



SUSTAINABLE DEVELOPMENT THROUGH NON-GRAIN AGRI-ENTREPRENEURSHIP: A SYSTEMATIC REVIEW

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ABSTRACT

Agriculture is undergoing a significant transformation from traditional production systems to entrepreneurial and market-oriented models that emphasize innovation, value addition, sustainability, and income diversification. Within this transition, non-grain agricultural enterprises—including horticulture, dairy, fisheries, floriculture, mushroom cultivation, apiculture, sericulture, medicinal and aromatic plants, organic farming, agro-processing, and indigenous fruit-based enterprises—have emerged as important drivers of rural livelihoods and economic development. These enterprises create employment opportunities, promote women's participation, encourage efficient resource utilization, and contribute to environmental sustainability. Despite the growing importance of agripreneurship, existing research remains fragmented, with limited attention to the combined influence of entrepreneurial competencies, financial accessibility, marketing capability, technology adoption, government support, and supply chain management on sustainable enterprise development.

This study systematically reviews published literature on non-grain agri-entrepreneurship and sustainable development using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. Twenty-five peer-reviewed studies published between 2014 and 2025 were selected through predefined inclusion and exclusion criteria. The selected studies were analysed to identify major themes, methodological trends, key findings, and research gaps.

The review indicates that sustainable non-grain agri-enterprises depend on an integrated combination of entrepreneurial competencies, technological innovation, financial support, effective marketing, institutional assistance, government initiatives, and efficient supply chains. However, most existing studies remain conceptual, sector-specific, or policy-oriented, providing limited empirical evidence from a business management perspective. The review therefore proposes an integrated framework for future empirical research, particularly in Karnataka, where non-grain agricultural enterprises possess substantial potential for sustainable economic development.

KEYWORDS: Agri-entrepreneurship, Non-grain agriculture, Sustainable development, Agribusiness, Entrepreneurial competencies, Marketing, Technology adoption, Karnataka, PRISMA.

1. INTRODUCTION

Agriculture plays a vital role in India's economy by supporting employment, food security, and rural livelihoods. With changing market demands, technological advancements, and globalization, agriculture is increasingly adopting an entrepreneurial approach. Non-grain agricultural enterprises such as horticulture, dairy, fisheries, mushroom cultivation, organic farming, medicinal plants, and agro-processing have emerged as important avenues for income diversification, value addition, employment generation, and sustainable rural development.

Although previous studies highlight the importance of entrepreneurial competencies, finance, technology, marketing, and institutional support, research integrating these factors for sustainable non-grain agri-enterprises remains limited, particularly in Karnataka. Therefore, this study systematically reviews the existing literature using the PRISMA framework to identify key research themes, methodological trends, and research gaps, providing a foundation for future empirical research from a commerce and business management perspective.

2. OBJECTIVES OF THE STUDY

The present systematic review aims to:

1. Examine the existing literature on non-grain agri-entrepreneurship and sustainable development.
2. Identify the major factors influencing sustainable agri-enterprise development.
3. Analyse methodological trends and thematic areas in previous studies.
4. Identify research gaps for future empirical investigation.
5. Propose an integrated framework for sustainable non-grain agri-entrepreneurship, particularly in Karnataka.



3. METHODOLOGY

The study adopts the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure transparency and consistency in the review process. Relevant literature published between 2014 and 2025 was retrieved from major academic databases, including Scopus, Web of Science, Google Scholar, ResearchGate, ScienceDirect, Springer, Taylor & Francis, Emerald Insight, and institutional repositories.

The search strategy used combinations of keywords such as *agri-entrepreneurship*, *agribusiness*, *non-grain agriculture*, *sustainable agriculture*, *entrepreneurial competencies*, *marketing*, *technology adoption*, *government support*, *financial accessibility*, and *supply chain management*. Only peer-reviewed journal articles, conference papers, review articles, and policy studies published in English were considered.

Studies focusing exclusively on grain production, unrelated agricultural issues, duplicate publications, editorials, and non-peer-reviewed documents were excluded. After screening titles, abstracts, and full texts using predefined inclusion and exclusion criteria, 25 studies were selected for detailed review.

The selected studies were analysed using thematic synthesis to identify major research themes, methodological approaches, principal findings, and research gaps. Particular attention was given to business management variables influencing sustainable non-grain agri-enterprises, including entrepreneurial competencies, finance, marketing, technology adoption, institutional support, government initiatives, and supply chain management.

4. LITERATURE REVIEW

The literature on agri-entrepreneurship has expanded considerably over the past decade, reflecting the growing recognition of agriculture as an entrepreneurial and market-oriented sector. Earlier studies primarily emphasized agricultural production and productivity, whereas recent research increasingly focuses on entrepreneurship, innovation, value addition, sustainability, and rural economic development. The reviewed studies reveal that sustainable development of non-grain agri-enterprises is influenced by multiple interrelated factors rather than any single determinant.

4.1 Evolution of Agri-Entrepreneurship

The concept of agripreneurship has evolved from traditional farming to an integrated business model encompassing production, processing, value addition, branding, marketing, and supply chain management. Several studies highlight that entrepreneurship enables farmers to diversify income sources, improve productivity, create employment opportunities, and strengthen rural economies. Agripreneurship has therefore emerged as an effective strategy for promoting agricultural modernization, reducing rural unemployment, and encouraging innovation within the agricultural sector.

Researchers further argue that entrepreneurial thinking enables farmers to respond more effectively to changing consumer preferences, technological developments, and competitive markets. As agriculture becomes increasingly commercialized, entrepreneurial capabilities are considered essential for ensuring long-term enterprise sustainability.

4.2 Importance of Non-Grain Agricultural Enterprises

The reviewed literature consistently identifies non-grain agricultural enterprises as major contributors to sustainable rural development. Sectors such as horticulture, dairy, mushroom cultivation, fisheries, floriculture, apiculture, sericulture, medicinal plants, organic farming, and agro-processing generate higher value addition, employment opportunities, and income diversification than conventional grain cultivation.

Several studies report that these enterprises improve nutritional security, encourage women's participation, support rural industrialization, and enhance farmers' resilience to climatic and market risks. Research on organic farming and mushroom cultivation further demonstrates that non-grain enterprises promote efficient resource utilization while creating opportunities for entrepreneurship and value-added businesses.

Although these sectors possess considerable economic potential, the literature also identifies challenges including limited market access, inadequate infrastructure, certification issues, technological constraints, and insufficient entrepreneurial support.

4.3 Entrepreneurial Competencies and Enterprise Performance

Entrepreneurial competencies are widely recognised as a critical determinant of successful agri-enterprises. Previous studies indicate that competencies such as opportunity recognition, leadership, strategic planning, innovation, financial management, communication, networking, and decision-making positively influence enterprise performance and business sustainability.

Entrepreneurship development programmes and skill-building initiatives have also been shown to improve business confidence, innovation, and market participation. However, most studies examine entrepreneurial orientation or entrepreneurial intention rather than evaluating comprehensive entrepreneurial competencies required for managing sustainable non-grain enterprises.

4.4 Technology, Innovation, and Sustainable Agriculture

Technological innovation has emerged as an important driver of agricultural transformation. The literature highlights that digital technologies, precision agriculture, improved production techniques, information and communication technologies, and e-commerce enhance productivity, reduce production costs, improve decision-making, and strengthen market access.



Studies on technology adoption suggest that modern technologies increase enterprise competitiveness and resource efficiency. However, technology adoption is often analysed independently, with limited attention to its interaction with entrepreneurial competencies, marketing capability, or financial accessibility. Consequently, there remains a need for integrated research examining technology as part of a broader entrepreneurial ecosystem.

4.5 Marketing, Value Addition, and Supply Chain Management

Marketing capability and efficient supply chain management play a vital role in improving profitability and competitiveness of agri-enterprises. Several studies emphasize that value addition, branding, packaging, processing, logistics, and market intelligence enable entrepreneurs to reach larger markets and obtain better prices for agricultural products.

The literature also highlights the growing importance of digital marketing, direct marketing, and online platforms in expanding market opportunities. Nevertheless, research on marketing strategies and supply chain integration remains relatively limited, particularly for non-grain agricultural enterprises. Existing studies generally examine production efficiency rather than post-harvest management and business development.

4.6 Financial Accessibility and Institutional Support

Access to finance is consistently identified as one of the most important factors influencing entrepreneurial success. The reviewed studies indicate that institutional credit, government subsidies, financial literacy, and entrepreneurship development programmes encourage enterprise establishment, technology adoption, and business expansion.

Government initiatives, agricultural universities, incubation centres, extension services, and skill development programmes also play an important role in promoting innovation and enterprise development. However, several studies report that farmers continue to face difficulties in obtaining timely credit, accessing markets, and adopting new technologies because of institutional and financial constraints.

Most studies discuss these factors independently without examining their combined contribution to sustainable enterprise performance.

4.7 Sustainable Development and Agripreneurship

The literature increasingly recognises sustainability as a multidimensional concept involving economic viability, environmental conservation, and social inclusion. Sustainable agri-enterprises contribute to resource conservation, employment generation, climate resilience, rural development, and improved livelihoods.

Studies on organic farming, agricultural diversification, indigenous fruits, and allied agricultural activities demonstrate that sustainable business practices improve long-term enterprise performance while reducing environmental degradation. Nevertheless, sustainability is frequently discussed conceptually rather than being empirically measured using integrated economic, environmental, and social indicators.

4.8 Regional Evidence and Karnataka Perspective

Several studies conducted in Karnataka highlight the state's considerable potential for non-grain agricultural enterprises owing to its diverse agro-climatic conditions, expanding horticulture sector, dairy industry, mushroom cultivation, indigenous fruit resources, and organic farming initiatives. Research also indicates that government support, agricultural universities, and incubation centres have strengthened entrepreneurial opportunities within the state.

Despite these advantages, Karnataka continues to face challenges relating to finance, market infrastructure, technology adoption, entrepreneurial skills, value-chain development, and institutional coordination. Existing studies are largely sector-specific and provide limited empirical evidence on sustainable non-grain agri-enterprises from a commerce and business management perspective.

Summary of the Literature

Overall, the reviewed studies establish that agripreneurship has become an important strategy for promoting sustainable agricultural development, employment generation, income diversification, and rural transformation. Entrepreneurial competencies, technological innovation, marketing capability, financial accessibility, institutional support, and efficient supply chains are repeatedly identified as important determinants of enterprise success.

However, the literature remains fragmented, with most studies focusing on individual variables or specific agricultural sectors. Comprehensive empirical research integrating these determinants within a single framework for sustainable non-grain agri-enterprises remains limited. This gap provides the foundation for the present study.

5. RESEARCH GAPS

- Limited research specifically focuses on non-grain agri-enterprises such as horticulture, dairy, fisheries, mushroom cultivation, floriculture, medicinal plants, organic farming, and agro-processing.
- Existing studies largely emphasize agricultural production and sustainability, with limited integration of business management factors such as entrepreneurial competencies, marketing, finance, technology, supply chain management, and government support.



- Most studies are conceptual or policy-oriented, while empirical research using primary data to assess sustainable enterprise development remains limited.
- Marketing, digital technologies, value addition, branding, logistics, supply chain integration, and the effectiveness of government support have received comparatively less empirical attention.
- Research on sustainable non-grain agri-entrepreneurship in Karnataka from a commerce and business management perspective remains inadequate.
- Overall, there is a need for an integrated empirical framework that examines the combined influence of entrepreneurial competencies, financial accessibility, marketing capability, technology adoption, government support, and supply chain management on sustainable development.

6. DISCUSSION

The review demonstrates that agripreneurship has evolved from a production-oriented activity to a market-driven business model emphasizing innovation, value addition, sustainability, and competitiveness. Contemporary agri-entrepreneurs increasingly participate in processing, branding, digital marketing, logistics, and value chain development in addition to agricultural production.

The reviewed studies consistently show that sustainable enterprise development depends on the combined influence of entrepreneurial competencies, access to finance, technology adoption, marketing capability, institutional support, and efficient supply chain management. These factors are complementary and collectively determine enterprise performance and long-term sustainability.

The review also highlights the growing importance of non-grain agricultural enterprises in generating employment, promoting rural industrialization, strengthening women's participation, improving nutritional security, and increasing farmers' income. However, existing research remains fragmented, with most studies examining individual determinants rather than their combined influence. Developing an integrated business management framework is therefore essential for understanding the sustainable development of non-grain agri-enterprises.

7. IMPLICATIONS OF THE STUDY

7.1 Theoretical Implications

The review contributes to the literature by integrating perspectives from Entrepreneurship Theory, the Resource-Based View, Sustainable Development Theory, Innovation Theory, Institutional Theory, and Agribusiness Management. This integrated perspective provides a stronger conceptual foundation for future empirical studies on sustainable agri-entrepreneurship.

7.2 Practical Implications

The findings suggest that agri-entrepreneurs should strengthen entrepreneurial competencies, improve financial literacy, adopt modern technologies, develop effective marketing strategies, enhance supply chain efficiency, and focus on value-added enterprises. These measures can improve enterprise competitiveness, profitability, and long-term sustainability.

7.3 Policy Implications

The review highlights the need for policies that strengthen entrepreneurship development programmes, improve institutional credit, promote digital agriculture, support value addition and agro-processing, enhance agricultural marketing infrastructure, strengthen extension services, and encourage women and youth participation in agribusiness.

8. ORIGINALITY OF THE STUDY

This review contributes to the existing literature in several ways. Unlike previous reviews that focus on agriculture or agripreneurship in general, it specifically examines sustainable development in non-grain agri-enterprises. It integrates entrepreneurial competencies, financial accessibility, marketing capability, technology adoption, government support, and supply chain management into a single conceptual framework. Furthermore, by adopting a PRISMA-based systematic review approach, the study provides a transparent and comprehensive synthesis of existing literature while identifying key research gaps for future empirical investigation, particularly in Karnataka.

9. CONCLUSION

This review highlights the growing importance of non-grain agri-entrepreneurship in promoting sustainable agricultural and rural development. The findings indicate that entrepreneurial competencies, finance, technology, marketing, institutional support, and supply chain management collectively influence enterprise sustainability. Despite increasing research, empirical studies integrating these factors remain limited, particularly in Karnataka. The review provides a foundation for future research and offers insights for policymakers and practitioners to strengthen sustainable non-grain agri-enterprises.

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