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Income Analysis Of Plantation Subsector Farming In Narasaosina Village, East Adonara District, East Flores Regency

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Abstract

Plantation farming is an important source of income for farmers in Narasaosina Village, East Adonara District, where coconut, cocoa, vanilla, nutmeg, candlenut, and areca nut are cultivated. This study aims to analyze the income generated from plantation farming and determine the contribution of each commodity to total farm income. A quantitative approach was applied using primary data collected through questionnaire-based interviews and secondary data obtained from relevant literature. Respondents were selected using a saturated sampling technique. The results show that total plantation farm income reached IDR 358,325,464 per year, indicating that the plantation subsector remains economically beneficial to local farmers. Coconut contributed the largest share of income at 74.57%, followed by candlenut at 17.07%, cocoa at 5.73%, vanilla at 1.78%, areca nut at 0.66%, and nutmeg at 0.19%. These findings demonstrate that farmers' plantation income is highly dependent on coconut production. Therefore, efforts to improve coconut productivity and market access should be accompanied by the development of other plantation commodities to diversify income sources and reduce economic dependence on a single commodity.

Keywords : **plantation farming; farm income; income contribution; coconut; commodity diversification**

INTRODUCTION

Plantation farming is the cultivation of plantation crops as a source of income for farmers. East Flores Regency is one of the regencies in East Nusa Tenggara Province

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with a fairly developed smallholder plantation sector. Based on data from the Central Statistics Agency (BPS), plantation crop production in East Flores Regency from 2023 to 2025 shows that several plantation commodities still show relatively high production levels. Coconut production was recorded at 10,672.21 tons in 2023, 10,485.23 tons in 2024, and increased to 18,639.13 tons in 2025. Cocoa production was recorded at 2,630.63 tons in 2023, 2,440.12 tons in 2024, and 2,463.22 tons in 2025.

In addition to coconut and cocoa, candlenut is also a plantation commodity cultivated by communities in East Nusa Tenggara. Data from the East Nusa Tenggara Province Agriculture and Food Security Office shows that candlenut production reached 26,118 tons in 2022, then decreased to 25,923 tons in 2023 and remained relatively unchanged in 2024. This production data demonstrates that various plantation commodities are still cultivated by communities and are part of agricultural activities in the East Nusa Tenggara region.

At a smaller regional level, East Adonara District also has quite active plantation activities. Plantation production data shows that coconut and cocoa are commodities widely cultivated by the community. Coconut production was recorded at 875 tons in 2023 and increased to 910 tons in 2024. During the same period, cocoa production reached 612 tons in 2023 and 599.45 tons in 2024 (RPJMD 2025-2029; 2025). The existence of these plantation commodities indicates that plantation farming activities remain an integral part of the community's livelihood system in East Adonara District.

One village whose residents still rely on agriculture for their livelihood is Narasaosina Village. In their farming activities, farmers cultivate not only one commodity but also several plantation commodities simultaneously, including coconut, cocoa, vanilla, nutmeg, candlenut, and areca nut. The management pattern of these various commodities has become part of the community's farming strategy in utilizing available land resources. The diversity of commodities cultivated by farmers makes the structure of income and farming costs more complex than farming that focuses solely on one commodity. Each commodity has different production characteristics, input requirements, selling prices, and harvest times. These conditions affect the amount of income received by farmers from their farming activities. Therefore, information on farming income is important to determine the ability of farming activities to provide economic benefits to farmers.

In practice, plantation farming management in East Adonara District still faces various challenges. Most farms are still managed traditionally with relatively limited use of production inputs. Furthermore, farmers also face various constraints, such as

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commodity price fluctuations, changes in production yields, limited market access, and low utilization of post-harvest processing technology. These various conditions make farm income analysis an important aspect to study. Several studies on plantation farming income analysis have been conducted for coconut, cocoa, vanilla, nutmeg, and candlenut commodities in various regions in Indonesia. However, most of these studies still focus on a single type of plantation commodity and have not examined farm income derived from a combination of several plantation commodities within a single farm unit. Furthermore, research on farm income in the plantation subsector in Narasaosina Village, East Adonara District, East Flores Regency is still very limited.

Based on these conditions, this study was conducted to analyze the income of plantation sub-sector farming businesses in Narasaosina Village, East Adonara District, East Flores Regency. The analysis was conducted on plantation commodities cultivated by farmers, namely coconut, cocoa, vanilla, nutmeg, candlenut, and areca nut, so that the amount of revenue, production costs, and income obtained from each commodity as well as the overall income of the plantation sub-sector farming business can be determined. The results of this study are expected to provide an overview of the structure of plantation farming income in the research area and become a source of information and consideration for farmers and the local government in efforts to develop plantation commodities and improve farmer welfare.

RESEARCH METHODS

This research was conducted in February 2026 in Narasaosina Village, East Adonara District, East Flores Regency. The research location was purposively selected based on the consideration that Narasaosina Village has significant agricultural potential, particularly in plantation commodities, which are a source of livelihood for the local community. The research used a quantitative approach. The data used consisted of primary data obtained through interviews with farmers using questionnaires, as well as secondary data from various literature sources. The farmer sample was determined using a saturated sampling technique.

To answer the first objective, farm income is determined by subtracting farm revenue from all costs incurred during the production process *(Income = Total Revenue – Total Cost).*

To answer the second objective, this analysis is used to calculate the contribution of farm income to each plantation commodity, expressed as a percentage. In this approach, the analysis focuses specifically on income generated directly from the

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agricultural sector of the plantation subsector, so that income from non-agricultural sectors such as civil servant (PNS) salaries or trade results are not included in the calculation of this contribution. To provide an accurate quantitative picture of the economic role of farms, the calculation formula used according to Masruroh (2015) is as follows:

$$\text{Income Contribution} = \frac{\text{Income from Commodity A}}{\text{Total Farmer Income}} \times 100\%$$

RESULTS AND DISCUSSION

Respondent Characteristics

Respondent characteristics are a crucial factor influencing farmers' ability to manage their farms. Differences in characteristics, such as age, education level, number of dependents, length of farming experience, land area, and land ownership status, have the potential to influence decision-making and farm management. Therefore, identifying respondent characteristics is necessary to provide a snapshot of the socioeconomic conditions of the farmers studied in Narasaosina Village.

The majority of respondents were in the 50–57 years age group (41.94%), with an average age of 56.03 years. Respondents were predominantly male (64.52%), had an elementary school education (45.16%), and had an average number of dependents of 3.90 people in their families. The average length of farming experience was 26.48 years, with the majority of respondents having 28–35 years of experience (41.94%). Most farmers cultivated land measuring 0.08–0.55 ha (83.87%), and all respondents (100%) managed their own land.

1. Plantation Farming Income

Table 1. Income from Candlenut, Coconut and Cocoa Farming

Farming Component	Candlenut		Coconut		Cocoa	
	Amount (Rp)	Per Farmer (Rp)	Amount (Rp)	Per Farmer (Rp)	Amount (Rp)	Per Farmer (Rp)
Fixed Costs						
Equipment Depreciation	1,371,000	74,007	2,048,000	73,143	337,000	48,143

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Tax	348,500	11,242	604,369	21,585	13,830	1,975.80
Total	1,719,500	85,249	2,652,369	94,727	350,830	50,119
Variable Costs						
Labor	6,025,000	194,355	39,451,000	1,408,964	637,500	91,071
Transportation	2,725,000	84,677	7,877,500	281,339	250,000	35,714
Total	8,750,000	279,032	47,328,500	1,690,304	887,500	126,786
Total cost	10,469,500	364,281	49,980,869	1,785,031	1,238,330	176,904
Recipient	71,642,000	2,311,032	317,187,500	11,328,125	21,762,500	3,108,928
Income	61,172,500	1,973,306	267,206,631	9,543,094	20,524,170	2,932,024

Source: Primary Data Processing Results, 2026

Table 2. Income from Vanilla, Nutmeg, and Areca Nut Farming

Farming Component	Vanilla		Nutmeg		Betel nut	
	Amount (Rp)	Per Farmer (Rp)	Amount (Rp)	Per Farmer (Rp)	Amount (Rp)	Per Farmer (Rp)
Fixed Costs						
Equipment Depreciation	99,334	24,834	85,500	28,500	172,500	34,500
Tax	12,330	3.083	15.674	5.225	19.000	3.800
Total	111.663	27.916	101.174	33.725	191.500	38.300
Variable Costs						
Labor	1.937.500	484.375	112.500	37.500	662.500	132.500
Transportation	120.000	30.000	80.000	26.667	120.000	24.000
Fruit-picking Pole	0	0	60.000	20.000	100.000	20.000
Total	2.057.500	514.375	252.500	84.167	882.500	176.500
Total cost	2.169.163	542.291	353.674	117.891	1.074.000	214.800
Recipient	8.554.000	2.138.500	1.040.000	346.667	3.425.000	685.000
Income	6.384.837	1.596.209	686.326	228,776	2,351,000	470,200

Source: Primary Data Processing Results, 2026

Based on the table above, production costs, revenues, and farm income in the plantation subsector in Narasaosina Village show significant differences between

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commodities. Coconut is the commodity with the highest total production costs, amounting to Rp49,980,869 or an average of Rp1,785,031 per farmer, dominated by labor costs. However, coconut also generates the highest revenues and income, amounting to Rp317,187,500 and Rp267,206,631, respectively, or an average of Rp9,543,094 per farmer. This high income is influenced by the size of the planted area, the number of farmers cultivating coconuts, and the processing of the product into copra, which provides added economic value.

Candlenut ranks second with a total production cost of IDR 10,469,500 and income of IDR 61,172,500, or an average of IDR 1,973,306 per farmer. This income indicates that candlenut is not yet a primary source of income for farmers, but rather serves as a supplementary business. This condition is influenced by suboptimal plant productivity due to the dominance of older plants, limited rejuvenation, and limited labor. This finding aligns with research by Rahmi et al. (2021) and Ariandi et al. (2023) which states that candlenut farming income is still lower than other sources of income, resulting in a relatively small contribution to farmer income.

Meanwhile, cocoa has the lowest production costs among the three main commodities, at Rp1,238,330, yet still generates an income of Rp20,524,170, or an average of Rp2,932,024 per farmer, due to its relatively low production costs. This income is derived from relatively low production costs because farmers do not use fertilizers or pesticides intensively. However, this condition makes plants more susceptible to pest attacks, resulting in suboptimal productivity. The results of this study support the findings of Ariningsih et al. (2019) and Azwir et al. (2016) , which state that low use of production inputs and pest control are the main factors in low cocoa productivity.

Among other commodities, vanilla generated revenue of Rp6,384,837, or an average of Rp1,596,209 per farmer, with total production costs of Rp2,169,163. This indicates that vanilla farming has not yet become a primary source of income, but rather a supplementary activity within farmers' farming operations. Compared to the research by Risdayanti et al. (2025) , which obtained a vanilla income of Rp12,558,615 per year, this study's results are lower. This difference is thought to be influenced by differences in business scale, number of plants, and lower farm management intensity at the study site. The production cost structure of vanilla farming is dominated by variable costs, particularly labor, which reached Rp1,937,500, or the majority of total production costs. This indicates that vanilla farming requires relatively high labor intensity, especially in plant maintenance and management activities.

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Areca nut earned an income of Rp2,351,000 or an average of Rp470,200 per farmer with a production cost of Rp1,074,000, while nutmeg provided the lowest income, namely Rp686,326 or an average of Rp228,776 per farmer with a production cost of Rp353,674. This is inseparable from the condition of nutmeg farming which is still relatively new to be developed by farmers, namely around three years. In addition, the number of farmers who cultivate nutmeg is also still very limited, namely only three respondents, so the scale of the business is still small. The use of seeds originating from village assistance indicates that nutmeg farming is still in the introduction or initial development stage, not as a business that has been intensively managed.

In general, variable costs, particularly labor, are the largest cost component for almost all commodities. Differences in income between commodities are influenced by production costs, production volume, selling price, and the scale of each business. Coconuts are the primary source of income for farmers, while vanilla, nutmeg, and areca nut are still supplementary businesses with relatively small contributions to farm income.

2. Contributions to Plantation Farming Businesses

Table 3. Total Income and Contributions from Plantation Farming Businesses

NO	Types of Farming	Farm Income	Contribution
1	Candlenut	61,172,500	17.07%
2	Coconut	267,206,631	74.57%
3	Cocoa	20,524,170	5.73%
4	Vanilla	6,384,837	1.78%
5	Nutmeg	686,326	0.19%
6	Betel nut	2,351,000	0.66%
Amount		358,325,464	100.00%

Source: Primary Data Processing Results, 2026

The contribution of each commodity's income to the total income of farmers' farming businesses is calculated based on the proportion of income generated by each type of farming business. Based on the calculation results, the total income of farmers' farming businesses is Rp358,325,464. Of this total, the largest contribution comes from coconut farming, at 74.57%. Next, candlenut farming contributes 17.07%, followed by cocoa at 5.73%. Meanwhile, the contribution from vanilla farming is relatively smaller, at

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1.78%. Areca nut and nutmeg farming provide the lowest contributions, at 0.66% and 0.19%, respectively. This data illustrates the proportion of each commodity's contribution to total farmer income in one year.

Farmers' income patterns in Narasaosina Village are influenced by the alternating harvest periods of various commodities throughout the year. Candlenut and areca nut harvests generally occur between January and March. Vanilla, nutmeg, and coconut are harvested in the first cycle in April and July, with vanilla harvesting in May and June. In August and October, farmers harvest cocoa and coconut in the second cycle, while in November and December, they harvest cocoa and coconut in the third cycle. This alternating harvest pattern demonstrates that although candlenut plays a significant role in farmers' income, farming diversification is still carried out to maintain income continuity throughout the year.

Based on research in Narasaosina Village, it was discovered that farmers' income comes not only from candlenut farming, but also from various other commodities such as coconut, cocoa, vanilla, nutmeg, and areca nut. Overall, these commodities contribute varying amounts to total farmer income.

The annual income from coconut farming in this study was Rp267,206,631, contributing 74.57% to the total income from plantation sub-sector farming. The results of this study indicate that coconut is the most dominant commodity in Narasaosina Village. This finding aligns with the research of Hayatudin and Maskur (2024), which stated that coconut farming remains profitable and viable. The dominant contribution of coconut in this study is thought to be influenced by the greater number of farmers cultivating coconut compared to other commodities, the relatively larger planted area, and the more stable continuity of production. These conditions make coconut the primary source of income in plantation sub-sector farming activities at the study site.

Candlenut farming generates an annual income of Rp61,172,500, contributing 17.07% to the total income of the plantation subsector in Narasaosina Village. This contribution is still lower than that of coconut (74.57%), so candlenut has not become a primary source of income for farmers. This condition is thought to be influenced by the seasonal nature of candlenut production, the harvest frequency which is generally only once a year, and suboptimal crop productivity. The results of this study are in line with Noy et al. (2019), who stated that candlenut farming remains profitable and feasible with an average income of Rp6,106,012.20 per respondent and an R/C ratio of 8.09. The difference in income is thought to be caused by differences in land area, production levels, selling prices, and farm management in each region.

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Differences in contributions between commodities indicate that the structure of farm income is location-specific. This is supported by Jeharu et al. (2024), who found that coffee farming contributed 48.47% to household income in West Detusoko Village, Ende Regency. Contrary to that study, coconuts dominated farm income in Narasaosina Village, contributing 74.57%.

Furthermore, cocoa farming generated an annual income of Rp20,524,170, contributing 5.73%. This result is relatively lower than previous studies that suggest cocoa can be a primary source of income for farmers, particularly in cocoa production centers. This difference is likely due to the low number of cocoa farmers (only 7 respondents) and the small scale of their businesses, which limits their contribution to farm income.

Vanilla farming generates an annual income of Rp6,384,837, representing a 1.78% contribution. Compared with previous research, vanilla is generally recognized as a high-value commodity, but requires intensive cultivation techniques and specialized skills. The low contribution in this study indicates that vanilla farming is still a secondary activity and is not yet optimally managed by farmers.

Meanwhile, areca nut farming provides an income of Rp2,351,000 per year with a contribution of 0.66%, and nutmeg farming Rp686,326 per year with a contribution of only 0.19%. These results indicate that both commodities still have a very small role in the structure of farmer's farm income . When compared to previous research, nutmeg and areca nut actually have quite good economic potential, but in this study the contribution is low because the number of respondents who cultivate it is very small and the age of the plants is relatively young, especially nutmeg which has only been developed for about 3 years.

CLOSING

Conclusion

1. The income earned from plantation sub-sector farming in Narasaosina Village, East Adonara District, East Flores Regency, is Rp358,325,464 per year. These results indicate that plantation sub-sector farming activities continue to provide economic benefits and serve as a source of income for farmers in the study area.
2. Coconut is the largest contributor to income in the plantation subsector of Narasaosina Village, contributing 74.57%, followed by candlenut at 17.07%, cocoa at 5.73%, vanilla at 1.78%, areca nut at 0.66%, and nutmeg at 0.19%. This indicates that coconut is still the dominant commodity in the plantation subsector of farming in the study area.

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Suggestion

1. Farmers are advised to increase the productivity of plantation crops through better maintenance and maintain commodity diversification so that income is more stable and does not depend on just one commodity.
2. The government is expected to increase outreach, mentoring, and support for production facilities to increase productivity and farmer income, especially for commodities that contribute low income.
3. For Researchers Further research is recommended to examine the factors that influence the income and contribution of each plantation commodity and their development strategies.

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