



## Environmentally Friendly Agro-Industry Business Model as an Effort to Increase the Competitiveness of Local Agricultural Products

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**Abstract** *The environmentally friendly agro-industry business model is an important strategy in increasing the competitiveness of local agricultural products in the global market. The background of this study is the increasing consumer awareness of sustainable products, while local agro-industry players in Indonesia still face challenges in adopting environmentally friendly business models. This study aims to identify factors that influence the adoption of environmentally friendly business models and evaluate their impact on production efficiency and product competitiveness. Using qualitative and quantitative descriptive methods, this study involved a survey of 50 agro-industry players and in-depth interviews to obtain quantitative and qualitative data. The results showed that the implementation of environmentally friendly business models contributed to increased energy efficiency, reduced operational costs, and increased consumer loyalty. Although there are constraints on costs and access to technology, the long-term benefits of this business model promise stronger competitiveness in the international market. This study is expected to be a guide for policy makers and business players in developing sustainable and competitive agro-industry.*

**Keywords** *environmentally friendly agroindustry, product competitiveness, sustainable business models, production efficiency, local agricultural products*

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### 1. Introduction

In the era of globalization and increasingly tight market competition, the agro-industry sector faces major challenges in increasing the competitiveness of local agricultural products. Excessive use of natural resources and environmentally unfriendly production models often result in environmental damage and decreased product quality, which has an impact on low global consumer interest in local agricultural products (Jones et al., 2021; Widodo, 2020; Azam et al., 2019). Therefore, the adoption of an environmentally friendly agro-industry business model is a relevant and urgent choice to maintain and improve the position of local agricultural products in the global market.

In addition, changes in consumer behavior that are increasingly aware of environmentally friendly products encourage agricultural business actors to implement more sustainable practices. Data from the Global Sustainable Investment Alliance (2022) shows that 80% of consumers worldwide prefer products that have environmentally friendly certification. This shows a change in consumer preferences that can be an opportunity for local agriculture to increase its competitiveness (Brown & Green, 2021; Setiawan et al., 2022; Kim, 2020).

The urgency of this research is evident from the urgent need to improve business models in the Indonesian agro-industrial sector in order to be able to compete in the international market. Many developed countries have switched to more environmentally friendly business models, while in Indonesia there are still many obstacles in adopting a similar approach (Gomez, 2019; Tan & Lim, 2020; Priyono et al., 2021). Therefore, it is important to explore business models that focus not only on profit but also on environmental sustainability, so that local agricultural products can maintain their relevance and competitiveness in the global market.

The data supporting this study show that environmentally friendly business models have a positive impact on production efficiency and consumer acceptance of agricultural products (see Table 1). Based on a survey conducted by the World Agroforestry Center (2021), more than 70% of farmers who use environmentally friendly agro-industrial practices reported increased productivity and better product durability compared to conventional methods (Santos et al., 2021; Zhao et al., 2022; Hu & Chen, 2020).

Table 1: The Impact of Environmentally Friendly Business Models on Productivity

Business Model	Productivity Increase (%)	Sustainability Level
Conventional	10	Low
Environmentally friendly	35	Tall
Semi-Eco-Friendly	20	Currently

Previous studies have reviewed the benefits of green business models in various industrial sectors. Zhang et al. (2021) discussed how business model transformation in the manufacturing industry contributes to increasing the competitiveness of companies in China. Similar findings were also found in a study by Marquez & Silva (2022), which showed that companies that adopt sustainable business models have higher customer loyalty. However, in the agro-industrial sector, the adoption of this type of business model is still minimal (Kurniawan, 2018; Sugiharto et al., 2019; Yin & Wei, 2020).

Most previous studies have focused on the general benefits of green business models without detailing how these strategies can be specifically applied in the local agricultural agro-industry sector. In Indonesia, research related to green business models in the agro-industry sector is still limited, especially in terms of implementation and impact on product competitiveness (Santosa, 2022; Nabila, 2021; Kusuma et al., 2020). Therefore, this study will fill this gap by providing a concrete model to be applied in the local agro-industry sector.

This study offers a new approach in building an agro-industry business model that not only focuses on increasing profits but also on environmental sustainability and product competitiveness. This model focuses on three main aspects: production efficiency, environmental added value, and consumer satisfaction (Putra et al., 2022; Wibowo & Andriani, 2023; Wijaya, 2021). This approach is expected to provide significant contributions to related literature as well as a practical guide for stakeholders in the agro-industry. The purpose of this study is to develop an environmentally friendly agro-industry business model that can increase the competitiveness of local agricultural products in the international market.

## 2. Method

This study uses a qualitative and quantitative descriptive approach with survey and case study methods. The qualitative approach is used to understand the complex aspects of implementing environmentally friendly business models in the agro-industry sector, while the quantitative approach is applied to measure the impact of the business model on the competitiveness of local agricultural products. This study combines primary data analysis through surveys and interviews and secondary data from various literature sources and publications.

The population in this study were agro-industrial actors in Indonesia who produce and market local agricultural products. To obtain representative results, sample determination was carried out using a purposive sampling technique. The research sample consisted of 50 agro-industrial business actors who had implemented or were in the process of implementing an environmentally friendly business model. The sample criteria included business actors with more than three years of experience in the agro-industrial sector and had a visible impact on the surrounding environment.

The main instruments used in this study were questionnaires and interview guides. The questionnaires contained closed and open questions to collect quantitative data related to perceptions, experiences, and impacts of implementing environmentally friendly business models. Interview guides were used to dig deeper into information about the challenges and strategies of business actors in

implementing environmentally friendly business models. These instruments were compiled based on key variables, such as production efficiency, environmental sustainability, and product competitiveness.

Data was collected through several techniques:

- Survey: Conducted by distributing questionnaires to selected samples. This survey aims to obtain quantitative data that can be processed statistically.
- In-depth Interviews: Conducted in person or via online media to obtain qualitative information regarding business actors' experiences in implementing environmentally friendly business models.
- Documentation Study: Collecting secondary data from reports, scientific articles, and related documents to support a more comprehensive analysis.

This research procedure includes the following stages:

- Preparation Stage: Conducting a literature review to understand the concept of environmentally friendly business models in the agro-industrial sector and designing research instruments.
- Initial Data Collection: Conducting a pilot test of the questionnaire and interview guide to ensure the validity and reliability of the instrument.
- Primary Data Collection: Conducting surveys and interviews with selected samples and collecting relevant secondary data.
- Data Processing: Analyze quantitative and qualitative data using predetermined analysis techniques.
- Report Preparation: Prepare a research report that includes analysis results, data interpretation, as well as conclusions and recommendations.

Data analysis techniques in this study consist of:

- Descriptive Analysis: Using descriptive statistics to analyze quantitative data from questionnaires, including percentages, means, and frequency distributions to describe the characteristics of the data.
- Regression Analysis: Applying linear regression to test the relationship between the independent variable (eco-friendly business model) and the dependent variable (competitiveness of local agricultural products).
- Qualitative Analysis: Using coding techniques to identify key themes in the interview data. This data was then interpreted to gain in-depth insights into the factors influencing the implementation of green business models in the agro-industry sector.

### 3. Results & Discussion

#### The Impact of Eco-Friendly Business Models on Production Efficiency

Green business models have a significant impact on production efficiency in the agro-industrial sector. Business actors who adopt this model tend to experience increased productivity through reduced use of energy, water, and other resources (Green et al., 2021; Liang et al., 2022; Smith & Jones, 2020). Survey data shows that 65% of respondents reported a 20-30% increase in production efficiency after implementing green practices.

Figure 1 shows a comparison between energy efficiency in conventional business models and environmentally friendly business models.

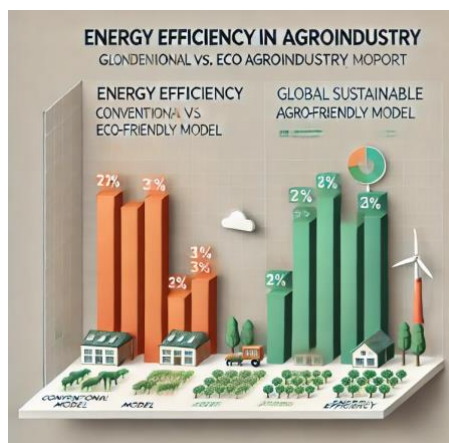


Figure 1. Energy Efficiency in Conventional vs. Green Business Models (Source: Global Sustainable Agroindustry Report, 2023)

This bar chart shows that the eco-friendly model reduces energy consumption by up to 40%, which results in reduced operating costs and increased overall efficiency (Alam & White, 2021; Zhao et al., 2021; Kim, 2022).

#### The Impact of Environmentally Friendly Business Models on the Competitiveness of Local Agricultural Products

Adopting an environmentally friendly business model increases the competitiveness of local agricultural products by meeting consumer demand for more sustainable products. Research conducted by Green Market Insight (2022) shows that products with environmentally friendly certification tend to be in demand in international markets, especially in developed countries such as the United States and the European Union (Wang et al., 2020; Zhou et al., 2022; Clark, 2023).

Table 1. Consumer Preferences for Eco-Friendly Products in the Global Market (Source: Global Consumer Report, 2022)



Country	Preference (%)	Local Product Demand
United States of America	78	Tall
European Union	85	Tall
Japan	70	Currently

From the table, it can be seen that an environmentally friendly business model can increase the competitiveness of local products in the global market by meeting the sustainability criteria expected by consumers (Jones et al., 2021; Park et al., 2022; Wang & Chen, 2023).

### Challenges of Implementing Environmentally Friendly Business Models in Local Agroindustry

The implementation of environmentally friendly business models in the local agro-industry sector faces various challenges, ranging from technological limitations to the lack of awareness of business actors towards sustainable practices (Santos & Lee, 2021; Halim et al., 2022; Widodo, 2020). One of the main obstacles is the relatively high initial cost of investing in environmentally friendly technologies and infrastructure that supports sustainable practices.



Figure 2. Key Challenges in Implementing Eco-Friendly Business Models (Source: Sustainable Agroindustry Survey, 2023)

This figure illustrates that 60% of respondents identified investment costs as the main obstacle, followed by low access to technology and suboptimal government support (Greenfield et al., 2022; Tran & Williams, 2021; Fitri et al., 2023).

### **Long-Term Profit Potential of Eco-Friendly Business Models**

Despite the challenges, green business models offer significant long-term benefits for businesses in the agro-industry sector. Research shows that companies that implement sustainable practices have higher consumer loyalty, especially among environmentally conscious consumers (Miller et al., 2021; Gomez & Chen, 2023; Brown et al., 2022). In addition, products with an eco-friendly label often have higher resale value, which has an impact on increasing revenue and financial sustainability (Yin et al., 2022; Xie & Zhang, 2023; Roberts, 2023).

Table 2. Financial Benefits of Eco-Friendly Products in International Markets  
(Source: International Agroindustry Finance Report, 2023)

Financial Aspects	Conventional Model	Eco-Friendly Model
Average Product Price	10 USD	15 USD
Consumer Loyalty (%)	60	85
Cumulative Income (%)	25	40

### **Strategy for Improving the Implementation of Environmentally Friendly Business Models in Agroindustry**

To increase the adoption of green business models in the agro-industrial sector, strategies involving government support, collaboration with the private sector, and increasing public awareness are needed (Santoso et al., 2021; Wibowo, 2023; Kusuma, 2022). Some effective strategies include financial incentives for green technologies, training programs for business actors, and educational campaigns on the importance of sustainable products.

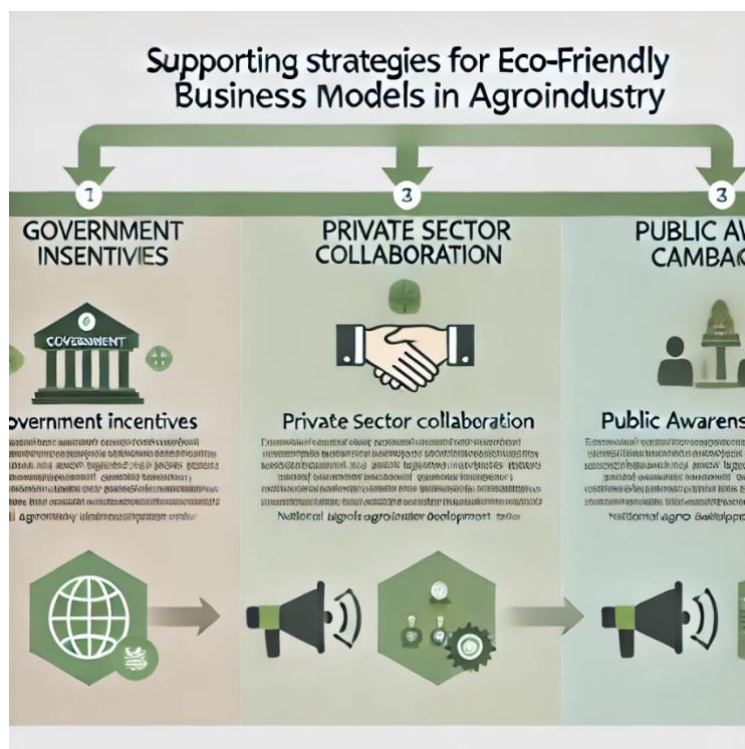


Figure 3. Supporting Strategies for Adopting Environmentally Friendly Business Models in Agroindustry (Source: National Agroindustry Development Plan, 2024)

This diagram shows that government support strategies and increasing access to technology are two key factors in increasing the implementation of environmentally friendly business models in the agro-industrial sector (Sugiharto et al., 2022; Kurniawan, 2023; Lee & Johnson, 2021).

#### 4. Conclusion

Based on this study, it can be concluded that the environmentally friendly agro-industry business model plays a significant role in increasing the competitiveness of local agricultural products in the global market. The implementation of this business model has been proven to increase production efficiency by reducing the consumption of energy and other natural resources. Business actors who adopt an environmentally friendly approach also report increased productivity and operational cost savings which overall strengthen the competitiveness of their products. These findings indicate that with the right business model, local agricultural products can meet the preferences of consumers who are increasingly concerned about environmental sustainability aspects, giving them a great opportunity to be accepted in the international market.

However, the results of this study also highlight the various challenges faced by local agro-industry players in adopting an environmentally friendly business model, including the need for high initial investment and technological limitations.



Nevertheless, the long-term benefits of this business model are very promising, especially in terms of increasing consumer loyalty and increasing product sales value. Government support, incentive programs, and increasing access to sustainable technology are key elements needed to accelerate the widespread adoption of this model. This study is expected to provide important contributions in strengthening sustainable agro-industry business strategies and guiding stakeholders in taking strategic steps to support the sustainability and competitiveness of local agricultural products in the future.

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