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Agropreneurship and Green Innovations: Exploring the Synergy Between Sustainable Practices and Profitability in the Agribusiness Sector**Sigit Sugiardi**

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ABSTRACT

Sustainable agropreneurship is gaining traction in the agribusiness sector as a strategy to strike a balance between environmental sustainability and profitability. This study aims to explore the synergy between green innovation and agropreneurship practices in increasing the competitiveness and sustainability of agribusiness businesses. Using literature study methods and library research approaches, this study analyzes various agropreneurship models based on green innovation that have been implemented in various countries. The results of the study show that the application of environmentally friendly technology, resource efficiency, and diversification of agricultural products contribute significantly to increasing productivity and market competitiveness. In addition, marketing strategies based on sustainability values are increasingly becoming a major factor in attracting consumers who have high ecological awareness. However, challenges such as limited access to green technology, lack of policy support, and financial barriers remain obstacles to the widespread implementation of sustainable agropreneurship. Therefore, collaboration between the government, academics, and business actors is needed to create an agribusiness ecosystem that supports green innovation. The conclusion of this study confirms that the integration of sustainable practices and profitability

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orientation in agropreneurship not only has a positive impact on the economic growth of the agribusiness sector, but also on environmental sustainability. This study is expected to be a reference for policymakers and agribusiness practitioners in designing more effective strategies to achieve sustainable economic growth.

1. INTRODUCTION

The agribusiness sector has an important role in food security, economic growth, and global community welfare (FAO, 2021). However, in recent decades, pressure on the agribusiness system has increased due to climate change, exploitation of natural resources, and consumer demands for more sustainable production practices (Tilman et al., 2017). To overcome this challenge, the concept of agropreneurship has emerged that combines the principles of entrepreneurship in the agricultural sector with innovative and sustainable approaches (Micheels & Gow, 2019). Along with the increasing awareness of the importance of sustainability, green innovation has become a key element in the development of agropreneurship to balance environmental aspects and profitability (El Bilali, 2019).

Agropreneurship and green innovation are two concepts that intersect in an effort to create a more sustainable and profitable agribusiness system. Agropreneurship refers to the application of entrepreneurial principles in the agricultural sector, which not only focuses on production, but also includes supply chain management, marketing, and innovation in agricultural practices (Micheels & Gow, 2019). On the other hand, green innovation includes strategies and technologies that aim to reduce environmental impacts, improve resource efficiency, and create added value for agricultural products (El Bilali, 2019). The integration of these two concepts allows agropreneurs to develop business models that not only prioritize financial profits, but also pay attention to environmental and social sustainability aspects.

In its application, green innovations in agropreneurship can be realized in various forms, such as the use of precision agriculture technology, water-saving irrigation systems, processing organic waste into fertilizers, and the adoption of renewable energy in the production process (Pretty et al., 2018). In addition, agroecological approaches that combine traditional practices with modern technologies can increase plant resilience to climate change as well as reduce dependence on synthetic inputs such as chemical fertilizers and pesticides (Klerkx & Begemann, 2020). On the marketing side, increasing consumer demand for environmentally friendly products has encouraged agropreneurs to implement sustainability-based marketing strategies, such as organic certification, traceability, and business models based on the circular economy (Vermeir & Verbeke, 2020).

However, although green innovation-based agropreneurship has great potential, there are still various challenges that need to be overcome. One of the main obstacles is limited access to green technology and lack of funding for smallholders and micro and medium enterprises (Sharma et al., 2021). In addition, regulations that have not fully supported sustainable agricultural practices are often a barrier to the widespread implementation of green innovations (Darnhofer, 2020). Therefore, support from various parties, including the government, academic institutions, and the private sector, is needed to create a more inclusive agribusiness ecosystem and support the transformation towards sustainability-based agropreneurship.

However, in practice, many agribusiness actors still face obstacles in integrating sustainable practices into their business models. One of the main challenges is limited access to environmentally friendly technologies and the lack of policy incentives that encourage the adoption of green innovations (Darnhofer, 2020). In addition, the transition to green innovation-based agropreneurship is still often constrained by financial barriers and a lack of sustainability literacy among farmers and small-medium enterprises (Sharma et al., 2021). Therefore, a more in-depth study is needed to explore how agropreneurship can run in harmony with green innovations in increasing profitability without sacrificing environmental sustainability aspects.

Although many studies have discussed sustainability aspects in agribusiness, there is still a research gap related to how agropreneurship can be optimally integrated with green innovation in increasing the profitability of agribusiness businesses (Reisch et al., 2021). Most previous studies have focused more on the environmental impact of sustainable agribusiness practices without considering the economic aspects and business models that support their implementation (Pretty et al., 2018). In addition, the literature that discusses the implementation strategy of green innovation in agropreneurship is still limited, especially in the context of developing countries that face different challenges compared to developed countries (Klerkx & Begemann, 2020).

The urgency of this research is based on the increasing need for agribusiness systems that are more adaptive to changes in the global environment as well as shifting consumer preferences towards sustainably produced products (Vermeir & Verbeke, 2020). In addition, the rapid growth of the agropreneurship sector requires strategies that are not only profit-oriented, but also pay attention to environmental sustainability and socio-economic sustainability (González et al., 2022). Therefore, this research is important to fill the gaps in the literature and provide evidence-based recommendations regarding the synergy between agropreneurship and green innovation in improving the competitiveness and sustainability of agribusiness.

Several previous studies have highlighted the role of green innovation in improving the sustainability of the agribusiness sector. Pretty et al. (2018) examined how sustainable farming practices can improve productivity and food security. Darnhofer (2020) discusses the factors influencing the adoption of green innovations by farmers, while Sharma et al. (2021) examine financial barriers in the implementation of sustainable agribusiness practices. However, these studies are still limited in linking aspects of green innovation with agropreneurship models that are able to increase business profitability.

This research offers novelty by exploring how the synergy between agropreneurship and green innovation can improve sustainability as well as profitability in the agribusiness sector. The approach used in this study not only considers environmental aspects, but also business strategies and economic models that can be applied by agropreneurs to increase competitiveness in the global market. Thus, this study provides a more holistic perspective in examining the integration of green innovation in a sustainable agropreneurship system.

This study aims to analyze the relationship between agropreneurship and green innovation in increasing the profitability of the agribusiness sector, identify the main challenges faced by agropreneur actors in adopting sustainable practices, and develop strategies for the implementation of green innovations that can increase the competitiveness of agribusiness without sacrificing environmental aspects.

The expected benefits of this research include providing insights to agropreneur actors on sustainable green innovation-based business strategies, providing policy recommendations for the government and stakeholders in supporting the development of sustainability-based agropreneurship, and contributing to the development of literature related to agropreneurship and green innovation with a more comprehensive approach.

2. METHODS

This study uses a literature study approach to explore the relationship between sustainable practices and profitability in the agribusiness sector. The literature study was chosen because it allows researchers to analyze various academic and empirical findings that have been published related to agropreneurship and green innovation, so as to gain a deeper understanding of trends, challenges, and opportunities in the implementation of sustainability in the agribusiness sector (Snyder, 2019).

The data sources in this study come from scientific journal articles, academic books, industry reports, and relevant policy documents. The articles used were selected from reputable databases such as Scopus, Web of Science, and Google Scholar, with criteria of relevance to the topic, publications in the last five years, and having a credible impact factor (Boell & Cecez-Kecmanovic, 2015). In addition, the study also considers reports from international organizations such as FAO, the World Bank, and the OECD that focus on sustainability in agribusiness.

Data collection techniques were carried out through systematic searches using keywords related to agropreneurship, green innovation, sustainability in agribusiness, and the relationship between sustainable practices and profitability. The search was carried out with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach to ensure the selection of relevant and quality sources (Moher et al., 2009). Once the data is collected, a critical screening and evaluation process is carried out on the articles that have been obtained to ensure that only research with a significant contribution is used in the analysis.

The data analysis method used is thematic analysis, which aims to identify the main patterns and trends from previous research results related to agropreneurship and green innovation in agribusiness. The data obtained are categorized based on key themes, such as the drivers and inhibiting factors for the implementation of sustainable practices, the impact on profitability, and sustainability strategies that have been proven effective in the agribusiness sector (Braun & Clarke, 2006). This analysis is carried out with an inductive approach to explore the relationship between the concepts found and formulate a theoretical synthesis that can be used as a basis for policy-making and recommendations for industry players.

Through this method, the research is expected to provide comprehensive insights into the synergy between sustainability practices and profitability in agribusiness and offer evidence-based solutions to encourage the implementation of green innovation in this sector.

3. RESULTS AND DISCUSSION

This study adopts a literature study approach by selecting various scientific articles that discuss the relationship between sustainable practices and profitability in the agribusiness sector. From various sources that have been explored, 10 articles that are considered the most relevant are selected based on the quality of the methodology, contribution to the development of the theory, and their suitability to the research topic. These articles provide insights into various aspects of agropreneurship and green innovation, including implementation strategies, challenges faced, and their impact on agribusiness business profitability.

Author and Year	Article Title	Key findings
Micheels & Gow (2019)	The Role of Entrepreneurial Orientation in Sustainable Agribusiness	Agropreneurs with a high innovation orientation are more adaptive in implementing sustainability practices and obtaining long-term benefits.
The Bilali (2019)	Innovation in Sustainable Agriculture: A Systematic Review	Green innovations, such as organic farming and digital farming, increase productivity while reducing environmental impact.
Pretty et al. (2018)	Sustainable Intensification in Agriculture	Continuous intensification increases crop yields without damaging the ecosystem and creates economic stability for farmers.
Klerkx & Begemann (2020)	The Role of Technology in Agroecological Transition	The adoption of sustainable technologies accelerates the transition to more profitable agroecology-based agricultural systems.
Vermeir and Verbeke (2020)	Consumer Awareness and Sustainability in Agribusiness	Consumer demand for eco-friendly products encourages manufacturers to adopt green innovations and increase profits.
Sharma et al. (2021)	Barriers to Entrepreneurship in Green Agribusiness	Limited access to capital and complex regulations are the main obstacles for agribusiness actors who want to implement green practices.

Darnhofer (2020)	Resilience and Sustainable Agribusiness	Agropreneurs who adopt diversification strategies are better able to survive in the face of market and climate change.
FAO (2021)	The Economics of Agroecology	Agroecology can improve farmers' welfare and reduce economic risks through resource efficiency.
OECD (2020)	Policy Strategies for Sustainable Agriculture	Regulations that support green innovation accelerate the transformation of agribusiness towards long-term sustainability and profitability.
World Bank (2022)	Green Pathways to Sustainable Growth	Financial incentives and digital technology play a key role in supporting sustainability while increasing market competitiveness.

The data in this table shows that agropreneurship and green innovation have a positive impact on the profitability of the agribusiness sector. The reviewed articles reveal that the implementation of sustainable practices can improve resource efficiency, strengthen market competitiveness, and reduce long-term economic risks. However, there are significant obstacles, such as capital constraints, lack of policy support, and resistance to technological change at the smallholder level. Therefore, a more comprehensive strategy is needed in integrating green innovation with agribusiness business models so that sustainability and profits can go hand in hand.

Based on the literature data that has been analyzed, it can be concluded that agropreneurship and green innovation have a close relationship with profitability in the agribusiness sector. Micheels & Gow (2019) show that entrepreneurial orientation in agribusiness has a great influence on the adoption of sustainable practices, where business actors who have high innovation are faster to adapt to sustainability trends and obtain long-term profits. In addition, Vermeir & Verbeke (2020) highlights the role of consumers in supporting green agribusiness. Consumer awareness of sustainability is a key driver for manufacturers to adopt eco-friendly practices, ultimately increasing their competitiveness in the market.

From the perspective of innovation in sustainable agriculture, El Bilali (2019) and Klerkx & Begemann (2020) found that the adoption of green technologies and innovations plays an important role in improving production efficiency as well as reducing negative impacts on the environment. Technologies such as precision agriculture and agroecological systems have been shown to be able to increase productivity without having to rely on excessive synthetic chemicals. In the context of profitability, this kind of innovation allows farmers to reduce

operational costs, improve product quality, and reach a wider market, especially consumers who are more concerned about sustainability.

However, the research of Sharma et al. (2021) revealed that the main challenge in the adoption of sustainable agropreneurship lies in limited access to capital as well as regulatory complexity. Many small businesses have difficulty accessing funding for investment in green technology, so they continue to stick with conventional methods that are less environmentally friendly. In addition, inconsistent regulations and a lack of incentives from governments are often obstacles for agribusiness businesses to adopt sustainability practices broadly.

On the other hand, Darnhofer's research (2020) highlights the importance of diversification strategies in increasing the resilience of agribusiness businesses. In the face of market uncertainty and climate change, businesses that implement diversification strategies—both in products and production methods—tend to be better able to survive than those that rely on only one type of commodity. These results are in line with the FAO report (2021) which emphasizes that agroecology can improve the welfare of farmers by creating a more stable and economically sustainable agricultural system.

From a policy perspective, the OECD (2020) and the World Bank (2022) emphasized that regulatory support and financial incentives are key factors in driving agribusiness transformation towards sustainability. Clear policies in favor of green innovation, such as subsidies for green technologies and carbon taxes for unsustainable industries, can accelerate the transition to a greener and more profitable agribusiness system in the long term.

Overall, the results of this study show that the synergy between sustainable practices and profitability in agribusiness can be realized through a combination of innovation, diversification strategies, and adequate policy support. Despite challenges such as limited capital and suboptimal regulations, opportunities to develop green innovation-based agropreneurship remain wide open. Therefore, more research is needed to explore more effective strategies in increasing the adoption of sustainable practices, particularly among small- and medium-sized farmers who are the backbone of the agribusiness sector.

Discussion

The results of this study show that traditional games have a significant role in improving creativity and social skills in early childhood. Findings from various studies that have been reviewed indicate that children's involvement in social interaction-based play directly contributes to their cognitive, emotional, and social development (Pellegrini, 2009; Hirsh-Pasek et al., 2009). In the context of early childhood education, traditional games allow children to explore new ideas, strategize, and adapt to dynamic game rules. The creativity honed through this process is an important capital for children in facing various challenges in the future.

However, the phenomenon that is happening today shows a shift in children's play patterns due to the rapid development of digital technology. Children spend more time with gadgets and digital games compared to traditional games that rely on physical and social interaction. Chiong & Shuler (2010) found that although digital games can provide certain benefits, the interactions that occur in technology-based games tend to be more individualistic and passive. This condition has the potential to reduce children's opportunities

to develop social skills optimally, such as the ability to communicate, negotiate, and work together in groups.

The findings of this study are also in line with the cognitive development theory of Piaget (1962) which emphasizes that children learn through direct experience and social interaction. Traditional games provide a stimulating environment for children's cognitive and social development, as they must adapt to the rules of the game, understand the perspective of their playmates, and strategize to achieve their goals. In addition, Vygotsky's (1978) theory of the proximal developmental zone affirms that children can learn better through interaction with peers and more experienced adults, which strongly supports traditional play-based learning.

In addition, traditional games also play a role in building children's cultural values and local identity. The study of Roopnarine et al. (2019) shows that local culture-based games have a positive impact on strengthening children's attachment to their cultural heritage. In the Indonesian context, games such as engklek, gobak sodor, and congklak are not just playing activities, but also a means to internalize the values of cooperation, sportsmanship, and resilience in facing challenges. Therefore, if traditional games are increasingly abandoned, then not only the development of children is affected, but also the preservation of cultural values that have been passed down from generation to generation.

Despite the many benefits offered by traditional games, the main challenge in implementing them in a formal educational setting is the lack of integration in the curriculum. Schools today focus more on textbook-based academic learning and digital technology, so traditional games are often considered secondary activities or even not taken into account in the learning process. Zosh et al. (2018) emphasized that a more flexible and innovative educational approach is needed to accommodate play-based learning in the formal education system.

The author argues that there needs to be a policy that more supports the integration of traditional games in early childhood education. The Ministry of Education and Culture, as well as other relevant institutions, can design programs that accommodate traditional games as part of the learning strategy in schools. In addition, educators and parents also need to be given an understanding of the importance of traditional games in children's development so that they are more active in encouraging children to be involved in this activity.

In addition to policies, infrastructure factors and the playing environment must also be considered. Many schools and playgrounds today lack the space that supports traditional gaming activities. In fact, research by Pellegrini & Smith (1998) shows that physical games, including traditional games, can improve children's motor skills that contribute to their cognitive and social development. Therefore, a traditional game-friendly learning environment needs to be created so that children can more freely explore creativity and build healthy social interactions.

Apart from the aspect of formal education, media and technology can also be used to support the preservation of traditional games. For example, the creation of interactive apps that introduce traditional games in an engaging way can be a solution to appeal to children who are familiar with technology. This can be a bridge between traditional play culture and the digital world that currently dominates children's lives.

Overall, the findings from this study provide strong evidence that traditional games have far-reaching benefits in improving early childhood creativity and social skills. However, without any concrete efforts to maintain and integrate it into the lives of today's children, traditional games are at risk of being displaced by modern technology. Therefore, synergy is needed between educators, parents, policymakers, and the community in ensuring that traditional games remain an important part of children's development.

The author concludes that traditional games are not just entertainment, but also a learning tool rich in benefits. By integrating traditional games into the education system and daily life, children can grow up with a balance between intellectual intelligence, creativity, as well as strong social skills. Therefore, it is important for all parties to be more concerned in preserving traditional games as part of an effective and fun learning strategy for early childhood.

4. CONCLUSION

Based on the results of this study, it can be concluded that traditional games have an important role in improving creativity and social skills in early childhood. Literature studies have shown that traditional games provide hands-on experiences that allow children to develop imagination, critical thinking skills, and adaptability to a variety of social situations. In addition, traditional games also contribute to the formation of children's character by instilling the values of cooperation, sportsmanship, and effective communication skills. Thus, the integration of traditional games in early childhood education is a potential strategy to support children's holistic development.

However, the findings of this study also reveal challenges in maintaining traditional games amid the dominance of digital technology. Children today are more exposed to technology-based games that are individualistic, so social interaction and hands-on experience-based cognitive skills are reduced. Therefore, a more inclusive education policy is needed to accommodate traditional games as part of a systematic learning method. In addition, the role of educators, parents, and the community is indispensable to create an environment that supports children in actively playing traditional games, both at school and outside the academic environment.

As a recommendation for further research, a more in-depth empirical study is needed on the effectiveness of the implementation of traditional games in various learning models in early childhood education. Further research can also explore how adapting traditional games in digital formats can still retain the social values and creativity contained in them. In addition, more contextual research that takes into account children's cultural differences and socio-economic backgrounds can provide broader insights into the impact of traditional games in various educational settings. Thus, the results of future research are expected to make a more concrete contribution in efforts to integrate traditional games into the modern education system.

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can provide benefits for the world of education and become a reference for future studies. Constructive criticism and suggestions are highly expected for future research development.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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