



## Article

# Problems of Retailers in the Cut Flower Sector and a Proposal for the Sustainability of the Sector: The Case of Turkey

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**Abstract:** The aim of this study was to identify the problems faced by retailers operating in the cut flower sector and to propose solutions to problems related to the sustainability of the sector. The study material consisted of data obtained by conducting a survey among 56 cut flower retailers in İzmir. In the study, factor analysis was used to determine the main problems that cut flower retailers encounter in the industry. Factor scores obtained through the factor analysis were divided into three clusters using cluster analysis. According to the results of the research, it was determined that the retailers included in the first cluster had the problem of obstacles to sales, the retailers in the second cluster had the problem of competition and cost increases, and finally, the retailers in the third cluster had the problem of quality. In light of these data, suggestions are made about what should be achieved for the sustainability of the retail cut flower sector.

**Keywords:** cut flower; retailers; florists; factor analysis; cluster analysis; sustainability



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## 1. Introduction

Flowers were initially used for aesthetic purposes but have become one of the main tools that help cities become more habitable over time, as they aid in strengthening the relationship between people and nature and eliminate the negative impacts of many environmental problems in human life [1]. Flowers have been used for centuries for decorative and religious purposes as well as personal adornment [2]. The ornamental plant industry is categorized as cut flowers, indoor ornamental plants, outdoor ornamental plants, and flower bulbs. The ornamental plant industry is among the major industries in many developing and underdeveloped countries [3].

The ornamental plant industry in Turkey is regarded as effective in providing added value to the national economy and creating new areas for employment. This industry has achieved rapid growth in international markets in recent years. However, the same has not been observed in the domestic market. Despite an increased demand for cut flowers as a result of increases in urbanization, in purchasing power in some segments of society, and in the significance and spread of celebratory and decorative activities in modern Turkish life, the requirement remains at a very low level [4].

In 2021, among the areas of agricultural land marked for ornamental plant production in Turkey, outdoor ornamental plants were grown in 72.96% of these areas, cut flowers in 22.88%, indoor ornamental plants in 3.25%, and flower bulbs in 0.92%. The cut flower production area was 1104.68 hectares in 2013 and reached 1265.22 hectares in 2021. Cut flower production in Turkey is mostly carried out in Antalya, İzmir, Yalova, Isparta, Adana, Konya, and İstanbul [5]. Antalya and İzmir are especially important in cut flower production.

The export value of cut flower production was recorded as USD 22.8 million from 2004 to 2008, which rose to USD 30.1 million from 2014 to 2018, and reached nearly USD 35.9 million in 2019. Carnations have the greatest importance among exported cut flower products [6]. The value of Turkey's cut flower exports in 2022 was USD 49.4 million. Turkey is ranked 20th in the world for cut flower exports, exporting to the Netherlands, the UK, Russia, Bulgaria, Denmark, Romania, Poland, and Germany [7].

A significant portion of cut flowers in Turkey are marketed through Limited Liability Floriculture Production, Marketing Cooperative, and flower auctions run by the cooperative in various cities. In these auctions, cut flowers are sold to retailers, wholesalers, and exporters.

Retailers play an important role in forecasting trends in the types of cut flowers that consumers prefer and delivering these types of flowers. They enable communication between manufacturers and consumers in the domestic market; have an active role in marketing channels; determine product supply according to consumer expectations, demands, and needs; and purchase products from manufacturers or wholesalers. Historically, the main function of retailers was to purchase products from manufacturers and deliver them to consumers after carrying out certain marketing services; however, retail is now practiced in a different manner [8]. In the cut flower industry, a customer-oriented understanding of retailing aimed at customer satisfaction has become more prevalent.

It is concerning that only a limited number of studies related to the retail cut flower industry analyzing retailers and their issues within the sector are evident in the literature. In the research conducted in the Philippines, the current situation of cut flower retailers and their problems was revealed [2]. Supply chains in the cut flower sector in Bangladesh were analyzed and some recommendations were made [3,9,10]. The profitability of cut flower retailing in Michigan was analyzed [11]. The economic income of cut flower producers and retailers in Pakistan was calculated [12]. In the studies conducted in Turkey, the current structure of cut flower retailing, marketing channels, and marketing problems were analyzed [4,8,13–15]. The production, marketing, and profitability of some chosen cut flower species at producer, retailer, and wholesaler level in Bangladesh were analyzed [16]. In studies conducted in different regions of Turkey, the profiles of retailers in the cut flower sector were revealed [17–19]. In a study conducted in India, the factors that lead women to retail flower marketing were revealed [20]. In a study conducted in Greece, cut flower distribution channels were evaluated [21]. In Pakistan, the marketing channel of cut flowers was analyzed and marketing costs were calculated [22,23]. In a study conducted in Mexico, consumers' and retailers' knowledge about the Aztec Lily (ALY) was compared. Potential clusters were identified based on their knowledge and preferences for ALY [24]. In Brazil, the profiles of producers and retailers in the cut flower sector were revealed [25]. When the research conducted in the world and in Turkey was analyzed, the profiles of cut flower retailers and the current situation, problems, and solutions were discussed. This research examined the subject from a different perspective and is also important in terms of contributing to the literature with the methods used.

Retailers selling cut flowers, which constitute the closest marketing link of the cut flower distribution chain to consumers, strive to meet both consumer requests and needs and distinguish themselves among their competitors in a fiercely competitive environment. Retailers in this industry have many problems that arise from current economic structures, legislation, and circumstances in the industry. It is important to ensure the sustainability of the sector by identifying retailers' most important problems. If the main problems of the retailers selling cut flowers are determined, it would be a correct and quick approach to propose solutions to the problems of the sector. It would not only solve the problems of retailers, but would also provide a solution to the problems of producers, wholesalers, and exporters in the cut flower sector. Stakeholders in the sector could contribute to the solution of these problems. The present study emphasizes that certain policies should be developed to improve the cut flower industry in line with the data obtained by determining the problems of retailers working in the industry.

The main purposes of this study were to find ways to reduce the number of problems faced by retailers in the cut flower sector, to divide retailers into homogeneous clusters based on relevant factors, to determine the characteristics of retailers in these clusters, and to make suggestions for ensuring their sustainability. The results of this study will help entrepreneurs investing in the cut flower sector and decision makers associated with this sector.

## 2. Methodology

### 2.1. Data Collection Methods

The focus of this study was on cut flower retailers in central districts of the city of İzmir. A list of cut flower retailers was obtained from the registers of the İzmir Union of Chambers of Tradesmen and Craftsmen. According to these documents, there are 306 registered cut flower retailers [26]. The number of retailers to be interviewed within the framework of the study was calculated using the formula of proportional sample size [27]:

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

where  $n$  is the sample size;  $N$  is the number of cut flower retailers included in the study;  $\sigma^2_{px}$  is variance (90% confidence interval and 10% margin of error); and  $1.645 \sigma_{px} = 0.10$ ,  $\sigma_{px} = 0.06079$ , and  $\sigma^2_{px} = 0.003695$ .

It is recommended to accept the value  $p = 0.50$ , which provides the largest value in the multiplication of  $p(1-p)$ , in order to allow for the sample size to be as large as possible. Thus, to achieve the maximum sample size, the proportion of cut flower retailers was taken as 0.50. The sample size was calculated to be 56 based on a confidence interval of 90% and an error margin of 10%. The number of cut flower retailers to be interviewed in every district was determined by considering the proportion of districts among the overall number of retailers. A survey of the cut flower retailers was performed through direct conversation.

### 2.2. Ethical Statement

This study, which was carried out between 2014 and 2018, was reviewed and approved by the Ege University Scientific Research Projects Coordination Unit. In 2014, when the project was initiated, the unit did not have to obtain ethics committee approval for human research. The survey participants were invited to take part in the research study, and were fully informed as to the intent and purpose of the study. The consent procedure was carried out face-to-face. This survey research was carried out in 2015. The questionnaires were completed through face-to-face interviews with retailers.

### 2.3. Analytical Framework

The problems of cut flower retailers in the province of İzmir were defined through factor analysis. Retailers were offered some statements related to issues in the cut flower sector, and their agreement with each statement was evaluated using a Likert scale (5: strongly agree; 4: mostly agree; 3: undecided; 2: disagree; and 1: strongly disagree).

Factor analysis is an interdependence technique, whose primary function is to define the underlying factors among the variables in the analysis [28]. Factor analysis was used to turn the associated data structures into new data structures that were independent and in smaller numbers and provided new structures using the relationship between variables [28–30].

If the variables are standardized, the factor model may be represented [29].

$$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \dots + A_{im}F_m + V_iU_i \quad (2)$$

$X_i$  =  $i$ th standardized variable

$A_{i1}$  = standardized multiple regression coefficient of variable  $i$  on common factor  $j$

$F$  = common factor

$V_i$  = standardized regression coefficient of variable  $i$  on unique factor  $i$

$U_i$  = the unique factor for variable  $i$

$m$  = number of common factors

The unique factors are uncorrelated with each other and with the common factors. The common factors themselves can be expressed as linear combinations of the observed variables [29].

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \dots + W_{ik}X_k \quad (3)$$

$F_i$  = estimate of  $i$ th factor

$W_i$  = weight or factor score coefficient

$k$  = number of variables

Bartlett's test and the Kaiser–Meyer–Olkin (KMO) test were used to test the compatibility of the factor model. Bartlett's test examines the hypothesis that no correlation exists between variables, while the KMO test is an index that compares the magnitude of observed correlation coefficients with that of relative correlation coefficients. As a result of factor analysis, the value obtained from the KMO test should be in the range of 0.5–1. If a value is not in the range of determined values, it is accepted that, for example, the population is not represented. If the KMO value is less than 0.5, it indicates that the correlation between variables cannot be explained with other variables and is not eligible for factor analysis [28–30].

This research used Varimax rotation with principal component analysis, a factor analysis approach. Eigenvalues were used to determine the factor numbers. Each eigenvalue indicates the total variance explained with each factor. According to this approach, only factors greater than 1 are considered and others are not included in the model. The factor analysis included 28 problems encountered in the cut flower industry. As a result of the factor analysis, 13 variables were excluded. The anti-image correlation, component, and communalities table values of the variables included in the analysis were examined. When examining this table, it was determined that due to high rental expenses, the variable value was lower than 0.50, and this variable was excluded. When high VAT rates, flower sales in markets, problems related to product preservation, lack of promotion, lack of a cut flower buying culture among consumers, problems related to skilled personnel, unfavorable physical conditions of auctions, the lack of diversity, low profit margins, and product wastage due to low demand were examined using the rotated component matrix values; the values were all above 0.40 and were excluded. With issues related to transportation, the communalities value of the variable was determined to be lower than 0.50, and this variable was also extracted. Factor analysis was performed again by filtering out the excluded variables, and it was determined that the coefficient magnitude of 15 variables was suitable for factor analysis. The problems not included in the factor analysis were those that failed to measure the underlying factors of the cut flower retail industry. These were not covered by the basic factors determined by factor analysis, and could not define such dimensions.

The factor groups used to determine the problems of retailers created through factor analysis were used as variables in cluster analysis. A cluster analysis was performed to categorize the retailers in Izmir province based on their problems in the cut flower sector, and to define their profiles as a result of the analysis. A variable representing each factor group was utilized to group the retailers.

The main aim of the cluster analysis was to group the retailers into the most relevant clusters based on the pre-determined criteria. In cluster analysis,  $n$  number of units and objects are divided into homogeneous subgroups within themselves and heterogeneous subgroups between each other depending on  $k$  number of variables [28–30]. Cluster analysis is a classification method used to profile participants [28,31]. Cluster analysis is used in fields such as psychology, biology, sociology, economics, engineering, and management sciences. Cluster analysis is comparable to factor analysis in its objective of assessing structure. But, cluster analysis differs from factor analysis in that cluster analysis analyzes objects, whereas factor analysis is primarily concerned with grouping analysis [28]. Several clustering procedures have been developed and researchers should select one that is appropriate for the problem at hand [29]. In the present study, groups were divided by means of a dendrogram using Ward's method and squared Euclidean distance hierarchically. The most commonly used distance unit is the Euclidean distance.

The Euclidean distance formula is given below [30].

$$d(i, j) = \sqrt{\sum_{k=1}^p (X_{ik} - X_{jk})^2} \quad (4)$$

$i = 1, 2 \dots n$

$j = 1, 2 \dots n$

$k = 1, 2 \dots p$

$n = \text{units}$

$p = \text{number of variables}$

In Ward's method, clusters are formed by multiplexing intra-group and cluster homogeneity to the maximum. As a result of the cluster analysis based on the factors determining retailers' problems in the cut flower sector, the retailers were divided into three groups. Then, we attempted to obtain retailer profiles using the cluster analysis according to these criteria.

According to the results of the clustering analysis, it was statistically tested whether the retailers divided into groups differed in terms of some socio-demographic variables (age, education, work experience, size of workplace, or number of employees). A normal distribution test was performed with the Kolmogorov–Smirnov test for permanent variables [32]. Age and work experience were normally distributed, while other variables (education, size of workplace, and number of employees) were not normally distributed. For normally distributed variables, variance analysis (one-way anova) was used, and for non-normally distributed variables, the Kruskal–Wallis test was used [33–35]. All analyses were conducted by using the statistical software SPSS 25.0.

### 3. Results and Discussion

#### 3.1. Demographic Characteristics of Retailers

The mean age of the retailers was 41.74 years and the mean education period was 9.64 years. Of the retailers selling cut flowers, 96.4% were male and 3.6% were female. In total, 16.67% of the retailers were under the age of 30, 62.96% were between 31 and 50 years old, and 20.37% were 51 years old and above. In total, 39.63% of the retailers had primary- and secondary-level education, 45.28% had high-school-level education, and 15.09% had university-level education. In studies that have been conducted in different regions of Turkey, it has been determined that the majority of retailers selling cut flowers are high-school-educated [8,13,17,18]. The average experience of retailers in their occupation was 23 years. In total, 18.52% of retailers had been in this occupation for less than 10 years, 25.93% for 11–20 years, and 55.55% for more than 21 years. In total, 17.86% of the retailers were members of the cooperatives, whereas 82.14% were not members. All of the florists who were members of the cooperative were members of the Limited Liability Floriculture Production and Marketing Cooperative. All retailers were members of at least one professional organization. The retailers stated that they were members of the Izmir Chamber of Florists, the Izmir Chamber of Tradesmen and Craftsmen, the Chamber of Commerce, and the Turkish Florists Federation. The average workplace size of retailers was 46.06 square meters. The workplaces of 14.29% of the retailers were property-owned, and 76.79% of the retailers had established their firms with their own capital.

#### 3.2. Factor Analysis of Data Related to the Problems of Retailers in the Cut Flower Sector

Principal factor analysis was conducted to assess the dimensionality of the 15 items. In the factor analysis, the hypothesis that the correlation matrix of a population is a unit matrix was rejected. The Bartlett test of sphericity was significant (chi-square = 406.946,  $p < 0.000$ ). The KMO measure of sampling adequacy value was 0.735, indicating that the sample magnitude was suitable for the factor analysis. Among the problems of the cut flower retailers, 15 variables were reduced to five main factors. The factors with eigenvalues greater than one were selected, and these five factors explained 74.07% of the variance.

As a result of the factor analysis, the reliability of 15 expressions, forming five factors (Cronbach's alpha = 0.85), was calculated. Cronbach's alpha should be at least 0.7, which is in the range of 0 to 1, to be considered acceptable. Based on this, it can be said that the scale is reliable [29,36].

The first factor group included issues such as inadequate delivery of cut flowers to funerals and special events, the prohibition of cut flowers in hospitals, challenges in determining retail prices, and unfair competition. The first factor group was called the problem of sales obstacles. This factor expressed 34.00% of the total variance (Table 1).

**Table 1.** Factor analysis of problems of cut flower retailers in the sector.

	Likert Mean *	Standard Deviation	Factor Loading
<b>SALES OBSTACLES</b>			
Unfair competition	3.95	1.13	0.725
Inadequate delivery of cut flowers to hospitals or campaigns for donating fresh cut flowers	3.88	1.25	0.920
Obligation to bring fresh cut flowers to hospitals	3.86	1.24	0.916
Challenges in determining retail prices	3.55	1.41	0.834
<b>QUALITY SHORTCOMINGS</b>			
Quality problems	3.41	1.29	0.630
Inadequate demand for cut flowers due to high prices	3.36	1.34	0.810
Discrepancy between quality and price	3.30	1.32	0.813
Lack of quality products	2.80	1.27	0.777
<b>INSTABILITY BETWEEN DEMAND AND PRICE</b>			
Instability of seasonal demand	3.86	1.21	0.595
Instability of prices	3.64	1.27	0.781
Inadequate demand	3.63	1.20	0.742
<b>FINANCIAL PROBLEMS</b>			
Lack of capital	2.91	1.44	0.792
Challenges with payments	2.84	1.39	0.826
<b>PROBLEMS IN INCREASED COMPETITION AND COST</b>			
Increased number of flower sellers	3.88	1.08	0.792
High cost of electricity	3.52	1.26	0.821

\* 1: strongly disagree; 2: disagree; 3: undecided; 4: mostly agree; 5: strongly agree.

Quality shortcomings, which defined 14.23% of the total variance, included variables of quality-related problems such as low demand for cut flowers due to high prices, discrepancies between quality and prices, and challenges in product supply. The third factor, called the problem of instability between demands and prices, expressed 10.47% of the variance. The components of the third factor group include the instability of seasonal demand, the instability of prices, and inadequate demand. The fourth factor group, which included inadequate capital and challenges with payments, was called financial problems and expressed 8.02% of the total variance. The fifth factor group, called increased competition and cost, included the increased number of cut flower sellers and the high cost of electricity and expressed 7.35% of the total variance (Table 1).

In studies conducted in different regions of Turkey, it was found that cut flower retailers were faced with economic problems such as high taxes, lack of product variety, transport, low quality, and price instability [8,13,14]. Similar results were obtained in this research.

### 3.3. Cluster Analysis of Retailers Based on Problems in the Cut Flower Sector

A cluster analysis of the five factors obtained through factor analysis was conducted based on the factor scores to divide the cut flower retailers into groups according to the problems in the sector. Through this analysis, the retailers were divided into three groups.

According to the analysis results, the first group included 23 retailers (41.07%), the second group 15 (26.79%), and the third group 18 (32.14%). Table 2 shows the factor groups of most concern to each cluster. The retailers in these three clusters were evaluated based on their characteristics as follows.

**Table 2.** Final cluster scores and sample numbers in each cluster.

Factors	Retailers with Sales Obstacles ( <i>n</i> = 23)	Retailers with Increased Competition and Cost Problems ( <i>n</i> = 15)	Retailers with Quality Problems ( <i>n</i> = 18)
Sales obstacles	0.84195	−1.11245	−0.14878
Quality shortcomings	−0.35661	−0.52173	0.89045
Instability between demand and price	−0.01969	−0.45770	0.40658
Financial problems	−0.35070	−0.29114	0.69073
Problems with increased competition and cost	−0.22942	0.21074	0.11753
Rate of retailers in clusters (%)	41.07%	26.79%	32.14%

Table 2 shows that the retailers in the first cluster encountered the problem of sales obstacles more frequently than those in the other clusters. Thus we can say that retailers face sales obstacles more often when marketing cut flowers. The answers to the variables of the first cluster retailers are reversely associated with the variables of quality problems, the instability of demand and prices, financial problems, and increased competition and cost. It was determined that the first cluster retailers were indifferent to these problems.

The retailers in the second cluster considered the problem of increased competition and cost as the most serious problem in the cut flower sector. The retailers in this group did not regard sales obstacles, quality problems, the instability of demand and prices, and financial problems as severe problems. The retailers in this cluster had a negative attitude toward cut flower marketing.

The retailers in the third cluster had the highest average score of variables for quality problems, followed by financial problems, the instability of demand and prices, and increased competition and cost. The retailers in this cluster did not see sales obstacles as a serious problem. The attitude of these retailers toward sales obstacles was negative.

The cluster distribution of retailers according to their demographic and socioeconomic features was given in Table 3.

Retailers who experienced sales obstacles were middle-aged, with lower levels of education than retailers in the other two clusters, and had an average work experience of 23 years. Although their education levels were lower than the other two groups, the difference between the groups was not found to be significant. Analyzing the legal status of the businesses in this cluster, it was found that 86.96% were real persons and 11.11% were legal persons. All businesses owned and operated by legal persons were limited companies. The workplaces of 91.3% of the retailers in the first cluster were rented and had an average area of 40.95 m<sup>2</sup>. Retailers who experienced sales obstacles tended to have fewer employees than those in the other two clusters. Most of the retailers in the first cluster (56.52%) supplied cut flowers through auctions (Table 3).

**Table 3.** Some characteristics of retailers based on clusters.

	Retailers with Sales Obstacles ( <i>n</i> = 23)	Retailers with Competition and Cost Problems ( <i>n</i> = 15)	Retailers with Quality Problems ( <i>n</i> = 18)	General ( <i>n</i> = 56)	F Test/ Kruskal–Wallis H	Asymp. Sig.
Age (years)	42.36	44.07	38.88	41.74	0.938	0.398
Education (years)	9.22	9.93	10.00	9.64	1.216	0.544
Work experience (years)	23.33	25.93	21.28	23.37	0.759	0.473
Size of workplace/shop (m <sup>2</sup> )	40.95	39.07	57.44	46.06	3.524	0.172
Number of employees	1.76	1.92	2.00	1.88	0.314	0.855
Ownership status						
Property	2 (8.70%)	2 (13.33%)	4 (22.22%)	8 (14.29%)		
Rented	21 (91.30%)	13 (86.67%)	14 (77.78%)	48 (85.71%)		
Cut flower suppliers						
Self-production	1 (4.35%)	0 (0%)	0 (0%)	1 (1.79%)		
Auctions	13 (56.52%)	8 (53.33%)	7 (38.89%)	28 (50.00%)		
Wholesalers	10 (43.47%)	15 (60.00%)	11 (61.11%)	30 (53.57%)		
Manufacturers	2 (8.70%)	1 (6.67%)	1 (5.56%)	4 (7.14%)		

Retailers who experienced competition and cost problems were older and had more experience in the floristry sector compared to retailers in the other two clusters. But, according to the statistical analyses, it was found that there was no difference between the groups in terms of age and work experience. Retailers in this cluster had an average of 9.93 years of education. For the retailers in this cluster, 86.67% of their workplaces were rented and the average shop area was 39.07 m<sup>2</sup>. Among the businesses included in the second cluster, 92.31% were owned and operated by natural Turkish citizens. Among the businesses owned and operated by legal persons, 7.69% were limited companies. Businesses in this cluster had an average of 1.92 employees. Among the retailers, 60% stated that they sourced cut flowers from wholesalers, and 53.33% through auctions (Table 3).

Compared to the retailers in the other two clusters, those with quality problems were younger, more educated, and had less work experience. However, the results of the statistical analyses showed that there was no statistical difference between the groups in terms of age, education, and length of work experience. Regarding legal status, 88.89% of retailers in the third cluster were established to be real persons, whereas 10.71% were legal persons. All businesses owned and operated by legal persons were limited companies. The workplaces of 22.22% of the retailers with quality problems were real property and the average shop size was 57.44 square meters. Most of the retailers in this cluster stated that they sourced cut flowers from wholesalers.

#### 4. Conclusions

It was determined that retailers in the first cluster faced sales obstacles. Important issues encountered by these retailers include inadequate delivery of cut flowers to funerals and special events, campaigns for donating flowers, and cut flowers being prohibited in hospitals. Campaigns for not sending but donating flowers negatively affect the cut flower sector, shrink market coverage, and reduce prospective investments in the sector, leading to unfair competition. The issues seen as the most severe among the retailers in this cluster can be eliminated through suitable legal solutions.

Among the most critical problems faced by retailers in the second cluster were the high cost of electricity and the increased number of flower shops. Among the retailers who participated in the survey, 80.36% stated that they used air-conditioners and cold storage areas within their shops to preserve their cut flowers. The exorbitant cost of electricity is important for retailers, as electricity pricing is managed by workplace pricing plans.

An increase in unrecorded retail sales is another particularly important problem in the sector, entailing the sale of cut flowers on the street by peddlers and in big markets. Measures should be taken to prevent such unrecorded sales, as they create unfair competition between cut flower retailers who are circumventing tax regulations and those who are

not. For those retailers who engage in such subversive sales, legal regulations should be enacted by local and national lawmakers.

The retailers in the third cluster experienced quality problems including issues in the availability and quality of cut flowers in the domestic and international markets, a decreased demand for cut flowers due to high prices, and unfair pricing considering quality. Cut flower production should be standardized and qualified with regard to the domestic and international markets, and these producers should be provided with training on how to cultivate quality products. The lack of qualified personnel in the sector should be addressed. Vocational high schools and training schools should be opened to meet the personnel needs of the sector and applied training should be provided. Short-, medium-, and long-term production plans for cut flowers should be defined in collaboration with other stakeholders in the sector.

Training on developing capacity in this sector should be enhanced and include features such as floral arranging and preservation techniques. Such enhanced training would result in more qualified retailers in the sector. Most importantly, a cut flower consumer culture should be promoted through increased advertising and promotional activities by cut flower associations in order to increase domestic sales. Through these two activities, providing training and promoting flower culture, both diverse products and an increased number of quality products can be supplied to consumers, which will contribute to the development of export opportunities and ultimately the sector itself.

Organizing various meetings, courses, and workshops to promote floriculture is very important for the sector. The joint efforts of the Chamber of Tradesmen and Craftsmen, the Chamber of Florists, municipalities, and institutions and organizations working in this sector for the promotion of floriculture will contribute to the sustainability of the sector.

The present study revealed that the retailer florists in the cut flower sector have various problems arising from the economic structure, legislation, and the nature of the sector. This study is of great significance in order to identify the major problems in the cut flower sector, where intense competition is experienced, and to develop solutions for these problems. Accordingly, it was first established which problems retailer florists cluster around the most. The solutions in this context were clearly set out. Retailer florists with different demographic and business characteristics may face differing problems in the sector. It is essential to recognize the problems of retailer florists in different segments and develop solutions accordingly. The findings of both factor analysis and cluster analysis utilized in this study will provide key clues to sector stakeholders. Considering the segments identified based on the problems of retailer florists, policy makers will be able to develop policies and training programs for the cut flower sector. The results obtained from this study will also provide stakeholders in the sector with valuable insights on the expectations of the sector and the development of the domestic and foreign markets. Furthermore, the methods used in the present study can also be applied to identify the problems of different sectors. The problems in the sector will be reduced using factor analysis, and by dividing the target audience into homogeneous clusters based on these factors, it will be useful in revealing the people/institutions that will solve these problems in the sector more precisely. It will also contribute to the formulation of applicable policies for the sector.

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