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Constraints and suggestions of beneficiaries of Mahabaleshwar Madhotpadak Sahakari society in beekeeping enterprise

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Abstract

The present study was conducted to find out the constraints and suggestions made by the beneficiaries of Mahabaleshwar Madhotpadak Sahakari Society in Satara district of Maharashtra state. A total of 160 member respondents were selected using proportionate random sampling method. The data were collected with the help of a structured interview schedule and analyzed using frequency and percentage. The findings revealed that all (100.00%) respondents faced difficulty in controlling contagious and parasitic diseases of honey bees, followed by high cost of bee colonies and hives (96.00%), negligence towards beneficiaries' opinions (94.00%), and low and fluctuating market prices (92.00%). Other constraints reported were lack of land (88.00%), high cost of inputs (85.00%), inadequate institutional credit (84.00%), impracticality of advanced technologies (80.00%), lack of market linkages and coordination (75.00%), insufficient training (71.00%), and lack of technical information (53.00%). The respondents suggested strengthening of training and extension services (100.00%), introduction of insurance schemes (96.00%), skill-oriented training (95.00%), provision of subsidies through cooperative societies (93.00%), use of ICT tools (87.00%), awareness on safe pesticide usage (86.00%), price stabilization mechanisms (74.00%), inclusion of beneficiary feedback (68.00%), and promotion of value-added products (34.00%). The study concluded that addressing these constraints through appropriate institutional support can improve the sustainability and profitability of beekeeping enterprise.

Keywords: Beekeeping, advisory services, constraints, suggestions, cooperative society, rural development

1. Introduction

Beekeeping has emerged as an important subsidiary enterprise contributing significantly to rural livelihoods, income diversification, and agricultural sustainability. Despite its immense potential, the development of the beekeeping sector, particularly within cooperative frameworks, is constrained by several technical, economic, institutional, and environmental challenges. These constraints limit the efficiency, productivity, and overall impact of beekeepers' cooperative societies on the socio-economic conditions of their members. One of the major constraints faced by beekeepers is the lack of adequate technical knowledge and adoption of scientific management practices. A significant proportion of small and marginal beekeepers continue to rely on traditional methods, which results in low productivity and poor quality of hive products (Kumar & Singh, 2020) [7]. Limited access to training programs and extension services further aggravates this issue. In addition, the limited availability of quality bee

colonies such as *Apis mellifera* and *Apis cerana indica*, along with modern beekeeping equipment, restricts the adoption of improved technologies (Kebede *et al.*, 2019) [6]. Pest and disease infestations, particularly those caused by *Varroa destructor*, also pose a serious threat to colony health and honey production (Rosenkranz *et al.*, 2010) [9]. Economic and marketing constraints further hinder the growth of beekeeping cooperatives. Inadequate access to institutional credit, lack of proper storage and processing infrastructure, and price fluctuations due to the involvement of market intermediaries reduce profitability (Chauhan & Sharma, 2016) [2]. Moreover, issues such as honey adulteration and the absence of standardized quality control mechanisms adversely affect market competitiveness, particularly in export markets (APEDA, 2023). Environmental challenges, including climate change, declining floral resources, and indiscriminate use of pesticides, also negatively impact bee populations and productivity (Goulson *et al.*, 2015) [5]. To overcome these

constraints, several strategic interventions are necessary. Strengthening extension services and capacity-building programs can significantly enhance the technical knowledge and skills of beekeepers (FAO, 2013) [3]. Promotion of improved bee colonies and modern equipment through subsidies and institutional support can increase productivity. Establishing adequate infrastructure for processing, storage, and value addition, along with ensuring quality standards and certification, can improve market access and income levels (National Bee Board, 2020) [8]. Furthermore, strengthening cooperative-based marketing systems can reduce the role of intermediaries and enhance the bargaining power of beekeepers. Environmental sustainability can be promoted through awareness programs focusing on pollinator-friendly practices and reduced pesticide usage. Therefore, the present study aims to identify the major constraints faced by the beneficiaries of the beekeepers' cooperative society and to suggest suitable measures for improving its effectiveness and sustainability.

2. Methodology

The present study was conducted using an ex-post facto research design. The study area was Mahabaleshwar, Wai, and Jaoli tehsils of Satara district, Maharashtra, where the Mahabaleshwar Madhotpadak Sahakari Society operates. A total of 320 respondents were selected, comprising 160 members and 160 non-members, using a proportionate random sampling method. The data were collected through a structured and pre-tested interview schedule by personal interview method. The variables included personal, socio-economic, and psychological characteristics as independent variables, while the impact of the cooperative society was considered as the dependent variable. The collected data were classified and analysed using frequency, percentage, range method, correlation coefficient, and z-test.



Table 1: Tahsil-wise Distribution of Beneficiaries and Sample Respondents Selected for the Study

Sr. No.	Tahsils	Tahsil wise total number of beneficiaries	Number of respondents selected for study
1.	Mahabaleshwar	866	83
2.	Wai	461	44
3.	Jaoli	341	33
	Total	1668	160

2.1. Constraints faced by the members of beekeepers of cooperative society

The member and non-member beekeeper respondents were asked whether they faced any difficulties related to production, management, and marketing of honey and other bee products. The constraints experienced by the respondents were identified and recorded accordingly. A total score for each constraint was calculated and expressed in terms of frequency and percentage to facilitate proper analysis and interpretation. This helped in drawing meaningful inferences regarding the major problems encountered by the beekeepers associated with and outside the cooperative society.

2.2. Suggestions made by the members of beekeepers of cooperative society

Suggestions were obtained from the member beekeepers of the cooperative society to overcome the problems faced by them in beekeeping activities, including production, management, and marketing of honey and other bee products. The respondents were encouraged to share their practical opinions and recommendations based on their experience. The suggestions provided by the members were grouped according to the nature of constraints faced by them and were systematically organized. These were then presented in terms of frequency and percentage to facilitate analysis and to draw meaningful inferences for the study.

3. Results and Discussion

The findings of the study as well as relevant discussion given below:

3.1. Constraints faced by beekeepers' cooperative society members in beekeeping enterprise

In this study, 'constraints' refer to the limitations or restrictions experienced by members of beekeepers' cooperative societies while managing beekeeping activities with available resources. Additionally, factors influencing their actions, capabilities, and decision-making were identified. Data was collected through open-ended questions and are presented in Table 2.

Table 2: Constraints faced by beekeepers' cooperative society members in beekeeping enterprise

Sr. No.	Statements	Percentage
1	Difficulty in controlling contagious and parasitic diseases of honey bees	100.00
2	High cost of best bee colonies and bee hives	96.00
3	Negligence towards the opinion of beneficiaries while implementing new scheme	94.00
4	Low and fluctuating market price of honey and bee products	92.00
5	Lack of land availability for beekeeping	88.00
6	Increase in expenditure on beekeeping inputs	85.00
7	Inadequate access to institutional credit and subsidies	84.00
8	Due to small numbers of bee hives highly technological equipment's are impracticable	80.00
9	Lack of assured market linkages and organized marketing facilities	75.00
10	Lack of coordination between office bearers, planning and executive staff with beekeepers' cooperative members	75.00
11	Lack of training programmes needed to raise knowledge regarding beekeeping enterprise	71.00
12	Lack of proper information on recent beekeeping management technologies	53.00

The study revealed that all (100.00%) beekeeping farmers reported difficulty in controlling contagious and parasitic diseases of honeybees as the most critical constraint, indicating that disease management is the primary challenge in beekeeping. A majority (96.00%) highlighted the high cost of premium bee colonies and hives, reflecting the capital-intensive nature of the enterprise. Similarly, 94.00 per cent of respondents reported negligence toward beneficiaries' opinions during the implementation of new schemes, indicating weak participatory planning. Further, 92.00 per cent of respondents faced problems related to low and fluctuating market prices of honey and bee products, affecting income stability. Lack of land availability for establishing apiaries was reported by 88.00 per cent of beekeepers. Increased expenditure on inputs such as feed, medicines, and equipment was expressed by 85.00 per cent of respondents, while 84.00 per cent faced inadequate access to institutional credit and subsidies. Additionally, 80.00 per cent of respondents reported that small-scale operations limited the adoption of advanced technologies.

About three-fourths (75.00%) indicated lack of assured market linkages and organized marketing facilities, along with poor coordination between cooperative officials and members. Further, 71.00 per cent reported inadequate training programs, while 53.00 per cent faced lack of information regarding recent beekeeping technologies. The major constraints were related to disease management, high initial investment, weak institutional support, and market uncertainties, whereas constraints related to information and technology access were found to be moderately significant.

3.2. Suggestions given by beekeeper's cooperative society members in beekeeping enterprise

To address the constraints in beekeeping and enhance efficiency and profitability, members of beekeepers' cooperative societies provided several practical suggestions. These recommendations were collected through structured interviews and analyzed based on the percentage of respondents supporting each suggestion, as presented in Table 3.

Table 3: Suggestions given by beekeeper's cooperative society members in beekeeping enterprise

Sr. No.	Statements	Percentage
1.	Regular training programmes and extension services should be strengthened for timely diagnosis and management of bee disease	100.00
2.	Introduction of insurance scheme for beekeepers against natural hazards faced during beekeeping	96.00
3.	Skill-oriented training tailored to members' needs should be organized	95.00
4.	Government should provide input and subsidies for beekeeping through cooperative societies	93.00
5.	Information dissemination through ICT tools, mobile advisory, field demonstrations should be intensified	87.00
6.	Awareness on pesticide safe agricultural practices among nearby farmers to protect bee population	86.00
7.	Establishment of minimum support price or price stabilization mechanism	74.00
8.	Beneficiary feedback should be mandatory during planning, implementation and evolution of beekeeping development programmes	68.00
9.	Promotion of value added product is required	34.00

Table 3 indicates that all respondents (100.00%) emphasized the need for regular training and extension services on disease diagnosis and management. A majority (96.00%) suggested insurance schemes to protect against natural and biological risks, while 95.00% recommended skill-oriented, demand-driven training programs. About 93.00% proposed that government assistance and subsidies be channelled through cooperative societies. Additionally, 87.00% suggested the use of ICT tools and mobile advisory services for effective knowledge dissemination. Further, 86.00 per cent highlighted the need to create awareness on safe pesticide use to protect bee colonies. Around 74.00 per cent recommended minimum support prices or price stabilization mechanisms, and 68.00 per cent emphasized incorporating beneficiary opinions in program planning. A smaller proportion (34.00%) suggested promoting value-added products. The suggestions focus on improving technical knowledge, reducing risks, ensuring income stability, and strengthening cooperative functioning.

4. Conclusion

The study concludes that beekeepers associated with Mahabaleshwar Madhotpadak Sahakari Society face significant constraints related to disease management, high input costs, inadequate access to credit, and market instability. Institutional challenges such as limited beneficiary participation and insufficient training further

aggravate these issues. The suggestions provided by beneficiaries emphasize the need for strengthened training and extension services, financial support, insurance coverage, and improved market regulation. Furthermore, the adoption of ICT tools and promotion of value-added products can enhance the sustainability and profitability of beekeeping enterprises. Therefore, addressing these constraints through effective institutional interventions, policy support, and capacity-building initiatives can significantly improve the socio-economic conditions of beekeepers and ensure sustainable development of the apiculture sector.

5. Implications

The findings collectively imply that strengthening beekeeping as a sustainable and resilient livelihood requires an integrated approach that combines risk mitigation measures (such as insurance), institutional support through cooperatives (including subsidized inputs and organized marketing), effective use of ICT-based information dissemination, and need-based skill-oriented training, along with participatory planning involving beneficiary feedback; together, these interventions can enhance productivity, income security, and overall socio-economic empowerment of beekeepers while ensuring long-term sustainability of the sector.

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