



Analysis of Income on The Candlenut Farming in Raimanus Village, Raimanuk District, Belu Regency

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Abstract

This study aims to determine (1). general description of candlenut farming in Raimanus Village, Raimanuk District, Belu Regency, (2). To find out the analysis of candlenut farming income in Raimanus Village, Raimanuk District, Belu Regency (3). To find out the relative advantages of candlenut farming in Raimanus Village, Raimanuk District, Belu Regency. The research was conducted in November - December 2019. The data collection technique used a survey method with primary data and secondary data. The sample used in the study was 30 respondents. The data analysis method in the study is in the form of a descriptive model, income analysis, and benefit cost ratio (BCR), the net result in 2018 is Rp. 116,221,453, relative profit= 2.42 so that candlenut farming in Raimanus Village, Raimanuk District, Belu Regency is profitable/provides benefits to farmers in Raimanus Village.

Keywords: Income analysis, benefit cost ratio, candlenut farming,

A. Introduction

The candlenut plant is one of the long-lived plants that has many benefits in farming activities in the marketing and processing of candlenut fruit for the lives of the surrounding community. The candlenut plant is one of the plant products that grow in Indonesia which has many benefits in the leaves, candlenut seeds and also the candlenut tree which is useful for human life. The income obtained from the sale of candlenuts is very large, both whole candlenuts and cracked candlenuts have a very high market value. Candlenut (*Aleurites moluccana Willd*) is a group of annual plants with one of the versatile trees. This plant, which has been widely grown in Indonesia for a long time, belongs to the *Euphorbiaceae* family. Candlenut is a basic ingredient for paints, varnishes, inks, soaps, wood preservatives, hair oil and batik ingredients, while the seeds are used as a spice for cooking, even for thrush, toothache, diarrhea, fungal infections, and insomnia (Heyne, 1987; Kusumawati, 2007). 2017; Scott & Craig, 2000). Even according to Elevitch & Manner (2006), the dregs of the hazelnut seeds that have been extracted from the oil can be used as fertilizer.

The production and area of candlenut planting continues to increase, in 2011 the production of candlenut was 99,500 tons with a planted area of 206,700 ha, until in 2014 it reached 215,560 ha with production of 107,300 tons of candlenut (Ditjen Perkebunan, 2015). Plant hazelnut is common and found in East Nusa Tenggara, Climate in Nusa Tenggara East is very suitable for the cultivation of plants hazelnut, supported by the amount of donations the number of residents in Nusa Tenggara East most big-eyed subsistence sector of agriculture (Ginoga and Santoso, 1989), so it can be said Pecan fruit is no stranger to the people of East Nusa Tenggara, especially in Raimanus Village, Raimanuk District, Belu Regency.

Processing of candlenut fruit (*badut fuan*) to produce candlenut seeds that are ready to be processed requires a long process, starting from harvesting, drying and breaking the shell of the pecan seeds. Cracking the shell of the pecan seed is very difficult because it has a very hard physique, while the flesh of the pecan seed is easily broken when hit by a collision. People in Indonesia generally break the shells of the candlenut seeds by hitting them on a stone base and by clamping the seeds to the betel nut and gewang tree trunks, the skin of which is dried and then slamming into a stone that has been prepared and the contents of the candlenut fruit will separate from the shell. This traditional method used by the community takes a long time and approximately 2 weeks. the process of drying the hazelnut seeds takes approximately 1 week, and the process of separating the contents of the hazelnut seeds from the shell takes approximately one week if the pecan seeds are in large quantities.

One of the candlenut producing areas in East Nusa Tenggara Province, especially in Raimanus Village, Raimanuk District, Belu Regency. Candlenut production data in NTT in 2018 was 785.97 tons, in Belu Regency in 2018 it was 442.71 tons, in Raimanuk District the candlenut production in 2018 was 31 tons with a land area of 52 hectares from 9 villages with an area of 179, 42 km². (BPS Kab. Belu, 2018). Candlenut farming is an annual plant that produces since the age of 5-50 years. The income earned on the candlenut plant occurs during the production period. One thing that is very influential on the income of candlenut farmers is in terms of marketing. The price of candlenut seeds sometimes increases and sometimes decreases with a variable price from Rp. 19,000/Kg to 25,000/Kg in Raimanus Village.

Different price levels lead to different profits. The profits obtained are influenced by the level of prices received by farmers. A study related to farmer's income was carried out by analyzing the income of Candlenut Farming in Raimanus Village, Raimanuk District, Belu Regency.

B. Methodology

This research will be conducted in Raimanus Village, Raimanuk District, Belu Regency in April 2019 until it is completed.

Technique of Data Collection

The method used in this research is a survey method. The types of data used are primary data and secondary data. Primary data was conducted through direct observation or observation from interviews using a list of questionnaire questions. Secondary data is data obtained from references or reading books, previous research, and related agencies.

Sampling method

The method used in sampling is done by survey by looking at how many farmers have candlenut land and who don't have candlenut land, from several hamlets. 448 householders total population taken from one village. The number of samples as many as 30 people taken by quota sampling.

Data analysis method

1. Qualitative descriptive method.

This method is used to determine the general description of candlenut farming in Raimanus Village. Descriptive method is also to solve qualitative problems.

2. Quantitative Descriptive Method

2.1. Candlenut farming income

To find out the amount of candlenut farming income in Raimanus Village, the formula according to Soekartawi (2002) is used as follows:

$$I = TR - TC \dots \dots \dots (1)$$

Where

$$\begin{aligned} TR &= Y \cdot Py \\ TC &= FC + VC \end{aligned}$$

Information

I = Candlenut Farming Income
 TR= Candlenut Farming Revenue
 TC= Total Cost of Candlenut Farming
 Y = Candlenut Production (Kg)
 Py = Price of Pecan Seeds (Rp/Kg)
 FC= Fixed Cost of Candlenut Farming
 VC = Variable Cost of Candlenut Farming.

2.2. Benefit Cost Ratio (BCR)

Benefit Cost Ratio (BCR) is a comparison between the benefit value and the cost value of an investment at a predetermined interest rate. A BCR value greater than one indicates a profitable investment (Soetriono, 2006).

$$B/C = \frac{Bt}{TC} \dots \dots \dots (2)$$

Where :

BCR = Comparison between income and expenses
 Bt = Benefit (cash inflow in period-t)
 TC = Total cost
 t = Time period

With BCR criteria > 1, the business is declared profitable and vice versa if BCR < 1 means the business is losing.

C. Findings and Discussion

Overview of Research Sites

Raimanus Village is one of the villages in the Raimanuk District with an area of 56 km², the distance from Raimanus Village from the district capital using two and four-wheeled vehicles can be reached in 2.5 hours with a distance of 48 km. The topography is valley, rocky, and plain with coarse and fine soil texture, rainfall <1,000 mm/year with a duration of 12 months, namely January – December 2018. The boundaries of Raimanus Village are as follows: West of Rafa'e and Te'un Villages, East of Renrua Village, North of Faturika and Duakoran Villages, South of Raiulun and Kusa Villages.

Overview of Candlenut Farming .

Candlenut plant is one of the crops that produce a source of income. The candlenut plant in Raimanus Village began to be planted in 1971, a government program from the Belu District Forestry Service was held , by planting the candlenut plant whose plant seeds were 1 year old, and the candlenut plant seeds obtained from the Forestry Service and planted in the Mandeu community forest area with an area of 25 hectares of land in the Raimanus Village area, which was planted on local community land in 1996 the government called it a people 's forest area , several plants planted together contain several long-lived plants such as teak, mahogany, coconut. cashew, (BPS Kab. Belu, 1996). The candlenut plant in Raimanus Village is an agroforestry plant. The candlenut plant is currently producing in Raimanus Village, Raimanuk District, Belu Regency.

- Maintenance.

The maintenance of candlenut plants in Raimanus Village by cleaning weeds that grow around the candlenut plants and candlenut plants in Raimanus Village does not use fertilizer. Farmers in Raimanus Village do not give fertilizer to the cultivated candlenut plants. The candlenut cropping pattern in Raimanus Village is carried out with a distance planting pattern that is planted on the edge of the garden so that in the middle of the land it can be planted or processed with several other plants, and also as a land barrier.

Candlenut plants begin to bear fruit at the age of 5 years. A 5-10 year old candlenut plant produces 10 kg/tree and in the 11-25 year year it produces 25-30 kg/tree.

- Harvest

The harvesting technique is carried out by selecting candlenuts that have fallen to the ground. Post-harvest activities on pecan fruit are carried out by peeling the outer skin of

the candlenut fruit, drying it by drying it in the sun and doing sorting, after that, splitting the candlenut to separate the contents of the candlenut.

- Post-harvest

Solving candlenut uses stones and areca nut which are made similar to candlenut and are based on available stones. At the time of splitting the candlenut, some of the candlenut contents were intact, and some were still attached to the candlenut shell so they had to be separated again using a nyiru and a small knife. The contents of the clean candlenut will be filled in existing sacks for marketing to street vendors at a price of 21,000/kg.

Cost, Revenue and Profits of Candlenut Farming.

1. Cost Analysis

1.1. Fixed Cost of Candlenut Farming in Raimanus Village

Fixed costs (*Fixed Cost*) is the cost incurred by the processing business pecan whose use is not exhausted in one production period. The size of the production cost is not influenced by the amount of production produced by the candlenut processing business. There are several components of fixed costs including equipment depreciation costs and land taxes. Briefly, it can be shown in Table 1.

Table 1. Fixed Costs of Candlenut Seed Business

Equipment Type	Amount	Unit Cost	The amount of costs	Cost of depreciation
Crowbar	47	20,000	1	40,054
Trowel	41	5,000	1	10,728
Bag	274	5,000	1	1,165,500
Small knife	128	10,000	1	170,000
Nyiru	153	5,000	1	170,000
Total	643			1,555,283
		30.5		
Land tax		(Ha)		2,034,000
Total				3,589,283
Average				119,642

Source: primary data (processed), 2020

Data in Table 1, it can be explained that there are several Fixed Costs, namely equipment depreciation costs and land tax costs, equipment depreciation costs of Rp 1,555,283 and land tax of Rp 2,034,000; so that the total fixed costs of Rp 3,589,283 average fixed costs of Rp 119,642.

1.2. Variable Cost of Candlenut Business in Raimanus Village

Variable costs are costs whose amount is highly dependent on the amount of production. Variable costs in the candlenut business are found in consumption costs during, harvest and post-harvest with the farmers' costs per day being Rp. 15,000-25,000/day for the purchase of betel nut, tobacco sek, with consumption costs of Rp. 44,451,427, with an average cost consumption is Rp. 1,481,714 with a range of Rp. 957.143 to Rp. 5,342,857 per farmer per year.

1.3. Total Cost of Candlenut Business in Raimanus Village

Previous studies, namely Bunga (2016), Sambira *et al.*, (2018), and Risna *et al.*, (2019) related to the analysis of candlenut income resulted in the finding that candlenut is feasible to cultivate because the income ranges from Rp. 3,000,000 to Rp. IDR 7,000,000.

The results of this study also show that the total cost of a business is the total cost, which consists of fixed costs and variable costs. Each business has different total costs, fixed costs are found in consumption costs during, harvest and post-harvest with daily usage of 15,0000.00-25,000.00/day and variable costs are found in equipment owned by farmers by purchasing tools such as crowbars, tajak, sacks, knives, nyiru. each farmer has more than one with an average price / crowbar of Rp. 20,000, 1 piece of tajak of Rp. 5,000, in 1995, 1 sack of Rp. 5000, 1 small knife of Rp. 10,000, and 1 piece of nyiru, amounting to Rp. 5000, where the total cost of a business is determined by the amount of fixed costs

and variable costs of the business concerned. The candlenut business in Raimanus Village has a total cost of IDR 48,040,712; with an average cost of IDR 1,601,357. for more details can be seen in Table 2.

Table 2. Fixed costs of candlenut farming costs in 2018

No	Description	Amount (Rp)
1	Variable Cost	44,451,427
2	Fixed cost	3,589,283
	Amount	48,040,712

Source: primary data (processed), 2020

Receipt of Pecan Seed Business.

Income is the difference between the receipt of production results and the total production costs incurred by the candlenut processing entrepreneur. The income earned by candlenut processing entrepreneurs is strongly influenced by the level of production and is supported by the level of the selling price of the product itself. Candlenut business income in Raimanus Village is Rp. 116,557,288; with an average income of Rp 3,885,243; The results of this study strengthen the results of previous studies Bunga (2016), Sambira *et al.*, (2018), and Risna *et al.*, (2019) where the income ranges from Rp. 15,000,000 – Rp. 20,000,000.

Pecan Seed Business Income

Income is the difference between the receipt of production results and the total production costs incurred by the candlenut processing entrepreneur. The income earned by the candlenut processing entrepreneur is strongly influenced by the high and low production yields and is supported by the level of the selling price of the product itself. Candlenut seed business income in Raimanus Village is Rp. 114,120,971; with an average income of IDR 3,804,032 per farmer per year in Raimanus Village; The results of this study strengthen the results of previous studies Bunga (2016), Noy *et al.*, (2019), Sambira, *et al.*, (2018), and Risna., *et al* (2019) whose income ranges from Rp 15,000,000 – Rp. 20,000,000 per farmer in Bangka Arus Village, East Poco Ranaka District, East Manggarai Regency.

By using the income formula.

$$I = TR - TC$$

$$I = 164.498.000 - 50.477.029$$

$$= \text{IDR } 164.498.000$$

Relative advantage

1. Benefit cost Ratio (B/C ratio)

B/C (Benefit Cost) Ratio is the comparison between the total profit of the candlenut processing business with the total costs incurred. Net profit or income for candlenut business in Raimanus village is Rp. 116,557,288; while the total cost of the candlenut business was Rp 44,040,712; and to get the B/C ratio it can be calculated as follows:

$$= \text{Rp. } 116,557,288 / \text{Rp. } 44,040,712;$$

$$= 2.42$$

So the value of the B/C ratio for the candlenut business in Raimanus Village is 2; it means that the candlenut business carried out provides benefits, because the B/C Ratio value > 0. The results of this study are in line with previous studies of Bunga (2016), Sambira *et al.*, (2018), and Risna *et al.*, (2019) whose B/C ratio is > 0.

D. Conclusion

From the above discussion it can be concluded that the processing of candlenut seeds is seen from several stages, namely planting, harvesting and post-harvesting,

1. Candlenut planting begins to be planted at the age of 1 year, begins to produce at the age of 5 years, Candlenut plants are harvested on brown fruit that has fallen to the ground and the hazelnut skin is separated. Post-harvest on the candlenut plant is done by drying and sorting so that the dried candlenut is easy to carry out the process of breaking the candlenut. To separate the contents of the candlenut seeds from the candlenut shell to get the candlenut contents that are ready to be marketed/weighed.

2. Candlenut farmers' income in Raimanus Village, Raimanuk District, Belu Regency, is IDR 116,557,288 per year with an average income of IDR 3,885,243.
3. The relative advantage in Raimanus Village with a value of 2.42 so that the candlenut plant in Raimanus Village is profitable or provides benefits to farmers in Raimanus Village.

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