Agro Bali : Agricultural Journal
Vol. 8 No. 1: 254-267, March 2025

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

Supply Chain Profitability Analysis and Development Strategy for Cinnamon Commodities in Jambi Province, Indonesia

Afdhal Chatra and Adek Irma Rosi♥

Development Economics Study Program, Sekolah Tinggi Ilmu Ekonomi Sakti Alam Kerinci, Kerinci, Indonesia
♥Corresponding author email: rosiadeirma@gmail.com

Article history: submitted: October 25, 2024; accepted: March 3, 2025; available online: March 28, 2025

Abstract. Cinnamon is a leading commodity in Jambi Province and one of Indonesia's primary export commodities. However, the potential of this commodity is not entirely optimal. Many products are marketed in raw form, which limits added value and competitiveness. This study aims to analyze the added value produced by each member of the cinnamon supply chain and formulate a strategy for developing this commodity in Jambi Province. The informants to find out the added value of cinnamon in this study amounted to 105 people who were selected purposively. The number of informants to formulate a strategy for developing cinnamon commodities in Jambi Province is five people who are considered experts. Qualitative analysis was collected through surveys, in-depth interviews, observations, and document analysis. In contrast, quantitative analysis included the calculation of profitability ratios to assess added value at each stage of the supply chain, as well as IFE and EFE matrix analysis to identify internal and external factors that affect the competitiveness of Jambi cinnamon. The study results show that farmers who sort products get higher profits than those who sell in raw form. Traders and exporters derive the most tremendous nominal gains due to economies of scale. The recommended strategies for developing cinnamon commodities in Jambi Province include increasing production capacity, diversifying products, government support, and improving infrastructure to increase the competitiveness of Jambi cinnamon in the global market.

Keywords: cinnamon; competitiveness; development strategy; profitability; supply chain

INTRODUCTION

Cinnamon is a leading regional commodity in Jambi Province and one of Indonesia's main export commodities. Kerinci and Merangin Regencies are the two largest cinnamon-producing areas in Jambi Province, with Kerinci covering an area of 40687 hectares (88.60%), while Merangin covers about 4,282 hectares. Despite the potential of cinnamon commodities in these districts, cinnamon commodities have not been fully optimized, with most products still marketed in their raw form, so they do not generate added value or competitiveness (Tan et al., 2022). If they only rely on primary commodities, farmers and local communities in Kerinci only act as price takers (Chatra & Rosi, 2024). In addition, a preliminary survey conducted in 2023 revealed several issues regarding the added value of cinnamon in its supply chain institutions, such as: 1. The quality and continuity of supply have not met market demand, 2. The current selling price of cinnamon is not accompanied by an improvement in production quality, and 3. Post-harvest processing is still limited, with farmers selling raw (primary) cinnamon products.

Previous research on cinnamon in Jambi Province has discussed various aspects, such as the financial feasibility of cinnamon farming (Suci, 2006) the role of land tenure in cinnamon agroforestry (Suyanto et al., 2007) the competitiveness of cinnamon exports and the potential for leakage in the cinnamon sector (Jaya et al., 2009), the cinnamon trade in Kerinci Regency (Hindayani, 2012) export prospects and processing of cinnamon syrup (Iswarini, 2013), analysis of the small-scale cinnamon syrup industry (Ardianto et al., 2018) Kerinci cinnamon value chain (Theresa, 2017)), price shocks and market share of cinnamon exports (Nurhayani, 2019), sustainable harvest of Cinnamomum burmannii (Nees & T. Nees) Blume in Kerinci Regency, Indonesia (Menggala et al., 2019). In addition, previous research also includes an analysis of price efficiency in cinnamon marketing, and an analysis of marketing channels, marketing margins, and farmers' share in cinnamon production (Chatra & Rosi, 2024) Based on

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

a review of previous research, there has been no research that analyzes the added value produced by each member of the cinnamon supply chain in Jambi Province.

The study aims to analyze the added value produced by each member of the cinnamon supply chain and the strategy for the development of cinnamon commodities in Jambi Province. The importance of this research stems from the fact that cinnamon is a leading regional commodity that has economic significance for the people in Kerinci and Merangin Regencies in Jambi Province because cinnamon commodities are able to supply 60% of the world's needs and most of the 80% of Indonesia's cinnamon export commodities come from Jambi Province (Menggala & Damme, 2018). Given that institutions in the agribusiness supply chain play a crucial role in determining how value is distributed among stakeholders and many agribusiness producers, especially in rural areas and developing countries, still face challenges in increasing value due to limited access to technology and markets (Afdhal Chatra et al., 2024)The growing global market for cinnamon has increased demand. Therefore, a contribution must be made to increase the added value and development strategy of cinnamon commodities in Jambi Province.

METHODS

This research was conducted in Kerinci Regency and Merangin Regency, Jambi Province, which are the area's leading centers of cinnamon production. The informants in this study consisted of 105 people who were selected by purposive sampling based on their involvement in the cinnamon supply chain. The informants included 70 cinnamon farmers in Kerinci and Merangin Regencies, 30 collectors, and 5 exporters. In addition, to identify problems in the development of cinnamon commodities in Jambi Province, this study involved 5 experts, consisting of 1 informant from the Jambi Provincial Forestry Service, 1 cinnamon exporter, 1 academic, 1 representative from the Spice Council, and 1 NGO member.

The selection of the purposive sampling method is based on the need to obtain in-depth information from key players in the supply chain as well as experts who have a broad understanding of the cinnamon commodity. This approach was chosen to ensure that each informant has relevant experience and insight in providing valid and accurate data. To improve the reliability of the data, triangulation of methods was carried out through in-depth interviews, direct observation, and study of related documents. This study uses an exploratory sequential design, as proposed by (Creswell, 2010). A qualitative approach is used to explore ongoing phenomena, while a quantitative approach is applied to measure and analyze data more objectively. The qualitative method was carried out through semi-structured interviews, field observations, and document analysis to understand the condition and dynamics of the cinnamon supply chain in Jambi Province.

A quantitative approach is applied in profitability analysis, IFE (Internal Factor Evaluation) and EFE (External Factor Evaluation) matrices, as well as SWOT matrices. To calculate the profitability ratio at the farmer, collector, and exporter levels, an analysis technique was used with the formula of gross profit margin, operating profit margin, and net profit margin (Kasmir, 2015) This analysis aims to measure the added value at each stage of the supply chain and determine the level of profit earned by each actor. The evaluation of the IFE and EFE matrices was carried out by assessing various internal and external factors that affect the competitiveness of cinnamon in Jambi.

The score is given based on experts' and business actors' perceptions of the weight and rating of each factor, which is then verified to increase its validity. The SWOT matrix is used to identify strengths, weaknesses, opportunities, and threats, which are then analyzed to formulate a strategy for the development of cinnamon commodities. This

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

study implements several mitigation measures to ensure data reliability and reduce potential bias, including: a). Triangulation of data sources by comparing information from different categories of informants (farmers, traders, exporters, and industry experts), b). Validation of quantitative data through weighting done independently by several experts before further analysis. The use of statistical software such as Microsoft Excel to calculate profitability ratios and process data from IFE and EFE matrices to improve the objectivity of results.

$$GPM = \frac{Gross\ Profit}{Sales} \quad \text{.....(1)}$$

$$OPM = \frac{Operating\ Profit}{Sales} \quad \text{.....(2)}$$

$$NPM = \frac{Net\ Profit}{Sales} \quad \text{.....(3)}$$

To identify internal and external environmental factors in the development of cinnamon commodities in Jambi Province, this study uses IFE (Internal Factor Evaluation) and EFE (External Factor Evaluation) analysis. According to (David, 2019) the main objective of the IFE and EFE matrices is to identify internal and external factors that affect a business and formulate development strategies to ensure the growth and competitiveness of the commodity.

These internal and external strategic factors were obtained through in-depth interviews with stakeholders. Then it was given the determination of weights, ratings, and score calculations. After the IFE and EFE matrices are compiled, the results are analyzed to determine the strategic position of the cinnamon commodity. The total scores of these two matrices are used to map the position of cinnamon commodities in the SWOT matrix and formulate the most appropriate development strategy. The resulting strategy considers how to leverage strengths to exploit opportunities, overcome weaknesses, and anticipate threats. With this approach, the research can ensure that the cinnamon development strategy in Jambi is based on valid data, comprehensively considers internal and external factors, and is aligned with the challenges and opportunities in the global market.

Internal environmental analysis involving the strengths and weaknesses of cinnamon commodity development can be carried out by using the Internal Factor Evaluation (IFE) matrix to identify internal strategic factors with the formula presented in Table 1.

Table 1. Internal Factor Evaluation (IFE) matrix.

Internal Factors	Weight	Rating	Weighted Score
Strengths	Strength weight value	Strength rating value	Weight x rating
Weaknesses	Weakness weight value	Weakness rating value	Weight x rating

Source: David 2019

In addition, one way to explore the influence of the external environment can be done by using the EFE (External Factor Evaluation) matrix with the formula presented in Table 2.

Table 2. External Factor Evaluation (EFE) Matrix.

External Factors	Weight	Rating	Weighted Score
Opportunities	Opportunity weight value	Opportunity rating value	Weight x rating
Threats	Threat weight value	Threat rating value	Weight x rating

Source: David 2019

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

According to Rangkuti, (2003), the SWOT Matrix compares external factors, such as opportunities and threats, with internal factors, such as strengths and weaknesses. The qualitative approach of the SWOT Matrix serves as a guideline and framework for the cinnamon commodity development program in Jambi Province that needs to be implemented. This is done by implementing the following strategies: SO strategy (strength-opportunity strategy), WO strategy (weakness-opportunity strategy), ST strategy (strength-threat strategy), and WT strategy (weakness-threat strategy).

RESULTS AND DISCUSSION

Table 3 presents the average profitability ratio of various cinnamon marketing institutions in Kerinci Regency, which includes farmers, collectors, and exporters. The analysis compares the gains made at different levels of the supply chain, including farmers who sell cinnamon without sorting and by sorting, as well as collectors and exporters.

Table 3. Average profitability ratio of cinnamon marketing institutions in Kerinci Regency

	Description	Cinnamon Marketing Institutions in Kerinci			
		Farmers		Collectors (Rp)	Exporters (Rp)
		Cinnamon Without Sorting and Grading (Rp)	Cinnamon With Sorting and Grading (Rp)		
A	Sales Price	180,085,714	280,500,000	372,500,000	4,982,750,000
B	Purchase Price	-	-	245,250,000	3,143,500,000
C	Gross Profit (A-B)	180,085,714	280,500,000	127,250,000	1,839,250,000
D	Operating Costs	39,914,286	55,233,333	31,875,000	440,600,000
E	Operating Profit (C-D)	140,171,429	225,266,667	95,375,000	1,398,650,000
F	Depreciation Costs	30,125	30,125	433,333	6,570,313
G	Income Tax	-	-	-	139,865,000
H	Net Profit (E-F-G)	140,141,304	225,236,542	94,941,667	1,252,214,687
	Profitability Ratios				
	a. Gross Profit Margin (%)	100.00 %	100.00 %	34.16 %	36.91 %
	b.Operation Profit Margin (%)	77.84 %	80.31 %	25.60 %	28.07 %
	c.Net Profit Margin (%)	77.82 %	80.30 %	25.49 %	25.13 %

Source: Primary Data Processing Results (2024)

Table 3 shows the profitability of cinnamon marketing institutions in Kerinci Regency, including farmers, collectors, and exporters. Based on this data, the added value at each stage of the supply chain can be identified through the difference between the selling price and the purchase price and the profitability level of each actor in the supply chain. The added value at the farmer level shows that farmers who sell cinnamon without sorting and grading get an average selling price of Rp180,085,714. At the same time, farmers who sort and grade get a higher price, Rp 280,500,000. The added value obtained from sorting and grading is the difference between the two prices, which is Rp100,414,286 or 55.7% higher than cinnamon without sorting. The profitability at the farmer level is quite high, with a Gross Profit Margin (GPM) of 100%, because they do not have the cost of purchasing raw materials. Operating Profit Margin (OPM) and Net Profit Margin (NPM) were also high, at 77.84% and 77.82% for farmers without grading, and 80,31% and 80,30% for farmers with grading.

The added value at the collector level shows that the collector buys cinnamon from farmers for Rp 245,250,000 and sells it for Rp 372,500,000, thus obtaining an added value of Rp 127,250,000. Although the added value is quite significant, the profit margin is smaller than that of farmers, with a Gross Profit Margin (GPM) of 34.16%, an

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

Operating Profit Margin (OPM) of 25.60%, and a Net Profit Margin (NPM) of 25.49%. This shows that collector traders have higher operational costs than farmers, thus reducing their profit margins.

The added value at the exporter level shows that exporters buy cinnamon from collectors for Rp 3,143,500,000 and sell it to the international market for Rp 4,982,750,000. The added value obtained by exporters is Rp 1,839,250,000. Much higher than the added value at the farmer and collector levels. However, exporters also have huge operational costs, reaching Rp 440,600,000 and taxes of Rp139,865,000. As a result, despite having the largest income, the profitability of exporters is relatively lower than that of farmers and collectors, with Gross Profit Margin (36.91%), Operating Profit Margin (28.07%), and Net Profit Margin (25.13%).

From the results of Table 3, it can be concluded that farmers who do sorting and grading get higher added value than those who do not, with an increase in selling price reaching 55,7%. Collector traders add value through purchasing and distributing to exporters, but their profit margins are lower than those of farmers. Meanwhile, exporters have the highest added value in nominal terms, but their profit margins are smaller than farmers and collectors due to larger operational costs and taxes. Overall, strategies that can increase added value in the cinnamon supply chain are encouraging farmers to sort and grade, reducing operational inefficiencies at the trader and exporter levels, and strengthening farmers' access to export markets so that they can get better selling prices. These findings confirm that efforts to increase added value in the cinnamon sector must be focused on post-harvest processing, distribution chain efficiency, and direct access to global markets to improve competitiveness and profits for business actors at every stage of the supply chain (Menggala et al., 2021), and competitiveness in the worldwide market.

Table 4 analyzes the average profitability ratio of various cinnamon marketers in Merangin Regency, including farmers, collectors, and exporters. This analysis is essential to understand how added value and profits are distributed at each stage of the supply chain, as well as to identify challenges and opportunities for business actors in improving the competitiveness of the cinnamon industry. By comparing selling prices, operating costs, and profit margins, it can be seen to what extent each actor in the supply chain benefits from marketing activities and how efficiency can be improved.

Table 4 shows the profitability of farmers who sell cinnamon without sorting and grading get an average selling price of Rp 168,000,000. At the same time, farmers who sort and grade get a higher price, which is Rp 192,000,000. The price difference of Rp 24,000,000 shows the added value of sorting and grading activities, which increases the selling value of cinnamon by around 14.3% compared to no sorting. Meanwhile, the Gross Profit Margin (GPM) of 100% shows that farmers do not have the cost of purchasing raw materials. At the same time, the Operating Profit Margin (OPM) and Net Profit Margin (NPM) remain high, 78.63% and 78.61% for farmers without grading, respectively, and 77.32% and 77.30% for farmers with grading. According to Cucagna & Goldsmith, (2018), the greater the level of product differentiation and innovation in the supply chain, the greater the added value produced by farmers.

The added value at the collector level shows that the collector buys cinnamon from farmers for Rp 175,000,000 and sells it for Rp 250,000,000. Resulting in an added value of Rp 75,000,000. Although this added value is nominally quite significant, the profit margin is smaller than that of farmers, with GPM of 30.00%, OPM of 21.12%, and NPM of 20.99%. This shows that collector traders have higher operational costs than farmers, so even though they gain added value in the supply chain, their profitability margins are lower.

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

Table 4. Average profitability ratio of cinnamon marketing institutions in Merangin Regency

	Description	Cinnamon Marketing Institutions in Kerinci			
		Farmers		Collectors (Rp)	Exporters (Rp)
		Cinnamon Without Sorting and Grading (Rp)	Cinnamon With Sorting and Grading (Rp)		
A	Sales Price	168,000,000	192,000,000	250,000,000	1,405,500,000
B	Purchase Price	-		175,000,000	937,000,000
C	Gross Profit (A-B)	168,000,000	192,000,000	75,000,000	468,500,000
D	Operating Costs	35,900,000	43,550,000	22,200,000	172,800,000
E	Operating Profit (C-D)	132,100,000	148,450,000	52,800,000	295,700,000
F	Depreciation Costs	27,400	27,400	337,433	989,583
G	Income Tax	-	-	-	25,822,000
H	Net Profit (E-F-G)	132,072,600	148,422,600	52,462,567	268,888,417
	Profitability Ratios				
	a. Gross Profit Margin (%)	100.00 %	100.00 %	30.00 %	33.33 %
	b.Operation Profit Margin (%)	78.63 %	77.32 %	21.12 %	21.04 %
	c.Net Profit Margin (%)	78.61 %	77.30 %	20.99 %	19.13 %

Source: Primary Data Processing Results (2024)

The added value at the exporter level shows that the exporter buys cinnamon from collectors for Rp 937,000,000 and sells it in the export market for Rp 1,405,500,000, thus obtaining an added value of Rp 468,500,000. In nominal terms, the added value obtained by exporters is the highest in the supply chain, but the profitability is lower than that of farmers and collectors due to more significant operational costs. The GPM of exporters is only 33.33%, OPM is 21.04%, and NPM is 19.13%, indicating that high operational expenses and taxes cause profit margins to be smaller.

It can be concluded that farmers who sort and grade get higher added value than those who do not, with an increase in selling prices of around 14.3%. Collectors add value by collecting and distributing cinnamon but have lower profit margins than farmers due to greater operational costs. Exporters get the highest added value in nominal terms, but their profit margins are lower than farmers and collectors due to high operational costs and taxes. Overall, increasing added value in the cinnamon supply chain can be carried out by strengthening post-harvest processing, improving distribution efficiency, and expanding market access for farmers and traders.

The results of this study show that the sorting process plays a vital role in increasing the added value, quality, and marketability of agricultural products, which ultimately leads to higher profits and added value for farmers. Farmers who sort and grade obtain higher added value, with an increase in selling price of 55.7% in Kerinci and 14.3% in Merangin**.** According to Panggabean et al., (2022) strengthening a more efficient supply chain by encouraging price transparency, accelerating farmers' access to premium markets, and increasing production and post-harvest processing capacity and there needs to be policy and infrastructure support to facilitate the processing of value-added products at the farmer level(Alonso, 2011)

Collector traders add value through the distribution of cinnamon but have smaller profit margins than farmers due to high operational costs. Meanwhile, exporters get the highest added value in nominal terms, but their profitability is lower than that of farmers and collectors due to higher operational costs and taxes.

This finding aligns with Nalbandi et al., (202) who stated that the sorting and packaging of agricultural products can add value and increase competitiveness in the global market. According to Olorunfemi et

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

al., (2024) to obtain a high-quality final product, agricultural products must be separated from those that are substandard at the initial stage. Sorting and assessment are carried out to improve the uniformity and commercial value of the product. The handling of post-harvest agricultural products through sorting and grading will affect prices and increase added value (Enike Windari Sihite et al., 2018)

Internal factor analysis is an essential step in evaluating the advantages and challenges faced by the cinnamon industry in Jambi Province. Table 5 presents an Internal Factor Evaluation (IFE) Matrix that identifies key strength and weakness factors in the cinnamon supply chain. This evaluation aims to understand the internal aspects that contribute to the competitiveness of the cinnamon commodity, as well as identify obstacles that need to be improved to increase the added value and sustainability of this industry at the domestic and global levels.

Table 5. Internal Factor Evaluation (IFE) matrix for cinnamon commodity in Jambi

Strength Factors	Weight	Rating	Score
S1. High quality and high oil content	0.12	4.00	0.47
S2. Largest cinnamon producer in Indonesia	0.12	4.00	0.47
S3. Has Geographical Indication	0.09	3.50	0.31
S4. High-value export commodity	0.12	4.00	0.47
S5. Leading regional commodity of Jambi Province	0.12	3.00	0.35
Sub Total	0.56		2.07
Weakness Factors	Weight	Rating	Score
W1. Cinnamon prices at the farmer level are still low	0,12	2.00	0.24
W2. Low innovation level in processing and marketing	0.12	2.50	0.29
W3. Lack of product diversification in cinnamon processing	0.06	2.00	0.12
W4. Low quality of post-harvest products	0.06	2.00	0.12
W5. No integrated and competitive cinnamon farmer institution	0.09	2.50	0.22
Sub Total	0.44		0.99
IFE Total	1.00		3.06

Source: Primary Data Processing Results (2024)

In Table 5, the total IFE (Internal Factor Evaluation) score of 3.06 shows that the internal condition of the cinnamon commodity is relatively strong, with strength more dominant than weakness. This provides a good opportunity for further development, although efforts are still needed to address major weaknesses, especially regarding farmer prices, innovation, and farmer institutions.

Table 6. Internal Factor Evaluation (IFE) matrix for cinnamon commodity in Jambi

Opportunity Factors	Weight	Rating	Score
O1. Increasing export demand	0.07	3.00	0.21
O2. Diversification of cinnamon products	0.14	4.00	0.57
O3. Government support	0.07	3.00	0.21
O4. Modern agricultural and processing technology	0.11	3.00	0.32
O5. Product certification and international standards	0.11	3.00	0.32
Sub Total	0.50		1.64
Threat Factors	Weight	Rating	Score
T1. Global market price fluctuations	0.14	2.00	0.29
T2. Competition from other producing countries	0.11	2.00	0.21
T3. International trade regulations	0.07	2.00	0.14
T4. Unsustainable forest management	0.11	2.00	0.21
T5. Inconsistent product quality	0.07	2.00	0.14
Sub Total	0.50		1.00
IFE Total	1.00		2.64

Source: Primary Data Processing Results (2024)

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

In the face of global market competition, identifying external factors is very important to measure the opportunities and threats that affect the competitiveness of cinnamon commodities in Jambi Province. Table 6 presents an External Factor Evaluation (EFE) Matrix that analyzes the various opportunities that can be leveraged and the challenges that must be overcome in cinnamon commodities.

In Table 6, the total EFE score of 2.64 indicates that the cinnamon commodity in Jambi Province is in a good enough position to take advantage of external opportunities and manage threats, although there are still some significant threats that need to be addressed, such as market price fluctuations and global competition. With this score, the development of cinnamon commodities needs to focus on product diversification, international certification, and improvement of processing technology to strengthen its position in the global market.

After doing the IFE and EFE matrices as the input stage, the next step is the IE (Internal-External) matrix as the matching stage for strategy determination. In Figure 1, the IE matrix shows that the conditions obtained from IFE are moderate with a score of 3.06, and the conditions from the EFE matrix have a score of 2.64, placing the Jambi Province cinnamon commodity in cell IV, categorized as "growing and building". Market penetration, market development, and product development Strategies can be applied to this "grow and build" position.

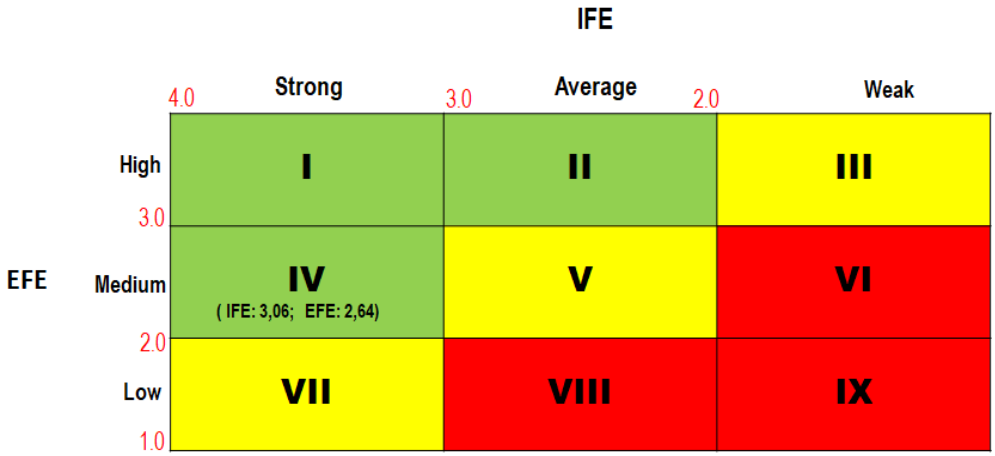

Figure 1. IE Matrix for the Cinnamon Commodity in Jambi
Source: Primary Data Processing Results (2024)

The next matching stage is the SWOT matrix, where the main information used in this matrix comes from internal and external factors contained in the IFE and EFE matrices, as well as the current position of cinnamon commodities in Jambi Province in the IE matrix. The data in Table 7 is used to formulate various strategic alternatives by combining internal and external factors, thus producing strategic options that can be chosen for the development of cinnamon commodities in Jambi Province.

Based on the SWOT matrix in Table 7, four main strategies for strengthening cinnamon commodities in Jambi Province are identified, including:

1) SO Strategy: Focusing on maximizing production, diversifying premium products, and optimizing government support, supported by technological innovations to increase the competitiveness of Jambi cinnamon in the global market. This combination will strengthen the position of the commodity as a high-value export product and improve the welfare of farmers. Several previous studies have mentioned that Indonesia's cinnamon commodity has

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

strong competitiveness, positioned as a "Rising Star", showing excellent performance and high optimism towards the development of cinnamon exports in the global market (Rindayati et al., 2022) The "Rising Star" position shows that Indonesian cinnamon has high competitive strength and occupies the highest or most ideal market position, with a rapidly growing and growing market share. In addition, this competitiveness is an essential aspect in the context of global trade and international competition (Maslova et al., 2019).

Table 7. SWOT Matrix for the cinnamon commodity in Jambi Province

SWOT Matrix For The Cinnamon Commodity In Jambi Province		No	STRENGTHS (S)	No	WEAKNESSES (W)
			High quality and high oil content	1	Cinnamon prices at the farmer level are still low
		2	Largest cinnamon producer in Indonesia	2	Low level of innovation in cinnamon processing and marketing
		3	Has Geographical Indication	3	Lack of product diversification in cinnamon processing
		4	High-value export commodity	4	Low quality of post-harvest products
		5	Leading regional commodity of Jambi Province	5	No integrated and competitive cinnamon farmer institution
No	OPPORTUNITIES (O)	No	Strength-Opportunity Strategies (S-O)	No	Weakness-Opportunity Strategies (W-O)
1	Increasing Export Demand	1.1	Maximize production capacity as the largest cinnamon producer in Indonesia to meet the increasing export demand and build partnerships with exporters and the government to expand access to international markets.	1.1	Utilize the increasing export demand to raise the selling price of cinnamon at the farmer level through institutional systems like cooperatives. This will help farmers get better prices and strengthen their bargaining power.
2	Cinnamon Product Diversification	2.2	Leverage the Geographical Indication as an advantage to diversify cinnamon products, such as producing derivatives (essential oils, cinnamon powder) and marketing these products as premium in the global market.	2.2	Encourage innovation in cinnamon processing, such as developing derivative products and product diversification. Innovative processing will increase the marketability of cinnamon and enhance product value.
3	Government Support	3.3	Optimize government support in export policies and subsidies to increase the competitiveness of cinnamon as a high-value export commodity. Promote the development of cooperatives or farmer institutions to strengthen the bargaining power of cinnamon farmers.	3.3	Use government support to improve distribution and marketing infrastructure, making cinnamon distribution more efficient.
4	Modern Agricultural and Processing Technology	4.4	Utilize cinnamon's status as a leading commodity by applying modern agricultural technology to increase productivity and quality.	4.4	Implement modern processing technology to improve post-harvest product quality. This technology can also increase production efficiency and product quality, making it competitive internationally.
5	Product Certification and International Standards	5.5	Obtain international certifications to increase cinnamon's selling value and competitiveness in global markets. Organic certification and environmental standards will	5.5	Encourage establishing integrated and competitive cinnamon farmer institutions that can help farmers obtain international certifications and expand market access.

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

			expand the market share of cinnamon products.		
No	THREATS (T)	No	Strength-Threat Strategies (S-T)	No	Weakness-Threat Strategies (W-T)
1	Global Market Price Fluctuations	1.1	Leverage large-scale production to mitigate the impact of price fluctuations by securing long-term contracts with international buyers.	1.1	Reduce farmers' dependence on global market prices by establishing cooperatives that manage direct sales to international or domestic consumers and set more favorable selling prices for farmers.
2	Competition from Other Producing Countries	2.2	Utilize the Geographical Indication as a competitive advantage to differentiate Jambi Province's cinnamon products from international competitors.	2.2	Encourage innovation in processing and marketing to enhance competitiveness in the global market. New technologies and innovations can create higher value-added derivative products.
3	International Trade Regulations	3.3	Optimize the value of cinnamon as a high-value export commodity by complying with international trade regulations, such as quality standards and certification procedures required for global markets.	3.3	Improve infrastructure to support efficient distribution and comply with international trade regulations. This can minimize obstacles caused by inadequate logistics and distribution.
4	Unsustainable Forest Management	4.4	Leverage cinnamon as a leading commodity to promote sustainable forest management, such as replanting and responsible forest management. Farmer institutions can help ensure this sustainability.	4.4	Improve post-harvest product quality with modern processing technology that meets international standards while also ensuring sustainable forest management to preserve the cinnamon raw material supply.
5	Inconsistent Product Quality	5.5	Improve product quality consistency by adhering to international certification standards, allowing cinnamon products to be more easily marketed in global markets with strict regulations.	5.5	Establish integrated cinnamon farmer institutions to ensure consistent product quality and help obtain international certifications to penetrate global markets.

2) ST Strategy: Emphasizing the importance of leveraging production scale, geographical indication advantages, and quality consistency to strengthen cinnamon's position in the global market. Long-term contracts with international buyers can provide price stability, while compliance with international regulations and certifications expands market access (Elisabeth et al., 2022). In addition, sustainable management of cinnamon forests ensures resource sustainability and meets the demands of environmentally conscious consumers. This is in line with (Permadi et al., 2021), who argue that sustainable cinnamon cultivation is necessary to maintain environmental balance, improve farmers' welfare, and ensure long-term income.

3) WO Strategy: Capitalizing on cinnamon export demand by increasing farmers' bargaining power through the establishment of institutions such as cooperatives and product innovation (Chatra & Rosi, 2024). With improved distribution infrastructure, the application of modern processing technology and international certification, Jambi cinnamon can increase its competitiveness in the global market. The market share of cinnamon exports must be expanded by creating a unique and distinctive advantage compared to competing countries (Kurniawati et al., 2024). Product diversification and post-harvest cinnamon quality improvement will add value and help penetrate a broader and premium market. The added value of a commodity can be achieved

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

through proper management to obtain additional inputs.(Dilana et al., 2013; Nihayah et al., 2017). According to Lencucha et al., (2020) industrial policies related to product diversification and post-harvest quality improvement that are in line with superior plantation commodities will provide adequate added value and contribute significantly to regional economic growth.

4) WT Strategy: Build strong farmer cooperatives or institutions to manage direct sales and reduce dependence on global market prices (Baga, 2009). Forming farmer cooperatives is essential to reduce dependence on intermediaries and increase product selling prices (Bojang, 2024). Innovations in cinnamon processing and marketing, supported by better distribution infrastructure, will increase the competitiveness of products in the international market. Applying modern processing technology and quality consistency through international certification will ensure that cinnamon products meet global standards. Technology also helps increase crop yields and farmers' income through better crop planning and stock management(Šermukšnytė,2024). This research is supported by Asrini et al., (2021) who noted that it is necessary to increase competitiveness through the development of certification, which builds trust among importing countries.

CONCLUSION

The study reveals the variation in added value in the cinnamon supply chain in Jambi, where farmers who sort and level get higher prices. At the same time, exporters achieve the highest added value but face low profitability due to operational costs and taxes. IFE's analysis showed great potential with a score of 3.06, although challenges such as low prices and lack of innovation remained. In contrast, EFE's analysis highlighted more substantial export opportunities and technology support than the threat of price fluctuations and global competition. Based on SWOT and IE, this industry is in a position of "growing and building", so it is recommended to increase production capacity, diversify products, and strengthen market infrastructure. The results of this study provide insights for government policies and recommend the integration of digital technologies, such as blockchain, IoT, and e-commerce, to improve efficiency and market access, as well as highlight the importance of sustainability studies to make the industry more competitive and provide more significant economic benefits for farmers and local businesses.

Several priority policies are needed to enhance the competitiveness and added value of cinnamon commodities in Jambi. In the short term, establishing farmer cooperatives with regulatory and financial support will improve market access. At the same time, subsidies for international certifications such as Fair Trade and USDA Organic will open opportunities in premium markets. In the medium term, product diversification into essential oils, cinnamon extracts, and tax incentives for processing industries will increase product value. Strengthening supply chain infrastructure, including distribution centers and storage systems, is also a priority. Digitalization through blockchain and IoT will enhance transparency and production efficiency in the long term. With integrated policies and support from various stakeholders, Jambi’s cinnamon industry has the potential to become a sustainable and high-value export commodity.

ACKNOWLEDGEMENTS

This research is funded by the Ministry of Education, Culture, Research, and Technology (Kemendikbud Ristek) of the Republic of Indonesia through the 2024 Beginner Lecturer Research Grant program. The authors would like to express their deepest gratitude for the financial support provided by the Ministry of Education, Culture, Research, and Technology. This assistance allows us to conduct this research

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

well, collect relevant data, and analyze the results.

REFERENCES

Afdhal Chatra, Fifian Permata Sari, Musran Munizu, Muhamad Rusliyadi, Nuryanneti Indra, & Loso Judijanto. (2024). *AGRIBISNIS (Strategi, Inovasi dan Keberlanjutan)* (1st ed., Vol. 1). www.greenpustaka.com

Alonso, A. D. (2011). Farmers' involvement in value-added produce: the case of Alabama growers. *British Food Journal*, *113*(2), 187–204.

Ardianto, E., Umiyati, E., & Mustika, C. (2018). Analisis usaha industri kecil di Kabupaten Kerinci Provinsi Jambi (studi kasus industri kecil pengolahan sirup kayu manis di Kabupaten Kerinci). *E-Jurnal Perspektif Ekonomi Dan Pembangunan Daerah*, *7*(2), 91–100. https://doi.org/10.22437/pdpd.v7i2.6893

Asrini, Y. N., Hodijah, S., & Nurhayani, N. (2021). Analisis Ekspor Kayu Manis Indonesia ke Amerika Serikat. *Jurnal Ekonomi Aktual*, *1*(1), 45–56. https://doi.org/10.53867/jea.v1i1.

Baga, L. M. (2009). Strategi Pengembangan Kelembagaan Koperasi Pertanian Berbasis Jagung Di Provinsi Gorontalo. *Jurnal Manajemen Pembangunan Daerah*, *1*(1), 44–61. https://doi.org/10.29244/jurnal_mpd.v1i1.24168

Bojang, B., & Emang, D. (2024). Can Cashew Value Chain Industry Improve Food Security: An Empirical Study from The Gambia. *Sustainability (Switzerland)*, *16*(15), 1–20. https://doi.org/10.3390/su16156607

Chatra, A., & Rosi, A. I. (2024). Marketing Channel Analysis, Marketing Margins, and Farmer's Share Cinnamon Commodity in Sungai Penuh City, Jambi Province, Indonesia. *Agro Bali : Agricultural Journal*, *6*(3), 595–607. https://doi.org/10.37637/ab.v6i3.1532

Creswell, J. W. (2010). *Research design: Qualitative, quantitative and mixed approach*. PT Pustaka Pelajar.

Cucagna, M. E., & Goldsmith, P. D. (2018). Value adding in the agri-food value chain: Research article. *International Food and Agribusiness Management Review*, *21*(3), 293–316. https://doi.org/10.22434/IFAMR2017.0051

David, F. R. (2019). *Manajemen Strategik: Suatu Pendekatan Keunggulan Bersaing - Konsep*. Salemba.

Dilana, I. A., Nurmalina, R., & Amzul, R. (2013). Pemasaran Dan Nilai Tambah Biji Kakao Di Kabupaten Madiun, Jawa Timur. *Prosiding Simposium Nasional Ekonomi Kakao*, 204–213. http://repository.ipb.ac.id/handle/123456789/69315

Elisabeth, & Falatehan, A. F. (2022). Analisis Daya Saing Ekspor Kayu Manis Indonesia di Pasar Amerika Serikat. *Indonesian Journal of Agriculture Resource and Environmental Economics*, *1*(2), 96–108. https://doi.org/10.29244/ijaree.v1i2.50002

Enike Windari Sihite, I G.N. Apriadi Aviantara, N. L. Y. (2018). Analysis of Added Value of Horticultural Lettuce Products (Lactuca sativa L) in Modern Market with Postharvest Handling Process. *Jurnal Beta (Biosistem Dan Teknik Pertanian)*, *6*(2), 55. http://ojs.unud.ac.id/index.php/beta

Hindayani. (2012). *Analysis of Cinnamon Trading System (Cynamomum Burmanii Blume) in Kerinci Regency of Jambi Province* [Institut Pertanian Bogor]. https://doi.org/10.1088/0953-8984/20/19/195221

Iswarini. (2013). The Prospect of Cinnamon Exports And Factors Behind the Processing of Cinnamon Syrup In The District of Mount Kerinci Kerinci Regency Jambi Province. *Sicieta*, *2*(2), 48–52. https://core.ac.uk/download/pdf/229337126.pdf

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

Jaya, A., Rustiadi, E., Gonarsyah, I., Bratakusumah, D. S., & Juanda, B. (2009). The Cinnamon Commodity Development Effect to Regional Economic: Case Study of Kerinci Regency Jambi. *Forum Pascasarjana*, *32*(1), 67–79. https://core.ac.uk/download/pdf/230368692.pdf

Kasmir. (2015). *Analisis Laporan Keuangan* (Cetakan ke). PT. Raja Grafindo Persada.

Kurniawati, A. W., Handayani, S. M., & Riptanti, E. W. (2024). International Analysis of Market Structure And Competitiveness Of Indonesian Cinnamon Wood (Cinnamomum burmannii) Exports In International Trade. *Jurnal Agristan*, *6*(1). https://doi.org/10.37058/agristan.v4i1.10492

Lencucha, R., Pal, N. E., Appau, A., Thow, A. M., & Drope, J. (2020). Government policy and agricultural production: A scoping review to inform research and policy on healthy agricultural commodities. *Globalization and Health*, *16*(1), 1–15. https://doi.org/10.1186/s12992-020-0542-2

Maslova, V., Zaruk, N., Fuchs, C., & Avdeev, M. (2019). Competitiveness of agricultural products in the eurasian economic union. *Agriculture (Switzerland)*, *9*(3), 1–14. https://doi.org/10.3390/agriculture9030061

Menggala, S. R., & Damme, P. V. (2018). Improving Cinnamomum Burmannii Blume Value Chains for Farmer Livelihood in Kerinci, Indonesia. *European Journal of Medicine and Natural Sciences*, *2*(1), 23. https://doi.org/10.2478/ejmn-2018-0004

Menggala, S. R., Vanhove, W., Aji Muhammad, D. R., Hendri, J., Speelman, S., & Van Damme, P. (2019). Sustainable harvesting of Cinnamomum burmannii (Nees & T. Nees) Blume in Kerinci Regency, Indonesia. *Sustainability (Switzerland)*, *11*(23). https://doi.org/10.3390/su11236709

Menggala, S. R., Vanhove, W., Muhammad, D. R. A., Rahman, A., Speelman, S., & Van Damme, P. (2021). The effect of geographical indications (GIs) on the koerintji cinnamon sales price and information of origin. *Agronomy*, *11*(7). https://doi.org/10.3390/agronomy11071410

Nalbandi, H., Seiiedlou, S., Beranki, S., & Farzand Ahmadi, V. (2021). Evaluation of sorting machine of horticultural products from the view point of machine performance and mechanical damage of fruit. *Agricultural Mechanization*, *5*(1), 43–53. https://doi.org/DOI: https://dx.doi.org/10.22034/jam.2021.44221.1142

Nihayah, D. M., Pujiati, A., & Khoiruddin, M. (2017). Main Priorities in Value Added Improvement-Based on Commodity Processing System. *Jejak*, *10*(2), 361–371. https://doi.org/10.15294/jejak.v10i2.11300

Nurhayani, R. (2019). Price Shock and Market Share of Cinnamon Export Kerinci Regency. *Jurnal Sains Sosio Humaniora*, *53*(9), 1689–1699. https://doi.org/https://doi.org/10.22437/jssh.v3i2.8420

Olorunfemi, B. O., Nwulu, N. I., Adebo, O. A., & Kavadias, K. A. (2024). Advancements in machine visions for fruit sorting and grading: A bibliometric analysis, systematic review, and future research directions. *Journal of Agriculture and Food Research*, *16*(January), 101154. https://doi.org/10.1016/j.jafr.2024.101154

Panggabean, Y. B. S., Arsyad, M., Mahyuddin, & Nasaruddin. (2022). Sustainability agricultural supply chain in improving the welfare of North Toraja Arabica coffee farmers. *IOP Conference*

e-ISSN 2655-853X
https://doi.org/10.37637/ab.v8i1.2094

Series: Earth and Environmental Science, *1107*(1). https://doi.org/10.1088/1755-1315/1107/1/012065

Permadi, R. A., Nurdebyandaru, N., & Wahyudi, A. (2021). Developing sustainable smallholders of cinnamon by intercropping of patchouli and coffee in Kerinci, Jambi. *IOP Conference Series: Earth and Environmental Science*, *648*(1). https://doi.org/10.1088/1755-1315/648/1/012069

Rangkuti, F. (2003). *Analisis Swot Teknik Membedah Kasus Bisnis : Reorientasi Konsep Perencanaan Strategis Untuk Menghadapi Abad 21*. Gramedia Pustaka Umum.

Rindayati, W., & Akbar, R. (2022). Competitiveness and Determinants of Indonesian Frozen Shrimp Exports to Non-Traditional Markets. *Jurnal Manajemen Dan Agribisnis*, *19*(3), 367–378. https://doi.org/10.17358/jma.19.3.367

Šermukšnytė-Alešiūnienė, K., & Melnikienė, R. (2024). The Effects of Digitalization on the Sustainability of Small Farms. *Sustainability (Switzerland)* , *16*(10). https://doi.org/10.3390/su16104076

Suci. (2006). *Financial Feasibility Analysis Conversion Of Cinnamon To Cocoa In Gunung Raya Subdistrict, Kerinci Regency, Jambi Province* [Institut Pertanian Bogor]. http://repository.ipb.ac.id/handle/123456789/1311

Suyanto, S., Tomich, T., & Otsuka, K. (2007). The role of land tenure in the development of cinnamon agroforestry in Kerinci, Sumatra. In *Voices from the Forest: Integrating Indigenous Knowledge into Sustainable Upland Farming* (pp. 743–753). https://doi.org/10.4324/9781936331840

Tan, F., Ridwan, E., Bahari, A., & Sartika, D. (2022). Price Efficiency Of A Commodity In The Domestic Market : A Study Of Cinnamon Price Policy In Indonesia. *Journal of Positive Psychology & Wellbeing*, *6*(1), 2726–2742. https://journalppw.com/index.php/jppw/article/view/4457

Theresa. (2017). *From the Fragrant Highlands to the Netherlands A Case Study on the Evolution of the Adoption of Ethical Value Chains for Kerinci Cinnamon* [University of Wellington]. http://researcharchive.vuw.ac.nz/xmlui/handle/10063/6447