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Determining the Factors Affecting Farmers' Decision on Organic Livestock

Nuray Demir[1], Canan Sancar[2], Okan Demir[1], Vecihi Aksakal[2], Adem Aksoy[1]

[1]*Department of Agricultural Economics, Faculty of Agriculture, Ataturk University, 25240 Erzurum, Turkey*
[2]*Kelkit Aydin Dogan Vocational School, Gumushane Universiy, 29600 Gumushane, Turkey*

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*Corresponding Author:
E-mail: canansancar@gumushane.edu.tr

A B S T R A C T

In this study, the objective was to determine the factors affecting farmers' decisions on organic livestock. Within this scope, the Gümüşhane province, in which one of the major organic livestock projects has been carried out, was taken into the focus of attention for this study. The data of the study was obtained from 134 surveys based on census and focusing on farmers doing conventional animal breeding and possessing 25 or more cattle. The data obtained were used in predicting the Logit Model. In the model, it was determined that the inclination to transition to organic animal breeding in institutions where the rate of benefiting from animal breeding supports and the rate of meeting forage requirements from their own are high and besides where the rate of using industrial feed is low. As a result, it was recommended that the government support for forage crops, which are already within the current support policies, should be increased on yearly basis. This will have a positive effect on the decision of the farmers to choose organic livestock. This support is also important in terms of carrying out livestock activities in more profitable and technical way.

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Üreticilerin Organik Hayvancılık Yapma Kararlarında Etkili Olan Faktörlerin Belirlenmesi

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*Sorumlu Yazar:
E-mail: canansancar@gumushane.edu.tr

Ö Z E T

Çalışmada, üreticilerin organik hayvancılık yapma kararları üzerine etki eden faktörlerin belirlenmesi amaçlanmıştır. Bu kapsamda organik hayvancılığa yönelik önemli projelerden birinin uygulandığı Gümüşhane ili çalışma kapsamına alınmıştır. Çalışmaya ait veriler, 25 baş ve üstü büyükbaş hayvan sayısına sahip konvansiyonel hayvancılık yapan üreticilere yönelik, tam sayım esasına göre 134 adet anket çalışmasından elde edilmiştir. Elde edilen veriler Logit Modelin tahmininde kullanılmıştır. Modelde, hayvancılık desteklerinden faydalanma oranı ve kaba yem ihtiyacını işletmeden karşılama oranı yüksek olan ve buna ek olarak fabrika yemi kullanma oranı düşük olan işletmelerde organik hayvancılığa geçiş eğiliminin daha fazla olduğu belirlenmiştir. Sonuç itibariyle, mevcut destekleme politikaları içerisinde yer alan yem bitkileri desteklerinin yıllar itibariyle artırılmasının üreticilerin organik hayvancılık yapma istekleri üzerinde olumlu etkiye neden olacağı ve bu durumun kârlı ve ihtisaslaşmış bir hayvancılık faaliyetinin sürdürülmesi açısından da önemli olacağı düşünülmektedir.

Introduction

In parallel to the global developments, organic farming too has been spreading in Turkey. According to results of researches carried out, the increase in the demand for organic farming and organic products stems from encouragements from social environment such as farmer's training, media (written and visual), official or private foundations and introductory meetings for organic agriculture (Torun, 2011; Demiryürek, 2004). As the concepts and conditions in today's agricultural production change, both scientists who are dealing with sustainability of agriculture and policy makers expect the farmers who are doing conventional animal breeding feel the need to evaluate their attitudes, conditions and preferences within the light of these changes. Organic production in Turkey, unlike in European countries where organic farming has improved in parallel to consumers' demands, improved as a result of the demands of foreign companies (Hekimoğlu and Altındeğer, 2006). The emergence of ecological farming came into being as a reaction to the demand from abroad. The attention of the entrepreneurs is usually more focused on earning more money than doing "Organic farming" (Er, 2009).

Many countries around the globe are providing various supports in order to increase farmers' desire to carry out organic farming. Environmentally friendly, healthy and safe food demands of consumers have been the most crucial factor leading to the supply of farming products. In addition to this, legislations regarding direct payments to farmers within the scope of common agricultural policies call for the conformity to environmental conditions as a prerequisite. Organic farming in the USA has been under the control of the government and organic farmers are supported through advance and easy payments especially for certification. Generally speaking, organic movement in Latin America has developed on its own. There is no country in Latin America that provides direct or financial support for organic farming except an Organic Plan in Brazil in order to foster organic production, research, market and commerce.

As in the rest of the world, government supports and subsidies play an important role in directing farmers to adopt organic farming in Turkey as well. Since 2004, entrepreneurs who produce organic agricultural products and inputs had been provided an investment (for 3 years) and commercial loans (for 1 year) that have 60% discount rate within the scope of agricultural credit practices. This support was modified into an investment (for 7 years) and commercial (for 1.5 years) loans that have 50% discount rate in 2011. An additional organic farming support was provided in Turkey between 2005 and 2007 within the scope of "Direct Income Support" for organic farming. Since 2008, a new support payment type has been adopted based on cultivated area. For organic animal production (cows, sheep-goat, bee, trout, bream-bass), an additional payment support has been made since 2011.

The point which one needs to focus on is that there are no tax-cut tools in organic farming in the world as well as in Turkey. The government supports are vital for providing income for the farmers and for the sustainability of ecological system. However, this subvention system has a weak point that can create problems in terms of sources (İpek and Çil, 2010).

The most important reason for farmers who want to carry out organic farming practices is the expectation of a high income apart from the fact that organic farming is a healthy production model. When the reasons why farmers avoid organic production are examined, it was identified that this avoidance – at a relatively high rate – originates from the fact that they do not have appropriate conditions. Provided that required support is given for organic production, it is thought that producers may proceed towards organic production (Usal, 2006).

In Turkey, many projects related to organic livestock were put into practice. One of them is the organic milk production project that started in 2003 with 600 cows in the town of Kelkit, Gümüşhane with a single organic farm. In the project, 1350 tons of organic milk has been produced annually since 2005 (Usal, 2006). In the following years, it was determined that the number of organic farms increased from 1 to 12, the number of organic animals to 1353, organic meat production to 6.5 tonnes and organic milk production to 7671 tons (GTHB, 2014). However, the organic livestock breeding in Turkey is not developed due to some reasons. That the producers have no producer organization is one of the reasons of this inadequate valuation. The access to organic products produced in the European Union countries, the organic animal training for farmers, and consultancy services are all provided by the cooperatives. Due to the fact that there is not a cooperative or union system in marketing these organic products in Turkey, consumers have to purchase organic products at higher prices. Adequate supports that can encourage farmers to practice organic livestock in Turkey as well as creating a production plan may lead to major advancements in organic livestock field (FKA, 2011).

It is very vital to determine the factors that are effective in the decision making process for the farmers to practice organic livestock or not. There must be a balance between two parties, the farmers and the consumers. While farmers would like to sell their organic products at a higher price, consumers – on the other hand – would like to buy healthy food at a reasonable price. Within this scope, in this study, it was aimed to determine the factors that are effective in the decision making process of farmers who lives on livestock in the towns of Kelkit, Şiran and Köse in the province of Gümüşhane where major projects have been carried out as well as to offer them recommendations regarding the emerging problems.

Materials and Methods

The main material of the study was obtained by the survey study that was carried out in the towns of Kelkit, Şiran and Köse in the province of Gümüşhane.

The study covers three towns (Kelkit, Şiran, and Köse) in Gümüşhane province. The preference of these

towns depends on the fact that they represent the region in terms of livestock production in general. Dairy farming is performed extensively in these towns and they have half the number of the total animals in Gümüşhane. In these towns, the survey studies were carried out at farming institutions doing conventional farming and owning more than 25 animals or more. Census was deployed in the study. By taking the number of farms into account, a total of 134 survey studies were carried out; 52 in Kelkit, 31 in Şiran and 31 in Köse. Through logit analysis via LİMDEP program, the data obtained from the results of the survey study were used to determine the factors that might be effective in decision making process for the farmers to go organic.

The Classic Regression Method (OLS) cannot be used because of the fact that normality hypothesis is distorted when dependant variables are categorical (1, 2 and 3) and puppet variable (0, 1) is available. That OLS results in neutral and effective assumption values depends on that the variable is constant. LOGIT and PROBIT models are used when dependant variables have puppet value. In these models, interrupted variables turn into continuous ones based on the probability distribution (Gujarati 1995). While the farmers' conditions of organic farming (farms conducting organic livestock:1, those that do not:0) constitute the dependent variable in the study, many variables related to the farm and farmers (educational background of the farmer, the duration of farming, the number of people conducting agricultural activities in the farm, farm's annual agricultural income) constitute the independent variables.

Results and Discussion

According to the results of the analyses of this study based on a survey carried out with 134 farm owners in these three towns (Kelkit, Şiran and Köse) in the Gümüşhane province, the features of the farms and the farmers are as follows:

When the ages of people in those farms where survey was carried out are taken into consideration, it can be seen that those between 45-54 constitute the largest group while those between 15-24 constitute the smallest group in these three towns, and this is shown in Table 1.

Organic livestock is usually accepted as an innovation by the farmers. In this respect, it is thought that farmers may adopt the new developments as they grow and this fact is supported by previous studies. In the studies that had been carried out before, it was found that there was a positive relationship between the age and the adoption of innovations (Taluğ 1975; Hoşgör 1995; Morris 1999).

When the education backgrounds of the farmers in these three towns are taken into consideration, it can be seen that the primary school graduates constitute the majority while university graduates constitute the minority. When the income background in these towns is taken into consideration, it can be seen that the 6-10 thousand TL income group makes up the majority while the group of those who earn more than 41 thousand TL makes up the minority. In many previous studies, it was determined that farmers who are young and who have higher income and education levels are more inclined and successful in practising innovations (Green and Langeard 1975; Slowikowski and Jarrat 1997; Jan-Benedict et al., 1999; Lassar et al., 2005; Clark and Goldsmith, 2006; Singh, 2006). 91.8% of the farmers are also involved in non-agricultural activities to have more income. That means that they spend less time in agricultural activities. Their agricultural income is not enough to support their lives, they have to support their budget with non-agricultural activities. When they don't spend enough time in agricultural activities, they cannot gain expertise in the intricate aspects of the agricultural practices. Training and supporting farmers on organic animal livestock can help break the infinite loop of this issue and can help make things better for them. It is also evident that an adequate level of income will never be earned unless farmers gain expertise on their agricultural activities. Peşmen and Yardımcı (2008) express that there are important obstacles such as inability to provide expertise in production as well as low level of efficiency in the development of livestock in Turkey. These obstacles need to be eliminated so that a profitable breeding can be achieved. In addition to all these indications, it was determined that 59.7% of the farmers in the study, have knowledge in terms of organic livestock, which is the main focus of this study. In a study Akdoğan and Karaaslan (2013), it was determined that individuals are more eager to practice the innovations and activities which they already have knowledge about.

Regression analysis results – related to determining the factors that are effective for farmers to decide to conduct organic livestock – which constitute the second analysis in the study are presented in Table 2.

Table 1 Distribution according to some general characteristics of producers (Total for each three towns)

General Characteristics	Classification	N	%
Age	15-24	2	1.5
	25-34	12	9.0
	35-44	37	27.6
	45-54	52	38.8
	55<	31	23.1
	Total	134	100.0
Education background	Primary School	70	52.2
	Seconday School	27	20.1
	High School	28	20.9
	University	9	6.7
	Total	134	100.0
Annual income from farming (000 Turkish Liras)	1-5	27	20.1
	6-10	48	35.8
	11-20	37	27.6
	21-40	16	11.9
	41<	6	4.5
	Total	134	100.0
Activities outside of Agriculture	No	11	8.2
	Yes	123	91.8
	Total	134	100.0
Knowledge about organic livestock	No	80	59.7
	Yes	54	40.3
	Total	134	100.0

Table 2 Logistic regression analysis results with regard to the factors that are effective for farmers in making a decision to conduct organic livestock

Variables	Coefficient	Standard Error	P value	Marginal Effects
Constant	-5.290	1.753	0.002*	-0.934
Education Background	-0.157	0.234	0.501	-0.027
Number of people dealing with agriculture in the organization	0.071	0.093	0.445	0.012
Total duration (year) of the farmer in livestock	0.015	0.018	0.390	0.002
Annual income from agriculture	-0.001	0.002	0.742	-0.001
The usage of factory feed in the organization	-1.810	0.783	0.020*	-0.364
The amount of forage the organization needs (%)	0.042	0.013	0.001**	0.007
The availability of automatic irrigation in organization	-0.168	0.543	0.756	-0.029
The availability of automatic sewage system.	0.674	0.544	0.215	0.126
The organization's condition of benefiting from previous livestock supports	1.728	0.632	0.006*	0.383
Total number of animals in the organization.	-0.042	0.012	0.733	-0.029
Log likelihood: -64.625; Restricted Log Likelihood:-77.977; X^2 (10): 26.702				

**P<0.001, *P<0.05; Source: Original Calculations

It is seen that the variables used in the probit model, which determines the factors that are effective in making the decision to go organic in livestock or not, are in the expected direction in line with the economic theory. According to the model results, the variables such as educational background of the farmer, the income, the use of factory feed, the availability of automatic irrigation system and total number of animals in the farm have a negative effect whereas variable such as the number of people in the organization dealing with agriculture, duration of livestock activities, level of meeting the forage needed by the farm, the availability of automatic sewage system and finally the organization's status for benefiting from previous livestock supports have negative effect in the decision making process to go organic.

When the P value related to the variables are taken into consideration, the variable showing what percentage forage needed in the farm is met by the farm itself is significant at 1% level, whereas the variables related to using factory feed in the farm as well as the farm's status for benefiting from previous livestock supports is significant at 5% level. When the variables that emerged as important in the analysis were taken into consideration, it was determined that if the rate of benefiting from livestock supports and the rate of meeting organization's forage requirements increase and the rate of using factory feed decreases, the desire to conduct organic livestock increases. It can be concluded that farms with these qualifications are eager to maintain their livestock activities and that they are more inclined to conduct an organic livestock activity with expertise and with higher profit.

In the Probit models, how 1 unit increase in the independent variables affects the dependent variable is analysed. Probit models reveal the marginal effects of independent variables on dependent variables. Marginal effects show us how the effect might reveal on the dependent variable upon increasing the independent variables by 1 unit (Demir and Yavuz, 2010). When the marginal effects on Table 2 are examined, one unit increase in the amount of forage – needed in the farm and provided by the farm itself – results in an increase of 0.7% in the decision making process to conduct organic livestock, whereas, a one unit increase in using factory feed results in a 36% decrease in the decision making process to conduct organic livestock. A one unit increase in the status of the organization about benefiting from the previous livestock supports results in an increase of 38% in the decision making process to conduct organic livestock.

Conclusions

As a result of this study, it was determined that organizations with high rates of benefiting from livestock supports and of meeting the forage requirements from within the farm itself and with low rates of using factory feed are more inclined to conduct organic livestock activities.

Based on the fact that organizations with high forage production and with low level of using factory feed are more inclined to conduct organic livestock activities, it can be said that additional support policies are required for farmers so that they can increase forage production on yearly basis. Additional support will encourage those farmers who are already forage producers increase the area of their forage production. Through increasing the supports for current forage crops and through providing

sustainability, it is expected that costs of feed, which is an important item in livestock, will be decreased without any need to factory feed and that farmers will be able to conduct a profitable organic livestock activity by producing their own feed for their own animals. Moreover, it was determined in the study that the farmers do not have adequate knowledge in terms of organic livestock. In this case, it is a requirement to put emphasis on trainings and providing sustainability in trainings so that farmers are able to obtain information about organic livestock. A comprehensive training program must be planned and put into practice with regard to organic livestock for both the farmers and the technical staff increase production, efficiency and sustainability.

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