





Developments in the Chestnut Market of Turkey

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ABSTRACT

Turkey is one of the main countries both in producing and exporting chestnut in the world. Objective of this study was to evaluate the structure and developments in the chestnut market of Turkey since the 1960s. The main data were gathered from the databases of the Food and Agriculture Organization and the Turkish Statistical Institute. In 2016, Turkey was the second largest chestnut producer in the world with a share of 2.97%. Chestnut plantation areas in Turkey have decreased from 48,000 to 39,000 ha since 1961. While chestnut production increased to 90,000 tons in 1988, and decreased to 65,000 t recently. Whereas the yield per hectare was over 2 t in 1988, which decreased to 1.6 t recently, due to ink disease and canker blight. Most of the chestnut production is traditionally sold by producers to wholesalers; therefore, producers cannot compete with wholesalers due to lack of sufficient and effective cooperation under farmer organization. In chestnut importation, 43,2% of tariff rate has been applied. Although the net incomes per ton of the chestnut producers have increased from 1,000 US\$ to 3,500 US\$ since 2001, total and per capita chestnut consumption amounts have decreased since the late 1980s. Turkey's chestnut export fluctuated between 1,000 t and 12,000 t depending on production and price levels and it accounted for 4.1% of the global chestnut exportation. In recent years, Turkey has imported between 20 t and 700 t chestnut totaling of 5,000-700,000 US\$ in value.

Article History

Received : 20.02.2018

Accepted : 19.04.2018

Keywords

chestnut,
market,
developments,
Turkey

Research Article

Türkiye Kestane Piyasasındaki Gelişmeler

ÖZET

Türkiye, dünyada kestane üretimi ve ihracatındaki önemli ülkelerden biridir. Bu çalışmada, Türkiye'nin kestane piyasasındaki 1960 sonrası dönemdeki gelişmelerin ve piyasa yapısının ortaya konulması amaçlanmıştır. Çalışmanın verileri, Gıda ve Tarım Örgütü ve Türkiye İstatistik Kurumundan derlenmiştir. Türkiye, 2016 yılı dünya kestane üretiminde %2.97'lik payla en büyük ikinci ülkedir. Türkiye'deki kestane dikim alanları, 1961 yılından itibaren 48,000 hektardan 39,000 hektara gerilemiştir. 1988 yılında 90,000 tona çıkan kestane üretimi, son yıllarda 65,000 tona düşmüştür. Hektara verim 1998 yılında 2 tonun üzerinde iken, son yıllarda kestane dal kanseri ve mürekkep hastalıklarının etkisiyle 1.6 tona düşmüştür. Kestane üretiminin çoğu, üreticiler tarafından toptancılara pazarlanmakta, yetersiz ve etkin örgütlenmenin olmayışı nedeniyle üreticiler toptancılarla rekabet edememektedirler. Türkiye kabuklu ve iç kestane ithalatta %43.2 tarife uygulanmaktadır. 2001 sonrası dönemde ton başına üreticilerin eline geçen fiyatlar 1,000 ABD Dolarından 3,500 ABD Dolarına çıkmıştır. Ülke toplam ve kişi başına kestane tüketim miktarlarında 1980'lerden itibaren azalış yaşanmaktadır. Üretim ve fiyat düzeyine bağlı olarak 1,000 ila 12,000 ton arasında değişen ihracatıyla Türkiye, dünya kestane ihracatının %4.1'ini gerçekleştirmektedir. Bununla birlikte, Türkiye son yıllarda toplam değeri 5,000 ila 700,000 ABD Doları olan 20 ila 700 ton kestane ithal etmektedir.

Makale Tarihçesi

Geliş Tarihi : 20.02.2018

Kabul Tarihi : 19.04.2018

Anahtar Kelimeler

Kestane,
piyasa,
gelişmeler,
Türkiye

Araştırma Makalesi

To cite: Bozoğlu M, Başer U, Alhas Eroğlu N, Kılıç Topuz B 2018. 2018. Developments in the Chestnut Market of Turkey. KSÜ Tar Doğa Derg 22(1) : 19-25, DOI : 10.18016/ksutarimdog.vi.430319.

INTRODUCTION

Chestnuts (*Castanea sativa Mill*) are represented by several species of trees in the beech family (Hochmuth et al. 2012). *Castanea sativa Mill* (European chestnut) is the only species growing naturally in the ecological chestnut areas of Turkey, as well as in other European countries (Soylu et al. 2009). It was reported that the first spreading center of chestnut was Kastamonu (Kastanis) province in Anatolia. According to some ancient Greek and Roman writers, the chestnut was spread from Anatolia to Greece and then to Southern Italy and Spain in the 5th century BC (TSPO, 2001).

Chestnut is known for a long time as a valuable plant by producing nut fruit and some products. Chestnut has provided countless benefits to humans with its rich carbohydrates, protein, oil, vitamins, and minerals contents (Cuestas et al. 2018). Chestnut has high-quality timber for furniture and its branches, leaves, and shells are used in painting industry (MFWM, 2013). Chestnut honey is also rich in antioxidant and antimicrobial; however, chestnut orchards also provide benefits ecologically many environmentally in the landscape. Thus, chestnut, like many multiyear plants, have effect on the preventing erosion, keeping moisture content of the soil, providing recreation and protecting the nature (Cuestas et al. 2018).

Turkey is one of the main producers and exporter countries of chestnut in the world. Therefore, it is very important to examine the developments in the chestnut markets and the general performance of the Turkish chestnut sector using trend analysis to understand how the chestnut sector is affected by internal and external factors. Most of the studies in the literature are based on prevention and control of chestnut branch cancer and ink disease. (Oliveira et al. 1999; Ding et al. 2007; Robin et al. 2010; Gentile et al. 2010; Choupina et al.

2014). In some other studies, chestnut production issues in particular countries, the developments, opportunities and problems on the chestnut market were discussed (Ridley, 1999; Breisch, 2008; Bounous, 2009; Karadeniz, 2013). There no any previous study reviews about the structure and developments in the Turkish Chestnut market.

The aim of this review was to evaluate the structure and development of the Turkish chestnut market since the 1960's. we hope that the decision makers in the government or in the chestnut sector can benefit from current study.

MATERIAL and METHODS

Databases of the Food and Agriculture Organization (FAO) and the Turkish Statistical Institute (TurkStat) such as the harvested area (ha), the production (t), the yield (kg ha⁻¹), marketing and prices (US\$ kg⁻¹), domestic consumption (t), export and import (t and US\$) were used to evaluate the structure and developments of the chestnut market in Turkey. The Turkish chestnut policy was forwarded by examining the legislation from the Official Gazette of the Turkish Republic.

RESULTS and DISCUSSION

Production

In 2016, the worldwide chestnut production was about 2.2 million t. China was the biggest chestnut supplier in the world with the share of 86.32% in chestnut production. Turkey was the second largest chestnut producer with the share of 2.97% (FAO, 2018). Chestnut cultivation areas are located in 29 provinces in the Aegean, Black Sea and Marmara Regions of Turkey (Figure 1).

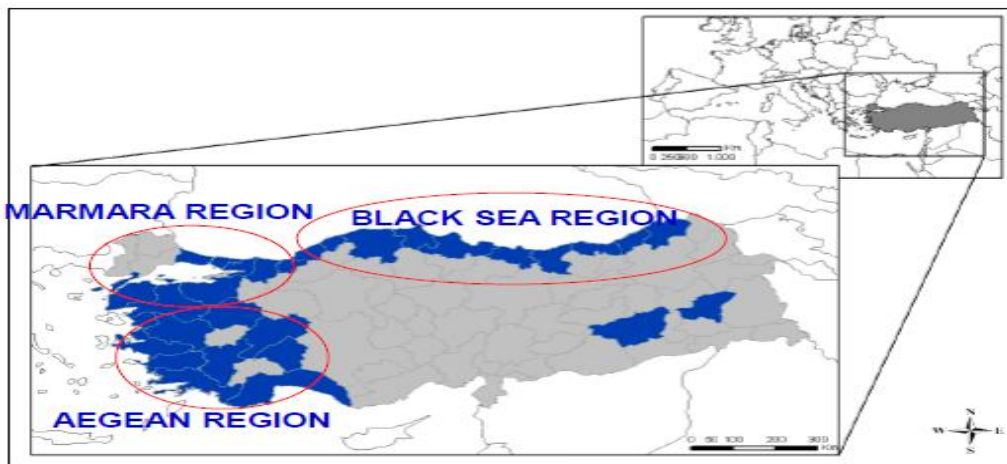


Figure 1. Chestnut plantation areas in Turkey (Serdar, 2015)

In 2016, 64,750 t of chestnut was produced, mainly in the provinces Aydın (39.3%), İzmir (17.9), Sinop (6.2%), Bartın (5.1%), Kastamonu (4.8%), Manisa (3.9%), Kütahya (3.8%), Denizli (3.3%), Bursa (3.3%), Zonguldak (2.1), Balıkesir (1.9%), Çanakkale (1.8%) and other provinces (6.6%) (TSI, 2017). Chestnut orchards had been established by using local seedlings in the forest, being uncommon grafting cultivars (Özçağırın et al. 2007). Farmers have faced ownership problems with the treasury about chestnut lands because most of the chestnut plantations are in the forest lands and this prevents investments in chestnut cultivation.

Chestnut plantations have decreased from 48,000 to 39,000 ha since 1961, with similar trends both in yield production. While chestnut production increased to 90,000 t in 1988, it has decreased to 65,000 t, with a gross production value of 221\$ million. Average yield per hectare also decreased from over 2 t in 1988 to 1.7 t recent years (Figure 2), which is lower than production in China (5.6 t) and Greece (3.3 t) (FAO, 2017). The most important factors causing to the reduction of the planting areas, yield and production are considered to be diseases including ink disease and canker blight (Karadeniz 2013).

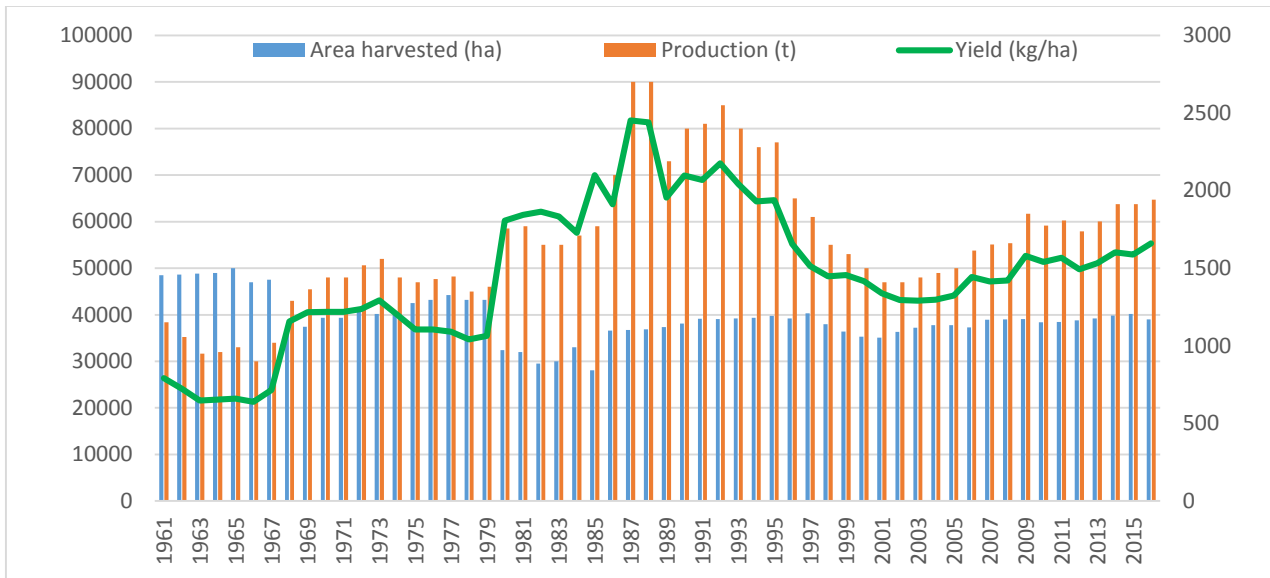


Figure 2. Chestnut area, yield and production in Turkey (FAO, 2018)

Marketing and prices

Producers have to sell their chestnuts by complying the marketing rules stated in the policy sub-title. A part of the chestnut production of Turkey is to reserve for the households' needs. The rest of chestnut production is directly marketed as raw chestnuts by the producers in the neighborhood markets. Most of the chestnuts are being marketed individually by the farmers to

wholesalers. Producers cannot compete with wholesalers as they don't become well organize with each other. Wholesalers sell raw chestnuts to retailers and then to domestic consumers. A small amount of chestnuts are marketed as raw through wholesalers to the importers or the processing industry, and afterwards the importers sell chestnuts as raw or processed chestnuts to the foreign consumers (Figure 3).

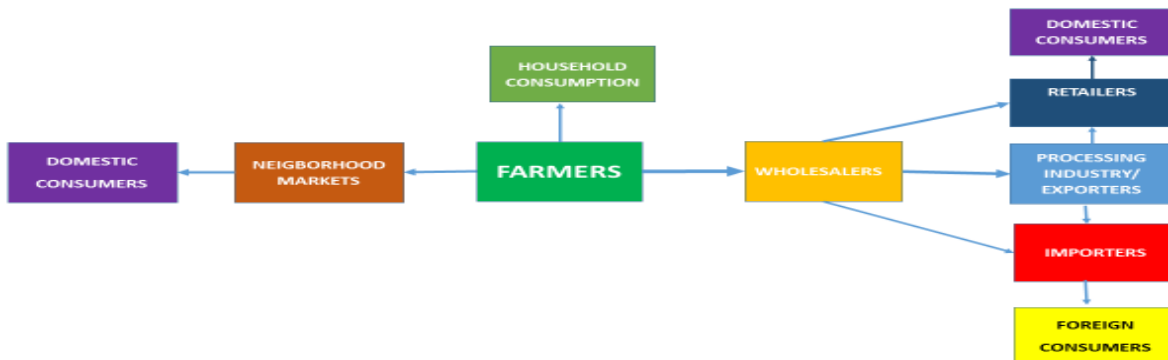


Figure 3. Chestnut marketing channels of Turkey

About half of chestnut production of Turkey is able to fulfill market standards. This production has mainly been provided by the standard chestnut orchards in the Aegean and Marmara regions. However, the rest of the chestnut production in the forest land does not generally meet market standards. Because the chestnut plantation was established naturally and there has not

generally been a variety selection, fertilizer and pesticide use and other practices.

In Turkey, producers' chestnut prices per t showed an increasing trend, from 1,000 to 3,500 US\$ since 2001, similarly to other countries' prices, but with a higher value (Figure 4).

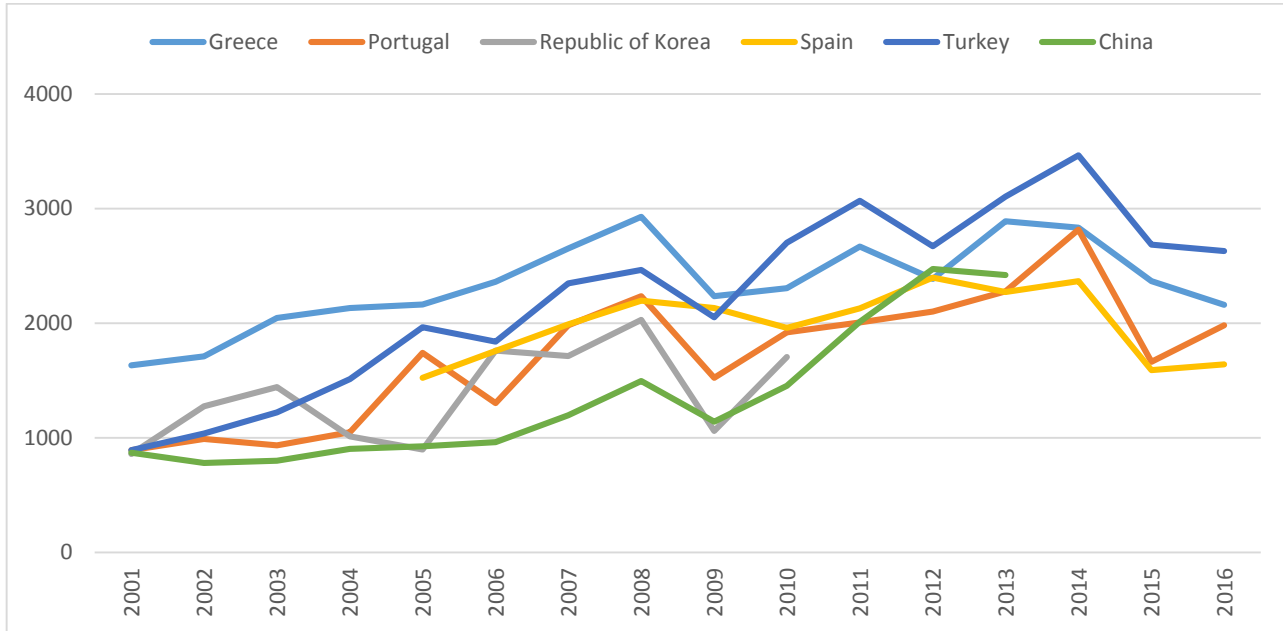


Figure 4. Chestnut producer prices (US\$/t) (FAO, 2018)

Domestic consumption

There has been downward trend in the total and per capita chestnut consumption of Turkey in line with the production trend since 1987 and it has varied from 33,351 to 58,750 t since 2000. Thus, chestnut production capacity is the main determinant of Turkey's domestic consumption level. Moreover, in comparison to today's and 1987 data, the chestnut consumption per capita is

three times less (Figure 5). Chestnut production could not increase in line with the increase in population of Turkey and chestnut is consumed in limited forms. Thus, chestnut is mainly consumed as roasted at home or from street sellers, but also in smaller quantities as candied, chocolate and powder forms. Whereas, in the USA, it is used in 34 different forms (Soylu, 2004).

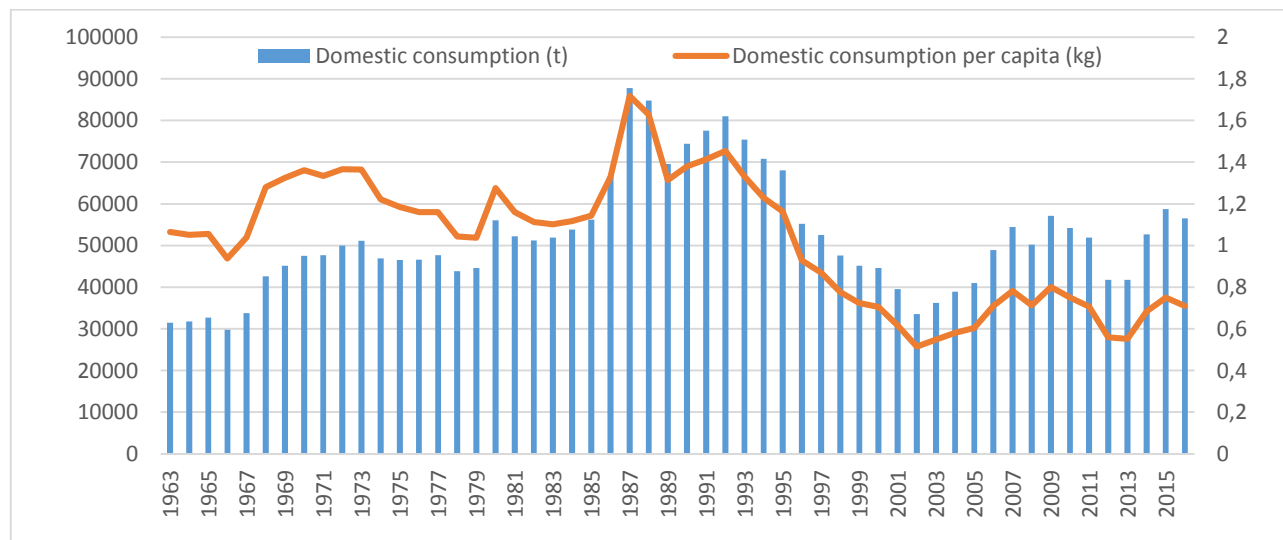


Figure 5. Chestnut domestic consumption in Turkey (FAO, 2018)

Export and import

In 2016, the chestnut export quantity and value in the world were 125,127 t and 384 million US\$, respectively. China accounted for 31.3% of the worldwide chestnut export quantity and 22.1% of the value. However, Turkey accounted for about 4.1% of the world’s chestnut export quantity and 4.8% of the value (FAO, 2017). Turkey was net exporter country in the external trade of chestnut of raw nuts free from pests and diseases. Exports fluctuated between 520 and 11,665 t depending on production and price levels, with a value from 1 to 40 million US\$ (Figure 6). The main export countries such

as China, Republic of Korea, Greece and Portugal can export chestnut with lower prices to the importer countries and Turkey could not compete with these countries due the higher export price level.

Turkey’s chestnut production did not meet domestic demand and the country imported between 2 and 734 t of chestnut in recent years with a value about 5,000-700,000 US\$ (Figure 7), even though the high tariff against the imports, especially from China. This is another indicator expressing that Turkey is not a competitive country in the international chestnut markets.

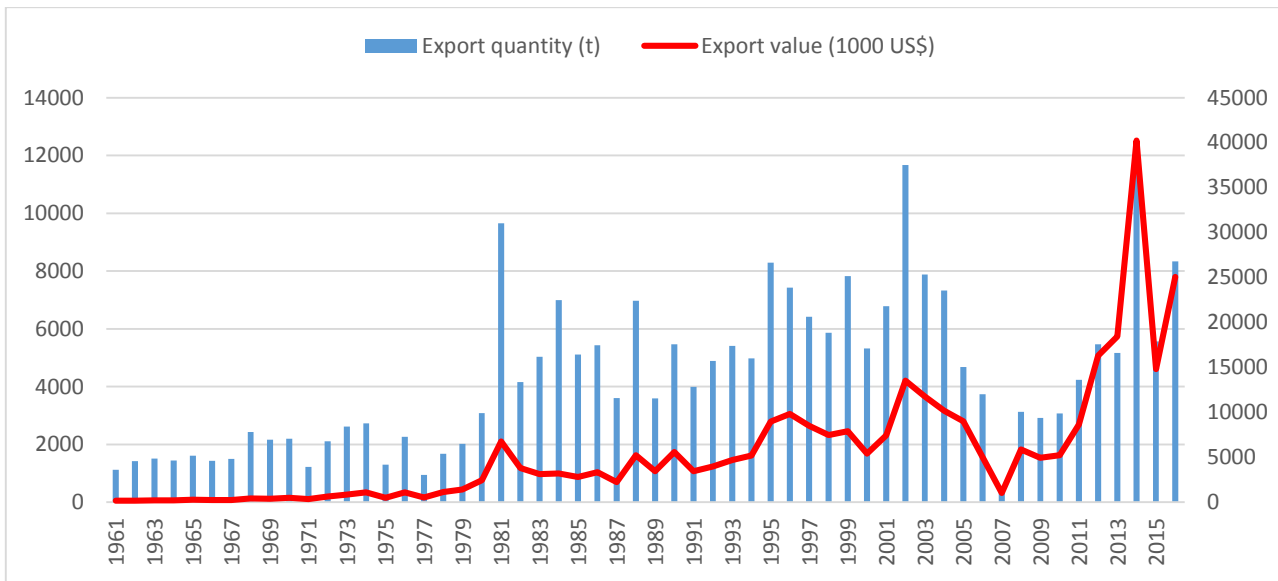


Figure 6. Turkey’s chestnut export quantity and value (FAO, 2018)

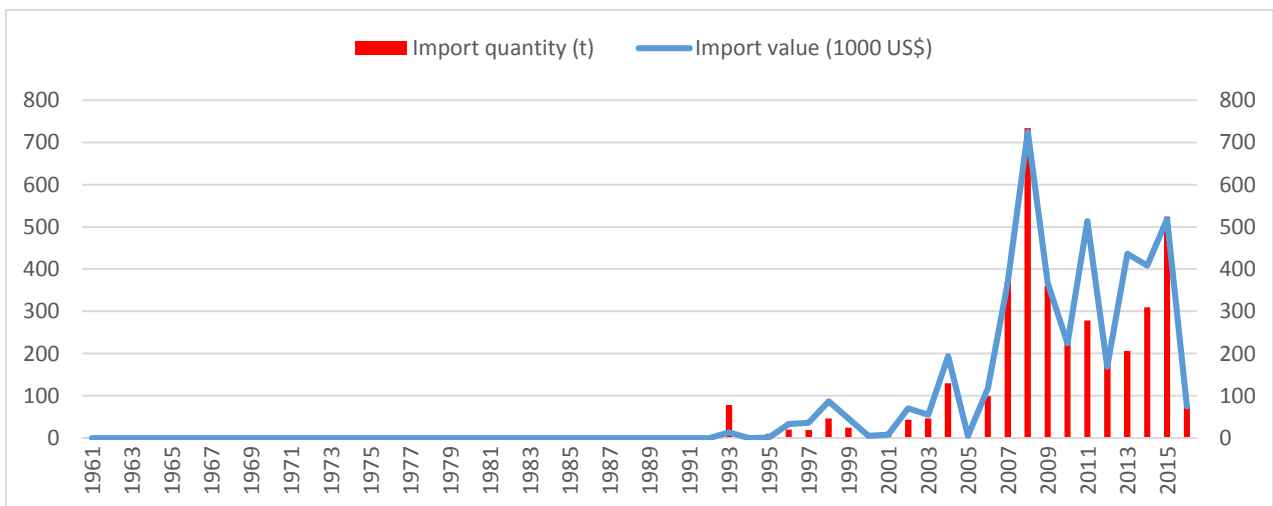


Figure 7. Turkey’s chestnut import quantity and value (FAO, 2018)

Policy

In Turkey, chestnut domestic markets prices are determined based on the mutual interaction between supply and demand factors; therefore, there has not been any government intervention, even though farmers could benefit promoting good agricultural

practices and organic agriculture (MFAL, 2017). Government policy is focused on funding research through public institutions such as the Ministry of Food, Agriculture, and Livestock, Turkish Scientific Research Institution, universities, etc.

Producers, producer organizations, commissioners and traders must officially sell chestnuts in the wholesale markets. Producer organizations may sell or purchase chestnuts from their members and non-members or other producer organizations in the wholesale or retail markets. Producers can only sell their products in the local markets. Municipalities must allocate at least 20% of the total sales areas to the producers. The chestnut producers have to comply with these marketing rules when they sell their chestnuts (OGTR, 2010).

In chestnut marketing, there have been various standards for domestic and external trade (TS, 2014) related to fresh chestnut exhibited (TS 1072); with the rules for harvesting, transportation, and packaging (TS 9855); and sampling (TS 874). Turkey has protected domestic production against chestnut imports applying 43.2% tariff for both shelled and in-shell chestnuts (EU, 2017).

CONCLUSIONS

There are some important problems in Turkey's chestnut industry needed to overcome. Namely, chestnut yield and production had decreased since the 1990's mainly due to canker blight and ink disease. Unfortunately, the current efforts of public institutions and farmers to control these diseases are not sufficient. Definitive treatment should be developed and applied against the chestnut cancer disease. Otherwise, it is not possible to increase the chestnut production in Turkey. Quarantine measures for the chestnut branch cancer should be strictly applied and the seedlings should be transported in a controlled manner from one region to another (Karahocagil and Tosun, 2004). Resistant rootstocks and varieties should be developed and adopted in the infected chestnut plantations. Maraval and Marigoule clone rootstocks should be propagated and distributed to the producers and chestnut orchards should be established above the altitude of 400 meters to manage with ink disease. Doing necessary cultivation practices in chestnut production in the forest lands are almost impossible which negatively affected chestnut quality and yield. Therefore, suitable orchard areas for chestnut farming should be preferred instead of forest areas. Thus, chestnut orchards should be planted in suitable soils and climates and should be taken great care of by cultural practices such as tillage, land cleaning, irrigation, fertilization, pruning, spraying, irrigation and other agro-techniques. The growers should be educated about cultivation and storage techniques, as well. Such cultural practices results increase in quality and yield of chestnut. Small family farms are very common, and they generally have chestnut land ownership problems, which can only be solved by the government. First of all, farmers have to be well organized with each other in a cooperative or a union to compete with the middlemen. Chestnut is mainly consumed as raw (roasted, boiled) or processed.

Many traditional and innovative products, such as dried, flour, candied, marrons glacés, etc. from the chestnut should be obtained to expand domestic and export demand. Chestnut import is expected to increase in the future depending on domestic demand. If the sector stakeholders take the necessary precautions, the chestnut industry will satisfyingly develop in the future.

Finally, we propose a future study examining the environmental and economic sustainability of chestnut farming at regional or national level.

ACKNOWLEDGEMENTS

We are grateful to Mr. Birol Kurt from the International Office of Ondokuz Mayıs University for his English editorial contribution.

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