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## A Research on the Socio-economic Features of the Olive Oil Producers in Western Part of Turkey: Production, Organization, Marketing Problems and Solutions

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**Abstract:** General characteristics of the olive/olive oil producers in Turkey, one of the most important countries in the production of the olive oil, have been put forward here. Current situation related to the processing and the marketing is analyzed and the underlying problems are presented. Finally some solutions are developed.

**Key words:** Olive oil, marketing, agricultural cooperative, agricultural organization

### Introduction

Turkey with 1125 000 tons productions averaged over two production seasons, 1998-1999 and 1999-2000 is one of the most important olive producers in the world. According to the same years' figures, Turkey produces 13.29 % of table olives and 6.13 % of olive oil in the world (\*).

Turkey is considered in the 5th row following Spain, Italy, Greece and Tunisia for olive oil production in the world. Turkey also shares 9.57 percent of the world olive oil export (\*\*).

The percentage values of olive and olive oil in agricultural production and crop production are 3.38 % and 4.54 % respectively (\*\*\*). Addition to these statistics, studies related to olive oil producers have recently, become important due to having number of producers and being a major crop in the production areas in Turkey.

The objective of this study is to evaluate, the socio-economic features of olive oil producers under the light of survey in terms of production, organization, marketing problems in Izmir province of Turkey and the solutions were made as well.

### Materials and Methods

**Materials:** Material of this study consisted of three different means of resources. First group included the original data gathered from the survey conducted with the olive and olive oil producers. Second group covered the interviews with the managers of the related agricultural institutions and Agricultural Sales Cooperatives (TARIS). Third group was the data gathered from the statistical resources, domestic and international studies.

### Methods

**Method used in choosing research area:** At the beginning of the study, the producers at Aegean Agricultural Region were thought to be considered due to having very high share in Turkey's total olive trees (\*\*\*\*). This area covers 72.09 percent of total olive

trees in Turkey, based on 1998 and 1999 years' statistics. The average of two years was considered because of the alternance in olive. Taking into the consideration the lack of time and money, it was decided to execute the survey in Izmir. Because Izmir ranks the second in bearing trees and the third in olive and olive oil production within Aegean Agricultural Region and Turkey as a whole (\*\*\*\*\*).

In Izmir; Bayındır, Torbalı and Kemalpaşa districts rank the first third places according to bearing trees. According to the average of 1999-2000, these districts have a share of 39.93 % in the number of olive trees, 45.29 % in olive production and 41.33% in olive oil production (Izmir Comodity Exchange, 2000).

From these districts, totally 6 villages were choosen, two from each district. These villages have most number of trees and production. The producers of these villages constitutes the main population. The name of villages and the producers number can be seen in Table 1.

**Method for choosing number of producers:** Even though it was planned to classify the producers based on number of trees using stratified random sampling method, the classification was done according to the data of olive area since the data on olive trees were not available. In determining the stratum, previous studies

Table 1: The number of producers and villages constituting the population of the research

Districts	Villages	Number of olive producers
Bayındır	Ergenli	135
	Kızılcaova	56
Torbalı	Karakızlar	144
	Çakırbeyli	130
Kemalpaşa	Yukarıkızılca	141
	Dereköy	101
	Total	707

Table 2: Distributions of the sample holdings based on olive area

Groups	Stratum (daa)	Holdings in population	Average	Standart deviation	Sample	
					Holdings	(%)
1 <sup>st</sup>	< 10	214	7.16	2.28	36	31.9
2 <sup>nd</sup>	11-30	372	19.43	5.37	29	25.6
3 <sup>rd</sup>	30<	121	49.40	18.38	48	42.5
Total		707			113	100.0

Table 3: Land usage in the farms studied in this research (daa/farm)

Groups	Olive	Viniculture	Cherry	Other horticulture crops	Cotton	Cereals*	Tobacco	Total
1 <sup>st</sup>	7.39	3.11	2.22	0.20	0.42	0.94	0.61	14.89
2 <sup>nd</sup>	19.14	4.31	2.00	1.24	3.24	1.62	0.66	32.21
3 <sup>rd</sup>	48.13	5.21	1.38	2.85	5.58	1.86	0.56	65.57
General	27.71	4.31	1.81	1.59	3.34	1.51	0.60	40.87

\* Wheat, barley, oats and maize

## M. Metin Artukoglu: Socio-economic features of olive oil producers in Turkey

Table 4: Olive land ownership of the farms studied in this research

Groups	Own property		Share cropper		Total	
	(daa)	(%)	(daa)	(%)	(daa)	(%)
1 <sup>st</sup>	7.22	97.70	0.17	2.30	7.39	100.00
2 <sup>nd</sup>	18.93	98.90	0.21	1.10	19.14	100.00
3 <sup>rd</sup>	43.96	91.34	4.17	8.66	48.13	100.00
General	25.83	93.22	1.88	6.78	27.71	100.00

Table 5: Average plots per farm and olive trees per daa

Groups	Number of olive trees (Tree/daa)	Number of plots (Plots/Farm)
1 <sup>st</sup>	16.85	2.03
2 <sup>nd</sup>	16.29	2.97
3 <sup>rd</sup>	17.49	8.27
General	17.22	4.92

Table 6: Status of olive land in the farms

Groups	Cultivated	Medium cultivated	Uncultivated land
1 <sup>st</sup>	9.78	0.75	89.47
2 <sup>nd</sup>	-	8.65	91.35
3 <sup>rd</sup>	-	3.12	96.88
General	0.83	3.90	95.27

Table 7: Age of farmers, education, farming experience and family population of the farms studied in this research

Groups	Age (Years)	Education (Years)	Population of the family (Person)	Farming experience (Years)
1 <sup>st</sup>	53.75	5.22	3.72	36.50
2 <sup>nd</sup>	59.59	4.52	3.66	43.48
3 <sup>rd</sup>	56.29	5.48	4.31	39.52
General	56.33	5.15	3.96	39.58

held in this region and Agriculture District Department were taken into consideration. Farms having the area of < 10 daa., 11-30 daa. and > 30 daa. were conveyed small, medium and large olive holdings, respectively. Afterwards, holdings were determined by random number. So, the holdings were divided into 3 strata and for each stratum, using the formula stated below, with 10 % standard error and 95 % confidence interval and sample number was calculated (Gunes and Arikan, 1988):

$$n = \frac{S^2 \cdot Z^2 \cdot N}{(N-1) \cdot E^2 + S^2 \cdot Z^2}$$

n= Number of samples

S<sup>2</sup>= Variance of the sample

Z= Confidence interval (1.96 for 95 %)

N= Number of holdings in a population

E= Standart error (10 %)

As a result, the total of 113 holdings were evaluated in the analysis and the distributions of them are given in Table 2. The percentages and means for each group were also computed.

### Results

**General characteristics of the farms:** As the olive production has an important weight in the farms, olive plantation land takes important place. The ratio of the olive plantation land in the total farm area is, 49.63 % in the 1<sup>st</sup> group, 59.42 % in the 2<sup>nd</sup> group, 73.40 in the 3<sup>rd</sup> group and 67.80 % in general. Other important products after olive are viniculture, cherry and cotton (Table 3). In general 93.22 % of olive land was own property. While there was no hired olive land, 6.78 % of the olive land was cultivated by sharecroppers (Table 4).

In olive land, number of olive trees per daa between 16.85 and 17.49. As the olive land per farm increases, number of plots in holding increases as well. As plots per farm were 2 in the 1<sup>st</sup> group, 3 in the 2<sup>nd</sup> and over 8 in the 3<sup>rd</sup> group (Table 5). The

increasing number of plots according to the farmland carries important problems during the land cultivation. The olive lands in the farms were settled on arid lands by a percentage of 93.13 (Table 6).

According to the farmers, the olive trees were older than 45 years. It could be stated that old trees dominated in the olive plantation in this region.

**General characteristics of the farmers:** The average age of the farmers was 56, and related to the age; they had an experience of about 40 years of olive production. Also farmers had an average of 5 years education, and population per farm were about 4 people (Table 7).

In the 1<sup>st</sup> group 77.78 %, in the second group 89.66 % and all the farmers in the 3<sup>rd</sup> group were members of the National Chamber of Agriculture. The ratio of membership in general was 90.27 %. As the farmers were evaluated according to their partnership to the cooperatives, 86.11 % in the 1<sup>st</sup> group, 72.41 % in the 2<sup>nd</sup>, 89.58 % in the 3<sup>rd</sup> and 84.07 % in general were partners of at least one Agricultural Cooperative. Among farmers who were partners of cooperatives, 33.68 % of them were partners of Agricultural Credit Cooperative, 10.53 % were partners of Agricultural Development Cooperative, only 7.37 % were partners of TARIS (Agricultural Wholesale Cooperatives Union) as 48.42 % were partners of more than one cooperative. Also among the farmers who were partners of cooperatives 12.90 % in the 1<sup>st</sup> group, 23.81 % in the 2<sup>nd</sup>, 53.49 % in the 3<sup>rd</sup> and 33.68 % in general were partners of Olive and Olive Oil Agricultural Wholesale Cooperative. Farmers who were partners of Olive and Olive Oil Agricultural Wholesale Cooperative were also partners of other cooperatives. As partners of TARIS 26.83 % declared that they frequently joined the general assembly of the cooperative, 34.15 % joined seldom, and 39.02 % declared they never joined the general assembly. Only two of the farmers were partners of producer cooperatives besides livestock producer cooperatives. This meant that producers had a positive opinion about cooperation.

**Olive oil production and marketing:** During 1999-2000 crop season, 92.59 % of olive production was processed for oil production, while 1.70 % was separated for home consumption and 5.71 % was sold as retail (Table 8). A liter oil produced from 5 kg of olive in the farms as an average (Table 9).

Farmers gave either 10-17 % of olive oil or paid 20 000-30 000 Turkish Liras (TL) / kg as processing fee (Table 10).

When the production season (1999-2000) was evaluated, it could be said that olive oil production had decreased in respect of the previous seasons. Climate conditions could be a reason for this decrease. Also acidity of the olive oil for this season was affected less than the previous season. This point was also noted by the oil processors as the decrease in the quantity of bottom olive (olives collected under the trees).

When the olive oil usage in the same period was examined, 12.38 % of olive oil was self consumed in general, as 8.84 % was paid for processors for fee, 37.20 % was sold and 41.58 % was kept for stock. During the survey period, it was seen that farmers chose to stock olive oil because premium payment was not announced and farmers were expecting the price increases in future term. In the mentioned period, 24 % of self-consumption in the 1<sup>st</sup> group had the highest value among the three groups.

In the survey field, harvest began by the end of November and ended by the end of February. The most intensive harvest period was between December and January. Farmers market the olive oil in a wide period from December to June according to their financial needs and to have available price advantages.

Farmers market their olive oil directly to consumers or to traders, TARIS and oil processors. The general marketing channel of olive oil in the survey area is given in Fig. 1.

In examined holdings, the market places, as an average of years 1999-2000 are given in Table 11. The most important consumer

## M. Metin Artukoglu: Socio-economic features of olive oil producers in Turkey

Table 8: Average olive production and usage during 1999-2000 crop season

Groups	Olive production (Kg/Farm)	Home consumption		Retail sales		Spared for oil production	
		(Kg/Farm)	(%)	(Kg/Farm)	(%)	(Kg/Farm)	(%)
1 <sup>st</sup>	2039.58	42.08	2.06	40.28	1.98	1957.22	95.96
2 <sup>nd</sup>	2953.28	84.83	2.87	12.93	0.44	2855.52	96.69
3 <sup>rd</sup>	6531.04	84.84	1.30	523.75	8.02	5922.45	90.68
General	4181.95	71.22	1.70	238.63	5.71	3872.10	92.59

Table 9: Necessary olive amount for one liter of olive oil production (kg.)

Groups	Olive amount for one liter of olive oil production
1 <sup>st</sup>	5.15
2 <sup>nd</sup>	5.05
3 <sup>rd</sup>	5.04
General	5.08

Table 10: Average olive oil production and usage

Groups	Olive oil production (Kg/Farm)	Home consumption		Process fee		Sold		Stocks	
		(Kg/Farm)	(%)	(Kg/Farm)	(%)	(Kg/Farm)	(%)	(Kg/Farm)	(%)
1 <sup>st</sup>	387.03	92.84	23.99	47.08	12.16	103.29	26.69	143.82	37.16
2 <sup>nd</sup>	581.53	70.93	12.20	65.26	11.22	128.79	22.15	316.55	54.43
3 <sup>rd</sup>	1308.67	128.96	9.85	97.69	7.47	570.29	43.58	511.73	39.10
General	828.44	102.56	12.38	73.24	8.84	308.21	37.20	344.43	41.58

Table 11: In examined holdings, market place distribution of olive oil based on average of the 1999-2000 production season

Groups	Directly to Consumer		Marchant		Oil process		TARIS		Total (Kg/Farm)
	(Kg/Farm)	(%)	(Kg/Farm)	(%)	(Kg/Farm)	(%)	(Kg/Farm)	(%)	
1 <sup>st</sup>	7.64	7.40	49.40	47.83	44.72	43.29	1.53	1.48	103.29
2 <sup>nd</sup>	81.98	63.65	42.50	33.00	4.31	3.35	-	-	128.79
3 <sup>rd</sup>	15.10	2.65	111.29	19.51	141.46	24.81	302.44	53.03	570.29
General	29.89	9.70	73.92	23.98	75.44	24.48	128.96	41.84	308.21

Table 12: In the examined holdings the average prices of the products sold in 2000 ( TL/Kg)

Groups	Directly to consumer	Marchant	Oil process	TARIS
1 <sup>st</sup>	1050000	855909	830000	1110000
2 <sup>nd</sup>	1184375	833333	750000	-
3 <sup>rd</sup>	1225000	839000	901111	1130000
General	1153125	824747	827037	1120000

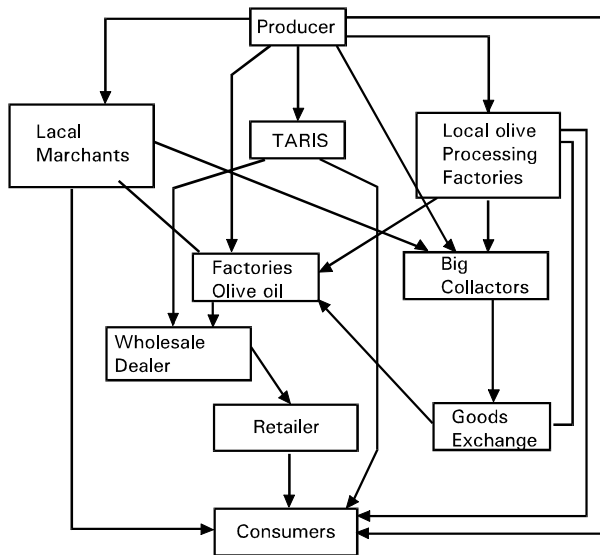


Fig. 1: Marketing channel of olive oil in the survey area

of the marketing olive oil was TARIS. TARIS bought 41.84 % of the market olive oil. However, when we evaluate the groups; in the first group the most important place of market was the merchant, with the ratio of 47.83 %, in the second group with the

ratio of 63.65 % by selling directly to the consumer and in the third group with the ratio of 53.05 % by TARIS. For the years 1997-1998, producers stated that, they had sold the products mostly to the merchants. It was thought that this change of product market places was because of premium expectations and consequently for wishing to sell with invoice. Actually this opinion was confirmed by the producers expressing that some of them couldn't document the marketing in 1998 so that they couldn't utilize from premium payments.

The average prices determined in 2000 in terms of the producers' market places are given in Table 12. The producers gained the highest price when they sold directly to the consumer, and TARIS's prices followed it.

**Some problems determined by the research and some solution proposals:** Some problems could be drawn up within the research and evaluations on macro levels and analyze results due to the producers.

- First of all, the structural problems which were seen as the most important problem of agricultural approach must be solved.
- In Turkey, as it was at the other products, there is no substance policy for the olive oil whose aims and means were certain and continual. Besides, wheather in development plans or in year book programmes, there hasn't been encounter peculiar to the product. Consequently, applications are usually forming by the effect of political expectations and this situation without depending on any criteria price determination way to the producer, consequently is reflected to the consumer.
- When we compare the Turkey's olive oil consumption with other countries, it remains quite low. For example; in Turkey yearly olive oil consumption per person is approximetly 1 Kg, in Greece 21, in Italy 11.5 and in Spain 10.4 (Meltem, 2000). It has been seen that there haven't done enough promotion duty to increase the consumption level. This situation causes serious problems to utilize the product in country.
- Turkey's olive oil export is generally seen to the exporter countries like Italy and Spain as "bulk" olive oil. This situation causes important measure of value added loss.

## M. Metin Artukoglu: Socio-economic features of olive oil producers in Turkey

- e) In the compare of other products, olive has a different structure because of periodicity. In the world's numarable olive producer countries periodicity is rather limited than Turkey. For example, the ensured common data in 1990-1998 period, while periodicity effect in Spain is 0.2, in Turkey is 0.42 (\*\*\*\*\*). This situation can be connected especially to the production, there is no enough importance for cultural operations.
- f) Producers consult about cultural operations especially from neighbourhood or they do the process with existing knowledge. In this matter the producers express that there is no enough extension study, for instance; it is seen that, they have no information about modern techniques like machinary harvesting.
- g) At the same time, it is another very important problem that great amounts of olive tree are old and not productive. Besides, in resarch area, according to the producer's stataments the trees average age is 45 years. This situation causes the decrease in productivity.
- h) From producers point of view the other important problem is lack of organization. As the interviewed producers 84.07 % are the share holders of at least one agricultur cooperative (important parts are for to take credit from Agricultural Credit Coperative). Olive and Olive Oil Agricultural Sales Cooperative partner rate 33.68 % is very low ratio. It is clear that the producers don't show enough interest to the cooperation with that the declaration of producers that 39.02 % of cooperation partner producers don't attend and only 34.15 % of them attend rarely the general rules.
- i) There is no registration regarding income and expenses. This situation may cause important problems for future applications.
- k) The producers complain about is that the prices are declared after the begining of harvesting period, that is consequently price indistinction. In this context it was also observed that declared prices, except last few years, didn't satisfy the producers, by the way it was seen that interviiwed producers have done some interesting determinations by comparing past olive oil prices and some input prices.
- l) In "support taking" the way of paying product price is also seen as an important problem especially in the last few years, the payment of 50 % in cash and 50 % time payment can be seen as the cause of giving products to the marchants although the producers offered lower price.
- m) Because of 1998-1999 and 2000-2001 campaign periods, the support premium payment system is not well established besides, the abundance of premium payment formalities, late declaration of premium amounts and late payment problems existance is seen to defended. As a matter of fact, especially, in first application more yet to be, the premium amount is announced very late also in both applications.
- b) There is a need of substance policy regarding olive oil by aims and means that are exact and continuous.
- c) All over the country, low consumption of olive oil due to special effect of the high prices existed. Still important part of the population has no habit of consumption when it is taken these reasons into account, to increase the consumption advertisement and promotion campaign arrangements. It is very important that people should become conscious about olive oils nutritive way, positive effects on human health and kinds of olive .
- d) The aim of decreasing the "periodicite" effect in olive, it is needed to give importance in cultural treatments, to do extension studies and to remove the cooperation defectiveness which is seen impressively between technical staff and the producers.
- e) Producers should be more sensitive about their organizations. The present organizations should also increase the dialogues with the producers by more active studies.
- f) It is made some applications for producers to gain the record keeping as a habit. In last years it is applied and qualified as a reform (direct income support system), also in some operations this record system is made necessary.
- g) While determining the olive oil prices, it was a positive effect on production to take into consideration the product- input price relationships. It is thought that taking the olive oil applications in European Union into account could be right and exact. The difference between explained target prices and interference prices must be continued. Afterwards the application of paying to the producers as a support premium must be realized.

Support premium affected positive cultural application in olive oil production according to this study. In this context, with the producer's support premium in research area, 48.72 %, 11.54 %, 30.77 % and 51.28 % of the producers gave more importance to soil treatments, pest management, manuring and trimming in comparsion with the previous years, respectively. Another positive effect of support premium application was that producers were more sensitive of the necessity about "record keeping" regarding their production and marketing.

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Some soluation proposals are given below:

- a) First of all, there must be some short and long term renews and arrangement to improve the agricultural sector.

- \* = World table olive production is 1166000 tons, Turkey's production is 155000 tons. According to the same years figures, world live oil production is 2203 500 tons, Turkey's production is 135000 tons (Izmir commodity exchange, 2000, pp: 66-68).
- \*\* = World olive oil export is 470000 tons, Turkey's export is 45000 tons (Izmir commodity exchange, 2000, pp: 66-69)
- \*\*\* = Agricultural production value is 9700 billion Turkish Liras, vegetal production value is 7300 billion Turkish Liras in 1988
- \*\*\*\* = Aegean Agricultural Region consists Aydin, Balikesir, Burdur, Canakkale, Denizli, Isparta, Izmir, Manisa and Mugla.
- \*\*\*\*\* = According to the average of 1998 and 1999 the number of bearing trees in Turkey, Aegean Agricultural Region and Izmir are respectively 86 490000, 62350000 and 12063127. For the same years, olive production is 774440.5 tons, olive oil production is 110407.5 tons in Aegean Agricultural Region and in Izmir these figures are 116789 and 20015 tons.

$$I = \sqrt{\frac{1}{n-1} \sum_{i=2}^n \left( \frac{P_i - P_{i-1}}{P_i + P_{i-1}} \right)^2}$$

I = Intensity of peridicide n = Number of years P<sub>i</sub> = Value of i year  
P<sub>i-1</sub> = The value of the perevious year of i year

The value calculated from this formula is between 0-1. The more the value is closer to "0", the least "periodicite intensity" is lower and the more closer to "1" the least intensivty is higher (Abela and Vicente, 1987).