation process as an opportunity to solve the problems of Turkish agriculture. However, private sector experts do not relate negotiations to the elimination of obstacles in front of Turkish exports to EU, if they do not expect the process itself to be a source of problems.

The last but not the least, public experts thinks that there is an important problem in the education of farmers. The necessity for education is generally related to farmers' reluctance to participate in producer unions, to implement food security standards to increase the quality of production and to introduce new species. Private sector experts, on the other hand, do not consider the education of farmers to eradicate the problems of Turkish fruits and vegetables exports to EU.

Figure 3 depicts the relationship between problems and solution suggestions. An important part of private sector experts considers export or production subsidies as a solution to the high tariff rates, domestic taxes and problems about transportation. The subsidies offered are generally in the form of tax exemptions and transportation supports for exporters and input subsidies for the farmers. Public experts see EU negotiations as an important opportunity to decrease the protection measures implemented by EU.

Education, institutionalization, and technological change are offered as solutions to low quality of production. Public experts put more emphasis on education and technological change while private sector experts mentioned the importance of implementation of EU standards about food security by institutionalization and legislation.

“Institutionalization, planning and legislation” is seen as a solution to the organizational problems. Public experts generally offer legislation for producer unions and establishment of public laboratories to enhance the implementation and control of food security standards. Private sector experts, on the other hand, see legislation as a way to impose EU food security standards on farmers and exporters and to increase the quality of production.

Public experts offer reorganization of exporting firms as a solution to the problems about marketing. Besides, they also expect EU negotiations to solve the marketing problems.

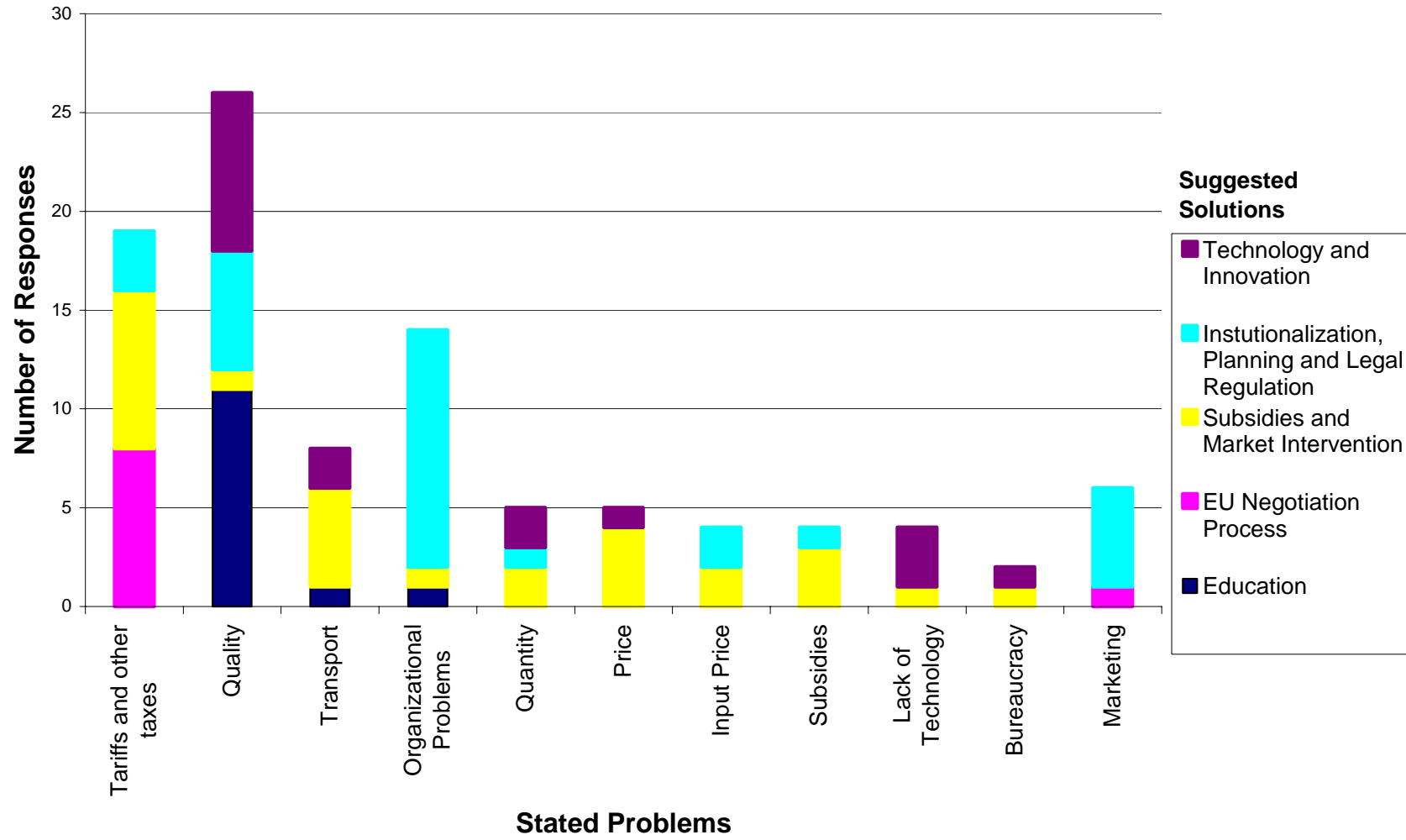


Figure 3 Cross tabulation of problems and solution suggestions

Source: Authors' calculations from the Survey results

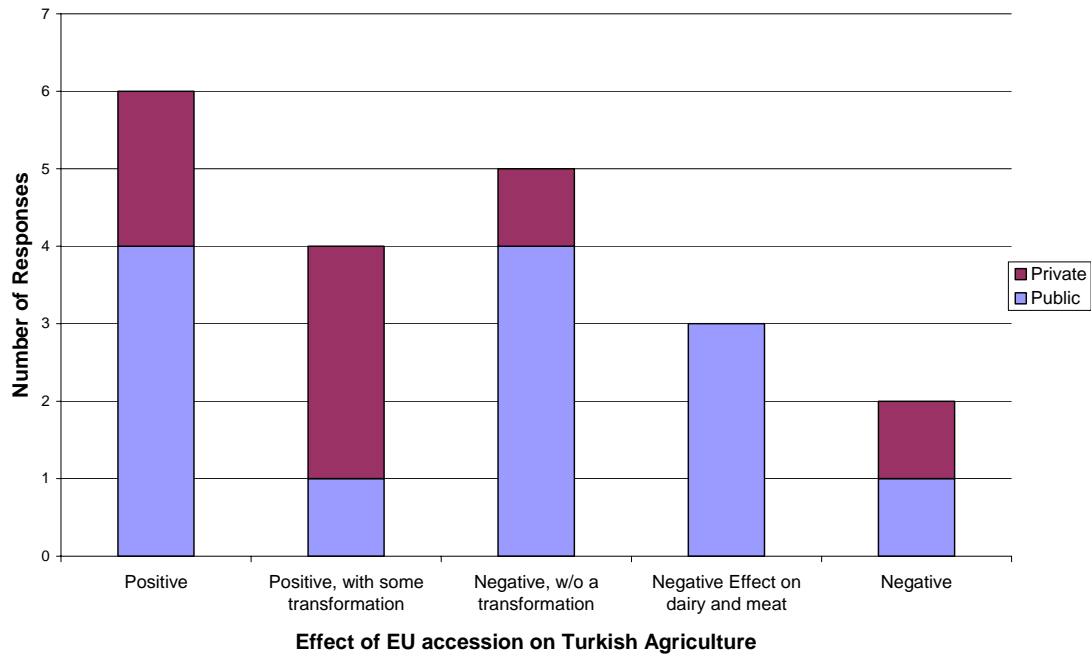


Figure 4 Distribution of answers about the general effects of EU accession on Turkish agriculture

Source: Authors' calculations from the Survey.

Figure 4 depicts the classification of answers about the general effects of EU accession on the Turkish agriculture. There is a consensus among experts about the necessity of a transformation in the Turkish agriculture. The difference between “good, with some transformation” and “Bad without transformation” groups is that, the former consists of the answers in which respondent told that Turkey can realize the transformation while the latter consists of the answers in which respondent told that he does not believe that Turkey can realize the transformation. The transformation is generally related to the structure of production. Necessity to improve the production technology, to increase the efficiency and to implement the food security standards are mentioned frequently. Public experts think that EU accession will have an adverse effect on dairy and meat production while private sector experts do not mention it, at all. There is not a consensus about the final effect of EU accession. Half of the respondents are pessimistic about the impacts of EU accession while the other half is optimistic. Private sector experts are more pessimistic while public sector experts are more optimistic about the impact of EU accession on Turkish agriculture.

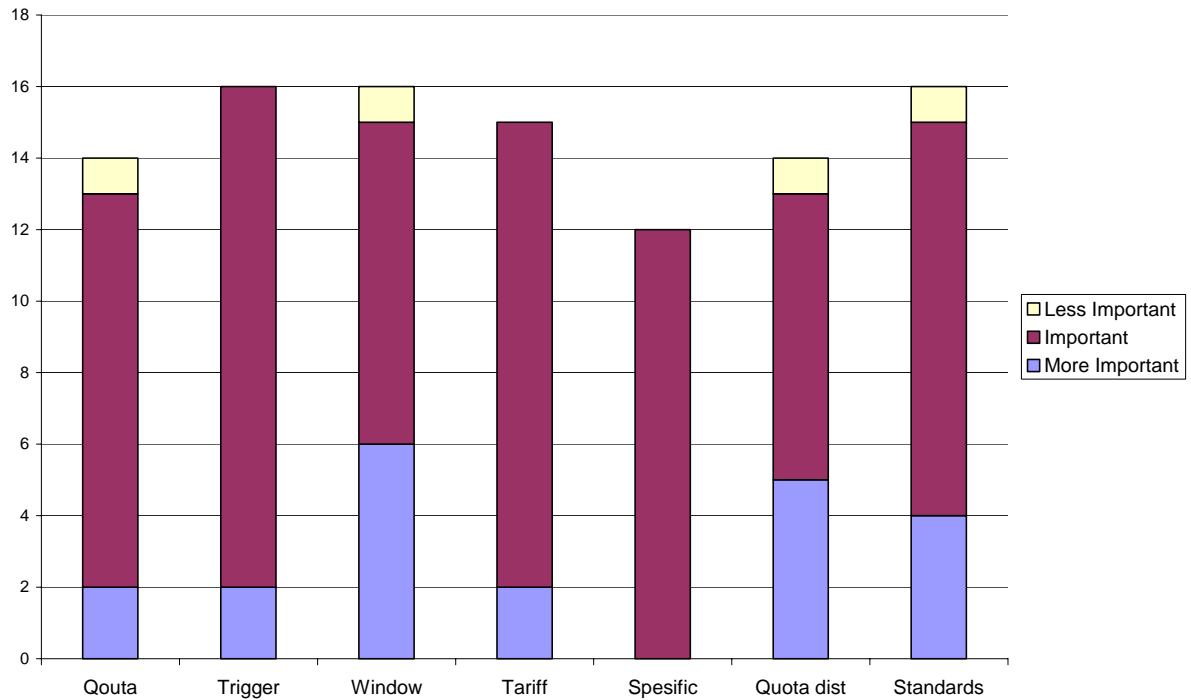


Figure 5 Ranking of EU’s protection measures according to importance of their effect on Turkish exports

Source: Authors’ calculations from the Survey.

Figure 5 depicts the ranking of EU’s protection measures according to their effect on Turkish exports. Frequency of change in protection levels, i.e. windows, quota distribution methods and EU export standards are considered to be more important. Public experts put more emphasis on quota distributions and tariffs while private experts consider windows, trigger prices and tariffs as more important. Detailed figures for private and public experts can be found in appendix Figure A – 1.

The last question in the survey asks the respondents guess for the date of Turkish EU accession. The pattern described above is observed in the answers of this question, too. Average of answers of public experts is 2019, while private sector experts expect Turkey to enter EU in 2024. However, it should be noted that four out of eleven private sector experts do not believe that Turkey can become a member of EU at all.

## VI. CONCLUDING REMARKS

Turkey is expected to improve her position in the world fresh fruits and vegetables market. The production and yields of the major fruits and vegetables in Turkey has been expanding during the last two decades, despite the negative trend in the real producer's prices expressed in US dollars. The stagnant agricultural policy framework giving more weight to the "grand cultures", combined with the factor endowments in the agriculture and relative openness to trade of the fruits and vegetables provide the necessary conditions for the expansion of the fresh fruits and vegetables in Turkey.

The expert opinion supports this progress, especially in the full liberalization scenario. As expected the responses in the partial liberalization scenario are much more conservative, but the transition from partial to full liberalization is highly non-linear. The expected changes in full liberalization are more than twice the changes in partial liberalization for almost all crops included in the study.

The expert opinion classification according to the expert types indicates that the "public" experts, formed mainly by public white collar workers, are more optimistic about the future export performance in fruits and vegetables compared to the "private" experts, formed by the exporters. Similar divergence is observed in the identification of hindering factors. The major factor for the public experts is the quality of production, whereas the private experts side more with the trade measures and organizational issues. The public experts give relatively more weight to the education of the farmers in the suggested solutions. The exporters prefer various subsidies to expend the exports. The results points out the communication problem of the state prevailing so far in the EU membership negotiations in general. None of the exporters mentioned EU negotiation process as a suggested solution for the expansion of the exports.

The communication deficiency in handling the EU membership process is further amplified in the response of the experts about the year of accession of Turkey to the EU. The "public" experts anticipated year of membership as 2019. While some private traders believe that Turkey may never become a member, their expected year of membership is 2024.

Overall the results indicate that Turkey will be able to penetrate in the EU's fresh fruits and vegetables market. The experts anticipate that exports of all selected products to increase significantly. Most important increase is expected to occur in apples, melons and tomatoes. If the expectations of the experts are realized total effect of this increase on Turkish exports will be limited since the base period exports are quite low.

To conclude, higher than 200 percent expansion of exports are reported for apples, cherries, melons and tomatoes in the full liberalization scenarios. Clementines, cucumbers, onions and potatoes form the second group with expected rates of increase between 100 and 200 percent. Lemon and table grape exports are expected to expand by less than 100 percent as a result of full liberalization of trade with EU.

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# **APPENDIX**



Table A – 1 Apple Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	18,213	12,844	3,737	2,982	2,979	3,072	2,741	2,565	2,156
TR02	61,949	88,251	89,132	87,883	87,368	85,409	91,359	96,556	85,170
TR03	224,694	217,782	238,570	237,511	244,323	256,263	262,519	274,227	284,621
TR04	176,632	184,470	180,896	149,484	140,000	151,089	133,610	136,988	143,591
TR05	430,180	392,794	421,494	448,135	486,597	445,917	452,481	299,017	571,425
TR06	556,814	722,454	933,648	866,863	870,669	738,978	841,774	780,516	869,886
TR07	353,256	339,644	432,616	435,006	456,599	479,821	449,196	383,232	405,344
TR08	147,778	130,864	137,340	118,941	102,955	129,070	111,014	110,550	112,339
TR09	52,556	39,467	40,944	34,757	38,057	41,104	29,040	32,704	41,378
TRA	29,815	28,360	28,041	26,626	22,828	22,784	27,383	28,540	25,361
TRB	39,916	36,050	37,764	36,977	42,702	41,640	43,771	49,350	52,688
TRC	8,197	7,020	5,818	4,835	4,923	4,853	5,112	5,755	6,041
TURKEY	2,100,000	2,200,000	2,550,000	2,450,000	2,500,000	2,400,000	2,450,000	2,200,000	2,600,000

Source: SIS (2005)

Table A – 2 Apple Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.9	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TR02	2.9	4.0	3.5	3.6	3.5	3.6	3.7	4.4	3.3
TR03	10.7	9.9	9.4	9.7	9.8	10.7	10.7	12.5	10.9
TR04	8.4	8.4	7.1	6.1	5.6	6.3	5.5	6.2	5.5
TR05	20.5	17.9	16.5	18.3	19.5	18.6	18.5	13.6	22.0
TR06	26.5	32.8	36.6	35.4	34.8	30.8	34.4	35.5	33.5
TR07	16.8	15.4	17.0	17.8	18.3	20.0	18.3	17.4	15.6
TR08	7.0	5.9	5.4	4.9	4.1	5.4	4.5	5.0	4.3
TR09	2.5	1.8	1.6	1.4	1.5	1.7	1.2	1.5	1.6
TRA	1.4	1.3	1.1	1.1	0.9	0.9	1.1	1.3	1.0
TRB	1.9	1.6	1.5	1.5	1.7	1.7	1.8	2.2	2.0
TRC	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 3 Apple Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1,009	1,003	622	605	605	608	300	295	248
TR02	3,252	3,162	3,122	3,025	2,973	2,911	2,944	3,134	3,166
TR03	10,480	10,611	10,445	10,168	10,364	10,676	10,808	11,265	11,421
TR04	12,453	10,942	10,385	9,608	9,525	9,084	9,196	9,016	9,263
TR05	19,440	19,608	19,991	20,554	21,313	22,134	22,540	21,240	25,990
TR06	20,832	20,793	21,761	22,027	21,934	22,214	22,599	22,968	23,873
TR07	19,626	19,657	19,284	19,818	19,744	19,574	19,515	21,365	21,772
TR08	10,349	10,403	10,515	9,922	9,833	9,892	9,793	9,790	9,764
TR09	5,048	5,071	5,067	5,071	4,900	4,824	4,865	4,892	4,970
TRA	1,995	2,010	2,021	1,918	1,892	1,824	1,782	1,745	1,731
TRB	2,905	2,935	2,978	3,061	3,122	3,204	3,418	3,504	3,675
TRC	1,047	924	892	789	728	722	739	786	794
TURKEY	108,433	107,117	107,083	106,567	106,933	107,667	108,500	110,000	116,667

Source: SIS (2005)

Table A – 4 Cherries Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	849	849	684	712	610	613	670	621	479
TR02	8,157	8,391	7,381	6,098	6,042	6,079	6,186	5,666	6,176
TR03	44,520	51,937	58,620	61,058	77,463	75,024	80,197	63,988	84,350
TR04	36,857	38,287	47,118	29,980	41,433	33,640	37,929	26,707	36,586
TR05	16,526	17,944	21,095	20,522	29,170	22,812	25,726	22,764	33,599
TR06	19,844	20,174	23,520	18,570	28,630	21,813	33,472	29,701	38,980
TR07	4,630	4,735	5,339	5,605	7,164	7,040	7,073	8,797	9,068
TR08	37,467	39,803	34,305	38,181	40,743	43,014	39,891	33,854	35,204
TR09	9,167	10,220	9,179	6,582	8,380	9,669	8,437	8,141	9,047
TRA	1,741	1,703	1,729	1,466	1,413	1,516	1,641	1,634	2,065
TRB	5,351	5,151	5,245	5,314	8,001	7,880	7,813	7,085	8,007
TRC	891	806	785	912	951	900	965	1,042	1,439
TURKEY	186,000	200,000	215,000	195,000	250,000	230,000	250,000	210,000	265,000

Source: SIS (2005)

Table A – 5 Cherries Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.5	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.2
TR02	4.4	4.2	3.4	3.1	2.4	2.6	2.5	2.7	2.3
TR03	23.9	26.0	27.3	31.3	31.0	32.6	32.1	30.5	31.8
TR04	19.8	19.1	21.9	15.4	16.6	14.6	15.2	12.7	13.8
TR05	8.9	9.0	9.8	10.5	11.7	9.9	10.3	10.8	12.7
TR06	10.7	10.1	10.9	9.5	11.5	9.5	13.4	14.1	14.7
TR07	2.5	2.4	2.5	2.9	2.9	3.1	2.8	4.2	3.4
TR08	20.1	19.9	16.0	19.6	16.3	18.7	16.0	16.1	13.3
TR09	4.9	5.1	4.3	3.4	3.4	4.2	3.4	3.9	3.4
TRA	0.9	0.9	0.8	0.8	0.6	0.7	0.7	0.8	0.8
TRB	2.9	2.6	2.4	2.7	3.2	3.4	3.1	3.4	3.0
TRC	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 6 Cherry Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	139	144	132	135	129	129	124	117	100
TR02	1,014	990	1,026	930	930	967	986	994	1,026
TR03	4,824	5,240	5,893	7,300	8,024	8,294	8,674	8,851	9,449
TR04	3,997	3,859	3,919	4,023	4,041	4,077	4,031	4,007	4,141
TR05	1,594	1,655	1,691	1,767	1,829	2,029	2,100	2,172	2,618
TR06	2,000	2,185	2,398	2,535	2,646	2,879	2,973	3,192	3,361
TR07	557	572	565	595	663	709	717	779	833
TR08	3,628	3,694	3,171	3,133	3,116	3,213	3,249	3,530	3,805
TR09	1,279	1,284	1,295	1,301	1,284	1,341	1,347	1,351	1,336
TRA	207	200	207	164	169	160	165	164	255
TRB	662	679	659	671	702	722	736	689	739
TRC	267	264	270	279	303	313	299	323	334
TURKEY	20,167	20,767	21,227	22,833	23,833	24,833	25,400	26,167	28,000

Source: SIS (2005)

Table A – 7 Grape Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	311	264	83	181	170	155	130	221	195
TR02	130,386	159,468	182,645	175,732	172,042	160,294	151,591	167,856	162,267
TR03	1,473,202	1,567,821	1,618,658	1,580,174	1,468,983	1,640,999	1,406,807	1,585,535	1,483,121
TR04	195,396	213,864	160,768	133,707	144,957	146,483	130,219	120,112	147,553
TR05	311,619	289,763	286,682	259,609	287,529	225,042	197,207	199,300	264,839
TR06	381,288	389,447	391,676	398,268	416,764	433,285	412,518	466,207	534,635
TR07	328,519	332,355	346,487	332,340	257,371	320,876	279,994	311,409	274,792
TR08	77,023	82,411	77,208	63,695	54,486	58,068	58,315	68,381	59,894
TR09	5,626	5,527	11,894	9,606	8,334	7,717	7,789	7,448	6,292
TRA	6,147	7,041	6,655	7,109	7,031	6,489	6,396	6,294	6,075
TRB	56,750	51,075	50,079	48,953	51,061	56,131	48,515	35,740	57,993
TRC	583,733	600,964	567,165	590,626	531,272	544,461	550,519	531,497	602,344
TURKEY	3,550,000	3,700,000	3,700,000	3,600,000	3,400,000	3,600,000	3,250,000	3,500,000	3,600,000

Source: SIS (2005)

Table A – 8 Grape Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR02	3.7	4.3	4.9	4.9	5.1	4.5	4.7	4.8	4.5
TR03	41.5	42.4	43.7	43.9	43.2	45.6	43.3	45.3	41.2
TR04	5.5	5.8	4.3	3.7	4.3	4.1	4.0	3.4	4.1
TR05	8.8	7.8	7.7	7.2	8.5	6.3	6.1	5.7	7.4
TR06	10.7	10.5	10.6	11.1	12.3	12.0	12.7	13.3	14.9
TR07	9.3	9.0	9.4	9.2	7.6	8.9	8.6	8.9	7.6
TR08	2.2	2.2	2.1	1.8	1.6	1.6	1.8	2.0	1.7
TR09	0.2	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2
TRA	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TRB	1.6	1.4	1.4	1.4	1.5	1.6	1.5	1.0	1.6
TRC	16.4	16.2	15.3	16.4	15.6	15.1	16.9	15.2	16.7
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 9 Grape Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	91	77	19	18	18	20	18	22	45
TR02	20,589	20,465	20,127	20,420	20,195	19,808	20,022	19,676	21,305
TR03	147,545	146,145	144,286	141,997	139,847	143,976	141,099	144,068	161,943
TR04	28,787	28,273	21,566	19,666	20,760	19,638	19,186	28,854	22,859
TR05	61,851	62,117	62,191	62,818	61,926	63,394	61,886	52,051	43,552
TR06	68,634	69,440	65,778	65,340	64,829	67,477	66,920	68,321	68,740
TR07	54,737	54,266	56,554	56,007	54,643	54,880	55,402	56,017	50,197
TR08	20,919	21,116	21,025	20,800	20,577	18,954	17,894	19,320	17,675
TR09	846	850	740	855	768	742	741	662	659
TRA	1,059	1,061	1,061	1,044	1,001	996	995	1,012	1,009
TRB	18,544	16,629	18,408	18,279	16,993	18,133	17,540	17,721	19,202
TRC	141,398	139,561	133,245	133,756	133,443	126,982	123,297	122,276	122,814
TURKEY	565,000	560,000	545,000	541,000	535,000	535,000	525,000	530,000	530,000

Source: SIS (2005)

Table A – 10 Lemon Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0	0	0	0	0	0	0	0	0
TR02	5	6	1	1	1	1	1	101	101
TR03	12,123	14,470	13,706	17,595	20,822	26,241	29,003	21,302	45,471
TR04	0	0	0	0	0	0	0	0	0
TR05	0	0	0	0	0	0	0	0	0
TR06	405,808	386,455	256,234	372,333	499,107	433,677	480,920	503,320	504,172
TR07	0	0	0	0	0	0	0	0	0
TR08	0	0	0	0	0	0	0	0	0
TR09	64	69	59	71	70	81	76	277	256
TRA	0	0	0	0	0	0	0	0	0
TRB	0	0	0	0	0	0	0	0	0
TRC	0	0	0	0	0	0	0	0	0
TURKEY	418,000	401,000	270,000	390,000	520,000	460,000	510,000	525,000	550,000

Source: SIS (2005)

Table A – 11 Lemon Production Shares by NUTS2 Regions, 1995-2003 (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR03	2.9	3.6	5.1	4.5	4.0	5.7	5.7	4.1	8.3
TR04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR06	97.1	96.4	94.9	95.5	96.0	94.3	94.3	95.9	91.7
TR07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
TRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 12 Lemon Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0	0	0	0	0	0	0	0	0
TR02	1	1	0	0	1	1	1	34	34
TR03	974	1,069	1,087	1,107	1,276	1,594	1,687	1,891	1,981
TR04	0	0	0	0	0	0	0	0	0
TR05	0	0	0	0	0	0	0	0	0
TR06	15,383	15,534	15,716	15,728	15,924	16,122	16,125	16,584	17,074
TR07	0	0	0	0	0	0	0	0	0
TR08	0	0	0	0	0	0	0	0	0
TR09	62	63	63	64	66	67	71	74	78
TRA	0	0	0	0	0	0	0	0	0
TRB	0	0	0	0	0	0	0	0	0
TRC	0	0	0	0	0	0	0	0	0
TURKEY	16,420	16,667	16,867	16,900	17,267	17,783	17,883	18,583	19,167

Source: SIS (2005)

Table A – 13 Soft Citrus Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

NUTS2	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0	0	0	0	0	0	0	0	0
TR02	7,680	6,337	11,015	10,921	6,900	14,703	10,830	14,925	7,097
TR03	138,428	120,605	119,518	132,014	115,024	128,977	143,816	133,825	112,540
TR04	0	0	0	0	0	0	0	0	0
TR05	0	0	0	0	0	0	0	0	0
TR06	303,288	319,997	230,967	331,891	373,488	411,085	420,708	435,989	424,601
TR07	0	0	0	0	0	0	0	0	0
TR08	1	1	1	1	1	0	1	1	0
TR09	3,603	3,060	3,499	5,173	4,587	5,235	4,645	5,260	5,762
TRA	0	0	0	0	0	0	0	0	0
TRB	0	0	0	0	0	0	0	0	0
TRC	0	0	0	0	0	0	0	0	0
TURKEY	453,000	450,000	365,000	480,000	500,000	560,000	580,000	590,000	550,000

Source: SIS (2005)

Table A – 14 Soft Citrus Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR02	1.7	1.4	3.0	2.3	1.4	2.6	1.9	2.5	1.3
TR03	30.6	26.8	32.7	27.5	23.0	23.0	24.8	22.7	20.5
TR04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR06	67.0	71.1	63.3	69.1	74.7	73.4	72.5	73.9	77.2
TR07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR09	0.8	0.7	1.0	1.1	0.9	0.9	0.8	0.9	1.0
TRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 15 Soft Citrus Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0	0	0	0	0	0	0	0	0
TR02	1,630	1,626	1,630	1,646	1,653	1,653	1,655	1,678	1,679
TR03	11,388	10,107	9,687	9,716	9,740	9,816	10,124	9,871	10,515
TR04	0	0	0	0	0	0	0	0	0
TR05	0	0	0	0	0	0	0	0	0
TR06	12,170	12,717	13,175	14,203	14,673	15,491	15,855	16,455	18,144
TR07	0	0	0	0	0	0	0	0	0
TR08	0	0	0	0	0	0	0	0	0
TR09	895	900	908	902	934	939	965	997	995
TRA	0	0	0	0	0	0	0	0	0
TRB	0	0	0	0	0	0	0	0	0
TRC	0	0	0	0	0	0	0	0	0
Turkey	26,083	25,350	25,400	26,467	27,000	27,900	28,600	29,000	31,333

Source: SIS (2005)

Table A – 16 Cucumber Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	4,968	4,995	4,051	3,508	3,250	2,998	5,160	4,478	4,816
TR02	27,322	31,943	31,835	35,659	36,501	37,967	40,425	42,773	44,070
TR03	234,990	263,380	262,468	285,842	283,766	330,545	323,699	329,748	368,017
TR04	61,948	93,075	92,977	69,795	71,482	93,087	86,585	99,016	90,125
TR05	74,407	69,603	70,705	77,481	83,127	71,901	62,950	65,327	76,665
TR06	525,436	525,367	575,748	580,136	838,891	911,886	815,818	773,437	780,675
TR07	17,217	18,388	19,247	19,476	19,934	20,125	19,737	21,095	21,901
TR08	201,630	171,303	181,099	277,981	197,306	244,449	263,331	215,871	258,165
TR09	11,195	8,886	10,525	11,586	12,997	11,705	13,365	14,065	21,264
TRA	18,261	20,689	25,574	30,729	29,308	27,643	28,048	27,205	28,393
TRB	9,623	8,614	9,053	16,306	15,966	16,211	16,451	18,793	22,367
TRC	63,003	83,757	116,718	66,501	57,472	56,483	64,431	58,192	63,542
TURKEY	1,250,000	1,300,000	1,400,000	1,475,000	1,650,000	1,825,000	1,740,000	1,670,000	1,780,000

Source: SIS (2005)



Table A – 17 Cucumber Production Shares by NUTS2 Regions, 1995-2003 (percent)

NUTS2	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3
TR02	2.2	2.5	2.3	2.4	2.2	2.1	2.3	2.6	2.5
TR03	18.8	20.3	18.7	19.4	17.2	18.1	18.6	19.7	20.7
TR04	5.0	7.2	6.6	4.7	4.3	5.1	5.0	5.9	5.1
TR05	6.0	5.4	5.1	5.3	5.0	3.9	3.6	3.9	4.3
TR06	42.0	40.4	41.1	39.3	50.8	50.0	46.9	46.3	43.9
TR07	1.4	1.4	1.4	1.3	1.2	1.1	1.1	1.3	1.2
TR08	16.1	13.2	12.9	18.8	12.0	13.4	15.1	12.9	14.5
TR09	0.9	0.7	0.8	0.8	0.8	0.6	0.8	0.8	1.2
TRA	1.5	1.6	1.8	2.1	1.8	1.5	1.6	1.6	1.6
TRB	0.8	0.7	0.6	1.1	1.0	0.9	0.9	1.1	1.3
TRC	5.0	6.4	8.3	4.5	3.5	3.1	3.7	3.5	3.6
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 18 Cucumber Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	175	177	142	122	114	105	175	161	162
TR02	962	1,130	1,114	1,245	1,283	1,331	1,371	1,537	1,486
TR03	8,272	9,320	9,186	9,980	9,975	11,592	10,976	11,847	12,405
TR04	2,181	3,293	3,254	2,437	2,513	3,264	2,936	3,557	3,038
TR05	2,619	2,463	2,475	2,705	2,922	2,521	2,135	2,347	2,584
TR06	18,495	18,590	20,151	20,256	29,488	31,978	27,663	27,788	26,315
TR07	606	651	674	680	701	706	669	758	738
TR08	7,097	6,061	6,338	9,706	6,936	8,572	8,929	7,756	8,702
TR09	394	314	368	405	457	410	453	505	717
TRA	643	732	895	1,073	1,030	969	951	977	957
TRB	339	305	317	569	561	568	558	675	754
TRC	2,218	2,964	4,085	2,322	2,020	1,981	2,185	2,091	2,142
TURKEY	44,000	46,000	49,000	51,500	58,000	64,000	59,000	60,000	60,000

Source: SIS (2005)

Table A – 19 Melon Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	12,673	7,278	8,381	4,502	3,771	3,091	3,147	3,800	3,400
TR02	154,580	156,739	113,941	145,702	144,012	157,850	155,695	167,195	158,118
TR03	376,905	383,186	330,382	404,486	397,511	394,317	394,667	348,097	402,330
TR04	119,059	122,848	89,327	95,927	101,318	97,090	94,217	104,674	65,925
TR05	344,786	371,844	336,909	361,350	359,640	399,175	290,885	305,109	275,292
TR06	138,674	167,360	215,593	220,051	209,520	212,863	220,775	271,234	267,306
TR07	78,908	93,657	98,148	97,024	87,123	77,383	83,878	96,501	93,653
TR08	238,492	212,255	176,771	205,122	180,433	197,581	188,438	180,530	137,876
TR09	198	139	234	184	184	176	128	188	183
TRA	11,333	11,989	11,095	12,022	9,989	7,369	10,191	13,286	15,109
TRB	41,967	50,417	36,414	38,433	46,653	46,591	44,778	49,341	51,765
TRC	282,425	322,288	332,805	300,197	252,846	271,514	288,201	280,045	264,043
TURKEY	1,800,000	1,900,000	1,750,000	1,885,000	1,793,000	1,865,000	1,775,000	1,820,000	1,735,000

Source: SIS (2005)

Table A – 20 Melon Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.7	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2
TR02	8.6	8.2	6.5	7.7	8.0	8.5	8.8	9.2	9.1
TR03	20.9	20.2	18.9	21.5	22.2	21.1	22.2	19.1	23.2
TR04	6.6	6.5	5.1	5.1	5.7	5.2	5.3	5.8	3.8
TR05	19.2	19.6	19.3	19.2	20.1	21.4	16.4	16.8	15.9
TR06	7.7	8.8	12.3	11.7	11.7	11.4	12.4	14.9	15.4
TR07	4.4	4.9	5.6	5.1	4.9	4.1	4.7	5.3	5.4
TR08	13.2	11.2	10.1	10.9	10.1	10.6	10.6	9.9	7.9
TR09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRA	0.6	0.6	0.6	0.6	0.6	0.4	0.6	0.7	0.9
TRB	2.3	2.7	2.1	2.0	2.6	2.5	2.5	2.7	3.0
TRC	15.7	17.0	19.0	15.9	14.1	14.6	16.2	15.4	15.2
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 21 Melon Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	774	444	556	275	222	187	191	230	206
TR02	9,447	9,569	7,553	8,904	8,494	9,529	9,473	10,105	9,580
TR03	23,033	23,395	21,900	24,719	23,446	23,804	24,014	21,039	24,376
TR04	7,276	7,500	5,921	5,862	5,976	5,861	5,733	6,326	3,994
TR05	21,070	22,702	22,332	22,083	21,212	24,097	17,699	18,441	16,679
TR06	8,475	10,218	14,291	13,448	12,358	12,850	13,433	16,393	16,196
TR07	4,822	5,718	6,506	5,929	5,139	4,671	5,104	5,832	5,674
TR08	14,575	12,959	11,717	12,535	10,642	11,927	11,466	10,911	8,354
TR09	12	8	16	11	11	11	8	11	11
TRA	693	732	735	735	589	445	620	803	915
TRB	2,565	3,078	2,414	2,349	2,752	2,813	2,725	2,982	3,136
TRC	17,259	19,677	22,060	18,345	14,913	16,391	17,536	16,926	15,998
TURKEY	110,000	116,000	116,000	115,195	105,754	112,585	108,000	110,000	105,120

Source: SIS (2005)

Table A – 22 Green Onion Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	8,387	7,376	5,095	1,540	1,634	2,182	2,173	2,524	2,381
TR02	10,037	9,099	8,569	9,170	8,678	8,699	8,201	8,138	10,796
TR03	45,502	40,493	41,220	35,362	35,420	37,816	36,976	30,591	31,595
TR04	36,460	39,031	39,338	29,339	43,234	43,971	43,032	39,655	44,233
TR05	21,005	18,701	18,425	20,446	18,458	21,287	18,862	19,034	20,756
TR06	45,798	41,132	41,361	40,763	41,788	41,850	41,058	41,676	46,896
TR07	12,305	11,067	10,549	10,982	10,879	10,603	9,967	11,210	10,948
TR08	13,484	18,036	14,044	13,975	13,160	13,141	12,188	11,289	12,102
TR09	1,955	1,919	1,402	1,262	1,064	1,055	1,067	1,046	932
TRA	3,909	4,405	4,688	6,846	6,948	5,536	6,177	4,900	4,687
TRB	8,188	5,836	9,971	9,346	8,483	9,064	8,975	10,439	10,842
TRC	27,970	32,905	40,338	30,969	28,254	32,796	36,324	29,498	23,832
TURKEY	235,000	230,000	235,000	210,000	218,000	228,000	225,000	210,000	220,000

Source: SIS (2005)

Table A – 23 Green Onion Production Shares by NUTS2 Regions, 1995-2003  
(percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	3.6	3.2	2.2	0.7	0.7	1.0	1.0	1.2	1.1
TR02	4.3	4.0	3.6	4.4	4.0	3.8	3.6	3.9	4.9
TR03	19.4	17.6	17.5	16.8	16.2	16.6	16.4	14.6	14.4
TR04	15.5	17.0	16.7	14.0	19.8	19.3	19.1	18.9	20.1
TR05	8.9	8.1	7.8	9.7	8.5	9.3	8.4	9.1	9.4
TR06	19.5	17.9	17.6	19.4	19.2	18.4	18.2	19.8	21.3
TR07	5.2	4.8	4.5	5.2	5.0	4.7	4.4	5.3	5.0
TR08	5.7	7.8	6.0	6.7	6.0	5.8	5.4	5.4	5.5
TR09	0.8	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.4
TRA	1.7	1.9	2.0	3.3	3.2	2.4	2.7	2.3	2.1
TRB	3.5	2.5	4.2	4.5	3.9	4.0	4.0	5.0	4.9
TRC	11.9	14.3	17.2	14.7	13.0	14.4	16.1	14.0	10.8
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 24 Green Onion Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	785	702	477	147	150	211	212	264	238
TR02	940	866	802	873	796	839	802	853	1,080
TR03	4,260	3,856	3,859	3,368	3,250	3,649	3,615	3,205	3,160
TR04	3,413	3,716	3,683	2,794	3,966	4,243	4,208	4,154	4,423
TR05	1,966	1,781	1,725	1,947	1,693	2,054	1,844	1,994	2,076
TR06	4,287	3,916	3,872	3,882	3,834	4,038	4,015	4,366	4,690
TR07	1,152	1,054	988	1,046	998	1,023	975	1,174	1,095
TR08	1,262	1,717	1,315	1,331	1,207	1,268	1,192	1,183	1,210
TR09	183	183	131	120	98	102	104	110	93
TRA	366	419	439	652	637	534	604	513	469
TRB	767	556	933	890	778	875	878	1,094	1,084
TRC	2,618	3,133	3,776	2,949	2,592	3,165	3,552	3,090	2,383
TURKEY	22,000	21,900	22,000	20,000	20,000	22,000	22,000	22,000	22,000

Source: SIS (2005)

Table A – 25 Tomatoes Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	62,179	47,240	39,640	30,704	21,172	20,347	32,384	31,226	25,685
TR02	1,100,786	1,094,265	844,901	1,100,738	1,256,894	1,096,930	1,040,686	1,098,704	1,106,888
TR03	1,231,723	1,337,026	1,249,653	1,553,961	1,763,529	1,784,729	1,659,682	2,089,341	1,975,237
TR04	1,515,329	1,894,199	814,107	1,489,297	1,695,017	1,552,776	1,305,590	1,416,050	1,437,682
TR05	401,897	404,144	348,714	435,344	430,216	416,942	362,973	417,802	577,308
TR06	1,887,961	1,959,053	2,162,832	2,423,223	2,425,749	2,555,693	2,499,811	2,888,358	3,156,533
TR07	99,036	105,225	108,917	100,304	109,347	113,220	119,966	126,695	125,361
TR08	652,640	623,172	650,482	756,343	856,212	962,241	948,964	899,658	932,667
TR09	8,098	7,723	9,505	14,006	9,904	11,101	12,340	12,909	12,798
TRA	58,670	61,559	50,736	50,556	57,623	57,654	70,215	96,254	90,917
TRB	42,972	40,888	55,747	75,941	85,990	79,499	88,242	94,876	106,141
TRC	188,709	225,506	264,766	259,583	244,347	238,868	284,147	278,127	272,783
TURKEY	7,250,000	7,800,000	6,600,000	8,290,000	8,956,000	8,890,000	8,425,000	9,450,000	9,820,000

Source: SIS (2005)

Table A – 26 Tomatoes Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.9	0.6	0.6	0.4	0.2	0.2	0.4	0.3	0.3
TR02	15.2	14.0	12.8	13.3	14.0	12.3	12.4	11.6	11.3
TR03	17.0	17.1	18.9	18.7	19.7	20.1	19.7	22.1	20.1
TR04	20.9	24.3	12.3	18.0	18.9	17.5	15.5	15.0	14.6
TR05	5.5	5.2	5.3	5.3	4.8	4.7	4.3	4.4	5.9
TR06	26.0	25.1	32.8	29.2	27.1	28.7	29.7	30.6	32.1
TR07	1.4	1.3	1.7	1.2	1.2	1.3	1.4	1.3	1.3
TR08	9.0	8.0	9.9	9.1	9.6	10.8	11.3	9.5	9.5
TR09	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
TRA	0.8	0.8	0.8	0.6	0.6	0.6	0.8	1.0	0.9
TRB	0.6	0.5	0.8	0.9	1.0	0.9	1.0	1.0	1.1
TRC	2.6	2.9	4.0	3.1	2.7	2.7	3.4	2.9	2.8
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 27 Tomatoes Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1,501	1,133	949	741	520	515	865	843	680
TR02	26,571	26,234	20,226	26,556	30,875	27,763	27,793	29,648	29,307
TR03	29,731	32,054	29,916	37,490	43,320	45,170	44,324	56,379	52,298
TR04	36,577	45,412	19,489	35,930	41,637	39,300	34,867	38,211	38,065
TR05	9,701	9,689	8,348	10,503	10,568	10,553	9,694	11,274	15,285
TR06	45,571	46,967	51,777	58,461	59,587	64,683	66,761	77,940	83,574
TR07	2,391	2,523	2,607	2,420	2,686	2,866	3,204	3,419	3,319
TR08	15,753	14,940	15,572	18,247	21,032	24,354	25,343	24,277	24,694
TR09	195	185	228	338	243	281	330	348	339
TRA	1,416	1,476	1,215	1,220	1,415	1,459	1,875	2,597	2,407
TRB	1,037	980	1,335	1,832	2,112	2,012	2,357	2,560	2,810
TRC	4,555	5,406	6,338	6,263	6,002	6,046	7,589	7,505	7,222
TURKEY	175,000	187,000	158,000	200,000	220,000	225,000	225,000	255,000	260,000

Source: SIS (2005)

Table A – 28 Watermelon Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	47,996	32,269	45,535	13,565	13,137	13,687	15,120	22,005	18,500
TR02	375,285	339,104	360,687	379,607	400,053	411,690	442,759	444,861	436,697
TR03	797,296	870,365	806,773	872,527	930,827	904,686	849,526	907,968	902,374
TR04	186,081	198,075	159,822	167,296	172,687	201,454	213,082	234,833	169,450
TR05	130,308	213,102	220,777	228,576	190,280	207,044	176,485	209,235	220,833
TR06	1,042,912	1,077,402	956,611	1,032,482	934,657	947,723	901,055	1,391,636	1,116,907
TR07	90,367	96,301	108,828	113,337	102,808	113,049	89,744	91,090	84,056
TR08	220,050	209,931	222,055	200,701	208,501	231,644	239,236	212,373	234,340
TR09	199	123	177	141	141	141	105	102	102
TRA	21,004	22,032	36,932	37,558	37,906	32,783	37,214	36,927	37,017
TRB	57,278	76,193	80,999	87,000	100,234	104,156	117,330	133,438	141,742
TRC	631,224	765,103	800,804	797,210	840,769	771,943	938,344	890,532	852,982
TURKEY	3,600,000	3,900,000	3,800,000	3,930,000	3,932,000	3,940,000	4,020,000	4,575,000	4,215,000

Source: SIS (2005)

Table A – 29 Watermelon Production Shares by NUTS2 Regions, 1995-2003  
(percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1.3	0.8	1.2	0.3	0.3	0.3	0.4	0.5	0.4
TR02	10.4	8.7	9.5	9.7	10.2	10.4	11.0	9.7	10.4
TR03	22.1	22.3	21.2	22.2	23.7	23.0	21.1	19.8	21.4
TR04	5.2	5.1	4.2	4.3	4.4	5.1	5.3	5.1	4.0
TR05	3.6	5.5	5.8	5.8	4.8	5.3	4.4	4.6	5.2
TR06	29.0	27.6	25.2	26.3	23.8	24.1	22.4	30.4	26.5
TR07	2.5	2.5	2.9	2.9	2.6	2.9	2.2	2.0	2.0
TR08	6.1	5.4	5.8	5.1	5.3	5.9	6.0	4.6	5.6
TR09	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRA	0.6	0.6	1.0	1.0	1.0	0.8	0.9	0.8	0.9
TRB	1.6	2.0	2.1	2.2	2.5	2.6	2.9	2.9	3.4
TRC	17.5	19.6	21.1	20.3	21.4	19.6	23.3	19.5	20.2
TURKEY	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 30 Watermelon Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1,800	1,208	1,714	467	476	491	545	794	666
TR02	14,073	12,695	13,573	13,057	14,510	14,779	15,970	16,044	15,721
TR03	29,899	32,583	30,360	30,010	33,761	32,476	30,642	32,746	32,485
TR04	6,978	7,415	6,014	5,754	6,263	7,232	7,686	8,469	6,100
TR05	4,887	7,978	8,308	7,862	6,901	7,432	6,366	7,546	7,950
TR06	39,109	40,334	35,999	35,512	33,900	34,021	32,501	50,190	40,209
TR07	3,389	3,605	4,095	3,898	3,729	4,058	3,237	3,285	3,026
TR08	8,252	7,859	8,356	6,903	7,562	8,315	8,629	7,659	8,436
TR09	7	5	7	5	5	5	4	4	4
TRA	788	825	1,390	1,292	1,375	1,177	1,342	1,332	1,333
TRB	2,148	2,852	3,048	2,992	3,635	3,739	4,232	4,813	5,103
TRC	23,671	28,642	30,136	27,420	30,494	27,711	33,846	32,118	30,707
TURKEY	135,000	146,000	143,000	135,172	142,612	141,436	145,000	165,000	151,740

Source: SIS (2005)

Table A – 31 Potatoes Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	2,910	3,192	584	118	623	451	515	654	552
TR02	74,136	64,190	70,391	64,779	62,507	56,050	46,807	58,474	59,027
TR03	628,807	669,988	608,852	657,293	788,914	767,727	835,229	906,815	818,867
TR04	427,438	455,067	474,708	440,187	455,169	473,024	455,256	412,985	419,290
TR05	157,196	157,820	185,330	205,766	250,237	197,833	178,658	194,640	252,345
TR06	110,963	144,846	158,219	166,314	191,940	232,632	214,198	207,148	197,008
TR07	2,384,190	2,469,460	2,509,494	2,726,245	3,171,325	2,638,730	2,262,767	2,414,466	2,546,302
TR08	338,887	340,726	398,946	330,010	344,668	348,675	349,904	327,591	325,502
TR09	323,245	318,979	374,789	312,630	346,846	335,170	330,928	355,753	379,276
TRA	231,850	249,478	245,863	243,425	267,225	197,308	214,262	206,732	186,336
TRB	61,541	67,110	64,256	96,816	113,308	117,350	106,130	111,782	111,943
TRC	8,837	9,144	8,568	6,417	7,238	5,050	5,346	2,960	3,552
Total	4,750,000	4,950,000	5,100,000	5,250,000	6,000,000	5,370,000	5,000,000	5,200,000	5,300,000

Source: SIS (2005)

Table A – 32 Potatoes Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR02	1.6	1.3	1.4	1.2	1.0	1.0	0.9	1.1	1.1
TR03	13.2	13.5	11.9	12.5	13.1	14.3	16.7	17.4	15.5
TR04	9.0	9.2	9.3	8.4	7.6	8.8	9.1	7.9	7.9
TR05	3.3	3.2	3.6	3.9	4.2	3.7	3.6	3.7	4.8
TR06	2.3	2.9	3.1	3.2	3.2	4.3	4.3	4.0	3.7
TR07	50.2	49.9	49.2	51.9	52.9	49.1	45.3	46.4	48.0
TR08	7.1	6.9	7.8	6.3	5.7	6.5	7.0	6.3	6.1
TR09	6.8	6.4	7.3	6.0	5.8	6.2	6.6	6.8	7.2
TRA	4.9	5.0	4.8	4.6	4.5	3.7	4.3	4.0	3.5
TRB	1.3	1.4	1.3	1.8	1.9	2.2	2.1	2.1	2.1
TRC	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Total	100	100	100	100	100	100	100	100	100

Source: SIS (2005)



Table A – 33 Potatoes Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	244	267	37	10	32	17	32	32	27
TR02	3,525	3,315	3,297	2,956	2,927	2,588	2,285	2,683	2,705
TR03	28,115	29,847	28,965	27,634	29,973	28,738	28,812	29,563	28,422
TR04	20,528	20,856	20,486	20,283	20,355	19,789	20,115	16,768	16,503
TR05	8,934	8,761	9,287	10,005	11,172	9,886	9,259	8,604	10,526
TR06	6,551	7,443	6,750	7,112	7,833	8,953	8,970	8,575	8,261
TR07	66,461	72,555	71,063	74,189	85,608	75,203	72,033	73,316	71,973
TR08	21,765	21,586	21,351	18,295	18,804	18,036	17,214	16,162	15,756
TR09	23,886	23,321	24,046	22,471	22,568	22,516	22,924	24,026	23,170
TRA	15,697	17,754	15,922	14,639	14,260	12,924	12,394	11,891	10,665
TRB	3,755	3,738	9,295	4,908	5,985	6,025	5,664	6,193	6,742
TRC	539	557	501	498	483	325	298	187	250
TURKEY	200,000	210,000	211,000	203,000	220,000	205,000	200,000	198,000	195,000

Source: SIS (2005)

Table A – 34 Dry Onion Production of Turkey by NUTS2 Regions, 1995-2003 (Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	45,968	21,220	48,838	30,169	30,161	24,542	21,980	23,985	14,595
TR02	236,122	166,013	192,004	202,195	184,866	177,122	171,913	164,697	102,850
TR03	182,324	167,607	172,028	198,516	197,214	191,719	193,029	120,006	148,335
TR04	329,011	224,603	218,007	227,009	243,220	216,891	226,606	179,034	163,255
TR05	435,047	166,530	254,411	325,154	442,576	338,243	330,122	378,478	288,207
TR06	468,640	297,154	298,900	346,998	325,389	313,738	339,021	258,358	267,361
TR07	210,857	153,729	147,951	197,142	190,059	188,365	195,654	168,317	141,529
TR08	716,357	540,294	591,629	596,886	734,903	585,048	502,323	602,292	467,618
TR09	1,271	1,318	1,520	984	902	834	1,237	421	382
TRA	20,431	20,984	22,768	23,462	22,687	24,003	25,632	25,624	24,171
TRB	18,468	17,700	17,622	19,243	19,108	24,375	18,633	16,369	17,803
TRC	185,504	122,848	134,322	102,242	108,915	115,120	123,850	112,419	113,894
TURKEY	2,850,000	1,900,000	2,100,000	2,270,000	2,500,000	2,200,000	2,150,000	2,050,000	1,750,000

Source: SIS (2005)

Table A – 35 Dry Onion Production Shares by NUTS2 Regions, 1995-2003 (percent)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1.6	1.1	2.3	1.3	1.2	1.1	1.0	1.2	0.8
TR02	8.3	8.7	9.1	8.9	7.4	8.1	8.0	8.0	5.9
TR03	6.4	8.8	8.2	8.7	7.9	8.7	9.0	5.9	8.5
TR04	11.5	11.8	10.4	10.0	9.7	9.9	10.5	8.7	9.3
TR05	15.3	8.8	12.1	14.3	17.7	15.4	15.4	18.5	16.5
TR06	16.4	15.6	14.2	15.3	13.0	14.3	15.8	12.6	15.3
TR07	7.4	8.1	7.0	8.7	7.6	8.6	9.1	8.2	8.1
TR08	25.1	28.4	28.2	26.3	29.4	26.6	23.4	29.4	26.7
TR09	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0
TRa	0.7	1.1	1.1	1.0	0.9	1.1	1.2	1.2	1.4
TRb	0.6	0.9	0.8	0.8	0.8	1.1	0.9	0.8	1.0
TRc	6.5	6.5	6.4	4.5	4.4	5.2	5.8	5.5	6.5
Total	100	100	100	100	100	100	100	100	100

Source: SIS (2005)

Table A – 36 Dry Onion Harvested Areas by NUTS2 Regions, 1995-2003 (Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003
TR01	1,963	1,863	1,980	1,225	1,273	1,034	1,006	1,005	943
TR02	14,943	10,679	11,423	10,711	10,489	10,058	9,427	9,133	7,072
TR03	11,152	9,612	9,595	9,807	9,969	9,935	10,126	7,884	7,970
TR04	16,198	11,254	12,026	12,065	12,072	10,572	10,349	7,643	8,104
TR05	15,409	7,651	9,520	10,869	13,717	11,348	10,369	13,200	9,281
TR06	23,565	14,943	14,109	15,198	15,255	14,539	14,612	11,538	12,136
TR07	10,490	7,816	7,659	8,372	8,535	8,206	8,277	6,829	6,912
TR08	35,770	24,796	28,581	28,815	32,346	24,679	25,765	24,458	20,359
TR09	196	194	223	180	157	164	155	94	105
TRA	1,229	1,192	1,190	1,158	1,168	1,203	1,219	1,176	1,177
TRB	2,171	1,964	1,826	1,410	1,527	1,496	1,347	1,355	1,658
TRC	9,914	6,036	6,868	5,190	6,492	6,766	6,848	5,685	6,283
Total	143,000	98,000	105,000	105,000	113,000	100,000	99,500	90,000	82,000

Source: SIS (2005)

Table A – 37 Yields of Selected Crops, 1995-2005 (Tons/Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Apples	19.37	20.54	23.81	23.01	23.40	22.30	22.60	20.02	22.31	19.28	21.88
Melons	16.36	16.38	15.09	16.36	16.95	16.57	16.44	16.55	16.50	16.50	16.50
Cherries	9.22	9.63	10.13	8.55	10.50	9.27	9.85	8.03	9.47	9.61	10.00
Cucumbers	28.41	28.26	28.57	28.64	28.45	28.52	29.49	27.83	29.67	28.75	28.75
Grapes	6.28	6.61	6.79	6.65	6.36	6.73	6.19	6.60	6.79	6.60	6.89
Lemons	25.46	24.06	16.01	23.08	30.12	25.87	28.55	28.28	28.72	30.54	30.54
Onions (Green)	19.93	19.39	20.00	21.62	22.12	22.00	21.61	22.78	21.34	26.15	25.64
Onions (Dry)	10.68	10.50	10.68	10.50	10.90	10.36	10.23	9.55	10.00	10.00	10.00
Potatoes	23.75	23.57	24.17	25.86	27.27	26.20	25.00	26.26	27.18	26.82	26.06
Soft Citrus	17.37	17.75	14.37	18.32	18.71	20.27	20.30	20.36	17.57	20.96	18.30
Tomatoes	41.43	41.71	41.77	41.45	40.71	39.51	37.44	37.06	37.77	37.02	37.31
Watermelons	26.67	26.71	26.57	29.07	27.57	27.86	27.72	27.73	27.78	27.72	27.74

Source: FAOSTAT (2005)

Table A – 38 Production of Selected Crops, 1995-2005 (1 000 Tons)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Apples	2,100	2,200	2,550	2,450	2,500	2,400	2,450	2,200	2,600	2,100	2,550
Melons	1,800	1,900	1,750	1,800	1,865	1,905	1,775	1,820	1,700	1,700	1,700
Cherries	186	200	215	195	250	230	250	210	265	245	260
Cucumbers	1,250	1,300	1,400	1,475	1,650	1,825	1,740	1,670	1,780	1,725	1,725
Grapes	3,550	3,700	3,700	3,600	3,400	3,600	3,250	3,500	3,600	3,500	3,650
Lemons	418	401	270	390	520	460	510	525	550	600	600
Onions (Green)	2,850	1,900	2,100	2,270	2,500	2,200	2,150	2,050	1,750	2,040	2,000
Onions (Dry)	235	230	235	210	218	228	225	210	220	220	220
Potatoes	4,750	4,950	5,100	5,250	6,000	5,370	5,000	5,200	5,300	4,800	4,170
Soft Citrus	453	450	365	480	500	560	580	590	550	670	585
Tomatoes	7,250	7,800	6,600	8,290	8,956	8,890	8,425	9,450	9,820	9,440	9,700
Watermelons	3,600	3,900	3,800	3,925	3,860	3,900	4,020	4,575	4,250	3,825	3,800

Source: FAOSTAT (2005)

Table A –39 Harvested Areas of Selected Crops, 1995-2005 (1 000 Ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Apples	108.4	107.1	107.1	106.5	106.8	107.6	108.4	109.9	116.6	108.9	116.6
Melons	110.0	116.0	116.0	110.0	110.0	115.0	108.0	110.0	103.0	103.0	103.0
Cherries	20.2	20.8	21.2	22.8	23.8	24.8	25.4	26.1	28.0	25.5	26.0
Cucumbers	44.0	46.0	49.0	51.5	58.0	64.0	59.0	60.0	60.0	60.0	60.0
Grapes	565.0	560.0	545.0	541.0	535.0	535.0	525.0	530.0	530.0	530.0	530.0
Lemons	16.4	16.7	16.9	16.9	17.3	17.8	17.9	18.6	19.1	19.6	19.6
Onions (Green)	143.0	98.0	105.0	105.0	113.0	100.0	99.5	90.0	82.0	78.0	78.0
Onions (Dry)	22.0	21.9	22.0	20.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0
Potatoes	200.0	210.0	211.0	203.0	220.0	205.0	200.0	198.0	195.0	179.0	160.0
Soft Citrus	26.1	25.4	25.4	26.2	26.7	27.6	28.6	29.0	31.3	32.0	32.0
Tomatoes	175.0	187.0	158.0	200.0	220.0	225.0	225.0	255.0	260.0	255.0	260.0
Watermelons	135.0	146.0	143.0	135.0	140.0	140.0	145.0	165.0	153.0	138.0	137.0

Source: FAOSTAT (2005)

Table A – 40 Ratio of Means to Standart Deviations for the quantity estimates

Item	Scenario	T-Value			Respondent Type		
		Public	Private	All	Public	Private	All
Apple	Full Lib.	2.20	2.36	2.10	0.56	0.64	0.61
	Partial Lib.				2.10	2.48	2.27
Cherry	Full Lib.	2.18	2.36	2.09	4.77	1.95	2.65
	Partial Lib.				3.98	3.85	3.86
Clementine	Full Lib.	2.20	2.26	2.09	1.78	3.28	1.52
	Partial Lib.				2.04	5.27	1.72
Cucumber	Full Lib.	2.18	2.31	2.09	2.40	3.19	2.45
	Partial Lib.				2.46	5.90	2.46
Grapes	Full Lib.	2.18	2.26	2.08	2.04	4.20	2.03
	Partial Lib.				2.25	10.44	2.43
Lemon	Full Lib.	2.18	2.26	2.08	2.33	2.36	2.36
	Partial Lib.				2.32	3.22	2.56
Melon	Full Lib.	2.18	2.31	2.09	1.23	2.36	1.03
	Partial Lib.				1.29	3.19	1.07
Onion	Full Lib.	2.18	2.36	2.09	2.80	2.69	2.63
	Partial Lib. (Quota)				2.32	3.59	2.10
	Partial Lib. (Tariff)				2.37	2.97	2.39
Potatoes	Full Lib.	2.18	2.36	2.09	1.79	1.89	1.75
	Partial Lib.				1.72	1.61	1.67
Other Potatoes		2.18	2.45	2.10	1.56	2.21	1.73
Tomatoes	Full Lib.	2.18	2.31	2.09	2.47	1.28	1.26
	Partial Lib.				2.75	1.07	1.33

Source: Survey Results

Table A – 41 Distribution of Responses on the Factors Hindering Turkish Exports

Answer	Public	Private	Total
Tariffs And Other Taxes	8	14	22
Quality of Production	22	11	33
Transportation	4	5	9
Organizational Problems	9	6	15
Quantity of Production	2	3	5
Price of Domestic Suppliers	2	3	5
Input Prices	4	3	7
Subsidies	2	3	5
Lack of Technology	2	2	4
Bureaucracy	2	2	4
Marketing	6	0	6

Source: Survey Results

Table A – 42 Distribution of Suggested Solutions

Answer	Public	Private	Total
Education of Farmers	12	1	13
EU Negotiation Process	9	0	9
Subsidies And Market Intervention	9	19	28
Institutionalization, Planning And Legal Regulation	20	10	30
Technology Transfer And R&D Activities In Agriculture	13	4	17

Source: Survey Results

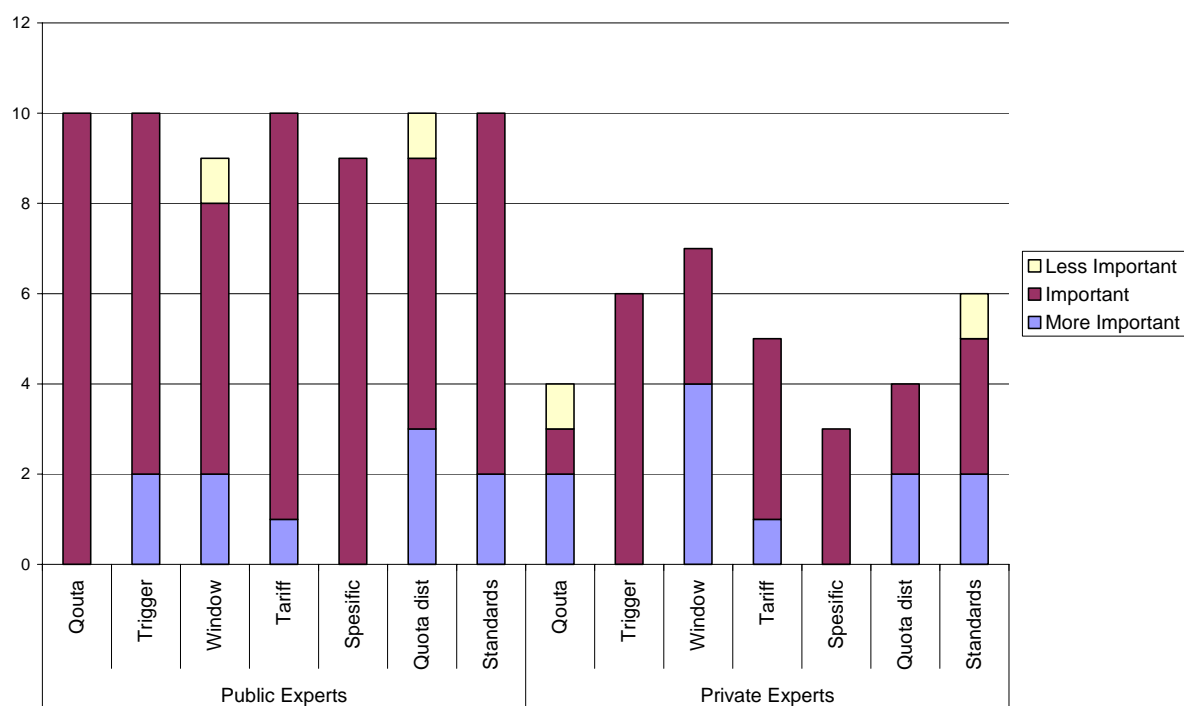


Figure A - 1 Rankings of EU's Protection Measures According to Expert Types

Source: Survey Results