Factors affecting the choice of marketing channel by beekeepers in Türkiye

Ferhan KAYGISIZ

İstanbul University Cerrahpaşa, Veterinary Faculty, Department of Animal Breeding and Husbandry, İstanbul, Türkiye

ORCID: 0000-0003-4939-7849

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✉Corresponding author
ferhan.kaygisiz@iuc.edu.tr

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ABSTRACT

This study aims to analyze the factors affecting the marketing channel choices of beekeepers in the sale of strained honey. The primary data was collected with questionnaires conducted with 162 bee breeders in Türkiye. When beekeeper characteristics by marketing channel selections were compared, it was determined that breeder's education status, income other than beekeeping, the status of getting support, payment method, satisfaction with the marketing channel, way of determining the price, the source of information, and credit usage status were the variables influential in choosing a marketing channel. As a result of comparing the group selling strained honey through the direct channel and the group selling it through the indirect channel, significant differences were found between the groups in terms of beekeeper's age, the share of beekeeping in annual income, the number of hives, the share of strained honey in beekeeping income, and the selling price of honey. Providing training for beekeepers, ensuring their access to market information, improving infrastructure conditions, and encouraging the production of bee products and cooperative membership will increase their income.

Introduction

Beekeeping activities contribute to the economic and social development of countries by providing self-employment and additional income opportunities. Beekeeping is brought to the fore by some significant features: it is not dependent on soil, can be accomplished with a small amount of capital, and requires less labor than other agricultural branches (30). Beekeeping is mainly performed as small scale family businesses and contributes to rural development. Türkiye possesses an important potential with its rich flora, suitable ecological conditions, and existing colonies. Beekeeping has become a sector that has made significant progress in recent years in Türkiye as well as all over the world (29). As of 2019, there are 8 128 360 beehives belonging to 80 675 beekeeping enterprises in Türkiye, and 109 330 tons of honey is produced (35).

There are many studies on beekeeping based on original data in the world and Türkiye, both technically and economically (2, 6, 10, 11, 17). As a result of the studies carried out in various regions of Türkiye, the problems faced by the producers were revealed. Beekeeping enterprises in Türkiye encounter important technical, economic and marketing-related problems. The primary marketing-related problems of beekeeping enterprises are that the products cannot be sold at the desired time and for the desired price, the quality-price relationship cannot be established for honey, and consumers' level of knowledge about quality honey is low. In a study (13), it was observed that 83.9% of beekeepers experienced problems in marketing honey. These were reported as low honey prices (80.6%), unfair competition (38.7%), fluctuations in market prices (27.4%), and inability to access information about the market (21%).

Agricultural marketing plays an important role in reducing poverty sustainably and ensuring food security, especially in developing countries (16). Honey marketing in Türkiye has a traditional structure, and various marketing channels can be found in its marketing. These marketing channels are usually in the way that producer-

consumer and producer-wholesaler-retailer-consumer, producer-exporter. In Türkiye, the traditional marketing structure reduces the efficiency of marketing other beekeeping products, especially honey, causes a high price difference between producer price and consumer price, and does not satisfy the producer in terms of their income. Marketing channel selection is one of the critical components of the successful marketing of products. Marketing costs incurred by different marketing channels and revenues from different marketing channels differ. Marketing channels used for selling the products have an impact on breeders' incomes (38). Therefore, studies carried out about the decisions regarding marketing channel selection are highly important, especially when there are many alternative market channels.

In the studies conducted, the factors affecting the decisions of the beekeepers to choose a marketing channel in different agricultural enterprises in rural areas were discussed (8, 9, 12, 18, 27). In a study conducted in beekeeping enterprises related to the subject (22), it was reported that beekeeper's average monthly income, previous agreement with buyers, and market knowledge factors affected the choice of local collector channel; age, beekeeping experience, distance to the nearest market, and market information variables affected the choice of retailer channel.

In Tarekegn's (34) study, it was found that the majority of beekeepers sold their honey and bee products to cooperatives. Through the econometric model developed, it was revealed that the amount of honey sold, extension activities, beekeeping experience, distance to the nearest market, access to market information, cooperative membership, and trust in buyers determined the marketing channel choices of the honey producers in the study area.

In another study that analyzed the factors affecting honey marketing channel choices of small-scale beekeepers in Ethiopia's Tigray Region (36), it was reported that the inadequacy of credit access and the distance from the market increase the probability of selling to the local market and merchants in comparison with industrial processors, while the size of the enterprise and the number of beehives reduce the possibility of using the local market in comparison with the industrial processors.

The number of studies examining the factors affecting the marketing channel choices of beekeeping enterprises in Türkiye is insufficient. A great majority of the studies on beekeeping are aimed at determining the economic structures of the enterprises. However, studies on the marketing of honey and bee products are limited. This study was aimed to reveal the marketing channels used by beekeepers in the marketing of strained honey and the factors affecting their channel selection.

Materials and Methods

The research data were obtained using a questionnaire structured between September 2019 and February 2020. The studies of Maspaitella et al. (21), Nyaupane and Gillespie (25), Tarekegn et al. (33), Thamthanakoon (37), Tsourgiannis et al. (38) were utilized to prepare the questionnaire.

Sampling: The research material consisted of the data related to the socio-economic characteristics and production and marketing activities of the breeders affiliated with a total of 162 beekeeping enterprises in Türkiye. In order to determine the enterprises to be included in the scope of the research, the total number of beekeeping businesses in Türkiye (37 329 units) and the regions and provinces where the enterprises were concentrated were determined utilizing the records of the Turkish Association of Beekeepers (TAB). According to the TAB records, these regions, which had 69.59% of all the beekeeping enterprises in Türkiye, were the Aegean (Cities of İzmir, Muğla, Afyon, Denizli, Manisa), Black Sea (Zonguldak, Kastamonu, Samsun, Ordu, Düzce), Central Anatolia (Ankara, Konya, Aksaray, Kayseri, Sivas), Eastern Anatolia (Kars, Ardahan, Erzurum, Tunceli, Bingöl), and Southeastern Anatolia (Şanlıurfa, Mardin, Diyarbakır, Gaziantep, Adıyaman) regions.

For collecting the data, two-stage purposive and convenience sampling techniques were employed (21). The regions where beekeeping activities and honey production were intensely carried out were determined through the purposive sampling method. In cooperation with the Bee Farmers Unions in the provinces of these regions, the data were collected from beekeepers who came to visit the union and agreed to participate in the survey through the convenience sampling technique. Businesses with incomplete data were removed from consideration, and the data of 162 enterprises in total were included in the analysis.

Statistical analysis: The marketing channels used by the bee breeders were divided into two groups as direct (direct consumer marketing channel) and indirect channels (wholesaler, broker, contractor company, association, cooperative). The explanatory variables affecting the marketing channel selection discussed in this study were examined in three parts. These are the socio-economic characteristics of the breeders, the general characteristics of the business, and the features of its marketing and operation. Socioeconomic characteristics include gender, education, income other than beekeeping, and monthly income; enterprise characteristics involve whether products other than strained honey were produced or not, key production issues, government support, and the level of contentment from beekeeping activities; marketing

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features cover the payment method, satisfaction with the channel used, the way of price determination, the source of learning the market information, the status of using credit, the status of receiving training, the statuses of cooperative membership and association membership.

SPSS 25 statistical software (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was employed to assess the data. The variables were expressed using mean, ± standard deviation, percentage, and frequency values. The variables were evaluated after checking the prerequisites of normality and homogeneity of variances (the Shapiro-Wilk Test and Levene's Test). When analyzing the data, the Independent 2-group t-test (Student's t-test) was used to compare two groups; if the prerequisites were not met, the Mann-Whitney U test was applied. Categorical data were analyzed using Fisher's Exact Test and the Chi-Square Test. In cases where the expected frequencies were less than 20%, the "Monte Carlo Simulation Method" was used for the evaluation to include these frequencies in the analysis. For the significance level of the tests, $P<0.05$ and $P<0.01$ values were accepted.

Results

Mean values and standard deviations of some characteristics of beekeepers are given in Table 1.

In this study, it was determined that beekeepers were on average 49 years old and had 19 years of beekeeping experience, the share of beekeeping in their annual income was 57%, the average number of hives was 167, they earned 70% of their total beekeeping income from the sale of strained honey, and the average sale price of honey was 36 TL/kg (Table 1).

In this study, it was found that 63% of the bee breeders sold their products through direct channels and 37% through indirect channels.

The explanatory variables in the study were analyzed and compared in terms of the two existing marketing channels. The findings obtained from the comparison of the two marketing channels in terms of socio-economic characteristics are given in Table 2. It was determined that beekeepers were generally male and predominantly primary school graduates (49.1%). When the findings regarding the breeders' earnings were examined, it was determined that 71% of them also generated income from

Table 1. Mean values and standard deviations of some characteristics of beekeepers.

Characteristics	n	Min.	Max.	Mean	S. D.
Age (years)	155.00	21.00	74.00	49.39	11.08
Experience (years)	161.00	1.00	50.00	19.19	11.62
Share of beekeeping in annual income (%)	157.00	1.00	100.00	57.01	32.38
Number of hives (units)	161.00	12.00	920.00	167.35	135.42
The share of the income of strained honey in the income of beekeeping (%)	143.00	0.00	100.00	70.27	24.73
Price (TL)	162.00	10.00	100.00	36.23	23.74

Table 2. Relationships between some selected socio-economic characteristics and the marketing channels.

Characteristics	Direct Channel		Indirect Channel		Total		P value
	n	%	n	%	n	%	
Gender							
Male	97	62.60	58	37.40	155	100.00	0.635
Female	5	71.40	2	28.60	7	100.00	
Educational							
Literate	1	33.30	2	66.70	3	100.00	
Primary School	29	50.00	29	50.00	58	100.00	
Middle School	14	66.70	7	33.30	21	100.00	0.008**
High School	21	60.00	14	40.00	35	100.00	
University	24	85.70	4	14.30	28	100.00	
Income other than beekeeping							
Yes	79	68.70	36	31.30	115	100.00	0.021*
No	23	48.90	24	51.10	47	100.00	
Monthly income (TL)							
≤ 2,000	20	66.70	10	33.30	30	100.00	
2,001-3,000	32	61.50	20	38.50	52	100.00	0.9
3,001-4,000	27	65.90	14	34.10	41	100.00	
4,001-5,000	9	52.90	8	47.10	17	100.00	
≥ 5,001	13	61.90	8	38.10	21	100.00	

* P<0.05 ** P<0.01.

activities other than beekeeping and hence beekeeping was a side business, and 29%, on the other hand, generated income only from bee breeding. Within the income level brackets, it was observed that the breeders with an income between 2,001-3,000 TL were more than the others (32%). It was determined that the differences between the distributions of "educational status" (P<0.01) and "income other than beekeeping" (P<0.05) according to the marketing channels were statistically significant (Table 2).

Relationships between some selected enterprise characteristics and honey marketing channels were analyzed; the results obtained are given in Table 3.

It was identified that 80% of the breeders participating in the survey obtained bee products other than strained honey, and the breeders regarded diseases and breeding (41%) and marketing (26%) as the two most important problems. It was determined that 86% of the bee breeders benefited from state support, and the majority of the bee breeders were content with their activities. The differences between the distributions of the breeders' statuses of receiving state support (P<0.05) according to the marketing channels were found to be statistically significant (Table 3).

The statistical relationships between the marketing channels and the organizational status of the enterprises, financial and training statuses were analyzed; the results are presented in Table 4.

It was determined that the beekeeping enterprises examined were predominantly members of the Beekeepers Association, however, the rate of cooperative membership was very low (14.3%); breeders preferred the advance payment channel for marketing their products (71%); in product sales, the prices were mostly set by the buyer and the seller together (43%); 38% of the breeders obtained their market knowledge from other producers; the majority of the breeders (81%) received training on beekeeping and were satisfied with the marketing channel they used (71%); the credit utilization rate was 49% (Table 4).

It was identified that the differences between the distributions of "the mode of the payment made to breeders at the sale" (P<0.01), "the form of price determination" (P<0.01), "satisfaction with the marketing channel" (P<0.05), "the source of knowledge" (P<0.01), and "credit usage status" (P<0.01) according to direct or indirect honey marketing channels were significant at different levels (P<0.05; P<0.01). On the other hand, in terms of other characteristics, no statistical difference was determined between the groups according to the marketing channels (P<0.05) (Table 4).

Statistical properties between the marketing channels and some variables are given in Table 5.

As a result of comparing the group selling strained honey through the direct channel and the group selling it through the indirect channel, significant differences were found between the groups in terms of the variables beekeeper's age (P<0.01), the share of beekeeping in annual income (P<0.01), the number of hives (P<0.01), the share of strained honey in beekeeping income (P<0.05), and the selling price of honey (P<0.01) (Table 5).

Table 3. Relationships between some selected enterprise characteristics and honey marketing channels.

Characteristics	Direct Channel		Indirect Channel		Total		P value
	n	%	n	%	n	%	
Product other than strained honey							
Yes	87	66.40	44	33.60	131	100.00	0.067
No	15	48.40	16	51.60	31	100.00	
The most important problem							
Marketing	28	66.70	14	33.30	42	100.00	
Fake Honey	16	61.50	10	38.50	26	100.00	
Honey Prices	9	52.90	8	47.10	17	100.00	0.844
Apiary Location	8	72.70	3	27.30	11	100.00	
Diseases and Breeding	41	62.10	25	37.90	66	100.00	
Government support							
Yes	77	57.90	56	42.10	133	100.00	0.033*
No	18	81.80	4	18.20	22	100.00	
Contentment from beekeeping activity							
Yes	87	64.40	48	35.60	135	100.00	0.358
No	6	50.00	6	50.00	12	100.00	

* P<0.05 ** P<0.01.

Table 4. Relationships of the marketing channels with the organizational status of enterprises and some economic variables.

Characteristics	Direct Channel		Indirect Channel		Total		P value
	n	%	n	%	n	%	
Cooperative membership							
Yes	14	60.90	9	39.10	23	100.00	0.842
No	87	63.00	51	37.00	138	100.00	
Association membership							
Yes	95	62.10	58	37.90	153	100.00	0.462
No	6	75.00	2	25.00	8	100.00	
Payment method							
Advance	85	73.90	30	26.10	115	100.00	0.001**
Deferred	17	36.20	30	63.80	47	100.00	
Satisfaction with the channel used							
Yes	76	69.70	33	30.30	109	100.00	0.028*
No	23	51.10	22	48.90	45	100.00	
Determination of price by							
Buyer	20	42.60	27	57.40	47	100.00	0.001**
Seller	26	92.90	2	7.10	28	100.00	
Both	42	64.60	23	35.40	65	100.00	
Other	6	60.00	4	40.00	10	100.00	
The source of information							
Market vizit	8	42.10	11	57.90	19	100.00	0.001**
Other producer	36	67.90	17	32.10	53	100.00	
Friends	11	37.90	18	62.10	29	100.00	
Association	16	88.90	2	11.10	18	100.00	
Government officials	1	100.00	0	0.00	1	100.00	
Internet	1	100.00	0	0.00	1	100.00	
Other	12	80.00	3	20.00	15	100.00	
Credit usage status							
Yes	37	50.00	37	50.00	74	100.00	0.001**
No	58	76.30	18	23.70	76	100.00	
Training status							
Yes	81	65.90	42	34.10	123	100.00	0.156
No	15	51.70	14	48.30	29	100.00	

* P<0.05 ** P<0.01.

Table 5. Comparison of beekeeper characteristics according to different channels.

Characteristics	Direct Channel n= 98	Indirect Channel n= 57	P
Age	51.31±11.63	46.11±9.25	0.001**
Experience	20.4±13.09	17.17±8.33	0.060
Share of beekeeping in annual income	48.12±31.83	71.78±27.76	0.001**
Number of hives	130.9±122.33	228.72±135.13	0.001**
Share of the product in beekeeping income	66.39±26.06	76.3±21.36	0.010*
Price	46.01±22.95	19.62±13.77	0.001**

* P<0.05 ** P<0.01.

Discussion and Conclusion

In this research, the marketing channels used by beekeepers were separably examined into two groups. These are the direct channel where products are sold directly to consumers and the indirect channel through which intermediaries enter between consumers and breeders. The research showed that the breeders preferred the direct channel with a higher rate (63%). Saner et al. (28) reported in their study that the enterprises were producing strained honey sold honey in the market in retail at a rate of 48.28% and through indirect channels at a rate of 51.72%.

In the present study, when beekeeper characteristics by marketing channel selections were compared, it was determined that breeder's education status, income other than beekeeping, the status of getting support, payment method, satisfaction with the channel, way of determining the price, the source of information, and credit usage status were the variables influential in choosing a marketing channel. As a result of comparing the group selling strained honey through the direct channel and the group selling it through the indirect channel, significant differences were found between the groups in terms of beekeeper's age, the share of beekeeping in annual income, the number of hives, the share of strained honey in beekeeping income, and the selling price of honey.

Previous studies reported that the ages of breeders had a significant effect on their choices of marketing channels (1, 22, 38). In our study, it was determined that older bee breeders preferred the direct channel more. In Mehari's (22) study, it was determined that the older the beekeepers, the higher the buyers' perception that bee breeders would produce better quality honey, and the establishment of good relationships increased the selection of the retail channel. In Adu's (1) study, it was reported that as breeders got older, they tended to avoid risk, so they would be less likely to cover the costs associated with participating in the direct marketing channel. This situation could also be interpreted as older and experienced producers, who had been operating in the sector for a long time, could create a certain customer potential.

The education level of a beekeeper is one of the factors affecting the choice of marketing channel (7,15,18). Mutura et al. (24) reported in their study that farmers' education levels affected the interpretation of market knowledge and thus their level of market participation; as the education level of farmers increased, they were more likely to spend less time on marketing activities; therefore, they preferred to sell through cooperatives rather than intermediaries. In another study (18), it was shown that the increased education level of the farmers increased the possibility of access to wholesale and supermarket outlets. Similarly, in our study, the effect of education was found to be significant. When evaluated in terms of all breeders, it was determined that, in terms of education, those with a higher education level than a primary school preferred the direct consumer channel at a higher rate.

If the breeders generate income from activities other than beekeeping, it enables them to decide without feeling under pressure when choosing channels. It was reported in Muthini's (23) study that farmers who had a source of income outside of the beekeping enterprise were less likely to sell to brokers because they had no cash restrictions and could delay sales in order to find a good market. Similarly, it can be inferred that the breeders who receive state support do not have to prefer the indirect channel either since they create an additional income opportunity for themselves and they can use direct channels more. In the present study, it was determined that the variable of income other than beekeeping was effective in the marketing channel preference. Those with other sources of income; beneficiaries of state support preferred the direct consumer channel at a higher rate.

Girma and Abebaw (15) reported in their study that credit usage positively and significantly affected the selection of consumers and other farmer markets. In our study, it was determined that the rate of preferring the direct consumer channel was higher among those who do not use bank loans.

In our study, it was determined that the beekeepers with a higher share of beekeeping in their annual income are more likely to choose the indirect channel to meet their cash needs in a short time due to their limited additional income other than beekeeping. This result is also similar to the findings of Nyaupane et al. (26).

In the present study, it was determined that payment methods had a significant effect on the choice of marketing channel. When evaluated in terms of all breeders, it was determined that,in terms of payment method, those selling the strained honey with cash payment preferred the direct consumer channel at a higher rate. The relationship between payment method and marketing channel selection shows similarity with the study results of researchers like Tsourgiannis et al. (38), Siddique (32), and Adu (1). It was stated in Siddique's (32) study that breeders tended to prefer a channel making advance payment as they found it safe. In another research (1), it was reported that rice producers were more likely to sell to buyers who paid for the product immediately, independent of the price offered.

In the studies conducted, bargaining power was determined as another factor influential in marketing channel selection (1, 4, 38). Breeders' possession of additional sources of income (3) or large-scale enterprises (39) are factors increasing their bargaining power. In our study, it was identified that the beekeepers determining the

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price of honey by the consensus of buyer and seller were more likely to prefer the direct consumer channel.

Bee breeders' access to information about market prices, time of sale, and place of sale have a directing effect on channel selection (15, 23). In their research, Kuma et al. (19) and Mehari (22) stated that lack of market information or difficulties in accessing high-priced markets forced small-scale farmers to use marketing channels offering low prices. The source from which market information is obtained is also important (23). In Muthini's (23) study, it was expressed that receiving market knowledge from the buyers coming to the farm gates did not provide any benefits to the breeders. It was determined in our study that breeders who obtained the market knowledge from other producers preferred the direct consumer channel at a higher rate.

In this study, it was identified that the increase in the number of beehives increased the breeders' likelihood of choosing the indirect channel. The relationship between enterprise size and channel selection was also shown in the studies of researchers such as Adu (1), Bardhan et al., (5), Benedek (7), Mehari (22) and Tesfamariam et al. (36).

In Adu's (1) study, it was stated that the scale size of an enterprise tended to increase farmers' likelihood of selling their rice to processors. Martey et al. (20), explained that farmers making more production preferred to sell in nearby markets to prevent the loss, especially if the product was not durable. Shilpi and Umali-Deininger (31) stated that especially breeders with poor physical market infrastructure had to cover very high transaction costs to sell to the market rather than to the merchants, and this situation made it difficult for the grower to sell large quantities of products directly on the market. However, if the breeders are members of a marketing group or a cooperative, they can sell large quantities of their products to these groups at the gate of the enterprise (direct channel) (5, 23, 33).

Beekeepers who have a lower rate of strained honey in their beekeeping income obtain more bee products (pollen, royal jelly, propolis). Breeders can produce various products to provide additional income and avoid market risks. Nyaupane and Gillespie (25) revealed in their study that diversification affected the choice of marketing channel. In addition, breeders who had too many bee products were also likely to prefer the direct marketing channel where they could sell bee products at higher prices. In our study, the breeders who had a lower share of strained honey in their beekeeping income preferred the direct canal to a greater extent.

The difference between the channels was found significant in terms of the price of strained honey. Breeders tend to choose the marketing channel that offers the highest price (14, 20, 21, 23, 38). The present study revealed that a better price was obtained in the direct marketing channel than in the indirect marketing channel, and producers could partially regulate the price advantage in their favor in direct marketing. Siddique et al. (32) argued that price was not the only determinant of farmers' participation in a marketing channel, but also factors other than price equally and significantly affected marketing decisions.

In the present study, it was determined that marketing channel satisfaction had a significant effect on the choice of marketing channel. When evaluated in terms of all breeders, it was determined that, in terms of marketing channel satisfaction, those who were satisfied with the marketing channel they used preferred the direct consumer channel at a higher rate. The breeders' high levels of satisfaction with the marketing channels they use can be explained in association with the fact that the breeders who use the direct marketing channel sell their products at a higher price. In Thamthanakoon's study (37), it was indicated that the satisfaction of the breeders from the marketing channel, depends on the reliability of the channel as well as cash payment, easy accessibility and contract flexibility.

As a result of this study, the factors affecting the selection of marketing channels for strained honey were revealed by evaluating the survey data of 162 beekeepers in different regions of Türkiye. In our research, it was found that 63% of the breeders sold their products through direct marketing channels and 37% through indirect marketing channels. The bee breeders preferred to sell their products directly to the consumer and in cash in order to get a better price for their products. In these circumstances, direct consumer access opportunities should be enhanced for bee breeders to increase their incomes. Breeders must possess the economic power to afford their marketing expenses and have the products of appropriate quantity and quality to compete in the market so that they can sell their products for cash price. In this context, it is important to ensure beekeepers' access to training opportunities and market information essential for increasing the production amount and product quality, to improve infrastructure conditions for their easy access to markets, and to encourage cooperative membership to enhance their competitiveness. Furthermore, supporting the production of bee products other than strained honey by state institutions in terms of education and financing is another factor that will contribute to breeders' earnings.

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Conflict of Interest

The author declare that they have no conflict of interest.

Data Availability Statement

The data supporting this study's findings are available from the corresponding author upon reasonable request.

Ethical Statement

This study does not present any ethical concerns.

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