



## Study of Coconut Farming in Supporting Farmers' Income in Kambowa District, North Buton Regency

Mawari Mawari\*, Lely Ersilya

Geography Education Study Program, STKIP Pelita Nusantara Buton, Indonesia

### Article Info

#### Article History

Submitted 2022-09-20

Revised 2023-02-27

Accepted 2023-06-01

#### Keywords

coconut farming; income; contribution

### Abstract

Coconut farming research was carried out with the aim of knowing the production process of coconut farming and the amount of its contribution to supporting farmers' income in Kambowa District. This study uses a survey method which is intended to find out the truth conceptually and practically realistically regarding coconut farming in supporting farmers' income. Sampling used the Simple Random Sampling method with homogeneous population limits so that the sample totaled 40 respondents or 10% of the total population of 400 heads of households who carry out coconut farming. Collecting data using observation techniques, questionnaires, interviews and documentation. Data analysis used descriptive quantitative analysis with frequency tables and calculations that only reached the percentage level. Coconut farming is carried out by farmers in a simple way on large areas of land using manual tools and technology, own capital and a small amount of labor, starting from land preparation to post-harvest. The results of coconut farming in Kambowa District average IDR 6,092,500/Ha and these results can provide a significant contribution of 34.72% in supporting farmers' income.

\*Address: Jl. Pahlawan No.KM 4, Kadolo Katapi,  
 Kec. Wolio, Kota Bau-Bau, Sulawesi Tenggara 93716  
 E-mail: mawarigeografi12@gmail.com

## INTRODUCTION

Indonesia is one of the developing countries in Southeast Asia which has abundant natural resources including fertile agricultural land. Agriculture plays an important role in national economic growth because agriculture is one of the main contributors to Indonesia's foreign exchange. Based on data from the Ministry of Agriculture, the agricultural sector for 2021 will contribute 1.83 percent of Indonesia's total exports or US\$ 4.24 billion. This contribution clearly reflects good economic growth for the prosperity of society. Economic growth means the development of activities in the economy which causes the goods or services produced to increase and the prosperity of society increases (Nakamura & Steinsson, 2018). This is in accordance with the development of activities carried out by the community, especially farmers who carry out the field activities.

Farming is a science that studies how farmers manage production factors (land, labor, capital, management and technology) effectively, efficiently and continuously to produce high production so that their farming income increases (Deichmann, et al., 2016). Farming carried out by farmers in accordance with the meaning of development is a conscious and planned effort to implement changes that lead to economic growth and improve the quality of life (Sanga, et al., 2013). This opinion implies that the Indonesian people have made improvements to their quality of life, which lead to economic growth and prosperity, through increasing income from farming, among others by cultivating plantation crops, namely coconut.

Coconut farming carried out by farmers, besides being a vessel for implementing good social relations between people, also makes a good contribution to the income of farmers, as was done by farmers in Kambowa District, North Buton Regency, Southeast Sulawesi Province. The main commodity for the Kambowa District area is coconut which has long been cultivated by the local community, especially farmers. The production process of coconut farming carried out by farmers is still traditional but the results can support their income. Based on the description of this background, a study was carried out with the aim of knowing (1) the production process of coconut farming in Kambowa District. (2) The percentage of coconut farming in supporting farmers' income in Kambowa District. The results of this study are expected to contribute knowledge about agricultural land management. After un-

derstanding the knowledge, it will make it easier for farmers to use the land properly so that farmers' income increases.

## METHOD

The method used in this study is a survey method with the intention of knowing conceptually and practically realistic truths about coconut farming in supporting farmers' incomes in Kambowa District. This research was conducted from July 2021 to September 2021, in Kambowa District, North Buton Regency, Southeast Sulawesi Province.

### Research Population and Sample

population is a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn (Wild, et al., 2018). In line with this premise, the population in this study are all heads of families who do coconut farming in Kambowa District, North Buton Regency, totaling 400 heads of families. The method used in sampling for this research is the Simple Random Sampling method with homogenized population limits, so that the selection of sample members in this study is farmers who carry out coconut farming, which have a land area of  $\geq 1$  Ha and coconut trees that are already in production with the age of minimum 10 years. If the population is less than 100, all should be selected so that the research is a census study, but if the population is large, 10% - 15% can be taken (Wellington, 2015). Based on the descriptions and opinions that have been conveyed, the sample in this study amounted to 40 respondents or 10% of the total population of 400 heads of families.

### Research Variable

Research variables are basically anything in any form that is determined by researchers to be studied so that information is obtained about it, then conclusions are drawn (Harland, 2014). In connection with the previous opinion, the variables that are the object of this study are focused on the production process of coconut farming and the income of coconut farmers.

### Research Data Collection and Analysis Techniques

The data in this study included primary and secondary data, which were collected by observation, interviews, questionnaires and documentation. Data analysis was carried out in a quantitative descriptive manner using frequency

tables and calculations that only obtained the percentage level, using the following formula:

$$I = TR - TC$$

where,

I : income

TR: Total Revenue

TC: Total Cost

To find out the contribution of coconut farming in supporting farmers' income in Kambowa District, North Buton Regency, the following percentage formula is used:

$$K = \frac{P_{di}}{T_{pa}} \times 100\%$$

where,

K : farming income contribution (%)

P<sub>di</sub> : farming income (Rp/month)

T<sub>pa</sub>: total income of the farming family (Rp/month), (Moysiadis, et al., 2021).

## RESULT AND DISCUSSION

The land management system for coconut plants by farmers in Kambowa District should pay attention to various factors of production including physical characteristics.

### District Kambowa Physical Characteristics

Kambowa District is one of the sub-districts in North Buton Regency. Astronomically Kambowa District is located at 4055'0"–509'0" South Latitude and 122050'0"–122059'0" East Longitude and geographically it is located between the Banda Sea and Muna Regency and Bonegunu District and Buton Regency. For more details, Kambowa District can be shown on the Figure 1.

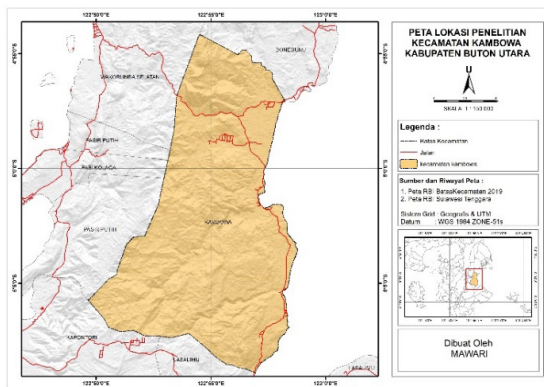


Figure 1. Kambowa District map (Source: Primary data, 2021)

### Coconut Farming Production Process

For production processes on land, production factors such as land, labor, capital, management and technology can be used (Deichman, et al.n, 2016). This implies that the production of

agricultural commodities is the result of processing of agricultural land in a broad sense with various influences of production factors such as those managed by coconut farmers in Kambowa District.

### Coconut Farming Land Area

The area of land managed for coconut farming in Kambowa District is described in the Figure 2.

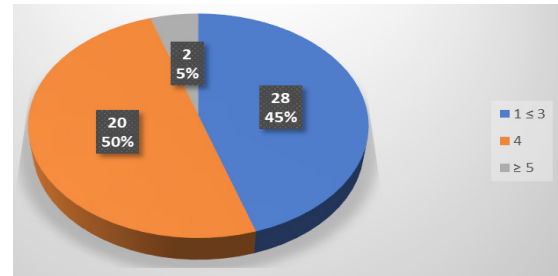


Figure 2. Coconut Farming Land Area (Source: Primary data, 2021)

Based on Figure 2, it can be stated that most coconut farmers in Kambowa District (50%) have a coconut land area of 3-4 Ha, and only 2 farmers (5%) have a land area of ≥ 5 Ha.

### Tools and Technology

The management of agricultural land for coconut farmers is inseparable from the use of various types of tools and technology, which are always adjusted to the area of land being managed as shown in the Table 1.

Table 1. Tools and technology used by farmers

Types of Tools and Technologies	Land area (Ha)			Amount
	≤ 2	3 - 4	≥ 5	
Machete	18	20	2	40
Ax	10	5	1	16
Senso	8	15	2	25
Hoe and Julak	18	20	2	40
Tubes of Grass and Pest Cleaners	9	22	2	33
Fertilizer	1	2	1	4
No Fertilizer	17	20	1	38

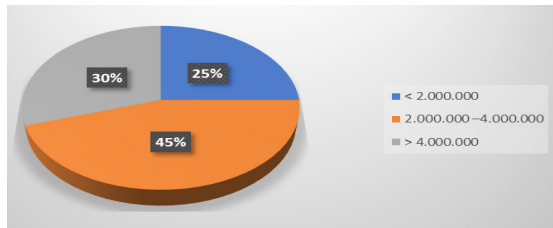
(Source: Primary data, 2021)

From Table 1, it shows that the farmers in cultivating coconut farming land on average (40 respondents) use machetes, hoes and julak, and only 4 respondents use fertilizer in maintaining coconut plants. This reflects that coconut farmers in Kambowa District still have limitations in the

use of tools and technology and expect natural soil fertility to be able to fertilize coconut plants at all levels of land area.

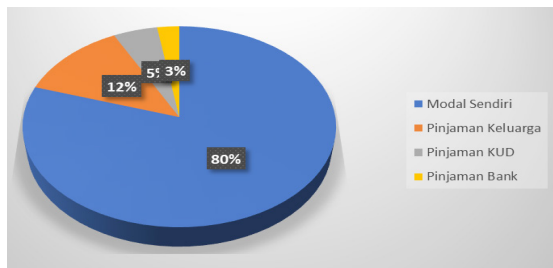
**Coconut Farming Capital**

The amount of capital used by coconut farmers in Kambowa District in carrying out coconut farming activities can be described in the Figure 3.



**Figure 3.** Percentage of Coconut Farming Capital (Source: Primary data, 2021)

From Figure 3 above it can be seen that the coconut farmers in Kambowa District, in conducting coconut farming, the majority (45%) have a capital of IDR 2,000,000 – 4,000,000. The sources of capital for farmers in coconut farming in Kambowa District can be described in the Figure 4.

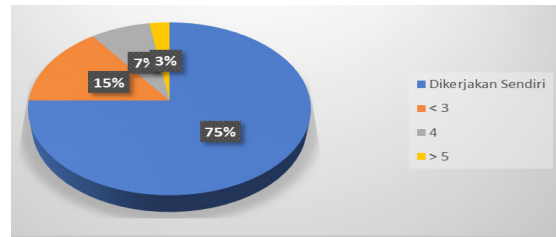


**Figure 4.** Percentage of Farmers' Capital Sources (Source: Primary data, 2021)

Based on Figure 4, it can be explained that farmers in Kambowa District in carrying out coconut farming on average (80%) their capital comes from their own capital. This illustrates that most of the coconut farmers in Kambowa District have not utilized capital loan services from other parties.

**Labor**

The number of workers who also work in managing coconut farming in Kambowa District, is described in the Figure 5.



**Figure 5.** Percentage of Total Labor in Coconut Farming (Source: Primary data, 2021)

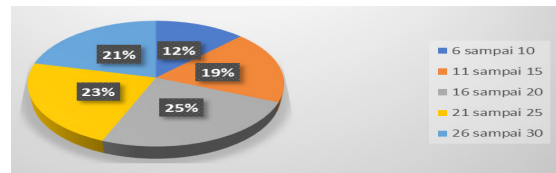
Based on Figure 5, it can be explained that the majority (75%) of farmers in Kambowa District manage their own coconut farming, and only 1 (one) respondent or 3% use workers of more than 5 (five) people to manage coconut farming.

**Maintenance of Coconut Plants**

Maintenance of coconut plants in Kambowa District can be done in a fairly simple way, farmers just need to clear the land from weeds and exterminating pests, especially monkeys and squirrels.

**Coconut Harvest and Postharvest**

The amount of coconut harvest for each farmer is usually adjusted to the age of the coconut tree and the area of land managed by the farmer in hectares per one harvest. For more details, the amount of coconut harvest in Kambowa District can be seen in the Figure 6.



**Figure 6.** Percentage of Coconut Yield Based on Age/Ha/one harvest (Source: Primary data, 2021)

Figure 6 shows that the greatest frequency of coconut yields in one harvest in Kambowa District, based on the age of the coconut tree, namely at the age of 16-20 years which reaches 2000 coconuts per hectare (25%), and the yield of coconut at the age of 6-10 year only reached 1000 coconuts per hectare (12%).

**Coconut Farming Production Results**

The production of coconut farming in Kambowa District in one harvest reaches 800 kg/ha which is valued at IDR 8,000,000. This result is the income earned by farmers after post-harvesting coconuts on managed land.

**Coconut Farmers' Income**

Coconut farmers in Kambowa District, in addition to earning income from coconut farming, also have other source of income in other fields, namely from non-coconut farming income and non-agricultural income.

**Farmers' Income from Coconut Farming**

The average income, production costs and net income of farmers from the yields of coconut farming can be seen in the Table 2.

**Table 2.** Farmers' Income from Coconut Farming

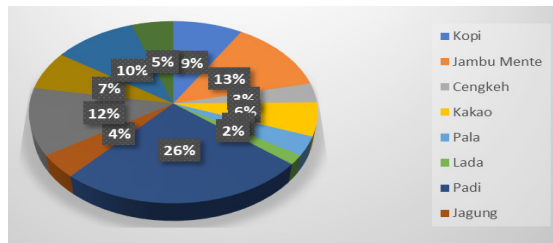
Classification	Average Value (Rp)/Ha
Gross Income	8.000.000
Production costs	1.907.500
Net Income	6.092.500

(Source: Data Analysis, 2021)

From table 2, it can be seen that the farmers' income from the yields of coconut farming in Kambowa District, within four months or one time harvest, after the average value of income is reduced by the average value of production costs, it reaches a net income of IDR 6,092,500/Ha.

**Farmers' Income from Non-coconut Farming**

Farmers' income from non-coconut farming referred in this study is income earned by farmers from activities in the agricultural sector other than coconut farming. The average value of farmers' income from non-coconut farming in Kambowa District can be presented in the Figure 7.

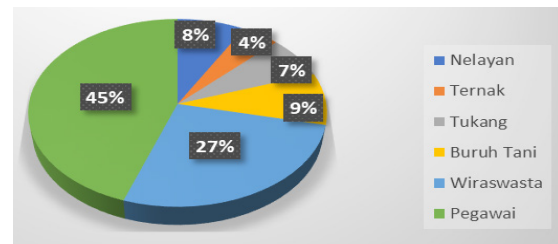


**Figure 7.** Percentage of Farmers' Income from Non-coconut Farming (Source: Primary data, 2021)

Based on Figure 7, it can be explained that the highest average income earned by farmers in Kambowa District, based on the type of plants planted, is sourced from rice plants by 26% of the average total farmers' income from non-coconut farming.

**Farmers' Income from Non-agricultural Sector**

The average value of farmer income from non-agriculture according to the type of work performed by farmers in Kambowa District can be seen in the Figure 8.

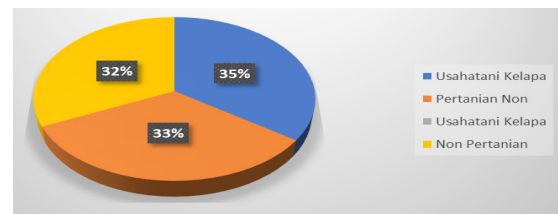


**Figure 8.** Percentage of the Average Value of Farmers' Income from Non-Agriculture Sectors by Type of Work (Source: Primary data, 2021)

From Figure 8, it shows that the average income of farmers from non-agricultural products per month is IDR 5,600,000. the highest percentage value is 45%. The high percentage of farmers' income comes from the type of employee's work, because the amount of wages has been determined according to rank and position, while others develop according to the conditions of work occupied by farmers other than agricultural agriculture sectors.

**Coconut Farming Contributions**

The amount of contribution from coconut farming is the amount of contribution made from the results of coconut farming to the total net income of coconut farmers from each type of business expressed in percent (%), as explained in the Figure 9.



**Figure 9.** Percentage of Revenue Contribution Based on Type of Business (Source: Primary data, 2021)

From Figure 9, it can be stated that the results of coconut farming provide a significant

contribution of 35% in supporting the income of farmers in Kambowa District.

## CONCLUSION

Coconut farming in Kambowa District, North Buton Regency, is carried out by farmers using simple farming technique on large areas of land with manual tools and technology, owned capital and a small number of workers, starting from land preparation to post-harvest.

The yields of coconut farming in Kambowa District, North Buton Regency in one harvest reach an average of IDR 6,092,500/Ha. Coconut farming in Kambowa District, North Buton Regency can significantly support farmers' income by 35%.

## REFERENCES

- BPS. (2020). *Kecamatan Kambowa Dalam Angka*, BPS Kabupaten Buton Utara. Sulawesi Tenggara.
- Damanik, J. A. (2014). Analisis faktor-faktor yang mempengaruhi pendapatan petani padi di Kecamatan Masaran, Kabupaten Sragen. *Economics Development Analysis Journal*, 3(1).
- Deichmann, U., Goyal, A., & Mishra, D. (2016). Will digital technologies transform agriculture in developing countries?. *Agricultural Economics*, 47(S1), 21-33.
- Hansson, H., Ferguson, R., Olofsson, C., & Rantamäki-Lahtinen, L. (2013). Farmers' motives for diversifying their farm business—The influence of family. *Journal of Rural Studies*, 32, 240-250.
- Harland, T. (2014). Learning about case study methodology to research higher education. *Higher Education Research & Development*, 33(6), 1113-1122.
- Mahanty, T., Bhattacharjee, S., Goswami, M., Bhattacharyya, P., Das, B., Ghosh, A., & Tribedi, P. (2017). Biofertilizers: a potential approach for sustainable agriculture development. *Environmental Science and Pollution Research*, 24, 3315-3335.
- Moysiadis, V., Sarigiannidis, P., Vitsas, V., & Khelifi, A. (2021). Smart Farming in Europe. *Computer Science Review*, 39, 100345.
- Nakamura, E., & Steinsson, J. (2018). Identification in Macroeconomics. *Journal of Economic Perspectives*, 32(3), 59-86.
- Sanga, C., Kalungwizi, V., & Msuya, C. (2013). Building agricultural extension services system supported by ICTs in Tanzania: Progress made, challenges remain. *International journal of education and development using ICT*, 9(1), 80-99.
- Wellington, J. (2015). *Educational Research: Contemporary Issues and Practical Approaches*. Bloomsbury Publishing.
- Wild, C. J., Utts, J. M., & Horton, N. J. (2018). What is statistics?. *International Handbook of Research in Statistics Education*, 5-36.