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Analysis of Cassava Farming, Cimanggu Variety Case Study of Cassava Farmers in Jabung Village, Jabung District, East Lampung Regency

M. Ulinuhayani, Bambang Singgih*, Nurul Rusdi, Yudi Widodo
Research Center for Food Crops, Research Organization for Agriculture and Food National Research and Innovation Agency (BRIN), Indonesia
Email: muha065@brin.go.id, bamb009@brin.go.id*, nuru002@brin.go.id, yudi002@brin.go.id

ABSTRACT

The purpose of this study was to analyze the production costs of cassava farming, the income of cassava farming, and the feasibility of cassava farming in the study area. The research location was determined purposively based on the consideration that the studied area is one of the centers of cassava production of the Cimanggu variety for chips, which is a potential food ingredient in East Lampung Regency, but cassava grown locally by farmers still has low productivity. In order to increase cassava productivity and production, one of the farmers in Jabung Village, Jabung District, East Lampung Regency developed a superior cassava variety, the Cimanggu variety. This study aims to determine revenue, R/C ratio, and constraints of cassava farming of the Cimanggu variety by farmers in Jabung Village, Jabung District, East Lampung Regency. The results of our research using 2024–2025 data show production costs of Rp12,395,366.67 with revenue of Rp56,848,425.00; the results obtained are Rp44,453,058.33 per hectare with an R/C ratio of 3.59, which means that cassava farming is very profitable or feasible to be developed. The technical constraints faced are limited fertilizer, cassava seeds, and white pest attacks. The economic constraint is the low price of wet cassava tubers in the market.

Keywords: farming, cassava, superior Cimanggu variety

INTRODUCTION

Cassava (Manihot esculenta) is a plant that grows widely in subtropical regions and is classified as a tropical and subtropical crop (Smith, 2020). It belongs to the Euphorbiaceae family and serves as a major source of carbohydrates, with its leaves used as a vegetable (Jones & Thompson, 2019). Cassava tubers provide energy-rich carbohydrates but are very poor in protein (Kumar et al., 2021). In contrast, cassava leaves are a good source of protein because they contain the amino acid methionine (Hernandez et al., 2020). Cassava is currently an important food crop commodity in Indonesia after rice, corn, soybeans, peanuts, and mung beans, serving as food, feed, and raw materials for both upstream and downstream industries (Ministry of Agriculture, 2020). The average cassava harvest area between 2015 and 2019 shows that nine cassava-producing provinces contributed 87.61% of the total (Raharjo, 2021). Lampung Province, with an average harvest area of 198.54 thousand hectares, is quite dominant, ranking first with a 25.02% share (Nugraha et al., 2018). Cassava productivity in Indonesia remains relatively low compared to other countries, due to factors such as the limited use of superior seeds, inadequate fertilization and pest control, and restricted access to technology and information (Yusuf et al., 2022).

Furthermore, cassava farming faces challenges in marketing and pricing. Fluctuating cassava prices can impact farmers' incomes and expose them to risks (Fristyarini et al., 2025; Korolenko et al., 2024; Sitepu, 2024). Therefore, an analysis of cassava farming is necessary

to identify factors affecting production and farmer income, as well as to devise solutions for improving productivity and farmer welfare.

Previous studies on cassava farming have generally focused on production efficiency, income analysis, and feasibility in various regions. For example, Harahap et al. (2023) analyzed the contribution of cassava farming income to household economies, while Mardika et al. (2017) examined cassava farming with the *Gajah* variety in *Buleleng* Regency. Other studies, such as those by Triyasari & Priyanto (2023), focused on technical efficiency on suboptimal land, and Zartika et al. (2023) analyzed factors influencing cassava farming income. However, most of these studies did not specifically address the *Cimanggu* variety, which has been developed as a superior local variety in *Jabung* Village, East *Lampung*.

Despite numerous studies on cassava farming, there is limited research that comprehensively analyzes the economic feasibility, cost structure, and constraints of cassava farming using the *Cimanggu* variety—a locally developed superior variety aimed at increasing productivity. In addition, previous studies often focus on general cassava farming without detailing the specific financial and technical challenges faced by farmers in the context of local superior varieties. This study provides a specific case analysis of *Cimanggu* variety cassava farming, a locally developed superior variety in *Jabung* Village. The research not only evaluates production costs and income but also analyzes the R/C ratio as a measure of feasibility and identifies specific technical and economic constraints faced by farmers. This study also incorporates primary data from the 2024–2025 planting season, offering up-to-date insights into the feasibility of cultivating this variety.

Thus, this study aims to analyze cassava farming and identify factors influencing farmers' production and income, so that recommendations can be provided to increase productivity and welfare. Specifically, it analyzes the production costs of cassava farming, determines farmers' income, and assesses the feasibility of cassava farming in the research area. The results are expected to provide practical benefits for farmers and agricultural extension workers in improving cost efficiency and cultivation techniques for *Cimanggu* varieties. In terms of policy, these findings can inform local governments in designing supporting programs, such as subsidized inputs, training, and price stabilization mechanisms. Academically, this research contributes to agricultural science, particularly regarding the economic feasibility and challenges of cultivating local superior varieties. Ultimately, it is expected to encourage increases in productivity, income, and welfare among cassava farmers in the study area.

METHOD

This research employed a case study approach with a descriptive-quantitative method. The unit of analysis was Cimanggu variety cassava farming businesses managed by farmers in Jabung Village during the 2024–2025 planting season. The research location was selected purposively based on specific considerations aligned with the study objectives. Jabung Village, Jabung District, East Lampung Regency, was chosen as the research area. Lampung Province is a major production center for Cimanggu variety cassava and the researcher's hometown.

This field research applied organic fertilizers twice, at a dosage of 100 kg urea, 400 kg NPK Phonska, 100 kg SP-36, and 40 kg Petroningkrat per hectare. The Petroningkrat fertilizer was mixed with water and sprayed on the stems and leaves of the cassava plants. The data collected in this study consisted of primary and secondary data. Primary data were obtained through questionnaires and direct interviews with cassava farmers, using a pre-compiled list of questions.

The first research problem was analyzed by calculating the total production costs incurred by farmers using simple cost analysis. The second problem was addressed through simple analysis to determine farming income. The third problem was evaluated using R/C ratio

criteria to assess farming feasibility.

RESULTS AND DISCUSSION

Total Production Costs of Cassava Farming

Total farm costs (*total form expenses*) are defined as the value of all inputs used or expended in the production process but do not include the labor of the farmer's family (I Nengah Mardika, *et al.*). The production costs of cassava farming consist of fixed costs , which will not be used up in one production period. In addition to fixed costs, there are also variable costs, which will be used up in one production period.

Fixed Costs

The fixed costs analyzed by the researcher were equipment depreciation costs and land tax.

Equipment Depreciation Expense

The average cost of equipment depreciation incurred by cassava farmers per hectare can be seen in the following table:

Table 1. Fixed costs (equipment depreciation) of cassava farming for farmers per hectare

No	Tool	Cost per Hectare (Rp)
1	Hoe Shrinkage	41,666.67
2	Machete/Sickle Shrinkage	24,833.33
3	Digital Tanky Shrinkage	72,416.67
	Total	138,916.67

Source: Primary data analysis, 2025

Based on table 1, it is known that digital tank costs are the largest depreciation costs incurred by farmers in cassava farming.

Land Tax

Based on the detailed components of each fixed cost incurred in cassava farming activities for land tax and equipment depreciation costs, the following results were obtained:

Table 2: Fixed costs of cassava farming per hectare

No	Fixed Cost Components	Cost per Hectare (Rp)
1	Equipment Depreciation	138,916.67
2	Land Tax	76,450.00
	Total	215,366.67

Source: Primary data analysis, 2025

Based on table 2, it is known that equipment depreciation costs are the largest depreciation costs incurred by farmers in cassava farming.

Variable Costs

Variable costs in cassava farming activities include seed purchases, land preparation costs, labor costs, fertilizer and pesticide purchases, and working capital. A general explanation of variable costs is as follows:

Land preparation costs (plowing)

The costs incurred for land processing using heavy equipment, namely tractors, as a variable cost component can be seen in the following table:

Table 3: Costs of land processing for cassava farming per hectare

No	Fixed Cost Components	Cost per Hectare (Rp)
1	Per Hectare	1,000,000.00
	Total	1,000,000.00

Source: Primary data analysis, 2025

Based on table 3, it is known that the land processing costs (plowing) that must be incurred by farmers in cassava farming.

Seeds

The costs incurred for purchasing seeds as a variable cost component can be seen in the following table:

Table 4. Cost of purchasing cassava farming seeds per hectare

No	Fixed Cost Components	Cost per Hectare (Rp)
1	Seeds	680,000.00
	Total	680,000.00

Source: Primary data analysis, 2025

Based on table 4, it is known that the cost of purchasing seeds that must be paid by farmers in cassava farming.

Fertilizers and medicines

The cost of purchasing fertilizer and pesticides can be seen in the following table:

Table 5. Fertilizer and pesticide costs for cassava farming per hectare

No	Fixed Cost Components	Cost per Hectare (Rp)
1	Fertilizer	4,700,000.00
2	Pesticide	600,000.00
	Total	5,300,000.00

Source: Primary data analysis, 2025

Based on table 5, it is known that the costs of purchasing fertilizer and pesticides that must be incurred by farmers in cassava farming.

Labor costs

The labor costs incurred in cassava farming per hectare during the planting period can be seen in the following table:

Table 6: Fertilizer and pesticide costs for cassava farming per hectare

No	Labor Cost Components	Cost per Hectare (Rp)
1	Farmer	5,200,000.00
	Total	5,200,000.00

Source: Primary data analysis, 2025

Based on table 6, it is known that the labor costs that must be incurred by farmers in cassava farming.

Total Production Cost

The total cost of cassava farming is defined as the value of all inputs used or expended in the production process. Production costs in this study are divided into two categories: fixed costs *and* variable *costs* .

Fixed costs per hectare are Rp. 215,366.67 while variable costs per hectare are Rp. 12,180,000.00. So the total production cost per hectare is Rp. 12,395,366.67. Complete

data is presented in table 7.

Table 7: Production costs of cassava farming per hectare in the planting season

No	Production cost	Rupiah
1	Production cost	12,395,366.67
	Total	12,395,366.67

Source: Primary data analysis, 2025

Based on table 7, it is known that the production costs that must be incurred by farmers in cassava farming.

The following table presents a summary of production cost components per hectare.

Table 8. Summary of production cost components per hectare and their proportions

No	Cost Components	Rp.	Cost per Hectare (Rp)
1	Fixed Costs		
	1 Equipment Depreciation	138,916.67	1.12
	2. Land Tax	76,450.00	0.62
2	Variable Costs		
	1. Land processing costs	1,000,000.00	8.06
	2. Seeds	680,000.00	5.49
	3. Fertilizers and Pesticides	5,200,000.00	41.95
	1. Labor	5,300,000.00	42.76
	Total:	**12,395,366.67**	**100**

Source: Primary data analysis, 2025

Based on table 8, the summary of production cost components per hectare, it can be seen that the labor component is the largest cost component incurred by farmers to carry out cassava farming activities.

Income Level of Cassava Farming Business

In cassava farming activities, cassava farmers in Jabung Village, Jabung District, East Lampung Regency can harvest once a year. This is because cassava is a This is a seasonal crop that can be harvested after 8–10 months. The harvest is handled by the buyer, so the price of cassava is determined by the buyer. Therefore, farmers do not have to engage in post-harvest activities related to cassava farming.

Farmers' income can be determined by subtracting the total costs incurred during the cassava farming period from the revenue earned. Revenue is calculated by multiplying the cassava harvest or production by the cassava selling price.

Below we will present the income and revenue from cassava farming in 1 (one) hectare.

Table 9. Income and Revenue from Cassava Farming per 1 hectare.

No	Type of activity	Cassava Farming Cimanggu Variety/Hectare
1	Production (Kg)	66,880.50
2	Price of Wet Bulbs (Rp/Kg)	850.00
	Revenue (Rp)	**56,848,425.00**
3	Total Fixed Costs (Rp)	215/366.67
4	Total Variable Cost (Rp)	12,180,000.00
	Total Cost (Rp)	**12,395,366.67**
5	**Income (Rp)**	**44,453,058.33**
6	**R/C Ratio**	**3.59**

Source: Primary data analysis, 2025

From the data in Table 9, it is known that farmers' income and revenue in a single planting period per hectare reaches Rp. 56,848,425.00, while income in a single planting period reaches Rp. 44,453,058.33.

Feasibility Analysis of Cassava Farming

Every farmer in the farming activities they carry out certainly expecting big profits.

To determine the feasibility of cassava farming in Jabung Village, Jabung District, East Lampung Regency, the R/C value can be calculated. The R/C value of cassava farming can be seen in Table 9 below.

Table 10: R/C Rtio Value of Cassava Farming

No	Description	R/C value
1	PR/T Ratio	3.59

Source: Primary data analysis, 2025

Based on table 10, the R/C Ratio per hectare of cassava farming is 3.59. From the results of the R/C analysis calculation of the Cimanggu variety of cassava farming , the resulting R /C Ratio shows that the farming business is economically feasible to run because its value is greater than 1 (one).

However, based on these data, it can be seen that the third hypothesis, which states that cassava farming is feasible to develop, is in accordance with the results obtained in the research area. Therefore, the third hypothesis is accepted.

CONCLUSION

During the 2024–2025 planting season, Cimanggu variety cassava farming in Jabung Village, Jabung District, East Lampung Regency, yielded revenue of Rp56,848,425.00 against costs of Rp12,395,366.67, generating income of Rp44,453,058.33 and an R/C ratio of 3.59, confirming its feasibility for continuation. Farmers face challenges from pest attacks and low selling prices, prompting recommendations for government assistance in integrated fertilization, pest control, access to affordable superior seeds and inputs, strengthened farmer institutions, and partnerships with processing industries to enhance added value and stability, thereby boosting productivity and welfare sustainably. For future research, longitudinal studies could track multi-year performance of the Cimanggu variety under varying climate conditions and policy interventions to assess long-term resilience and scalability.

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