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Outlook on Turkish Pistachio Sector

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ABSTRACT: The pistachio tree is native to south-east region of Turkey, and an important income source for the farmers. While the region has potential to propagate the tree and increase the productivity, Turkey could not take advantage of this opportunity so far. The sector could not increase yield and quality, and lost its share in foreign markets dramatically. On the other hand, the USA started to produce pistachios in the late 1970's and became the second leading producer and exporter. To increase the competitiveness of Turkish pistachio producers, the production needs to be done in irrigated lands; new cultivars need to be developed/adopted. Illegal entrance of Iranian pistachios has to be stopped immediately. Producers need to be unified and make Güneydoğubirlik more active in the market. Fresh pistachio consumption needs to be encouraged and new markets should be sought abroad.

Keywords: Pistachio, Production, Consumption, South-East Anatolia

Türk Antepfıstığı Sektörüne Genel Bakış

ÖZET: Antep fıstığı Türkiye'nin Güneydoğu Anadolu Bölgesinin yerel bir ürünüdür ve çiftçiler için önemli bir gelir kaynağıdır. Bölge bu ürünü daha geniş ve yaygın olarak üretme ve verimliliği artırma potansiyeline sahip olmasına karşın, Türkiye şuana kadar bu fırsatı değerlendirememiştir. Sektör verim ve kaliteyi artıramadı ve bu yüzden dış piyasalardaki payını ciddi şekilde kaybetti. Diğer taraftan ABD antep fıstığını 1970'lerin sonlarında üretmeye başlamış ve bugün dünyanın ikinci en büyük üreticisi ve ihracatçısı konumuna gelmiştir. Türkiye antep fıstığı üreticilerinin rekabet gücünü artırmak için, üretim sulu arazilerde yapılmalı, yeni çeşitler geliştirilmeli ya da adapte edilmelidir. Yasal olmayan yollardan İran'dan ülkemize giren antep fıstığının derhal durdurulması gerekir. Üreticiler birlik olmalı ve Güneydoğubirlik piyasada daha etkin hale getirilmelidir. Taze antep fıstığı tüketimi teşvik edilmeli ve yurt dışında yeni piyasalar araştırılmalıdır.

Anahtar Kelimeler: Antep Fıstığı, Üretim, Tüketim, Güneydoğu Anadolu

Pistachio (*Pistacia vera*) Origin and Cultivars

Turkey is the motherland of many nuts, such as hazel nut, pistachio, walnut, chestnut and almond (Anonymous, 2004). Almost all kinds of nuts are conventionally produced in Turkey. As of year 2003-2004, Turkey on average produces the 65% of the world hazelnut production, 13% of world pistachio production, 9% of the world walnut production, 4% of the world chestnut production and 2% of the world almond production (Anonymous, 2006).

The pistachio tree (Pistacia vera L.) is native to western Asia and Asia Minor, from Turkey to Afghanistan, i.e., the near-east region (Ayfer 1990). Archaeological evidence in Turkey indicates the nuts were being used for food as early as 7,000 B.C. The pistachio was introduced to Italy from Syria early in the first century A.D. Subsequently its cultivation spread to other Mediterranean countries. The tree was first introduced into the United States in 1854. Commercial production of pistachio nuts in the USA began in the late 1970's and rapidly expanded to a major operation in the San Joaquin Valley (Yavuz; 1999). Iran is the leading producer of pistachio. Other major pistachio producing areas are Turkey and the USA and to a lesser extent, Syria, India, Greece, Pakistan and elsewhere.

According to recent statistics, pistachio has been produced in 56 provinces in Turkey. However, approximately 94 percent of it is produced in south-east Anatolia region (Tekin et al., 2001). Many varieties of pistachio have been developed in the world. The most widely grown cultivars in Turkey are Siirt, Kırmızı (Red), Uzun (Long), Halebi and Ohadi originated in Iran. Of these, Uzun, Kırmızı and Halebi have longer nuts, while Siirt and Ohadi have round shaped nuts. Cultivars with longer nuts are preferred due to their kernel colours, while cultivars with round nuts are preferred due to their larger size and higher split rates (Anonymous, 1993). Most propagated pistachio cultivars in Turkey are Kırmızı and Uzun. However, these cultivars are not demanded much in international markets because of lower split rates and kernel yields (Table 1).

The Turkish Pistachio Sector

Based on 1980-2004 data, the pistachio sector in Turkey has been outlooked. Mainly, production, processing, foreign trade, domestic consumption and policies in the sector have been taking into consideration.

Table 1. Characteristics of Pistachio Cultivars Grown in the South-East Region

Cultivars	Nut Size* (Piece/100grams)	Split Rate (%)	Kernel Yield (%)
Siirt	75.2	94.0	43.9
Ohadi	81.0	90.8	46.9
Halebi	85.4	82.3	41.7
Kırmızı	82.4	73.5	40.2
Uzun	96.3	67.2	39.4

*Based on Dried Red Shelled Fruit
Source: (Akkok, F., 1993)

Production

Although 56 provinces in Turkey produce pistachios, many of these provinces produce very little amount of pistachios in very limited areas. According to the average of last five years, 87.5 percent of whole pistachio production in Turkey are produced in only five provinces (Anonymous, 2003), namely, Gaziantep, Sanliurfa, Adiyaman, Kahramanmaras and Siirt (see figure 1).

Figure 1. Main Pistachio Producing Regions in Turkey

Iran holds the first place invariably in world pistachio production with 40.7 percent in 2004. The USA comes second with 33.7 percent even though they started to produce it after late 1970's. However, due to high fluctuation in pistachio production in the world, mainly because pistachios tend toward biennial bearing – i.e., producing heavy crop one year followed by little or none the next - the ranking of countries changes often, such as the rank of Turkey which changes from two to five. While Turkey held second place in world pistachio production in 2003, she held fifth place in 2004 (Table 2).

It is worth to mention here that government supports, incentives and policies plays an important role, as well. The USA started to produce pistachios in the late 1970's and became the second leading producer. That is all related to government policies and supports. They have developed many good quality cultivars, such as Kerman, Lassen and Peters, allocated better lands (i.e., fertile and irrigated lands) for pistachio production, and used better technology and inputs. Although Turkey is located in the centre of origin of pistachio, she could not developed well the pistachio sector due to growing pistachios in dry and arid lands, lack of modern technologies in the farms and improper government policies.

Table 2. Pistachio Production Shares in Major Pistachio Producing Countries (%) and Production of Turkey (tons)

Year	Iran	USA	Turkey	China	Syria	Greece	Others	Turkey's Production
1980	30.3	16.1	9.9	23.7	10.3	3.3	6.5	7 500
1985	54.6	6.4	18.3	9.9	6.3	2.1	2.4	35 000
1990	59.6	19.9	5.1	8.1	4.8	1.3	1.2	14 000
1995	60.7	17.1	9.2	6.4	3.7	1.4	1.5	36 000
2000	46.5	21.9	13.9	7.4	7.7	1.5	1.1	75 000
2001	57.6	16.9	6.9	6.0	8.7	2.2	1.7	30 000
2002	45.0	28.1	7.2	5.7	10.8	1.7	1.5	35 000
2003	43.3	12.7	21.2	7.1	11.8	2.1	1.9	90 000
2004	40.7	33.7	6.4	6.9	8.6	2.0	1.7	30 000

Source: http://www.apps.fao.org/page

Processing

Producers harvest their products and then sell them fresh or dried to local merchants or only dried to Güneydoğubirlik. The merchants and Güneydoğubirlik have them processed in the factories. The processing includes removing the husks which cover the shells, splitting and frying shelled, or cracking and selling unshelled. In addition, slicing and milling are usually handmade at homes or by desert makers to use as an ingredient such as in baklava. 90 percent of factories are located in Gaziantep province. However, due to low productivity and quality, and inconsistent government policies, many factories run under full capacity. Hence, this causes higher processing cost.

Foreign Trade in Pistachio

There are some serious issues in the export side in Turkey, as well. Due to unstable production, lack of quality image and poor price policies, Turkey only exports to the USA, Germany, Spain, Switzerland and Italy in very small amount and value (Tunalıoğlu ve Taşkaya, 2003).

When we look at the exports of the pistachio producing countries in 25 year period (1980-2004), it is explicitly seen that Iran is the only consistent and leading exporter with 58.9 percent market share in 2004. However, the USA has enormously increased its share from null in 1980 to 15.2 percent in 2004. On the other hand, Turkey has lost its share dramatically from 16.3 percent in 1980 to 0.3 percent in 2004. This is a quite explicit picture which shows how Turkish pistachio sector has been treated during that time period (Table 3).

Table 3. Pistachio Exports by Country (%)

Year	Iran	USA	Syria	Turkey	Italy	Greece	Others
1980	68.8	0.0	0.0	16.3	6.9	3.1	4.8
1985	63.3	4.6	0.0	23.4	1.3	0.1	7.2
1990	74.7	4.6	1.5	2.5	1.1	0.1	15.5
1995	67.5	7.9	2.0	0.9	0.7	0.2	20.8
2000	61.9	9.6	2.2	0.1	0.4	0.1	25.7
2001	61.9	9.6	2.2	0.1	0.5	0.1	25.6
2002	59.2	11.1	1.9	2.6	0.5	0.2	24.6
2003	68.9	8.9	0.3	0.4	0.8	0.2	20.6
2004	58.9	15.2	0.5	0.3	0.4	0.1	24.3

Source: http://www.apps.fao.org/page

The sector could not follow up and adopt new technologies and innovations, did not work efficiently and compete in the world market. Likewise, Italy and Greece have lost its market share from 6.9 percent to 0.4 percent and from 3.1 percent to 0.1 percent, respectively. While Syria keeps the same small market share by and large, other pistachio exporting countries has increased their shares from 4.8 percent in 1980 to 24.3 percent in 2004 (Table 3). As for imports, there is no dominating pistachio importing country in the world. Except for Spain with 12.3 percent share, all other pistachio importing countries have less than 10 percent market share. Hence, Germany comes second after Spain with 8 percent, followed by Belgium-Luxemburg, France, Italy and China with 6.2, 5.4, 5.0 and 4.4 percents, respectively (Table 4). One striking point is that Germany has decreased its import share dramatically from 25.4 percent in 1980 to 8 percent in 2004. On the other hand, China has increased its pistachio imports from null in 1980 to 4.4 percent in 2004.

Table 4. Pistachio Imports by Country (%)

Year	Germany	Italy	Spain	France	China	Bel-Lux	England	Holland	India	Others
1980	25.4	1.2	0.0	8.1	0.0	5.9	1.0	2.5	0.6	55.3
1985	12.9	0.6	15.3	2.7	0.0	3.2	1.9	1.0	0.6	61.8
1990	29.2	7.3	8.7	5.8	1.7	5.1	5.4	1.7	1.0	34.0
1995	24.2	7.9	6.2	6.0	4.3	6.2	4.1	2.2	1.6	37.2
2000	16.8	6.4	6.3	5.6	8.3	7.3	3.5	1.0	2.8	42.0
2001	14.1	6.2	7.1	5.3	7.6	6.2	3.3	1.0	3.2	45.9
2002	10.0	5.6	7.2	5.4	5.4	7.4	2.2	1.2	2.3	53.3
2003	6.7	3.8	6.9	3.3	4.9	4.1	2.2	2.1	2.6	63.3
2004	8.0	5.0	12.3	5.4	4.4	6.2	2.4	2.4	1.8	52.0

Source: http://www.apps.fao.org/page

Domestic Consumption

Since there is no accurate and concrete study or data on domestic pistachio consumption, in this study it is calculated for each specific year by subtracting total exports and stocks at the end of the year from total production, total imports and stocks at the beginning of the year (Table 5).

Table 5. Domestic Consumption and Per Capita Consumption of the Pistachio

Years	Consumption (ton)	Population (000)	Per Capita Consumption (gram)
1980	6 220	44 438	140
1985	24 530	50 306	488
1990	14 683	56 473	260
1995	37 386	61 644	606
2000	57 237	67 844	844
2001	25 881	69 101	375
2002	38 771	70 380	551
2003	40 128	70 847	566
Average	**30 605**	**61 379**	**479**

Source: Anonymous 1980-2003a

The figures in the table are just ballpark figures and do not reflect the current situation accurately. Therefore, more careful and accurate data need to be collected. According to our calculations, based on 1980-2003 data, domestic pistachio consumption per year is 30,605 ton on average, and per capita consumption is 479 gram/year on average. Since the pistachio yield was very low in 1980, per capita consumption was very low (140 grams), as well. However, it is well known that quite large amount of unregistered/illegal pistachios enters into Turkey from Iranian border, and they are consumed in Turkey. Therefore, the real domestic consumption could be much more than the figures mentioned here. Between 1996 and 2001, the average ratios of domestic consumptions in total production in major pistachio producing countries are 58.83% for Turkey, 15.06% for Iran, 33.03% for the USA and 52.02% for Syria. As for the per capita pistachio consumption in the same time period, it is predicted 452 gr. in Iran, 17 gr. in the USA and 1382 gr. in Syria (Tuğ 2002; Anonymous 2008).

Government Involvement in the Market

Support policies applied in year 2000s in Turkey were support purchases, input, product, credit and other agricultural subsidies. The change in Turkish agricultural policies have accelerated since year 2000 due to exogenous factors (European Union, World Trade Organisation, IMF, World Bank etc.) and endogenous factors (increasing burden of the supports on national budget, current account deficits and some peculiar issues in Turkish agriculture) (Yavuz, 2003). Supports such as direct income supports (DIS), premium payments and alternative product supports have been used extensively after 2000 (Yavuz and Aksoy, 2005).

The Union of Gaziantep Pistachio Agricultural Sale Cooperatives (UGPASC) established in 1940 is state-run cooperatives which purchase the pistachios directly from the farmers during harvest time. The purchase price determined by the government each year is the floor price to lessen the price risk for farmers, but due to late payments by these cooperatives, the producers who need urgent cash may have to sell their products less than the floor price. In 1968, four more cooperatives in Gaziantep, Kahramanmaras, Malatya, Sanliurfa, Mardin, Adiyaman, Elazig and Mersin provinces have been established to purchase dried beans, raisin, olive and red pepper from the producers. However, later in 1989, all these five cooperatives, including UGPASC, have merged and become a single union, namely Güneydoğubirlik (the Union of South-east Agricultural Sale Cooperatives), (Anonymous, 1996). After becoming an autonomous institution, Güneydoğubirlik could not buy products as in previous years. Because of this, producers who previously got price guarantee and sold their products to Güneydoğubirlik have to sell their products to merchants in lower prices.

Due to Turkey's accession process to European Union (EU) and its Common Agricultural Policy (CAP), and restrictions of World Trade Organization (WTO), Turkey have significantly started to lessen its support to agriculture. These state-run unions used to obtain their funding directly from the government budget, and purchase the products from the farmers based on pre-determined floor/support prices. However, recently some of them have been closed, and the ones still running do not get any funding from the government, instead they obtain funding from their own members and other credit providers such as banks. Today, Güneydoğubirlik only purchase pistachios, red peppers and red lentils.

The pistachio producers sell their products husked and shelled after harvesting. They sell their products either Güneydoğubirlik on support price or local merchants on market price. Of 24 year study period, the government did not set a support/floor price in 1990 and 1995. Therefore, producers had to sell all their products to local merchants in those years. Apart from year 2003, pistachio floor prices were always set higher than the production cost and the ratio of the cost to support price fluctuates between 51 percent and 146 percent. The lower the ratio is the more profitable for farmers. On the other hand, the market price was less than the production cost in 1980 with 136 percent, and higher in the rest. The ratio of the cost to the market price fluctuates between 56 percent and 136 percent. Except for 2001 and 2003, support prices were always higher than the market price. That means, it is usually more profitable for farmers to sell their products to Güneydoğubirlik (Table 6). However, due to quotas, restrictions and late payments, many farmers cannot sell their products to Güneydoğubirlik.

Purchase amount of Güneydoğubirlik has fluctuated significantly each year (Table 7). In fact, some years the union did not make any pistachio purchases at all, such as 1990-1991 and 1995-1996 seasons. Other than these years, the share of Güneydoğubirlik stock amount in total production changes between 0.3 percent and 14.9 percent. Since government supports were eliminated after the year 2000 and the union had to purchase the product with its own financial sources, the purchase amount have decreased significantly in 2002 but again started to increase each year. Presumably it will grow up in the following years, as well. However, over all share of Güneydoğubirlik in total production is extremely low. With its current status, this union does not help much to the producers and has to be more active and efficient with participation of the producers.

Table 6. Comparison of Support Price, Market Price and Production Costs

Years	Support Price (SP) (1) NTL*/kg, 2003=100	Market Price (MP) (2) NTL/kg 2003=100	Production Cost (PC) (3) NTL/kg 2003=100	PC / SP (3) / (1) %	C / MP (3) / (2) %
1980	4.90	2.35	3.19	65	136
1985	5.56	4.24	2.83	51	67
1990	0.00	4.94	2.79	0.00	56
1995	0.00	4.96	3.58	0.00	72
2000	6.00	5.78	4.88	81	84
2001	5.51	6.56	4.88	89	74
2002	8.16	6.34	4.88	60	77
2003	2.60	5.01	3.80	146	76

Source: Anonymous 1980-2003a, Anonymous 1980-2003b and Anonymous 1980-2001
* As of May 25, 2006, 1 New Turkish Lira (NTL) = 1.53 US dollar.

Table 7. Pistachio Purchases* by Güneydoğubirlik and Ratios of Stocks to Production**

Years	Purchase Amount (ton)	Price (NTL/kg)	Purchase Type	Stocks to Production (%)
1980-1981	569.0	4.90	Support	7.6
1985-1986	5 229.0	5.56	Support	14.9
1990-1991	0.0	0.00	No Purchase	0.0
1995-1996	0.0	0.00	No Purchase	0.0
2000-2001	4 230.0	6.00	Union	5.6
2001-2002	95.0	5.51	Union	0.3
2002-2003	197.0	8.16	Union	0.6
2003-2004	376.0	2.60	Union	0.4

*Unshelled
** Stock of Güneydoğubirlik in that year divided by the total production in that particular year.
Source: Anonymous 1980-2003a

In 1999, the government started export fund program for pistachio, but ended next year since the program were not successful enough. However, the government started to give 10 NTL/decare in 2001 under direct income support program. Many farmers could not benefit from this support in the region due to tax concerns and lack of title deeds for their lands.

The Problems of Turkish Pistachio Sector

Table 8 shows the average pistachio prices both in Turkey and inti the world.. Due to lower pistachio prices in the international markets than in the domestic markets, low quality products and unstable/unpredictable prices in Turkey for pistachio importing countries have reduced the foreign trade; and therefore, led to production surplus within the country since most of the products have had to be consumed in domestic markets.

Table 8. Pistachio average prices (USD/tone)

	1991	1993	1995	1997	2000	2003	2004
Domestic	2938.53	3106.07	3663.58	2614.92	3761.25	3336.00	4210.38
World	797.07	974.36	1157.61	3224.71	3161.41	3458.76	3952.07

Anonymous 2008.

Hence, both producers and state agencies which purchase products from producers for support are affected negatively. Lack of proper policies or incentives for farmers to increase quality and quantity of the products makes Turkish pistachio sector less and less competitive in the world market. Because of all these issues in the sector, pistachio export has not increased as production of pistachio has increased. In fact, it decreased quite sharply in recent years (Aksoy, 2002).

In addition, tough competition from the USA and Iran, illegal and unregistered entrance of Iranian pistachios and consumption of them in Turkey and export of them over Turkey, recent pressures and regulations of European Union and World Trade Organization, high prices and low qualities are some of the main issues in this sector (Ulusoy 1990).

Most of the cultivars grown in Turkey (e.g., kırmızı, uzun, halebi, cakmak, sultani) have more tendency toward biennial bearing than the cultivars grown in the USA and Iran, and this causes more fluctuation in production year by year. Moreover, pistachios are grown in irrigated and more fertile lands in the USA and Iran while they are grown in arid lands in Turkey. Therefore, they yield higher production than Turkey. Although kernel quality of Turkish pistachios is good, international demand is low due to small size, less splitting, and wrong storages of the products.

Conclusions

The pistachio tree is native to south-east region of Turkey, and the region is very suitable and has potential to propagate the tree and increase the productivity. However, Turkey could not take advantage of this opportunity so far. Although pistachio growing land and thus yield have increased some in last 25 years, quality and productivity have almost stayed the same and foreign trade decreased sharply. Pistachio used to have relatively higher share in Turkish foreign trade, but it is losing its share year by year. On the other hand, the USA started to produce pistachios in the late 1970's and became the second leading producer and exporter.

In order to increase the competition power of Turkish pistachio producers, production costs have to be reduced and quality of the product has to be increased. For this end, production needs to be done in irrigated and fertile lands, new cultivars need to be developed or adopted, and issues in farming and marketing have to be solved. Illegal and unregistered entrance of Iranian pistachios has to be stopped immediately. All these will lead to increase yield and quality, decrease production and processing costs, and thus increase the domestic and foreign demand.

In addition, the government should develop new policies and incentive programs to encourage pistachio production more efficiently and professionally in the region. Producers need to be unified and make Güneydoğubirlik more efficient and active in the market. Processing plants need to be renewed. Fresh pistachio consumption needs to be encouraged and new markets should be sought abroad. All farm lands in Turkey must be registered and all farmers must own title deeds for their lands. Finally, more accurate data need to be collected in pistachio sector, especially on domestic consumption.

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