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ANALYSIS OF PRODUCTION COST CALCULATION (Case Study: Mr Mitro's Tofu Making Business in Stabat District, Langkat Regency, North Sumatra)

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Abstract
This research aims to analyze the cost of production in Mr. Mitro's tofu-making business in Stabat District, Langkat Regency, North Sumatra. This research uses a case study method and is analyzed quantitatively and descriptively. The data collection methods used are primary data and secondary data. The sampling technique used was a purposive sampling technique. The subject in this research is the owner of a tofu-making business, namely Mr. Mitro. The calculated analysis uses the full costing method and the activity-based costing (ABC) method. The results obtained from this research are the cost of production using the Full Costing method of Rp. 269 and using the Activity Based Costing method of Rp. 260. So that the tofu production produced by Mr Mitro's business experiences quite large costs of Rp. 9/unit.

Keywords: *Basic Price, Activity-Based Costing, Production, Tofu, Cost Calculation.*

INTRODUCTION

Agricultural processing is an important activity compared to farming in providing food. Agricultural processing is the second component in agribusiness activities after the agricultural production component. Processing of soybean agricultural products into tempeh and tofu. Tempeh and tofu are traditional foods that have long been known in Indonesia (Anzitha, 2019).

Tofu is a traditional food for most Indonesian people, which is loved by almost all people. This causes many Indonesian people to choose to run a household-scale tofu-making industry business (small industry) with simple technology so that the level of efficiency of resource users (water and materials) is still felt to be low and the level of waste production produced can be ascertained (Desi et al., 2022).

Until now, the need for tofu continues to increase along with population growth even though this country is being bombarded with various cooking menus adopted from foreign countries. Because tofu is a people's food, cheap and contains a lot of vegetable protein in it, so it is very good for health, reduces cholesterol levels, and of course affordable for all groups (Andriansyah, 2019).

The average per capita consumption of tofu in Indonesia in 2021 was 0.158 kg per week and this amount increased by 3.27% compared to 2020 which was 0.153 kg per week (Central Statistics Agency, 2021). The increase in tofu consumption in 2021 has also caused the demand for tofu to increase, so it is necessary to increase tofu production to ensure the availability of tofu in the market. If production is increased, the cost of tofu production will also increase, so it is necessary to calculate production costs properly so that the production process runs smoothly because production costs have a major impact on the profits of the tofu industry. One of them is Mr. Mitro's tofu business, which still uses a very simple method in calculating the cost of goods sold. So there are still costs that have not been calculated in the tofu business production process, such as investment costs and depreciation. This is because the costs compiled in the calculation of tofu production costs are not detailed enough. The purpose of this study was to determine the comparison of the cost of goods sold in Mr. Mitro's tofu business between the Traditional Method and the Full Costing Method and the Activity Based Costing Method.

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RESEARCH METHODS

Research Location and Time

This research was conducted in May 2023 at Jl. Sei Batang Panggang, Alley Amal, Kwala Bingai Subdistrict, Stabat District, Langkat Regency. The research location was selected using purposive sampling, meaning that the location was deliberately chosen based on certain considerations — in this case, the tofu business has been operating for approximately 11 years, making it suitable for the study's objectives.

Data Source Type

This study employed a survey method combined with direct interviews with the business owner. The population in this research consisted of the Mr Mitro tofu business, which was used as the sampling location. Data collected included both primary and secondary data. Primary data were obtained directly from observations and interviews with the business owner, while secondary data were gathered from related documents and sources supporting the research.

Data Analysis

a. Full Costing Method

The full costing method is a method of determining the cost of production in which all production costs are calculated into the cost of production (Iryanie, 2019).

full costing production costs :	
Raw material costs	Rp.xxx
Direct labor cost	Rp.xxx
Fixed factory overhead costs	Rp.xxx
Variable factory overhead costs	Rp.xxx
Total Cost of Goods	Rp.xxx

$$\text{Cost of Goods Sold} = \frac{\text{Total Cost of Goods Sold}}{\text{Production Output Unit}} = \text{Rp.xxx}$$

b. Activity Based Costing Method

The activity based costing method provides better cost calculation information and can help management manage the company efficiently and gain a better understanding of the company's competitive advantages, strengths and weaknesses. The formulation of the problem in calculating the cost of production Activity Based Costing .

1. First Stage

   The first stage is to charge overhead costs to activities. Determining the cost of production based on Activity Based Costing (ABC) consists of four steps, namely:

   a. Identifying activities The first step in implementing Activity Baaseb Costing is to identify the activities that will form the basis of the system.
   b. Classifying various activities classifying activities that will be the basis of the system. Various activities are classified into several groups that have an easy and clear interpretation several groups that have an easy and clear interpretation and are suitable for segments of the production process that can be managed to produce products or services. The way to understand activities and how they are combined and arranged in four levels of activity, namely unit-level activities, batch-level activities, product-level activities and facility-level activities.

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c. Identifying cost drivers from activities that have been classified. The next step is to group similar or homogeneous types of costs. The cost requirement is that activities must be logically related and have the same consumption ratio for all products.

d. Determining the pool rate The pool rate is the overhead rate per unit cost driver calculated for a group of activities. The pool rate can be calculated using the formula:

$$\text{Per Unit Cost Driver} = \frac{\text{Number of Activities}}{\text{Cost Driver}}$$

2. Second stage

Each group of overhead costs is charged to the product. This is done by using previously calculated rates and the value of activity resources consumed by each type of product. Thus, the overhead charged from each cost group to each type of product can be calculated. The factory overhead costs charged can be calculated using the formula according to Hansen and Mowen (2013):

Overhead Cost (BOP) = Rate per unit of cost driver x cost driver used

RESULTS AND DISCUSSION

Calculation of Production Cost in Mr Mitro's Tofu Business

The calculation of the cost of production at Usaha Tahu Mr Mitro until now still uses the traditional method calculated by the company itself, where the production cost is calculated by adding up all the costs incurred to be able to produce the product. The following are the types of costs incurred in Mr Mitro Tofu's Business production process:

1. Raw Material Cost

The cost of raw materials is the total cost incurred in purchasing raw materials to produce tofu. The following are the costs of raw materials used in making Mr Mitro's tofu business:

Table 1. Cost Purchase of Raw Materials at Mr Mitro's Tofu Business

Raw material	Amount (kg/month)	Raw Material Price (Rp)	Total Raw Material Cost (Rp/month)
Soya bean	2,400	8,000	19,200,000

Based on the table above, the raw material used in making tofu is soybeans. In making tofu, the soybeans used are 2,400 kg/month, with a price per kg of Rp. 8,000. So the cost of raw materials incurred in making tofu is Rp. 19,200,000/month.

2. Labor costs

Labor costs are the wages in Mr Mitro's tofu business, which are used to pay workers who are directly involved in the production process. Labor costs incurred by Mr Mitro's tofu business are Rp. 8,000,000/month, for 5 employees (Table 2).

Table 2. Labor Costs at Mr Mitro's Tofu Business

No.	Activity	TKDK	TKL	Number of Kindergartens	HKP/day	Wages (Rp/day)	Total labor costs (Rp/month)
1.	production	2	-	2	1.5	30,000	1,350,000
2.	marketing	-	3	3	1,875	120,000	6,750,000
Amount		2	3	5			8,100,000

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3. Factory Overhead Costs

Overhead costs are all costs incurred by Mr Mitro's tofu business which are used to finance production in addition to raw material costs and labor costs. The following are the overhead costs in Mr Mitro's tofu business:

Table 3. Factory Overhead Costs at Mr Mitro's Tofu Business

Information	Amount/Rp (month)
Electricity cost	450,000
Firewood Cost	400,000
Plastic Bag Cost	720,000
Total	Rp. 1,570,000

Based on the table above, the overhead costs incurred amount to Rp. 1,570,000/month, which consists of electricity costs, firewood costs, and plastic bag costs.

Table 4. Calculation of Production Cost Using Traditional System in Mr Mitro's Tofu Business

Information	Unit	Amount
Raw Material Cost	Rp	19,200,000
Labor costs	Rp	8,100,000
Factory Overhead Costs	Rp	1,570,000
HPP	Rp	28,870,000
Production Unit	Unit	120000
HPP Per Product	Rp	240

Based on the table above, the results of the calculation of the cost of production from the cost of raw materials, labor costs, and factory overhead costs with the traditional system in Mr Mitro's tofu business are Rp. 28,270,000/month and Rp. 240/piece of tofu.

Calculation of Production Cost Using the Full Costing Method

1. Raw Material Cost

Table 5. Raw Material Costs in Mr Mitro's Tofu Business

Raw material	Amount (kg/month)	Unit Price	Total Cost (Rp/month)	Production Quantity (month)	Production Cost (Rp/unit)
Soya bean	2400	8000	19,200,000	120000	160

Based on the table above, in 1 month of production, 120,000 tofu is produced and 2,400 kg of soybeans are needed.

2. Labor costs

Table 6. Workforce at Mr Mitro's Tofu Business

No.	Activity	TKDK	TKL	Number of Kindergartens	HKP/day	Wages (Rp/day)	Total labor costs (Rp/month)
1	production	2	-	2	1.5	30,000	1,350,000
2	marketing	-	3	3	1,875	120,000	6,750,000
Amount		2	3	5			8,100,000

Based on the table above, the labor costs incurred by Mr Mitro's tofu business are Rp. 8,000,000/month, for 5 employees.

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3. Factory Overhead Costs

Table 7. Factory Overhead Costs of Mr Mitro's Tofu Business

Information	Amount (Rp/month)
FIXED BOP	
Electricity cost	450,000
Depreciation cost of milling machine	415,384
Equipment depreciation expense	529,846
Building depreciation costs	1,038,461
Vehicle depreciation costs	375,000
Transportation Costs	1,080,000
VARIABLE BOP	
Firewood costs	400,000
Plastic bag costs	720,000
Total	5,008,691

Once all production costs are known, including raw material costs, labor costs, and factory overhead costs, the cost of production can be calculated using the full costing method.

Table 8. Calculation of Production Cost Using the Full Costing Method in Mr Mitro's Tofu Business

Information	Unit	Amount (Rp)
Raw Material Cost	Rp	19,200,000
Labor costs	Rp	8,100,000
Factory Overhead Costs	Rp	5,008,691
HPP	Rp	32,308,691
Production Quantity	Unit	120000
HPP Per Product	Rp	269

Based on the table above, the results of the calculation of the cost of production from the cost of raw materials, labor costs, factory overhead costs using the full costing method in Mr Mitro's tofu business are Rp. 32,308,691/month and Rp. 269/piece of tofu.

Calculation of Production Cost Using Activity Based Costing (ABC) Method

The activity-based costing method is a cost determination approach that assigns costs to products.

1. Identifying cost activities and activity levels

   Various activities are classified into several groups that have an easy and clear understanding and are suitable for the production process that can be managed to produce products or services (Table 9).

2. Determine the appropriate Cost Driver for each activity

   After the activities are identified according to their level, the next step is to determine the cost driver of each cost. This identifier is intended in determining the rate per cost driver (Table 10).

3. Determination of Group Rate (Pool Rate)

   Pool Rate is the factory overhead rate per unit cost driver calculated for a group of activities.

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Table 9. Overhead Costs Based on Cost Classification into Activities at Mr Mitro's Tofu Business

BOP Components	Activity Cost (Rp)	Activity level	Cos driver
Electricity cost	450,000	Unit activity level	kWh
Firewood costs	400,000	Unit activity level	Number of units
Plastic bag costs	720,000	Unit activity level	Number of units
Machine depreciation costs	415,384	Unit activity level	Number of units
Equipment depreciation expense	529,846	Unit activity level	Number of units
Vehicle depreciation costs	375,000	Batch level	Number of working hours
Building depreciation costs	1,038,461	Facility level	Area

Table 10. List of Cost Drivers

Information	Amount
Number of units	120000
Number of KWH	6.3
Number of Kg	1000
Number of working hours	210
Area	30

Table 11. Pool Rate Calculation

Cost pool I	**Total cost**
Machine depreciation costs	Rp. 415,384
Equipment depreciation expense	Rp. 529,846
Total cost	Rp. 945,230
Number of units produced	12000
Pool Rate I	**7.88**
Cost Pool II	**Total cost**
Electricity cost	Rp. 450,000
Total cost	Rp. 450,000
Number of kWh	6.3
Pool Rate II	**71,428**
Cost Pool III	**Total cost**
Firewood	Rp. 400,000
Total cost	Rp. 400,000
Number of Kg	1000
Pool Rate III	**400**
Cost Pool IV	**Total cost**
Vehicle depreciation costs	Rp. 375,000
Total cost	Rp. 375,000
Number of working hours	210
Pool Rate IV	**1,786**
Cost Pool V	**Total cost**
Plastic bag costs	Rp. 720,000
Total cost	Rp. 720,000
Number of units	120000
Pool Rate V	**6**

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Cost Pool VI	**Total cost**
Building depreciation costs	Rp. 1,038,461
Total cost	Rp. 1,038,461
Total area	30m2
Pool Rate VI	**34,615**

Based on the table above, the results of several pool rates can be seen in pool rate I: 7.88, pool rate II: 71,428, pool rate III: 400, pool rate IV: 1,786, pool rate V: 6, pool rate VI: 34,615.

4. Calculating Pool Rate

The second step in determining the cost of production based on activity is to charge group rates based on cost drivers. The costs for each group of factory overhead costs are traced to various types of products. Once the rate per activity group is known, the overhead costs charged to the product can be calculated by multiplying the rate by the amount of consumption of each product.

Table 12. Factory Overhead Cost Allocation Using the Activity-Based Costing Method

Activity level	Cost driver	Loading process	Amount (Rp)
	Product Unit	7.88 x 120000	945,600
		6 x 120000	720,000
Unit	kWh	71,428 x 6.3	449,996
	KG	400 x 1000	400,000
		Total unit-level activity	**Rp. 2,515,596**
Batch	Working hours	1,786 × 210	375,060
		Total unit-level activity	**Rp. 375,060**
Facility	Area	34,615 × 30	1,038,450
		Total unit-level activity	**Rp. 1,038,450**
		BOP	**Rp. 3,929,106**

The total factory overhead costs allocated using the activity based costing system amounted to Rp. 3,692,446. Based on the allocation of factory overhead costs that have been carried out, the calculation of the cost of production using the activity based costing system in Mr Mitro's tofu business can be presented in the following table:

Table 13. Production Cost Using the Activity Based Costing (ABC) Method at Mr Mitro's Tofu Business

Information	Unit	Amount (Rp)
Raw material costs	Rp	19,200,000
Labor costs	Rp	8,100,000
Factory overhead costs	Rp	3,929,106
HPP	Rp	31,229,000
Product units	Unit	120000
HPP per unit	Rp	260

Based on the table above, the results of the calculation of the cost of production from the cost of raw materials, labor costs, factory overhead costs using the activity based costing method in Mr Mitro's tofu business are Rp. 31,229,000/month and Rp. 260/piece of tofu.

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Comparison of Production Cost Calculation Systems Using the Full Costing Method with the Activity-Based Costing Method in Determining Production Costs in Mr Mitro's Tofu Business

Table 14. Comparison of Traditional Systems with Full Costing and Activity Based Costing in Determining Production Costs in Mr Mitro's Tofu Business

Types of products	Traditional Method	Comparison		
		Traditional & Full Difference	Traditional & ABC difference	Difference between ABC & Full costing
Know	Rp. 240	Rp. 29	Rp.20	Rp. 9

Based on the calculation of the table above, it can be seen that the calculation results using the two methods produce differences in factory overhead charges which result in differences in the results of the cost of production. So that it provides a difference or difference in the cost of production between the traditional method and the full costing method of Rp. 29 / piece of tofu. While the difference between the traditional method and the activity based costing method is Rp. 20 / piece of tofu.

CONCLUSION AND SUGGESTIONS

CONCLUSION

Comparison of production cost calculation in Mr Mitro's tofu business using the Traditional Method in producing production cost of Rp. 28,870,000/month, then the production cost per product is Rp. 230/piece of tofu. While using the Full Costing Method produces production cost of Rp. 32,308,691/month, then the production cost per product is Rp. 259/piece of tofu, and the Activity Based Costing Method produces production cost of Rp. 31,229,000, then the production cost per product is Rp. 250/piece of tofu. So that it can be seen the comparison of the difference between the Traditional Method and Full Costing is Rp. 29/piece of tofu, the Traditional Method and Activity Based Costing is Rp. 20/piece of tofu, and the Full Costing Method and Acting Based Costing is Rp. 9/piece of tofu .

SUGGESTION

Based on the research results and conclusions obtained, the suggestions and input that the author can provide to tofu business owners are to be more detailed when making bookkeeping in calculating the costs incurred during the tofu production process, so that they can consider the selling price in the sales process.

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