



Analysis of Income from Deep Coconut Farming and Farmers' Welfare Level in North Buton Regency

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ABSTRACT

Family well-being refers to the conditions where a family's physical, material, mental, spiritual, and social needs are met, enabling them to lead a decent life within their environment. Coconut plants have high economic value as all parts of the plant can be utilized. North Buton holds significant potential for developing deep coconut plantations. However, coconut farmers in North Buton generally only produce copra and activated charcoal for sale, resulting in a limited contribution to increasing farmers' income and, consequently, their welfare. This study aims to analyze the income of coconut farming in North Buton and the level of farmers' welfare. The study sample consisted of 60 farmers selected through purposive sampling, who met the following criteria: they managed their own land, with at least 1 hectare, the coconut trees were productive, and they had been farming deep coconut for over 10 years. The results show that the average land area owned by farmers is 2 hectares, with an annual production of 22,891 coconuts. Farmers with 3.0-4.0 hectares of land had the highest income, averaging IDR 2,257,841 per month. Household income is allocated for food and non-food needs, with food consumption averaging IDR 1,163,000 per month and non-food consumption at IDR 1,530,000. Overall, the welfare level of deep coconut farmers' households in North Buton is categorized as prosperous, as the percentage spent on non-food needs exceeds that spent on food.

Keywords: Income, Welfare, Farming, Deep Coconut

INTRODUCTION

Indonesia is said to be an agrarian country with pervasive natural resources, including agricultural resources. Indonesia is recorded to have agricultural land covering an area of 36,817,086 hectares in 2019, divided into rice fields by 20%, tegal/gardens by 34%, fields/huma by 14%, and unused land by 32%. (Agricultural Statistik, 2023). This vast land is expected to increase farmers' income and welfare, so it is appropriate that the development of the agricultural sector aims to increase farmers' welfare and income by optimizing production yields. Agricultural development is also expected to support and prepare the need for raw materials for domestic industries that continue to grow; this increase in production is also directed to encourage foreign exchange earnings by exporting agricultural products. (Arifin, 2006).

Indonesia, an agrarian country, is unsurprising that most of its population makes a living as farmers. One agricultural sub-sector that plays an important role in the community's and national economies includes the deep coconut plantation sub-sector. Deep coconut plants are one of Indonesia's commodities with quite potential and are strategic because of their significant role in the community. This is because coconuts are trees whose parts of the plant have economic value as a source of income (Fajrin & Muis, 2016).

Deep coconut (*Cocos nucifera L.*) is one of the many plantation crops with enormous economic potential for Indonesia. Inner coconut has a relatively high economic value because it can produce derivative products such as coconut oil, copra, coconut milk, and other processed products. Deep coconut plants also significantly contribute

to farmers' income in the tropics. However, despite its great economic potential, many coconut farmers still face various challenges that affect their income and welfare, including price fluctuations, high production costs, and limited market access (Yanti et al., 2022)

According to Mudatsir (2021), the essential thing in developing household welfare is income because one of the aspects supporting household welfare depends on income. In other words, the fulfillment of needs depends on the income level; the higher the household income, the higher the percentage of fulfillment of non-food needs will be compared to the fulfillment of food needs. Family well-being refers to dynamic conditions in which a family's physical, material, mental, spiritual, and social needs are met, allowing them to live a decent life according to their environment (Yanti et al., 2022). Meanwhile, the level of family welfare is a concept that describes the quality of life of an individual or community in a certain period (Suyanto, 2014).

Yanti et al. (2022) stated that farmers' income is obtained from various business activities, including farming products involving family labor. On the other hand, household expenditure includes food and non-food needs, which differ (Saragih et al., 2020). Consumption is the expenditure made by households on goods and services to meet their needs. People's purchases of food, clothing, and various other necessities are included in the consumption category (Pratiwi et al., 2022).

North Buton has considerable opportunities to develop agribusiness for deep coconut plants. During the last five-year period (2015–2019), the area of deep coconut land was recorded at an average of 5,240.4 hectares, with an average annual production of 3,039,800 kilograms and a productivity of around 582.48 kilograms per hectare (Hasrin et al., 2023). Deep coconut farming in North Buton Regency has not been integrated with supporting sectors such as the processing industry, upstream industry, services, finance, and marketing. Deep coconut farmers in the area generally only produce copra and activated charcoal for sale, while cooking oil, fresh coconut, and coconut milk are produced for personal consumption. As a result, deep coconut farming has not been able to distribute added value optimally and proportionately. This has a less significant impact on the increase in farmers' incomes, ultimately affecting their well-being (Hasrin et al., 2023). Based on the above issues, this study aims to 1) identify the conditions of deep coconut farming, 2) analyze the income of deep coconut farming, 3) evaluate the income allocation of deep coconut farmers, and 4) assess the level of welfare of deep coconut farmers in North Buton Regency.

RESEARCH METHODS

This research was conducted in North Buton Regency, Southeast Sulawesi Province, in July 2024. The data used is quantitative data derived from primary data and secondary data. Primary data was obtained directly from deep coconut farmers in North Buton, while secondary data was obtained from BPS, journals, and other literature studies. The data is collected through observation, interviews, documentation, and literature studies. The sample in this study consisted of 10 deep coconut farmers in each sub-district, who were selected using *the purposive sampling method* so that the total respondents reached 60 people. *Purposive sampling* is a method carried out deliberately and based on specific criteria for the research. The sampled respondents met the following criteria: managing their coconut land, a land area of at least 1 hectare, coconut plants that were already producing, and having been running coconut farming for more than 10 years.

Data Analysis

Data analysis simplifies data into a form that is easier to understand and interpret. The collected data were then analyzed as follows:

1. Descriptive Analysis

In the first objective of this study, descriptive analysis is used to describe or provide explanations with words or sentences so that it is easy to understand the general state of deep coconut farming in the North Buton Regency.

2. Farming Income of Coconut Farmers in

In the second objective of this research, the analysis of farming income using the formula (Hermanto, 1998) is used as follows:

$$FI = TFR - TAE$$

$$FI = (Sp.Pc) - (TFC + TVC)$$

Information:

- FI = Farm Income (Rp/Year)
TFR = Total Farm Revenue (Rp/Year)
TAE = Total Agricultural Expenditure (Rp/Year)
Pc = Production (Btr/Th)
Sp = Selling Price (Rp/Btr)
TFC = Total Fixed Costs (Rp/Year)
TVC = Total Variable Costs (Rp/Year)

3. Income Allocation of Deep Coconut Farming

In the third objective of this study, quantitative descriptive analysis was applied to identify the proportion of income allocation used to meet food and non-food needs in deep coconut farmer households.

a. The percentage of food defense by deep coconut farmers.

To determine the proportion of food consumption expenditure of coconut farmer households in quantitative descriptive analysis (Ilham & Sinaga, 2008) with the formula:

$$PFE = \frac{FEA}{FEA + ANFE} \times 100\%$$

Information:

- PFE = Percentage of Food Expenditure
FEA = Food Expenditure Allocation
ANFE = Allocation of Non-Food Expenditure

b. Percentage of non-food expenditure of coconut farmers in

To determine the percentage of non-food defense of coconut farmers in a citation descriptive analysis (Ilham & Sinaga, 2008) with the formula:

$$PNFE = \frac{NFE}{FS + NFE} \times 100\%$$

Information:

- PNFE = Percentage of Non-Food Expenditure
FS = Food Spending
NFE = Non-Food Expenditure

4. Welfare Level of Coconut Farmers in

In the fourth objective of this study, a descriptive analysis with welfare criteria is used in the form of a sentence description (Pratiwi et al., 2022)

The criteria for the welfare of coconut farmer households are:

- a. If the allocation of food expenditure is < 50% of the total expenditure, then the household is classified as Prosperous
- b. If the allocation of food expenditure is between 50-60% of the total expenditure, then the household is classified as pre-prosperous.

If the allocation of food expenditure is > 60% of the total expenditure, then the household is classified as unprosperous.

RESULTS AND DISCUSSION

Deep Coconut Farming

In general, the state of deep coconut farming in North Buton Regency, starting from the state of the area of deep coconut land, the number of deep coconut trees, and the state of the amount of deep coconut production owned by respondent farmers, can be presented in Table 1.

Table 1. General Situation of Deep Coconut Farming in North Buton Regency

No	Characteristic	Quantity/unit	Average / unit
1	The area of coconut land in	139 hectares	2 ha
2	Number of coconut trees in	16,680 Trees	278 Trees
3	Production quantity	1.373.439 Butir	22,891 Grains

Source: Primary Data, 2024

In Table 1, described earlier, the total area of deep coconut land from 60 interviewed respondents amounted to 139 ha, with an average of 2 ha per person. Farming land ownership is one of the main factors controlling farming income. The larger the farming land cultivated by farmers, the greater the farming income received by farmers. Meanwhile, the number of deep coconut trees owned by 60 interviewed respondents is 16,680 trees, with an average of 278 trees per person. The number of deep coconut trees owned by farmers will affect the high and low coconut production itself, ultimately affecting the income received by farmers. The more deep coconut trees farmers plant, the more production they will obtain, increasing farmers' income. Farjin and Muis (2016) stated that the number of coconut plants affects the production of deep coconut farming. Meanwhile, the amount of coconut production from 60 respondents who have been interviewed is 1,373,439 grains per year, with an average of 22,891 grains per person per year. This means farmers with deep coconut plants with a land area of 2 ha have 278 deep coconut trees with a total production of 22,891 grains per year.

Farming Income of Deep Coconut Farmers

Farmers' income is the primary source of income in meeting daily household needs. The income of farmers in North Buton Regency varies greatly, ranging from high coconut farming income to other farming income and non-farming income. However, in this study, the researcher only analyzed farmers' income from deep coconut farming. Income from deep coconut farming activities will be obtained after making sales. The average income from deep coconut farming cultivated by respondent farmers in North Buton Regency is presented in Table 2.

Table 2. Average Income of Deep Coconut Farming Based on Land Area in North Buton Regency

No.	Freq. of Land Area	Number of Respondents	Total Admissions	Total Cost	Total Revenue	Average Monthly Income	Average Monthly Per Person Income	Average Annual Per Person Income
1	1,0-1,9	19	284.543.300	97.630.196	186.913.104	15.576.092	819.794	9.837.532
2	2,0-2,9	21	571.212.000	199.925.825	371.286.175	30.940.515	1.473.358	17.680.294
3	3,0-4,0	20	833.571.000	291.689.259	541.881.741	45.156.812	2.257.841	27.094.087
Sum		60	1.689.326.300	589.245.280	1.100.081.020	91.673.418	4.550.993	54.611.913

Source: Primary Data, 2024.

The income from deep coconut farming farmers receives varies depending on the area of cultivated land they cultivate. Based on the area of land cultivated for deep coconut farming in North Buton Regency contained in Table 2, it can be seen that farmers who have a land area between 1.0-1.9 ha have an average income of Rp. 819,794 per month or equivalent to Rp. 9,837,532 per year. Meanwhile, farmers with arable land area of 3.0 - 4.0 ha have an average income of Rp. 2,257,841 or equivalent to Rp. 27,094,087 per year. This explains that the larger

the arable land owned by farmers in deep coconut farming, the higher the income received by farmers. Masse and Afandi (2017) state that the farmer owns the more deep coconut trees, the higher the income the deep coconut farmer receives. This farming income will significantly improve the welfare of farming families in the North Buton Regency.

Household Income Allocation of Deep Coconut Farmers

Household income allocation is used for food and non-food needs (Yanti et al., 2022). Household consumption expenditure of coconut farmers in North Buton Regency covers two main categories. First, foodstuff expenses include necessities, side dishes, kitchen spices, children's snacks, etc. Second, expenditure on non-food consumption, such as electricity and water bills, toiletries and laundry, clothing, education costs, etc. Information on the household income allocation of deep coconut farmers in North Buton Regency is presented in Table 3.

From Table 3, which has been presented, it can be seen that the household income received by coconut farmers allocated for food needs every month reaches Rp: 1,163,000 or 43.19%. Meanwhile, the allocation of income for non-food needs reached Rp: 1,530,000 or 56.81%. The amount of expenditure on non-food needs is in line with Engel's law, which states that the greater a person's income, the smaller the part of the income allocated for food consumption needs (Karolina. A. et al., 2016). The sea surrounds the North Buton Regency and has fertile agricultural land for household food such as staple foods. Side dishes are easy to get, the price is relatively low, and many farmers have side jobs to grow tubers and vegetables, even as fishermen. The most significant non-food expenditure on coconut farmers is the cost of education. Most deep coconut farmers in North Buton Regency have dependents to send their children to college, so the cost incurred for education is very high. Many farmers have credit in banks for their children's education costs.

Table 3. Average Monthly Income Allocation of Households of Deep Coconut Farmers in North Buton Regency.

No	Types of Production	Installment- installment (Rp)	Percentage (%)
A	Food		
1.	Staples	600.000	22,28
2.	Lauk Bang	80.000	2,97
3.	Vegetables	30.000	1,11
4.	Bumbu	15.000	0,56
5.	Air	68.000	2,53
6.	Children's snacks	150.000	5,57
7.	Cigarette	120.000	4,46
8.	Others	100.000	3,71
	Sum	1.163.000	43,19
B	Non-Food		
1.	Electricity	80.000	2,97
2.	Kerosene	45.000	1,67
3.	Petrol	180.000	6,68
4.	Healthcare Costs	50.000	1,86
5.	Tuition Fees	750.000	27,85
6.	Clothes	10.000	0,37
7.	Toiletries and Laundry	20.000	0,74
8.	Credit	240.000	8,91
9.	PBB and Vehicle Tax	5.000	0,19
10.	Others	150.000	5,57
	Sum	1.530.000	56,81
	Total Expenses	2.693.000	100,00

Source: Primary Data, 2021.

Percentage of Food Consumption of Coconut Farmers

The Percentage of Food Consumption (PKP) compares food expenditure with the total consumption expenditure (food + non-food) of deep coconut farmer households calculated within one month. This percentage

of food consumption aims to see how much money is allocated for ladder-friendly food needs. For more details, please see Table 4.

Table 4. Average Food Consumption Expenditure per Month of Households of Deep Coconut Farmers

No	Description	Value
1	Food Expenditure (IDR)	1.163.000
2	Non-Food Expenditure (IDR)	1.530.000
3	Percentage of Food Consumption (%)	43,19

Source: Primary Data, 2024.

Based on Table 4, the household expenditure of deep coconut farmers for food needs reaches Rp. 1,163,000 per month, while the expenditure for non-food needs is IDR 1,530,000 per month. The percentage of food consumption was recorded at 43.19%, meaning that 43.19% of total household spending was allocated for food needs. The high or low percentage of food consumption depends on the total household income of the farmer himself. Karolina. A. *et al.* (2016) stated that the smaller the household income, the larger the share of income allocated for food consumption needs.

Percentage of Non-food Expenditure of Deep Coconut Farmers

The Percentage of Non-Food Expenditure (PPNP) compares non-food expenditure with the total consumption expenditure (food + non-food) of deep coconut farmer households calculated over one month. The percentage of non-food expenditure aims to calculate the expenditure spent on needs other than food. Karolina. A. *et al.* (2016) stated that the greater a person's income, the smaller the part of the income used for food consumption needs. The percentage of non-food expenditure is presented in Table 5.

Table 5. Average percentage of non-food expenditure per month of deep coconut farmer households.

No	Description	Value
1	Non-Food Expenditure (IDR)	1.530.000
2	Food Expenditure (IDR))	1.163.000
3	Percentage of Non-Food Expenditure (%)	56,81

Source: Primary Data, 2024.

In

Table 5, the household expenditure of deep coconut farmers is divided into two main categories: food needs and non-food needs. The total monthly expenditure shows that spending on non-food needs is higher, IDR 1,530,000 per month, compared to food needs, which only reaches Rp 1,163,000 monthly. If calculated as a percentage, expenditure on non-food needs covers 56.81% of total monthly expenditure. This figure indicates that most of the household budget is allocated more for non-food needs, such as education, health, transportation, clothing, or other needs than food. A more significant proportion of non-food expenditure can also indicate an improvement in farmers' living standards because, in economic theory, households with more minor food needs than non-food tend to be in better economic conditions.

1. Household Welfare of Deep Coconut Farmers

Welfare can be interpreted as a condition where all human needs can be met. The fulfillment of human needs starts from the most basic needs, such as food, clothing, and boards, to the need to be recognized in community life (Salim *et al.*, 2016). The theory of BKKBN explains that welfare is one of the situations that is constantly changing in the family, the fulfillment of all needs ranging from physical, material, spiritual, and social needs (Kemala & Maulana, 2023).

Yanti *et al.* (2022) stated that the level of welfare refers to the description of the quality of life of an individual or community in an area in a certain period. The welfare of deep coconut farmer households in North Buton Regency was assessed by calculating the percentage of expenditure for food needs (PPP) and non-food needs (PPNP). The welfare of coconut farmer households can be evaluated using the criteria (Pratiwi *et al.*, 2022).

- a. If the allocation of food expenditure is < 50% of the total expenditure, then the household is classified as Prosperous

- b. If the allocation of food expenditure is between 50-60% of the total expenditure, then the household is classified as pre-prosperous.
- c. If the allocation of food expenditure is > 60% of the total expenditure, then the household is classified as unprosperous.

To find out the level of welfare of deep coconut farmer households in North Buton Regency, see Table 6.

Table 6. Percentage of Welfare Level of Deep Coconut Farmers in North Buton Regency

Types of Spend	Value (IDR)	Percentage (%)
A. Food	1.163.000	43,19
B. Non-Food	1.530.000	56,81
Sum	2.693.000	100

Source: Primary Data, 2024.

Farmers' welfare is explained from several aspects of household welfare that depend on the farmer's income level. Farmers' income that is not by household consumption expenditure will result in the status of the household's standard of living (Yanti et al., 2022). Based on Table 6, it can be seen that spending on food needs amounted to IDR 1,163,000 or 43.19% while spending on non-food needs reached Rp 1,530,000 or 56.81%. This shows that spending on non-food needs is more significant than food needs. From this description, the average deep coconut farmer in North Buton Regency is classified as a prosperous household because the percentage of spending on food needs is below 50%, which is 43.19% of the total expenditure. Welfare can be interpreted as a benchmark for a society that reflects that they have achieved a prosperous condition. Generally, well-being describes the circumstances in which a person lives in prosperity, health, and peace. To achieve this condition, individuals must make efforts according to their abilities. Economists view well-being as a reflection of individual income levels (income flows) and people's purchasing power. Based on this view, welfare is considered narrow because it only focuses on income as an indicator of economic prosperity, so welfare is seen as the opposite of poverty (Widyastuti, 2012).

CONCLUSION

From the results of the research that has been carried out, the conclusion that can be drawn is that, in general, the state of deep coconut farming in North Buton Regency shows an average land area of 2 ha with an average number of trees of 278 trees and a production of 22,891 grains per year. The situation of deep coconut farming like this gives the idea that deep coconut farming in North Buton Regency contributes considerably to the source of income of deep coconut farmers. Farmers with 3.0-4.0 ha of farming land have the most significant income with an average of Rp. 2,257,841 per month. This income can undoubtedly contribute significantly to the total household income of deep coconut farmers. The percentage of spending on non-food needs is more significant than the defense of food needs. The percentage of non-food needs is 56.81%, while the percentage of food needs is 43.19%. The welfare condition of deep coconut farmer households in North Buton Regency is classified as prosperous households because the percentage of non-food needs is more significant than food needs.

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