

FACTORS INFLUENCING OIL PALM FARMERS' FRESH FRUIT BUNCHES MARKETING DECISIONS THROUGH COLLECTORS IN RUKAM VILLAGE

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ABSTRACT

The marketing of fresh fruit bunches of oil palm is an important part of the agribusiness supply chain. The main problem in fresh fruit bunches marketing is farmers' dependence on collectors. This study aims to analyze the decision-making patterns of oil palm farmers in choosing marketing channels and to analyze the factors that influence oil palm farmers' decisions to sell fresh fruit bunches through collectors. This study employs a quantitative approach using a survey of 50 oil palm farmers in Rukam Village, Mendo Barat Subdistrict. Respondents were selected through purposive sampling based on the fresh fruit bunches marketing channels they utilized. This study uses descriptive analysis to describe the characteristics of the respondents and the decision-making patterns of farmers in choosing fresh fruit bunches marketing channels, as well as binary logistic regression analysis to examine the influence of each independent variable on the probability of farmers' decisions in choosing marketing channels. The results of the study indicate that the marketing patterns for fresh fruit bunches among smallholder oil palm farmers are still dominated by sales through collectors. Social relationships emerged as the most influential factor affecting farmers' decisions to sell their fresh fruit bunches through collectors in Rukam Village, Mendo Barat Subdistrict. These findings reinforce the perspective that smallholder oil palm farmers' decisions regarding the marketing of their fresh fruit bunches are not entirely determined by economic factors and physical access, but are also influenced by the social relationships formed within local marketing networks.

Key words: Bangka Regency, collectors, fresh fruit bunches, Mendo Barat Subdistrict, oil palm farmers'

INTRODUCTION

The oil palm plantation sector is a strategic commodity that underpins Indonesia's national economy (Nasution & Ningsih, 2025). This commodity generates foreign exchange for the country, provides employment, and serves as the primary source of income for farming households (Muzaki, 2024). Harahap *et al.*, (2026) state that the oil palm plantation sector is export-oriented through the production of high-value commodities.

The marketing of fresh fruit bunches determines the sustainability of the smallholder oil palm agribusiness supply chain. Sihite *et al.*, (2025) state that the agribusiness system encompasses activities ranging from production and distribution to the marketing of agricultural products. Marbun *et al.*, (2024) state that farmers should be able to choose marketing channels that provide optimal profits through direct sales to palm oil mills or collector traders. On-the-ground realities show that smallholder farmers still face limitations in

market access, transportation facilities, and the ability to meet the standards for direct sales to palm oil mills.

Permata (2025) states that farmers' dependence on collectors is a major problem in the marketing of fresh oil palm fruit bunches by smallholders. Collectors serve as intermediaries between farmers and palm oil mills in areas with limited market access. Syarif, (2025) notes that these marketing relationships often involve the provision of working capital, which creates economic dependence of farmers on collectors. Permata (2025) emphasizes that this situation places farmers in a position of weak bargaining power when determining the selling price of fresh fruit bunches.

Nainggolan *et al.*, (2025) state that smallholder oil palm farmers serve only as suppliers of fresh fruit bunches and have no power to determine market prices. A similar phenomenon occurs among oil palm farmers in Rukam Village, Mendo Barat Subdistrict. Field observations show that most farmers sell their fresh fruit bunches through middlemen, even though direct sales to oil palm mills are an available alternative. Crysiani *et al.*, (2024) explain that limited transportation, the distance to the mills, and low production volumes influence farmers' marketing decisions.

Nainggolan *et al.*, (2025) state that palm oil mills actually serve as partners to smallholder farmers through mutually beneficial marketing relationships. On-the-ground realities show that some farmers are not yet able to meet the quality and quantity standards set by the palm oil mills. Delays in payments for fresh fruit bunches also cause the partnership between farmers and palm oil mills to function less effectively. Most farmers continue to sell their fresh fruit bunches to collectors even though the purchase price is lower than the price offered by palm oil mills. This phenomenon indicates that farmers' marketing decisions are not solely influenced by economic considerations such as selling price. Ease of market access, social relationships, trust, and economic ties also influence farmers' decisions to choose specific marketing channels.

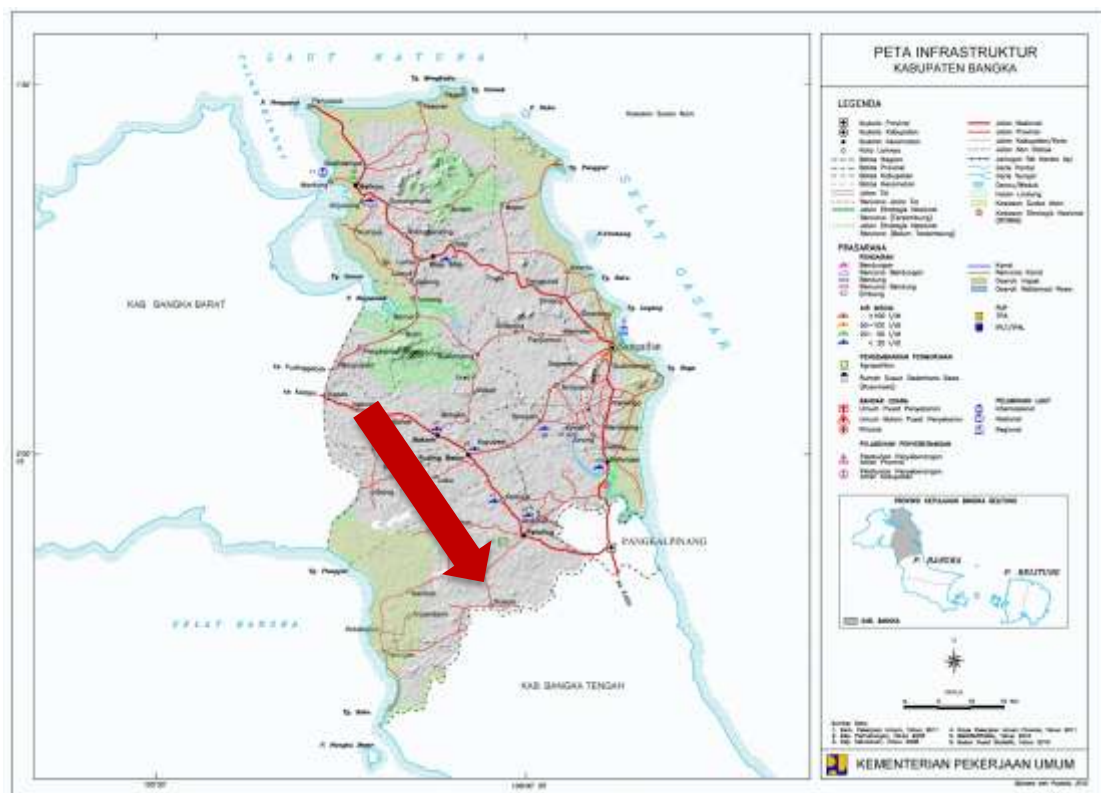
Permata (2025) states that middlemen often set prices unilaterally, thereby limiting farmers' room for negotiation. This situation indicates that limited market access continues to affect the efficiency of marketing smallholder plantation products. Several previous studies have focused primarily on farmers' bargaining power, their dependence on middlemen, and issues related to smallholder palm oil marketing partnerships. Previous research has not specifically explained the relationship between economic, technical, and social factors, as well as access to price information, and farmers' decisions to choose middlemen as their primary marketing channel. Analysis of farmers' decision-making behavior at the village level also remains limited, particularly in the smallholder oil palm hub in Mendo Barat Subdistrict. This research gap highlights the need for an empirical study capable of explaining farmers' marketing decision patterns based on actual field conditions.

This study makes a scientific contribution through the development of a decision-making analysis for smallholder oil palm farmers based on an integrated economic, technical, and social approach. This study also offers a novel perspective by utilizing the empirical context of oil palm farmers in Rukam Village, which has not been extensively examined in previous research. This study aims to analyze the decision-making patterns of oil palm farmers in

choosing marketing channels for fresh fruit bunches and to analyze the factors influencing their decisions to sell fresh fruit bunches through collectors in Rukam Village, Mendo Barat Subdistrict.

MATERIALS AND METHODS

This study was conducted in Rukam Village, Mendo Barat Subdistrict, with the location selected purposively based on the fact that Rukam Village is one of the villages designated as a Smallholder Oil Palm Replanting Village and is located near a palm oil mill in Mendo Barat Subdistrict. In addition, this village already has a program providing fresh fruit bunch price information from several palm oil mills, distributed through agricultural extension services, making it relevant to the focus of this study.



Picture 1. Research Location

This study employed a quantitative approach using a survey method involving 50 oil palm farmers participating in the Smallholder Oil Palm Replanting Program in Rukam Village, Mendo Barat Subdistrict. Respondents were selected through purposive sampling based on the fresh fruit bunch marketing channels they used. The study employs both descriptive and explanatory approaches. The descriptive approach is used to characterize farmers' decision-making patterns in selecting fresh fruit bunch marketing channels, while the explanatory approach is used to analyze the influence of factors such as the availability of transportation, distance to the palm oil mill, access to price information, and social relationships on farmers' decisions regarding the sale of fresh fruit bunch.

Data analysis in this study was conducted using both descriptive and inferential methods. Descriptive analysis was used to describe the characteristics of the respondents and the decision-making patterns of farmers in choosing marketing channels for fresh fruit bunches. Meanwhile, inferential analysis was used to test the effect of independent variables on the dependent variable. The analysis method used was binary logistic regression because the dependent variable was dichotomous—namely, farmers’ decision to sell through collectors or not. The binary logistic regression model was used to analyze the relationship between one response variable (y) and several independent variables (Tampil *et al.*, 2017). The binary logistic regression model in this study was formulated as follows:

$$\ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

β_0 is a constant, β_1 , β_2 , β_3 , and β_4 are the regression coefficients for each independent variable, X_1 is the mode of transportation, X_2 is the distance to the palm oil mill, X_3 is access to price information, X_4 is social relationships, and e is the error term. Model testing was conducted via a simultaneous test using the Likelihood Ratio Test to determine the combined effect of all independent variables (Hermanto *et al.*, 2020). Partial testing was conducted using the Wald test to determine the effect of each independent variable on farmers’ marketing decisions.

Model fit was analyzed using the Hosmer and Lemeshow Goodness-of-Fit test to assess the regression model’s fit to the research data (Pratiwi & Dewi, 2021). A significance value greater than 0.05 indicates that the regression model has a good level of fit with the observed data. Nagelkerke R-squared was used to assess the ability of the independent variables to explain the variation in farmers’ marketing decisions. The Nagelkerke R-squared value indicates the proportion of the dependent variable that the model explains (Setiawati & Utomo, 2017).

RESULTS AND DISCUSSION

Characteristics of oil palm farmer respondents

Table 1. Characteristics of oil palm farmer respondents in Rukam Village

Characteristics	Category	Total (people)	Percentage (%)
Age	<35 years	8	16,00
	35-50 years	32	64,00
	>50 years	10	20,00
Gender	Male	29	58,00
	Female	21	42,00
Educational	Elementary school	12	24,00
	Junio high school	4	8,00
	Senior high school	22	44,00
	Bachelor degree	12	24,00
Farming experience	Average	9,53 years	-
Land area	Average	3,04 hectares	-

The age group of respondents was dominated by farmers aged 35 to 50 years, totaling 32 people or 64 percent of the total respondents. This indicates that the majority of farmers are of working age and are still actively engaged in oil palm farming. Sophia *et al.*, (2023) state that farmers of working age are more likely to understand price information and marketing opportunities for their plantation products. The research results show that the productive age group is more active in utilizing marketing channels through collectors and direct sales to palm oil mills.

Gender characteristics show that there were 29 male respondents, or 58 percent of the total study respondents. This indicates that marketing decisions regarding fresh fruit bunches are still dominated by male heads of households, who serve as the primary managers of smallholder oil palm farming activities. Male farmers generally play a dominant role in production management, transporting the harvest, and determining fresh fruit bunches marketing channels. This finding is consistent with the study by Arwan *et al.*, (2023), which explains that marketing decisions regarding smallholder plantation products are more often determined by male heads of household.

The respondents' educational levels were dominated by high school graduates, numbering 22 people, or 44 percent of the total study respondents. Educational level influences farmers' ability to understand price information, marketing systems, and opportunities to sell their harvest to palm oil mills. Farmers with higher levels of education tend to be better able to evaluate the economic benefits of each fresh fruit bunch marketing channel. This finding is consistent with the study by Rahayu *et al.*, (2021), which states that education influences farmers' ability to access market information more effectively.

The respondents' average farming experience was 9.53 years, indicating that farmers have had considerable experience managing smallholder oil palm plantations. Farming experience shapes farmers' ability to understand marketing patterns, commercial relationships, and the risks associated with selling their harvest. Experienced farmers generally have broader marketing networks compared to farmers with less farming experience. Arwan *et al.*, (2023) explain that farming experience influences farmers' ability to determine which marketing channels are considered the most profitable.

The average land area of the respondents was 3.04 hectares, indicating that most farmers fall into the category of small-scale smallholder plantations. Land area affects the amount of fresh fruit bunches produced during each harvest period. Low production volumes often make it difficult for farmers to meet the standards for direct sales to palm oil mills. This finding is consistent with the research by Hermansyah *et al.*, (2025), which states that farmers with small landholdings tend to choose collectors as their primary marketing channel.

Farmers' decision-making patterns through marketing channels

Table 2. Farmers' decision-making patterns in choosing marketing channels for fresh fruit bunches

Marketing Channels	Total (people)	Percentage (%)
Collectors	32	64,00
Direct sells to palm oil mills	18	36,00

Total	50	100,00
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The research findings show that most farmers choose to sell fresh fruit bunches through collectors rather than selling directly to palm oil mills. A total of 32 respondents, or 64 percent, rely on collectors as their primary marketing channel for their oil palm harvest. This indicates that farmers prioritize ease of marketing over obtaining a higher selling price. Collectors facilitate transactions by picking up the harvest directly from farmers' plantations. This system reduces the transportation costs that farmers would otherwise have to bear when marketing fresh fruit bunches to palm oil mills. Hermansyah *et al.*, (2025) state that ease of market access is the main reason farmers choose collectors as their marketing partners for their harvest.

A total of 18 respondents, or 36 percent, chose to sell fresh fruit bunches directly to palm oil mills because they expected higher selling prices. This group of farmers generally had adequate transportation and relatively higher production volumes compared to other respondents. Farmers with better access to price information tended to choose marketing channels that offered higher economic returns. Rahayu *et al.*, (2021) state that good market access increases farmers' chances of obtaining more favorable selling prices through direct sales to palm oil mills. These conditions indicate that farmers' marketing decisions are influenced by a combination of interrelated economic, technical, and social factors. The research findings demonstrate that the marketing behavior of smallholder palm oil farmers is not determined solely by considerations of selling price.

Analysis of factors influencing farmers' decisions to sell fresh fruit bunches through collectors

Table 3. Results of the logistic regression model validity test

Model Test	Value	Significant	Description
Omnibus Test	53,072	0,000	Significance Model
Hosmer and Lemeshow Test	7,355	0,499	Feasible Model
Nagelkerke R Square	0,897	The Models Explanatory Power is Excellent	
-2 Log Likelihood	12,270	The Model is Getting Better	

The results of the simultaneous test showed a significance value of 0.000 for the Omnibus Test, indicating that all independent variables collectively influence farmers' marketing decisions. This value indicates that the logistic regression model is appropriate for explaining the factors that influence the marketing decisions of smallholder oil palm farmers regarding fresh fruit bunches.

The results of the Hosmer-Lemeshow test showed a significance value of 0.499, indicating that the model fits the observed research data reasonably well. A significance value greater than 0.05 indicates that there is no significant difference between the model's predictions and actual field conditions. This suggests that the regression model is reasonably effective in explaining the marketing decisions of oil palm farmers.

The Nagelkerke R-squared value of 0.897 indicates that the model explains 89.7 percent of the variation in farmers' marketing decisions. This value indicates that the study variables are highly effective in explaining farmers' decisions regarding the choice of fresh fruit bunches marketing channels. The remaining 10.3 percent is influenced by other factors not included in the research model.

A value of -2 Log Likelihood of 12.270 indicates that the regression model fits the research data quite well. A decrease in the value of -2 Log Likelihood indicates that the model is increasingly capable of explaining the probability of marketing decisions made by smallholder oil palm farmers. These results reinforce the suitability of the logistic regression model for analyzing fresh fruit bunch marketing decisions in Rukam Village, Mendo Barat Subdistrict.

Table 4. Results of the binary logistic regression analysis

Variable	Coefficient (B)	Significant	Description
Means Transportation (X1)	-10,589	0,862	Not Significant
The distance to the palm oil mill (X2)	1,506	0,121	Not Significant
The price information access (X3)	-0,144	0,416	Not Significant
Social relationships (X4)	0,616	0,044	Significant
Constanta	-9,895	0,873	-

The results of the logistic regression analysis show that the social relationships variable has a significant effect on farmers' decisions to sell fresh fruit bunches through collectors. The significance value of 0.044 for social relationships indicates that the effect of this variable is significant at the 95 percent confidence level. The positive regression coefficient of 0.616 indicates that an increase in social relationships increases farmers' tendency to choose collectors.

Collectors play a significant social role in the smallholder fresh fruit bunch marketing system in Rukam Village. Collectors often provide assistance with transporting the harvest, offer working capital loans, and allow flexibility in payments for farmers' household needs. These relationships create economic ties that repeatedly influence farmers' marketing decisions.

The research findings are consistent with the study by Syarif *et al.*, (2024), which states that social relationships influence farmers' loyalty to collector-dealers in rural agribusiness systems. Putri *et al.*, (2022) explain that social capital in the form of trust and social networks influences the marketing behavior of smallholder plantation farmers. These conditions indicate that social aspects still play a dominant role in the marketing of rural agricultural products.

The transportation means variable has a significance value of 0.862, indicating that it has no significant effect on farmers' marketing decisions regarding fresh fruit bunches. These results indicate that ownership of transportation is not a primary factor determining oil palm farmers' choice of marketing channels. This situation arises because collectors provide a service to pick

up the harvest directly from farmers' plantations. This system means that ownership of a personal vehicle is no longer a distinguishing factor in farmers' fresh fruit bunch marketing decisions. Farmers prioritize the convenience of the transaction over the use of personal transportation to reach the palm oil mill.

The findings of this study are consistent with the research by Hermansyah *et al.*, (2025), which states that transportation services provided by middlemen reduce the influence of transportation facilities on farmers' marketing decisions. Arwan *et al.*, (2023) also explain that farmers continue to choose middlemen even when they have adequate transportation facilities because they prioritize social relationships.

The distance to the palm oil mill has a significance value of 0.121, indicating that it has no significant effect on smallholder oil palm farmers' marketing decisions. This suggests that distance is not a dominant consideration because collectors provide transportation for farmers' harvests. Farmers do not directly bear the transportation costs to the PKS, thereby further reducing the influence of marketing distance. The presence of collectors makes it easier for smallholder oil palm farmers to access markets for their fresh fruit bunches.

These findings are consistent with the study by Rahayu *et al.*, (2021), which states that the presence of collector-traders can reduce barriers to market access for smallholder farmers. Sophia *et al.*, (2023) explain that crop transportation services mean that distance is not always the determining factor in farmers' choice of marketing channels.

The price information access variable has a significance value of 0.416, indicating that it has no significant effect on oil palm farmers' marketing decisions regarding fresh fruit bunches. This suggests that price information is not the primary factor determining farmers' choice of marketing channels in Rukam Village. Most farmers have gained access to price information through agricultural extension officers, farmer groups, and communication among farmers.

The relatively even availability of price information means that all farmers have nearly the same level of market knowledge. This situation means that access to price information has not yet been able to differentiate marketing decisions among the farmers surveyed in this study. These findings are consistent with the research by Nugroho *et al.*, (2022), which states that price information does not always influence farmers' marketing behavior when market access remains limited. Arwan *et al.*, (2023) also explain that social relationships often have a stronger influence than access to price information on the marketing of smallholder fresh fruit bunches.

CONCLUSION

1. The decision-making patterns of oil palm farmers in Rukam Village indicate that the majority of farmers choose collectors as their primary marketing channel for fresh fruit bunches. A total of 64 percent of respondents sell fresh fruit bunches through collectors, while 36 percent choose to sell directly to oil mills. These decisions are influenced by considerations such as ease of transaction, transportation services for the harvest, payment certainty, and social relationships between farmers and collectors.

2. The results of the binary logistic regression analysis show that the social relationships variable has a significant effect on farmers' decisions to sell fresh fruit bunches through collectors. Social relationships have a significance value of 0.044 with a positive regression coefficient of 0.616, indicating that stronger social relationships increase farmers' tendency to choose collectors. The variables of transportation facilities, distance to the palm oil mill, and access to price information had no significant effect on farmers' marketing decisions. These findings indicate that the marketing decisions of oil palm farmers in Rukam Village are more influenced by social factors than by economic or technical factors.

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