

## Apple Production and Marketing in Turkey

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**Abstract:** Turkey has wide varieties of fruits and vegetables, of which many are indigenous to the area, such as the pear, quince, cherry, plum, grape, hazelnut, walnut, apricot, and apple. The land area has 6% fruit, olives and vineyard of Turkey.

Six top countries for apple production in the World are China, USA, Iran, Turkey, and Russia. Their apple production percentages that took from World production are 42.8%, 6.6%, 4.1%, 3.5% and 3.4% respectively. These countries provide approximately 60 % of the World apple production. Turkey is top fourth apple producer country in the World, by 3, 7 % of total production. Apple yield in Turkey is by 20600 (kg/ha) that over than it's in the World average. In spite of large amount of apple production in Turkey, the export percentage in the annual apple production is very low, just 1%. In this case, foreign exchanges are not reaching to apple producers in Turkey. Some varieties of apple that produced in Turkey need to be putted on the market immediately after harvest. Also, storage period is very short for some varieties of them, so apple decay is high in Turkey. Apple waste can be decreased by increasing storage capacity and provide better storage conditions. Producer's conscious act for choosing good variety and cultivation techniques, and also improving quality by giving more attention to the labeling, packing, and storage conditions in order to increase apple export. The aim of this study can be explained as over viewing or exposing of apple production structure and the portion of it in World production, estimating export potential of apple, determining the problems of apple marketing, confirming the measures of solving the problems, and predicting some options in order to increase apple export in Turkey.

**Key words:** Apple production, apple trade, apple marketing, Turkey

### Introduction

Many fruits except some tropic fruits can be grown in Turkey because of suitable climate and ecological characteristics. The mother land of apple is The South Caucasus Region which includes Anatolia Region. Apple can be planted almost everywhere in Turkey because of ecological conditions compatibility and being gene center. Although, the most convenient hybrid types of apple exist in The North Anatolia Region as run parallel with spread area of undomesticated apple types. Furthermore, South Anatolia, Black Sea Coast Region, Central Anatolia and transition regions between East Anatolia uplands constitute the most important apple growth area.

Apple has big importance in nutrition by reason of included minerals and vitamins. Fresh apple contains 84% water. Dry matter components of apple are carbohydrate, malice acid, proteins, oily substances, vitamins, pectin and mineral substances. Some salt is formed by A and C vitamins conjoin with some elements like calcium, magnesium and sodium. The organic parts of such salts, organic acids, oxidation in blood to provide energy resulted with some alkali components. Thus, apple gain acid-alkali equilibrium. A case study of conducted in England shows that, one apple consumption in a day decreases risk of cancer (Anonym 2003).

## Material and Method

The main material of the study was statistical data and published researches. Especially, data of State Planning Organization and Statistic Institution was largely used in the study.

## World Apple Production, Consumption, and Trade

### World Apple Production and Consumption

Today in the world cultivated area for apple is 4.9 million hectare, the production is 64.2 million tone and the yield is 13.1 tone/ha.

**Table 1.** The Apple Production Area, production and Yield (Source: FAO)

Years	Production area (Hectare)	Üretim Miktarı (Tone)	Verim (Ton/Hectare)
2002	4.878.245	55.952.172	11,5
2003	4.781.818	58.377.086	12,2
2004	4.761.005	62.775.656	13,2
2005	4.802.133	62.123.069	12,9
2006	4.786.350	63.875.324	13,3
2007	4.921.767	64.255.520	13,1

Fifth top countries for apple production in the World are China, USA, Iran, Turkey and Rusia. Their production percentage that took from world production as listed respectively above; 42.8%, 6.6%, 4.1%, 3.5% and 3.4%. These countries provide approximately 60 % of the World apple production. Turkey is the 4<sup>th</sup> country of the world according to apple production by sharing of 3, 5%.

China is the top first country in apple production results from greatness of apple production. Being in the most important countries about yield per hectare in the world are Belgium (40.7 tone/ha) and France (33,7 tone/hectare) and Chile and Italy are following that. On account of apple yield per hectare, Turkey is the 4<sup>th</sup> place in the world.

**Table 2.** The Most Important Countries for Apple Production in the World and Their Production Amount (2007)

Countries	Production Area (hectare)	Production Amount (tone)	Yield (tone/hectare)
China	2.000.650	27.507.000	13,7
USA	156.000	4.237.730	27,2
Iran	150.000	2.660.000	13,1
Turkey	110.000	2.266.437	20,6
Russia	370.000	2.211.000	5,9
Italy	61.188	2.072.500	33,9
India	261.600	2.001.400	7,6
France	46.000	1.800.000	39,1
Chile	38.000	1.390.000	36,6
Arjantin	46.000	1.300.000	28,3
Belgium	8.100	1.093.853	40,7
Polland	175.400	1.039.100	5,9
Germany	31.700	911.900	28,8

Source: FAO

Average annual apple consumption per person in the world is 9, 28 kg by FAO data sources. Off course there are also countries that apple consumption per person is 48 kg annually.

### World Apple Export and Import

The most important quality of apple is consumes as fresh. On the other hand, the rest is used in processing industry. China is the top first country in the world apple export, Chile, Italy, France, USA and polland, Netherland fallow Belgium with apple export amount. Although Turkey is the fourth order for apple

production in the world, its share of world export is too low. The most countries which have the important share in the apple production, also take big portion in the first orders by the apple export.

**Table 3.** World Apple Export(tonne)

Countries	2002	2003	2004	2005	2006
China	438.857	609.052	774.131	824.050	804.246
Chile	548.194	601.248	738.985	639.515	725.002
Italy	687.771	707.712	541.969	723.944	713.179
France	766.992	803.778	628.017	654.074	683.351
USA	596.126	546.244	491.676	685.431	638.625
Poland	327.823	348.656	407.393	427.034	384.796
Netherland	258.475	349.414	388.094	444.353	354.958
Belgium	394.806	340.094	336.737	352.775	291.300
South Africa	256.467	325.809	305.190	262.745	267.863
New Zeland	318.860	322.758	358.327	318.608	265.436
Turkey	<b>14.504</b>	<b>19.442</b>	<b>20.023</b>	<b>29.043</b>	<b>8.586</b>
<b>World</b>	<b>5.668.121</b>	<b>6.235.832</b>	<b>6.422.428</b>	<b>7.006.255</b>	<b>7.166.752</b>

Source: FAO

The World apple import is nearby 6.606.012 tone annually. The most important apple important countries are Germany, Russia, UK, Netherlands, Belgium, Spain, USA, Mexico, China and Canada respectively. Their import is just 10% the world apple import.

**Table 4.** World Apple Import (tonne)

Countries	2002	2003	2004	2005	2006
Russia	362.071	608.297	705.277	723.579	812.726
Germany	777.014	812.653	736.256	773.567	698.513
England	448.569	475.860	524.928	514.215	531.785
Netherland	279.799	387.078	322.596	320.092	364.926
Belgium	246.644	249.609	222.052	225.533	214.187
Mexico	171.719	180.774	154.051	195.172	204.400
Spanish	207.770	236.114	248.937	224.829	188.592
Iraq	26.500	43.537	76.798	95.132	172.906
Canada	138.945	142.054	133.341	159.061	156.676
USA	170.354	186.763	207.378	122.773	156.651
Chine	173.676	150.269	154.109	170.598	148.761
Turkey	<b>3.189</b>	<b>2.866</b>	<b>2.465</b>	<b>4.021</b>	<b>5.644</b>
<b>World</b>	<b>5.392.425</b>	<b>5.986.483</b>	<b>6.236.237</b>	<b>6.613.919</b>	<b>6.967.882</b>

(Source: FAO)

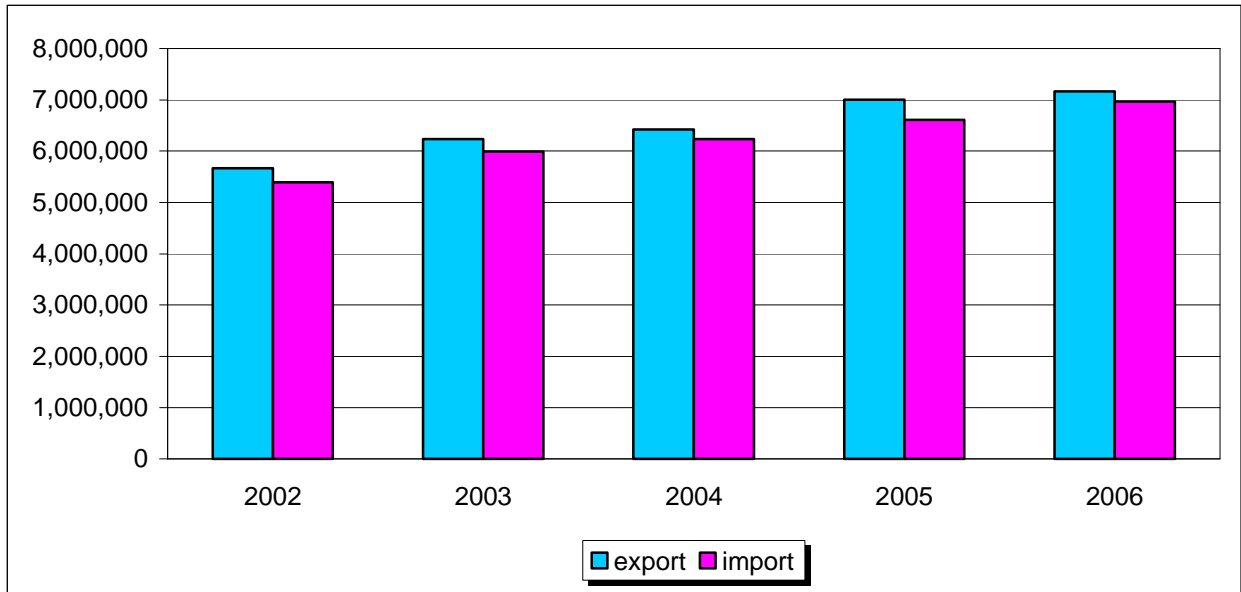


Figure 1. World Apple Trade(Tone)

### World Apple Prices

The World apple price has been examined as import and export price between 2002 and 2006 in the study. As the export price was 508,59 \$/tone in 2002, that increased to 618,38 \$/tone. The world apple import price was 570,32 \$/tone in 2002. While this price has been floating year and year, in 2006 that increased to 695,41 \$/tone.

Table 5. World Apple Prices

Years	Import	Export
	Price (\$/tone)	Price(\$/tone)
2002	570,32	508,59
2003	633,41	548,85
2004	686,57	594,90
2005	622,34	554,25
2006	695,41	618,38

Source: FAO

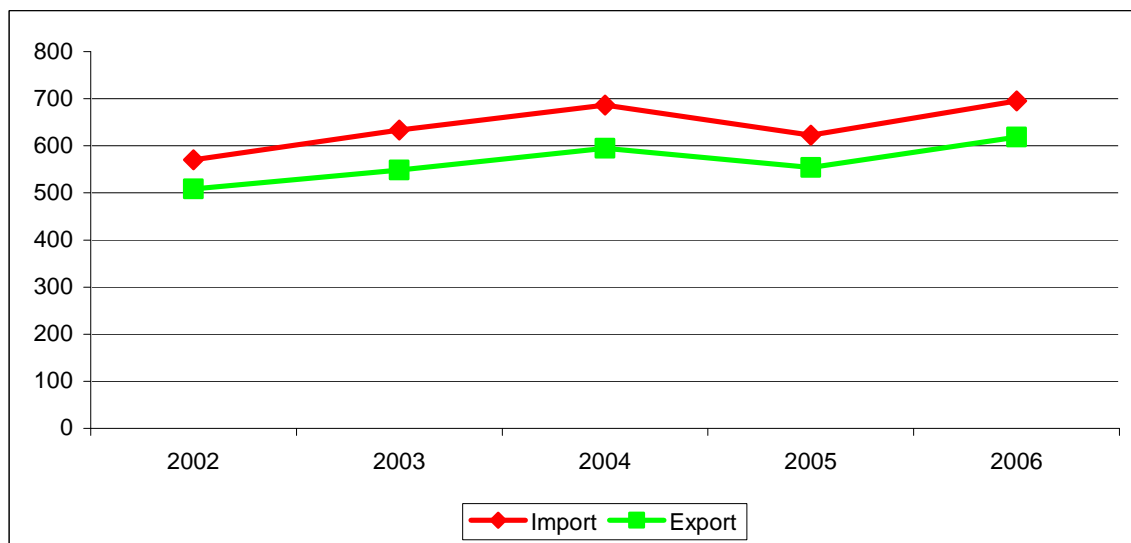


Figure 2. World Apple Import and Export Price (\$/tone)

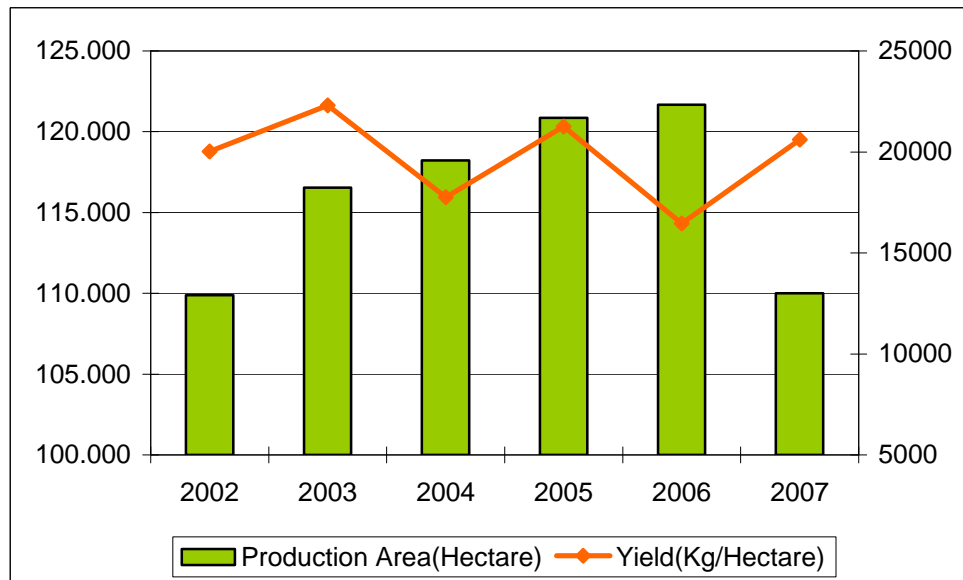
## Apple Production, Consumption, and Foreign Trade in Turkey

According to 2007 Statistics from the National Statistical Service, Turkey apple production was the first highest ranked fresh market fruit. Annual apple production of Turkey is about 2.266.437 tones while it was 2.200.000 tones in 2002, so Turkey's apple production has been increasing 3% in last decade that's equal the world production increased level in the same period. The production of apple in Turkey has been changed during the years like it's in Figure 3. While the fruit production changes year and year, average fruit production in Turkey is 19,83 million tone. 84 % of total fruit production is apple. For average of last 5 year, Turkey annual apple production is about 2,4 million tones. The apple consumption in Turkey is 36, 22 kg/person in the same period.

**Table 6.** Apple Production Area (hectare) and Yield (Kg/hectare) in Turkey

Years	Production Areas (Hectare)	Production (Ton)	Yield (Ton/Hectare)
2002	109.890	2.200.000	20,0
2003	116.551	2.600.000	22,3
2004	118.216	2.100.000	17,8
2005	120.860	2.570.000	21,3
2006	121.667	2.002.033	16,5
2007	110.000	2.266.437	20,6

Source: FAO



**Figure 3.** Apple Production Area (hectare) and Yield (Kg/hectare) in Turkey

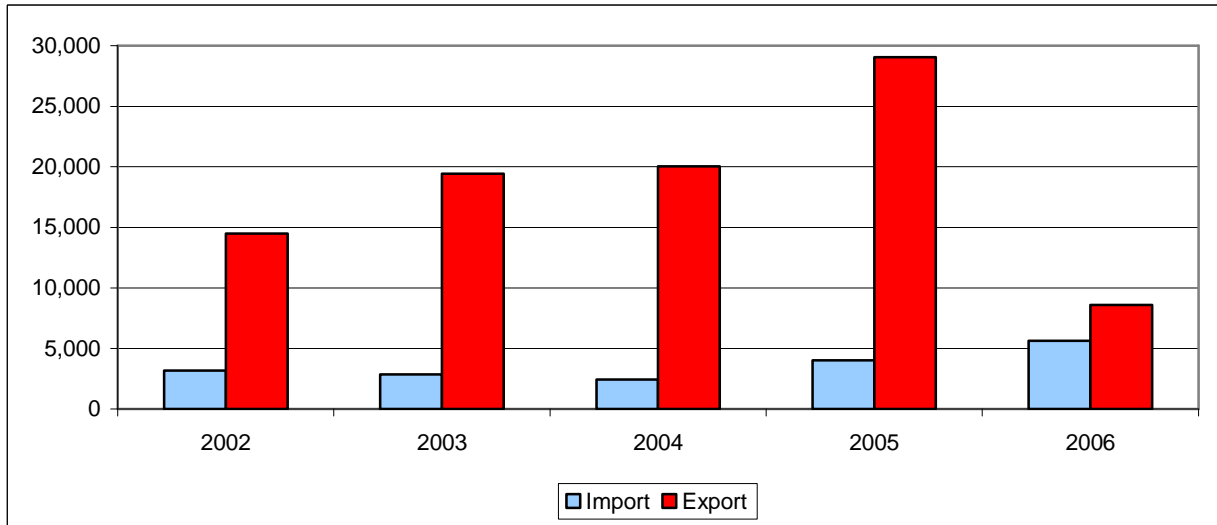
### Apple Export and Import in Turkey

In value terms, over 1% percent of Turkey fresh apple was exported in last decade. Export price of apple is about 3.024.000\$ in Turkey. Total apple exports have been decreasing in recent years. The Turkey apple import is nearby 3.633.000 tone annually.

**Table 7.** Apple Export and Import in Turkey (Tone, 1000\$)

Years	Import		Export	
	Amount (Tone)	Value (1000\$)	Amount (Tone)	Value (1000\$)
2002	3.189	1.250	14.504	5.891
2003	2.866	1.370	19.442	9.879
2004	2.445	1.544	20.023	9.950
2005	4.021	3.007	29.043	11.960
2006	5.644	4.975	8.586	3.024

(Source: FAO)



**Figure 4.** Apple Trade in Turkey (Tone)

The 53,29 % of Turkey's apple production is supplied by the 5 provinces such as Isparta, Karaman, Antalya, Niğde, Denizli in Turkey. According to 2007 Statistics from the National Statistical Service, Annually apple production of Turkey is about 2.3 million ton.

**Table 8.** The Name of Most Important Apple Production Provinces and Their Production Amounts in Turkey

Provinces	Production Amount (Tone)	Percentage of Apple Production Province in Turkey Apple Production (%)
<b>Isparta</b>	496.596	21,91
<b>Karaman</b>	342.447	15,11
<b>Antalya</b>	308.376	13,61
<b>Niğde</b>	219.376	9,68
<b>Denizli</b>	174.676	7,71
<b>Kayseri</b>	81.219	3,58
<b>Çanakkale</b>	79.673	3,52
<b>Konya</b>	65.010	2,87
<b>İçel</b>	62.884	2,77
<b>Bursa</b>	40.490	1,79
<b>Total of 10 Provinces</b>	1.870.747	82,54
<b>Total of Turkey</b>	2.266.437	100,00

Source: SIS 2007 Agricultural Structure (Production, Price and Value)

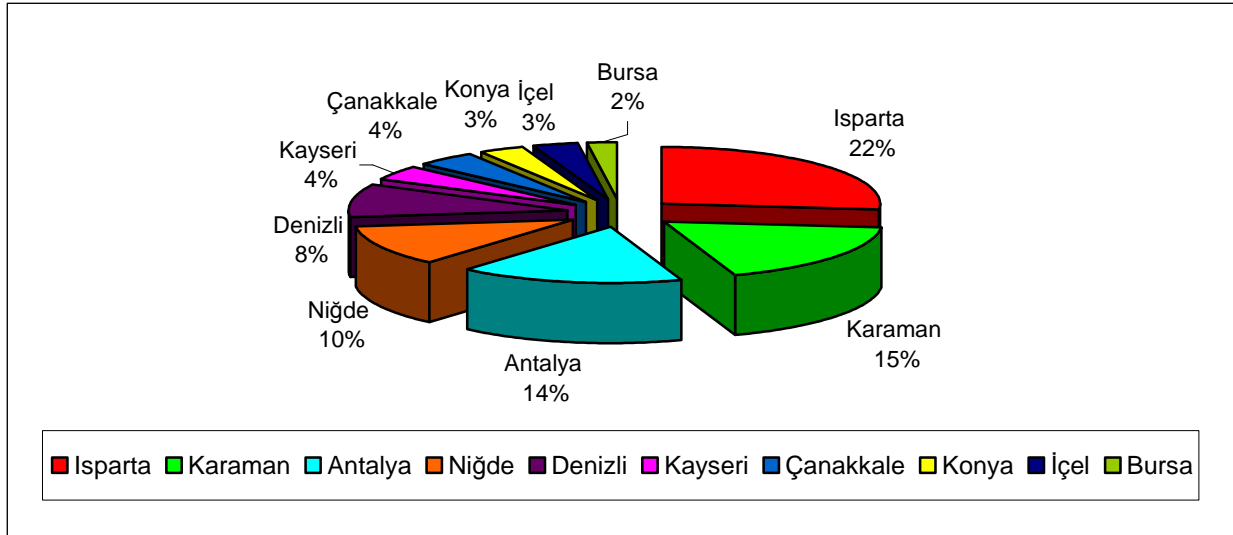


Figure 5. The Name of Most Important Apple Production Provinces and Their Production Amounts in Turkey

### Turkey Apple Prices

The average apple price in Turkey has been examined as import and export price between 2002 and 2006 in the study. As the export price was 406,16 \$/tone in 2003, that decreased to 352,20 \$/ton. Turkey apple import price was 391,97 \$ in 2002. While this price has been floating year and year, in 2006 that increased to 881,47\$/ton.

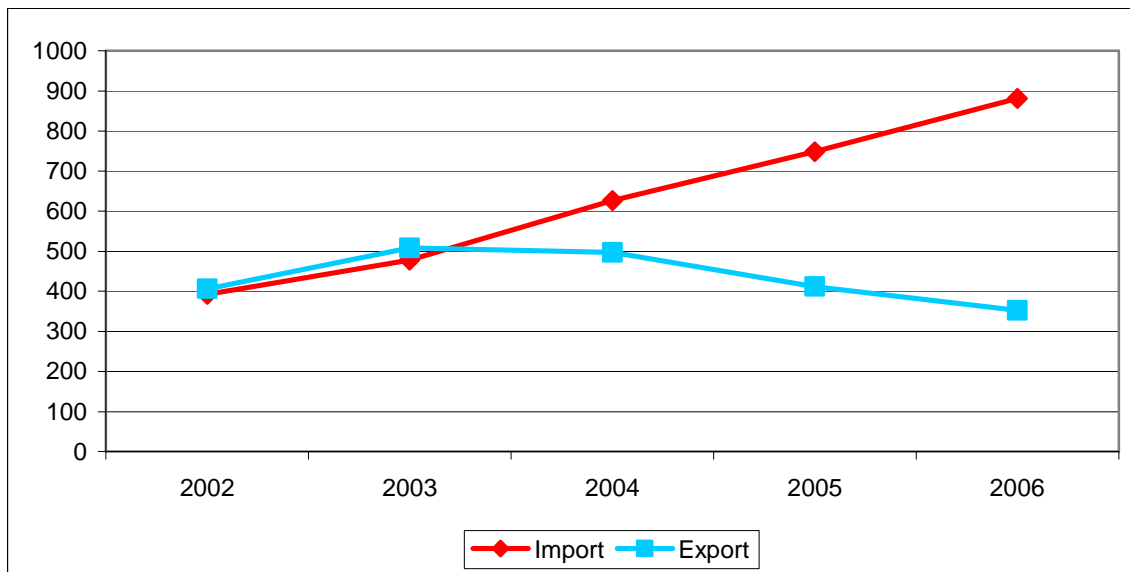


Figure 6. Apple Price of Turkey

### Marketing

Fresh vegetable and fruit trade is regulated by 552 Law in Turkey. The aim of law is to take record of fresh vegetable and fruit since they are not recorded in farms. Every Municipality of Turkey has a wholesale place for fresh vegetable and fruit. Municipalities are not allowed to sell fresh vegetable and fruit before that record is in the place. Recently Turkey's Government allowed public or private entrepreneurs to establish wholesale fresh vegetable and fruit places in 2003. Unfortunately, this regulation is not going on yet. Fresh fruits and vegetables come to the consumer after some stages, some time through a long chain like producer-broker and/or wholesaler-trim-seller and/or consumer (Olgun and Işıklı 1992).

Transportation is one of the most important and compulsive services in foreign trade of fresh fruit and vegetable in conditions of Turkey nowadays. This service can be provided by suitable transport system and haulage vehicle (Karabağlı and et al. 1989).

The quality and quantity of Turkey export can be increased conscious and planned program which is implemented from production to consumption. The observed problems about fresh fruits and vegetables marketing are packaging, storage and transportation (Gündüz 1993).

The principles of act in every type of product transportation are common. The product should be protected against decomposition and quality loosing. This protection act includes transportation product without disturbance and also conserve product against freeze in winter and hot weather in summer. Easily decomposed agricultural products need air cooling construction and protection precautions during transportation. So, these steps increase the transportation expenses in huge amount (Yurdakul 1996).

Aggregation of products in specific gathering center, product processing and products distribution to the consumer centers are important. Nevertheless, marketing comprise all these steps, harvesting, gathering, rating, standardization, packaging, transportation, storage, venturing the damage danger, consisting of price, making financial affairs, organizing accounting affairs, organizing sale, and creating demand (Güneş 1996).

Usually harvested apple keep in store until put them to the market. These stores may low quality storages, cold stores and controlled atmosphere cold stores. The apple keep period in store may differ according to fruit storage time, the feed situation of tree season and type. The fruit which is harvested after normal period resulted with quick mature and earlier harvested resulted with huge amount of loosing water and decreases of eat quality of fruit. In Turkey, 30%-40% production waste occurs after fresh fruit-vegetable harvest. This waste comprises all waste that occur in every phase of cold chain. In this case, annually 750.000 tone of 2,5 million tone produced apple is wasted in Turkey. The storage capacity is not enough, so almost half of produced apple are not stored in Turkey. Recently, Turkey's government has being grant for establishing cols stores in rural area.

The fundamental cause of marketing problems is about do not being organized either producers or exporters. Apple producers must be organized in Turkey where have significant portion in the World apple production in order to cerate significant portion for apple export too. Apple producers are interesting in choosing good quality of apple and applying new growing techniques in the orchards. Also, producers are couriers brought quality of apple, using productive inputs, packing, labeling, and conservation. In consequence, to solve the marketing problems in Turkey apple producers should be organized as federation, cooperative, and union. Off course, unorganized producers are always been alone against to the dealer and middleman. The result of that they do not fix price as they want, dealer and middleman take the considerable share of value added and consumers have to pay more for the goods all this problems will be solved by only establishing democratically producer organization such as Farmers Union, Producer Export Union, and Research Progressive(Oğuz et. al 2006)

## Conclusion

Absences of efficient marketing organization in domestic and overseas markets are creating some marketing problems. Establishing producer organizations are necessary for surviving in external competition, even for sustainability in the markets. Productivity, good quality and consumer pleasure are the keys in order to take advantage from the competition in the markets.

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