

Sunflower Production, Consumption, Foreign Trade and Agricultural Policies in Turkey

Sema Konyali

*Namık Kemal University, Faculty of Agriculture,
Department of Agricultural Economics, Tekirdağ/Turkey,
skonyali@nku.edu.tr*

Sunflower is one of the most important oilseed crops in Turkey and in the world. In the world, 11% of crude vegetable oil production is supplied by sunflower. In Turkey, 47% of the crude vegetable oil production is supplied by the sunflower. Cultivated sunflower (*Helianthus annuus* L.) is one of the principal sources of edible oils produced by annual field crops in Turkey. The total production of sunflower is 1.670.716 tons in Turkey. The average yield of sunflower was 410 kg/da in 2016 (Anonymous, 2016), despite changes in the regions. Turkey which has 4% ratio of sunflower production is in the first ten countries in the world. However, Turkey sunflower production is not sufficient even for domestic consumption. In Turkey, there is a continuous increase in consumption of vegetable oil, which is the result of rapid population growth and the increase in per capita consumption. However, due to the increasing population and consequently consumption per capita, the oil production cannot meet the consumption, and the increasing oil deficit is eliminated through imports. Turkey imports sunflower seeds, processed and raw sunflower oil for many years. Therefore, it is necessary to increase the sunflower production areas and yield.

Sunflower planted areas and production was decreasing in the last years due to low prices mainly both in Turkey and the world. In addition, increasing of the agricultural input prices of sunflower is higher than sunflower intervention prices in Turkey. It is a problem for producers because they are affecting negatively. The oilseed production is supported by the government with premium applications, input subsidies and tariff quota applications. Within the scope of agricultural subsidy, premium support was given to the oil sunflower the same as 0.3 TL/kg for the years 2014/2015 and 2015/2016. It is necessary to increase the premium system to provide its continuity. Therefore, sunflower production should be promoted by applying more qualified and more consistent policies in Turkey.

The purpose of this study is to examine the economic problems in sunflower farming and to propose solutions by evaluating the structure of the Vegetable Oil Industry and existing agricultural policies in Turkey.

Keywords: *sunflower production, vegetable oil, agricultural support, agricultural policy, Turkey*

Introduction

Sunflower is an important agricultural crop in most of the sunflower growing countries. It is grown for its edible oil and fruits both for human and livestock consumption. The sunflower seed is the fruit of the sunflower.

Global seed production grow steadily in the last 25 years. Major producing countries are Ukraine, Russia, European Union and Argentina. Ukraine and Russia produce almost half of the world sunflower seeds. The total production of sunflower is approximately 45 million metric tons and the area under its cultivation was 26 million hectares in the world. The average yield

of sunflower was 1.78 metric tons per ha in 2016. Overall trade is affected by a further drawdown in exporting countries' inventories and by increased reliance on the three major suppliers, Argentina, Ukraine and the Russian Federation. Major sunflower seed exporting countries are Romania, Bulgaria, France, The United States and China. Major importing countries are Netherlands, Turkey, Germany, Spain and France. Major share of world the sunflower oil export comes from the Black Sea area, with Ukraine and Russia are the main supplying countries. Major sunflower oil importing countries are European Union, India and Egypt.

Sunflower takes an important place in terms of raw materials provided for the oil industry and of added value, as well as bring-in income for producers in Turkey's economy. Sunflower has been grown on about 569.000 ha with production of around 1.5 million metric tons annually. The average yield of the sunflower is 2640 kg/ha in Turkey (Anonymous,2016). Turkey is one of the biggest sunflower producer countries of the world. However, Turkish domestic sunflower seed crop isn't sufficient for the domestic sunflower oil consumption. Therefore, sunflower seed and sunflower oil have been imported. It is an important problem for producers, exporters, oil industry and economics of Turkey. The policies related to sunflower in Turkey, has been maintained with agricultural subsidies and tariff quotas. As for, agricultural subsidies are implemented in the form of field-based support, watershed based supports, Inward Processing Regime (IPO) applications and agricultural insurance support. These payments are not enough to the producers because the input prices are higher than sunflower prices. Therefore, the input prices should decreased for producers. The sunflower and sunflower producers should be supported by government for a better farming, production, development of oil industry and country's economy.

The sunflower production and agricultural policies applied for sunflower was studied in some studies. Badar et al. (2002) studied the constraints that are limiting sunflower production in the Punjab by employing analytical techniques. Regression analysis was used to identify production factors affecting the yield of sunflower. Cobb-Douglas type of function was visualized for this data. Okoko et al. (2008) has revealed that although sunflower has good potential for commercial production in Southwest Kenya, there are still some challenges such as prolonged dry periods; low acreages leading to shortage of seeds for processing, production is labour intensive, processing machines are gender unfriendly and lack of good quality seed of high yielding varieties at planting time. Herrmann et al. (2015) studied food value chain (FVC) development in Tanzania and using sunflower as a case study. The report identified a number of general and sunflower sector specific policy and institutional issues promoting or slowing down inclusive FVC development in Tanzania. Bagherzadeh and Kazemzadeh (2012) examined the analysis of the effects of inputs price liberalization on production of sunflower producers in Khoy-Iran. Study results showed that input price liberalization policy by increasing inputs prices and decreasing demand amounts of inputs, increases the production costs and decreases the production and totally it's harmful for sunflower producers. For preventing negative effects of liberalization on production, adopting necessary policies such as merging small farms and making big ones to profit by economies of scale and increasing production and productivity with the resulted incomes from liberalization and spending them in scientific researches to produce with low costs are suggested.

In Turkey, few studies carried out agricultural policies for sunflower. Semerci (2013) investigated the effect of premium support application on sunflower cultivation area and production amount in Thrace where approximately 65% of sunflower production in Turkey is met and also the effect of support payments on producer income. Kaya (2014) examined the sunflower production in Balkan Region. He indicated that, Turkey is the main importer in the region while other countries such as Romania, Bulgaria, Moldova and Serbia exist among the

main sunflower exporter countries in the world. Gül et al. (2016) revealed the importance of sunflower oil within oilseed plants and its role in overcoming oil deficiency in Turkey. Semerci et al. (2012) analyzed the reflections of subsidies based on areas and the production price on producer incomes in the agricultural enterprises in Trakya region. In the research, there were no relationships among sunflower product price, planted area and production as well as it could be concluded that no effect of price subsidy on sunflower planted area and production.

In this study it was aimed that were to reveal economic problems in sunflower farming and agricultural policies applied for sunflower in Turkey and to present suggestions for problems.

Sunflower Production and Trade in Turkey

Sunflower Production

Sunflower grows mainly for oil production and for confectionery in Turkey. However, the uses for birdseed production, for ornamental purposes in gardens and cutting flowers, for livestock use as meal and silage are very common in Turkey and the world. The people prefer mostly sunflower oil as vegetable oil and main crop. The majority of sunflower areas (75%) are in Thrace Region which is European part of Turkey. Sunflower also exists in South-Marmara Region, Black Sea, Central-Anatolia, Aegean and Mediterranean Region. Although sunflower could be planted more in different regions due to having high adaptation capability and high mechanization uses; it couldn't produce in large areas due to getting low producer income and couldn't compete with other more profitable crops such as wheat, cotton etc. in both dry and irrigated conditions in Turkey.

Sunflower has been grown on about 569.000 ha with production of around 1.5 million metric tons annually. The average yield of the sunflower is 2640 kg/ha in Turkey (Anonymous,2016). There has been no significant rise in sunflower areas between 2000 and 2015 despite some critical decreases. However, there has been a significant rise in production and yields of sunflower production. Production increased to 1.5 million metric tons and yield increased to 264 kg in 2015 (Figure 1). Despite the high agricultural production potential, the self-sufficiency rate of sunflower is 73.4% in Turkey (Anonymous, 2015). In 2015, 3.5 billion US\$ of vegetable oil and oil seeds was imported in order to supply the current deficit.

Figure 1

Turkey's Sunflower Seed Area-Production and Yield in 2000-2015

Year	Area (ha)	Production (1000 MT)	Yield (kg/da)
2000/2001	542.000	800.000	148
2001/2002	510.000	650.000	127
2002/2003	550.000	850.000	155
2003/2004	510.000	800.000	147
2004/2005	550.000	900.000	164
2005/2006	566.000	975.000	172
2006/2007	585.000	1.118.000	191
2007/2008	555.000	854.407	154
2008/2009	580.000	992.387	171
2009/2010	584.000	1.057.125	181
2010/2011	641.000	1.320.000	212
2011/2012	655.000	1.335.000	204
2012/2013	604.600	1.370.000	227
2013/2014	609.700	1.523.000	250
2014/2015	530.000	1.480.000	217
2015/2016	569.000	1.500.000	264

Source: Turkey Statistical Institute

Sunflower is produced mainly as an oil crop in Turkey and in the world. The production of sunflower oil has shown in Figure 2.2. Oil production which is around 600.000 metric tons in the average of last 17 years has increased in parallel with the increase in seed production in recent years. In Turkey, both sunflower oil production and consumption increases. Due to the increasing population and consequently consumption per capita, the oil production cannot supply the consumption, and the increasing oil deficit is eliminated through imports.

Figure 2

Turkey's Sunflower Oil Production and Consumption in 2000-2015

Year	Production (1000 MT)	Consumption (1000 MT)
2000/2001	253.500	525.000
2001/2002	253.000	412.000
2002/2003	350.000	452.000
2003/2004	312.000	537.000
2004/2005	320.000	579.000
2005/2006	465.000	658.000
2006/2007	495.000	705.000
2007/2008	460.000	661.000
2008/2009	490.000	649.000
2009/2010	596.000	665.000
2010/2011	680.000	766.000
2011/2012	707.000	781.000
2012/2013	691.000	825.000
2013/2014	792.000	875.000
2014/2015	650.000	865.000

Source: BYSD-Vegetable Oils and Fats Industrialists Association

Sunflower Foreign Trade

Even in the years when oil seeds tend to be planted in Turkey, oil production hasn't been able to supply consumption, due to the growing population and the increasing in consumption per capita consequently. Thus, increasing oil deficits have been emerged and also this has been eliminated through imports.

The lack of a stable planning for the production of oil plants causes the current production potential to be underutilized, the increase in the vegetable oil deficit and the increase of the industry's dependency on the outside.

Figure 3

Turkey's Sunflower Seed Export and Import in 2003-2015

Year	Export		Import	
	Quantity (Tons)	Value (1000 \$)	Quantity (Tons)	Value (1000 \$)
2003	4.269	8.406	540.852	153.335
2004	4.489	10.500	481.703	157.376
2005	8.128	16.914	491.325	161.759
2006	10.194	22.778	372.408	116.520
2007	10.052	26.598	596.147	260.166
2008	7.826	30.277	455.995	365.145
2009	16.195	35.054	468.277	240.620
2010	21.643	58.912	645.607	348.113
2011	32.402	81.161	905.686	589.577
2012	56.268	114.321	754.462	443.958
2013	34.700	103.301	710.843	474.001
2014	33.521	111.730	556.909	406.154
2015*	30.951	68.984	320.637	224.288

Source: BYSD-Vegetable Oils and Fats Industrialists Association (*) 2015 year for 11 Monthly

Turkey is one of the main sunflower importer country in the world. In 2015, Turkey imported more than 320,000 tons of sunflower seed, while exports totalled almost 31,000 tons (Figure 2.3). Since sunflower domestic crop is far away to supply domestic crushers' demands, Turkey appears as one of the biggest export destinations (the second in worldwide after EU-27). Moldova (219,000 MT), Bulgaria (139,000 MT), Romania (117,000 MT) and Russia (72,000 MT) were the main suppliers of sunflower seed for Turkey. Turkey imports seeds and processes them into oil.

Figure 4
Turkey's Sunflower Oil Export and Import in 2003-2015

Year	Export		Import	
	Quantity (Tons)	Value (1000 \$)	Quantity (Tons)	Value (1000 \$)
2003	28.428	22.471	92.548	54.047
2004	17.869	15.715	78.303	50.604
2005	23.120	21.495	203.519	134.930
2006	98.942	85.297	236.605	159.149
2007	31.906	36.002	163.115	138.039
2008	98.714	164.582	411.660	647.095
2009	101.432	110.618	323.596	468.305
2010	75.886	100.509	223.998	271.020
2011	204.872	338.658	469.858	629.068
2012	271.257	416.884	742.877	987.295
2013	346.256	496.198	625.849	908.122
2014	665.241	790.130	812.401	1.177.993
2015*	562.384	620.094	676.107	932.106

Source: BYSD-Vegetable Oils and Fats Industrialists Association (*) 2015 year for 11 Monthly

As sunflower oil production isn't available to supply the domestic sunflower oil consumption of around 800 – 900.000 metric tons, sunflower oil imports are required. Sunflower oil trade reached a record level in 2014 due to increased demand compared with the previous several years: the volume of sunflower oil traded globally reached 790.130 metric tons, and imports reached 812.401 metric tons (compared with 625.849 metric tons in 2013). (Figure 4). Sunflower oil imports are mainly carried out from Ukraine and Russia in Turkey. Argentina is also preferred, especially for the second half of the season when Black Sea exportable supplies are getting lower. Sunflower imports upon Inward Processing Regime are in parallel with sunflower oil exports.

The main factor for the increase in sunflower oil trading volumes was the growth in consumption due to the narrowed price difference between sunflower and other vegetable oils. This resulted in higher imports from important vegetable oil importers.

Sunflower Prices

Trakya Birlik and Karadeniz Birlik which are the two of leading Agricultural Sales Cooperative Unions (ASCU's), play a very important role on supporting sunflower seed production in Turkey.

Trakya Birlik, farmer cooperative for oil crops but mostly sunflower, was the biggest buyer for sunflower seed in the sector activated in Trakya, Marmara, Aegean and Middle Anatolia regions. Trakya Birlik are buying almost over 50% of sunflower production and use some parts of products in its oil processing and sunflower cake factories and sold other than needs to other private oil processors. Another oil crop farmer cooperative, Karadeniz Birlik, activated in

mainly in the Black Sea region, Middle and Eastern Anatolia regions followed it respectively in the oil seed sector. However, almost over 30% of seed production was bought by private oil factories located mainly in Trakya Region and other different cities in Turkey. These two cooperative unions provide inputs such as seeds, fertilizer and low-cost financing prior to plantings to their members and offer attractive prices during the harvesting season (Kaya et al., 2000).

Since they have many member of farmers, they are effective to guide Government to supply production bonuses and import tax protections for commodities. They are also control sunflower domestic trade and production as buying and selling seed, crushing and refining industry.

Purchase prices of oil sunflower seeds of agricultural sales cooperative unions are shown in Figure 5. Sunflower purchase prices of two cooperatives have increased steadily over the years. However, sunflower production costs in Turkey have been higher than sunflower purchase prices in recent years. In 2015 year, while sunflower purchase price was 1.60 TL / kg, sunflower cost was realized as 1.70 TL.

Figure 5
Sunflower Seed Purchase Prices in 2000-2015 (TL/kg)

Year	Trakya Birlik Purchase Price	Karadeniz Purchase Price
2000	0,17	0,17
2001	0,37	0,37
2002	0,46	0,46
2003	0,49	0,49
2004	0,52	0,52
2005	0,51	0,51
2006	0,53	0,53
2007	0,83	0,80
2008	0,83	0,90
2009	0,75	0,70
2010	0,92	0,90
2011	1,20	1,20
2012	1,50	1,50
2013	1,20	1,10
2014	1,30	1,32
2015	1,60	1,62

Source: Ministry of Customs and Trade

The purchasing quantities of the Trakya Birlik and Karadeniz Birlik by years and the total shares on Turkey production of the Unions' are given in Figure 6.

As it can be seen in Figure 6., despite the increase in sunflower production in Turkey, the purchase quantities and shares of the Unions' have gradually decreased. Trakya Birlik has purchased sunflower more than Karadeniz Birlik but it hasn't been sufficient. Total shares on Turkey production of the Unions have decreased of 64% in 2000-2015.

Figure 6
Purchasing Quantities and Total Shares of Unions' in 2000-2015

Year	Turkey's Sunflower Seed Production (Tons)	Purchasing Quantities of Sunflower (Tons)		Total Shares on Turkey Production of the Unions' (%)
		Trakya Birlik	Karadeniz Birlik	
2000/2001	800.000	383.839	40.100	53
2001/2002	650.000	220.179	20.587	37
2002/2003	850.000	341.731	69.287	48
2003/2004	800.000	385.275	41.690	53
2004/2005	900.000	426.282	41.637	58
2005/2006	975.000	476.947	46.843	60
2006/2007	1.118.000	441.008	46.997	48
2007/2008	854.407	150.163	21.687	22
2008/2009	992.387	312.435	48.030	40
2009/2010	1.057.125	340.484	36.154	40
2010/2011	1.320.000	321.928	28.055	30
2011/2012	1.335.000	232.399	37.222	23
2012/2013	1.370.000	205.896	36.591	20
2013/2014	1.523.000	297.000	55.244	23
2014/2015	1.480.000	297.937	17.433	21
2015/2016	1.500.000	257.330	24.157	19

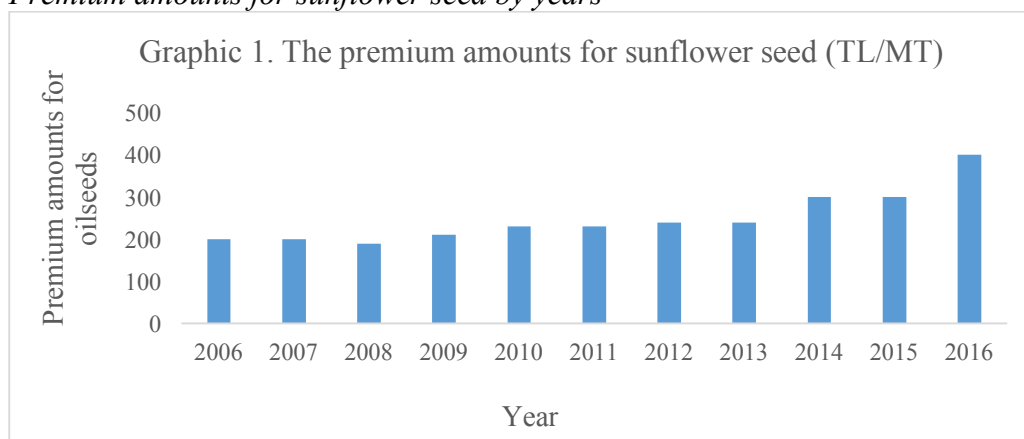
Source: Ministry of Customs and Trade

Sunflower Agricultural Policies

The oilseed production is supported by the government with premium applications, input subsidies and tariff quota applications in Turkey. The implementation of a premium product for the first time in 1993 and later years started with cotton, seed oil, sunflower oil, soybean, rapeseed and included in the premium payments.

The Turkish government continues to support oilseed production with production premium programs. In 2015, the GOT has not increased production support for sunflower seed which remains at 300 TL (US\$ 100) per ton despite the expectations of farmers and not help to support planting increase. The premium amounts for sunflower seed given to producers by years are shown in Graphic 1.

Graphic 1
Premium amounts for sunflower seed by years



Source: Food, Agriculture and Livestock Ministry, 2017

Raising the income levels of producers and industry support for a contribution to be obtained by increasing world prices of raw materials would be useful in maintaining. Premiums should be increased due to high input prices.

Sunflower costs increased by 7.51% compared to the previous year and reached to 1.12 TL/kg in 2015. In the same year, the total amount of support given to sunflower producers increased by 0,57% to 0,376 TL / kg. While the cost coverage ratio of the supports were 35.63%, it decreased in 2015 due to the increase in cost and was calculated as 33.67% (Figure 7.).

Figure 7

Government Support for Sunflower Producers in Turkey, 2010-2015

Agricultural Supports								
Year	Cost (TL/kg)	Premium	Soil Analysis	Certified Seed	Fertilizer	Diesel	Total	Support/Cost (%)
2010	0,801	0,23	0,012	0	0,027	0,027	0,296	36,90
2011	0,990	0,23	0,012	0	0,029	0,029	0,301	30,43
2012	1,030	0,24	0,011	0	0,028	0,028	0,307	29,81
2013	1,070	0,24	0,010	0	0,028	0,028	0,306	28,59
2014	1,039	0,30	0,010	0	0,030	0,030	0,370	35,63
2015	1,117	0,30	0,010	0	0,032	0,032	0,376	33,67

Source: Agricultural Economic and Policy Development Institute, 2017

Government supports that given to the producers haven't been increased in some years. Premiums and soil analysis payments has remained the same for the last 2 years. Some years supports are insufficient for producers. These supports must be increased for protecting producers. Because the input prices are very high in Turkey and producers are affected negatively.

Although customs duties had been the top level of WTO commitments in 2009/10 production season, domestic prices of sunflower oil with sunflower harvest dropped to 525 TL / ton. In this case, import permit has been granted out over the tariff quota in order to encourage industrialists to make purchase of the domestic market. Tariff quotas which continued in 2010/11 production season were published in the Official Gazette No. 27636 dated 07.09.2010 with the decision of the Council of Ministers. According to the decision, within the scope of the tariff quota in the period of 16.01.2011-30.06.2011, custom duties were decided for seed as 0% (in case of whole grain 650 000 tons), for oil (for the case of all oil 260,000 tons) as 15%.

Conclusion and Recommendation

Sunflower planted areas and production decreased in the last years due to low prices mainly in Turkey and the world. Because the input prices are higher than product prices in Turkey. This affects producer's production and income negatively. In addition, government supports that given to the producers have not be sufficient. The supports are very low and sometimes the supports which determined are not changed in some years. They are usually stable. Therefore, the input prices should be decreased for producers to do a better sunflower farming.

Sunflower oil production isn't available to supply the domestic sunflower oil consumption, so Turkey is the second biggest sunflower seed importer other than European Union in the world. Sunflower production should be increased in Turkey because it is a very important product for oil industry and country. The main goal of our country should be to produce sunflower seeds and to become a self-sufficient state by reducing imports.

Trakya Birlik and Karadeniz Birlik play a very important role on supporting sunflower seed production in Turkey. Sunflower purchase prices of two cooperatives have increased steadily over the years. However, sunflower production costs in Turkey have been higher than sunflower purchase prices in recent years. In 2015 year, while sunflower purchase price was 1.60 TL / kg, sunflower cost was realized as 1.70 TL. Therefore, the two cooperatives should increase the purchase prices more than sunflower prices. Because one of the most important objectives of ASCU's are to ensure the producer members receive the maximum share of the sale price of commodities sold by the retailers, and regulate the commodity markets and reduce risks of price instability for producers and consumers.

As a result, the policies applied for sunflower should be determined production according to consumption and prices parallel to the world price and given importance to structural and social policies, adopted long-term agricultural policies instead of daily or short-term policies, so it shouldn't be changed according to the government.

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