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A research on factors affecting fresh fruit and vegetable producers' tendency to participate in cooperatives

Yaş meyve ve sebze üreticilerinin kooperatiflere ortak olma eğilimini etkileyen faktörler üzerine bir araştırma

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ABSTRACT

Objective: The main purpose of the study is to analyze the perspective of fresh fruit and vegetable producers in İzmir province towards cooperatives and their tendency to become partners.

Material and methods: Study data were obtained by proportional sampling and face-to-face survey method from 155 producers in İzmir province. Best-Worst and Fuzzy Paired Comparison methods were used to analyze the data.

Results: The average age of producers is 49.12 years, and the average education period is 7.86 years. The most important activities that producers expect from cooperatives are product collection, obtaining high sales prices and providing inputs at low prices. 76.77% of the producers stated that they could become partners in a fresh fruit and vegetable cooperative if it was established.

Conclusion: A cooperative established by producers in the region acting together will be effective, especially in marketing.

Keywords: Agricultural organization, cooperative, fuzzy paired comparison, producer tendency

ÖZ

Amaç: Araştırmanın temel amacı İzmir ilindeki yaş meyve sebze üreticilerinin kooperatiflere bakış açısını ve ortak olma eğilimlerini analiz etmektir.

Materyal ve Yöntem: Araştırma verileri, oransal örnekleme ile İzmir'deki 155 üreticiden yüz yüze anket yöntemiyle elde edilmiştir. Verilerin analizinde Best-Worst ve Bulanık Eşli Karşılaştırma yöntemi kullanılmıştır.

Araştırma Bulguları: Üreticilerin ortalama yaşı 49.12, ortalama eğitim süresi 7.86 yıldır. Üreticilerin kooperatiflerden beklediği en önemli faaliyetler ürün toplama ve yüksek satış fiyatı elde etmek ile düşük fiyatla girdi temin etmektir. Üreticilerin %76.77'si kurulması durumunda yaş meyve ve sebze kooperatifine ortak olabileceğini belirtmiştir.

Sonuç: Bölgedeki üreticilerin birlikte hareket ederek kuracakları bir kooperatif özellikle pazarlama konusunda etkinlik sağlayabilecektir.

Anahtar sözcükler: Tarımsal örgütlenme, kooperatif, bulanık eşli karşılaştırma, üretici eğilimi

INTRODUCTION

It is difficult for producers to compete in terms of prices due to the dispersed settlement in rural areas, the length of the road from producer to consumer, inadequate storage conditions and the lack of adequate organization of producers. Due to the insufficient producer organization in the production and marketing of fresh fruits and vegetables, the marketing channel becomes longer, and the producer's share of the price paid by the consumer decreases. Producers in Türkiye need to be organized to produce high quality products in accordance with standards and get rewarded for their efforts (Aydoğan & Yulafçı, 2013).

Although there are many cooperatives established and operating for different purposes in Türkiye, they cannot be said to be very effective in fruit and vegetable production and marketing (Kızılaslan & Yalçın, 2012). Farms producing fruit and vegetables in Türkiye mostly have small and fragmented lands. This makes it difficult for them to benefit from economies of scale. However, it is seen that sustainable policies have not been created for the fresh fruit and vegetable sector in Türkiye, using different tools and for different purposes. Direct supports are not implemented for fresh fruits and vegetables, and intervention regulations to prevent price instability are also inadequate (Atış & Artukoğlu, 2005).

There is a need for applicable policies that will enable fruit and vegetable producers in Türkiye to come together under organizations where they can come together and become stronger. There are currently 29 Fresh Fruit and Vegetable Cooperatives in Türkiye, and these cooperatives have a total of 2,953 partners (MAF, 2023). In addition, there are four Fresh Fruit and Vegetable Exporters Associations in Türkiye. However, it seems that existing cooperatives and unions cannot take a sufficiently active role in production and marketing (Vural, 2018). Therefore, there is a need to conduct research on the organizational tendencies and expectations of fresh fruit and vegetable producers in different regions.

Many studies have been conducted in different countries of the world analyzing producers' perspectives on cooperatives and their tendencies to become partners (Ogunleye et al., 2015; Qi et al., 2016; Ahmed & Mesfin, 2017; Gashaw & Kibret, 2018; Balgah, 2019; Chen & Sun, 2019; Antonova et al., 2021; Fongsamouth et al., 2024). In some studies, the benefits and satisfaction levels obtained by fruit and vegetable producers from cooperatives were examined (Camanzi et al., 2011; Arcas-Lario et al., 2014; Entehabu & Rao, 2014; Palsule-Desai, 2015; Mustapha & Manu, 2022; Ergashev, 2023, 2024).

Many studies have been conducted in Türkiye analyzing producers' perspectives and tendencies towards cooperatives (Karlı et al., 2006; Artukoğlu & Olgun, 2008; Akın & Özdemir, 2010; Cebeci & Yener, 2013; Ertek et al., 2016; Kınıklı et al., 2017; Kaya et al., 2019; Değer et al., 2020; Sevinç, 2021; Özcan, 2022; Çukur & Çukur, 2022; Gümüş, 2022; Kılıç Topuz et al., 2022). However, the organizational tendencies of fresh fruit and vegetable producers in Türkiye need to be specifically investigated. Because fresh fruits and vegetables are perishable products. There is no direct government support for these products. In addition, due to the presence of many intermediaries in the marketing structure of these products, producer incomes may be negatively affected.

According to 2022 data, İzmir province constitutes 3.9% (28,150 ha) of Türkiye's total vegetable production area (717,680 ha) and ranks 8th among the provinces. It constitutes 4.2% (153,411 ha) of fruit production areas (3.67 million ha) and ranks 7th (TURKSTAT, 2023). The main purpose of this study is to examine the organizational perspectives of fresh fruit and vegetable producers in İzmir province, Türkiye, and to analyze the factors affecting their tendency to participate in cooperatives.

MATERIALS and METHODS

Materials

The data used in the study was obtained by face-to-face survey method from producers producing fresh fruits and vegetables in Bayındır, Bergama, Kemalpaşa, Ödemiş, Tire and Torbalı districts of İzmir province. In addition, data published by relevant institutions and the results of previous research were also used.

Methods

According to the data of the İzmir Provincial Directorate of the Ministry of Agriculture and Forestry, approximately 65% of the total vegetable production area and approximately 53% of the total fruit production area in İzmir province are in Bayındır, Bergama, Kemalpaşa, Ödemiş, Tire and Torbalı districts. For this reason, these six districts were included in the scope of the research.

Three neighborhoods with high fruit and vegetable production from each district were selected for the scope of the research. Tulum, Atalan and Yeniköy neighborhoods from Torbalı district; Kızılcaavlu, Yolüstü and Demircili neighborhoods from Ödemiş district; Yeniçiftlik, Eskioba and Akkoyunlu neighborhoods from Tire district; Göçbeyli, Bölcek and Pınarköy neighborhoods from Bergama district; Tokatbaşı, Karaveliler and Balcılar neighborhoods from Bayındır district; Bağyurdu, Ören and Yiğitler neighborhoods from Kemalpaşa district were included in the scope of the research.

According to the data received from the District Directorates of the Ministry of Agriculture and Forestry, there are a total of 2,188 producers registered in the Farmer Registration System in these neighborhoods. It was decided to include a portion of the total number of producers within the scope of the research through proportional sampling, and the following formula was used for this purpose (Newbold, 1995).

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

In the formula;

n = Sample size

N = Total number of producers

p = Proportion of fruit and vegetable producers (0.5 was taken for maximum sample size)

σ^2px = Variance of proportion

A 99% confidence interval and a 10% margin of error were used in calculating the sample size. In this way, the sample size was calculated as 155. The number of producers to be interviewed was determined based on the share of each neighborhood in the total number of producers. The random numbers table was used to determine the producers to be included in the neighborhoods. The study was based on the 2021 production period. Study surveys were conducted in January-March 2022.

In the data analysis, producers were divided into three groups primarily according to their land size. The first group consists of producers with a land size of 50 decares and smaller (58 producers), the second group consists of producers with a land size of 51-100 decares (42 producers), and the third group consists of producers with a land size of 101 decares and larger (55 producers).

In the study, first, the socio-economic characteristics of the producers were examined. Then, the producers' knowledge level, opinions, tendencies, important factors and expectations regarding cooperative were analyzed. At this stage, a Likert scale was used. According to the Likert scale, the expressions in the attitude scale were evaluated on a 5-point scale (Bilgin, 1995). Microsoft Excel program was used in the statistical analysis of the study.

Best-Worst Analysis

In the study, the most important and least important activities that producers expect from cooperatives were determined. Producers were asked to comment on 16 activities. At this stage, Best-Worst Analysis was performed. The method is based on the logic of comparing each criterion according to the best (most important) and worst (least important) criteria, rather than comparing each criterion with others one by one. The application stages of the method are as follows (Rezaei, 2015, 2016).

Step 1: The decision matrix is created.

Step 2: The most important and least important criteria are determined.

Step 3: An evaluation between 1 and 9 is made by comparing each criterion with the most important criterion.

Step 4: Similar to the previous step, the least important criterion is determined and compared with other criteria.

Step 5: Optimal weights are calculated.

Fuzzy Paired Comparison

In the study, the criteria that producers attach importance to in becoming a partner in the cooperative were analyzed by the Fuzzy Paired Comparison method. Producers were presented with five criteria to determine their decision preferences. These criteria; the cooperative's economic objectives, social objectives, management structure, number of partners and year of founding. The steps of the method can be summarized as follows (Ross, 1995; Tanaka, 1997; Pedrycz & Gomide, 1998).

First, pairwise comparisons are presented to indicate individual preferences. For example, the degree of preference of objectives K and H, G_{KH}, is measured according to the distance between them. The total distance is equal to the following.

If G_{KH}=0.5 then K≈H; If G_{KH}>0.5 then K>H; If G_{KH}<0.5 then K<H

The number of pairwise comparisons of the objectives (C) is determined as C= [(Z. (Z-1))/2]. In the formula, Z represents the number of preferred objectives.

In the study, 10 comparisons were presented to each producer according to five different criteria. Effective factors are listed from largest to smallest according to their weight (Günden & Miran, 2007). Gcr preference was obtained in each pairwise comparison. The measurement of the degree of preference of r over c can be expressed as gcr=1-grc. Then, a fuzzy preference matrix was created. The following expression was used for this.

$$\mathrm{Gcr} = \begin{cases} 0 & if\ \ c = r\ \ \forall\, c, r = 1, \ldots . n \\ g_{cr} & if\ c \neq r\ \forall\, c, r = 1, \ldots . . n \end{cases} \qquad (2)$$

In the study, a 5x5 fuzzy preference matrix was created as follows (G):

$$\mathrm{G} = \begin{vmatrix} g_{11} & g_{12} & g_{13} & g_{14} & g_{15} \\ g_{21} & g_{22} & g_{23} & g_{24} & g_{25} \\ g_{31} & g_{32} & g_{33} & g_{34} & g_{35} \\ g_{41} & g_{42} & g_{43} & g_{44} & g_{45} \\ g_{51} & g_{52} & g_{53} & g_{54} & g_{55} \end{vmatrix} \qquad (3)$$

The preferred intensity (μj) of each objective separately was obtained using the following equation. The μj value varies between 0 and 1.

$$\mu j\ = 1 - (\textstyle\sum_{c=1}^{n} G_{cr}^{2} \,/\, (n-1))^{1/2} \qquad (4)$$

Whether the purpose of comparison is equally important was determined by the Friedman Test. Additionally, Kendall's coefficient of fit was used for the lines.

RESULTS and DISCUSSION

The socio-economic characteristics of the producers are presented in Table 1. The ages of the producers range from 24 to 72, with the average being 49.12. Education periods vary between 5-15 years, with an average of 7.86 years. The agricultural activity experience of the producers varies between 6-42 years. The average experience period was determined as 22.15 years.

Table 1. Sosyo-economic characteristics of producers

Çizelge 1. *Üreticilerin sosyo-ekonomik özellikleri*

Characteristics	Farm groups			
	Group 1 (≤50 da)	Group 2 (51-100 da)	Group 3 (≥101 da)	General
Age of producer	49.28	48.55	49.38	49.12
Education period of producer (year)	7.71	7.64	8.18	7.86
Agricultural experience of producer (year)	22.26	22.14	22.05	22.15
Household size	3.92	3.77	3.65	3.78
Land size (da)	30.95	82.98	224.64	113.77
Average parcel size (da)	11.68	19.90	32.42	24.84
Owned land rate (%)	77.45	56.66	61.85	62.41
Equity rate (%)	77.10	69.00	69.66	70.50

The total population in the farms examined is 586 people and the average household size is calculated as 3.78 people. Women constitute 51.06% of the total population in farms. The rate of the population aged 15-49 in the total population is 42.59%.

The land size in farms varies between 9-520 decares. The average land size is 113.77 decares. The average number of parcels was found to be 4.58, and the average parcel size was 24.84 decares. 62.41% of the total land of the farms consists of owned lands, 25.97% consists of rented lands, and 11.61% consists of jointly operated lands.

Land assets constitute 91.94% of the total active capital in farms. When the distribution of active capital according to items is examined; it is seen that soil assets have a significant share (68.13%), followed by building assets (20.11%) and tools-machinery assets (4.88%). However, it was determined that 70.50% of the liabilities consisted of equity capital.

In the study, producers were asked to what extent they agreed with some of the statements given to reveal their awareness and knowledge level about cooperatives. When the answers are examined, it is seen that the producers know the concept of cooperatives, cooperative principles and that cooperatives have an article of association (Table 2).

Table 2. Producers' awareness and knowledge levels about cooperatives*

Çizelge 2. *Üreticilerin kooperatifler konusundaki farkındalığı ve bilgi düzeyi**

Awareness and knowledge level	Farm groups				
	Group 1 (≤50 da)	Group 2 (51-100 da)	Group 3 (≥101 da)	General	
				Mean	Std. dev.
I know what the concept of cooperative is.	4.60	4.55	4.62	4.59	0.89
I know the principles of cooperatives.	4.38	4.43	4.44	4.42	1.18
I know that cooperatives have articles of association.	4.40	4.38	4.45	4.41	1.26
I know that capital participation is required in cooperative partnership.	4.17	4.24	4.40	4.27	1.17
I am aware of cooperative activities in the region.	3.97	3.90	4.11	4.00	1.21
I know that if the cooperative earns high profits from its commercial activities, it can distribute annual dividends to its partners.	3.21	3.29	3.25	3.25	1.33
I know that cooperative partners are required by law to obtain a sales guarantee letter from the institution to which they will sell their products.	2.78	2.88	3.05	2.90	1.12

*1: Strongly disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Strongly agree.

In a study conducted in Çanakkale province, it was determined that 61.3% of cooperative partners wanted to learn cooperatives better and receive training on cooperatives (Everest et al., 2019).

All producers are members of the Chamber of Agriculture in the districts where they are located. In addition, it was determined that 63.87% of the producers were partners in agricultural cooperatives, 27.10% were members of breeder unions, and 29.03% were members of producer unions. 50.32% of the producers are partners in Agricultural Development Cooperatives, and 27.74% are partners in Agricultural Credit Cooperatives (Table 3).

Table 3. Agricultural organizations of which producers are members

Çizelge 3. *Üreticilerin üye olduğu tarımsal örgütler*

Organizations		Farm groups							
		Group 1 (≤50 da)		Group 2 (51-100 da)		Group 3 (≥101 da)		General	
		n	%	n	%	n	%	n	%
Chamber of Agriculture		58	100.00	42	100.00	55	100.00	155	100.00
Agricultural Cooperatives		38	65.52	26	61.90	35	63.64	99	63.87
Breeder Unions	Breeding Cattle Breeders Unions	11	18.97	10	23.81	12	21.82	33	21.29
	Bee Breeders Unions	2	3.45	3	7.14	4	7.27	9	5.81
Producer Unions	Milk Producers Unions	10	17.24	9	21.43	11	20.00	30	19.35
	Fruit Seedling Producers Unions	3	5.17	4	9.52	3	5.45	10	6.45
	Vegetable Seedling Producer Unions	2	3.45	1	2.38	2	3.64	5	3.23

The partnership period of producers in cooperatives varies between 3-18 years, with the average period being 12.65 years. In a another conducted in İzmir province, Türkiye, the average partnership period of producers in a cooperative was calculated as 17.23 years (Albayram Doğan, 2019).

When producers are asked which socio-economic factors are effective in their becoming partners in the cooperative, the most important factors are; it has been determined that the main reasons are to benefit from low input prices, benefit from government supports and making it easier to obtain input (Table 4).

Table 4. Socio-economic factors affecting producers' participation in cooperatives*

Çizelge 4. *Üreticilerin kooperatiflere ortak olmasını etkileyen sosyo-ekonomik faktörler**

Factors		Farm groups			
	Group 1 (≤50 da)	Group 2 (51-100 da)	Group 3 (≥101 da)	General	
				Mean	Std.dev.
Benefit from low input prices	4.62	4.67	4.65	4.65	0.92
Benefit from government supports	4.60	4.62	4.67	4.63	1.16
Making it easier to obtain input	4.60	4.62	4.67	4.63	1.01
Take advantage of marketing opportunities	4.41	4.48	4.56	4.48	1.11
Gaining price advantage in product sales	4.41	4.45	4.56	4.48	1.02
Reduce production costs and increase return	4.38	4.43	4.38	4.39	0.98
Reducing risk in production and marketing	4.38	4.43	4.38	4.39	1.09
Creating economic unity	4.00	4.05	4.18	4.08	1.12
Benefit from technical information support	3.78	3.81	3.91	3.83	1.20
Taking advantage of price advantages in consumer goods	3.55	3.74	3.65	3.64	1.09
Benefit from educational activities	3.22	3.24	3.42	3.30	1.35
Ensuring efficiency in capital use	3.17	3.24	3.42	3.28	1.15
Ensuring the sustainability of agricultural production	3.02	3.12	3.36	3.17	1.21
Leveraging the reputation of the cooperative partnership	2.98	3.02	3.35	3.12	1.08

*1: Strongly disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Strongly agree.

In a study conducted in seven different provinces of Türkiye, the most important factors affecting producers' participation in cooperatives were determined as creating economic power by acting together and benefiting from the product sales guarantee (Şahin et al., 2013).

According to the results of the Best-Worst analysis, the most important activities that producers expect from cooperatives are providing high product prices, supplying quality and affordable fertilizers and pesticides, product collection and sales, and ensuring benefit from supports. In addition, producers are of the opinion that cooperative activities such as providing agricultural publications, keeping production records and organizing social and cultural events are not important for them (Table 5).

Table 5. Results of Best-Worst analysis

Çizelge 5. *Best-Worst analizi sonuçları*

Cooperative activities	Best frequency (B)	Worst frequency (W)	Mean (B-W)
1. Procurement of credit	16	0	0.10
2. Supply of quality and affordable seeds and seedlings	0	0	0.00
3.Supply of quality and affordable fertilizers and pesticides	**24**	0	**0.15**
4. Product collection and sales	**24**	0	**0.15**
5. Providing high product prices	**44**	0	**0.28**
6. Product processing	11	4	0.05
7. Providing technical training	6	0	0.04
8. Providing consultancy services	1	0	0.01
9. Keeping production records	2	**36**	**-0.22**
10. Ensuring that you benefit from supports	**22**	0	**0.14**
11. Providing agricultural publications	0	**57**	**-0.37**
12. Creating public pressure	0	17	-0.11
13. Organizing social and cultural events	0	**21**	**-0.14**
14. Water resources development and irrigation services	3	19	-0.10
15. Providing storage facilities	1	0	0.01
16. Providing employment opportunities	1	1	0.00

In a study conducted on tomato producers in Muğla province, it was determined that the most important activities expected from cooperatives were supplying quality and affordable input, ensuring benefit from supports and providing credit (Değer et al., 2020). In a study conducted in Manisa province, the most important activity expected from cooperatives was determined to be product collection and sales (Özcan, 2022).

When the producers were asked whether they would like to work in the cooperative if a fresh fruit and vegetable cooperative was established in the region, 78.71% of producers stated that they would. 48.36% of the producers who want to work in the cooperative stated that they could work in the establishment phase, 24.59% in management, 13.93% in marketing and service activities, 9.02% in social activities, and the remaining 4.10% in other activities. When the producers were asked whether they could become partners if a fresh fruit and vegetable cooperative was established in the region, 76.77% stated that they could become partners (Table 6).

Table 6. Willingness of producers to work and become partners in a fresh fruit and vegetable cooperative

Çizelge 6. *Üreticilerin yaş meyve ve sebze kooperatifinde çalışma ve ortak olma istekliliği*

Willingness to work and partner		Farm groups							
		Group 1 (≤50 da)		Group 2 (51-100 da)		Group 3 (≥101 da)		General	
		n	%	n	%	n	%	n	%
Willingness to work in cooperative	Yes	44	75.86	33	78.57	45	81.82	122	78.71
	No	14	24.14	9	21.43	10	18.18	33	21.29
Willingness to become a partner in cooperative	Yes	43	78.18	32	76.19	44	80.00	119	76.77
	No	12	21.82	10	23.81	11	20.00	36	23.23

In a study on dairy cooperatives, 35.5% of the partners stated that they wanted to take part in management (Yercan & Kınıklı, 2018). In a study conducted on the partners of the Agricultural Credit Cooperative, it was determined that 20.62% of the partners wanted to take part in management (Everest, 2015). In a study conducted with Gülbirlik partners, it was determined that 20.88% of the partners wanted to take part in cooperative management (Ertan & Turan, 2001).

In a study conducted on tomato producers in Muğla province, 88% of the producers stated that they could become partners in such a cooperative if it was established in the region (Değer et al., 2020). In a study conducted in Manisa province, it was determined that 90.70% of the producers engaged in vegetable production were willing to become partners in an agricultural cooperative to be established in the region (Özcan, 2022). In a study conducted in Niğde province, it was determined that 74.11% of apple producers could become partners in a cooperative to be established in the region (Gümüş, 2022).

In the study, when producers who wanted to become partners in the fresh fruit and vegetable cooperative were asked about their reasons, it was determined that the most important reasons were marketing problems could be reduced by establishing a cooperative, input prices could be reduced by establishing a cooperative, and local products could be branded by establishing a cooperative (Table 7).

Table 7. Reasons for producers to become partners in the fresh fruit and vegetable cooperative*

Çizelge 7. *Üreticilerin yaş meyve ve sebze kooperatifine ortak olmak için nedenleri**

Reasons	Farm groups				
	Group 1 (≤50 da)	Group 2 (51-100 da)	Group 3 (≥101 da)	General	
				Mean	Std.dev.
Marketing problems can be reduced by establishing a cooperative	4.71	4.79	4.80	4.76	0.93
Input prices may decrease by establishing a cooperative	4.83	4.69	4.64	4.72	1.13
Local products can be branded by establishing a cooperative	4.57	4.62	4.73	4.64	1.08
My product can be sold at the most affordable price by establishing a cooperative	4.53	4.67	4.53	4.57	1.50
Processing industrial facilities may increase in the region by establishing a cooperative	4.55	4.60	4.58	4.57	1.19
My income can increase by establishing a cooperative	4.40	4.43	4.51	4.45	1.21
Exports from the region can be realized by producers by establishing a cooperative	4.16	4.38	4.27	4.26	1.41
The amount of agricultural production in the region can be increased by establishing a cooperative.	4.21	4.07	4.00	4.10	1.25
Production costs can be reduced by establishing a cooperative	3.91	4.00	4.09	4.00	1.08
Consultancy services may increase with the establishment of a cooperative	3.79	3.95	3.73	3.81	1.06
My product quality can increase by establishing a cooperative	3.86	3.71	3.69	3.76	1.14
Agricultural product exports can increase by establishing a cooperative	3.41	3.50	3.44	3.45	1.05
Base price application can be implemented by establishing a cooperative	3.22	3.33	3.31	3.28	1.48

*1: Strongly disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Strongly agree.

In a study conducted on tomato producers in Muğla province, the most important reasons for wanting to become a partner in the cooperative where the marketing problem disappears and tomato production increases (Değer et al., 2020).

In the study, when producers who did not want to become partners in the fresh fruit and vegetable cooperative were asked about their reasons, it was determined that the most important reasons were the ability to make more profit when marketing the products themselves, the lack of need for the opportunities provided by the cooperative, and the thought that the cooperative cannot offer reasonable prices for product purchases (Table 8).

Table 8. Reasons why producers do not want to be partners in the fresh fruit and vegetable cooperative*

Çizelge 8. *Üreticilerin yaş meyve ve sebze kooperatifine ortak olmamak için nedenleri**

Reasons	Farm groups				
	Group 1 (≤50 da)	Group 2 (51-100 da)	Group 3 (≥101 da)	General	
				Mean	Std.dev.
I can make more profit when I market my products myself	4.69	4.52	4.67	4.64	0.92
I do not need the opportunities provided by the cooperative.	4.48	4.45	4.56	4.50	0.89
I think the cooperative cannot give reasonable prices for product purchases.	4.48	4.43	4.55	4.49	1.30
I do not need a cooperative while carrying out my production activities.	4.47	4.29	4.40	4.39	1.26
I think cooperative rules are not suitable for everyone	4.16	4.31	4.35	4.26	1.54
I think the cooperative cannot be effective in supplying input	4.07	4.12	4.22	4.14	1.04
I think that cooperative managers do not act in accordance with the interests of the cooperative.	4.12	4.07	4.15	4.12	1.21
I think the cooperative cannot properly evaluate the products of the partners	4.00	4.10	4.02	4.03	1.10
I think some cooperative partners act for different purposes	3.90	3.95	4.05	3.97	1.13
I think the cooperative partners do not support the cooperative enough	3.72	3.81	3.87	3.80	1.05
I think the cooperative cannot give advances during the production period and may make late payments	3.60	3.69	3.78	3.69	0.99
I think the cooperative will not be sufficient in technical matters	3.28	3.31	3.38	3.32	1.03

*1: Strongly disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Strongly agree.

In a study conducted on tomato producers in Muğla province, the most important reasons for not wanting to become a partner in the cooperative were that there was no need, the rules did not suit everyone, and the partners had different goals (Değer et al., 2020).

In the study, the criteria that producers attach importance to in their decision to become a partner in the cooperative were analyzed using the fuzzy paired comparison method. For this purpose, five criteria were determined for producers to determine their decision preferences. These criteria; the cooperative's economic objectives (best price, highest return, capital accumulation etc.), social objectives (education, employment, etc.), management structure, number of partners and year of founding. In the research, 10 comparisons of five different criteria were presented to each producer. Results were evaluated using the Friedman Test and Kendall's coefficient of concordance.

According to the analysis results, it has been determined that the most effective factor in producers' decisions to become partners in cooperatives is the economic objectives of the cooperative. Other factors are respectively, management structure, social objectives, number of partners and year of founding. The Friedman test shows that there is a statistical difference between preferences. In this study, Kendall's W value was determined as 0.49. Accordingly, when determining the weights of important criteria, the harmony between producers is at a medium level (Table 9).

Table 9. Results of fuzzy paired comparison analysis

Çizelge 9. *Bulanık eşli karşılaştıma analizi sonuçları*

Criteria	Minimum	Maximum	Mean	Standard deviation	Order of importance
Economic objectives	0.43	0.91	0.75	0.16	1
Management structure	0.34	0.63	0.51	0.09	2
Social objectives	0.24	0.91	0.49	0.16	3
Number of partners	0.27	0.62	0.45	0.10	4
Founding year	0.24	0.55	0.38	0.08	5
Friedman test	X^2 301.06 p<0.05				
Kendall's W	0.49 p<0.05				

In a study conducted on cooperative partners in Balıkesir, Bursa and Çanakkale provinces, the aims of producers to become partners in cooperatives using the Fuzzy Paired Comparison Method were determined as providing input, using cash credit, providing technical information and product marketing (Everest, 2015). In a study conducted in Manisa province, cooperatives were determined to be the first activity in which vegetable producers could achieve the highest profit through fuzzy paired comparison. This is followed by traders/exporters and brokers, respectively (Özcan, 2022).

CONCLUSION

In this study conducted in six districts selected from İzmir province, face-to-face data was compiled from 155 fresh fruit and vegetable producers. While some of the producers within the scope of the research (63.87%) are partners in an agricultural cooperative, the other part (36.13%) does not have a cooperative partnership. Producers mostly market fresh fruits and vegetables to traders and brokers. Other important channels are processors and exporters. Direct marketing is more limited. Producers have sufficient knowledge about cooperatives. The most important socio-economic factors that affect producers becoming partners in the cooperative are facilitating input supply and low input prices, benefiting from marketing opportunities and price advantage and government supports. The most important activities that producers expect from cooperatives are assisting producers in product collection and sales, ensuring high product prices, and supplying quality and affordable fertilizers and pesticides. Producers believe that managers in cooperatives should have honest and moral values, solidarity and unity should be established among producers, democratic management approach should be taken as basis, and unfair gain and corruption should not be allowed. According to producers, for cooperatives to be successful; product sales prices must be increased, inputs must be supplied to partners in line with their needs, and partners and managers must be compatible.

When producers were asked whether they would be partners if a fresh fruit and vegetable cooperative was established in the region, 76.77% stated that they could be partners. The main reasons for producers who want to become partners were that marketing problems could be reduced by establishing a cooperative, input prices could be reduced by establishing a cooperative, and local products could be branded by establishing a cooperative. The most important reasons for producers who do not want to become partners in the cooperative were that they could make more profit by marketing the products themselves, that the opportunities provided by the cooperative were not needed, and that the cooperative could not offer reasonable prices for product purchases. The most important expectations of producers from the fresh fruit and vegetable cooperative are product prices are higher, product prices are stable, product prices are paid on time and regularly. As can be understood from here, the most important criterion for producers to become a partner in a cooperative is the economic objectives of the cooperatives and their level of realization.

A cooperative established by producers in the region acting together can provide effectiveness, especially in marketing. In this way, producers will be able to sell their products at higher prices. Reducing the number of intermediaries will enable consumers to buy products at affordable prices. If the cooperative can create a storage, processing and distribution network, it will also be able to create employment opportunities in the region. Young people in rural areas of Türkiye do not want to sustain agricultural activities. If cooperatives are successful, they can also contribute to preventing rural migration. The main expectation of fresh fruit and vegetable producers is to sell their products on time and at the highest price. Therefore, Agricultural Development Cooperatives can be taken as an example during the cooperative establishment phase. In this way, production in the region can be increased, regional products can be branded, a competitive environment can be created in terms of prices and export opportunities can be increased.

Data Availability

Data will be made available upon reasonable request.

Author Contributions

Conception and design of the study: DYE, MY; data collection, analysis and interpretation: DYE; statistical analysis: DYE; visualization: MY; writing manuscript: DYE, MY.

Conflict of Interest

There is no conflict of interest between the authors in this study.

Ethical Declaration

The study was found ethically appropriate with the decision of Ege University Scientific Research and Publication Ethics Committee numbered E-157153/2020.

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