Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 24, Issue 3, 2024
PRINT ISSN 2284-7995, E-ISSN 2285-3952

ANALYSIS OF ORGANIZATIONAL MODEL PREFERENCES OF FRESH FRUIT AND VEGETABLE PRODUCERS: A CASE STUDY IN TÜRKİYE

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Abstract

The main purpose of this study is to analyze the organizational tendencies and factors affecting the organizational preferences of fresh fruit and vegetable producers in Izmir province, Türkiye. In study, data from 155 producers were compiled with proportional sampling. A five-point Likert scale was used to evaluate the factors that producers consider important regarding agricultural organization, their preferences and tendencies, and their opinions and expectations. In the study, Analytical Hierarchy Process (AHP) was used to reveal the organization model preferences of the producers according to various criteria. According to the study results, the average age and education period of producers are 49.12 and 7.86 years, respectively. 63.87% of the producers are currently partners in any agricultural cooperative. The most important expectations of producers from cooperatives are the managers must have honest and moral values, create solidarity and unity among the producers, be based on the democratic management approach, and not allow unfair gain and corruption. The most effective criterion for producers' choice of organizational model is price advantage. This criterion is followed by input supply, risk reduction, technical training and consultancy and marketing opportunity in order of importance. When producer decisions are evaluated according to the selection criteria among alternative organizational models; it has been determined that the first choices of producers are cooperatives, followed by individual farms, companies and producer unions, respectively. 76.77% of the producers stated that they could become partners if a Fresh Fruit and Vegetable Cooperative was established in the region.

Key words**:** *agricultural organization, producer organizations, cooperative, producer movement, social innovation*

INTRODUCTION

Cooperatives: it is a major factor in reducing the number of intermediaries between the producer and the consumer. For every good that reaches the consumer from the producer, values such as profit, wage, interest, and rent, which are production factors, are added at every stage of the distribution channel, and the more the good changes hands until it reaches the end consumer, the more its cost increases, thus the higher the price reflected to the consumer [28].

In Türkiye, due to the characteristics of agricultural production and the small-scale nature of farms, the desired production and income increase in agriculture cannot be achieved [49]. However, due to the scattered settlements in rural areas, the length of the producer-consumer chain, lack of adequate storage conditions and inadequate organization among producers, producers cannot compete with the prices. In Türkiye, producers need to establish their own organizations to be rewarded for their labour by producing marketable products of high quality and in accordance with standards [6]. Effective organization of producers is also very important to increase production, income, and welfare in the agricultural sector [37].

Fruit and vegetable farms in Türkiye do not have any influence on price formation. A small part of the production is subject to export. For this reason, applicable policies are needed that will enable small producers to come together under organizations (unions, cooperatives, etc.) 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

[31]. In addition, there are four Fresh Fruit and Vegetable Exporters Associations in Türkiye. When we look at the problems experienced despite existing cooperatives and unions, it is seen that cooperatives and unions cannot take a sufficiently active role in production and marketing [39, 52].

Many studies have been conducted in different countries around the world on the marketing effectiveness of agricultural organizations for fresh fruits and vegetables and the satisfaction level of producers with the activities of these organizations [23, 47, 48, 30, 15, 11, 1, 38, 16, 34, 4, 9, 32].

When the study conducted in Türkiye is examined, in some of them, the organizational tendencies of the producers were analyzed [26, 25, 49, 2, 22, 24, 14, 27, 21, 35]. Some of them revealed the contributions of the organization in agricultural product marketing [53, 29, 18, 7, 13, 12, 17, 43, 46]. However, there is a need to conduct research on producer organization in different regions in order to ensure efficiency in fresh fruit and vegetable marketing, reduce the number of intermediaries, and increase producer income.

According to 2022 data, Izmir 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 [50]. From the perspective of producer organization, there are a total of 289 cooperatives operating for agricultural purposes in Izmir, including 162 Agricultural Development Cooperatives, 82 Irrigation Cooperatives, and 45 Aquaculture Cooperatives [31]. Research to be conducted in Izmir province can reveal the problems faced by fresh fruit and vegetable producers in marketing, as well as make important contributions to determining the organizational tendencies and organizational preferences of producers.

The main purpose of this study is to analyze the organizational tendencies and factors affecting the organizational preferences of fresh fruit and vegetable producers in Izmir province, Türkiye.

MATERIALS AND METHODS

The data that constitutes the main material of the study was obtained by face-to-face survey method from producers producing fresh fruits and vegetables in Bayindir, Bergama, Kemalpasa, Ödemis, Tire and Torbali districts of Izmir province. Apart from this, data published by relevant institutions and the results of previous research on the subject were also used.

It was planned to include the districts where fruit and vegetable production is intense in Izmir province within the scope of the research. According to the data of the Izmir 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 Izmir province are located in Bayindir, Bergama, Kemalpasa, Ödemis, Tire and Torbali districts. Therefore, these six districts were included in the scope of the research.

It was decided that it would be appropriate to include three neighbourhoods producing fruit and vegetables from each district within the scope of the research. In this way; Tulum, Atalan and Yeniköy neighbourhoods from Torbali district; Kizilcaavlu, Yolüstü and Demircili neighbourhoods from Ödemis district; Yeniciftlik, Eskioba and Akkoyunlu neighbourhoods from Tire district, Göcbeyli, Bölcek and Pinarköy neighbourhoods from Bergama district; Tokatbasi, Karaveliler and Balcilar neighbourhoods from Bayindir district; Bagyurdu, Ören and Yigitler neighbourhoods from Kemalpasa district were included in the scope of the research.

In the light of the data received from the District Directorates of the Ministry of Agriculture and Forestry, the total number of producers registered in the Farmer Registration System in these neighbourhoods was determined as 2,188. However, in the study, it was decided that it would be appropriate to include some of the producer through the sampling method. For this purpose, the following proportional sample size formula was used [33]. It is seen that this formula has been used in many previous similar studies [19, 3, 14, 35, 21].

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

where:
n = Sample size
N = Total number of producers
p = Proportion of producers producing vegetables and/or fruits (0.5 was taken for maximum sample size)
σ^2px = Variance.

In the study, calculations were made based on a 99% confidence interval and a 10% margin of error, and the sample size was determined as 155. In determining the number of producers to be interviewed in each neighbourhood, the shares of the neighbourhoods in the total number of producers were taken as basis.
The study was found ethically appropriate with the decision of Ege University Scientific Research and Publication Ethics Committee numbered E-157153. The survey form prepared to collect data included questions to determine the socio-economic characteristics and activity results of producers, questions to determine their perspective on agricultural organization, organizational tendencies, and preferences. The producers to be interviewed in the neighbourhoods were determined using the random numbers table. During the survey studies, the aims of the study and how they can benefit from the results were explained to each producer. The research was based on the 2021 production period. Research surveys were conducted in January-March 2022.
During the data analysis phase, it was planned to first group the producers according to land size in order to make comparisons. Producers are divided into three groups according to land size. Producers with land size of 5 hectares or less formed the first group (58 producers), producers with land size between 5.1-10 hectares formed the second group (42 producers), and producers with land size of 10.1 hectares and larger (55 producers) formed the third group.
First of all, the socio-economic characteristics of the producers are revealed. At this stage; The age of the producers, their education level, household size, land size and use, labor force availability and use and capital availability were examined. Then, the views and expectations of the producers on their level of agricultural organization, their perspective on agricultural organization, their organizational tendencies, preferences and the factors affecting this are revealed.
Likert scale was used to evaluate the producers' knowledge levels regarding agricultural organization, the factors they consider important, their preferences and tendencies, and their opinions and expectations. According to the Likert scale, the expressions in the attitude scale were evaluated on a 5-point scale [10].
In the research, Analytical Hierarchy Process (AHP) was used to reveal the organization model preferences of the producers according to various criteria. Using AHP, it was determined which criteria were given priority and at what level. AHS was developed by Thomas L. Saaty in 1977. In its most general definition, the technique provides a structural approach in determining multiple criteria and importance levels [41]. AHP is a powerful and easy-to-understand methodology that allows groups and individuals to combine and use qualitative and quantitative factors in the decision-making process [40]. AHP uses a hierarchical model consisting of objective, criteria/sub-criteria and importance levels matrices for each problem and is built on three basic principles. These are [42] creating hierarchies, determining superiorities, and ensuring logical and numerical consistency.
The stages of the AHP method can be listed as follows; defining the problem, determining the criteria, presenting the alternatives, drawing a hierarchical tree diagram, determining the criterion importance levels, scoring the alternatives according to each criterion, obtaining the multi-criteria score of each alternative, comparing the overall scores and selecting the best alternative by ranking [51].
A 9-point scoring scale is used in AHS [41]. The larger the scale, the more accuracy and precision in valuation increases. The pairwise comparison matrix of different criteria is expressed as follows. Here, n criteria are listed in rows and columns, up to i=1,2,..,n, and up to j=1,2,..,n, creating the comparison matrix. The

wi/wj term in the matrix is used to achieve the goal in the comparison matrix. criterion j. It expresses how important it is than the criterion [41].

In the mathematical modelling of AHP, matrix consistency should be calculated by finding the relative importance levels of the alternatives/criteria evaluated. For a comparison matrix to be consistent, the largest eigenvalue (λmax) must be equal to the matrix size (n) [41, 42]. To calculate the relative importance of the criteria, a "column vector" is created by averaging each row. By normalizing the created column vector, the "relative importance vector" is obtained. Each row in the matrix is multiplied by the relative importance vector to obtain the weighted importance vector. Another vector is then calculated by dividing each element of this vector by the corresponding element in the relative importance vector. As a result, the arithmetic mean of this vector gives the largest eigenvalue, "λmax". Then, the accuracy of the result is checked by calculating the consistency indicator and consistency rate as follows.

Consistency Indicator (CI) = (λmax–n)/(n-1) .....(2)

If it is a Random Indicator (RI), the consistency rate is presented as follows.

Consistency Rate (CR) = CI/RI .....(3)

Consistency rate can be used in the evaluation stages of the decision maker based on every criterion and is an important concept in terms of the quality and validity of the final decision. The AHP method provides more confidence than other multi-criteria decision-making methods as it allows consistency to be tested. For the decision matrix to be consistent, CR<0.10 is required. The closer the CR is to zero, the more consistent the comparison results will be [5].

In the study, it was also tested statistically whether there was a difference between the groups. Chi-square test was applied in comparisons regarding the data obtained by counting. For continuous variables, first the Kolmogorov-Smirnov test and the normal distribution test were applied. Analysis of variance was used for normally distributed variables, and the Kruskal-Wallis's test was used for non-normally distributed variables [36].

RESULTS AND DISCUSSIONS

Socio-Economic Characteristics of Producers

Some socio-economic characteristics of the producers are presented in Table 1. The age of the producers varies between 24-72 and the average is 49.12. Education periods vary between 5-15 years and the average is 7.86 years. It is seen that the producers in the third group are older and the producers in the same group have longer education periods. However, the difference between the groups in terms of the education period of the producers is not statistically significant (p>0.05). The agricultural experience of producers varies between 6-42 years. The average experience period was determined as 22.15 years.

The total population of the farms examined is 586, and the average household size is 3.78 persons. The average population is larger in the farms in the first group. While calculating the family labour potential, the population was first converted into male labour unit (MLU) and then into male labour day (MLD) with the approach that they can work 300 days a year [18, 35]. The average family labour potential in farms was determined as 2.25 MLU.

The land size in farms varies between 0.9-52 hectares. The average land size is 11.38 hectares.

The average number of parcels was found to be 4.58, and the average parcel size was 2.48 hectares.

As the farm size increases, the average parcel size also increases. On average, 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.

Table 1. Some socio-economic characteristics of producers

Characteristics	**Farm groups**			
	1.Group (≤5 ha)	2.Group (5.1-10ha)	3.Group (≥10.1ha)	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
Family labour potential (MLU)	2.34	2.24	2.17	2.25
Land size (ha)	3.09	8.30	22.46	11.38
Average parcel size (ha)	1.17	1.99	3.24	2.48
Property land rate (%)	77.45	56.66	61.85	62.41
Equity rate (%)	77.10	69.00	69.66	70.50

Source: Results of this study.

Producers' Perspectives on Organization and Their Organization Levels

There is a Chamber of Agriculture in all six districts included in the research. All producers are members of the Chamber of Agriculture. Apart from this, it has been determined that producers are partners in some agricultural cooperatives, members of some breeders' unions for breeding purposes and some producers' unions (Table 2). 63.87% of the producers are currently partners in any agricultural cooperative.

Table 2. Agricultural organizations of which producers are members

Organizations		Farm groups			
		1.Group (≤5 ha)	2.Group (5.1-10 ha)	3.Group (≥10.1 ha)	General
Chamber of Agriculture		58	42	55	155
Agricultural Cooperatives		38	26	35	99
Breeder Unions	Breeding Cattle Breeders Unions	11	10	12	33
	Bee Breeders Unions	2	3	4	9
Producer Unions	Milk Producers Unions	10	9	11	30
	Fruit Seedling Producers Unions	3	4	3	10
	Vegetable Seedling Producer Unions	2	1	2	5

Source: Results of this study.

50.32% of the producers are partners in Agricultural Development Cooperatives and 27.74% in Agricultural Credit Cooperatives. The partnership period of producers in cooperatives varies between 3-18 years, the average period is 12.65 years. In a study conducted in Izmir province, Türkiye, the average partnership period of producers in a cooperative was calculated as 17.23 years [3]. In a study conducted in seven different provinces of Türkiye, the partnership period of producers in the cooperative was determined as 13 years [45]. In a study conducted on cooperative partners in Balikesir, Bursa and Canakkale provinces of Türkiye, the partnership period of producers in the cooperative was determined as 17.02 years [19]. In a study conducted in Isparta province, Türkiye the duration of cooperative partnership; it was determined that it varies between 1-10 years in 49.2% of the producers and between 11-20 years in 40.2% [20].

When producers were asked about the advantages of organization, the most important advantage was; they stated that the partners should meet their in-kind and cash needs and act as intermediaries in the supply of inputs (Table 3).

When producers were asked about their basic expectations from cooperatives, their most important expectations were; it has been determined that the managers have honest and morality values, create solidarity and unity among the producers, are based on the

democratic management approach and do not allow unfair gain and corruption (Table 4).

Table 3. Producers' views on the advantages of agricultural organizations*

Advantages	Farm groups			
	1.Group (≤5 ha)	2.Group (5.1-10 ha)	3.Group (≥10.1 ha)	General
It provides the in-kind and cash needs of the partners	4.03	3.98	4.00	4.01
It supports producers in marketing.	3.31	3.26	3.16	3.25
They are more democratic organizations.	2.16	2.12	2.31	2.20
It is an advantage for partners to know each other.	2.59	2.50	2.49	2.53
Participation in management and studies is greater.	2.50	2.40	2.40	2.44
The work can be done cheaper and faster.	2.88	2.64	2.51	2.68
It acts as an intermediary in the supply of input.	3.64	3.55	3.45	3.55
Provides technical information and support to producers.	2.97	2.83	2.76	2.86
It ensures increased production and quality.	3.14	3.17	3.11	3.14
It encourages the production of natural products.	2.76	2.64	2.49	2.63
It makes the region known.	2.91	2.79	2.69	2.80
It supports rural development.	3.24	3.17	3.07	3.16

*1. Not important, 2. Slightly important, 3. Undecided, 4. Important, 5. Very important
Source: Results of this study.

Table 4. Basic expectations of producers from cooperatives*

Expectations	Farm groups			
	1.Group (≤5 ha)	2.Group (5.1-10 ha)	3.Group (≥10.1 ha)	General
Creating solidarity and unity among producers	4.33	4.36	4.33	4.34
Encouraging volunteer participation	4.21	4.31	4.35	4.28
Demonstrating an open and transparent management approach	4.17	4.17	4.15	4.16
Being sensitive to social responsibilities	4.26	4.50	4.20	4.30
Based on democratic management approach	4.22	4.38	4.42	4.34
To act independently	4.19	4.24	4.24	4.22
Creating a positive impact in the region	4.33	4.33	4.33	4.33
Managers must have honesty and moral values	4.38	4.40	4.42	4.40
Creating a fair and reliable environment	4.28	4.14	4.17	4.17
Having an audit and control system	4.14	4.02	4.05	4.05
Not giving opportunity to unfair gain and corruption	4.21	4.40	4.34	4.34
General assemblies work in harmony	3.90	4.07	4.03	4.03
Giving importance to social goals as well as economic goals	3.98	4.10	4.11	4.11

*1. Not important, 2. Slightly important, 3. Undecided, 4. Important, 5. Very important
Source: Results of this study.

In research conducted in Van province, Türkiye, the most important expectations of producers were to increase income, market partners' products and provide input at low prices [49].

When producers were asked about their satisfaction levels with cooperatives, they stated that the most important activity expected from the cooperative was marketing, that they recommended other producers to become partners in the cooperative, and that they supported the creation of a common machinery park in the region (Table 5).

In a study conducted in seven different provinces of Türkiye, it was determined that 70.2% of the partners were satisfied and successful with the cooperative, while 29.8% were dissatisfied and found it unsuccessful [44]. In a study conducted in Edirne province, Türkiye, it was found that 81.5% of the partners considered the product purchasing activities of the cooperatives effective and that they were satisfied [8].

Producers who are not cooperative partners specified that the main factors which affect their non-membership are: managers who do

not act honestly and morally, no audit and control system in cooperatives, cooperatives have no influence in the region and that they are not successful (Table 6).

Table 5. Opinions of producers regarding their satisfaction with cooperatives*

Opinions	Farm groups			
	1.Group (≤5 ha)	2.Group (5.1-10 ha)	3.Group (≥10.1 ha)	General
The cooperative in which I am a partner creates benefits	3.02	3.12	3.07	3.06
Cooperative partnership makes my work easier.	3.60	3.62	3.58	3.60
The cooperative raises my standard of living.	3.02	3.17	3.11	3.09
I recommend other producers to become partners in the cooperative.	3.83	3.93	4.00	3.92
I have read the articles of association of the cooperative.	3.10	3.17	3.11	3.12
I attend cooperative general assemblies.	3.19	3.14	3.00	3.11
I speak at the general assemblies I attend.	3.22	3.14	3.00	3.12
There is no favoritism in cooperatives.	3.43	3.62	3.69	3.57
I can take part in cooperative management.	3.02	3.14	3.11	3.08
The most important activity expected from the cooperative is marketing.	3.93	4.10	3.96	3.99
The most important problem of cooperatives is lack of capital.	3.66	3.29	3.44	3.48
I support the creation of a common machinery park in the region.	3.81	3.88	3.87	3.85

*1. Not important, 2. Slightly important, 3. Undecided, 4. Important, 5. Very important
Source: Results of this study.

Table 6. Factors affecting producers not becoming partners in cooperatives*

Factors	Farm groups			
	1.Group (≤5 ha)	2.Group (5.1-10 ha)	3.Group (≥10.1 ha)	General
There is no suitable cooperative in my region where I can become a partner.	2.95	3.07	3.13	3.05
It is difficult to become a partner in the cooperative, there are many transactions	3.64	3.36	3.38	3.47
I do not have the capital I can allocate for the cooperative.	3.34	3.86	3.78	3.64
I don't trust people easily	4.17	4.14	4.15	4.15
Cooperative cannot enable us to act together	4.05	3.64	3.71	3.82
Cooperatives have no impact in the region, I do not find them successful.	4.26	4.50	4.60	4.45
Managers do not act honestly and ethically	4.21	4.79	4.73	4.55
There is no open and transparent management in cooperatives	4.17	4.14	4.15	4.15
I can already sell my products at a higher price	4.17	4.14	4.15	4.15
Agricultural support is already insufficient, and I do not benefit from it.	3.90	3.00	2.96	3.32
There is no supervision and control system in cooperatives	4.28	4.57	4.58	4.46
I don't have any land anyway; I produce by renting.	2.05	2.00	1.87	1.97

*1. Not important, 2. Slightly important, 3. Undecided, 4. Important, 5. Very important
Source: Results of this study.

In a study conducted in seven different provinces of Türkiye, the most important factors affecting producers' participation in cooperatives are it was determined as increasing the economic power by acting together and benefiting from the product sales guarantee [44].

Organizational Model Preferences of Producers According to Various Criteria

In the research, producers' organizational model preferences in terms of cooperative, individual farm, company, and producer union; Priority preferences were analyzed with Analytical Hierarchy Process (AHP) in terms of price advantage, input supply, risk reduction, marketing opportunity and technical training and consultancy services.

Table 7 shows the relative importance values and consistency level calculations of the criteria. In pairwise comparisons, the inconsistency shown by the person making the judgments in the evaluation is expressed as the consistency ratio. While the inconsistency is acceptable below a certain rate (10%), when it exceeds this rate, the decision maker may be asked to reconsider the pairwise comparison judgments. From the findings, it can be stated that the inconsistency contained in the judgments in the pairwise comparison matrix is at an acceptable level. The relative importance values obtained for the criteria are meaningful and interpretable. In this case, the most effective criterion in terms of organizational model preference is price advantage (0.3657). This criterion is followed by input supply (0.2055), risk reduction (0.1739), technical training and consultancy (0.1607) and marketing opportunity (0.0942) in order of importance.

When producer decisions are evaluated according to the selection criteria among alternative organizational models; it is seen that the first choices of producers in terms of price, cost, input supply, risk reduction, technical training and marketing supports are cooperatives, and this organization model is followed by individual farm, companies, and producer unions, respectively (Tables 8, 9,10, 11 and 12).

Table 7. Relative importance values of criteria and consistency level calculations

Normalized values						**Relative importance weights**	**Consistency level**			
Criteria	Price advantage	Input supply	Reduce risk	Technical training and consultancy	Marketing opportunity		aij.wj	aij.wj/wi	CI	CR
Price advantage	0.4014	0.7103	0.4002	0.2144	0.1019	**0.3657**	2.5801	7.0562	0.6009	0.5365
Input supply	0.0816	0.1444	0.3815	0.2579	0.1621	**0.2055**	1.6459	8.0093		
Reduce risk	0.1270	0.0479	0.1266	0.4519	0.1163	**0.1739**	1.5968	9.1799		
Technical training and consultancy	0.1265	0.0378	0.0189	0.0675	0.5528	**0.1607**	1.1340	7.0564		
Marketing opportunity	0.2635	0.0596	0.0728	0.0082	0.0669	**0.0942**	0.5386	5.7170		
Total	**2.4910**	**6.9259**	**7.8992**	**14.8056**	**14.9463**		λmax	7.403		

Source: Results of this study.

Table 8. Evaluation of options in terms of price advantage

Normalized values					Relative importance weights	Arrangement
Options	Cooperative	Individual farm	Company	Producer union		
Cooperative	0.5837	0.7658	0.4114	0.2845	**0.5113**	1
Individual farm	0.1238	0.1624	0.4630	0.3242	**0.2684**	2
Company	0.1455	0.0360	0.1025	0.3196	**0.1509**	3
Producer union	0.1471	0.0359	0.0230	0.0717	**0.0694**	4

Source: Results of this study.

Table 9. Evaluation of options in terms of input supply

Normalized values					Relative importance weights	Arrangement
Options	Cooperative	Individual farm	Company	Producer union		
Cooperative	0.5671	0.7666	0.3672	0.2516	**0.4881**	1
Individual farm	0.1240	0.1676	0.5125	0.3474	**0.2879**	2
Company	0.1539	0.0326	0.0997	0.3323	**0.1546**	3
Producer union	0.1550	0.0332	0.0206	0.0688	**0.0694**	4

Source: Results of this study.

Table 10. Evaluating options to reduce risk

Normalized values					Relative importance weights	Arrangement
Options	Cooperative	Individual farm	Company	Producer union		
Cooperative	0.5937	0.7608	0.4364	0.3106	**0.5254**	1
Individual farm	0.1266	0.1622	0.4377	0.3053	**0.2580**	2
Company	0.1384	0.0377	0.1017	0.3101	**0.1470**	3
Producer union	0.1414	0.0393	0.0243	0.0740	**0.0697**	4

Source: Results of this study.

Table 11. Evaluation of options in terms of technical training and consultancy services

Normalized values					Relative importance weights	Arrangement
Options	Cooperative	Individual farm	Company	Producer union		
Cooperative	0.3306	0.4748	0.7381	0.6045	**0.5370**	1
Individual farm	0.2562	0.4053	0.1726	0.1413	**0.2438**	2
Company	0.3437	0.0997	0.0425	0.1270	**0.1532**	3
Producer union	0.0695	0.0202	0.0468	0.1271	**0.0659**	4

Source: Results of this study.

Table 12. Evaluation of options in terms of marketing opportunities

Normalized values					Relative importance weights	Arrangement
Options	Cooperative	Individual farm	Company	Producer union		
Cooperative	0.5724	0.7846	0.3798	0.2592	**0.4990**	1
Individual farm	0.1105	0.1514	0.4927	0.3439	**0.2746**	2
Company	0.1570	0.0320	0.1042	0.3243	**0.1544**	3
Producer union	0.1601	0.0319	0.0233	0.0725	**0.0720**	4

Source: Results of this study.

When producer decisions are evaluated holistically among alternative organizational models, it is seen that the first choice of producers is cooperative, followed by individual business, company, and producer union, respectively (Table 13).

In a study conducted in seven different provinces of Türkiye, it was determined that the first choice of producers as an organizational model was cooperatives, the most important factor in terms of preferences was market guarantee, and the expectation of good prices came last [45].

Table 13. Holistic evaluation of results

Options	Criteria					Holistic importance	Arrangement
	Price advantage	Input supply	Reduce risk	Technical training and consultancy	Marketing opportunity		
Cooperative	0.5113	0.4881	0.5254	0.5370	0.4990	**0.5120**	**1**
Individual farm	0.2684	0.2879	0.2580	0.2438	0.2746	**0.2672**	**2**
Company	0.1509	0.1546	0.1470	0.1532	0.1544	**0.1517**	**3**
Producer union	0.0694	0.0694	0.0697	0.0659	0.0720	**0.0691**	**4**
Weighting	0.3657	0.2055	0.1739	0.1607	0.0942		

Source: Results of this study.

In a study conducted in Izmir province, Türkiye, it was determined that producers see cooperatives as the most important alternative in terms of the highest profit, lowest risk, and best marketing opportunity criteria to achieve success, and the most important criterion is the best marketing opportunity [3].

According to results of this study, 76.77% of the producers stated that they could become partners if a Fresh Fruit and Vegetable Cooperative was established in the region. In a study conducted on tomato producers in Mugla province, Türkiye, 88% of the producers stated that they could become partners in such a cooperative if it was established in the region [14]. In a study conducted in Manisa province, Türkiye, it was determined that 90.70% of the producers engaged in crop production were willing to become partners in an agricultural cooperative to be established in the region [35]. In a study conducted in Nigde province, Türkiye, it was determined that 74.11% of apple producers could become partners in a cooperative to be established in the region [21].

The most important reasons why producers want to become partners in the Fresh Fruit and Vegetable Cooperative are; marketing problems can be reduced by establishing a cooperative, input prices can be reduced by establishing a cooperative, and local products can be branded by establishing a cooperative. In research conducted on tomato producers in Mugla province, Türkiye, the most important reasons for wanting to become a partner in the cooperative are it has been determined that the marketing problem disappears and tomato production increases [14].

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. In a study conducted in Nigde province, Türkiye, it was determined that the most important expectations of apple producers if a cooperative was established in the region would be product marketing, technical information support and input support [21].

CONCLUSIONS

In this study, with the data compiled by survey method from 155 producers with proportional sampling in Izmir province, Türkiye, the perspectives of fresh fruit and vegetable producers on organization were evaluated, their organizational model preferences were analyzed, and their tendencies and expectations towards partnership in case of establishing a Fresh Fruit and Vegetable Cooperative in the region were revealed. According to producers, the most important problems encountered in growing fresh fruits and vegetables are low product prices, high input prices and the fight against diseases and pests. The suggestions that producers most agree with to reduce intermediaries in the marketing of fresh fruits and vegetables are increasing the number of food industry enterprises, ensuring the organization of producers, and establishing an inspection system for intermediaries.

The most effective criterion for producers' choice of organizational model is price advantage. This criterion is followed by input supply, risk reduction, technical training and consultancy and marketing opportunity in order of importance. When producer decisions are evaluated according to the selection criteria among alternative organizational models; it has been determined that producers' first choices are cooperatives. 63.87% of the producers are currently partners in any agricultural cooperative. However, 76.77% of the producers stated that they could become partners if a Fresh Fruit and Vegetable Cooperative was established in the region. The most important reasons why producers want to become partners in the Fresh Fruit and Vegetable Cooperative are; marketing problems can be reduced by establishing a cooperative, input prices can be reduced by establishing a cooperative, and local products can be branded by establishing a cooperative.

Producers mostly market the fresh fruits and vegetables they produce to traders and brokers. Other important channels are processors and exporters. Direct marketing is more limited. producers can generally obtain prices above cost. However, 93% of the producers in vegetable production and 94% of the producers in fruit production are not satisfied with the

prices they get. Producers can achieve effectiveness in marketing by coming together in cooperatives. In this way, it will be possible to reduce the number of intermediaries between producers and consumers, producers will sell their products at affordable prices, and consumers will be able to buy products at affordable prices. Since a cooperative that can be established by producers, especially for marketing purposes, may also have a storage, processing, and distribution network, it may also be possible to provide employment opportunities in the region. In addition, the cooperative that can be established in this way can contribute to preventing short migration and attracting young people's interest in agriculture. The most important expectations of fresh fruit and vegetable producers from cooperatives are product marketing efficiency and obtaining high prices. Therefore, it may be useful to take Agricultural Development Cooperatives that are successful in marketing as an example during the establishment of a cooperative.

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