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THE ECONOMIC VALUE AND FEASIBILITY ANALYSIS OF MAGGOT CULTIVATION AS A BIOCONVERSION OF ORGANIC WASTE

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ABSTRACT
Organic waste is a fairly high problem when compared to other waste problems. Efforts to reduce organic waste are carried out by managing organic waste using biological bioconversion techniques which involve microorganisms to convert the waste into high-value products with the help of maggots or Black Soldier Fly (BSF) in the BSF Nusantara Tulungagung maggot cultivation business. This research aims to examine (1) the economic value of the BSF Nusantara Tulungagung maggot cultivation business using BEP analysis, (2) the level of feasibility of the BSF Nusantara Tulungagung maggot cultivation business using Gross B/C, (3) Analysis of the economic value and feasibility of the BSF maggot cultivation business Tulungagung Archipelago. The method uses descriptive quantitative. The source of data obtained is primary data in the form of financial data for BSF Nusantara Tulungagung in 2023 which includes income, production costs, selling prices and other costs related to the maggot cultivation business and secondary data in the form of previous research related to the research title and data resulting from the researcher's analysis . The research results show that the calculation of economic value using the Rupiah BEP is IDR 33,997,919. Meanwhile, the BEP for the wet maggot production unit is 1,527.87 kg and the BEP for the dry maggot production unit is 556.09 kg. Calculation of the feasibility level using Gross B/C shows an end point of 1.15. So the BSF Nusantara Tulungagung maggot cultivation business has economic value and is worthy of development.

Keywords: Economic Value; Business Feasibility; Maggot Cultivation

INTRODUCTION

Waste is an environmental problem faced by both Indonesian and throughout the world people. According to the World Bank report, The Atlas of Sustainable Development Goals 2023, Indonesia is the fifth largest waste producing country in the world with total waste production of 65.2 tonnes. In 2022, household waste and similar household waste will dominate the national waste pile at 29.28 million tons/year. The composition of waste based on waste type is dominated by waste originating from food waste (40%), plastic (18.6%), and wood/twigs/leaves (13.1%) (Bappenas, 2023). Food waste in Indonesia reached 20.93. Based on a report from the United Nations Program (UNEP) entitled Food Waste Index 2021, total food waste in Indonesia reached 20.93 million tons every year. The gas produced by the remaining waste has a negative effect on the environment, resulting in the destruction of the earth's ozone layer (global warming)(Naurah, 2022).

Global economic developments, which are influenced by increasing population and consumption, have caused the amount of food waste to increase. In response to these conditions, waste management and utilization needs to be carried out to encourage Indonesia's economic growth. This is a manifestation of one of the principles of sustainable and economically valuable waste management. One effort that can be made to reduce food waste is with a new processing technique using a biological technique called bioconversion. The bioconversion technique is a process that involves microorganisms to convert organic waste into high-value products with the help of maggots or Black Soldier Fly (BSF) which consume organic food waste as food for survival (Yuwita et al., 2022).

Maggot cultivation is able to reduce environmental pollution and the amount of organic waste that comes from food waste very effectively. Food waste used by the BSF

Nusantara maggot cultivation business as raw material for maggot feed comes from neighboring houses, restaurants and markets. Apart from that, the business takes organic waste from Islamic boarding schools. Leftover food waste from Islamic boarding schools can be used as raw material for BSF larvae feed. Collecting waste from Islamic boarding schools for maggot cultivation businesses produces economic value for Islamic boarding schools and maggot cultivation businesses because it can provide direct economic benefits in the form of income. Thus, both parties gain benefits.

Maggot cultivation is a more economical and environmentally friendly way of processing organic waste, besides that it can also open up business opportunities to increase income and improve community welfare. Break Even Point (BEP) analysis is utilized to determine the economic value of the maggot cultivation business, where there is no profit or loss in business operational activities. BEP analysis is utilized to study the relationship between profit, number of sales, fixed costs and variable costs, so that you can determine the break-even point. In other words, income and costs are in balance. Apart from that, the business feasibility calculation is to determine the feasibility level of the BSF Nusantara Tulungagung maggot cultivation business. This calculation uses the Gross Benefit Cost Ratio (Gross B/C) calculation, which assesses the efficiency of cost use and the size of the income comparison.

Based on the description above, the aim of the research is to examine (1) The economic value of the maggot cultivation business as bioconversion of organic waste using BEP, (2) The feasibility level of the maggot cultivation business using Gross B/C, (3) Analysis of the economic value and feasibility of the business maggot cultivation as bioconversion of organic waste.

LITERATURE REVIEW

Management Accounting

Accounting comes from the word accounting which means to count or account for. Accounting is the measurement, description, or provision of certainty regarding information that will help managers, investors, tax authorities, and other decision makers to make resource allocation decisions in a business, company, organization, and government agency. So it can be interpreted that accounting is the art of measuring, communicating and interpreting financial activities (Susilowati, 2016). Broadly speaking, accounting is divided into financial accounting and management accounting. The purpose of financial accounting is to present information to external parties to the company, for example investors and creditors. Meanwhile, the aim of management accounting is to present information to internal parties.

Management accounting is a field of accounting that studies how management uses financial information for decision making. Generally, the information produced is of a deeper nature exclusive to management. The aim of management accounting is to provide information that can be used to understand the condition of the company or business being run and other goals that management wants to achieve. Apart from that, it provides information for planning, evaluating, continuous improvement and decision making(Sujarweni, 2015).

Break Even Point (BEP)

BEP is a situation where a business does not make a profit or does not suffer a loss, in other words a business is said to break even. BEP analysis or also called principal opportunity point analysis is an analytical technique for studying the relationship between costs, revenues and profits. Apart from that, it is also useful in setting prices, controlling costs, and other financial decisions(Sunyoto, 2014). BEP analysis can be used to determine the number of sales that must be achieved within a certain time period so that the company can recover its capital because it provides an idea of the minimum number of products that must be produced to be sold. To determine BEP, the company's cost

structure is divided into fixed costs and variable costs. Fixed costs are all costs that are not influenced by the number of products produced, so the larger the unit produced, the smaller the unit cost. Meanwhile, variable costs are costs that are directly related to the number of products produced and change according to the amount produced (Seputra, 2019).

Gross Benefit Cost Ratio (Gross B/C Ratio)

Gross B/C Ratio is the total ratio between positive net benefits and negative net benefits in a project or business. Application of the Gross B/C Ratio in a business to a situation is an analysis used to see the extent of the comparison between the benefit value and the cost value when viewed at the current value. Gross B/C Ratio is used to assess the feasibility of a project or business for business evaluation (Soeharto, 1999). The application of the Gross B/C Ratio in a business can be said to be economically feasible and can be started if a B/C Ratio > 1 is obtained, while a business is said to be unviable if a B/C Ratio < 1 is obtained(Ekowati et al., 2016).

METHODS

Based on research conducted by researchers, this research includes research that uses a quantitative approach, which is an objective research approach that includes collecting and analyzing data in the form of numbers. The type of research used is descriptive research. Descriptive research is research conducted to determine the value of independent variables, either one or more variables (independent) without making comparisons or connecting them with other variables(Siregar, 2013).

The population in this study is all operational cost data on the BSF Nusantara Tulungagung maggot cultivation business from its inception in 2018 to 2023. The sampling in this research is taking operational production cost data on the BSF Nusantara Tulungagung maggot cultivation business in 2023. Sampling in this study used purposive sampling technique, where sampling is determined with certain considerations(Sugiyono, 2013). The sample used in this research is sales data, income received, selling prices, variable costs and fixed costs which influence the production process of the BSF Nusantara Tulungagung maggot cultivation business in 2023.

The data sources used are primary data and secondary data. Primary data is financial data obtained from the owner of the BSF Nusantara Tulungagung maggot cultivation business in 2023. Meanwhile, secondary data is from previous research data related to the research title and data resulting from the researcher's analysis. The data analysis technique used is using the BEP or break-even point calculation to determine the relationship between fixed costs, variable costs, profits and volume of business activities and then to determine whether the business is feasible or not using Gross B/C. The analysis techniques used are as follows:

Total cost (TC)

$$TC = FC + VC \quad (1)$$

Total Revenue (TR)

$$TR = Y \cdot Py \quad (2)$$

Y (Yield)

Py (Price of Yield)

Income

$$Pd = TR - TC \quad (3)$$

Explanation:

FC (Fixed Cost)
VC (Variable Cost)
Pd = Income
TR =Total Revenue
TC =Total Cost

Analysis Break Event Point (BEP)
Analysis in rupiah

$$BEP = \frac{FC}{1-(\frac{VC}{S})} \quad (4)$$

FC = Fixed Cost
VC = Variable Cost
S = Sales

Analysis in unit

$$BEP\ Unit = \frac{FC}{P-V} \quad (5)$$

FC = fixed cost
P = Price/Unit
V = Variable cost/Unit
If, BEP price < selling price then the business is in a profit position
If, BEP price = selling price then the business is at the break-even point
If, BEP price > selling price then the business is in a loss position
Contribution Margin Ratio (CMR)

$$CMR = 1 - \frac{Cost}{Sales} \quad (6)$$

Gross Benefit Cost Ratio (Gross B/C Ratio)

$$Gross\ B/C = \frac{TR}{TC} \quad (7)$$

If, Gross B/C > 1, then the business is worth running
If, Gross B/C < 1, then the business is not worth running
If, Gross B/C = 1, then the business is in BEP condition

RESULTS

Analysis of economic value and business feasibility using BEP and Gross B/C Ratio calculations is an analysis based on actual prices in the BSF Nusantara maggot cultivation business. Some of the things that will be analyzed are as follows:

Data Description
Selling price
The BSF Nusantara maggot cultivation business is a maggot cultivation business that produces products in the form of wet maggots and dry maggots. The selling price of this production is as follows:

Table 1. Selling Price Maggot BSF Nusantara 2023

No.	Name of Product	Selling Price/kg
1	Wet Maggot	Rp 6.000
2	Dry Maggot	Rp 40.000

Source: Data processed by researchers (2024)

Sales Data

Sales data for the BSF Nusantara maggot cultivation business in producing maggots in 2023 are as follows:

Table 2. BSF Nusantara Company Sales Data for 2023

Harvest Period	Total weight (Kg)	Wet Maggot (Kg)	The rest of wet Maggot (Kg)	Dry Maggot (Kg)
1	188	104	84	28
2	174	97,5	76,5	25,5
3	200	110	90	30
4	179	90,5	88,5	29,5
5	169	82	87	29
6	199	122,5	76,5	25,5
7	179	105,5	73,5	24,5
8	169	82	87	29
9	182	99,5	82,5	27,5
10	174	100,5	73,5	24,5
11	180	91,5	88,5	29,5
12	195	108	87	29
13	170	80	90	30
14	171	82,5	88,5	29,5
15	187	109	78	26
16	190	100	90	30
17	166	76	90	30
18	186	108	78	26
19	177	100,5	76,5	25,5
20	176	86	90	30
21	180	93	87	29
22	197	108,5	88,5	29.5
23	176	105,5	70,5	23,5
24	200	107	93	31
Total	4364	2349,5	2014,5	671,5

Source: Data processed by researchers (2024)

Based on the table above, it is known that the BSF Nusantara maggot cultivation business in 2023 will carry out 24 harvest periods with a total harvest in one year of 4364 kg, consisting of sales of wet maggots taken by collectors or selling 2349.5 kg. The remaining 2014.5 kg of wet maggots were processed into dry maggots by drying them in an oven. A wet maggot weighing 1.5 kg, if dried, becomes a dry maggot weighing approximately 0.5 kg. So the dry maggot production produced by the BSF Nusantara maggot cultivation business in 2023 will be 671.5 kg.

Variable Costs

Variable costs are the amount of costs that can change proportionally according to the company's activities. The following are the variable costs incurred by the BSF Nusantara Tulungagung maggot cultivation business.

Raw Material Costs

The costs of raw materials used in the maggot cultivation production process are in the following table 3. Based on the data in the table above, the raw material used in the maggot cultivation business to produce 4364 kg of BSF maggots is 2,400 grams of maggot eggs at a price of IDR 2,000/gram, the main food for BSF maggots is 7,680 kg of organic waste at a price of IDR 500/kg and for 72 kg of bran at a price of IDR 5,000/kg. So the raw material costs incurred by the BSF Nusantara Tulungagung maggot cultivation business during 2023 will be IDR 9,000,000.

Table 3. Raw Material Costs for BSF Nusantara Maggots in 2023

No.	Component	Needs	Unit	Price/Unit	Needs Total
1	BSF Maggot egg	2400	gram	Rp 2.000	Rp 4.800.000
2	Organic waste	7680	kg	Rp 500	Rp 3.840.000
3	Rice bran	72	kg	Rp 5.000	Rp 360.000
Total					Rp 9.000.000

Source: Data processed by researchers (2024)

Fuel Costs

The fuel is used to support the operations of the BSF Nusantara Tulungagung maggot cultivation business. The fuel costs used during the maggot cultivation production process in 2023 are as follows (Table 4). Based on the table above, it is known that gasoline consumption during 2023 will be 96 liters at a price of IDR 10,000/liter, so the total costs incurred are IDR 960,000.

Table 4. BSF Nusantara Maggot Fuel Costs in 2023

No.	Component	Needs	Unit	Price/liter	Total
1	Fuel	96	liter	Rp 10.000	Rp 960.000
Total					Rp 960.000

Source: Data processed by researchers (2024)

Fixed cost

Fixed costs are costing whose value does not change despite changes in the company's operational activities in producing in a certain period. The following are the fixed costs incurred by the BSF Nusantara Tulungagung maggot cultivation business in 2023.

Labor costs

The calculation of labor costs is obtained from the costs incurred by the BSF Nusantara Tulungagung maggot cultivation business during the production process. This maggot cultivation business is a small-scale business carried out by the owner and assisted by one employee. The production process of maggot cultivation takes around 15 days to be able to harvest adult larvae which can be used as an alternative animal feed, so that in one month you can harvest 2 harvests. The following are the labor costs incurred during production in 2023:

Table 5. Labor Costs for BSF Nusantara Maggot Cultivation Production in 2023

No	Component	Needs	Working days/ Production	Wages/day/ person	Total
1	Labor	2	317	Rp 30.000	Rp 19.020.000
Total					Rp 19.020.000

Source: Data processed by researchers (2024)

Based on the calculations in the table above, the consumption of labor requirements and the amount of costs incurred in the production process of BSF maggot cultivation during 2023 will reach IDR 19,020,000 with working days during 2023 totaling 317 days.
In production activities, the BSF Nusantara maggot cultivation business produces 2 types of products, so the calculation of the division of labor based on the products produced is as follows (Table 6).

Based on the calculations in the table above, it is known that workers receive wages of IDR 30,000/day. The division of labor costs for wet maggot production is 25% with wages of IDR 7,500/day and labor costs for dry maggot production is 75% with wages of IDR

22,500/day. So, the total labor costs for producing wet maggots are IDR 4,755,000 and the total labor costs for producing wet maggots are IDR 14,265,000.

Table 6. Distribution of Labor Costs Based on Products Produced by BSF Nusantara Company 2023

No	Distri-Bu-tion	Labors	Product	Salary/ day	Working Days / Production	Total
1	25%	2	Wet Maggot	Rp 7.500	317	Rp 4.755.000
2	75%	2	Dry Maggot	Rp 22.500	317	Rp 14.265.000
				Rp 30.000		Rp 19.020.000

Source: Data processed by researchers (2024)

Electricity cost

Electricity costs incurred for the use of electricity to support the production process of the BSF Nusantara maggot cultivation business, especially for the use of oven equipment in the production of dried maggots. Electricity costs incurred during the production process in 2023 are as follows:

Table 7. Maggot BSF Nusantara Electricity Costs in 2023

No.	Component	cost/month	Needs	Unit	Total
1	Electricity	Rp 450.000	12	month	Rp 5.400.000
Total					Rp 5.400.000

Source: Data processed by researchers (2024)

Based on the data in the table above, it is known that the electricity costs incurred are IDR 450,000/month. So that during 2023 expenses for electricity costs will be IDR 5,400,000.

Production Equipment Costs

Table 8. Depreciation Costs for BSF Nusantara Company Maggot Equipment Year 2023

No.	Component	Total	Service life (year)	Price	Depreciation
1	Biopond	8	10	Rp 2.000.000	Rp 200.000
2	Pen	1	10	Rp 800.000	Rp 80.000
3	Hatch box	4	8	Rp 500.000	Rp 62.500
4	Motor and cart	1	10	Rp 5.000.000	Rp 500.000
5	sieve	1	8	Rp 90.000	Rp 11.250
6	Oven	4	10	Rp 3.840.000	Rp 384.000
7	Storage container	4	8	Rp 400.000	Rp 50.000
8	Scales	1	8	Rp 175.000	Rp 21.875
Total Cost					Rp 1.309.625

Source: Data processed by researchers (2024)

Based on the table above, the depreciation cost for production equipment in 2023 is IDR 1,309,625 using the straight-line method with a different economic life value each year.

Data analysis

Business costs

Business costs are all sacrifices incurred by a company to support a production process. The calculation of business costs is carried out using the following formula:

TC = FC + VC

TC (Total Cost) l

FC (Fixed Cost)

VC (Variable Cost)

The total production business costs incurred by the BSF Nusantara Tulungagung maggot cultivation business for the production of wet maggots and dry maggots in 2023 are as follows:

Table 9. Variable Costs and Fixed Costs for BSF Nusantara Company 2023

Variable Cost (VC)		
Material cost	Rp9.000.000	
Fuel cost	Rp 960.000	
		Rp 9.960.000
Fixed Cost (FC)		
Electricity cost	Rp 5.400.000	
Equipment Depreciation Cost	Rp 1.309.625	
Labor cost	Rp 19.020.000	
		Rp 25.729.000
Total Cost (TC) = VC + FC		Rp 35.689.625

Source: Data processed by researchers (2024)

Based on the table above, the total business costs incurred by the BSF Nusantara maggot cultivation business to support the company's operations are IDR 35,689,625.

Reception

Revenue is the total income received by producers from sales of their products. Revenue is obtained from the sales of BSF maggots for 1 year and has not been deducted from capital and costs incurred, so that revenue is the gross income received by the BSF Nusantara Tulungagung maggot cultivation business during 2023. Calculation of revenue can be obtained using the following formula:

TR = Y. Py

TR (Total Revenue)

Y (Yield)

Py (Price of Yield)

Table 10. BSF Nusantara Company Revenue Data for 2023

No	Name of Product	Amount (Kg) (Y)	Selling Price/Kg (Py)	Total Revenue (TR) = Y.Py
1	Wet Maggot	2349,5	Rp 6.000	Rp 14.097.000
2	Dry Maggot	671,5	Rp 40.000	Rp 26.860.000
Total Revenue (TR)				Rp 40.957.000

Source: Data processed by researchers (2024)

Based on the data in the table above, it is known that the amount of revenue received by the BSF Nusantara Tulungagung maggot cultivation business in 2023 for the sale of wet maggots and dry maggots is IDR 40,957,000.

Income

Revenue is the amount of profit obtained by a company while carrying out all business operational activities. Income can be determined using the following formula:

$$Pd = TR - TC \quad (8)$$

Pd = Income
TR (Total Revenue)
TC (Total Cost)

Table 11. Total Revenue of BSF Nusantara Company 2023

Description	Amount
Total Revenue (TR)	Rp 40.957.000
Total Cost (TC)	(Rp 35.689.625)
Total Income (Pd) = TR - TC	Rp 5.267.375

Source: Data processed by researchers (2024)

Based on the table above, the results of calculating the difference between total revenue costs (TR) and total business costs (TC) can be seen that the total income or profit obtained by the BSF Nusantara Tulungagung maggot cultivation business in 2023 is IDR 5,267,375.

Break Even Point (BEP) Analysis
Analysis in Rupiah

$$\text{BEP (Rupiah)} = \frac{25.729.625}{1-(9.960.000/40.957.000)}$$

$$= \frac{25.729.625}{1-(0,2432)}$$

$$= \frac{25.729.625}{0,7568}$$

$$= 33.997.918,87$$

Analysis in production/Unit
The BSF Nusantara Tulungagung maggot cultivation business in producing maggots produces 2 productions, namely wet maggots and dry maggots

BEP (Unit) wet Maggot =

$$\frac{5.680.625}{(6.000-2.282)}$$

=

$$\frac{5.680.625}{3.718}$$

=
= 1.527,87

$$\text{BEP (Unit) Dry Maggot} = \frac{20.974.625}{(40.000-2.282)}$$

$$= \frac{20.974.625}{37.718}$$

= 556,09

The results of the calculations above show that the BSF Nusantara Tulungagung maggot cultivation business must be able to sell maggot production equal to or more than Rp. 33,997,919, with wet maggot production equal to or more than 1,527.87 kg and dry

maggot equal to or more than 556 kg. .09 kg. Based on data analysis, it shows that in 2023 the BSF Nusantara maggot cultivation business will be able to obtain revenues of IDR 40,957,000 with a total production of wet maggots of 2,349.5 kg and dry maggots of 671.5 kg. This shows that the BSF Nusantara Tulungagung maggot cultivation business has been optimal in managing and selling.

This research supports the theory of (Sunyoto, 2014), BEP analysis is used to study the relationship between costs, revenues and profits and is useful in setting prices, controlling costs and other decisions. With BEP analysis, it can be used in decision making and cost control in the BSF Nusantara Tulungagung maggot cultivation business.
This statement is supported by the CMR analysis calculations below.
Contribution Margin Ratio (CMR).
A portion of sales proceeds used to cover fixed costs.

$$\text{CMR} = 1 - \frac{9.960.000}{40.957.000}$$

$$= 1 - 0{,}24319$$

$$= 0{,}76$$

The CMR of the BSF maggot cultivation business based on data obtained from the BSF Nusantara maggot cultivation business can be calculated as follows:

Sales	Rp 40.957.000
Variable cost	Rp 9.960.000 –
	Rp 30.997.000

The CMR calculation shows a profit value of 0.76 x 100% = 76% or IDR 30,997,000. The calculation results show that the resulting CMR is IDR 30,997,000, because the fixed costs incurred are IDR 25,729,625, the profit obtained from the sales is as follows:

CMR	Rp 30.997.000
Fixed cost	Rp 25.729.625 –
Profit	Rp 5.267.375

The calculation results show that the BSF Nusantara Tulungagung maggot cultivation business received sales of IDR 40,947,000, making a profit of IDR 5,267,375.

The research results show that maggot cultivation has economic value because this business can utilize organic food waste taken from restaurants, markets, neighbors' houses and Islamic boarding schools as the main ingredient for maggot food and can produce BSF maggot products that are good for sale.

Taking waste obtained from Islamic boarding schools for maggot cultivation also brings economic value to Islamic boarding schools. Food waste from Islamic boarding schools used as maggot feed can reduce transportation costs for transporting and managing Islamic boarding school waste. Apart from that, Islamic boarding schools can gain additional income from maggot cultivation businesses which produce maggot feed from food waste. This can be used as an additional source of income for Islamic boarding schools which can be used to improve facilities and develop the learning process at the Islamic boarding school. Maggot cultivation businesses earn income from managing the maggot cultivation process and selling maggots. This process provides economic benefits for Islamic boarding schools and maggot cultivation businesses, which generate profits for both parties.

The maggot cultivation business has high potential to generate direct and measurable financial benefits. This can be seen from the results of maggot products for organic fertilizer and animal feed, as well as the possibility of saving costs for managing organic

waste because organic waste from food waste is used as raw material for maggot feed. So it can be seen that the maggot cultivation business has economic value, if it is carried out regularly and maximally, it will get quite large profits.

This research supports research(Wardhiani et al., 2022) which states that the BSF maggot farming business in P4S Al-Mukhlis Banjaran has profitable economic value if derivative products from BSF maggot cultivation are sold to consumers directly. If derivative products from BSF maggot cultivation in the form of dried maggots, maggot flour, cassava for fertilizer, etc. can be sold directly to consumers, they have high economic value which can provide additional profits to BSF maggot cultivation businesses.

This is also in line with research(Nurdi et al., 2023) which shows that the maggot cultivation business has potential economic value because it benefits business actors and has the potential to be developed so that it can reach a wider market and can build business partners with similar businesses for larger scale marketing by utilizing technology as a means to support production and marketing.
Feasibility analysis of maggot cultivation business using Gross Benefit Cost Ratio (Gross B/C)

Business feasibility analysis is carried out to determine the level of profit and break-even, so that this analysis is useful for business actors and prospective business actors to determine whether the business is worth developing or not. Business feasibility analysis uses Gross B/C calculations. If Gross B/C > 1, the business is worth running. If Gross B/C is 1, the business is not worth running, and if Gross B/C = 1, the business is in a BEP state. The calculations used to carry out a business feasibility analysis using Gross B/C are as follows:

$$\text{Gross B/C} = \frac{TR}{\text{TC}}$$
$$= \frac{40.957.000}{35.689.625}$$
$$= 1{,}15$$

The results of calculating the feasibility level of the maggot cultivation business as bioconversion of organic waste using Gross B/C show the final point of 1.15, which means Gross B/C > 1. So the BSF Nusantara Tulungagung maggot cultivation business is said to be feasible to run and develop. To get maximum profits, it is necessary for business actors to consider operational costs and other risk factors so that the business they run can be developed at a higher level.

This is in line with theory (Sunyoto, 2014), which states that the application of Gross B/C in a project or business is used to analyze the extent to which the benefit value is compared to the cost value so that it can be used to assess the feasibility of the business. This research supports previous research by (Bayu Firmansyah, 2023), which states that the level of business feasibility can be determined using the Gross B/C calculation which can be used to determine the level of business feasibility by comparing the amount of revenue with the operational costs incurred during the production process.

The BSF maggot cultivation business has very good market prospects. Products produced from the BSF maggot cultivation business include maggot eggs, wet maggots, dry maggots which can be used as an alternative to animal feed or fish feed and there is cassava which is used as organic fertilizer for plants. Apart from that, based on several international studies, it is stated that maggot oil has antimicrobial and emollient properties so that it can be used as a raw material for the cosmetics and medicine industries. This shows that the products produced from the maggot cultivation business have economic value.

This is in line with previous research which states that the BSF maggot cultivation business is a business worth running because it has high sales potential so it is worth developing using good strategies and can also reduce waste accumulation, especially organic waste(Dewi et al., 2021)

As a business that is said to be feasible to run, the BSF Nusantara Tulungagung maggot cultivation business must have a strategy as an effort to develop the business so that it does not experience a decline due to business competition. Developing the BSF maggot cultivation business requires several strategies, such as finding quality waste sources and collaborating with parties who have a lot of waste for raw materials for maggot cultivation, building good relationships with consumers and increasing promotions to open wider marketing opportunities.

CONCLUSION

Calculation of the economic value of the BSF Nusantara Tulungagung maggot cultivation business using BEP shows the results of the BEP calculation in rupiah of IDR 33,997,919, which means the production BEP < production amount. The BEP calculation in production or units shows that the BEP break-even point for wet maggot production is 1,527.87 kg and the BEP break-even point for dry maggot production is 556.09 kg, which means the BEP price, selling price, and it is known that the BSF Nusantara maggot cultivation business makes a profit of IDR 5,267 ,375.

Calculation of the feasibility level of the BSF Nusantara Tulungagung maggot cultivation business using Gross B/C by calculating the comparison of revenue results with costs incurred to support operational activities shows an end point of 1.15, this shows the result that Gross B/C > 1.

BEP and Gross B/C analysis to analyze the economic value and feasibility of the BSF Nusantara Tulungagung maggot cultivation business shows that this business has the potential to have economic value and is feasible to run and develop because it is able to utilize organic food waste into products for animal feed and derivative products that have High selling value and if done optimally can increase income.

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