

International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452
NAAS Rating (2025): 4.49
© 2026 Stats & Maths
Maths 2026; SP-11(3): 03-05
www.mathsjournal.com
Received: 04-01-2026
Accepted: 06-02-2026

Virendra Kumar Choudhary
Ph.D. Research scholar,
Department of Agri-business and
Rural Management, Indira
Gandhi Krishi Vishwavidyalaya
Raipur, Chhattisgarh, India

Hulas Pathak
Professor and Head, Department
of Agri-business and Rural
Management, Indira Gandhi
Krishi Vishwavidyalaya Raipur,
Chhattisgarh, India

Dr. Ajay Kumar Gauraha
Professor, Department of Agri-
business and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya Raipur,
Chhattisgarh, India

Corresponding Author:
Virendra Kumar Choudhary
Ph.D. Research scholar,
Department of Agri-business and
Rural Management, Indira
Gandhi Krishi Vishwavidyalaya
Raipur, Chhattisgarh, India

Agri-entrepreneurship as a pathway to income diversification and rural resilience in Chhattisgarh

Virendra Kumar Choudhary, Hulas Pathak and Ajay Kumar Gauraha

DOI: <https://www.doi.org/10.22271/maths.2026.v11.i3Sa.2270>

Abstract

Agri-entrepreneurship has emerged as a transformative strategy for strengthening rural livelihoods, enhancing income diversification and building resilience among farming households. In Chhattisgarh, where a significant proportion of the population depends on agriculture and allied activities, fluctuating market prices, climate variability and limited non-farm opportunities often exacerbate rural vulnerability. This study examines the role of agri-entrepreneurial initiatives including value addition, dairy enterprises, fisheries, minor forest produce processing, and agri-input services in improving household income stability and adaptive capacity. Using secondary data from government reports, NABARD publications, and state economic surveys, supplemented with field insights from selected districts, the paper demonstrates that agri-entrepreneurship contributes to income diversification by 25-40% among participating households. The findings suggest that targeted policy support, access to credit, skill development and market linkages can significantly enhance rural resilience and reduce poverty in the state.

Keywords: Agri-entrepreneurship, chhattisgarh, FPO, income diversification, livelihood security, rural resilience and Value addition

Introduction

Chhattisgarh is often referred to as the “Rice Bowl of Central India, Agriculture remains the backbone of rural livelihoods in Chhattisgarh, employing nearly 70% of the rural workforce. However, dependence on monsoon driven paddy cultivation, fragmented landholdings and price volatility often limit income growth. In this context, agri-entrepreneurship defined as the application of entrepreneurial principles in agriculture and allied sectors offers a viable pathway to strengthen rural economies. Government initiatives such as Startup India, the Chhattisgarh State Rural Livelihood Mission (BIHAN) and NABARD supported Farmer Producer Organizations (FPOs) are promoting agri-startups through training, credit linkage and market integration. These interventions are transforming subsistence agriculture into entrepreneurial livelihood systems.

Agri-entrepreneurial activities such as mushroom cultivation, dairy processing, millet value addition, lac processing and farm mechanization services enable farmers to move beyond subsistence farming toward market-oriented production. These ventures not only generate additional income but also reduce vulnerability to climate shocks and market fluctuations, thereby enhancing rural resilience.

Objectives of the Study: To assess the role of agri-entrepreneurship in income diversification for rural resilience and livelihood security among rural households.

Research Methodology

Research Design

The study adopts a descriptive and analytical research design using both qualitative and quantitative approaches. Secondary data from State Economic Survey of Chhattisgarh,

NABARD reports, Ministry of Agriculture & Farmers Welfare, and NITI Aayog publications. Field insights Observations from districts such as Raipur, Durg, Rajnandgaon and Bastar.

Results and Discussion

Major Agri-Entrepreneurial Activities

Table 1: Potential Income from Selected Rural Agro-Based Activities

Activity	Description	Income Potential
Dairy & milk processing	Small dairy units, paneer & ghee production	Rs.6,000- Rs.15,000/month
Mushroom cultivation	Low-cost indoor production	Rs.4,000–Rs.12,000/month
Lac & minor forest produce processing	Value addition to NTFPs	Rs.5,000–Rs.18,000/month
Millet processing	Branding & packaging of millets	Rs.8,000–Rs.20,000/month
Custom hiring centers	Renting farm machinery	Rs.10,000–Rs.25,000/month

These enterprises demonstrate the growing diversification of rural livelihoods beyond traditional crop cultivation

Contribution to Income Diversification

Agri-entrepreneurship reduces reliance on a single income source. Evidence from field reports suggests that Households engaged in agri-enterprises earn 25–40% additional income.

Dairy and value-added products provide daily cash flow, unlike seasonal crop income. Women-led enterprises improve household financial stability.

Table 2: Comparative Annual Income

Category	Crop Income Only (Rs.)	With Agri-Enterprise (Rs.)	% Increase
Small farmers	60,000	85,000	41.7%
Marginal farmers	45,000	62,000	37.8%
Women SHG members	30,000	48,000	60.0%

Agri-Entrepreneurship and Rural Resilience

Rural resilience refers to the ability of households to withstand and recover from economic and climatic shocks. Agri-entrepreneurship strengthens resilience through the Income diversification reduces climate risk exposure like Livestock buffers crop failure losses, Fisheries utilize water bodies efficiently, Millet processing promotes climate-resilient crops, Farmers reported improved coping capacity during drought years due to diversified income streams. Multiple income streams reduce vulnerability to crop failure and price crashes. Activities such as mushroom cultivation and dairy are less climate-dependent.

infrastructure, Weak market linkages, Lack of branding and packaging skills, insufficient training and extension services.

Policy Recommendations

To strengthen agri-entrepreneurship in Chhattisgarh, the following measures are suggested that Strengthen rural credit access through SHGs and cooperative banks, Promote skill development programs in value addition and agri-processing, Develop rural infrastructure such as cold storage and processing units, Enhance market linkages through e-NAM and digital platforms, Encourage agri-startups through incubation and subsidy support, Support women entrepreneurs via targeted training and financial inclusion.

Agri-entrepreneurial models prevalent in Chhattisgarh

- **Millet Processing Units:** With the state's focus on millets, rural entrepreneurs have established small processing units producing packaged ragi and kodo millet products. These units report profit margins of 20–30%.
- **Dairy Clusters:** Dairy cooperatives in Durg and Rajnandgaon districts enable farmers to earn regular income through milk collection and processing.
- **Minor Forest Produce Value Addition:** In Bastar, tribal entrepreneurs process tamarind, mahua, and chironji, increasing product value by 2–3 times.
- **Women's Agri- Entrepreneurship:** Women play a central role in rural enterprises, particularly through Self-Help Groups, Backyard poultry and goat rearing, Mushroom cultivation and millet processing, Forest produce collection and value addition. Women-led enterprises increased household income by 20–30% and improved decision-making power regarding expenditure, education, and nutrition. Women-led enterprises enhance decision-making power and social resilience. Local Employment Generation, Agri-enterprises create rural jobs, reducing migration.

Challenges in Agri-Entrepreneurship

Despite its potential, several barriers persist: Limited access to affordable credit, inadequate storage and processing

Conclusion

Agri-entrepreneurship offers a practical and sustainable pathway to income diversification and rural resilience in Chhattisgarh. By enabling farmers to engage in value-added activities and non-farm enterprises, it reduces dependence on monsoon-based agriculture and enhances livelihood security. The growing participation of women and collective institutions such as FPOs highlights the inclusive potential of the agri-startup ecosystem. The evidence suggests that households adopting agri-entrepreneurial practices experience higher incomes, improved financial stability, and greater resilience to economic and climatic shocks. Households engaged in agri-enterprises earn significantly higher incomes, demonstrate improved savings behavior, and reduce dependency on migration and informal credit. With appropriate policy support, infrastructure development, and capacity building, agri-entrepreneurship can play a pivotal role in transforming rural economies and achieving inclusive development in the state.

References

1. BIRTHAL PS, *et al.* Livestock sector development and rural livelihoods. New Delhi: Indian Council of Agricultural Research; 2019.

2. Food and Agriculture Organization. Smallholder market participation and income diversification. Rome: FAO; 2021.
3. Government of Chhattisgarh. Economic Survey of Chhattisgarh 2023–2024. Raipur: Directorate of Economics and Statistics, Government of Chhattisgarh; 2024.
4. Ministry of Agriculture and Farmers Welfare. Agricultural statistics at a glance 2023. New Delhi: Government of India; 2023.
5. National Bank for Agriculture and Rural Development. Status of microfinance in India 2022–2023. Mumbai: NABARD; 2023.
6. NITI Aayog. Strategy for New India @75: Farmers' income. New Delhi: Government of India; 2022.
7. Sharma P. Women-led agri-enterprises and rural transformation. Indian Journal of Agricultural Economics. 2022;77(3):321–335.
8. Singh R, Patel M. Agri-entrepreneurship and rural livelihoods in central India. Journal of Rural Development. 2021;40(2):215–232.
9. World Bank. Promoting rural livelihoods through agribusiness. Washington (DC): World Bank; 2020.