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DOES ORGANIC PRODUCTION AND MARKETING TRAINING IMPROVE THE AGRICULTURAL BUSINESS SKILLS OF RURAL WOMEN FARMERS? A CASE STUDY FROM TÜRKİYE

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Abstract: The primary objective of this study is to evaluate the training activities provided to the female farmers supplying products to the organic product market in Sürmeli village, Bafra District, Samsun, Türkiye. A survey was used to collect data from female farmers who sell their products in the organic market and other farmers who do not sell their products in the organic market. The full-counting method was used to obtain the data. Within the scope of the research, a survey was administered to all participant farmers twice - before and after the training. The training was provided only to the female farmers producing organic products. When analysing the enterprises, the Kirkpatrick Program Evaluation Model, one-way analysis of variance, and covariance analysis were performed to determine the effectiveness of the training on organic agricultural production and marketing. Comparisons of the scores that measure the total knowledge levels of both production and marketing of organic production revealed that the score in the experimental group was statistically higher than that in the control group, and this difference was due to the training provided to the experimental group (R Squared = 0.633, 0.866). It can be said that among the participant farmers, those having a higher level of knowledge of organic production and marketing issues will carry out agriculture activities more successfully.

Keywords: Kirkpatrick program evaluation model, Marketing, Organic production, Women's organization, Türkiye

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1. Introduction

The development of local organic markets is one of the most critical elements in the development of organic farming. To ensure sustainable agricultural production and sufficient income for farmers in a region, it is necessary to have enough customers willing to buy these products. Generally, consumers with higher incomes and education levels can be expected to be ready to pay higher prices for organic products (Grimm et al., 2023). Consumers generally make this decision because they believe organic products provide additional benefits compared to conventionally produced foodstuffs, and more health conscious consumers also look for safer ways to buy food in every country. Local organic markets, where producers and consumers communicate face-toface, are one way to offer organic products to customers. In local organic markets, which is an example of direct marketing, products are delivered directly to the consumer without intermediaries, brokers, or wholesalers (Kaya, 2009). It has been determined that organic markets are concentrated in metropolitan cities where education and income levels are high in Türkiye (Eti, 2014). However, increasing the number of organic markets is an important factor in facilitating consumers' access to organic agriculture and food products (Eryılmaz et al., 2015). Local organic markets make significant contributions to the development of a sustainable organic production value chain by increasing product diversity and ensuring continuity in the consumption of organic products (Ayan et al., 2017). In addition, organic markets pave the way for fair trade, provide opportunities for small producers who cannot meet the demand to enter the market (Qiao et al., 2016), enable production in line with consumer demand, protect biodiversity. Organic and fair trade production is also seen as important in facilitating the organization of farmers and the democratic management of farmer cooperatives (Chen and Scott, 2014).

In the literature review conducted within the scope of the research, a large number of studies, especially among international literature, were found regarding the

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Kirkpatrick Model, which constitutes the method of the research (McLean and Moss, 2003; Kaya et al., 2015; Jaafar et al., 2022; Gifford et al., 2023; Mignouna et al., 2023; Stefan et al., 2023). There are also studies on organic production, organic markets, and organic marketing (Aertsens and Koen, 2009; Arslantürk and Aysen, 2015; Ağızan and Bayramoğlu, 2023). In addition, there are also studies on the factors affecting the consumption of organic products in Türkive and the attitudes of consumers towards organic products (Eti, 2014; Arslan, 2016). In Türkiye, studies have been conducted on women's markets created by organic producers (Koday and Çelikoğlu, 2011; Şahan et al., 2014) and the adoption of organic agriculture by women in rural areas (Erem and Atsan, 2013). The literature review revealed that no study has been conducted that evaluated a planned and systematic training study for producers supplying products to organic markets in Türkiye using scientific methods. In the preliminary study conducted in Sürmeli village, it was determined that the education level of women and their participation in family decisions were low. The Sürmeli Village Organic Market, which has recently turned into a women's organization, has provided women in the village with the opportunity to develop themselves through vocational training and entrepreneurship. However, benefiting from this opportunity will undoubtedly be possible by conducting training activities for women and evaluating these activities impartially. The inadequacy of such evaluation studies to date makes it difficult to develop concrete proposals on the training plans and contents to

be made on the subject. The subject of the study is important both in terms of evaluating a training activity on increasing the professional capacity of women entrepreneurs in the region and in terms of the sustainability of organic production. This study is considered important in terms of facilitating the spread of women's organic organizations. It is thought that the Sürmeli village organic market is the first such market established at the village level in Türkiye and that every practice and strategy that leads to success in this market will guide other villages and local markets. Finally, marketing is undoubtedly a factor that directly affects the profitability of businesses. In order for agricultural enterprises to continue their commercial activities through earning higher profits, it is deemed necessary for producers who lack sufficient knowledge about production and marketing to receive training on the subject. For this reason, the study aimed to evaluate the training activities to be given to female farmers who supply products to the organic product market operating in Sürmeli village in the Bafra District, Samsun.

2. Materials and Methods

2.1. Determining the Farmers to be Surveyed, Monitoring the Training, and Applying the Surveys Samsun Province, located in the Black Sea region of Türkiye, has among 82 provinces become Türkiye's highest vegetable producing region with 878167 tons of vegetable production. Approximately 76% of the total vegetable production of Samsun is produced in Bafra District (680842 tons) (TUIK, 2022) (Figure 1).



Figure 1. A survey of the research areas in Türkiye, Samsun Province, Bafra District (ZEEMAPS, 2024).

On the Bafra Plain, which is one of the most fertile plains in Türkiye and gives its name to the district, intensive vegetable cultivation is carried out, and the plain also enables the cultivation of organic products to be widespread. For this reason, the organic market in Sürmeli village in the Bafra District and the work carried out here are considered important. In line with the general purpose of the research, first of all, female farmers who supply products to the organic market of Sürmeli village were determined, and pre-training questionnaires prepared for these farmers were applied. These farmers formed the experimental group of the research. At the same time, a control group of the same number of female farmers in Sürmeli village who do not supply products to the organic market was randomly selected, and pre-training questionnaires were applied to this group as well. Then, the trainings given to women producers engaged in organic production for 1 day a week for 4 hours for 3 months in March-April-May 2019 were monitored. The trainings were given by the faculty members of Ondokuz Mayıs University, Faculty of Agriculture, Department of Agricultural Economics. The content of the training given to the women included organic products, organic production and its principles, production planning, marketing of organic products and agricultural marketing, customer relations, production and marketing ethics, packaging in the organic market, hygiene rules, and bench layout. The training programme continued for three months. To evaluate the training given to the female farmers supplying products to the Sürmeli village organic market and to determine whether the training was successful, second questionnaires were prepared to include the training topics. These questionnaires were applied to the female farmers engaged in organic production (experimental group) and to the control group that undertook conventional production, which was determined in the first stage. During this period, no training was given to the control group, and the training was only applied to the experimental group. Questionnaire forms were filled out face-to-face with the female farmers.

Although it was stated in the first meeting held in the village while the project was being prepared that there was a total of 24 organic producers producing organic vegetables and fruits, it was noted that the number of producers regularly supplying products to the market was 20 when the survey phase was started. It has been determined that three of the 24 producers produce only enough for themselves and do not come to the market, and one of them does not bring their products to the market but sells from home to her close circle and to those who come to her directly. For this reason, the study was carried out with 20 female farmers who supply products to the market. This is a women's organization, and all of its members are women, however, since one of the women passed away, her husband has continued to produce and open stalls at the market. Therefore, only one member was male. All of the members actively participated in the training. Producers forming the control group in the research region were randomly selected from among the producers undertaking conventional production in the area, and 24 producers were interviewed - the same number as the experimental group size determined at the beginning. In order to obtain the research data, a total of 88 questionnaires, 44 before and 44 after the training, were applied and pretest post-test result tables were created accordingly.

2.2. Statistical Analysis

The research data were obtained in the 2019-2020 production period. The Fisher's exact test and independent-sample t-tests were applied to determine whether there was a difference between the experimental group and the control group regarding the findings obtained as a result of the research. In addition, covariance analysis was conducted to determine whether the training on organic agricultural production and marketing was effective in the research. Percentage and frequency values, mean and standard deviations were used in the analysis of the data. The Kirkpatrick Program Evaluation Model was used to evaluate training activities for the farmers. This model is a four-stage model developed by Kirkpatrick that aims to rationally evaluate each stage from the beginning of the programme to its conclusion. It can be used to evaluate training programmes for human resources (McLean and Moss, 2003; Kaya et al., 2015; Jaafar et al., 2022; Gifford et al., 2023; Mignouna et al., 2023; Stefan et al., 2023) and can be an effective tool. The Kirkpatrick Program Evaluation Model consists of four-level measurements applied at different periods of the developed programme. These are: 1) reaction; 2) learning situation; 3) behaviour change; and 4) results. At each of these four stages, the right assessment design, data collection, and analysis of the data are very important (Kirkpatrick, 1995; Kirkpatrick and Kirkpatrick, 2007). The training is hypothesized to enable farmers to enhance their skills and knowledge in organic production and marketing (OPM), with a guarantee of making them more efficient and productive. The author developed a framework drawing based on the literature to measure the impact of the OPM training (Figure 2).

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Figure 2. Hierarchical Kirkpatrick Model for organic production and marketing (OPM) training (Author' composition)

Level 1. Reaction: The purpose of the reaction stage is to measure the reaction of the target audience, who have been trained within the scope of the programme. Data collection related to this stage can be done at the time of the training activities, right after their completion, or during the periods when the participants put the gains from the programme into practice. The target audience of agricultural extension and rural education programmes can generally be either a farmer group, village women in a certain region, or young people living in rural areas (Kirkpatrick, 1995; Sahni, 2020; Mignouna et al., 2023). Questionnaires used in the data collection process in reaction measurements are preferred because they give more concrete information and can be evaluated easily.



Figure 3. Pre-test-post-test the experiment and control group design for OPM (Author' composition)

Level 2. Learning Situation: This stage of the programme evaluation model aims to critically assess the information obtained by the participants from the programme. From literature, the author developed the design used in information measurement is shown in figure 3. The first line of the design shows the evaluation process applied to the experimental (programme) group, that is, the audience subjected to the training programme, and the second line shows the evaluation process applied to the control group. The control group is selected from people who did not participate in the training programmes. Surveys containing the same questions were administered to both groups before and after the training. The results were compared.

Level 3. Behaviour Change: This stage of the programme

evaluation model aims to measure the extent to which the knowledge, attitudes, and behaviours obtained by the participants from the programme are applied in their business and professional lives.

Level 4. Results: The final stage of the model is the analysis of the programme results. Since the present study was aimed at comparing the learning outcomes of a training programme prepared for female farmers engaged in organic agriculture, the Kirkpatrick Program Evaluation Model's design was used, applying a twogroup pre-test and post-test design.

3. Results and Discussion

The organic movement in the village started eight years ago. At the beginning, it was observed that none of the producers in the village had any knowledge about organic production. For this reason, it was determined that the women producers needed to receive training to obtain knowledge about organic production and marketing. Organic winter vegetables, organic summer vegetables, and fruits were observed in the village during the research, including leeks, broccoli, carrots, beets, radishes, spinach, cabbage, lettuce, arugula, cress, parsley, dill, cauliflower, artichokes, peas, beans, eggplant, cucumbers, tomatoes, peppers, broad beans, okra, potatoes, garlic, onions, Jerusalem artichoke, strawberries, and persimmon. These products are sold every Sunday between 8:00 and 18:30 in the organic marketplace in Sürmeli village, built by Samsun Metropolitan Municipality. The average age of the organic producers in the experimental group is 47.70 years, and more than half (55%) of the producers participating in the survey are under the age of 50. Female participants constituted 95% of the organic producers while 80% were married. The general profile of organic producers in the village is a middle-aged married woman (Table 1). It is noteworthy that the majority of the producers (80% in the experimental group and 70.8% in the control group) are primary school graduates, and their education levels are low. On keeping farm records, 35% of the organic producers in the experimental group and approximately 21% of the producers in the control group stated that they undertook this activity. While 15% of the producers in the experimental group use credit for inputs, approximately 38% of the producers in the control group use credit for inputs. It was ascertained that 85% of the producers in the experimental group and 95.8% of the members of the control group have social security (SSK, BAĞKUR, Retirement Fund, Green Card). It was determined that 15% of the organic producers in the experimental group do not have any social security (Table 1). Abacı and Demiryürek (2019), in their study with vegetable producers in Bafra, the same region as the research, determined that the farmers were 46 years old on average and mostly primary school graduates.

Table	1. Socio-e	conomic c	haracteristics (categorical	variables)
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Socio-economic characteristics	The experimental group Frequency (%)	Control group Frequency (%)	Fisher p
Age			
50 and younger	11 (55.0)	1 (4.2)	0.01**
Over 50	9 (45.0)	23 (95.8)	
Education level			
Primary school graduate	16 (80.0)	17 (70.8)	0.728
Above primary school	4 (20.0)	7 (29.2)	
Marital status			
The married	18 (90.0)	22 (91.7)	0.624
Single	2 (10.0)	2 (8.3)	
Gender			
Female	19 (95.0)	0 (0.0)	0.001**
Male	1 (5.0)	24 (100.0)	
Off-farm occupation			
Yes	4 (20.0)	6 (25.0)	0.489
No	16 (80.0)	18 (75.0)	
Social security status			
There is	17 (85.0)	23 (95.8)	0.237
No	3 (15.0)	1 (4.2)	
Business record keeping			
Yes	7 (35.0)	5 (20.8)	0.238
No	13 (65.0)	19 (79.2)	
Tractor asset			
Yes	14 (70.0)	21 (87.5)	0.145
No	6 (30.0)	3 (2.5)	
Credit usage for inputs			
Yes	3 (15.0)	9 (37.5)	0.77
No	17 (85.0)	15 (62.5)	

** Significant at 0.01 (Author' own calculation)

As a result of the research, it was found that the average age of the producers in the control group was higher than the experimental group, and there was a statistically significant difference in age between the experimental group and the control group (p<0.01) (Table 1 and 2). Although it was aimed to meet with the female farmers

who did not supply the same amount to the organic market as the experimental group at the beginning of the research, as a result of the examinations, it was revealed that women did not participate in the production activities in the region and that most men continued their production activities. Therefore, a statistically significant difference was found between the two groups in terms of gender (p<0.01) (Table 1). Of the total organic producers, 75% have a non-farm income. They grow organic plants on an average of 1.49 hectare of land. They earn approximately 257 \$ per month, and their families consist of an average of 3.70 people (Table 2). At first glance, it might seem that the income from organic farming and marketing isn't very high. But because this money comes from women's businesses, it can be said that it will help families have a long-term source of income. The mean age of the producers in the control group was determined as 59.06. The average size of producer families is 2.55 people. The reason why the family size of these producers was lower than the experimental group is that the children of the families had left the village. The producers in the experimental group, on the other hand, live with their children since they are primarily middle-aged married people. Therefore, there was a statistically significant difference in terms of the number of households (p<0.01) (Table 1 and Table 2)

Table 2. Socio-economic characteristics (continuous variables)

Socio-economic characteristics	The experimental group Mean (SD)	Control group Mean (SD)	t	Р
Age (years)	47.60 (12.78)	59.06 (9.96)	-3.60	0.001**
Monthly income (\$)	257 (741)	237.6 (2714)	0.170	0.876
Own land assets (hectare)	1.49 (1.39)	1.85 (1.09)	-0.973	0.336
Number of households (person)	3.70 (1.78)	2.56 (1.29)	2.24	0.031*

* Significant at 0.05, ** Significant at 0.01 (Author' own calculation)

It has been found that most of the people in the control group are engaged in cattle farming. For this reason, the average land size of 1.85 hectare calculated for these producers is relatively small. However, more often the farmers are trying to continue production by using the rental method. More than half of them (55%) use rental land, and the average annual rental land size is 4.5 hectare (Table 2). The property itself is relatively smaller. These producers do a lot of work with livestock, and they only grow a small number of plants as a plant production activity. They mostly grow wheat, followed by barley, silage corn, and vetch. In the first surveys that were done with the control group, it was found that most farmers had heard of organic farming, but did not know what it meant, even though they lived in the same village. Farmers in the experimental group and control group took a pre-test before they learned about organic farming and marketing (Table 3 and 4). The average values of the experimental group were found to be higher than the average values of the control group in terms of the variables examined. However, there was no significant difference between the two groups except for the fourth topic regarding organic production (p>0.05) (Table 3).

Table 3. Comparison of the kn	owledge levels of the e	experimental and control	groups on organic	production (pre-test)
L	0	1		

	Issues related to organic production	The experimental group Mean (SD)	Control group Mean (SD)	t	Р
1	Knowing the difference between organic and conventional production	0.75 (0.44)	0.67 (0.48)	0.557	0.083
2	Knowing the basics of organic production	0.60 (0.50)	0.50 (0.51)	0.925	0.230
3	Proper use of organic and green fertilizers	0.55 (0.51)	0.42 (0.50)	0.869	0.390
4	Ability to properly manage alternation	0.55 (0.52)	0.25 (0.44)	2.089	0.043*
5	Applying soil conservation measures	0.50 (0.51)	0.29 (0.46)	1.410	0.208
6	Able to apply methods to increase plant resistance	0.15 (0.36)	0.04 (0.20)	1.238	0.223
	Total knowledge level on organic production issues	3.10 (2.07)	2.12 (1.48)	1.810	0.073

* Significant at 0.05 (Author' own calculation)

According to the pre-test results, there was a significant difference between the experimental group and the control group in terms of understanding and sustaining customer satisfaction (p<0.05). However, there was no

difference in terms of general knowledge levels and total score regarding marketing (p>0.05) (Table 4). Arslantürk and Aysen (2015) interviewed seven organic market tradesmen (producers/sellers) selling in the only organic

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market of Ankara, the capital of Türkiye. Like the research area in the present study, this organic market was also a small market. It was concluded that the sellers of organic products conduct this business primarily to serve people's desire to live more healthily, and then to make a profit.

Table 4. Comparison of the knowledge levels of the experimental and control groups on the marketing of organic products (pre-test)

0.165
0.165
0.165
0.641
0.011
0 702
0.702
0.040*
0.010
0.611
0.011
0 360
0.000
0.156
0 1 4 5
0.143

* Significant at 0.05 (Author' own calculation)

It is noteworthy that, in terms of the variables examined as a result of the training given on organic production, the averages of the experimental group are generally higher than the averages of the control group. However, there was no statistically significant difference in the first six criteria (p>0.01). When the total scores measuring the total knowledge level of the producers on organic production issues were compared, it was determined that the score of the experimental group was statistically higher than the control group, and this difference was due to the education given (p<0.01) (Table 5). The knowledge levels of producers on marketing organic products were compared.

Table 5. Comparison of the knowledge levels of the experimental and control groups on organic production (post-tes	st)
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	Issues related to organic production	The experimental group Mean (SD)	Control group Mean (SD)	t	Р
1	Knowing the difference between organic and conventional production	0.80 (0.41)	0.62 (0.49)	1.261	0.214
2	Knowing the basics of organic production	0.81 (0.41)	0.54 (0.51)	1.827	0.075
3	Proper use of organic and green fertilizers	0.65 (0.49)	0.67 (0.48)	-0.113	0.910
4	Ability to properly manage alternation	0.70 (0.47)	0.46 (0.51)	1.623	0.112
5	Applying soil conservation measures	0.60 (0.50)	0.42 (0.50)	1.203	0.236
6	Able to apply methods to increase plant resistance	0.50 (0.51)	0.42 (0.50)	0.542	0.591
	Total knowledge level on organic production issues	4.2 (1.43)	1.61 (1.44)	5.89	0.001**

** Significant at 0.01 (Author' own calculation)

	Issues related to the marketing of	The experimental group	Control group	L	D
	organic products	Mean (SD)	Mean (SD)	t	Р
	Knowing the importance of				
1	customer relations in the marketing	0.95 (0.22)	0.71 (0.46)	2.13	0.039*
	of organic products				
2	Knowing how to behave to make the	0.65 (0.49)	0.71 (0.48)	0 779	0.4.4.1
2	customer permanent	0.03 (0.49)	0.71 (0.40)	0.779	0.441
	Understanding the difference				
3	between product sales and product	0.45 (0.51)	0 33 (0 48)	0 779	0.440
5	marketing in customer relations and	0.43 (0.31)	0.55 (0.40)	0.775	0.110
	not focusing only on sales				
	Able to comprehend and maintain				
4	customer satisfaction in relations	0.75 (0.44)	0.29 (0.46)	3.32	0.002**
	with customers				
5	Providing sufficient information	0 55 (0 50)	0 50 (0 51)	0 323	0 748
0	about the content of the product	0.00 (0.00)	0.00 (0.01)	0.020	017 10
	Convincingly explaining the				
6	difference of the product sold from	0.60 (0.50)	0.46 (0.51)	0.925	0.360
	other products				
	Relationships with customers are				
7	not limited to sales; they also	0.60 (0.50)	0.42 (0.50)	1 203	0.236
	include personal issues and focus on				
	sincerity				
	The total score on issues related to	4.55 (1.32)	3.42 (1.77)	3.013	0.004**
	the marketing of organic products	100 (102)	0112 (1177)	0.010	51001

Table 6. Comparison of the knowledge levels of the experimental and control groups on the marketing of organic products (post-test)

* Significant at 0.05, ** Significant at 0.01 (Author' own calculation)

A statistically significant difference was found between the experimental group and the control group in terms of knowing the importance of customer relations in marketing organic products (p<0.005) (Table 6). The mean score of the experimental group (0.95) was higher than the mean score of the control group (0.71). Similarly, a statistically significant difference was observed in terms of comprehending and sustaining customer satisfaction, and the average score of the experimental group (0.75) was considerably higher than the score of the control group (0.29) (p<0.01). As a result, when all the criteria were evaluated together, and the total score was compared on the issues related to the marketing of organic products, it was determined that the total score of the experimental group was statistically higher than the control group (p<0.01), and all these differences were caused by the training given to organic producers (Table 6).

In the research, covariance analysis was carried out to determine whether the training on organic agricultural production and marketing was effective (Table 7 and Table 8). Since organic farming activities in the village were started as a women's entrepreneurship and women's movement, the experimental group was chosen for this purpose.

Table 7. Cova	riance analysis r	esults on production	on-related subjects	(dependent variable,	post-test scores)
		F		(r · · · · · · · · · · · · · · · · · · ·

	Type III sum of	Degrees of	Moon cquares	F	р
	squares	freedom	Mean squares	Г	P
Validated model	103.967a	3	34.656	22.995	0.000
Constant term	40.094	1	40.094	26.604	0.000
Group	28.682	1	28.682	19.031	0.000
Pre-test	26.767	1	26.767	17.761	0.000
Group *pre-test	2.362	1	2.362	1.567	0.218
Error	60.283	40	1.507		
Total	497.000	44			
Verified Total	164.250	43			

R Squared = 0.633 (Adjusted R Squared = 0.605) (Author' own calculation)

What is important here is that they had not received any training in organic agricultural production and marketing before this programme, and therefore the knowledge levels of both groups before the training were determined to be close to each other. To carry out the analysis of covariance, the collected data were first checked for compliance with the assumptions. In this context, necessary statistical controls were made in terms of normality, linearity, homogeneous distribution of variances, and homogeneous distribution of the regression curve. The total value of the answers given in the pre-test and post-test to the six training topics covered in agricultural production is in table 7 and 8, the total values of the answers given in the seven questions on agricultural marketing are shown. The pre-test results significantly differed from the post-test scores after the training on organic production and marketing (Table 7 and 8). However, the effect of the groups' pre-test interaction on the post-test was statistically insignificant. While the pre-test results did not show any statistical difference between the groups, the post-test results did. This shows that the training given to the experimental group was effective and achieved its purpose.

	Type III sum of squares	Degrees of freedom	Mean squares	F	Р
Validated model	48.884a	3	16.295	86.351	0.000
Constant term	11.437	1	11.437	60.607	0.000
Group	3.765	1	3.765	19.953	0.000
Pre-test	2.922	1	2.922	15.484	0.000
Group *pre-test	0.689	1	0.689	3.653	0.063
Error	7.548	40	0.189		
Total	801.000	44			
Verified Total	56.432	43			

Table 8. Results of covariance analysis on marketing-related subjects (dependent variable, post-test scores)

R Squared = 0.866 (Adjusted R Squared = 0.856) (Author' own calculation)

Education was held for 150 farming women from five villages of Karnataka's Dharwad Taluk District in India on the concepts of organic farming and the use of farm and animal waste. The findings showed that women's knowledge before the intervention was low, and the training provided was effective in educating women about organic agriculture (Nagnur et al., 2012). Chernbumroong et al. (2022) applied the Kirkpatrick Model to evaluate the effectiveness of training to improve the knowledge and performance of eight local Thai farmers. The overall result showed that the participants responded positively to the training. Another study on the learning success of farmers during the transition to market-oriented organic agriculture in rural Uganda also yielded positive results after training (Hauser et al.,

2010).

The effects of the training given to the farmers on organic production and marketing are seen more concretely in table 9 and 10. In production subjects, the average of the experimental group was estimated as 3.971 out of six, which is the total score, while this score remained at 1.732 in the control group. The mean difference between the two groups was 2.239, which was statistically significant (Table 9).

In agricultural marketing subjects, the average of the experimental group was 5.175 out of seven, which is the total score, while the average of the control group was 3.269. The mean difference between the two groups was 1.906, which was statistically significant (Table 10).

Table 9. Estimates of production and paired comparison (dependent variable, production post-test)

Group	Mean	SE	Mean difference	SE	Pb
Experimental group	3.971a	0.282	2.239*	0.389	0.000
Control group	1.732a	0.257	-2.239*	0.389	0.000

The covariances in the model were calculated according to the pre-test = 2.5682 value. Bonferroni method was used for comparison (Author' own calculation)

Table 10	. Estimates an	d paired	comparison	on marketing	(dependent	variable,	marketing po	ost-test)
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Group	Mean	SE	Mean difference	SE	Pb
Experimental group	5.175a	0.099	1.906*	0.134	0.000
Control group	3.269a	0.089	-1.906*	0.134	0.000

Covariances in the model pre-test = 3.0909 calculated according to its value. Bonferroni method was used for comparison (Author' own calculation)

4. Conclusion

Organic products are extremely beneficial to consumers and contribute to people living more healthily, thereby reducing the need for medical services. Additionally, while providing organic producers with the opportunity to practice conscious agriculture, it contributes both to assisting them to obtain a more sustainable income and leading them to live in better harmony with natural resources and the environment in rural areas. Therefore, the benefits of encouraging organic production and consumption for all segments of society cannot be denied.

The research findings showed that the experimental group that was trained was more knowledgeable in both production and marketing than the control group that did not receive training. As a result, the training provided was effective on organic producers. It can be said that farmers who have a higher level of knowledge of organic production and marketing will carry out agribusiness activities more successfully. Therefore, new farmers who want to join organic production and marketing farmers must be trained. For farmers who currently produce organically, they should ensure that they receive training on new products, production methods and marketing at regular intervals.

The development of organic agriculture in the region will contribute not only to the farmers living here, but also to the country's economy. However, this will only be possible by selecting determined producers and raising awareness among them through various training and extension activities. Conscious producers and sellers will be able to create continuous marketing potential for their products. In addition to all these, the market needs to be developed to ensure the sustainability of organic production in the village. For farmers to meet consumer demands and increase their income levels, they must first increase their product range and then enlarge their land holdings by either renting or purchasing. Only when these conditions are met will the market and economy remain viable. The main limitation of this study was that the Sürmeli case, the only organic women's organization in the region, was in a small area. Therefore, future studies should be expanded with data from a larger number of farms producing organic products in larger areas.

The percentages of the authors' contributions are presented below. All authors reviewed and approved the final version of the manuscript.

	E.H.	K.H.	C.K.B	İ.B.
С				
D	50			50
S				
DCP	50	25	25	
DAI	30	10	10	50
L	30	20	30	20
W	40	10	10	40
CR	50			50
SR				
РМ				
FA				

C= concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Consideration

Ethical approval was obtained for this study from the Ondokuz Mayıs University Social and Human Sciences Ethics Committee (approval date: March 13, 2018, protocol code: 2018 / 72-108).

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