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A research on determining the factors affecting organic tea production

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ABSTRACT

This study aims to analyse the social and economic factors which affect the producers of tea farming in Rize province in making organic tea farming. In line with this purpose, primary data obtained through face-to-face interviews with producers who make organic and conventional tea production form the main material of the study. Simple random sampling method was used to determine the surveyed producers. Factors affecting producers in Rize province in making organic tea farming were found with the help of logistic regression analysis. According to the results of the analysis, it was found that producers' age, agricultural experience, size of tea lands, amount of production and income from the season were found as effective factors in starting organic tea production. Young producers should be supported in the region and they should be encouraged to participate in and be interested in organic farming. Since organic farming has many advantages over conventional farming such as environment, natural resources, animal and human health, producers should be directed to organic farming.

Keywords:
Organic
Tea
Conventional
Production
Turkey

Organik çay üretimini etkileyen faktörlerin belirlenmesi üzerine bir araştırma

ÖZET

Bu araştırma, Rize ilinde çay tarımı yapan üreticilerin organik çay tarımını yapmalarını etkileyen sosyal ve ekonomik faktörlerin analiz edilmesini amaçlamaktadır. Bu amaç doğrultusunda organik ve konvansiyonel çay tarımı yapan üreticilerle birebir görüşülerek elde edilen birincil veriler araştırmanın ana materyalini oluşturmaktadır. Anket yapılan üreticilerin belirlenmesinde basit tesadüfi örnekleme yöntemi kullanılmıştır. Rize ilindeki üreticilerin organik çay tarımı yapmalarını etkileyen faktörler lojistik regresyon analizi yardımıyla tespit edilmiştir. Analiz sonuçlarına göre; üreticilerin yaşı, tarımsal deneyimi, çay arazilerinin büyüklüğü, üretim miktarı ve sezondan elde ettikleri gelir organik çay üretimine başlamada etkili faktörler olarak tespit edilmiştir. Bölgedeki genç üreticiler desteklenmeli ve organik tarıma katılmaları ve ilgilenmeleri teşvik edilmelidir. Organik tarımın geleneksel tarıma göre çevre, doğal kaynaklar, hayvan ve insan sağlığı gibi pek çok avantajı olduğu için, üreticiler organik tarıma yönlendirilmelidir.

Anahtar Sözcükler:
Organik
Çay
Konvansiyonel
Üretim
Türkiye

1. Introduction

Organic farming is a production system which makes soil, ecosystem and human health more sustainable than conventional farming (IFOAM, 2008). For this reason, transition to organic farming provides economic and environmental benefits, especially for producers and therefore the society. However, transition of producers to organic farming is a difficult process due to its social, economic, business and innovation features and producers should adopt the principles of organic farming correctly and make production accordingly. Nevertheless, it has been applied almost in all countries of the world recently and its share in agricultural lands is increasing gradually.

In Turkey, the most suitable region for tea cultivation is Eastern Black Sea region in terms of growing conditions. As a matter of fact, tea cultivation is the primary economic activity of producers in this

region and for this reason, it is thought that it should maintain its continuity. At the same time, as a result of intense and unconscious use of artificial fertilizers in the region, the soil ph of the region deteriorates causing the soil to become infertile and rivers, lakes and seas to be polluted. In order to ensure that the agricultural activities in the region are efficient and sustainable, it is important that organic agricultural practices have been initiated (Keskin, 2019). Karali tea, a private establishment, started organic tea production for the first time before 2002. Özçay Cooperative, one of the private sector organizations, started its production in 2002 with an area of 140 decares. ÇAYKUR started its operations in 2003 and it is now one of the greatest sectors in organic tea farming. Of the 1.295.934 tons of fresh tea production in Turkey, 68% is made in Rize, 20% is made in Trabzon, 10% in Artvin, 1,7% in Giresun and 0,3% is made in Ordu (TurkStat, 2017). While 135 thousand tons of dry tea was produced in Turkey in 2002, the production increased 93% in 2016 and reached 260 thousand tons. While the importance of organic tea production has increased in recent years, according to 2019 data of ÇAYKUR, a total of 6058.5 tons of organic tea, 6057 tons of organic black tea and 1,5 tons of organic green tea were produced in an organic area of 38.062 decares (Anonymous, 2019).

In the study, the literature about organic tea has been examined in three parts: adoption and spread of organic farming in the world by producers (Bolwig et al., 2009, Khaledi et al., 2010, Schneeberger et al., 2002, Sharifi et al., 2010, Ullah et al., 2015), adoption studies on product basis (Cukur, 2015, López and Requena, 2005, Parra-Lopez et al., 2007, Rana et al., 2012, Thapa and Rattanasuteerakul, 2011) and studies conducted on the adoption of organic tea farming (Doanh et al., 2018, Karki et al., 2011, Mishra et al., 2019, Lampach et al., 2017, To The and Nguyen Tuan, 2019, Tran, 2009, Tran and Yanagida, 2011, Van Ho et al., 2019). These studies were generally conducted in regions where tea production is intense. As can be seen in literature, there are few studies conducted on organic tea farming in Turkey. It is thought that this is due to the fact that the conditions for growing tea are not suitable for every region. In regions where climatic conditions and land features are suitable for tea cultivation, it is important to expand organic tea cultivation which is an alternative, which is economically sustainable for small-scale tea enterprises and which protects natural resources since chemical fertilizers are not used. For this reason, the aim of this study is to show the factors affecting producers' making organic tea cultivation in regions where organic tea cultivation is intense.

2. Material and Method

2.1 Research area

Rize is located in Northeastern Anatolia, Turkey. It is located between 400-22' and 410-28' eastern meridians and 400-20' and 410-20' north parallels on the eastern coastline of the Black Sea. It is surrounded by of town of Trabzon from west, İspir town of Erzurum from south and Yusufeli and Arhavi towns of Artvin from the east. The area of Rize apart from lakes is 3920 km^2 (Anonymous, 2020b).

Figure 1. Geographical location of Rize province and its towns
Şekil 1. Rize ili ve ilçelerinin coğrafi konumu

54.678,4 hectares (15.2%) of the total land of 359.991 hectares in Rize is suitable for agriculture. 45.322 hectares (12.58%) of the remaining land is a meadow and pasture land, 158.411 hectares (44%) is forest and shrubs, 101.573 hectares (28.21%) is non-agricultural and residential areas (Anonymous, 2020a). High annual precipitation, high relative humidity, insufficient sunlight and the roughness of agricultural areas in general limit the diversity of agricultural production. 90% of agricultural land consists of tea land. Hazelnut production is made on an area of 3079.9 ha and it is the second product after tea. Citrus products and small amounts of vegetables, citrus fruits, kiwi (255.6 ha) and other fruits are grown in the city. Kiwi cultivation is an activity that has been expanding in production in Rize recently. Although the planting rate

of field crops is 70% in Turkey, this rate is 1.7 in Rize. The area for vegetables and ornamental plants is 0.02%, while the area for fruits and citrus is 4.4%. In Rize province, there are 126531 tea producers, 527715 decares of the tea field according to 2019 data (Anonymous, 2019).

There are a total of 63 cooperatives, 44 agricultural development and 19 aquaculture, 6 tea associations, 1 superior association, 1 bee growers association and 4 producers association affiliated to the Ministry of Agriculture and Forestry in Rize. ÇAYKUR, the largest and leading company in tea sector in Turkey, is in the province of Rize. ÇAYKUR has 46 fresh tea processing factories, 1 tea packaging factory, 1 marketing and production regional directorate, 8 marketing regional directorate, Anatamir Factory, Atatürk Tea and Garden Cultures Research Institute Directorate, 12541 employees and 9.095 ton/day fresh tea processing capacity. While the fresh tea produced in the area varies by years, about 50-55% is bought by ÇAYKUR. ÇAYKUR has a market share of about 45-50% in national dry tea market. In 2019, 1407 thousand tons of tea were bought by ÇAYKUR and the private sector in Turkey (Anonymous, 2019).

2.2 Method used in data collection

Rize, which is located in the Eastern Black Sea region, is both convenient for tea production in terms of soil and climatic conditions and also it is the city in which the highest tea production is made. For this reason, organic and conventional tea producers constitute the main material of the study. The data in the study were obtained through face-to-face surveys conducted with tea producers.

2.3 The method used in determining the producers surveyed

According to data taken from ÇAYKUR in January 2016, it was found that organic and conventional production is made in İkizdere, Hemşin, Çayeli, Ardeşen, Fındıklı, Güneysu, Kalkandere, Çamlıhemşin towns of Rize province. There are 1370 producers making organic production in 13 different villages of Hemşin town and 86 producers are making conventional production in 10 different villages. Since there is too much production, the sample of the present study consists of farmers making organic or conventional tea production in Hemşin town of Rize province.

In villages making organic and conventional tea production, the farmers to be surveyed were determined with “simple random sampling” based on the field they were producing tea (Yamane, 2001). According to this sampling method, the number of farmers to be surveyed was calculated as 115 for organic production and as 65 for conventional production with a confidence interval of 90% and an error margin of 5%. “Random numbers table” was used in order not to spoil randomness. The field study was completed by surveying 115 organics and 50 conventional producers when producers to be surveyed were not found or because some of the producers did not accept the interview. The surveys were conducted between October 2015 and February 2016.

2.4 The method used in data analysis

In the study, in order to compare the social and economic characteristics of organic and conventional producers, t-test (normal distribution) was used according to the status of variables’ meeting normality assumption. Logistic regression analysis was used to find out the socio-economic characteristics affecting producers’ making organic production. The most important difference of logistic regression analysis from discriminant analysis and multiple regression analysis, which are other methods that can be used for this purpose, is that assumptions such as explanatory variables’ showing normal or multiple normal distribution, linearity and equality of variance-covariance matrices are not sought (Tabachnick and Fidell, 2007). In logistic regression, maximum likelihood method is used instead of ordinary least square method in model prediction. This method is used to find out the maximum likelihood estimation of coefficients. Logistic regression is concerned with making the probability of an event to happen “maximum” rather than making it the “least” square of deviations (Hair et al., 2006). Logistic regression analysis is grouped into three according to the type of scale the response variable is measured and the number of options of response variable. If the response variable is a categorical variable with two options, “Binary Logistic regression analysis” is used, if it is a variable with a classification more than two categories (levels) “Multinomial logistic regression analysis” is used and if it is a variable obtained with ranking scale, “Ordered logistic regression analysis” is used (Stephenson et al., 2008).

In the present study, while the dependent variable was the state of making organic production or not making organic production (conventional production), Binary Logistic regression analysis” was used in model estimation. In this context, the functional form of the logistic regression model estimating the characteristics that affect organic and conventional producers’ making organic production are as follows:

$$log\left[\frac{Y}{1-Y}\right] = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \cdots + b_{10}X_{10}$$

Y : Conventional = 0, Organic = 1
b_0 : Regression constant
$b_1 \ldots b_{10}$: Regression coefficients
X_1 : Age (years)
X_2 : Total agricultural experience (years)

X_3 : Non-agricultural income (TL)
X_4 : Presence of tea land (decare-da)
X_5 : Amount of tea production (kg/season)
X_6 : Fertilizer expense (TL)
X_7 : Workforce expense (TL)
X_8 : Pruning expense (TL)
X_9 : Transportation expense (TL)
X_{10} : Income from tea (TL/season)

The main purpose of this model is the selection of independent variables that best explain the variation in the dependent variable or that can be various in distinguishing the various levels of the dependent variable from each other. Educational status of tea producers, one of the social and economic characteristics, was originally added in the model; however, it was omitted from the basic model since it failed in estimation. Logistic regression analysis was conducted by taking dependent and independent variables into consideration and the model was completed in 3 steps and with 8 variables. The model was found to be significant according to Hosmer and Lemeshow test results in general (Table 1). With the equation obtained in Step 3, an accuracy of 95.8% was obtained.

Table 1. Significance results of the model
Çizelge 1. Modelin önem sonuçları

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	Hosmer and Lemeshow Test	
				Chi-square	*p*
1	40.570	0.625	0.884	5.904	0.658
3	42.795	0.620	0.877	7.593	0.474

p: Significance Level

3. Results and Discussion

3.1 Socio-economic characteristics and characteristics of enterprises

It was found that organic tea producers in the research area were between the ages of 23 and 81 and their average age was 55, while conventional tea producers in the research area were between the ages of 26 and 67 and their average age was 51. While conventional tea producers were found to be engaged in agriculture for an average of 26 years, organic tea producers were found to be engaged in agriculture for an average of 35 years. When the agricultural experiences of organic producers were examined in more detail, it was found that they transferred to organic production after an average of 29 years of conventional tea production. It was found in the study that organic tea producers started organic production with an average of 6 years ago. Agricultural experiences of producers who made organic tea production for 2-13 years were found to be higher when compared with the agricultural experiences of conventional producers. Significant differences were found between organic and conventional producers in terms of age, agricultural experience and non-agricultural income ($p<0.05$). When the producers were compared in terms of non-agricultural income, it was found that conventional producers had higher non-agricultural income (17904.00 TL). In terms of educational level, it was found that producers in both groups were mostly primary school graduates and thus no significance was found between organic and conventional tea producers in terms of educational status. When the land and production characteristics of the producers were examined, it was found that organic producers had an average property land of 5.8 da, an average of 4.44 da land where tea was produced and average tea production amount of 303 kg/da per shoot (Table 2). Average property land of conventional producers was found as 6.7 da, while they were found to have an average of 5 da land where tea was produced. The amount of conventional producers' tea production was found as 555 kg/da in one season. No difference was found in the study in terms of land size; however, there are studies which found that producers with small land size transferred to organic farming (Thapa and Rattanasuteerakul, 2011).

While calculating the total annual gross income of producers, the calculations were made based on the 2016 ÇAYKUR and private sector fresh tea prices, the year in which the survey was conducted. ÇAYKUR fresh tea leaf price was taken as 3.25 TL/kg for organic producers, as 1.9 TL/kg for conventional producers and as 1.2 TL/kg for private sector. It can be seen that ÇAYKUR provides better price in order to support and promote organic farming and to prevent producers' loss of income. It was found that the average amount of fresh tea sold in a year (total shoot) by organic producers was 2688 kg, average amount of fresh tea sold in a year (3 shoots) by conventional producers to ÇAYKUR was 5.389 kg, while average amount of fresh tea sold to private sector was 2931 kg.

According to these data, the average annual gross income of organic producers was calculated as 9460 TL, while the average annual gross income of conventional producers was calculated as 13756 TL. Similarly, in a study conducted in Thailand, it was found that the income of conventional producers from agriculture was higher than the income of organic producers and there was a significant difference between them (Thapa and

Rattanasuteerakul, 2011). Since ÇAYKUR provides guarantee for the purchase of organic tea, most of the organic growers sell their tea to ÇAYKUR. While 88% of conventional producers sell tea both to ÇAYKUR and to private sector, 10% sell only to ÇAYKUR and 2% sell only to private sector.

Table 2. Characteristics of land
Çizelge 2. Arazi özellikleri

Variables	Organic			Conventional			t-value	*p*
	n	Mean	SE	n	Mean	SE		
Land size (da)	115	4.44	0.28	50	5.09	0.53	1.198	0.233
Amount of production (kg/season)	115	2697.39	200.31	50	8330.00	1079.97	-5.128	<0.001
Amount of production per shoot (kg/da)	115	303.76	22.56	50	555.33	71.99	-3,334	0.001

SE: Standart Error p: Significance Level

Since tea is a perennial plant, tea gardens can have a life span of at least 50 years. During this time, the expenses in general are fertilizer, workload, pruning, transportation and equipment. When Table 3 is examined, it can be seen that the largest part of the expenses of organic tea producers is workload expenses with an average of 1857.04 TL/year. According to the results of the study, it can be seen that conventional producers have higher fertilizer expenses than organic producers. The main reason of this is the fact that a great majority of organic producers do not make artificial fertilizing since the use of artificial fertilizers is forbidden. In addition, since there are no organic fertilizers completely suitable for tea production and since existing organic fertilizers are expensive, organic producers do not buy organic fertilizers from the market. Also since carrying farm fertilizers and applying them to the garden require too much strength and effort, they are not preferred much by producers. Since ÇAYKUR is collectively certified for organic producers on behalf of producers, there is no certification fee for producers.

Table 3. Expenses of producers
Çizelge 3. Üreticilerin gelirleri

Expenses	Organic	Conventional	t-value	*p*
	Mean ± SE	Mean ± SE		
Fertilizer TL / Year	180.43 ± 44.75	835.4 ± 103.02	-5.831	<0.001
Workload TL / Year	1857.04 ± 238.39	6291.00 ± 2764.87	-1.598	0.018
Pruning TL/ Year	173.65 ± 17.53	170.20 ± 26.31	0.109	0.914
Transportation TL/ Year	163.46 ± 16.99	513.00 ± 56.81	-5.894	<0.001

SE: Standart Error; *p*: Significance Level; TL: Turkish Lira

Since the areas where tea is grown have a mountainous and rough structure, the use of machinery in agriculture is difficult. Therefore, all of the tea production is based on human workforce. Workforce is needed heavily during the harvest period. Pruning, fertilizing, and cleaning from weeds is generally carried out by members of the family. The presence of foreign workforce was found to be high in the research area. Large numbers of people come to the area to collect tea, especially from Georgia and Azerbaijan. Apart from these, it was also found that workers came from surrounding cities also, although few in number. In the study, individuals such as neighbours and relatives, who are outside the family, were also evaluated as foreign workforce. According to the results of the study, 53% of organic tea producers and 44% of conventional tea producers use foreign workforce.

3.2 *Characteristics affecting producers' making organic tea production*

According to the results of the logistic regression analysis conducted to show the social and economic characteristics affecting producers' making organic tea farming, it was found that although organic tea producers had higher workload expenses when compared with other types of expenses (see Table 3 and Table 4), the effects of workload and transportation expenses on the state of doing organic production were found to be insignificant. Apart from these variables, the effects of the variables of producers' ages, their agricultural experiences, non-agricultural incomes, size of the tea garden, amount of tea production, fertilizer and pruning expenses, and income from the season (income from tea) were found to be significant.

Similarly, it was found that the income from tea had positive effects on adapting organic tea farming for producers in studies conducted in North Vietnam (Doanh et al., 2018, Van Ho et al., 2019). In Rana et al. (2012)'s study, it was found that producers' age, agricultural experience, total land of agriculture, access to credit and state of making use of agricultural consultants were effective factors in adopting organic agricultural activities. Similarly, the result that land size, state of accessing extension services and agricultural experience had significant effects on the decisions of tea producers was a significant result of another study (To The and Nguyen Tuan, 2019).

While it was found in the study that the effects of age, amount of tea production and fertilizer expense were negative on making organic farming, the effects of total experience, tea land, pruning expenses and the income from the season were positive. In a study conducted in Nepal, it was found that amount of tea production and production costs were effective on producers' adopting organic farming (Mishra et al., 2019). While the amount of tea land showed the largest positive effect in the study, it was found that the possibility of making organic farming increased 135.2% when tea land increased one unit. The effects of non-agricultural income and season income are little if any since the odds ratio (Exp B) is equal to 1. It is possible to have a coefficient that looks small, but in fact has a strong effect when absolute size is considered. This can occur when the estimation variable has a very large range (Bock, 2020). When this model was examined, it was found that non-agricultural income (0 - 50000 TL) and seasonal income (1250 TL - 45000 TL) had a wide range. It was found that the variable of age had the highest negative effect. An increase of one unit in the farmers' age decreases the possibility of transition to organic farming with a rate of 17.2%. Similar to the results of the study, it was found that younger producers in Spain adopted organic olive production (López and Requena, 2005). Unlike the results of this study, it was found in a study conducted in Nepal that older farmers adopted organic tea farming (Karki et al., 2011).

Table 4. Logistic regression analysis results
Çizelge 4. Lojistik regresyon analizi sonuçları

Step	Variables	*B*	SE	Wald	*p*	Exp (B)	95% C.I.for EXP(B)	
							Lower	Upper
Step 1	Constant	7.152	3.731	3.675	0.055	1276.3	-	-
	Age	-0.187	0.101	3.410	0.065	0.829	0.680	1.012
	Agricultural Experience	0.199	0.092	4.613	0.032	1.220	1.018	1.462
	Non-agricultural income (TL)	0.000	0.000	4.722	0.030	1.000	1.000	1.000
	Tea Land	1.019	0.366	7.744	0.005	2.771	1.352	5.681
	Amount of tea production	-0.003	0.001	12.533	<0.001	0.997	0.995	0.999
	Fertilizer expense	-0.003	0.002	4.103	0.043	0.997	0.994	1.000
	Workload expense	0.000	0.000	0.624	0.430	1.000	0.999	1.000
	Pruning expense	0.014	0.007	4.213	0.040	1.014	1.001	1.027
	Transportation expense	-0.002	0.003	0.756	0.385	0.998	0.992	1.003
	Income generated in the season	0.001	0.000	10.978	0.001	1.001	1.000	1.002
Step 3	Constant	7.129	3.639	3.837	0.050	1247.4	-	-
	Age	-0.196	0.098	4.001	0.045	0.822	0.678	0.996
	Agricultural Experience	0.209	0.089	5.509	0.019	1.233	1.035	1.469
	Non-agricultural income (TL)	0.000	0.000	5.998	0.014	1.000	1.000	1.000
	Tea Land	0.855	0.284	9.057	0.003	2.352	1.348	4.106
	Amount of tea production	-0.003	0.001	16.790	<0.001	0.997	0.995	0.998
	Fertilizer expense	-0.004	0.001	9.083	0.003	0.996	0.993	0.999
	Pruning expense	0.015	0.006	5.150	0.023	1.015	1.002	1.028
	Income generated in the season	0.001	0.000	14.108	<0.001	1.001	1.001	1.002

B: coefficient; SE: Standart Error; *p*: Significance Level; CI: Confidence Interval

In the study, it was found that the seasonal income was an effective factor in producers' adopting organic tea. Similarly, in a study which examined the effects of organic farming on income and the state of adopting organic farming in farmers making organic farming in Africa, it was estimated that each additional organic technique used brought an income equal to approximately 9% of net coffee income. In addition, a positive association was found between organic practices and yield per tree (Bolwig et al., 2009). Similarly, it was found in a study conducted in North Vietnam that farmers who were in high-income, natural and physical environments were more inclined to adopt organic tea production (Lampach et al., 2017). Thus, generalization of organic production, which is a more sustainable and healthier preference in terms of the environment and natural resources, will bring an increase in welfare in rural areas.

Since all of the producers in the region sold their tea to ÇAYKUR, they were not included in the model; however, based on previously conducted studies, it can be seen that ÇAYKUR is one of the factors affecting the producers' adoption of organic tea farming in the Eastern Black Sea region (Abaci et al., 2020). The fact that ÇAYKUR guarantees tea purchases to producers and also the application of area based incentives have contributed significantly to the spread of organic tea farming in the region. It has been proven in the study conducted in Thailand that these factors and extension trainings given by experts are important in transition to organic tea production (Tran, 2009, Tran and Yanagida, 2011). At the same time, issues such as producers' having a strong communication network about organic farming, increases in the support of government about the marketing of organic products, standards in the management of production being open and applicable by producers have been found as factors affecting organic farming's becoming widespread (Schneeberger et al., 2002, Sharifi et al., 2010).

4. Conclusion

According to the results obtained from the study, average age of organic producers is higher than the average age of conventional producers and non-agricultural incomes of organic producers are lower than conventional producers. Organic producers have more agricultural experience than conventional producers. The main reason of this is the fact that since organic tea production is made in high areas and since generally retired individuals live in these places, they buy less tea from the tea gardens of organic tea producers. It is also seen that the individuals who are interested in organic farming are mostly older producers. Considering that older producers are loyal to traditions and conservative about innovations, it is obvious that young producers may be more effective in the spread and adaptation of innovations. For this reason, young producers should be supported in the region and they should be encouraged to participate in and be interested in organic farming.

When the business characteristics of organic and conventional tea producers are evaluated as a whole, it can be seen that tea farming is made in the form of small family business. At the same time, while there were no differences between organic and conventional producers in terms of land size, the yield and income of conventional producers per decare were higher than those of organic producers. However, it was also found that expenses are higher in conventional farming when compared with organic farming. In this case, when the expenses are subtracted from the total income of producers, the incomes of conventional and organic producers per decare are similar. In spite of this, since producers think that they have more product, thus more income, they prefer conventional farming more. However, since organic farming has many advantages over conventional farming such as environment, natural resources, animal and human health, producers should be directed to organic farming. In addition, the fact that fertilization is not made in organic farming causes decrease in yield per decare. This situation affects producers' transition to organic farming negatively. However, the fact that ÇAYKUR guarantees organic tea purchases is important in terms of encouraging producers. ÇAYKUR, which is an important sector in the region, should be informed about organic farming through agricultural engineers and organic farming should become more widespread. Conventional and organic producers should be brought together with regular intervals and they should exchange information. At the same time, it was found that husbandry was not developed in the region although farm manure had an important place in agricultural activities, especially in organic farming. Therefore, it seems important to support husbandry in the region in order to increase yield.

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Conflict of Interests

The authors declare that they have no conflict of interests.

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