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Muzaffer Kerem SAVRAN[1]
Nevin DEMİRBAŞ[2]

[1] Ministry of Food, Agriculture and Livestock, Directorate of Olive Research Institute, 35100, İzmir / Turkey
[2] Ege University, Agricultural Faculty, Department of Agricultural Economics, 35100, İzmir / Turkey
corresponding author: nevin.demirbaş@ege.edu.tr

The Warehouse Receipt System in terms of Olive Oil Producers in Turkey

Türkiye'de Zeytinyağı Üreticileri Açısından Lisanslı Depoculuk Sistemi

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Warehouse receipt system, olive oil, olive mill, Turkey, İzmir

ABSTRACT

The aim of this study is to determine the views of the warehouse receipt system and the expectations of olive oil producers in Turkey. To carry out the research, 53 randomly selected olive oil firms were visited, and through face-to-face meetings with the managers the relevant questionnaires were filled in. The five-point Likert Scale was used to measure the producers' views regarding the warehouse receipt system. The analysis of the variance, the Kruskall-Wallis and the Chi-Square tests were used in order to analyse difference between the groups of managers in terms of their views of licensed warehousing. As a result of the research, it was determined that in general, olive oil producers have no knowledge about the warehouse receipt system and its functioning. In order to both implement legal regulations and to ensure the expected benefits from the system, it was recommended to inform all the stakeholders in the sector on the issues related to the system.

Anahtar Sözcükler:

Lisanslı depoculuk sistemi, zeytinyağı, yağhane, Turkey, İzmir

ÖZET

Bu çalışma nın amacı, Türkiye'de zeytinyağı sanayicilerinin lisanslı depoculuk sistemi hakkındaki görüş ve beklentilerini belirlemektir. Araştırmada tesadüfi olarak seçilen 53 zeytinyağı işletmesi ziyaret edilmiş ve amaca uygun hazırlanan anket formları yöneticilerle yüz yüze görüşülerek doldurulmuştur. Sanayicilerin lisanslı depoculuk sistemine ilişkin görüşlerinin ölçülmesinde Beşli Likert Ölçeği kullanılmıştır. İşletme yöneticilerinin lisanslı depoculuk hakkındaki görüşleri açısından temel özellikleri gruplandırılmış; elde edilen gruplar arasında farklılık olup olmadığını belirlemek için Varyans (one-way Anova), Kruskall-Wallis ve Khikare analizleri kullanılmıştır. Araştırma sonucunda, zeytinyağı sanayicilerinin genel olarak lisanslı depoculuk sistemi ve işleyişi hakkında bilgi sahibi olmadıkları belirlenmiştir. Yasal düzenlemelerin hayata geçirilebilmesi ve sistemden beklenen faydaların sağlanabilmesi için, sektördeki tüm paydaşların sistemle ilgili konularda bilgilendirilmesi önerilmektedir.

INTRODUCTION

Turkey, being a part of the Mediterranean Region, is a production center for olives and olive oil. Approximately 70 percent of the world's olive production area, which is 10 million hectares, is in the Mediterranean region. There are 26 countries in the world that produce olive oil in an economic sense (FAO, 2015). The larger part of approximately three million tons of the world's olive oil production is concentrated in six typical Mediterranean countries. According to the data given by the International Olive Council (IOC) in 2015, 42.4 percent of the total production is provided by Spain, 14.0 percent by Italy, 9.5 percent by Greece, 6.7 percent by Turkey, 6.4 percent by Tunisia, and 5.2 percent by Syria. Turkey, with its average production of over 191 tons per year, ranks fourth among the olive oil producing countries (IOC (a), 2015). The producing countries make a significant contribution to the economy by exporting a certain proportion of their production (IOC (b), 2015). However, due to the fact that an olive tree is a plant that shows some periodicity (Lavee et al., 1997), some difficulties in the olive oil trade may arise. Therefore, the warehouse receipt system is expected to make a contribution to the olive

oil production along with both the domestic and international olive oil trade. The olive oil trade in Turkey often experiences a loss of existing markets and an inability to carry out a sustainable olive oil trade particularly due to the lack of guarantee of crop in those years with a small harvest. In addition, olive oil stored in poor conditions, without being subjected to classification, significantly loses its market value. As a result, on account of a serious tendency in foreign markets - especially in recent years - to consume high-quality food, low-quality olive oil produced in Turkey is not given preference, and considerable financial losses emerge.

The use of licensed warehousing, by improving the transparent trade share of agricultural products and shortening the chain between producers and dealers, makes it possible to secure significant gains by postponing product sales (Coulter and Onumah, 2002; La Grande, 2002; Lyimo, 2009; Karabaş and Gürler 2010; Tosun et al., 2014). In the warehouse receipt system, producers and traders, reliably, electronically when necessary, without any limitations, and in a short period of time, have access to product varieties in the demanded quality and quantity. By means of the existing electronic product certificates, they get an opportunity to predict the future market situation and to obtain credit under suitable conditions also (Carter and Waters, 2004; Coulter, 2009; Höllinger and Rutten, 2009). To minimize price fluctuations observed in the agricultural products and the price risk for the farmers, producers, and the others dealing with the trade of those products, as well as to secure themselves, the "Futures Contracts" may be used (Lacroix and Varangis, 1996; Erbay, 2007; Ünal, 2011). On the basis of the futures, the cost of the future transactions may be identified today and agreed on (Tekçe, 2006).

By means of the warehouse receipt system, manufacturers can use the products stored as a credit deposit. Thus, the input can provide low costs and ensure much faster and more economical credit flow. In addition, the sales of products at reasonable price can be provided (Martin and Bryde, 1999; Carter and Waters, 2004; Saran et al., 2005).

With the implementation of the warehouse receipt system, the existence of a certain guarantee system and working compensation fund provides - from the point of view of the banks – a reliable legal environment, which is suitable for interference (Martin and Bryde, 1999; Carter and Waters, 2004; Onumah, 2010).

The current lack of a specialized commodity exchange in Turkey is being compensated by means of the existing commodity exchanges. In fact, the specialized commodity exchange and the warehouse receipt system are inseparable as none of them can succeed without the other (Üzümoğlu, 2008; Saygılıer, 2009).

Based on the importance of the issue, and on the world developments, an "Act on Agricultural Products Licensed Warehousing Law" No. 5300 was published in the Turkish Official Gazette No. 25730 on February 17, 2005. In parallel with this, the first licensed olive oil warehouse in Turkey was established by Marmarabirlik on June 3, 2011 (GTB, 2013). However, this licensed warehouse has not come into operation yet. Afterwards, the "Comminiqué on Licensed Olive Oil Warehouse", which was published in the Official Gazette of the Republic of Turkey on April 12, 2013, took part in the legislation of the warehouse receipt system for olive oil (Official Gazette, 2013). Currently, in different production regions - and also in the Izmir province - initiatives for the establishment of the olive and olive oil licensed warehouses are now in progress.

The aim of this research is to reveal the views of the warehouse receipt system and the expectations of olive oil producers in Turkey. The possible contribution to the latest developments to solving problems, which arise in olive oil production in Turkey, have been investigated at the level of the producers within the scope of the Izmir province. The Izmir province, as well as being an important olive oil producing region, plays a great role in terms of the olive oil trade. The population potential, the transformation of the province into an important consumption center, and the ports there, make it an attraction center for investment from the point of international trade.

Continuation of infrastructure works in Turkey is required for the system to work as a whole, and the interest in the issue of the sector stakeholders in Izmir increases the value of the arisen data and information on this subject. The absence of published research related to the warehouse receipt system in countries that are leading in the olive oil production and trade, as well as in Turkey, is another aspect which increases the importance of the study.

Taking Izmir province as a geographical work area, the stakeholders in the sector include olive oil producers and representatives from the relevant institutions and organisations (The Izmir Province Directorate of Food, Agriculture, and Livestock; the Olive Research Institute; the Izmir Commodity Exchange; Aegean Exporters Associations, and the Izmir Chamber of Commerce).

MATERIAL and METHODS

Material

The main material for the current research is the results of the survey conducted among the owners of the olive oil producing firms in the Izmir province. The secondary source data used in the study were written resources on this subject and the registered data and information provided by the institutions and organisations related to olive oil production (The Izmir Province Directorate of Food, Agriculture, and Livestock, the Olive Research Institute, the Izmir Commodity Exchange, the Izmir Chamber of Commerce, the Aegean Region Chamber of Industry, the Agricultural Sales Cooperatives Union (TARIŞ), and the Aegean Exporters' Associations). The survey for this research was completed in 2013.

Methods

Producers' survey questions, that are the source of the original data obtained from the survey, are formed by means of the interviews conducted with the sector representatives. Through the interviews with the representatives of the institutions or organisations, which are either directly or indirectly related to the subject, information about the expectations from the warehouse receipt system, problems in system development and solution suggestions, were gathered. In this context, a total of nine interviews with the managers of the Izmir Commodity Exchange (ITB), the Agricultural Sales Cooperatives Union (TARIŞ), the Izmir Province Directorate of Food, Agriculture, and Livestock (GHTB), the Directorate of the Olive Research Institute (ZAE), and the Aegean Exporters' Associations (EIB) were conducted. In accordance with the information obtained from the interviews, and the review of the literature related to this subject, questionnaire forms were composed of face-to-face meetings with the olive oil producers. At the beginning of the survey, three testing questionnaires were composed, and according to the results of the probation survey, the final questionnaire was reviewed and corrected.

According to data from 2012, it was identified that 223 olive oil firms were located in the Izmir province (GTHB Izmir Province Directorate, 2012; EBSO, 2012; EIB, 2012; IZTO, 2012). A proportional sample formula was used for the determination of the number of firms participating in the survey (Newbold, 1995).

$$n = \frac{Np(1-p)}{(N-1)\sigma_{px}{}^2 + p(1-p)}$$

n= sample size

N= population

p= Shows the ratio included in the sample firms with the preferred characteristics in the main mass. To reach the maximum volume of the sample, p was determined to be =0.5

σ^2_{px}: The variance of the population

The sample size, with a 90 percent confidence interval and a 10 percent margin for error, was calculated to be 53. The firms participating in the survey were chosen randomly. It was discovered that 17 out of the 53 firms, along with olive oil manufacturing, were engaged in olive oil export. In the measurement of the producers' views and knowledge level of the system, the five-point Likert Scale was used with 1 as "very low" and 5 as "very high" (Malhotra, 1996; Güriş and Astar, 2014).

In the research, the firms and firm managers were grouped according to the basic features. The research was examined statistically to find out whether or not there was any difference between the obtained groups. To divide the firms into groups, basic statistical indicators, such as actual capacity, machine capacity, skewness, kurtosis, and the frequency distribution for business size measurements such as employee numbers and warehouse capacity were calculated. According to the obtained results, the storage capacity was deemed as the major business classification criteria. In accordance with this, the firms were divided into three groups (Table 1).

Table 1. Classification of the olive mills according to the storage capacity

Firm groups	Olive oil storage capacity (ton)	Number of firms	%
1th Group	20 tons and less	16	30.19
2nd Group	Between 21 an 49 tons	22	41.51
3th Group	50 tons and more	15	28.30
	Total	53	**100.00**

The compliance of the normal distribution of continuous variables was determined by the Kolmogorov–Smirnov test (Kalaycı, 2008). The analysis of the variance (the one-way Anova) was used for variables with a normal distribution, and the Kruskall-Wallis test (Güriş and Astar, 2014) was applied for those with a non-normal distribution. By means of the various variables related to the managers (age, and educational level, etc.) and the firms (machine capacity, and number of employees, etc.), the Chi-Square (independence) test was used for the discrete variables to analyse whether or not there was any difference between the groups in terms of the firm managers' views and knowledge level of licensed warehousing. The variables and groups of variables

examined by using the Chi- Square test are shown in the Table 2. These groups were analyzed in terms of the views and knowledge had about the warehouse receipt system of olive oil producers, and only significant results are presented in the Tables in the study.

Table 2. Variables examined by the Chi-Square test and groups of variables

Name of variables	Groups related to variables	N
Age (year)	1th Group: 50 and below	27
	2nd Group : 51 and over	26
Educational level	1th Group: primary, secondary and high school	29
	2nd Group: undergraduate and graduate	23
Work experience (year)	1th Group : 8 and less	16
	2nd Group: between 9 and 20	18
	3rd Group: 21 and more	19
Working time in the firm (year)	1th Group: 10 and less	32
	2nd Group : 11 and more	21
Year of establishment of the firm	1th Group: 2000 and earlier	27
	2nd Group : after 2001	26
Machine capacity (ton/day)	1th Group: 50 and less	15
	2nd Group : 51 and more	35
Number of employees	1th Group : 7 and less	11
	2nd Group: 8 and more	29

RESULTS

General Characteristics of the Olive Mills

Almost all the olive mills examined in the Izmir province apply a modern continuous machinery system. Generally, the olive mills are small family companies, which lack professional management. Some of the examined olive mills, apart from the extraction, are also engaged in bottling, branded bottling and retailing. Three of these firms are members of TARİŞ, and one of them is a development cooperative of the village where it is located. Considering membership in organisations and institutions, there is a strong tendency towards Chamber of Commerce and Chamber of Industry membership.

It was identified that in season, 55 percent of the examined olive mills employ between five and nine workers, 20 percent employ four or less, and 25 percent employ 10 or more workers. It was determined that these olive mills work approximately 11 hours per day during season, and just 38 percent of the firms employ their workers in off-season. Evaluating olive mills in terms of the number of the farmers processing raw olives, it was detected that 37 percent work with less than 500 farmers, 34 percent work with 500-999 farmers, and 29 percent work with 1000 farmers and more.

At the present time, in agricultural and food marketing, the presence of the Food Safety and Quality Assurance System Certificate is considered quite important (Savran and Demirbaş, 2011; Çukur et al., 2015). Quality assurance concentrates on all the functions of the firm in the direction of the same goal to satisfy the customer's needs in terms of product or service both fully and accurately (Anonymous, 2013). Just 36 percent of the examined olive mills had the Quality Assurance System Certificate, and 30 percent the Food Safety System Certificate. It was identified that 37 percent of the firms that had the Quality Assurance System Certificate hold TSE, 95 percent hold the ISO, and 21 percent hold other Quality Assurance System Certificates. Approximately 91 percent of the warehouses belonging to the firms underwent quality classification. Moreover, 47 percent of the olive mills made use of the laboratories, and it was identified that 20 percent of them had their own.

The Main Problems of the Olive Oil Firms

In order to understand the producers' views and expectations from the system better, their primary problems were included in this section. The main problems for the producers in the context of the current study are the following: sales (32.08 percent), market organisation (32.08 percent), price (24.53 percent) and storage (18.87 percent). In accordance with these results, it is obvious that the warehouse receipt system will make a significant contribution to the sector.

Views of Warehouse Receipt System and Expectations of the Olive Oil Producers

All the firms examined were managed by the owners. The average owners' age was 48.85 years. The age ratio was determined as the following: 6

percent- under 30 years old, and 19 percent - over 61 years old. In accordance with this, it can be stated that the greater proportion of the owners are in the middle age group. It was seen that in general, the producers have no knowledge about the warehouse receipt system and its functioning. The knowledge level, measured by the Five-Point Likert Scale with the average as 1.55, can be stated to be low. Some information about the warehouse receipt system was briefly given to the producers who participated in the survey. Afterwards, by means of the analysis made in accordance with the producers' age, a difference in terms of willingness to establish and participate in licensed warehousing between the groups 50 and below and 51 and over was identified (Table 3). According to this, a willingness to establish and participate in licensed warehousing increases with the producers' age. Consequently, from the point of the producers that are experienced in solving problems arising in the sector, it can be stated that the warehouse receipt system was detected as positive.

The average duration of education for the firm managers was 10.56 years. Although all the producers proved to be literate, their general educational level was not as expected. The ratio of the educational level of the producers was determined as the following: about 39 percent- primary and secondary school, 29 percent- high school and undergraduate, and 33 percent- graduate. A significant connection between the size of the firm (the warehouse capacity of the olive mill) and the producers' duration of education was identified. In accordance with this, the educational level of the owners of the firms with a warehouse capacity between 21 and 49 tons was found to be lower. The owners of the firms with warehouse capacity ≤ 20 tons or ≥ 50 tons were found to have a higher educational level. This, in fact shows that the entrepreneurs with a high educational level started giving an importance to olive oil processing. It can be seen that in this group of firms, the youngest age group was found. The average firm managers' work experience in the current firm was 13.40 years (Table 4). In terms of work experience in the same firm, this period can be considered long, which results from the fact that the firms are largely managed by the owners, and professional management was not given a place to in small- and medium-sized companies. After being informed about the system, 60 percent of the producers were found to be willing in terms of the warehouse receipt system participation, while 21 percent were unwilling. The rest of the respondents were hesitant.

Table 3. Producers' willingness to establish and participate in licensed warehousing according to the age

Age	Willingness		Chi-Square		
	Willing	Unwilling or Hesitant	Value	Deg. of freedom	p*
50 and below	12	15	5.840	1	**0.016**
51 and over	20	6			

* Those ones who selected the "hesitant" option were put into the "unwilling" group.
Significant for P ≤ 0.050

Table 4. Some characteristics of the producers of the examined firms

Firm groups	Age (year)	Education* (year)	Work experience in the firm (year)
1th Group (warehouse capacity ≤ 20 tons)	44.07	13.53	11.07
2nd Group (w. capacity 21-49 tons)	51.55	8.68	16.09
3rd Group (w. capacity ≥ 50 tons)	49.62	10.33	11.87
General Total (n=53)*	48.85	10.56	13.40
P value**	-	0.02	0.701
Chi- Square Value	-	12.272	0.710
P value***	0.157	-	-
F value	1.925	-	-

* Producers' duration of education was evaluated via N=52 ** Kruskal –Wallis test
*** One-Way Anova test Significant for P ≤ 0.050

Producers Views on Advantages of the Warehouse Receipt System

The producers' expectations from the warehouse receipt system were analyzed by means of the Likert Scale. With the implementation of the system, the producers expected the following: an increase in the amount of marketed quality olive oil (4.65), a decrease in price fluctuation which occurs within the year (4.47), a decrease in quality losses caused by storage (4.47), an accurate and timely loan usage facilitation (4.18), an increase in the profit obtained from olive oil production (4.05) and a decrease in the market loss

problem in the olive oil trade caused by periodicity and a supply imbalance experienced in the season (4.00) In addition, it causes a positive effect on the increase in olive oil and boutique production as well as on the sales season prolongation (3.67), which is also another important issue for the managers to concentrate on (Table 5).

Producers withheld their judgements about potential problems or disadvantages that may be associated with the implementation of the warehouse receipt system; however, they expressed an opinion on some problems that may arise (Table 6). Among these problems, the most significant (with a value of 2.76 on the Likert Scale) is the "delay of system establishment in Turkey".

Table 5. The producers' views of the warehouse receipt system and advantages of the system

	1	2	3	4	5	N*	Scale average	Standard deviation
Increase of the olive oil production	6	-	2	1	10	**19**	**3.47**	**1.84**
Increase in the profit obtained from the olive oil production	1	1	3	5	9	**19**	**4.05**	**1.18**
Decrease in the market loss problem in the olive oil trade caused by periodicity and a supply imbalance experienced in the season	2	2	1	3	11	**19**	**4.00**	**1.45**
Prolongation of the sales season	3	1	4	1	9	**18**	**3.67**	**1.57**
Increase in boutique production	3	2	2	2	9	**18**	**3.67**	**1.61**
Decrease in price fluctuation which occurs within the year	1	-	1	3	12	**17**	**4.47**	**1.07**
Decrease in quality losses caused by the storage	2	-	-	1	14	**17**	**4.47**	**1.33**
Increase in the amount of the marketed quality olive oil	1	-	1	-	15	**17**	**4.65**	**1.06**
Accurate and timely loan usage facilitation	1	2	1	2	11	**17**	**4.18**	**1.33**

5. strongly agree, 4. agree, 3.neither agree nor disagree, 2. partially agree 1. strongly disagree

* Only opinion of the producers who replied the relevant questions is reflected.

Table 6. The producers' views of the possible problems on the system

	1	2	3	4	5	N*	Scale average	Standard deviation
Storage risks caused by the olive oil structure may militate against implementation of licensed warehousing	8	2	5	2	-	**17**	**2.06**	**1.14**
Storage may become difficult on account of olive oil varieties and regional and physical differences	10	1	4	1	1	**17**	**1.94**	**1.30**
Makes it impossible to evaluate high quality products duly	11	-	3	-	3	**17**	**2.06**	**1.60**
Licensed warehousing is not profitable for olive oil business	6	-	7	1	3	**17**	**2.71**	**1.49**
Problems in marketing may arise	10	-	2	1	4	**17**	**2.35**	**1.77**
Problems in bulk trade may arise	9	-	4	-	4	**17**	**2.41**	**1.70**
Problems in branded products trade may arise	9	2	1	-	5	**17**	**2.41**	**1.81**
Delay of system establishment in Turkey	5	1	7	1	3	**17**	**2.76**	**1.44**

5. strongly agree, 4. agree, 3.neither agree nor disagree, 2. partially agree 1. strongly disagree

*Only opinion of 17 producers who replied the relevant questions is reflected.

CONCLUSIONS

Turkey is one of the world's biggest olive oil producers and exporters. As a result of prudential plans, along with an increasing number of olive trees, a significant increase in the olive oil production is expected. This growth is supposed to be evaluated along with the domestic consumption increase, the permanency of the existing export markets, and the availability of new markets.

In order to have a say in the international market, it is extremely important to put high quality products on the market regularly. The warehouse receipt system gives an opportunity to forward plan in agricultural products marketing; it is a system which is used to deliver goods at the desired quality and quantity without any time or space limitations. Due to the periodicity of raw materials, especially for olive oil, the system is of a much greater importance for the products which show fluctuations from year to year. In accordance with the research results, it was found that in general, the producers from the firms in Izmir, which is one of the most important olive and olive oil producing regions, have no enough knowledge about the warehouse receipt system and its functioning. However, more experienced producers in this sector are more willing to establish and participate in licensed

warehousing. The analysis made in terms of age, as well as experience, showed that the younger olive oil producers abstained from the system. In addition, the ratio of the Quality Assurance and Food Safety System Certificates increases with the increase of the educational level.

The producers that had been informed about the warehouse receipt system by the researchers expected that by means of the system quality losses caused by storage and price fluctuations in the season will decrease. One of the most impressive results was that after being given some information about the system, the producers stated that there was a system establishment delay. Therefore, although the system is very important in terms of the olive oil sector, the high investment costs, along with a lack of knowledge and publicity, are the most significant reasons of why the system has not been used commonly in Turkey up until now.

Indeed, recent developments in the warehouse receipt system for some other agricultural products in Turkey are expected to have a positive influence on the warehouse receipt system for olive oil. To carry out the correct sector production record, insurance and support, extensification of the warehouse receipt system is of great importance.

In conclusion, it can be stated that in Turkey, licensed warehousing legislation alone is not sufficient for the establishment of the system and its effective functioning. To implement legislative regulations and provide the benefits expected from the system, all the actors in the sector, particularly farmers, firm owners and exporters, have to be informed about the issues related to the system. This informing can be carried out by the organisations related to the Ministry of Food, Agriculture, and Livestock, and NGOs related to the sector, and the universities. No doubt, a more effective functioning of the existing sector cooperatives, along with providing positive contribution of organisations to the sector, will also contribute to the increase of informing programs effectiveness.

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