International Journal of Scientific Research and Management (IJSRM)
||Volume||13||Issue||01||Pages||584-591||2025||
Website: https://ijsrm.net ISSN (e): 2321-3418
DOI: 10.18535/ijsrm/v13i01.ah01

Risks and Development Strategies of Cavendish Banana Agribusiness at PT Vinda Abadi Sejahtera, Bojonegoro Regency

Zainur Rofiah [1*], Mohamad Harisudin [2] , Erlyna Wida Riptanti [3]

[1] Master of Agribusiness Student, Faculty of Agriculture, Sebelas Maret University
[2] Agribusiness Study Program, Faculty Agriculture, Sebelas Maret University
Jl. Ir. Sutami No. 36A, Jebres, Jebres District, Surakarta City, Central Java 57126

Abstract:
This study analyzes the risk level of Cavendish banana agribusiness at PT Vinda Abadi Sejahtera, identifies the root causes of risks, and formulates agribusiness development strategies. The research was conducted descriptively with a purposive sampling approach at relevant locations. Data were collected through in-depth interviews and analyzed using the coefficient of variation to measure risk levels, the fishbone diagram for identifying root causes, and the SWOT matrix to formulate development strategies. The results show that PT Vinda Abadi Sejahtera faces low business risk, with a coefficient of variation below 10%, despite challenges in production, marketing, and management. The main risks include fruit damage due to inadequate storage, limited ripening facilities, and insufficient skills among partner farmers in handling harvested crops. The fishbone analysis identified risk factors related to human resources, methods, materials, environment, and technology. Meanwhile, the SWOT analysis placed the company in Quadrant I, enabling the implementation of strategies such as vertical integration, product diversification, and partnership optimization. The formulated development strategies are expected to help the company mitigate risks, enhance agribusiness sustainability, strengthen market competitiveness, and provide benefits to partner farmers in Bojonegoro Regency.

Keywords: Agribusiness, Cavendish Banana, Risk, Fishbone Diagram, SWOT**.**

1. Introduction

Horticulture is an essential subsector of agriculture that plays a crucial role in supporting national economic development. Among horticultural commodities, Cavendish bananas have become one of the prominent tropical fruits widely sought after in both local and international markets. Indonesia has vast potential for developing horticulture, particularly tropical fruits such as Cavendish bananas, which are in high demand domestically and internationally. In 2022, Indonesia's banana production reached 9.60 million tons, an increase of nearly 10% from the previous year (BPS, 2023).

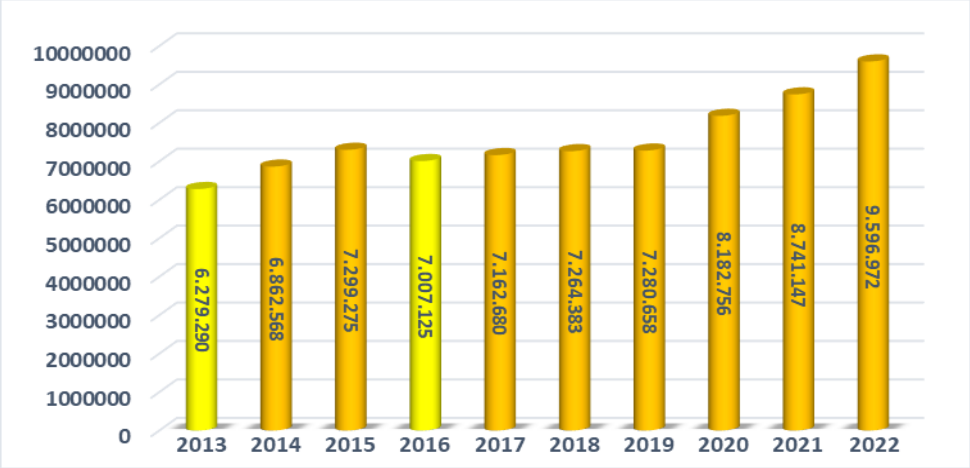

Figure 1. Cavendish Banana Production in Indonesia in Tons (2012–2022)
Source: Data from the Central Statistics Agency (BPS, 2023)

According to the Central Statistics Agency (BPS) data from 2023, East Java is the largest banana producer in Indonesia, with a production of 2.63 million tons. One of the banana producers in East Java is PT Vinda Abadi Sejahtera, located in Bojonegoro Regency. The company was established in 2019 in Butoh Village, Sumberrejo District. It focuses on the distribution and marketing of Cavendish bananas through partnerships with local farmers in Bojonegoro and surrounding areas. This partnership brings benefits to both farmers and the company, such as increased farmer income, improved product quality, and a guaranteed supply of high-quality raw materials.

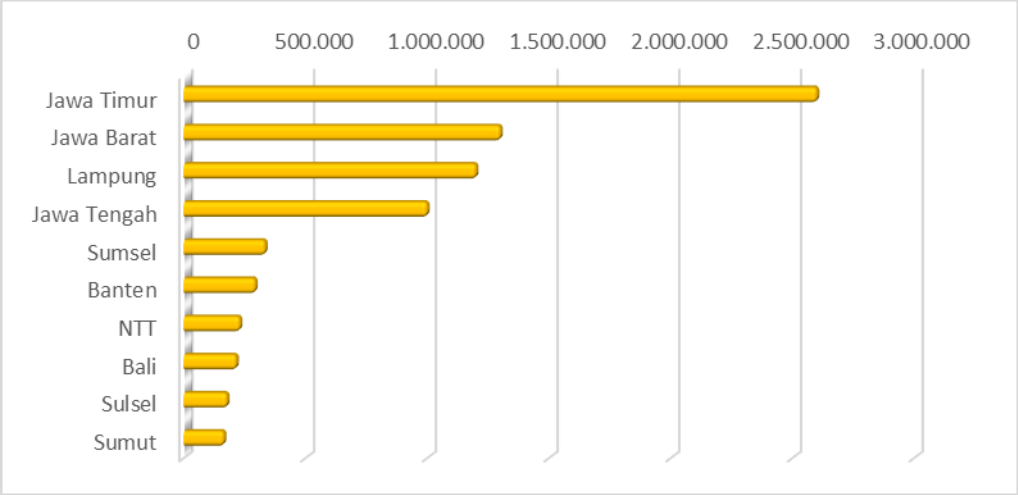

Figure 2. Top 10 Banana-Producing Provinces in Indonesia in Tons (2022)
Source: Data from the Central Statistics Agency (BPS, 2023) (Septiawan & Bekti, 2016)

Despite its significant potential, the Cavendish banana agribusiness at PT Vinda Abadi Sejahtera faces various risks that could hinder business sustainability. These risks include production issues, such as fruit damage during handling and limited storage facilities; marketing risks, including delayed shipments and inadequate distribution standards; as well as managerial risks related to supervision and coordination with business partners. These challenges could affect the company's performance.

To address these issues, a comprehensive agribusiness development strategy based on risk analysis is required. This study aims to analyze the risk levels in Cavendish banana agribusiness at PT Vinda Abadi Sejahtera, identify the root causes of the risks faced, and formulate appropriate development strategies to improve the company's sustainability and competitiveness.

2. Materials & Methods

This study uses a descriptive method to analyze the risks and development strategies of Cavendish banana agribusiness at PT Vinda Abadi Sejahtera, Bojonegoro Regency. The research was conducted using a purposive sampling approach, which involves selecting locations and informants based on specific criteria that align with the research objectives. These criteria include the informants' ability to provide in-depth information about Cavendish banana agribusiness at PT Vinda Abadi Sejahtera. The study was conducted from October to December 2023.

Data were collected through in-depth interviews with key informants who have knowledge and experience related to Cavendish banana agribusiness activities at the company. Informants were selected purposively, based on their ability to provide comprehensive and relevant information concerning the focus of the research. Data analysis was performed using both qualitative and quantitative approaches. Several methods used include:

a. Risk Measurement: The coefficient of variation was used to assess the level of business risk in Cavendish banana farming.
b. Fishbone Diagram: To identify the root causes of production and operational risks. This method maps various risk factors, including human, methods, materials, environment, and technology.
c. SWOT Matrix: To formulate agribusiness development strategies by integrating the analysis of internal factors (strengths and weaknesses) and external factors (opportunities and threats).

All research processes were conducted in compliance with ethical principles, including obtaining permission and consent from the relevant parties before data collection.

3. Results

This study identifies various risks faced by PT Vinda Abadi Sejahtera in managing Cavendish banana agribusiness and analyzes agribusiness development strategies based on risk levels, root causes, and SWOT matrix.

3.1 Business Risk Level

$$\bar{X} = \frac{\sum X}{n} = \frac{2.596.813}{60} = 43.820,22$$

$$s = \sqrt{\frac{\sum (X - \bar{X})^2}{n-1}} = \sqrt{\frac{698.172.480,18}{60-1}} = 3.438,98$$

$$Coefficient\ of\ Variation\ (V) = \frac{s}{\bar{X}} \text{ x } 100 = \frac{3.438,98}{43.820,22} \text{ x } 100 = \mathbf{7,948}$$

The coefficient of variation for the business profits of PT Vinda Abadi Sejahtera is 7.948%, classified as low risk. This indicates that the distribution of monthly profits is within ±7.948%. Overall, the business risk at PT Vinda Abadi Sejahtera is relatively low, with fluctuations in profits remaining under 10%. However, several risks have been identified as follows. Identifying these risks is necessary to anticipate and improve business management, so managerial performance can be enhanced and risks can be minimized and avoided.

a. Cavendish Banana Production Risks at PT Vinda Abadi Sejahtera

At PT Vinda Abadi Sejahtera, the production process involves guidance and supervision from planting, maintenance, to harvesting, with partner farmers, as well as ripening the fruit for market distribution. The following risks occur during the production process at PT Vinda Abadi Sejahtera:

1) Errors in production forecasting
2) Quality degradation
3) Banana rotting

b. Market Risks at PT Vinda Abadi Sejahtera

There are two market risks faced by PT Vinda Abadi Sejahtera:

1) Banana shipping process
2) Demand for banana ripeness from subdistributors

c. Financial Risks at PT Vinda Abadi Sejahtera

PT Vinda Abadi Sejahtera faces two financial risks:

1) Cash payment terms
2) Financing

d. Human Risks at PT Vinda Abadi Sejahtera

There are two human risks faced by PT Vinda Abadi Sejahtera:

1) Work capacity and professionalism
2) Work accidents

e. Technology Risks at PT Vinda Abadi Sejahtera

There are two technology risks faced by PT Vinda Abadi Sejahtera:

1) Marketing media
2) Limited ripening rooms

f. Legal Risks at PT Vinda Abadi Sejahtera

There are three legal risks faced by PT Vinda Abadi Sejahtera:

1) Fines or sanctions for non-compliance with government regulations
2) Employment contract issues with employees
3) Contract issues with subdistributors

3.2 Root Cause Identification with Fishbone Diagram

The root cause analysis using the Fishbone method, also known as the Ishikawa Diagram or Fishbone Diagram, is a visual tool used to identify, analyze, and organize the root causes of a problem or condition within a process.

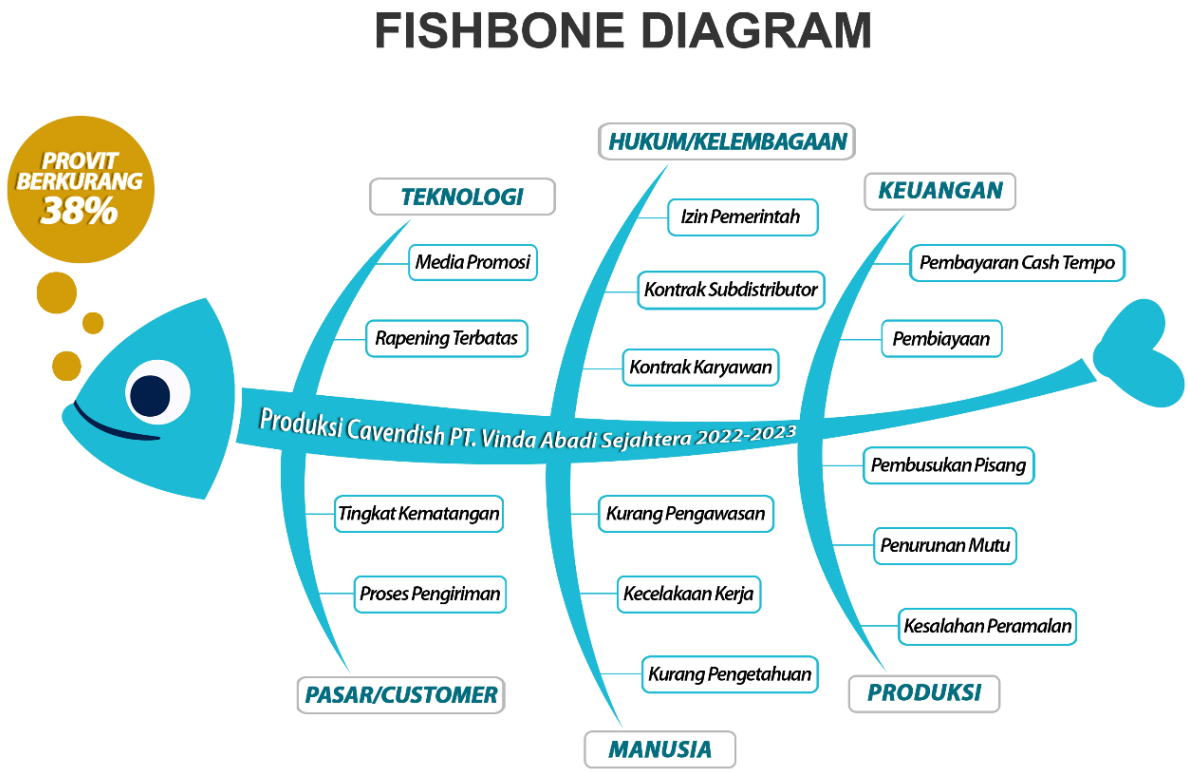

Figure 3. Fishbone Diagram of PT Vinda Abadi Sejahtera

This method was developed by Dr. Kaoru Ishikawa in the 1960s and is named for its fish-like shape, with the "head" representing the main issue and the "bones" representing potential categories of causes (Septiawan & Bekti, 2016). The root causes of business risk are identified using the fishbone diagram, categorizing the risk factors into five main categories:

1) Human: Lack of understanding and skills among partner farmers in handling harvested crops.
2) Methods: Inability to maintain optimal storage time before shipment.
3) Materials: Limited ripening facilities and storage equipment.
4) Environment: External factors such as climate change and market fluctuations.
5) Technology: Limited adoption of modern technology in packaging and distribution.

3.3 SWOT Matrix Analysis

PT Vinda Abadi Sejahtera has several strengths as a producer of Cavendish bananas that operates using a core-plasma mechanism with partner farmers.

Table 1. Identification of Strengths (Kekuatan) PT Vinda Abadi Sejahtera

No.	Factor	Description
Strengths (Kekuatan)		
1	Strong Partnership Model	The partnership with local farmers provides access to large land areas without the need to purchase land.
2	Support for Farmers	Provision of seeds, fertilizers, and guidance from the company improves production quality and harvest success.
3	Specialization in Cavendish Bananas	Focusing on one product allows for high efficiency and quality in production.
4	Experience and Technical Knowledge	The company has the knowledge and technology required to produce high-quality bananas.
5	Distribution Network	Good relationships with distribution channels ensure that products can be sold effectively and efficiently.
6	Branding and Reputation	Well-known products have an advantage in the market compared to

		new competitors.
7	Consistent Product Quality	With proper guidance and provision of quality agricultural inputs, the company can ensure consistent product quality.
8	Strong Relationship with Farmers	Well-established partnerships increase farmer loyalty and reduce supply uncertainty.
9	Adaptability	Experience in the agricultural sector allows the company to quickly adapt to changes in market or environmental conditions.
10	Scalability	The partnership model enables relatively rapid expansion by utilizing land and labor from new farmers.
11	Reputation in the Local Community	The company's presence and contribution to the local economy enhance its reputation and support from the surrounding community.

Weaknesses refer to internal shortcomings that pose risks to the company. The weaknesses of PT Vinda Abadi Sejahtera are as follows:

Table 2. Identification of Weaknesses (Kelemahan) PT Vinda Abadi Sejahtera

No.	Factor	Description
Weaknesses (Kelemahan)		
1	Dependence on Partner Farmers	Production success highly depends on the commitment and performance of partner farmers.
2	Costs of Guidance and Seed Provision	The initial investment for providing seeds, fertilizers, and guidance can become a financial burden if not properly managed.
3	Limited Product Diversification	Dependence on a single product can be risky if market demand changes.
4	Quality Control	Difficulty in ensuring that all partner farmers adhere to the same quality standards.
5	Economies of Scale	PT Vinda Abadi Sejahtera requires time to achieve profitable economies of scale due to differences in land and the capabilities of partner farmers.
6	Dependence on Weather Conditions	Agricultural production is highly dependent on weather conditions, which can often be unpredictable, even though banana plants are relatively resistant to climate.
7	Complex Supply Chain Management	Managing agricultural inputs and harvested produce from various locations can be a significant logistical challenge.
8	Transportation Costs	Transporting harvested produce to markets or storage facilities can be expensive, especially in remote areas.
9	Limited Human Resources	The rapid expansion of partner farmers needs to be matched by an accelerated skills development program, which presents challenges in terms of time, cost, and efficiency.
10	Sustainability Issues	Unsustainable farming practices can harm the environment and reduce long-term productivity.

There are numerous business opportunities in the Cavendish banana agribusiness. PT Vinda Abadi Sejahtera has several external opportunities, including:

Table 3. Identification of Opportunities (Peluang) PT Vinda Abadi Sejahtera

No.	Factor	Description
Opportunities (Peluang)		
1	Growing Demand for Cavendish Bananas	Increasing domestic and international market demand for Cavendish bananas.
2	Market Expansion	Opportunities to enter new markets, both domestically and internationally.
3	Agricultural Technology	Adoption of new technologies can improve efficiency and production yields.

4	Awareness of Healthy Eating	Growing consumer awareness of health can increase demand for banana products.
5	Government Programs	Support from government agricultural programs could provide subsidies or technical assistance.
6	Derivative Product Development	Developing processed banana products, such as banana chips or puree, can open new markets.
7	Organic Certification	Obtaining organic certification can enhance the product's appeal to health- and environment-conscious consumers.
8	Collaboration with Research Institutions	Collaboration with research institutions or universities to develop more efficient and sustainable cultivation techniques.
9	Farmer Training Programs	Providing advanced training to partner farmers to enhance skills in modern agricultural practices.
10	Utilization of Digital Media	Leveraging social media and e-commerce platforms to enhance marketing and product sales.

Threats are external factors that pose risks to the company. These threats typically arise from weakening external conditions or changes that impact the business. PT Vinda Abadi Sejahtera faces several threats, including:

Table 4. Identification of Threats (Ancaman) PT Vinda Abadi Sejahtera

No.	Factor	Description
Threats (Ancaman)		
1	Market Competition	Competition from other producers, both domestic and international.
2	Climate Change	Risks related to climate change that could affect crop yields.
3	Fluctuating Market Prices	Unstable banana prices in the market may impact profitability.
4	Plant Diseases	Threats from plant diseases that could damage the entire banana crop.
5	Dependence on Third Parties	The risk of dependence on distribution partners and suppliers that could affect the supply chain.
6	Government Policy Changes	Government policies that are not supportive of the agricultural sector or sudden regulatory changes may affect operations.
7	Supply Chain Disruptions	Problems in the global supply chain, such as pandemics or geopolitical conflicts, could disrupt the availability of agricultural inputs.
8	Currency Exchange Rate Fluctuations	For those involved in exports, exchange rate fluctuations may affect income.
9	Competition with Imported Products	Competition with cheaper imported products may reduce the domestic market share.
10	Difficulty Accessing Financing	Challenges in obtaining adequate financing to support expansion or daily operations.

The SWOT analysis results show that the company is in Quadrant I, allowing for aggressive strategies focusing on vertical integration. Development strategies are formulated based on four aspects:

1) Strength-Opportunity (S-O) Strategy: Optimize partnerships with farmers and adopt new technologies to improve production efficiency.
2) Weakness-Opportunity (W-O) Strategy: Develop economies of scale through supply chain improvements to increase productivity.
3) Strength-Threat (S-T) Strategy: Mitigate risks from climate change and price fluctuations by diversifying products.
4) Weakness-Threat (W-T) Strategy: Achieve cost efficiency and implement sustainable farming practices to face global competition.

3.4 Grade A1 Banana Production

From July 2022 to June 2023, the total production of Cavendish bananas reached 306,867 kg, with 188,839 kg meeting Grade A1 standards (61.5%). However, 108,895 kg (35.5%) of the harvested bananas did not meet Grade A1 standards, mostly due to damage during handling and storage.

4. Discussion

This study shows that the risks in Cavendish banana agribusiness at PT Vinda Abadi Sejahtera are primarily found in production, marketing, and management, although the overall risk level is classified as low (CV <10%). If left unaddressed, these risks could affect the sustainability of the company's business.

Fruit damage during storage and distribution, which leads to a decline in quality, is mainly caused by limited facilities such as ripening rooms and cooling equipment in distribution vehicles. These findings are consistent with the research by Pitaloka (2017), which highlights that adequate infrastructure is crucial for maintaining the quality of harvests in horticultural agribusiness. The adoption of technologies such as cooling equipment and modern storage systems is an urgent need for the company to mitigate this risk.

The lack of skills among partner farmers in handling harvested crops is a major cause of product damage. This is in line with the findings of Sajjad et al. (2020), which emphasize that human resource capacity development is an effective risk mitigation strategy in the agribusiness sector. PT Vinda Abadi Sejahtera needs to develop an integrated training program for partner farmers to improve their understanding and skills, particularly related to handling and storage of products.

The SWOT analysis places the company in Quadrant I, which indicates potential for adopting aggressive strategies, such as vertical integration. This strategy allows the company to control the supply chain more effectively, from production to marketing. A similar strategy was proposed by Prabowo et al. (2021), who indicated that vertical integration can improve operational efficiency and strengthen the company's market position.

In addition, optimizing partnerships with local farmers, as recommended in the S-O strategy, offers a dual benefit: increased productivity and reduced risks from unstable raw material distribution. Research by Fauziah et al. (2023) also supports the importance of collaboration between companies and farmers in sustaining agribusiness.

The risks of climate change and market price fluctuations, classified as external threats (S-T strategy), require innovative approaches, such as product diversification and cost efficiency improvements. A study by Hakim et al. (2022) shows that diversification can help agribusiness companies reduce dependence on a single product and manage market volatility.

Implementing sustainable agriculture, as outlined in the W-T strategy, becomes a priority to face global competition. This includes the use of environmentally friendly technologies and sustainable farming practices, which not only improve the company's image but also enhance its competitiveness.

The results of this study differ from the research by Adetya & Suprapti (2019), which focuses solely on production risks without integrating managerial approaches and development strategies. However, this study shares similarities with the findings of Baroroh & Fauziyah (2021), who used the fishbone diagram to identify root causes in horticultural agribusiness.

5. Conclusion

This study analyzes the risk levels, root causes, and development strategies of Cavendish banana agribusiness at PT Vinda Abadi Sejahtera, Bojonegoro Regency. Based on the results, it can be concluded that PT Vinda Abadi Sejahtera faces a low business risk level, with a coefficient of variation (CV) of less than 10%. However, risks related to production, marketing, and management still require special attention to ensure business sustainability.

The identification of root causes using the fishbone diagram shows that the main risk factors include the lack of adequate storage and distribution facilities, limited technology, and insufficient skills among partner farmers in handling harvested crops. The SWOT analysis places the company in Quadrant I, enabling the implementation of aggressive strategies such as vertical integration, partnership optimization, technology adoption, and product diversification. These strategies aim to reduce risks, improve operational efficiency, and strengthen the company’s competitiveness.

This study provides strategic recommendations for PT Vinda Abadi Sejahtera to face agribusiness challenges and optimize existing opportunities, thereby contributing to business sustainability and the well-being of partner farmers in Bojonegoro.

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