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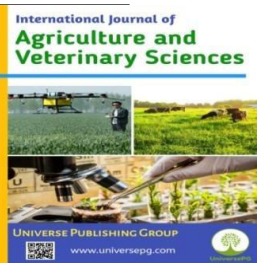

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Major Constraints of Honey Production and Marketing in Badakhshan Province, Afghanistan

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Abstract

The study was conducted in Badakhshan province from May 2025 to June 2025 Year and the main objective of this study is to identify the major constraints in honey production and marketing in Badakhshan province. According to Geographic complexity, not enough facilities and inaccessibility of all districts, fiscal resources and higher production of honey, four districts like: Wardooj, Baharack, Jerm and Keshm have been selected. The total Beekeepers in 4 above citied districts are 185 and according to Yamane formula 126 beekeepers have been selected as sample size. For gathering information from respondents, a structured questionnaire was developed and used to collect data which were analyzed using SPSS version 25 and MS Excel. The finding revealed that the Major constraints that beekeepers faced in the study Area are: Death of colony and shortage of bee forage and also result shows that beekeepers faced to the major constraints of marketing honey in selling their products are: limited demands at local and national level and Competition with unlicensed producers. The result also indicates that in general the weather of cold, lack of beekeepers to more source of feeding and low of rainfall is the main obstacle of production honey and lack of consumers and not a better marketing channel to introduce honey products to local and national level is on marketing constraint of honey in the study area.

Keywords: Badakhshan, Afghanistan, Beekeeping, Beekeepers, Constraints, Honey, Marketing, and Production.

1. Introduction

Honey is the natural sweet substance produced by bees (*Apis mellifera*) from the nectar of plants or from secretions of living parts of plants or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own deposit, dehydrate, store and leave in honeycombs to ripen and mature (Lorna *et al.,* 2008; Azimi *et al*., 2025). Honey has value as a food, as a medicine, as a cash crop for both domestic and export markets and as an important part of some cultural traditions, like: As a food, Honey is valued everywhere as a sweet and tasty food. As a medicine or tonic, in many parts of the world, honey is used as a medicine or tonic and as a special treat for children. Modern medicine is increasingly using honey for a variety of treatments. As a cash crop, Fresh local honey is always more highly valued than imported honey.

Many beekeepers sell their product directly to consumers. As an export crop, as standards of living rise, honey consumption increases. Most industria-

lized countries import honey to meet demand. This requirement can provide developing countries with a useful source of foreign exchange from honey exports. The countries with the highest honey exports are Mexico, China and Argentina. Each country has a large beekeeping industry that is an important part of their agricultural economy; all developing countries can export honey if production is in excess of local requirements. Because beekeeping does not use land, production of honey for export need not conflict with growing crops for local consumption. Honey also has a high cultural value: eating honey or using it for anointing are part of many traditional birth, marriage and funeral ceremonies; this cultural connection is evident in the term "honeymoon". In the Masai society of East Africa, honey is used to pay the bride price; in Ethiopia, honey wine is brewed for weddings (FAO, 2018). Beekeeping in Afghanistan has a long history and its product is honey, which is also known as Shahd and Angabin and it is used as a sweet food and medicine. The reproduction of honeybees and its yield in each season of the year differs according to the climate conditions and the provinces that produce the most honey in the country are: Paktia 900, Nangarhar 500, Herat 200 and Badakhshan 48 tons. Helmand, Panjshir, Parwan, Kapisa, Ghazni and Herat are the most famous in quality of honey than others provinces in the county (MAIL, 2019; Gammada, 2020).

According to formal report of BDK DAIL officials, across of the Badakhshan province about 430 farms of beekeeping that are activating and 9756 colonies are exists, and that's product is 94.36 tons or 92476 Kg. And also, in 4 districts like: Wardooj, Baharack, Jerm and Keshm are 185 farms of beekeeping activate and 6010 colony (Boxes) is exists that produce 55423 Kg of honey (more than 51 percentages). Because of the highest production of honey in Badakhshan province, four above districts have been selected among 28 districts (Anonymous, 2023).

Justification of the study

The products of honey bees play a critical role in the promoting of rural people economics and support livelihoods and also it is the main source income of most residents in Afghanistan especially in Badakhshan province but beekeepers encounter some significant problems that encompasses lack of training and skills, drought (lack of rainfall), pollution, lack of tools and accessories of beekeeping.

2. Material and Methods

This study was conducted to analyze the major constraints of production and marketing of honey that beekeepers faced in the Badakhshan Province-Afghanistan. Using the constraints faced index method (CFI).

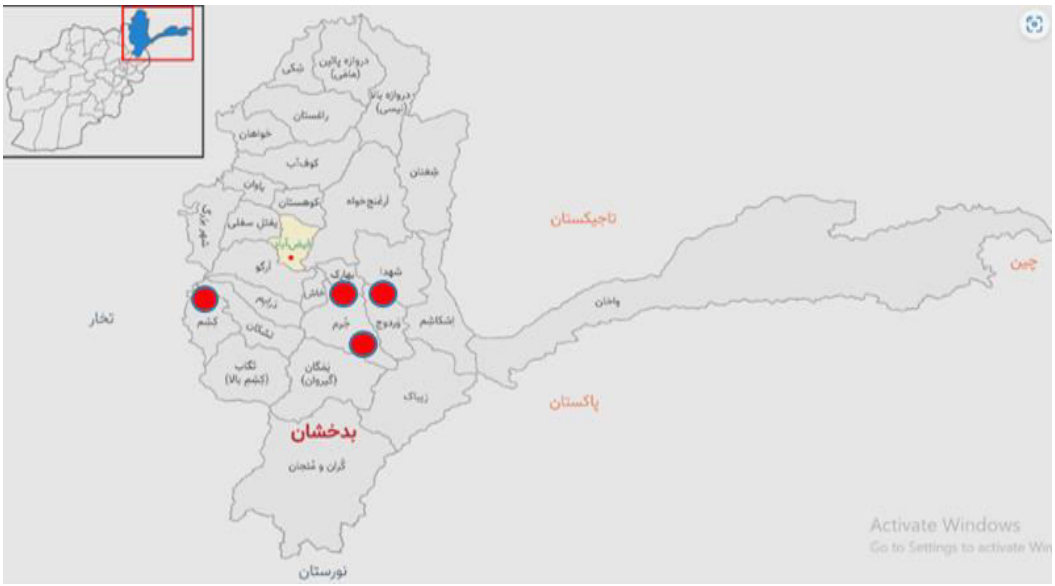

Fig. 1: Badakhshan province, Afghanistan (Shahed, 2020).

Study Area

This study was conducted in Badakhshan province, located in the northeastern part of Afghanistan. Geographically, it lies at approximately 70°04'36" E longitude and 36°50'16" N latitude, about 470 km from Kabul. It borders Kunar, Laghman, and Kapisa provinces to the south, and Takhar to the east. The total area of the province is over 47,000 square

kilometers. According to the National Statistics and Information Authority (NSIA, 2024), the total population is estimated at 1,072,785, including 546, 462 males and 526,323 females. Faizabad is the provincial capital, and Badakhshan has 28 districts.

Sampling procedure

The sample size was determined based on the following formula given by (Yamane, 1967).

$$n = \frac{N}{1+N(e)^2} \quad \ldots\ldots\ldots(1)$$

Where,

n= the sample size
N= the population
e = the level of error (Yamane, 1967).

According to Geographic complexity, not enough facilities and inaccessibility of all districts, fiscal resources and higher production of honey four districts like: Wardooj, Baharack, Jerm and Keshm have been selected. According to formal report of BDK DAIL officials, Across of the Badakhshan province approximately 430 farms of beekeeping that are activating and 9756 colonies are exists, and that's products are 94.36 tons or 92476 Kg. according to Yamane formula The total sample size 126 beekeepers have carry out that include 34 beekeepers form Wardooj, 39 beekeepers from Baharack, 27 beekeepers from Jerm and 27 Bee-keepers have been selected from Keshm district.

Analytical Techniques

In this study two main techniques descriptive statistics (frequency and percentage) and CFI were used exclusively for the analysis of constraints of production and marketing of honey.

Constraints faced index (CFI) for beekeepers

Constraints faced index (CFI) have used to assess the severity of constraints faced beekeepers in the study area as follow:

$$CFI = C_{vh} \times 4 + C_h \times 3 + C_m \times 2 + C_l \times 1 + C_0 \times 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Where,

CFI = Constraint Faced Index
Cvh = No. of Beekeepers faced to very high constraints
Ch = No. of Beekeepers faced to high constraints
Cm = No. of Beekeepers faced to medium constraints
Cl = No. of Beekeepers faced to low constraints
C0 = No. of Beekeepers faced to no constraints

Garrett ranking Technique

The questionnaire was designed as an effective instrument to assess the constraints faced by bee-keepers in production and marketing of honey in Badakhshan province, and primary data were collected through a field survey. To prioritize the responses provided by beekeepers, the Garrett ranking technique was used as follows:

$$\text{Percent position} = \frac{100(R_{ij} - 0.5)}{N_j} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where,

Rij = Rank given for ith item by the individual
Nj= Numbers of items ranked by the individual

By using Garrett score table, the percent position of each rank was converted into scores and for each factor the score of each individual respondent was added together and was divided by the total number of respondent for who were added the mean scores of all the factors were arrived and ranks will be given. The factors having the highest mean value were considered to be the most important response (Dhanavandan, 2016; Zalkuwi *et al.,* 2015; Alam *et al.,* 2015).

3. Results and Discussion

Generally, beekeepers in the study area and the country as well are challenged by several honey production and marketing constraints. Beekeepers have also understood that colony number in their respective area is decreasing from time to time. However, in order to utilize outputs from the beekeeping sub- sector, identifying and characterizing the existing challenges and looking for possible solutions shall take a significant priority in the area.

Accordingly, respondent beekeepers have identified the following major constraints which they want to have immediate interventions. **Table 1** demonstrates that the most common constraints in the study area were Death of colony reported by (96.66%) of beekeepers ranked (I), and additionally the (II) biggest constraint was shortage of bee forage that (96.50%) beekeepers have selected.

Table 1: Identified the Major Constraints of Honey Production that Beekeepers Faced in the Study Area.

No	Constraints	Weighted index%	Ranking
1	Death of colony	96.66	I
2	shortage of bee forage	96.50	II
3	Drought (lack of rainfall)	95.87	III
4	beekeeping materials/equipment's	94.12	IV
5	Pollution	92.06	V
6	lack of training/skill of beekeepers	90.95	VI
7	pests, predators and disease	89.84	VII
8	lack of access to chemical and insecticides	89.36	VIII
9	High cost modern hives and accessories	67.77	IX
10	Absconding	56.82	X
11	High rainfall	43.17	XI
12	High temperature	40.0	XII

Drought (lack of rainfall) (95.87%) ranked (III), furthermore followed by the beekeeping materials/ equipment's (94.12%) in (IV) place, Pollution (92.06%) of beekeepers that ranked (V), lack of training/skill of beekeepers (90.95%), pests, predators and disease (89.84%), lack of access to chemical and insecticides (89.36%), High cost modern hives and accessories (67.77%), Absconding (56.82%), High rainfall (43.17%) and High temperature (40.0%) are respectively ranked as VI, VII, VIII, IX, X, XI and XII constraints in the study area.

The result also supported by study of Gebretsadik and Negash, (2016) which reported that pest and predators, lack of training/skill of beekeeper, shortage of bee forage are constraints of honey production system in districts of Gedeo Zone, Ethiopia. The result also supported by study of Mekonnen *et al.* (2018) Which reported that pest and predators, bee disease, absconding, shortage of bee forage are major constraints in Ada Berga District, West Shoa Zone, Oromia, Ethiopia. And also (Folayan and Bifarin, 2013) present that The cost of hive, lack of fund, absconding of bees, effect of whether, infestation and lack of flowering plants were the major problems encountered in honey production in the Local Government Area of Edo State, Nigeria and (Stanikzai *et al.,* 2020) focuses on the emerging view that reducing of feed (reduction of flowers), less area facilities, bad climate, security situations, unless of equipment's, weak management, lack of technical knowledge in beekeeping, high costs of honey, low economic condition of the country, reactions of the people against bee farms, bad policy of the country, pest and diseases are the key underlying factors which are affected honey bee productivity in Nangarhar, Afghanistan.

Table 2 shows that honey producers in Badakhshan province face multiple critical marketing constraints that affect their profitability and market participation. The most severe problem reported was limited demands at local and national level which affected 97.93% of respondents ranking first (I). This forces beekeepers to sell their products by low prices, reducing their potential earnings.

Table 2: Identified the Major Constraints Marketing of Honey in the Study Area.

No	Constraints	Weighted index%	Ranking
1	limited demands at local and national level	97.93	I
2	Competition with unlicensed producers	97.77	II
3	low income of consumers	96.03	III
4	lack of labeling and packaging	94.76	IV
5	lack of access to the market	94.44	V
6	lack of government attention to international marketing of honey	93.80	VI
7	lack of access to the online advertisement and observation	83.17	VII
8	Poor road linkage	71.26	VIII
9	lack of market association	70.79	IX
10	High costs of transportation	65.23	X
11	High sale price of Honey	60.95	XI
12	Excessive price fluctuation	56.98	XII

The second major constraint competition with unlicensed producers, cited by 97.77% of bee-keepers (II) that has negative affect on the price of honey and bring the honey price on low level. Third the low income of consumers was reported by 94.44%% of respondents (III) indicating that there is a limited demand for honey products. A significant number of beekeepers 94.76% have selected lack of labeling and packaging that ranked fourth (IV) identified that beekeepers don't know about the value addition of grading and packaging. Following this 94.44% of beekeepers (V) lack of access to the market that revealed beekeepers don't have enough access to the local, center and national market to selling their product on fair price to improve income. Lack of government attention to inter-national marketing of honey was another common issue with 93.80% of respondents (VI) reporting this challenge, affect the export of honey product to abroad countries and also revealed that there is any abroad consumers and clients.

Moreover, 83.17% of beekeepers (VII) highlighted the lack of access to the online advertisement and observation that shows beekeepers haven't access to social media and technology and also the public and private sector don't pave the way for participation of beekeepers to observation. Other challenges Poor road linkage that 71.26% beekeepers have selected and formed (VIII) ranked, furthermore this indicate that poor road linkage has negative affect on transportation of honey products to local, provincial center and national market level to introduce and sell products to support and maintain the quality life of beekeepers. The lack of market association was mentioned by 70.79% beekeepers and include in (IX) rank. It results present that there is no collective agreement on the price of honey and sell every beekeeper his honey on personnel price.

Furthermore 65.23% of beekeepers (X) noted a High cost of transportation, finding revealed that this challenge also impacts on price and bring price to high level and has negative effect on demands to honey. High sale price of Honey with 60.95% of respondents (XI) identifying that the price of honey in the during of harvesting season and non-season are similar of equable, there is no divers on price of honey. Finally, the high price fluctuation in the market was cited by 56.98% of beekeepers (XII), creating financial uncertainty and risk. The result supported by the (Goshme and Ayele, 2020) that reported While linkages problem; lack of market center; lack of market information; price fluctuation; low awareness of post-harvest handling; lack of technology; poor market infrastructure, lack basic business concepts and etc. are constraints honey marketing in Ethiopia.

4. Conclusion and Recommendations

This study was conducted in Badakhshan Province-Afghanistan to comprehensively identify the major constraints of production and marketing of honey that beekeepers faced in the study area. The result indicates that the most severe constraints include: Death of colony, shortage of bee forage, Drought (lack of rainfall), beekeeping materials/equipment's, Pollution, lack of training/skill of beekeepers, pests, predators and disease and lack of access to chemical and insecticides. on the other hand, in the part of marketing, beekeepers faced in the significant constraints that encompasses, limited demands at local and national level, Competition with unlicen-sed producers, low income of consumers, lack of labeling and packaging, lack of access to the market, lack of government attention to international marketing of honey and lack of access to the online advertisement and observation. From this study the following recommendations can be prepared for the present and future practices in beekeeping sub sector in the study area:

- In the study area the government and non-government should be contributed the bee-keepers in different beekeeping trainings and organized the market center for theme.
- Adopting effective honeybee pests, disease and predators controlling methods (Creating aware-ness on integrated pest management and biolo-gical diseases controls system for beekeepers).
- Support beekeepers for beekeeping business through credit availability, improving the barging power of beekeepers, strengthen link-age among different concerned institutions, cooperative formation, input supply, market facilitation and infrastructures as a whole.

5. Author contributions

E.I.: research design, data collection, analysis and writing were completed by the researcher. Academic supervision and offered advisory input was provided by H.Y and F.K.A.

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7. Conflicts of interest

There is no any conflict of interest.

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