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An analysis of challenges and barriers affecting honey production in Saharanpur District of Western Uttar Pradesh

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Abstract

Honey production is an important agro-based rural enterprise that contributes significantly to sustainable agriculture, employment generation and rural livelihood development. The present study was conducted to analyze the major challenges and barriers affecting honey production in Saharanpur district of Western Uttar Pradesh, popularly known as the “City of Honey” due to its favorable agro-climatic conditions and extensive beekeeping activities. The study employed a descriptive research design and was based on both primary and secondary data sources. A multi-phase sampling method was adopted the selection of respondents. Six development blocks namely Gangoh, Nakur, Nagal, Sarsawa, Muzaffarabad and Sadauli Qadeem were purposively selected, and a total of 180 honey producers were selected through stratified random sampling. Primary data were collected during the agricultural year 2024–25 through a pre-tested and structured interview schedule, while secondary data were obtained from government reports and official publications. Percentage analysis and Garrett’s Ranking Technique were used to analyze the collected data.

The findings of the study revealed that honey production in the study area is constrained by several biological, economic and environmental factors. Among the identified constraints, mite infestation emerged as the most severe problem with the highest mean Garrett score (79.07), followed by low selling price of honey (70.06) and labour and storage-related problems (62.21). Other important constraints included damage caused by wild birds, export difficulties, bee migration, wasp attacks and climatic dependency. The study concluded that inadequate technical knowledge, lack of modern beekeeping facilities and poor marketing support adversely affect the profitability and sustainability of honey production. Therefore, the study suggests that effective policy interventions, scientific training, improved pest management practices, better storage infrastructure and stronger extension and marketing support are essential for enhancing honey production and improving the socio-economic conditions of beekeepers in the region.

Keywords: Honey production, beekeeping, apiculture, garrett ranking technique, economic and environmental factors

Introduction

Honey production is an important agro-based rural enterprise that contributes significantly to sustainable agriculture, livelihood generation and environmental conservation. In recent years, apiculture has emerged as a profitable subsidiary occupation that provides additional income to rural households while enhancing biodiversity and crop pollination. Beekeeping supports agricultural productivity by improving pollination efficiency and provides valuable products such as honey, beeswax and royal jelly, which possess high nutritional, medicinal and commercial value.

India is one of the leading honey-producing countries in the world due to its favorable agro-climatic conditions and rich floral diversity. Uttar Pradesh, particularly the western region of the state, has immense potential for scientific beekeeping because of the abundance of nectar-producing crops and suitable climatic conditions. Among the districts of Western Uttar Pradesh, Saharanpur occupies a prominent position in honey production and is popularly known as the

“City of Honey.” The district possesses diverse floral resources such as mustard, litchi, eucalyptus, sunflower, basil and fennel, which support beekeeping activities throughout the year.

Honey production plays an important role in the rural economy of Saharanpur district by generating employment opportunities for small and marginal farmers, landless laborers and rural youth. Beekeeping is considered a low-investment and high-return enterprise that can easily be integrated with existing farming systems. In addition, apiculture contributes to increased agricultural productivity through enhanced pollination services, thereby improving crop yield and farm income. Despite its considerable potential, honey production in Saharanpur district faces several challenges that affect productivity and profitability. Many beekeepers still depend on traditional production methods and lack access to modern equipment and scientific knowledge. Honey producers also face various production and marketing constraints such as pest and disease attacks, climatic variations, excessive pesticide use, adulteration,

fluctuating market prices and inadequate storage and transportation facilities. Furthermore, insufficient technical training, weak extension services and poor market linkages continue to hinder the sustainable development of the beekeeping sector. Recognizing the importance of apiculture for rural development and employment generation, the Government of India has introduced several initiatives, including the National Beekeeping and Honey Mission (NBHM), to promote scientific beekeeping and improve honey production. However, inadequate awareness and limited institutional support remain major obstacles in the effective implementation of such programmes. Therefore, the present study aims to analyze the major constraints affecting honey production in Saharanpur district of Western Uttar Pradesh and to suggest suitable measures for improving the productivity, the economic viability and long-term sustainability of the beekeeping sector in the study area.

Research Methodology

This study employs a descriptive research design to systematically examine the obstacles faced by honey producers and to identify potential solutions for their improvement.

Study Area and Sampling Technique

The present study was conducted in Saharanpur district of Western Uttar Pradesh, which was purposively selected due to its significant contribution to honey production and widespread beekeeping activities. The district is popularly known as the “City of Honey” because of its favorable agro-climatic conditions, rich floral diversity and strong agricultural base. Nectar-producing crops such as mustard, eucalyptus, sunflower, mango and guava support large-scale apiculture in the region. Out of the eleven development blocks of the district, six blocks namely Gangoh, Nakur, Nagal, Sarsawa, Muzaffarabad and Sadauli Qadeem were selected for the study based on higher concentration of beekeeping activities and honey production potential.

A multi-phase sampling method was adopted the selection of respondents. In the first stage, Saharanpur district was selected purposively, followed by the purposive selection of six development blocks. A complete list of honey producers in the selected blocks was prepared with the help of the District Horticulture Office (DHO), District Agriculture Office (DAO) and official agricultural records. The respondents were categorized into three groups based on the

number of bee boxes owned, namely small (1–100 boxes), medium (101–200 boxes) and large (above 200 boxes). Finally, a stratified random sampling method was used to select 30 honey producers from each block, resulting in a total sample size of 180 respondents for the study.

Data Collection

The present study was based on both primary and secondary data sources. Primary data were collected from selected honey producers through a pre-tested and structured interview schedule prepared in both Hindi and English. The schedule included information related to socio-economic characteristics, beekeeping practices, production costs, income, marketing and constraints faced by honey producers. Secondary data were collected from various government reports, publications of the Ministry of Agriculture and Farmers Welfare, National Bee Board, Directorate of Economics and Statistics and records obtained from the Department of Horticulture and Agriculture, Uttar Pradesh. The primary survey was conducted during the agricultural year 2024–25, while secondary data covered the period from 2001–02 to 2021–22.

Analytical Framework

The analytical framework of this study was designed to examine the major constraints affecting honey production in the Saharanpur district of Western Uttar Pradesh. To achieve the objectives of the study, the collected data were analyzed using appropriate statistical and analytical tools. Percentage analysis was employed to analyze the socio-economic characteristics of the honey producers and various production-related variables, while 'Garrett's Ranking Technique' was utilized to identify and rank the major production and marketing constraints faced by the honey producers. Under this method, the ranks assigned by the respondents were converted into percentage positions using the following formula:

$$\text{Per cent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th} item by j^{th} individual

N_j = Number of items ranked by j^{th} individual

Results and Discussion

Table 1: Major challenges and barriers faced by honey producers

Sl. No.	Challenges and Barriers	Mean Garrett Score	Garrett Ranking
1.	Mite Infestation	79.07	I
2.	Low Selling Price	70.06	II
3.	Labour Storage	62.21	III
4.	Damage caused by Wild Birds	55.83	IV
5.	Export Difficulties	49.87	V
6.	Bee Migration	44.28	VI
7.	Damage caused by Wasps	37.61	VII
8.	Climate and Weather dependency	30.27	VIII
9.	Theft of Honey Bee Boxes	20.8	IX

This table presents the major constraints faced by honey producers in the study area. Mite infestation was the most serious constraint with the highest mean Garrett score

(79.07), followed by low market price (70.06) and labour and storage problems (62.21). Other important constraints included damage caused by wild birds (55.83) and export

difficulties (49.87). Bee migration (44.28) and damage by wasps (37.61) also affected production, indicating natural hazards in beekeeping. Climate and weather dependency (30.27) further influenced honey production, while theft of bee boxes (20.80) was reported as the least severe constraint. Overall, the findings highlight that honey production was affected by a combination of biological, economic and environmental challenges.

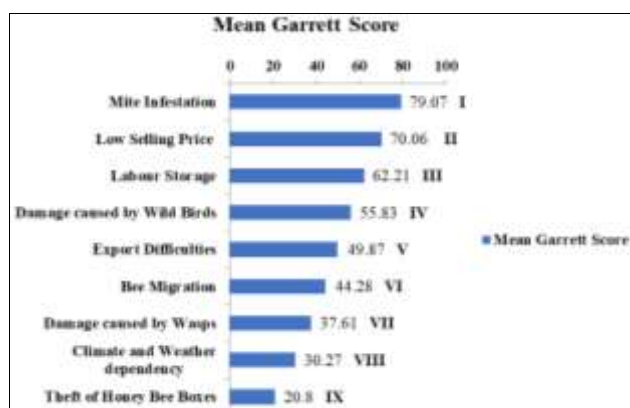


Fig 1: Challenges and barriers faced by honey producers

Conclusion

The present study examined the major challenges and barriers affecting honey production in Saharanpur district of Western Uttar Pradesh. The findings revealed that honey production plays an important role in rural livelihood generation, employment creation and agricultural development in the study area. However, the sustainability and profitability of the beekeeping sector are constrained by several biological, economic and environmental factors. Among the identified constraints, mite infestation emerged as the most severe problem faced by honey producers, followed by low selling prices of honey and labour and storage-related problems. Other important challenges included damage caused by wild birds, export difficulties, bee migration, wasp attacks and climatic dependency, all of which negatively affected honey production and marketing. The study highlights the need for effective policy interventions and institutional support to improve the overall condition of honey producers in the region. Providing scientific training, modern beekeeping equipment, pest and disease management facilities, proper storage infrastructure and better marketing support can significantly enhance the productivity and profitability of honey production. In addition, strengthening extension services, promoting awareness regarding scientific apiculture and ensuring fair market prices would help in reducing the constraints faced by beekeepers. Therefore, the study concludes that with adequate technical, financial and policy support, honey production in Saharanpur district has strong potential to contribute towards sustainable rural development, employment generation and income enhancement for farming households.

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