



# Enterprise development and market dynamics of bee farming: evidence from patgaon village, Maharashtra, India

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## Abstract

*Bee farming has evolved from a traditional subsistence activity into a promising rural enterprise with significant commercial potential. Rural enterprise development has been recognized as a crucial strategy for employment generation, poverty reduction, and inclusive growth in India. This study examines enterprise development and market dynamics of bee farming in Patgaon village, Maharashtra. Using primary data collected from 100 beekeepers, the study analyzes enterprise orientation, scale of operations, investment patterns, production capacity, addition, marketing channels, price realization, institutional support, and future business prospects. The findings reveal that while beekeeping in Patgaon village is increasingly commercialized, enterprise development is constrained by infrastructural gaps, limited access to finance, inadequate value addition facilities, market uncertainties, and institutional weaknesses. Despite these constraints, strong market demand, favorable price realization, and high willingness to expand indicate robust growth potential. The study concludes that strengthening enterprise support systems, market linkages, and institutional mechanisms is essential for transforming beekeeping into a sustainable rural enterprise.*

**Keywords:** Bee farming; Enterprise development; Market dynamics; Value addition; Rural entrepreneurship; Cooperatives; Maharashtra.

## Introduction

Rural enterprise development has emerged as a central strategy for promoting economic growth, employment generation, poverty reduction, and inclusive development in rural areas. Traditional agriculture is increasingly unable to provide stable incomes due to small landholdings, climatic risks, and market volatility. Consequently, diversification into high-value rural enterprises has gained importance<sup>1</sup>. Value chain development and competitive advantage frameworks emphasize the role of enterprise integration, productivity enhancement, and market linkages in strengthening rural livelihoods<sup>2</sup>.

Beekeeping has traditionally been practiced as a supplementary agricultural activity. However, it is now recognized as a viable rural enterprise due to low investment requirements, compatibility with farming systems, and growing domestic and global demand for honey and hive products<sup>3</sup>. FAO reports highlight that apiculture contributes to income diversification and environmental sustainability. In India, the National Beekeeping and Honey Mission have further strengthened the institutional and policy environment supporting apiculture<sup>4</sup>.

Despite its potential, enterprise development in beekeeping is often constrained by limited access to finance, infrastructure gaps, weak value addition, and imperfect market structures<sup>5</sup>. In this context, examining enterprise development at the village level provides insights into commercialization patterns and market dynamics.

This study focuses on Patgaon village in Maharashtra, where beekeeping has expanded under cooperative and government support initiatives. The study assesses enterprise orientation, investment patterns, marketing channels, institutional support, and growth prospects.

**Objectives of the Study:** The study aims to examine enterprise orientation, analyze investment and production patterns, assess value addition practices, evaluate marketing dynamics, understand institutional support systems, and explore future business prospects of beekeeping enterprises in Patgaon village.

## Methodology

The study adopts a descriptive and analytical research design. The universe comprises all beekeepers in Patgaon village. A sample of 100 beekeepers was selected using purposive sampling to ensure representation across scales of operation and socio-economic backgrounds. Primary data were collected through structured interview schedules covering enterprise practices, production, marketing, finance, institutional support, and future plans. Secondary data were obtained from books, journal articles, government reports, and institutional publications.

## Results and Discussion

**Enterprise Orientation:** Enterprise orientation reflects the extent to which beekeepers view and manage beekeeping as a

business activity rather than merely as a supplementary or subsistence activity.

**Table-1:** Enterprise Orientation of Beekeepers.

Orientation Level	Frequency	Percentage
High	34	34.0
Medium	47	47.0
Low	19	19.0
Total	100	100.0

A majority of respondents (81%) exhibit medium to high enterprise orientation, indicating a shift toward commercial and business-oriented practices. This suggests that beekeeping in Patgaon village is increasingly perceived as an enterprise rather than merely a traditional activity. However, nearly one-fifth of respondents still exhibit low enterprise orientation, reflecting the persistence of subsistence-oriented practices and limited business skills. A majority of respondent’s exhibit medium to high enterprise orientation, indicating commercialization trends aligned with rural enterprise development theory.

**Scale of Operations and Production Capacity:** The scale of operations and production capacity are key indicators of enterprise development and commercialization.

**Table-2:** Number of Bee Colonies Owned.

Number of Colonies	Frequency	Percentage
Less than 10	17	17.0
10–20	22	22.0
More than 20	61	61.0
Total	100	100.0

A majority of respondents (61%) own more than 20 colonies, indicating a relatively large scale of operations and a strong commercial orientation. This suggests that many beekeepers have moved beyond subsistence levels and are operating at a scale conducive to enterprise development.

**Table-3:** Annual Honey Production.

Production Level	Frequency	Percentage
High	38	38.0
Medium	46	46.0
Low	16	16.0
Total	100	100.0

Most respondents (84%) report medium to high levels of honey production, reflecting substantial production capacity and

market engagement. However, 16% report low production, indicating uneven performance across beekeepers, influenced by environmental, technical, and management factors. Most respondents operate at medium to large scales, indicating substantial production capacity and market integration.

**Investment Patterns and Financial Resources:** Investment is critical for enterprise development, as it enables the acquisition of colonies, equipment, infrastructure, and working capital.

**Table-4:** Initial Investment in Beekeeping.

Investment Level	Frequency	Percentage
High	31	31.0
Medium	45	45.0
Low	24	24.0
Total	100	100.0

A majority of respondents (76%) reported medium to high initial investment, indicating a willingness to invest resources in beekeeping enterprises. This reflects confidence in the economic potential of beekeeping and a shift toward enterprise-oriented practices.

**Table-5:** Source of Investment.

Source	Frequency	Percentage
Personal Savings	52	52.0
Bank Loan	21	21.0
Cooperative Loan	17	17.0
Government Subsidy	10	10.0
Total	100	100.0

Personal savings are the primary source of investment (52%), followed by bank loans (21%), cooperative loans (17%), and government subsidies (10%). This indicates limited access to formal financial services and public support, highlighting the need for improved financial inclusion and enterprise financing mechanisms.

Personal savings dominate investment sources, suggesting limited financial inclusion despite policy support.

**Value Addition Practices and Constraints:** Value addition is a key driver of enterprise growth, income enhancement, and market competitiveness.

**Table-6:** Engagement in Value Addition.

Engagement Level	Frequency	Percentage
High	24	24.0
Medium	43	43.0
Low	32	32.0
None	1	1.0
Total	100	100.0

A majority of respondents (67%) engage in value addition at medium to high levels, indicating growing enterprise sophistication. However, one-third engage at low levels, and a small proportion do not engage at all, reflecting persistent constraints.

**Table-7:** Types of Value-Added Products.

Product Type	Frequency	Percentage
Bottled Honey	58	58.0
Flavored Honey	19	19.0
Beeswax Products	12	12.0
Cosmetics & Medicinal Products	11	11.0
Total	100	100.0

Bottled honey is the most common value-added product, followed by flavored honey, beeswax products, and cosmetic or medicinal products. This indicates that value addition is still largely confined to basic processing, with limited diversification into higher-value products.

**Table-8:** Constraints in Value Addition.

Constraint	Frequency	Percentage
Lack of Equipment	72	72.0
Lack of Buyers	18	18.0
Lack of Knowledge	10	10.0
Total	100	100.0

Lack of equipment is the most significant constraint, reported by 72% of respondents. This highlights the importance of infrastructure development, common facility centers, and cooperative processing units to enable value addition and enterprise growth. Value addition remains largely confined to

basic processing, reflecting infrastructural and knowledge constraints.

**Marketing Channels and Market Access:** Marketing channels and market access are central to enterprise sustainability, income generation, and competitiveness.

**Table-9:** Marketing Channel Used.

Marketing Channel	Frequency	Percentage
Cooperative	68	68.0
Middlemen	14	14.0
Local Market	12	12.0
Online	6	6.0
Total	100	100.0

Cooperatives dominate marketing, reflecting the importance of collective action and institutional support. However, limited use of direct and digital marketing channels indicates untapped market potential and a need for diversification of marketing strategies.

**Table-10:** Buyer Availability.

Buyer Availability	Frequency	Percentage
Always	26	26.0
Sometimes	62	62.0
Rare	12	12.0
Total	100	100.0

Inconsistent buyer availability affects income stability and enterprise planning. Only 26% of respondents have consistent buyers, highlighting the need for stronger market linkages, contracts, and buyer networks.

**Table-11:** Honey Selling Price.

Price per kg (₹)	Frequency	Percentage
200-300	3	3.0
301-400	1	1.0
More than 400	96	96.0
Total	100	100.0

The overwhelmingly high price realization indicates strong market demand and favorable market conditions. This provides a strong foundation for enterprise growth, provided that production and market access challenges are addressed.

**Table-12: Market Problems**

Market Problem Level	Frequency	Percentage
Severe	7	7.0
Medium	65	65.0
Low	16	16.0
None	12	12.0
Total	100	100.0

Most respondents face medium-level market problems, reflecting challenges such as price fluctuations, delayed payments, limited market information, and dependence on intermediaries. These issues constrain enterprise growth and income stability.

Cooperatives dominate marketing, but inconsistent buyer availability and market uncertainties constrain enterprise stability<sup>7</sup>.

**Institutional Support and Business Development Services:** Institutional support and business development services are critical for enterprise development, particularly for small-scale rural entrepreneurs.

**Table-13: Training Received.**

Training Received	Frequency	Percentage
Yes	81	81.0
No	19	19.0
Total	100	100.0

High training coverage reflects strong institutional engagement in capacity building. However, the quality, relevance, and follow-up of training programs require further assessment.

**Table-14: Usefulness of Training.**

Training Usefulness	Frequency	Percentage
Very Useful	31	31.0
Somewhat Useful	60	60.0
Useless	9	9.0
Total	100	100.0

While most respondents find training useful, the relatively low proportion rating it as very useful suggests the need for more practical, enterprise-focused, and context-specific training.

**Table-15: Role of Cooperatives.**

Cooperative Role	Frequency	Percentage
High	37	37.0
Medium	54	54.0
Low	8	8.0
None	1	1.0
Total	100	100.0

Cooperatives play a central role in enterprise development, particularly in input supply, marketing, training facilitation, and collective bargaining. Strengthening cooperative capacity can significantly enhance enterprise outcomes.

Institutional training and cooperative services play a crucial role in enterprise development.

**Future Business Plans and Growth Prospects:** Future business plans and growth prospects provide insights into enterprise sustainability and development trajectories.

**Table-16: Willingness to Expand Beekeeping**

Willingness	Frequency	Percentage
Yes	95	95.0
No	5	5.0
Total	100	100.0

An overwhelming majority of respondents are willing to expand their operations, reflecting strong confidence in the future potential of beekeeping as a business enterprise.

**Table-17: Planned Addition of Colonies.**

Colonies to Add	Frequency	Percentage
Less than 10	17	17.0
10-20	22	22.0
More than 20	61	61.0
Total	100	100.0

Most respondents plan to add more than 20 colonies, indicating ambitious expansion plans and a strong enterprise orientation.

**Table-18:** Willingness to Invest in Value Addition.

Willingness	Frequency	Percentage
Yes	88	88.0
No	12	12.0
Total	100	100.0

High willingness to invest in value addition reflects recognition of its importance for income enhancement and market competitiveness.

**Table-19:** Perception of Business Sustainability.

Sustainability Perception	Frequency	Percentage
Yes	94	94.0
No	6	6.0
Total	100	100.0

Strong confidence in business sustainability reflects optimism and long-term commitment to beekeeping as a rural enterprise. Strong expansion intentions indicate high entrepreneurial confidence and enterprise sustainability.

**Policy Implications and Recommendations:** Based on the findings, the following policy implications and recommendations are proposed: Enterprise financing should be strengthened by expanding access to affordable credit, subsidies, and venture capital for beekeeping enterprises, particularly to support infrastructure development and value addition activities. Simultaneously, infrastructure development must be prioritized through the establishment of common facility centers for processing, packaging, storage, and quality testing, preferably implemented through cooperative models or public-private partnerships. Value addition should be actively promoted by supporting product diversification, branding, certification, and quality assurance mechanisms in order to enhance market competitiveness and increase income potential. Market linkage enhancement is also essential, requiring the strengthening of cooperative marketing systems alongside the promotion of direct-to-consumer sales, digital marketing platforms, contract farming arrangements, and export linkages.

In addition, business development services should be expanded by providing enterprise-focused training, mentoring, incubation, and advisory support to improve business management skills and strategic planning capacities. Institutional strengthening is necessary to enhance the capacity, transparency, and accountability of cooperatives and producer organizations, enabling them to function more effectively and sustainably. Risk management strategies must be introduced, including insurance schemes, price stabilization mechanisms, and risk-

sharing arrangements, to enhance enterprise resilience against economic and environmental uncertainties. Furthermore, innovation and technology adoption should be promoted by encouraging the use of modern technologies, digital tools, and best practices to improve productivity, product quality, and operational efficiency.

Targeted programs should be designed to promote youth and women entrepreneurship in beekeeping, with a focus on leadership development, start up support, and inclusive participation. Finally, robust monitoring and evaluation systems must be established to track enterprise performance, assess outcomes, and generate evidence-based insights to inform continuous policy refinement and program improvement.

**Discussion:** The findings indicate that beekeeping in Patgaon village is undergoing a transition from a traditional, supplementary activity to a more commercial and enterprise-oriented livelihood. High enterprise orientation, large-scale operations, strong production capacity, favorable price realization, and high willingness to expand and invest in value addition reflect this transformation.

However, enterprise development is constrained by infrastructural gaps, limited access to finance, inadequate value addition facilities, inconsistent market access, and limited business management skills. The dominance of cooperative marketing, while beneficial, also limits diversification of market channels and direct engagement with consumers. Inconsistent buyer availability and market problems undermine income stability and enterprise planning.

Institutional support, particularly training and cooperative services, plays a crucial role in enterprise development. However, the quality and relevance of training programs require improvement to address enterprise management, marketing, branding, quality standards, and digital tools.

From a social work and rural development perspective, these findings underscore the importance of creating an enabling ecosystem for rural enterprises, including supportive policies, infrastructure, finance, markets, and institutional mechanisms. Strengthening these elements can enhance enterprise performance, income generation, employment creation, and inclusive development.

The findings indicate a transition from subsistence to enterprise-oriented beekeeping in Patgaon village. High enterprise orientation, strong production capacity, and favorable price realization reflect commercialization trends consistent with competitive advantage and value chain frameworks<sup>6</sup>. However, infrastructural gaps, limited financial access, and constrained value addition impede optimal enterprise growth. Strengthening institutional ecosystems, infrastructure, and market linkages is necessary for sustainable rural enterprise transformation<sup>7</sup>.

## Conclusion

The study concludes that bee farming in Patgaon village exhibits strong enterprise potential and favorable market dynamics. High demand, favorable price trends, strong willingness to expand, and growing interest in value addition provide a robust foundation for enterprise development. However, infrastructural gaps, limited access to finance, market uncertainties, and institutional weaknesses constrain enterprise performance and sustainability.

Addressing these constraints through integrated policy interventions, institutional strengthening, infrastructure development, and capacity building can transform beekeeping into a sustainable, competitive, and inclusive rural enterprise. From a social work and rural development perspective, strengthening beekeeping enterprises contributes to livelihood security, economic empowerment, community development, and sustainable rural transformation.

Bee farming in Patgaon village demonstrates strong enterprise potential and favorable market dynamics. While commercialization is evident, enterprise growth is constrained by infrastructural, financial, and institutional challenges. Integrated policy support, financial inclusion, cooperative strengthening, and value addition promotion can transform

beekeeping into a sustainable rural enterprise contributing to inclusive development and livelihood security.

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