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Bibliometric Analysis of Agropreneurship

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ABSTRACT

Agropreneurship, the integration of agriculture and entrepreneurship, has gained significant attention as a means of fostering economic growth, rural development, and sustainable agricultural practices. This study employs a bibliometric analysis to assess the research landscape of agropreneurship, using Scopus as the primary data source and VOSviewer for analytical visualization. The findings reveal key thematic clusters, including innovation, sustainability, policy interventions, and entrepreneurial behaviors, which highlight the multidisciplinary nature of agropreneurship research. The study also identifies emerging trends such as digital agropreneurship, climate-smart agriculture, and financial support mechanisms for smallholder farmers. Despite the growing interest, research fragmentation and the need for greater interdisciplinary collaboration remain challenges. The study concludes that fostering technological integration, strengthening market access, and enhancing policy frameworks are critical to advancing agropreneurship. Future research should focus on addressing these gaps to support sustainable agricultural entrepreneurship and global food security.

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1. INTRODUCTION

Agropreneurship, a fusion of agriculture and entrepreneurship, has emerged as a pivotal concept in modern agricultural development. It emphasizes the application of innovative business practices to agricultural activities, aiming to enhance productivity, sustainability, and economic viability. The traditional agricultural sector, often characterized by subsistence farming and limited market engagement, is undergoing a transformation driven by entrepreneurial initiatives [1], [2]. This shift is not only revitalizing rural economies but also addressing global challenges such as food security, environmental sustainability, and climate resilience. As global populations continue to grow, agricultural productivity must keep pace with rising food demands while mitigating the adverse effects of climate change and resource depletion. Agropreneurship serves as a viable solution by fostering innovation and efficiency in food production, distribution, and market access [3].

The significance of agropreneurship lies in its potential to create employment opportunities, increase income levels, and

improve the competitiveness of the agricultural sector. By adopting entrepreneurial approaches, farmers can diversify their income sources, access new markets, and implement innovative technologies [4]. This transformation is particularly crucial for developing countries, where agriculture remains a primary livelihood source. Enhancing the entrepreneurial and organizational skills of smallholder farmers is essential to elevate the agricultural sector from subsistence to commercial levels. Furthermore, agropreneurship encourages the establishment of agribusiness ventures, ranging from farm-based enterprises to large-scale agricultural cooperatives that enable value addition and supply chain integration [4], [5]. The development of agripreneurial skills among rural populations contributes not only to food security but also to rural industrialization and economic self-sufficiency [6].

In recent years, there has been a noticeable increase in scholarly interest in agricultural entrepreneurship. Studies have explored various facets, including youth involvement in agripreneurship, sustainable farming practices, and the role of education in fostering agricultural entrepreneurship. For instance, research on youth agripreneurship highlights the importance of engaging young people in the agricultural value chain to ensure the sector's sustainability and innovation [7]. The integration of technology in agriculture, such as precision farming, digital marketplaces, and smart irrigation, has further revolutionized the agropreneurial landscape. Government policies and international initiatives supporting agricultural entrepreneurship have played a significant role in creating a favorable environment for innovation, investment, and capacity-building in the agricultural sector. Entrepreneurial training programs, incubators, and financial support mechanisms have also emerged as critical enablers for aspiring agropreneurs to succeed in the industry [8].

Despite the growing body of literature, there remains a need for a comprehensive analysis of the research trends, key themes, and collaborative networks within the field of agropreneurship. Bibliometric analysis offers a systematic approach to evaluate the existing literature, identify influential studies, and uncover emerging research areas. Such an analysis can provide valuable insights for researchers, policymakers, and practitioners aiming to promote entrepreneurial practices in agriculture. While the concept of agropreneurship has gained traction, the existing literature is fragmented, with studies focusing on diverse aspects without a unifying framework. This dispersion makes it challenging to discern overarching trends, influential contributors, and potential gaps in the research. Moreover, the lack of a consolidated understanding hinders the development of targeted policies and interventions to foster entrepreneurship in agriculture.

A bibliometric analysis is essential to systematically map the existing knowledge, highlight key research areas, and identify opportunities for future investigation. By assessing research outputs, citation patterns, and thematic clusters, bibliometric studies can provide empirical evidence on the intellectual structure of agropreneurship research. Such insights can guide future scholarly inquiries, inform evidence-based policy recommendations, and enhance knowledge dissemination among stakeholders. Furthermore, bibliometric findings can help bridge the gap between academia and industry by fostering knowledge exchange and collaboration between researchers, policymakers, agricultural extension services, and agropreneurs themselves. As agropreneurship continues to gain momentum, leveraging bibliometric analysis can serve as a strategic tool to refine research agendas, optimize resource allocation, and promote sustainable agricultural entrepreneurship worldwide.

Theoretical Foundation

This study aims to conduct a comprehensive bibliometric analysis of agropreneurship literature to elucidate the evolution of research in this field over the past decade. By examining publication trends, identifying prolific authors and institutions, analyzing keyword co-occurrences, and mapping collaborative networks, the study seeks to provide a holistic understanding of the current state of agropreneurship research. The findings will inform future research directions, policy formulation, and practical applications to enhance entrepreneurial activities within the agricultural sector [9], [10].

Agropreneurship is an interdisciplinary field that merges agricultural science with entrepreneurial principles. It encompasses the identification, development, and management of innovative agribusiness ventures, enabling economic and sustainable growth in the agricultural sector [11]. The theoretical foundation of agropreneurship is drawn from several core economic, entrepreneurial, and agricultural development theories. These frameworks provide insights into the motivations, behaviors, and challenges faced by agropreneurs, thereby guiding research and practice in this domain. [12] proposed the theory of innovation, emphasizing the role of entrepreneurs as catalysts of economic development. According to Schumpeter, entrepreneurs drive progress by introducing new products, methods, and markets. In agropreneurship, this theory is particularly relevant as innovation is crucial for improving agricultural productivity and sustainability. Agropreneurs leverage technological advancements such as precision farming, hydroponics, and vertical farming to enhance efficiency and profitability [13].

[14] introduced the concept of entrepreneurial alertness, where entrepreneurs identify and exploit market opportunities. In agropreneurship, this theory explains how farmers and agribusiness owners recognize emerging trends such as organic farming, climate-resilient crops, and value-added agricultural products. Kirzner's perspective underscores the importance of market intelligence and adaptability in agropreneurship [15]. [16] emphasizes the importance of unique resources and capabilities in achieving competitive advantage. In the context of agropreneurship, access to land, financial capital, human resources, and technological know-how determines an enterprise's success. Agropreneurs who effectively leverage their resources—such as adopting modern irrigation systems or developing niche organic markets—gain a sustainable edge in the industry [17].

[18] argued that agricultural development responds to population pressure, leading to innovation and increased productivity. This theory is highly applicable to agropreneurship, as modern agropreneurs are developing sustainable farming techniques to meet the demands of growing populations while mitigating environmental degradation [19]. [20] developed the entrepreneurial ecosystem model, which outlines critical elements such as policy, finance, culture, support systems, human capital, and markets. The success of agropreneurs depends on a well-developed ecosystem that includes access to government support, financing options, research institutions, and supply chain networks [21]. Countries with strong agricultural policies, subsidies, and infrastructure development create conducive environments for agropreneurs to thrive.

The theoretical foundation of agropreneurship is grounded in multiple disciplines, including entrepreneurship, agricultural economics, sustainability studies, and institutional analysis. By integrating these theoretical perspectives, researchers and practitioners can better understand the dynamics of agropreneurship and develop strategies to enhance its impact. The interplay of innovation, resource management, social capital, technology adoption, and institutional support shapes the success of agropreneurs globally. A robust theoretical framework is essential for guiding future

research, policymaking, and practical applications in the field of agropreneurship.

2. METHODS

This study employs a bibliometric analysis approach to systematically examine the research landscape of agropreneurship. Data were sourced exclusively from Scopus, focusing on peer-reviewed journal articles, conference proceedings, and relevant scholarly publications. The search criteria included keywords such as "agropreneurship," "agricultural entrepreneurship," and "agribusiness innovation." The collected data were analyzed using VOSviewer to identify research trends, citation patterns, co-authorship networks, and thematic clusters. Descriptive statistics, keyword co-occurrence analysis, and network visualization techniques were applied to interpret the evolution of research in agropreneurship.

3. RESULTS AND DISCUSSION

3.1 Network Visualization

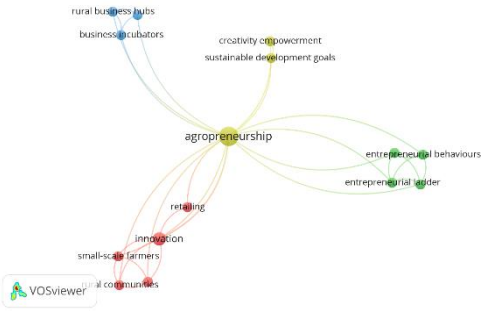

Figure 1. Network Visualization
Source: Data Analysis, 2025

The VOSviewer visualization presents a bibliometric network map centered around the concept of agropreneurship, highlighting its various thematic associations. The central node, "agropreneurship," is connected to several clusters, each representing different thematic areas within the field. These clusters indicate key research interests and trends in agropreneurship, demonstrating how different aspects contribute to the development and understanding of this emerging field. One notable cluster, marked in red, emphasizes innovation, small-scale farmers, and rural communities. This suggests that a significant portion of agropreneurship research focuses on how innovation plays a vital role in transforming smallholder farming practices. The connection between innovation and rural communities implies a strong interest in how entrepreneurial approaches can uplift rural economies, improve agricultural productivity, and enhance sustainability in marginalized areas.

The blue cluster highlights business incubators and rural business hubs, emphasizing the infrastructural and institutional support required for agropreneurial success. Business incubators play a crucial role in nurturing startups by providing resources, mentorship, and funding opportunities. Their connection to rural business hubs suggests that localized support systems are essential in fostering agropreneurial activities, particularly in underdeveloped regions where market access and financial resources are often limited. Another key theme, represented by the green cluster, focuses on entrepreneurial behaviors and the entrepreneurial ladder. This connection reflects an interest in the progression of agropreneurs, from initial entrepreneurial engagement to more advanced business activities. The concept of the entrepreneurial ladder suggests a developmental pathway where individuals and enterprises grow through various stages of business maturity, influenced by experience, investment, and market expansion. The yellow cluster relates to creativity empowerment and sustainable development goals (SDGs), highlighting the intersection between agropreneurship and broader global sustainability initiatives. Creativity empowerment suggests that fostering innovation and problem-solving skills among agropreneurs is essential for achieving sustainability. The link to SDGs underscores the importance of agropreneurship in addressing challenges such as food security, economic development, and environmental conservation, reinforcing its role in global sustainable development efforts.

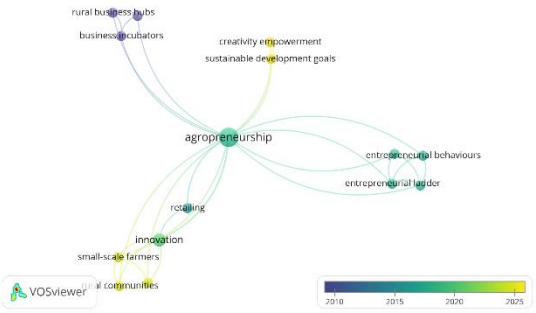

Figure 2. Overlay Visualization
Source: Data Analysis, 2025

The VOSviewer visualization illustrates the bibliometric mapping of agropreneurship research, highlighting various thematic clusters and their temporal evolution from 2010 to 2025. The central node, "agropreneurship," connects to different themes represented by distinct colors, indicating their relevance over time. The color gradient, ranging from purple (older studies) to yellow (more recent studies), shows the chronological development of research within agropreneurship. The left-side cluster, consisting of "innovation," "small-scale farmers," and "rural communities," appears in yellow-green shades, indicating a relatively recent focus. This suggests that contemporary research has been emphasizing innovation in rural agricultural settings, with smallholder farmers playing a key role in agropreneurial transformation. Similarly, "sustainable development goals" and "creativity empowerment" in yellow indicate an emerging research area, aligning agropreneurship with global sustainability initiatives. On the right side, "entrepreneurial behaviors" and "entrepreneurial ladder" are mapped in blue-green, suggesting that these aspects were explored in earlier periods but remain relevant. The top-left cluster, "business incubators" and "rural business hubs," in dark blue indicates older research, reflecting a foundational focus on institutional and infrastructural support for agropreneurs.

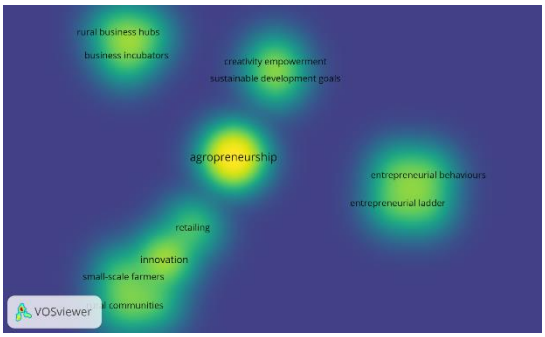

Figure 3. Density Visualization
Source: Data Analysis, 2025

The heatmap visualization from VOSviewer represents the intensity of research focus within the domain of agropreneurship, with brighter areas indicating higher research density. The central node, "agropreneurship," exhibits the highest intensity, signifying that it is the primary topic of study. Surrounding it are multiple key themes such as "innovation," "entrepreneurial behaviors," "business incubators," and "sustainable development goals." The heatmap suggests that these themes have received substantial academic attention, as indicated by the green and yellow clusters. The lower-left cluster, which includes "innovation," "small-scale farmers," and "rural communities," shows moderate intensity, implying that research in these areas is growing but not as extensively explored as core agropreneurship topics. Similarly, the upper-left cluster, "business hubs" and "business incubators," indicates past focus on structural and institutional support for agropreneurial activities. The entrepreneurial behavior and entrepreneurial ladder cluster on the right suggests interest in understanding the progression and characteristics of agropreneurs. Meanwhile, "creativity empowerment" and "sustainable development goals" in the upper-middle section indicate an emerging focus on aligning agropreneurship with sustainability and innovation-driven empowerment. The heatmap thus provides insights into both established and developing areas in agropreneurship research.

3.2 Co-Authorship Visualization

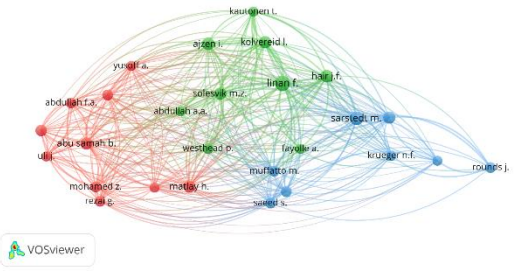

Figure 4. Author Visualization
Source: Data Analysis, 2025

The VOSviewer co-authorship network visualization presents a collaborative structure among researchers in the field, with nodes representing authors and edges denoting co-authorship relationships. The network is divided into three primary clusters, each color-coded: the red cluster includes authors like Yusoff A., Abdullah F.A., and Abu Samah B., indicating strong collaboration within this group, possibly focusing on regional or thematic agropreneurship research. The green cluster, featuring Linan F., Ajzen I., and Kolvereid L., suggests a central role in the academic discussion, possibly in entrepreneurial intention models and psychological perspectives on entrepreneurship. The blue cluster, containing Krueger N.F., Sarstedt M., and Rounds J., is linked more loosely to the rest, indicating a specialized or emerging subfield in entrepreneurial studies. The extensive connections among these clusters suggest significant interdisciplinary collaboration, with central authors like Linan F. bridging research themes across different clusters.

3.3 Discussion

The findings of this bibliometric analysis reveal several key insights into the evolution of agropreneurship research. The network visualization of keyword co-occurrences highlights the interdisciplinary nature of agropreneurship, incorporating elements of business innovation, sustainable development, rural economic growth, and technological advancement. The presence of multiple thematic clusters suggests that agropreneurship research has expanded significantly over the years, encompassing diverse topics such as rural entrepreneurship, agribusiness management, social entrepreneurship, and policy interventions [22]–[26].

One of the most notable findings is the increasing emphasis on sustainability and innovation in agropreneurship. The integration of sustainable development goals (SDGs) within agropreneurship research indicates a shift towards environmentally conscious agricultural practices. Keywords such as “climate-smart agriculture,” “green entrepreneurship,” and “renewable energy in farming” have emerged as key themes, reflecting the growing importance of sustainability in agricultural business models. This aligns with global efforts to promote sustainable food production systems while mitigating the adverse effects of climate change. Additionally, the co-authorship analysis demonstrates a strong network of researchers collaborating across various disciplines and geographic regions. Leading scholars such as Linan F., Kolvereid L., and Ajzen I. play central roles in shaping the discourse on agropreneurship, particularly in the areas of entrepreneurial intention and behavior. The network structure suggests that knowledge dissemination in agropreneurship is facilitated through international collaborations, reinforcing the global relevance of this field. However, the fragmentation of research clusters indicates that certain subfields, such as digital agropreneurship and financial support mechanisms for agropreneurs, require further exploration and integration into mainstream research.

The analysis of publication trends further highlights the growing scholarly interest in agropreneurship, particularly in developing economies. Countries in Africa and Asia, where agriculture is a dominant economic sector, have witnessed an increasing number of studies focusing on agripreneurial interventions and policy frameworks. Government initiatives such as microfinance programs, agribusiness incubators, and rural development schemes

have been widely studied for their role in fostering agropreneurship. Despite this progress, challenges such as access to credit, market integration, and technological adoption remain significant barriers to agropreneurial success. Future research directions should focus on addressing these challenges by exploring innovative financial models, digital marketing strategies, and policy reforms to enhance agropreneurial ecosystems. The role of artificial intelligence, blockchain technology, and big data analytics in agropreneurship presents a promising avenue for further investigation. By bridging existing knowledge gaps and fostering interdisciplinary research, the field of agropreneurship can continue to evolve and contribute to global agricultural transformation.

4. CONCLUSION

The bibliometric analysis of agropreneurship research highlights its evolution as a multidisciplinary field that integrates agricultural practices with entrepreneurial strategies. The study reveals the increasing emphasis on sustainability, innovation, and policy interventions to enhance agropreneurial activities globally. Key research trends indicate a growing interest in climate-smart agriculture, agribusiness incubation, and financial support mechanisms for smallholder farmers. While collaboration among scholars has expanded, research fragmentation remains a challenge, particularly in emerging subfields such as digital agropreneurship and artificial intelligence-driven agricultural solutions. To further strengthen the field, future research should focus on fostering interdisciplinary studies, improving market access for agropreneurs, and leveraging technological advancements to enhance productivity and sustainability. By addressing existing gaps and challenges, agropreneurship can continue to drive economic development, rural empowerment, and food security on a global scale.

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