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Analysis of Marketing Channels and Efficiency Levels of Candlenut in Malek Mudi Forest Farmer Group

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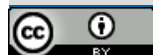
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ABSTRACT

Community forests in the Malek Mudi Forest Management Unit (KPH) have significant potential through the utilization of non-timber forest products (NTFPs), particularly candlenuts (*Aleurites moluccana*) managed by the Malek Mudi Forest Farmer Group. The utilization of candlenuts is closely related to the effectiveness of marketing channels, as these influence product distribution and farmers' income. Therefore, marketing analysis is necessary to evaluate the performance of marketing institutions involved in candlenut distribution. This study aimed to analyze the marketing channels and the level of marketing efficiency of candlenuts produced by the Malek Mudi Forest Farmer Group in KPH Pelangan Tastura. The research was conducted from May to July 2025 using a descriptive method with qualitative and quantitative approaches. Respondents were selected through purposive sampling, involving 28 farmers determined using the Slovin formula. Marketing actors were identified using the snowball sampling technique, including village collectors, collectors outside the village, inter-island traders, and retailers. The results showed two marketing channels. Channel I consisted of Farmers – Collectors within the village – Collectors outside the village – Retailers – Consumers, while Channel II consisted of Farmers – Collectors within the Village – Inter-island Traders – Consumers. The total marketing efficiency was 3.4% in Channel I and 4.6% in Channel II, and both channels were classified as efficient

INTRODUCTION

Candlenut (*Aleurites moluccana*) is a non-timber forest product that has significant economic value because it is used as a raw material for the food, cosmetics, and medicine industries (Baharuddin *et al.*, 2021). This commodity is highly competitive due to increasing market demand, making it a potential source of income for communities in various candlenut-producing regions.

In the Pelangan Tastura Forest Management Unit (KPH), candlenut is one of the leading commodities cultivated by the community, including the Malek Mudi Forest Farmers Group (KTH). The use of candlenut in the Community Forestry scheme provides a significant economic contribution to group members, especially for households that depend on non-timber forest products (Rahman (2023). However, the optimization of the economic value of candlenuts has not been fully achieved.

The main problems faced by candlenut farmers are irregular marketing channels and the involvement of different marketing institutions, which result in high marketing costs, large margins, and small *farmer's shares*. This condition is contrary to the principle of efficiency according to Tawarniate *et al.* (2017), which states that a marketing channel is considered efficient if the marketing margin is low and the price received by farmers is high. Variations in the long marketing channel structure cause the accumulation of costs in each marketing institution, thereby reducing the price received by producers and ultimately affecting farmers' income.

Based on these conditions, a more in-depth analysis is needed on how marketing channels are formed and how efficient they are in distributing candlenuts from farmers to consumers. This analysis is important because different marketing structures will result in different margins, marketing costs, and *farmers' shares*. The novelty of this research lies in the comparative analysis of two candlenut marketing channels at the forest farmer group level, particularly in assessing the role of local actors and inter-island traders in ensuring the absorption of production. Therefore, this study aims to identify candlenut

marketing channels and analyze their level of efficiency at Malek Mudi Forest Farmers Group.

METHODS

Study was conducted from May to July 2025 at the Malek Mudi Forest Farmers Group (KTH) located within the working area of the Pelangan Tastura Forest Management Unit (KPH). Study used a descriptive method with a qualitative and quantitative approach. The descriptive method was used to describe the research object or subject as it is in accordance with the conditions in the field (Syahrizal and Jailani, 2023). In the context of study, the descriptive method was applied to obtain an overview of the candlenut marketing channel and its efficiency level. The instruments used included office stationery for recording information, cameras as field documentation tools, questionnaires as the main instrument for collecting primary data, as well as laptops and Microsoft Excel software used to process data and calculate marketing margins, marketing costs, marketing profits, *farmers' shares*, and marketing efficiency.

Primary data was obtained through direct interviews using questionnaires with farmers and marketers. There were 28 farmer respondents determined using the Slovin formula, while marketers were determined using snowball sampling techniques, which included collectors within the village, collectors outside the village, inter-island traders, and retailers. In addition, secondary data was collected from official documents of KPH Pelangan Tastura, Malek Mudi Forest Farmer Group archives, and various literature relevant to this study.

The collected data were analyzed descriptively and quantitatively through the identification of marketing channels, the calculation of marketing margins and farmer's share, and an analysis of marketing efficiency calculated based on a comparison between total marketing costs and consumer prices. A marketing channel is considered efficient if its efficiency value is low and the farmer's share is high. The results of the analysis are then presented in the form of tables, diagrams, and descriptive explanations to provide a clear picture of

the candlenut marketing channel structure at Malek Mudi Forest Farmer Group.

- North : HKm Batu Bao Lestari
- South : Mareje Resort Area, Central Lombok
- West : Land owned by the Lendang Damai Village community
- East : Protected forest

RESULTS AND DISCUSSION

The 122.21-hectare Gunung Mareje Community Forest (HKm) is managed by the Malek Mudi Forest Farmers Group (KTH), located in Lendang Damai Hamlet, Mareje Timur Village, Lembar Subdistrict, West Lombok Regency. This area is part of the Pelangan Tastura KPHP working area. The government grants forest management permits to communities to improve the local economy and preserve the forest (Dewi & Ulfah, 2023).

Malek Mudi Forest Farmer Group boundaries:

Characteristics of Respondents

Age of Respondents

Age is data that shows the date, month, and year of a person's birth. Age is one of the factors that influence a person's decision-making process, as well as an indicator that can determine the level of success in carrying out farming activities (Gusti *et al.*, 2021). The age levels of respondents can be seen in Figure 1.

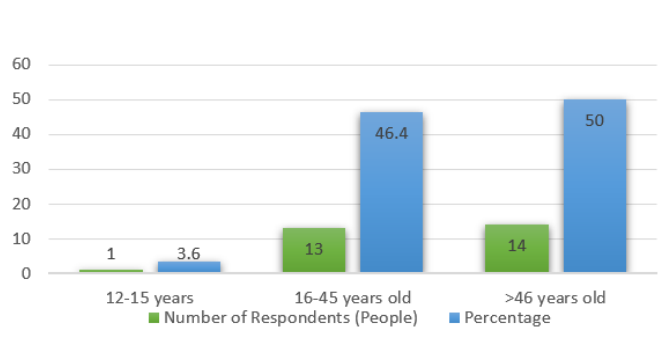


Figure 1. Respondent Age Diagram

Forest farmer group membership in HKm Malek Mudi is dominated by people aged 46 years and above. The low participation of younger generations is due to their tendency to choose other jobs that are considered more promising, such as trading or migrating abroad. This condition is also confirmed through field interviews, where most of the respondents encountered were elderly.

Respondents' Education Level

Education plays a role in improving a person's knowledge and abilities. This affects farmers' ability to receive and apply new information or innovations in their farming practices (Resmianto *et al.*, 2025). The respondents' education levels can be seen in Figure 2.

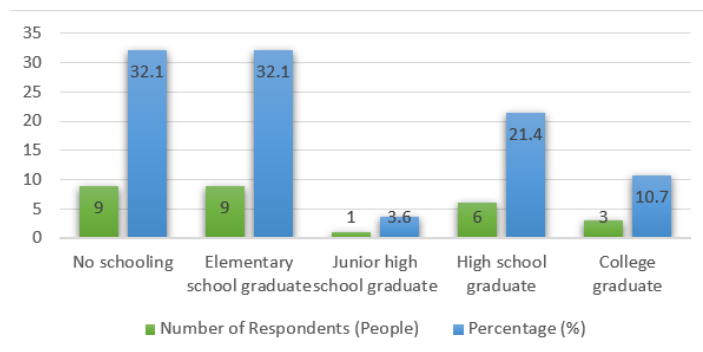


Figure 2. Diagram of Respondents' Education Levels

The predominance of respondents who did not attend school and only graduated from elementary school is closely related to the age of the respondents, most of whom are elderly. In their youth, limited family economic conditions and access to education in rural areas meant that formal education was not a priority, so many dropped out of school early due to family economic demands.

Livelihoods

The community in Lendang Damai Hamlet, Mareje Timur Village, is still highly dependent on forest products from the Gunung Mareje Community Forest. However some people also have side jobs. Details of the respondents' side jobs are presented in Figure 3 below.

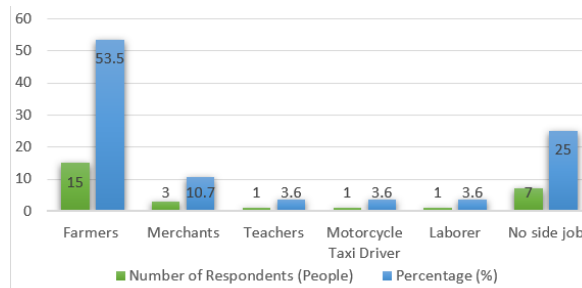


Figure 3. Diagram of Respondents' Side Livelihoods

The availability of job opportunities around the village, such as farming or trading, encourages respondents to seek additional income to improve their household welfare. This finding is in line with Juansyah's (2024) research, which states that side jobs are done to meet living needs that are not fully met by the main job, along with household living needs that continue to increase over time.

Farming Experience

Farming experience shows the length of time farmers have been engaged in farming activities. Farmers who have been involved in agriculture for a long time generally have more in-depth knowledge and understanding of land conditions than those who have just started farming (Gusti *et al.*, 2021). The following is Figure 4, which shows the number and percentage of farmer respondents based on their farming experience:

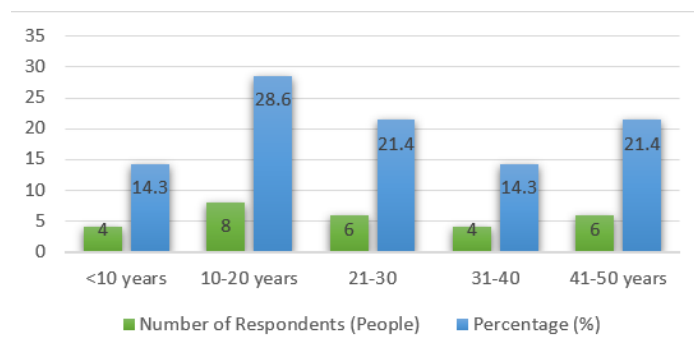


Figure 4. Diagram of Respondents' Farming Experience

Overall, these findings indicate that the majority of respondents have more than 10 years of farming experience, reflecting a relatively mature level of practical skills and knowledge in farm management. This opinion is in line with Agatha and Wulandari (2018), who argue that farmers with longer farming

experience tend to be more mature in their considerations when selecting and implementing innovations, and are more cautious in making farming decisions. Conversely, farmers with more limited experience tend to make decisions more quickly, but potentially face greater levels of risk.

Marketing Channels

Marketing channels describe the flow of products from farmers or producers to consumers, either directly or through intermediaries such as collectors, retailers, or exporters (Gurning *et al.*, 2024). Marketing channels are considered efficient if all marketing institutions involved feel satisfied (Limbong and Sitorus, 1987). Efficiency can also be seen from the length of the distribution chain, where the longer the marketing chain, the lower the level of efficiency. In addition, the amount of costs incurred during the marketing process also affects efficiency, so that the lower the costs required, the more efficient the marketing channel (Gurning *et al.*, 2024).

Marketing institutions actively involved in the distribution of candlenuts at HKm KTH Malek Mudi, namely:

1. Collectors: A place where farmers collect their candlenut harvest before reselling it, consisting of collectors within and outside the village (Juansyah, 2024).
2. Retailers: Institutions that obtain goods from collectors and sell them directly to consumers (Juansyah, 2024).
3. Inter-island traders: Buy products in large quantities from the area of origin to be distributed to other islands or regions, then sold to wholesalers or retailers (Gumelar, 2017).

The marketing channel used in KTH Malek Mudi, West Lombok Regency, is a Level 2 marketing channel. A level 2 marketing channel is a distribution channel that includes four parties, namely producers, collectors, retailers, and consumers (Anggriani, 2023). Through this channel, two marketing patterns are formed.

1. Producer → Collector (Within the Village) → Collector (Outside the Village) → Retailer

Marketing channel 1 shows that farmers sell raw candlenuts to collectors within the village, who then forward them to collectors outside the village to be processed through casting (opening the candlenut shells), scraping (cleaning the remaining skin), boiling, sorting, and packaging. Once the candlenuts are ready for use, the product is sold to retailers who market it directly to consumers in local markets (Bertais Market, Narmada Market, and Jelajok Market).

2. Producers → Collectors (within the village) → Inter-island traders

Marketing channel 2 shows that farmers sell raw candlenuts to collectors in the village, who then hand them over to inter-island traders to be processed through shelling (opening the candlenut shells), scraping (cleaning the remaining skin), boiling, sorting, and packaging before finally being distributed to Bali for marketing.

Marketing Margin of Candlenuts at KTH Malek Mudi

Marketing margin is the price difference between institutions in the marketing channel, which includes total marketing costs and profits earned by each party. The high or low margin is influenced by the length of the distribution channel. The distribution process involves intermediaries or agents, and the longer the channel, the greater the marketing margin formed, so that farmers' profits tend to decrease. Conversely, direct marketing from producers to consumers is the most efficient channel because it does not generate a marketing margin (Fauzi *et al.*, 2019). The marketing margin for candlenuts at KTH Malek Mudi is shown in Table 1.

Table 1. Marketing Margin for Candlenuts at KTH Malek Mudi

Marketing Channel	Marketing Institution	Purchase Price (IDR/Kg)	Selling Price (IDR/Kg)	Marketing Costs (IDR/Kg)	Gross Margin	Net Margin
1.	Manufacturer	-	10.000,-	-	-	-
	Collector (Within the Village)	10.000,-	12.000,-	707,-	2.000,-	1.293,-
	Collector (Outside the Village)	12.000,-	38.000,-	575,-	26.000,-	25.425,-
	Retailer	38.000,-	45.000,-	212,-	7.000,-	6.788,-
	Consumer	45.000,-	-	-	-	-
2.	Manufacturer	10.000,-	-	-	-	-
	Collector (Within the Village)	10.000,-	12.000,-	707,-	2.000,-	1.293,-
	Inter-Island trader	12.000,-	40.000,-	1.110,-	28.000,-	26.890,-
	Consumer	40.000,-	-	-	-	-

The difference in marketing margins occurs because collectors outside the village and inter-island traders sell candlenuts in processed form, namely through casting, grinding, boiling, sorting, and packaging, resulting in higher prices. In contrast, farmers and collectors within the village only sell raw candlenuts, so the margins they earn are much smaller.

Candlenut Marketing Costs at KTH Malek Mudi

Marketing costs are all expenses incurred from the time the product is finished being produced until it is resold, including distribution and sales costs, as well as the profits of marketing agencies. In the

process of distribution from producers to consumers, these costs are necessary to support smooth distribution and reflect the total expenses of producers and intermediaries as marketing agencies (Akbar *et al.*, 2018). There are two main marketing channels in the distribution of candlenut agricultural products, where each channel involves a marketing institution with a different cost structure according to its role and function. All marketing costs are borne by each marketing institution, while farmers do not bear any costs because the candlenuts are collected directly from their homes by the Village Collectors.

Table 2. Candlenut Marketing Costs at KTH Malek Mudi

Marketing Channels	Marketing Agency	Transportation (IDR)	Packaging Costs (IDR)	Carriage Costs (IDR)	Labor Costs (IDR)	Total Marketing Costs (IDR)
1.	Collector (Within the Village)	412,-	60,-	235,-	-	707,-
	Collector (Outside the Village)	50,-	60,-	90,-	375,-	575,-
	Retailer	0,-	32,-	180,-	-	212,-
2.	Collector (Within the Village)	412,-	60,-	235,-	-	707,-
	Inter-island traders	100,-	60,-	200,-	750,-	1.110,-

The highest marketing costs are incurred by Inter-Island Traders (Rp 1,110/kg) due to the high packaging costs required for long-distance shipping. The next highest costs are incurred by Village Collectors (Rp 707/kg), mainly due to high

transportation costs resulting from the long distance from the city and poor road conditions. Meanwhile, for Out-of-Village Collectors and Inter-Island Traders, labor costs include casting, grinding, boiling, sorting, and packaging processes.

Marketing Profits for Candlenuts at KTH Malek Mudi

Marketing profits are derived from the difference between the selling price and the total marketing costs incurred. The number of institutions involved in the distribution channel affects the size

of the profit, where the more parties involved, the lower the profit per institution tends to be, impacting the overall efficiency of the marketing channel (Anggriani, 2023).

Table 3. Candlenut Marketing Profits at KTH Malek Mudi

Marketing Channel	Marketing Institution	Profit (IDR/Kg)
1.	Collector (Within the Village)	586,-
	Collector (Outside the Village)	24.850,-
	Retailer	6.576,-
2.	Collector (Within the Village)	586,-
	Inter-island traders	25.780,-

The profits of collectors outside the village and inter-island traders are higher because they buy raw candlenuts at low prices and then process them into high value-added products, which can be sold at much higher prices. This process gives them a much greater profit margin than institutions that only sell raw candlenuts.

Farmer Share of Candlenuts at KTH Malek Mudi

Farmer's share is the ratio between the price received by farmers and the price paid by consumers, generally expressed as a percentage (Pangemanan *et al.*, 2023). This indicator is used to determine how much of the price farmers receive for each product sold (Zakaria & Lifianthi, 2022). The farmer's share is calculated by comparing the price received by

producers with the price paid by consumers (Pangemanan *et al.*, 2023):

- Marketing Channel 1 :

$$FS = \frac{Pf}{Pr} \times 100\%$$

$$FS = \frac{Rp. 10.000}{Rp. 45.000} \times 100\%$$

$$FS = 22 \%$$

- Marketing Channel 2 :

$$FS = \frac{Pf}{Pr} \times 100\%$$

$$FS = \frac{Rp. 10.000}{Rp. 40.000} \times 100\%$$

$$FS = 25 \%$$

Table 4. Farmer's Share of Candlenuts at Malek Mudi Smallholder Group

Marketing Channel	Farm-Gate Price (IDR/Kg)	Farmer's Share (%)
1.	10.000,-	22
2.	10.000,-	25

According to Prasetyo *et al.* (2015) in Pangemanan *et al.* (2023), a marketing channel is considered efficient if the farmer's share exceeds 50%, while a value below that indicates inefficiency. However, the farmer's share of candlenuts at KTH Malek Mudi is only 22–25%, indicating that most of the price paid by consumers is enjoyed by

intermediary institutions. This shows that the longer the marketing channel, the smaller the portion of income received by farmers.

Marketing Efficiency of Candlenuts at KTH Malek Mudi

A marketing channel is considered efficient if all institutions involved feel they are benefiting

(Limbong & Sitorus, 1987). Efficiency is also influenced by the length of the distribution chain and the amount of marketing costs; the longer the channel and the higher the costs, the lower the efficiency (Gurning *et al.*, 2024). An analysis of marketing efficiency in the marketing channel at KTH Malek Mudi can be seen through the following calculation.

1. Marketing Channel 1 :

a. $EP = \frac{TB}{NP} \times 100\%$
 $EP = \frac{Rp.707}{Rp. 45.000} \times 100\%$
 $EP = 1,6 \%$

b. $EP = \frac{TB}{NP} \times 100\%$
 $EP = \frac{Rp.575}{Rp. 45.000} \times 100\%$
 $EP = 1,3 \%$

c. $EP = \frac{TB}{NP} \times 100\%$
 $EP = \frac{Rp.212}{Rp. 45.000} \times 100\%$
 $EP = 0,5 \%$

2. Marketing Channel 2 :

a. $EP = \frac{TB}{NP} \times 100\%$
 $EP = \frac{Rp.707}{Rp. 40.000} \times 100\%$
 $EP = 1,8 \%$

b. $EP = \frac{TB}{NP} \times 100\%$
 $EP = \frac{Rp.1110}{Rp. 40.000} \times 100\%$
 $EP = 2,8 \%$

Table 5. Marketing Efficiency of Candlenuts at KTH Malek Mudi

Marketing Channel	Marketing Agency	Total Marketing Cost (IDR/Kg)	Consumer Price (IDR/Kg)	Marketing Channel Efficiency (%)
1	Collector (Within the Village)	707	45.000	1,6
	Collector (Outside the Village)	575	45.000	1,3
	Retailer	212	45.000	0,5
2	Collector (Within the Village)	707	40.000	1,8
	Inter-island traders	1.110	40.000	2,8

The marketing efficiency rate of candlenuts at KTH Malek Mudi in Channel I reached a total of 3.4% respectively, making this channel efficient. In Channel II total of 4.6%, which also indicates that this channel is efficient. In general, these findings show that both candlenut marketing channels at KTH Malek Mudi are operating efficiently. This is in line with the market efficiency decision rule according to Hutajulu *et al.* (2022), which states that a marketing channel is considered efficient if the EP value is less than 5%, while a channel with an EP value exceeding 5% is considered inefficient.

CONCLUSION

Based from the results of the analysis that has been carried out, it can be concluded that:

1. There are two marketing channels for candlenuts at KTH Malek Mudi, namely:

Marketing channel I: Farmers – Collectors within the village – Collectors outside the village – Retailers – Consumers.

Marketing Channel II: Farmers – Collectors within the Village – Inter-island Traders – Consumers.

2. The marketing efficiency level of candlenuts at KTH Malek Mudi in Marketing Channel I with three marketing institutions (In-Village Collectors, Out-of-Village Collectors, and Retailers) is 1.6%, 1.3%, and 0.5%, respectively, so that the total marketing in Channel I is 3.4%, making this channel efficient. In Marketing

Channel II with two marketing institutions (Village Collectors and Inter-Island Traders), the efficiency levels of each institution are 1.8% and 2.8%, respectively, so that Channel II has a total marketing efficiency value of 4.6%, which also indicates that this channel is efficient.

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