Productıon cost of ground peanuts Adana Provınce example

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Abstract

The aim of this study is to determine the production cost of peanuts. In this context, mainmaterial of the study consists of the data gathered by the surveying of the 61 enterprises determined randomly that produce peanuts in Adana which are chosen deliberately since peanuts production is excessively. In the study, production cost is determined by calculating the production expenses and the revenue gained by this production. As a result of the calculations, sunflower production cost is determined as 850 USD tonnes^{-1}, and the revenue from the production (except for the supports) is determined as 1080 USD tonnes^{-1}.

Keywords: Production cost, Peanuts, Stochastic Frontier Analysis

1. Introduction

Peanut, in addition to the aspect of being a very valuable product due to containing fat, carbohydrates, proteins and vitamins, also containing plenty of antioxidants, is consumed more as an appetizer in Turkey (Arıoğlu,1999). Peanut is the fourth most important oilseed plant in the world after soybeans, cotton and colza. It is an important product that can bring high income to the producer of alternation plant and second crop. Also, it is quite rich in vitamins such as A, B and E (Woodroof, 1983). The remaining pulp after the removal of the oil is a valuable feed additive. For this reason, abundant amounts of peanut residue is used in the making of mixed feeds in developed countries (Arıoğlu, 1999). Approximately 87% of world peanut production is used in domestic consumption in various forms, only about 13% is subject to external trade in peanuts, peanut oil (refined or unrefined) and oilcake. The use of peanuts and byproducts varies with cultures and countries. However, the most commonly used form in the world is peanut butter (Schilling and Gibbons, 2002). In addition, peanuts

and by-products are also used in fertilizer, artificial wood, fiber and glue making (Öğütçü, 1969).

As of the same year, world peanut production amounted to 43.9 milliontonnes. There is a general increase in the field of peanut planting in the world.India, China and Nigeria are among the top three in terms of planting area.Sudan, Senegal, Indonesia and the United States are other major countries producing peanuts (FAO, 2017).

Turkey's share of both acreage (0.15%) and production quantity (0.37%) are relatively low.Although Turkey's acreage and amount of production are low, production per hectare yield on Turkey ranks 6th in the world (FAO, 2017).Peanuts are grown in the coastal strip extending from Samandağ to Antalya in Turkey.However, in this area, Osmaniye is the place where the peanut is grown most intensively (Gül et al. 2001).

Peanut, which is farmed in commercial sense in Turkey's southern and south-eastern coastal areas,is one of the most advantageous alternative crops for the region due to both yield potential and marketing facilities.The versatility of the peanut plant is reflected in the sales prices of the crops and in the regions where it is cultivated, it finds the buyers with higher prices than the alternative field crops (Arıoğlu et al., 2000).Peanuts are one of the traditional products of a bright future, produced for export in the economies of developing countries.In transition economies such as Eastern Europe, demand for peanut is increasing rapidly (Schilling and Gibbons, 2002).

In 2016, peanut planting area is 42 244 hectares while production is 164 186 tonnes in Turkey.That same year, 60% of the total groundnut production was carried out in Adana, which has 58% of the peanut acreage in Turkey.The Ceyhan district covers 47,500 tons as 28% of the total production in Turkey.Peanut, constitutes approximately 2% of the oil seed plants planted area (TÜİK, 2017).

This study aims to determine the economic activity related to the cultivation of peanuts in Ceyhan district of the province of Adana, examining the current state of peanut farming in Turkey, followed by determining peanut production and marketing problems and putting forward suggestions for solutions.

2. Literatüre Review

Farmed as oil crops in the world and only as appetizer in Turkey, there are many researches on peanut production.

Kubaş (1992), analyzed the economic structure and cooperative relations of Anamur Cotton, Peanut and Oil Seeds Agricultural Sales Cooperative and stated that they contribute to the marketing, input and credit funding of peanut products and Gül et al. (2001) found that high peanut prices are directly related to high costs and high costs are due to high input prices and not paying attention to optimum use of inputs.

Arıoğlu et al. (2003) stated that peanut can not be evaluated in oil industry because the product price is high and the production amount is not enough, and the whole production is evaluated as appetizer in domestic or foreign markets and Işık (2003) has revealed the problems and economic structures of enterprises engaged in the production of peanuts in Adana, Osmaniye and İçel, which constitutes approximately 80% of the peanut production in Turkey. Üçeçam and Hayli (2004) determined that, about two-thirds of groundnut production in Turkey is carried out in the Çukurova region, where the most appropriate features in terms of growing conditions of peanuts are in Osmaniye, also in Osmaniye peanuts are usually subject to sales as appetizer and the second quality product, which is not in appetizer class, is sold to the peanut oil factories in İzmit, İzmir and Afyon for oil extraction and that there are not any facilities producing peanut oil in the region yet some are within the construction stagein their study.

Taşkaya (2007) stated in his study that, there were no significant changes in years inpeanut production in Turkey due to the inability of mechanized harvest and added that due to its high fat content (40-60%), peanut is one of the significant potential oil crops that could be evaluated in order to increase oil production in our country.Boonsaeng and Fletcher (2008) have determined that the products of the European Union are imported from the USA, China and other countries of the world as a result of the importation of peanuts, which are differentiated by consumers in EU countries.They have indicated that spending elasticity is high due to the quality of peanuts from USA. Alemdar and Light (2008), using data envelopment method, measured the technical efficiency of enterprises producing peanuts in Turkey and determined that businesses will be able to produce the same level of production by reducing the factors of production 8%.Parlakay and Alemdar (2011) have revealed the economic structure and problems of agriculture enterprises producing peanuts in Adana and Osmaniye provinces, which constitute about 90% of peanut production of Turkey.

There are many studies on cost in agricultural products. Some of these are given below.

Bayramoglu et al. (2005), in the their research, some important field crops (sunflower, wheat, bulb and sugar beet) physical production inputs and the cost of production of these products It is calculated. Results show that onion is the most profitable production activity among crops although it has the highestproduction cost per decare. Sugarbeet is a product that has the highest proportional profit.

Birinci and Küçük (2004), the aim of their research is to determine the physical input requirement and production cost for the production of wheat on the farms in Erzurum province. It was found that for the average farm per decar, 12,85 hours labor and 5,71 hours tractor power were needed and 1 kg of wheat production cost is 375 540 TL.

Gözener and Sayılı (2015),in their study, production costs and profitability of cattle fattening farms in Turhal district of Tokat province have beendetermined. The highest share in the costs of productionwas animal material and feed costs. The cost of one head of fattening animals was found for the indigenous races as TL1779.72, for culture breeds as TL 1877.06 and for hybrid races as TL 2384.59.

Gözener (2016), in this research where paddy farming costs are calculated, some farming factors which areconsidered to be explanatory in changes in paddy farming amount are taken into account. The average enterprise yield per decarin paddy farming was calculated as 653.04 kg in research area. In this research, gross incomewas calculated as 862.25 TL, where net income as 134.46 TL, proportional profit as 1.17 TLand the cost of 1 kg of paddy was calculated as 1.22 TL in paddy farming.

Gündogmus (1998)'sresearch is to determine the physical input requirements and production cost for the production of winterwheat and also to investigate input/output relationships on the farms of Akyurt district.It was found that for the average of farms, per decar 2,54 hours labour and 1, 23 hours tractor power were needed and 1kg ofwinter wheat production cost is 2.903, 1 TL's.

Parlakay et al. (2016)'sin the study, production cost is determined bycalculating the production expenses and the revenue gained by this production.As a result of thecalculations, sunflower production cost is determined as 585,36 USD tonnes^{-1}, and therevenue from the production (except for the supports) is determined as 560,00 USD tonnes^{-1}.

Rad and Yarşı (2005), Mean unit production cost of tomatoes in single crop oriented greenhouse farms was computed as 767.688 TL. In double crop oriented greenhouse farms, mean unit product costs of tomatoes were calculated as 594.351 TL and 431.416 TL/kg for

fall and spring cropping respectively. Family labor was the most significant items of production costs followed by costs of fertilizers and pesticides.

Rad and Yarşı (2005), Economic performance and unit production costs of glass greenhouse farmsinvolved in production of cucumber in Silifke district (Mersin) were investigated in thisstudy.The average productivity was found to be 12,8 kg/m . The average unit production cost ofcucumber per kg was computed as 781.957 Turkish Liras (TL). Family labor was the mostsignificant items of production costs and constituted 40,86% of production costs.

Taşcı1 and Oğuz (2014)'s according to the results of study; the cost of 1 kg wheat was found 0.45 (TL/kg), while wheat yield was 351.1 kg/da. Total gross production value was also found 255.22 TL/da. In addition, wheat variable costs were determined 121.1 TL/da and the production costs were determined 175.13 TL/da, respectively.

Topçu et al (2015)'saccording to the results of the study, the variable cost of sugar beet production cost is 81%, fertilizer and irrigation water with soil preparation and harvesting-blending workforce are used more and the yields are decreased. Therefore, unit sugar beet production cost was calculated as 0.125 TL / kg and product purchase price was determined as 0.12 TL / kg. Net profit was found to be -7.45 TL / da.

3. Materials and Methods

The main material of the study is the data obtained from face-to-face surveys conducted with peanut farmers. In addition, TÜİK and FAO statistical data were used, and previous theses, articles and reports related to the topic were also used.

Ceyhan district, which owns 26% of the peanut acreage and performs 28% of the production in Turkey, is designated as the area of research. In this study, firstly the records of Ceyhan Agriculture Food and Livestock District Directorate were examined during the sample volume determination phase and it was determined that peanuts were grown in 75 villages. Nazımbeyyeniköy, Hürriyet, Yalak and Çukurovaharası villages, which constitute 20% of the total peanut production in the province, were selected intentionally. The total number of producers in these 4 nations were 203 and 30% of the producers were surveyed, meaning a total of 61 producers.

Table 1: The distribution of villagers and producers

Villages	Distribution
Hürriyet	17
Yalak	14
Nazımbeyyeniköy	17
Çukurovaharası	13
Total	61

Frequency tables from the questionnaires were prepared and interpreted. In addition, peanut production costs have been calculated. The employed labor force in the enterprises which are primarily examined on the basis of the production cost has been translated into the Male Labor Force (EIB) by taking the relevant coefficients into account (Açıl and Demirci 1984).Based on the labor costs in the research area, workforce costs are calculated in the production cost of peanuts.

Workforce uses of human labor and tractor drivers used in soil preparation and maintenance processes included in variable costs are calculated together. Tractor fuel and oil used in different operations such as ploughing, fertilization, pest control, harvesting, etc. of the cultivation of peanut cultivation are calculated on the current market price according to the declaration of the farmers.

The business land is calculated by collecting property, rent and partnership and the amount of land processed during the production period in question.

The amounts of inputs used in peanut cultivation were calculated taking into consideration farmhouse prices.The cost of production is calculated taking into account the usage amounts of the inputs per unit (da).T. C. Ziraat Bank's 2017 plant production loan interest rate (10%) was taken as half and circulating capital interest was calculated on this basis.

In the determination of 1 kg peanut cost, the production cost per decare is calculated by proportionof yield per decare.

4. Research Findings and Discussion

The average age of the participants was 46.59 and the average number of individuals in the family was 4.83.The farmers spent 30.57 years in agriculture and 8.63 years in raising peanuts.

49,18% of the interviewed producers were found to be high school graduates, 44,26% were primary school graduates, 3,28% were undergraduates and the remaining 3,28% had a master's degree.36.66% of the participantsin the survey grow second crops. The second crops grown are given in Table 2.

Table 2: Products grown as second product

	Frequency	%
Corn	4	18,18
Cotton	2	9,10
Soya bean	1	4,54
Peanut	15	68,18

When we examined the table, it was observed that 68,18% of the producers had grown peanuts as second crop, followed by corn, cotton and soya beans respectively.In line with these results, it can be said that the peanut in Ceyhan district has an important place as both first and the second product.

In a study conducted by İşler and Gözüyeşil (2016), it was found that the peanut cultivation area, which was cultivated as the first crop in the enterprises, constituted 70.71% of the total peanut cultivation area and the second crop peanut cultivation area was 29.29% of the total peanut cultivation area.In a study conducted by Üçecam and Hayli (2004), it was found that in order to increase the profits, the producers started to cultivate peanut after the wheat harvest in May.

As a result of the survey, it was determined that 31,15% of the producers have occupation other than farming (47,37% are artisans, 42,10% are civil servants and 10,53% are workers).Most of the producers (73.78%) reported that they raised peanuts because they had more gain, while the rest reported that they produced corn, cotton and soybean seeds as main crops, but they also raised peanuts for additional income (26.22%).

Peanut harvest wasdone by hand in Turkey before, it is now made with a machine developed specific to peanuts.There are some criteria that the manufacturer takes into consideration during the decision stage for harvesting the peanuts.In order to decide the harvest time, all of the participants in the survey had to pay attention to the fact that the peanut pellets turned pink in color, as well as completing a certain number of days (11.42%) and taking samples from the soil, putting them back invertedlyand realizing that they had not

withdrawn after a few days(11.42%) were the factors taken into consideration when determining the harvesting time.

According to the results of the research, it has been determined that all of the producers made manual blendingfor the drying process during the harvest and this ended in peanut shells breaking, leading to quality and yield loss.The quality loss caused by these breaks also causes the selling price of the product to decrease.

A great majority of producers (91.80%) do not want to grow oil-rich peanuts. The reason for this, according to statements of farmers, is to be consumed only in case of confectionary and oilseed varieties in cultivation of peanuts in Turkey lacks factories to be sold to.

The main problems encountered in peanut cultivation are given in Table 3.

Table 3: General problems in peanut cultivation

	Frequency	%
Seed	4	6,55
Agricultural spraying(disease)	27	44,25
Irrigation	15	24,59
Harvest	3	4,91
Low price	49	80,32

*More than one option marked.

About 80.32% of the producers stated that the prices on the market were low and that this was the most important problem in peanut cultivation.Manufacturers who stated that the price was low stated that they had to sell their products at a low price during the harvest period because they received inputs as deferred.

Over 44,25% of the producers stated that the price of drugs they used in agricultural struggle against diseases and pests was high and the effects of drugs were inadequate.Because of the inadequacy of drugs, they said that they experienced loss of yield and quality in products.69,12% of the enterprises examined in Kızılaslan and Ağcadağ (2013) studies and 67,78% in Parlakay (2011) studies stated that high drug prices were the most important problem.

Some of the participants (24.59%) stated that the water need during the production period of the peanut is high but irrigation water in the region is inadequate. Kızılaslan and Ağcadağ (2013) pointed out that 64.71% of the enterprises having high water cost as the most important problem in irrigation.Parlakay (2011), on the other hand, stated that 42.22% of the enterprises faced problems about irrigation.In the work done by İşler and Gözüyeşil (2016),

among the major problems in peanut production, 49% of the enterprises found that the irrigation cost is high and 20% is inadequate.

According to the survey data, it was determined that 6.55% of the producers had some problems in seed supply due to high seed prices and low seed quality.The producers stated that they wanted to get certified seeds to solve this problem but the certified seed prices were high. İşler and Gözel (2016) found that certified seeds were used on average of 15.00% in the surveyed enterprises. They also stated that the rate of certified seed use was very low, that the problems in certified quality seed production should be solved and encouraged to be used.Kızılaslan and Ağcadağ (2013) identified that 60.29% of the enterprises showed high seed prices as the most important problem.

Among the problems of the farmers who cultivate peanuts are the problems of finding workers in the harvest period (4,91%) even if the rateis very low and not harvesting on time.In the survey conducted by Parlakay (2011), it was determined that the proportion of producers who think that there is a problem about harvest is higher (18.89%).These two different results can be interpreted as the fact that the troubles in this subject have begun to be eliminated in time.

It was determined that some of the farmers who participated in the survey (22,95%) found that the market prices were low, so the products continued to be stored until they increased the price and the remaining producers did not store.Kızılaslan and Akcadağ (2013) stated that 30.88% of the enterprises were planning to sell later by storing.

In order to minimize the loss of quality in products and to prevent the price loss due to loss of quality, methods of the farmers who stated that they are storing for the increase of the product price are given in Table 4.

Table 4: Items considered in storage process

	Frequency	%
Warehouse Temperature	2	14,28
Warehouse Humidity	14	100
Humidity Ratio in Peanut	14	100
Warehouse Smell	2	14,28
Infestation in the Warehouse	14	100

* More than one option marked.

It has been determined that all of the warehousing operators are paying attention to warehouse nematodes, the humidity ratio in the peanut and the storage humidity.It has been found that some of the producers are concerned about the storage temperature and the storage

air smell outside these areas. İşler and Gözüyeşil (2016) examined the storage situation of the harvested crops and found that 63% of the businesses surveyed were warehousing and 30.16% of the enterprises were engaged in disinfestation in warehouses.Kızılaslan and Ağcadağ (2013) investigated the storage conditions in the study they conducted and found that 54.41% of the enterprises did not store in general.

There are also producers who report that they all learn market prices from friends and acquaintances, as well as producers who are constantly communicating with the merchants and learning the market price (81.96%).Kızılaslan and Ağcadağ (2013) have determined that 61.76% of the enterprises in the study learned the market price from the friends and acquaintances of the producers and 1.47% during the market sale of the products.73.53% of the enterprises emphasized that product quality is the most important factor in price determination.

The producers stated that the product quality (100,00%), the payment time (96,72%) and the grown product amount (24,59%) were effective when the price was determined.

Table 5: Information sources on peanut production

	Frequency	%
Provincial Directorate of Agriculture	14	22,95
Agricultural Pesticide Dealer	23	37,70
Media	11	18,03
Internet	9	14,75
Other Producers	48	78,68

* More than one option marked.

Farmers are getting different information about peanut cultivation from different sources. When Table 5 is examined, it is seen that the most important information source is the other producers.This can be interpreted as the fact that farmers are more likely to trust experienced farmers than other sources and to benefit from their experience.Kızılaslan and Ağcadağ (2013) determined that peanut producers also learned about the production technique and that the vast majority of enterprises were informed by the agricultural pesticide dealers and the Provincial and District Directorates of Agriculture.

Production costs of peanut-producing enterprises in the study area are examined per absolute, proportional and decare and are given in Table 6.

Table 6: Production costs ofgrowing enterprises surveyed (USD da[1]) and proportional distribution (%)

COST ELEMENTS	Value	%	%
Tillage	20.59	6.10	8.85
Seed + Planting	38.37	11.37	16.49
Fertilizer + Fertilization	29.10	8.63	12.51
Water + Irrigation	29.65	8.79	12.74
Pesticide + Disinfestation	30.02	8.90	12.90
Harves	31.63	9.38	13.59
Transportation	22.75	6.74	9.77
Sieve	19.54	5.79	8.40
CirculatingCapital Interest (0,05)	11.08	3.29	4.76
VARIABLE COSTS TOTAL (A)	232.73	68.99	100.00
General Administration Expenses (A*%3)	6.98	2.07	6.67
Field Rent	47.50	14.08	45.41
Instrument Machinery Capital Interest	25.05	7.43	23.95
Tool Machine Capital Depreciation	13.03	3.86	12.46
Insurance Premium	12.05	3.57	11.51
FIXED COSTS TOTAL (B)	104.61	31.01	100.00
TOTAL OF PRODUCTION COSTS (A + B)	337.34	100.00	-

When the production costs of peanut growers are examined, it is seen that the share of variable costs in production costs is higher than the fixed costs.

Among the production costs, the biggest expense item was 14.08% as the cost of field renting, followed by seed and sowing with 11.37%, harvesting with 9.38%, pesticides and disinfestation with 8.90%, water and irrigation with 8.79%, fertilizer and fertilization with 8.63%, tractor rent with 7.43%, transportation with 6.74%, tillage with 6.10%, sieve with 5.79%, machinery equipment capital depreciation 3.86%, insurance premium with 3.57%, circulating capital interest with 3.29% and general administration costs with 2.07%.

In the study area, the yield per decare from the peanut was determined as 396.59 kg. İşler and Gözüyeşil (2016) calculated the average yield of the first and second crops at 323.70 kg / da in the enterprises surveyed in a study.

The profitability status of peanut cultivation is shown in Table 7.

Table 7: Profitability status in peanut cultivation

		Value (USD)
Yield (kg/da)	A	396.59
Sale price (USD/kg)	B	1.08
Production cost (USD/decare)	C	337.34
Gross production value (USD/decare)	A*B=G	428.32
Unit cost (USD/kg)	C/A=D	0.85
Production Cost (USD tonnes-1)	D*1000	850

Net profit per unit (USD/kg)	B-D	0.23
Net profit per decare (USD/decare)	G-C	90.98
Proportional profit	B/D	1.27

In this study, net profit in peanutproduction was calculated as 90.98 USD / da and the proportional profit was 1.27 USD.

According to the average of the enterprises, 1 kg of ground nuts cost is 1.08 USD. In a study made by Parlakay and Alemdar (2011),called "Technical and economic efficiency of peanut farming in Turkey," peanut production average cost was calculated as 1.48 TL/ kg.

5. Conclusion

Çukurova region in Turkey, which has an important place in terms of the amount of acreage and production, especially in Adana, more than half of the peanut production of Turkey is carried out.

Generally in the world, oiled peanuts are produced and demanded. However, the producers in the research area stated that they did not grow oil varieties because they were not oil factories in the region.In case of starting a production of this oilseed varieties that are in demand in the world, it is likely to increase the amount of the peanut export of Turkey.The marketing problem, which is the biggest problem of the producers, can be solved with the share that the product will have in export.

In the examined enterprises, it is seen that the share of variable costs within the production costs is considerably higher than the fixed costs.It is necessary to have a producer organization that will be able to get consultancy services of producers, provide cheap inputs, serve in publications about innovations, inform about the innovations in production techniques and find a market for the product at the desired time.

6. References

ALEMDAR, T.;IŞIK, H. Technical efficiency of peanut growing farms in Turkey. *Acta Scientiarum Polonorum, Oeconomia*, v. *7*, p. 5-15, 2008.

ARIOĞLU, H. H. Breeding and Reclamation of Oil Plants. *Çukurova University Faculty of Agriculture. Publication*, n. 220, 1999.

ARIOĞLU, H.; ÇALIŞKAN, M. E.; ÇALIŞKAN, S. Researches on the Development of Suitable Peanut Varieties for Eastern Mediterranean Region Conditions. *MKÜ. Journal of Agricultural Faculty*, v. *5, n.* 1-2, p. 7-28, 2000.

ARIOĞLU, H.; ÇALIŞKAN, S.; SÖĞÜT, T.; GÜLLÜOĞLU, L.; ZAİMOĞLU, B. Research on Determination of Oil Seed Production Increase Possibilities in Turkey. *Turkey 1st Oilseeds, Vegetable Oils and Technologies Symposium*, 22-23,2003.

BAYRAMOGLU,Z.; GÖKTOLGA, Z.G.; GÜNDÜZ, O.Physical Production Inputs and Cost Analysis of Some Important Field Crops in Zile County of Tokat Provinc.*Journal of Agricultural Economics*.v. 11, n. 2, p. 101 – 109, 2005.

BİRİNCİ, A.; KÜÇÜK, N. Calculating Wheat Production Cost on The Farms in Erzurum Province.*Atatürk University Faculty of Agriculture*35 (3-4), 177-181, 2004

BOONSAENG, T.; FLETCHER, S. M. The Effect of the US Foreign Market Development Program on Import Demand for Shelled Peanuts in the European Union. In *Annual Meeting, Orlando, Florida*,2008.

FAO. Food And Agriculture Organization of the United Nations Web Page. (http://www.fao.org),2017.

GÖZENER,B.; SAYILI, M. Production Cost and Factors Affecting Live Weight Gain in CattleFattening in the Turhal District of Tokat Province*Journal Of Agricultural Sciences*, v. 21, n. 2, p. 288-299, 2015

GÖZENER, B. Functional Analysis of Paddy Farming And Paddy Farming Cost, *Custos E @gronegocio on line*, v. 11, n. 4, p. 154-166. 2016.

GÜL, A.; ARIOĞLU, H.; TÜLÜCÜ, K.; BİÇİCİ, M.; ÖZGÜR, F.; FENERCİOĞLU, H. Peanut the Symbol of Osmaniye: Its Economy, Cultivation Techniques, Diseases and Pests, Its Importance for Food Industry. *I. Osmaniye Peanut Festival Activities, Osmaniye Journalists Society Culture Broadcast*, n. 1,2001.

GÜNDOGMUS, E.Functional Analysis and Calculating the Production Cost of Winter Wheat(Triticum aestivum L.) on the Farms of Akyurt District of Ankara Province*Tr. J. of Agriculture and Forestry*,22 : 251-260, 1998.

IŞIK H.,Peanut Production Economics in Turkey (Master Thesis). *Cukurova University, Institute of Science and Technology*, 104, 2003.

KUBAŞ, A. Anamur Cotton, Peanut and Oil Seeds Agricultural Sales Cooperative's Economic Structure and Cooperative Joint Relations. Master Thesis. Trakya University. Institute of Science and Technology. Department of Agricultural Economics, 1992.

ÖĞÜTÇÜ, Z. Peanut and Its Agriculture. *Turkey Chambers of Commerce Chambers of Industry and Commodity Exchange Publications*, Ankara, 1969.

PARLAKAY, O.; ALEMDAR, T. Technical and Economic Activities in the Peanut Agriculture in Turkey.*Turkish Journal of Agricultural Economics*, *17*, 2011.

PARLAKAY, O.; GÖZENER, B.; SAYILI, M. Production Cost And Technical Efficiency in The Enterprises Producing Sunflower in Dry Conditions A Case Study Of Edirne Turkey, *Custos e @gronegocio on line*, v. 12, n. 4, p. 19-33, 2016.

RAD, S.; YARŞI, G.Economic Performance and Unit Production Cost in Greenhouse Farms Producing Tomatoes in Silifke. *Journal of Agricultural Sciences*.v. 11 (1), p. 26-33, 2005.

RAD, S.; YARŞI, G. Economic Performance and Unit Production Costs in Greenhouse Farms Producing Cucumber in Silifke *Turkish Journal of Agricultural Economics*, 11(1) : 25 – 31, 2005.

SCHİLLİNG, R.;GİBBONS, R. Ground nut the Tropical Agriculturalist. *ISBN 0333733651*,110, 2002.

TAŞCI,R.; OĞUZ,C. Wheat Production Costs and Wheat Type Preferences of Producers; in the Case of Haymana Distrinct of Ankara Province.*XI. National Agriculture Congress.* 2014.

TAŞKAYA, B. Peanut, T.E.A.E. *Bakış, 9(7),*2007.

TOPCU, Y.; UZUNDUMLU, A.S.; KARADAŞ, K. Sugar Beet Production Cost in Erzurum*Igdir University* Journal of Science 2.10 41-50, 2015.

TÜİK. Turkey Statistics Institution Records. (http://www.tüik.gov.tr), 2017.

ÜÇEÇAM, D.; HAYLİ, S. Functional Land Use in Kadirli City. *Journal of Social Science*, 39, 2004.

WOODROOF, J. G. Composition and nutritive value of peanuts. *Peanut production, processing, products. 3rd ed. Westport, Connecticut, Avi Publishing, cap, 8,* 165-179, 1983.