Jurnal Agricultural Science
https://jurnal.faperta-unras.ac.id/index.php/jas
P-ISSN 2089-144X Online ISSN 3031-7398
Vol. 20 No. 1 2025

Feasibility Analysis Of Organic Pakcoy Farming *Brassica Rapa L* (Case Study on the Scientific Garden of FAPETRIK UMPAR)

Rusydi[1]*, Nurhapsa[2], Edi Kurniawan[3]
[1,2,3] University of Muhammadiyah Parepare, Indonesia
*Corresponding author : rusydirusydi405@gmail.com

Abstract This research is motivated by the importance of developing organic agricultural cultivation as an alternative to sustainable agriculture that is environmentally friendly and able to have a positive impact on consumer health, soil fertility, and environmental sustainability. Organic farming is now one of the solutions in reducing dependence on synthetic chemicals, as well as supporting environmentally sound farming systems. The FAPETRIK Scientific Garden of the University of Muhammadiyah Parepare is a potential location for the implementation and development of organic farming systems, because it is supported by adequate facilities and infrastructure, such as trial land, the availability of agricultural equipment, and access to organic materials. The purpose of this study is to determine the financial feasibility of organic pakcoy farming carried out in the plantation. The type of research used is quantitative research with a case study approach, which is to examine real conditions in one specific location. The data analysis technique used is financial feasibility analysis, which includes the calculation of production costs, revenue, and efficiency analysis through the Revenue Cost Ratio (R/C Ratio). The results of the study showed that the total income from four production times was IDR 4,235,000, while the total production cost reached IDR 4,730,500. The difference between cost and income showed a loss of IDR 495,500. The R/C Ratio value of 0.89 indicates that every IDR 1 production cost only generates IDR 0.89 in income. This shows that organic pakcoy farming in the location is not financially feasible and requires improvements in cost management and increased production in order to become an efficient and profitable business.

Keywords: *Farming, Organic Pakcoy, Financial Feasibility, Organic Farming*

INTRODUCTION

This research was carried out at the Scientific Garden of the Faculty of Agriculture, Animal Husbandry, and Fisheries (FAPETRIK) of the University of Muhammadiyah Parepare (UMPAR) from May to June 2025. This location was chosen deliberately (purposive) because it is one of the student agricultural businesses that is still active and running. The population in this study is all businesses located in the scientific garden of FAPETRIK UMPAR, while the sample used is all business actors in the location, which is as many as five people. The data used consists of primary and secondary data. Primary data was obtained through direct observation, interviews, and questionnaires to business owners, while secondary data was collected from literature, journals, previous research results, and other sources of information relevant to the research topic.

Data collection was carried out using three techniques, namely observation, interviews, and documentation. Observations were carried out directly at the research site to find out the actual condition of organic pakcoy farming. Interviews are conducted in structured and unstructured forms, adjusted to the type of information that the respondents want to explore. Documentation is used to support the data with visual evidence in the form of photos of activities carried out during the research. The data obtained were analyzed in a quantitative descriptive manner, by calculating production costs, revenue, revenue, and business feasibility ratio (R/C ratio). The cost calculation is done by adding up fixed costs and variable costs. Revenue is calculated based on the number of products produced multiplied by the selling price, while revenue is obtained from the difference between revenue and total cost. The R/C ratio is calculated as an indicator of business feasibility, which is by dividing the total revenue by the total cost. If the R/C value is greater than 1, then the farming is declared feasible to run.

The operational definition in this study includes several important terms. Income is the difference between the revenue and the total cost of production of pakcoy farming. Farming is a farmer's activity in managing farming efficiently and effectively in order to obtain maximum profits. The pakcoy plant is a type of vegetable from the mustard variety whose leaves are used as food. The organic farming system that is applied does not use synthetic chemicals, but relies on natural ingredients. Production is the amount of crop yield obtained in a period. Revenue is the total income before deducting production costs. Production costs consist of fixed costs, i.e. costs that do not change

even though the amount of production changes, and variable costs, i.e. costs that change according to the amount of production. R/C ratio is an indicator to measure business efficiency, while business feasibility refers to the ability of the business to provide profits. Depreciation costs are the systematic allocation of the value of a fixed asset over the life of its useful life that is used in the production process.

MATERIALS AND METHODS

This research was carried out at the Scientific Garden of the Faculty of Agriculture, Animal Husbandry and Fisheries (FAPETRIK), University of Muhammadiyah Parepare (UMPAR) from May to June 2025. This location was chosen deliberately (purposive) because it is a form of student agricultural business that is still actively running and managed directly. This study uses a case study approach with a focus on organic pakcoy farming (Brassica rapa L.) in the location. The population in this study is all business units located in the FAPETRIK UMPAR Scientific Garden. According to Sugiyono (2019), population is a generalized area consisting of objects or subjects that have certain characteristics to be studied and conclusions drawn. The sample in this study is all business actors in the location, namely five people, as explained by Sugiyono (2017), that the sample is part of the population that is the source of research data.

The type of data used in this study consists of primary data and secondary data. Primary data was obtained directly from the results of interviews, questionnaires, and field observations of farm owners to obtain relevant information according to research needs. Meanwhile, secondary data was obtained from various sources such as journals, books, previous research results, and other supporting literature. The data collection techniques used include observation, interviews, and documentation. Observations were carried out directly in the field to observe the real condition of organic pakcoy farming. Interviews are conducted in two forms, namely structured and unstructured interviews, depending on the needs and the level of depth of information needed. Documentation is used to supplement the data with visual evidence in the form of photos of activities during the study.

The data analysis method used is quantitative descriptive. According to Suratiyah (2015), this approach is carried out by calculating production costs and income using the applicable nominal value without considering the time value of money. In this case, some of the components of the analysis used include: (1) Cost analysis, which is calculating the total cost (Total Cost/TC) as the sum between fixed costs (Fixed Cost/FC) and variable costs (Variable Cost/VC); (2) Revenue analysis, which is to calculate total revenue (TR) based on the number of products multiplied by the selling price per unit; (3) Revenue analysis, i.e. calculating the difference between total revenue and total cost (π = TR - TC); (4) Business feasibility analysis using the R/C ratio (Revenue/Cost), which is the comparison between total revenue and total cost (R/C = TR/TC). If the R/C value is greater than 1, then the effort is considered feasible.

The operational definition used in this study is as follows: Income is the difference between total revenue and total production costs of pakcoy farming. Farming itself is a farmer's activity in managing the business by coordinating all production factors effectively and efficiently to obtain maximum profits. The pakcoy plant is one of the mustard varieties whose leaves are used as vegetables. Organic systems are agricultural methods that do not use synthetic chemicals, but rather use natural ingredients. Production is the amount of crop yield obtained by farmers during a period. Revenue is the total income earned before deducting production costs. Production costs are the total expenses incurred during the cultivation process, consisting of fixed costs and variable costs. Fixed costs are costs that do not change even if the amount of production changes, whereas variable costs change according to the amount of production. R/C ratio is the ratio between revenue and total costs as an indicator of business feasibility. Business feasibility is an assessment of whether a business activity can be continued or not based on its profits and efficiency. Finally, depreciation costs are the systematic allocation of the value of a fixed asset over its useful life.

RESULTS AND DISCUSSION

Business Income Obtained in One Production at the FAPETRIK UMPAR Scientific Garden

Jurnal Agricultural Science
https://jurnal.faperta-unras.ac.id/index.php/jas
P-ISSN 2089-144X Online ISSN 3031-7398
Vol. 20 No. 1 2025

Production costs consist of variable costs and fixed costs. Variable costs are costs that change depending on the level of production, such as labor wages, the purchase of seeds, fertilizers, and other operational needs.

Table 1. Variable Cost of Organic Pakcoy Production (Four Times Production)

Yes	Information	Units / Frequencies	Number of Employees	Unit Price (Rp)	Total for 4 Productions (Rp)
1	Land Clearing Wages	1x	4 people	50.000	200.000
2	Piracy Wages	1x, 4 days	2 orang	50.000	400.000
3	Seedling & Planting	1x, 4x	2 orang	60.000	480.000
4	Watering Wages	4 days, 4x	4 orang	40.000	640.000
5	Weed Cleaning	2 days, 4x	2 orang	60.000	480.000
6	Seed	80 gram	-	22.500 / 20 gr	200.000
7	Compost	16 sacks	-	50.000	800.000
8	Sekam	16 sacks	-	20.000	320.000
9	Gasoline Tractor	4 liters	-	10.000	40.000
10	Tractor Rental	4x rental	-	40.000	160.000
11	Harvest Wages & Sales	4x harvest (10% of yield)	6 orang	-	423.500
	Total Variable Cost				IDR 4,143,500

Variable costs are the main component in organic pakcoy farming production activities at the FAPETRIK UMPAR Scientific Garden. This cost covers all expenses that fluctuate depending on the intensity of production. During the four production cycles, the total variable cost incurred was IDR 4,143,500. The largest component of this cost comes from the purchase of 16 sacks of compost with a total cost of IDR 800,000, followed by a watering wage of IDR 640,000 for four waterings during the cultivation process.

In addition, the wages of land ploughing also cost IDR 400,000, while nursery and planting activities cost IDR 480,000. For weed control, a cost of IDR 480,000 is incurred, and for 80 grams of pakcoy seeds, a budget of IDR 200,000 is required. Other organic materials such as husks also contributed to the production of IDR 320,000. In terms of mechanization, the use of tractor gasoline during the tillage process costs IDR 40,000, while renting a tractor requires IDR 160,000. Finally, for the harvesting and sales process, a wage of IDR 423,500 is issued, which is calculated at 10% of the sales proceeds. Overall, these costs represent the direct inputs needed to support the continuity of the organic pakcoy cultivation process, from land preparation to harvesting and marketing processes. The magnitude of this variable cost is an important basis for analyzing the efficiency and financial feasibility of the farming that is being run.

Fixed costs are costs that are not affected by the amount of production, such as tools and equipment that are depreciating. Fixed costs in organic pakcoy farming activities at the FAPETRIK UMPAR Scientific Garden are unchanged expenses even though the amount of production has increased or decreased. These costs come from investments in production tools and equipment that shrink over time.

Table 2. Fixed Cost of Organic Pakcoy Production (Tool Depreciation)

No	Tool Name	Quantity/Unit	Unit Price (Rp)	Depreciation Value/Month (Rp)
1	Kran Air	2	10.000	1.500
2	Pipe Glue	1	18.000	1.350
3	Sprinkel	1	25.000	1.875
4	Selang	1	144.000	10.800
5	Hoe	1	80.000	6.000
6	Scope	2	90.000	13.500
7	Water Pipe	3	40.000	9.000
	Total Fixed Costs			IDR 44,025/month × 4 = IDR 176,100

Based on Table 2, the total fixed costs calculated through the monthly depreciation value of various tools reached IDR 44,025 per month, so that in four months the total was IDR 176,100. The details of the depreciated equipment include various cultivation support equipment, such as 2 units of

water faucets with a depreciation of IDR 1,500 per month, and 1 unit of pipe glue with a depreciation of IDR 1,350 per month. Sprinklers such as sprinklers also experienced a depreciation of IDR 1,875 per month, and higher-value water hoses accounted for the largest depreciation of IDR 10,800 per month. In addition, agricultural tools such as hoes and scopes (2 units) contributed a depreciation of IDR 6,000 and IDR 13,500 per month, respectively, while 3 units of water pipes contributed IDR 9,000 per month.

This depreciation cost shows that even though the equipment is not repurchased every time it is produced, its value is still taken into account in the business feasibility analysis as a form of depreciation. Therefore, recording fixed costs is very important to accurately calculate the total cost of production and becomes the basis for determining the efficiency and profitability of farming. Revenue from the sales of organic scientific garden business production during four production times showed that total sales reached 847 bundles with a fixed selling price of Rp5,000 per bundle, resulting in an overall revenue of Rp4,235,000. Although there were fluctuations in the number of sales in each period, with the highest sales in the second production of 238 bundles and the lowest in the fourth production of 195 bundles. This business is still able to provide relatively stable income. This shows that organic pakcoy cultivation in scientific gardens has consistent market potential even though the sales volume does not always increase significantly every period.

Table 3. Organic Pakcoy Sales Revenue

Production	Sales Day	Total Sales (bind)	Price per Bundle (Rp)	Total Income (Rp)
1	16	214	5.000	1.070.000
2	17	238	5.000	1.190.000
3	15	200	5.000	1.000.000
4	14	195	5.000	975.000
Total	62	847	-	IDR 4,235,000

In table 3. The scientific garden business income from the sale of organic pakcoy during four production times shows a variation in the number of sales in each period, although the selling price per bundle remains stable at Rp5,000. In the first production, sales last for 16 days with a total of 214 bundles, resulting in revenue of Rp1,070,000. In the second period, there was an increase in the number of sales to 238 bundles for 17 days. which resulted in the highest revenue of IDR 1,190,000. However, in the third production, sales decreased to 200 bundles for 15 days, resulting in revenue obtained by IDR 1,000,000. Furthermore, in the fourth production, sales again decreased to 195 bundles for 14 days with a revenue of IDR 975,000. Cumulatively, during the 62 days of sales in four periods, total sales reached 847 bundles with a total revenue of IDR 4,235,000. This data illustrates that although although There are fluctuations in the number of sales each period, this organic pakcoy cultivation business is able to generate relatively stable income during the production period.

Pakcoy Farming Feasibility at the FAPETRIK UMPAR Scientific Garden

The feasibility of organic pakcoy farming at the FAPETRIK UMPAR Scientific Garden shows that the business is not financially profitable. The total cost incurred for production is greater than the income obtained from sales, so this business suffers losses. The ratio of income to expenses also shows that the business is not able to generate adequate profits from each expense incurred. In addition, the number of products sold still does not reach the minimum limit so that the business can cover all production costs. Therefore, although this business has potential, improvements in cost management and productivity increase are needed so that this pakcoy farming can develop and become economically viable in the future. The following is a summary of the financial statements for the four productions:

Table 4. Financial Statements of Organic Pakcoy Farming

Information	Value (Rp)
Total Variable Cost	4.143.500

Jurnal Agricultural Science
https://jurnal.faperta-unras.ac.id/index.php/jas
P-ISSN 2089-144X Online ISSN 3031-7398
Vol. 20 No. 1 2025

Total Fixed Costs	587.000
Total Production Cost	4.730.500
Total Revenue	4.235.000
Revenue (Profit/Loss)	-495.500
R/C Ratio	0.89 (<1)

The financial statements of organic pakcoy farming show that the total production cost consists of variable costs and fixed costs which when added up reach a considerable amount. Variable costs include direct expenses during the production process, while fixed costs are expenses that must be paid even if the production volume does not change. In terms of revenue, the sales of organic pakcoy have not been able to cover the total production costs incurred so that this business has suffered losses. The Revenue-to-Production Ratio (R/C Ratio) also shows a value of less than one, which means that every rupiah spent on production has not generated comparable revenue. This indicates that financially, this organic pakcoy farming business is not profitable and needs improvements in cost management and increased production in order to achieve profits.

The feasibility analysis of organic pakcoy farming shows that even though the income obtained is quite stable, the total production costs incurred are still higher, causing businesses to suffer losses. The comparison between revenue and production costs shows that this business is not financially efficient, because the sales results have not been able to cover all the expenses needed to carry out production activities. In addition, the number of products sold has not reached the break-even point needed for the business to break even. This condition indicates that organic pakcoy farming is still not financially feasible and needs to be evaluated and improved strategies in order to increase productivity, reduce costs, and achieve profits in the future.

Table 5. Summary of Pakcoy Agribusiness Feasibility Analysis

Aspects	Value	Information
Total Revenue	IDR 4,235,000	Stable but not yet covered the cost
Total Cost	IDR 4,730,500	Fixed costs + variables
Profit/Loss	-IDR 495,500	Businesses suffer losses
R/C Ratio	0,89	< 1 → Financially unfeasible
BEP (Break-Even)	946 bundle × Rp5,000	Minimum sales so as not to lose
Realization	847 Bundles	Has not reached BEP → business is not yet efficient
Conclusion	Not eligible	Need to evaluate costs and increase production

The analysis of the feasibility of pakcoy farming shows that although the income obtained is relatively stable, the amount is not enough to cover the entire production cost consisting of fixed and variable costs. As a result, this business suffers losses because the revenue is smaller compared to the total costs incurred. The ratio of revenue to production costs also shows a value of less than one, which indicates that the business is not financially viable. In addition, the number of realized sales has not yet broken even, so the business has not run efficiently. With this condition, a thorough evaluation of cost management and production increase strategies is needed so that businesses can achieve efficiency and profitability in the future.

CONCLUSIONS

Organic pakcoy farming at the FAPETRIK UMPAR Scientific Garden has not yet shown adequate financial feasibility. Although the revenue from sales is relatively stable and shows good market potential, the cost of production consisting of variable and fixed costs is still greater than the revenue earned. This results in businesses experiencing losses and have not reached the break-even point needed to run efficiently and profitably. This condition shows that cost management and productivity need to be improved so that this farming can develop into an economically viable business.

ACKNOWLEDGMENT

The author would like to express his deepest gratitude to the Faculty of Animal Husbandry and Agriculture of the University (FAPETRIK UMPAR) for the support of facilities and opportunities

provided during this research. Thank you also to all staff and support staff of the FAPETRIK UMPAR Scientific Garden who have assisted in the process of implementing and collecting research data. In addition, the author appreciates the help from colleagues and other parties who have provided input and moral support so that this research can be completed properly. Special appreciation was also given to the source of research funds that have facilitated the smooth running of this research. Hopefully the results of this research can be useful for the development of organic pakcoy farming and the academic world.

REFERENCES

Kusumawati, D., Sari, M., & Rahman, F. (2022). Management of natural resources in sustainable organic farming. *Indonesian Journal of Agronomy*, 10(1), 45-53.

Lestari, N., Putri, A., & Handayani, S. (2023). Effective and environmentally friendly organic pakcoy cultivation techniques. *Journal of Horticulture*, 15(2), 112-120.

Putra, H., & Handayani, R. (2024). Organic farming and environmental sustainability in Indonesia. *Environmental Journal*, 9(1), 34-42.

Rudianto, T., Santoso, E., & Wibowo, A. (2023). Nutritional content and consumer preferences for organic pakcoy products. *Journal of Nutrition and Food*, 8(3), 78-87.

Suryanto, B., Dewi, P., & Firdaus, M. (2022). Analysis of production costs and feasibility of organic farming. *Journal of Agricultural Economics*, 14(4), 98-107.

Wibowo, A., Hasanah, L., & Nugroho, T. (2023). Market demand and marketing strategy of organic products in Indonesia. *Journal of Agribusiness Management*, 12(1), 55-65.

Sugiyono. (2017). *Quantitative, Qualitative and R&D Research Methods*. Bandung: Alfabeta.

Sugiyono. (2019). *Educational Research Methods of Quantitative, Qualitative, and R&D Approaches*. Bandung: Alfabeta.

Suratiyah, S. (2015). *Agricultural Economic Analysis*. Yogyakarta: Student Library.