

Determining the Cost of Goods Manufactured for Setting Selling Price

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Many MSMEs sell the same product only follow the market price, without calculation of the cost of production correctly. Even though the elements of production costs need to be calculated accurately to describe all economic sacrifices. The Purpose of this study is to find out the difference between the calculation of the cost of goods manufactured and the determination of the selling price which is stated by Subur cracker factory with the one which is the result based on determination of the cost of goods manufactured by using full costing and variable costing method as the basis for setting selling price. A descriptive analysis method is used for this research. The result of this study indicate that there is a difference between the factory of cost of good manufactured and selling price with a theory by using full costing and variable costing method in determining the selling price using the cost-plus pricing method. It caused by the differences in allocation of production costs which is not all the element of cost production are classified and calculated, also caused by determination of mark up.

Keyword: *Cost Of Goods Manufactured, Full costing, Variable costing, Selling Price*

Introduction

In 2021 the number of MSMEs in Bogor Regency according to the Cooperatives and Small Business Service will reach 506,347 units. Along with this growth, there will be competition between SMEs producing similar products that usually have competitive selling prices. For this reason, every MSME must be able to maintain its continuity by producing the best quality of each product at affordable prices, ensuring competitiveness in the market.

In an effort to achieve goals, Micro, Small and Medium Enterprises (MSMEs) need to face challenges. If you look at reality, MSMEs selling the same product is a challenge for their



continuity. Furthermore, MSMEs must deal with the rising cost of raw materials.

The factory for processing crackers, namely the Subur cracker factory, is one of the MSMEs that must deal with rising raw material prices. Aside from the issue of uncertain raw material costs, the Subur cracker factory's production costs has not been assessed in accordance with accounting principles. The selling price of crackers was not spared from challenges at the Subur cracker mill because they simply followed market selling price predictions.

It is known that total sales and profit at the Subur cracker factory have increased. However, the overall amount of raw materials required from 2020 to 2022 is the same; it's just that the price of raw materials rises every year, which raises production costs.

Companies will undoubtedly require a variety of techniques and methods to address existing issues. In this case, the Subur cracker factory increases the number of production units every year in order to keep expenses under control. This ran from 2020 to 2022. However, if the number of production units continues to grow without increasing the quantity of raw materials, the shape and quality of the product will be affected. As a result, the Subur cracker factory must reevaluate its cracker pricing in order to cover the total cost incurred with greater revenues without compromising the shape or quality of the products produced.

According to Kurniasari et al. (2018) , a product can minimize uncertainty in setting the selling price if the cost of the product is determined correctly by paying attention to the cost elements included in the cost of the product, and if allocating these cost elements accurately, it can describe all the actual economic resource sacrifices. The proprietor of the Subur cracker factory did not consider the cost of production in depth and did not employ any approach or procedure.

This condition also occurs in research conducted by Thenu et al., (2021) research, namely, in calculating the cost of goods manufactured in Ayu's rambak cracker business, he still uses a simple method, which is not in compliance with accounting, which records production costs in detail.

Even though an accurate calculation of the goods manufactured can determine the selling price, Therefore, the goods manufactured must be calculated in accordance with accounting theory and principles, specifically using the full costing method and variable costing, in order to describe all costs incurred to produce products.

According to Hartatik, (2019), the full costing method is commonly used to determine production costs. However, with all of the technical factors in order to reach the purpose of decision-making, variable costing is applied. So that it can use a general approach, namely cost-plus pricing, to establish the selling price. As a result, the company must know in advance what costs have been incurred to process raw materials into finished products in order to set the

selling price because a selling price that is too high will make the product competitive in the market, whereas a selling price that is too low will not provide benefits to the company (Nafisah et al., 2021).

According to the statement above, the purpose of this research is to calculate goods manufactured and selling price at the Subur cracker factory. To determine the cost of goods manufactured at the Subur cracker factory using the full costing method and the variable costing method in determining the selling price, and to compare the goods manufactured in determining the selling price between Subur cracker factories using the full costing and variable costing methods.

Literature Review

Production Cost

Production expenses are commonly used by business actors to assess how well they manage and reduce costs. According to Drury, (2021) production cost is the cost associated with the product and included in the inventory valuation for finished items or partially completed goods (work in process) until they are sold.

According to Garrison et al., (2021) the production costs are as follows:

1. Direct Materials Costs, namely costs that can be easily traced to the finished product and are included in the final product.
2. Direct Labor Costs, which refers to labor costs that can be directly traced to product units.
3. Manufacturing Overhead cost are considered indirect costs since they cannot be directly linked to a specific product.

Cost of Goods Manufactured

The cost of production is an important factor in determining a company's success because it serves as the basis for determining product prices. According to Kurniasih, (2019), the goods manufactured is the total of all costs incurred during the manufacturing process, including raw material costs, labor costs, and manufacturing overhead. The goods manufactured is also bound to a certain time period. According to Bustami, the cost of goods manufactured will be the same as cost of production if no product inventory is present in the initial and final processes (Handayani, 2019). The method of determining the cost of goods manufactured is as follows:

1. Full costing method

According to Garrison et al., (2021) The full cost method is a cost that includes all production costs such as direct materials, direct labor, and variable and fixed manufacturing overhead in product costs. The calculation of the cost of goods manufactured per unit is cost of goods manufactured divided by number of production units.

2. Variable costing method

According to Garrison et al., (2021) only manufacturing costs that vary with output are treated as product costs under variable costing. This would typically include direct materials, direct



labor, and the variable element of manufacturing overhead.

Proponents of the full cost method argue that all manufacturing costs must be assigned to products in order to match the unit costs of producing the products with their sales. Meanwhile, proponents of the variable cost method argue that fixed manufacturing overhead is not actually the cost of a specific product unit. These costs are incurred having the capacity to make products during a certain period and will be incurred even if nothing is made during the period. Moreover, whether units are manufactured or not, production costs will remain exactly the same. Therefore, proponents of variable costs argue that fixed manufacturing overhead is not part of the unit production cost certain products, and as such, states that fixed manufacturing overhead should be recognized as an expense in the current period.

The calculation of the cost of goods manufactured per unit is also cost of goods sold divided by number of production units.

Selling price

According to Taroreh et al., (2021) the selling price is the sum of the company's costs to produce a good or service plus the desired percentage of profit. Price is an important consideration in the world of entrepreneurship, according to Danela, (2021) because consumers typically choose products based on price and quality. The price that can cover all production and non-production costs plus a reasonable profit is the selling price. The selling price is calculated by adding the desired markup (an additional cost on top of the overall cost) to the production cost.

Selling Price Determination Method

According to Garrison et al., (2021) companies frequently use a pricing strategy in which they mark up costs. The markup for a product is the difference between the selling price and the cost and is usually represented as a percentage.

In setting the selling price there are four methods according to Kurniasih, (2019) that is :

1. Determination of the Normal Selling Price (Normal pricing)

The normal selling price setting method is often referred to as cost plus pricing, which is the calculation of the selling price by adding the expected profit above the full cost of producing and marketing the product, or it can also mean the total cost plus the desired markup or profit percentage.

As for Putra et al., (2021) the cost plus pricing approach's method for computing the selling price is determined as follows:

$$\text{Selling price} = \text{Total Cost} + (\% \text{Mark up} \times \text{Total Cost})$$

The total cost calculation is:

$$\text{Total costs} = \text{Production costs} + \text{Non-production costs}$$

Furthermore, the selling price per unit is calculated using the cost-plus pricing method by adding up the total estimated total cost with a mark up (%) and then dividing it by the production



volume or the number of production units:

$$\text{Selling price product per unit} = \frac{\text{Total cost + Mark up}}{\text{Number of production units}}$$

The Subur cracker factory can establish the selling price calculated utilizing the cost plus pricing method, and enterprises can define the cost base they use to determine cost plus pricing in a variety of ways. There are two techniques for establishing the selling price of a product: full costing and variable costing. Some companies, for example, may use full cost to define a cost base that includes direct materials, direct labor, variable manufacturing overhead, and fixed manufacturing overhead, while others may rely on product variable costs.

2. Determination of the Selling Price in a Cost-Type Contract (Cost-Type Contract Pricing)

A cost-type contract is one wherein the buyer commits to purchasing goods or services at a price based on the entire costs actually paid by the producer plus profit determined at a specific percentage of the total real costs.

3. Determination of the Selling Price for Special Orders (Special Order Pricing)

A cost-type contract is one wherein the buyer commits to purchasing goods or services at a price based on the entire costs actually paid by the producer plus profit determined at a specific percentage of the total real costs.

4. Determination of the selling price of products produced by the company, which is regulated by government regulations.

Research methods

Types of research

The type of research used in this study is descriptive (explorative) which tries to characterize or describe the actual state of the phenomena that exist within a company. The research method used is the case study method.

Objects, Units of Analysis, and Research Locations

The research object studied is the analysis of the cost of goods manufactured and selling prices. To get the necessary information data the authors conducted research on the Subur Crackers Factory.

The unit of analysis used is the organization. The author conducted research at the Subur cracker factory located on Jalan Gg. Hamlet RT 01 RW 04 Kel. Pabauan, Kec. Cibinong, Bogor Regency.

Types and Sources of Research Data

The types of data studied are quantitative and qualitative. The data source is primary data. Specifically, data obtained directly by a researcher by accumulating question data and then conducting direct interviews with business owners and production aspects

Operational Variables

The operational definition defines several approaches used by researchers to operationalize observable and quantifiable concepts or phenomena into research variables so that they can be assessed using numbers or qualities using a specific measuring scale for research purposes.

Table 1. Operational variables

Variable or sub variable	indicators	Measure	Scale
Cost of goods manufactured			
According to Subur cracker factory	Raw material cost	Qty x price per unit of raw material	Ratio
	Direct labor costs	total direct labor x labor wages	
	Auxiliary material costs	Qty x price per unit of auxiliary materials cost	
Full Costing Method	Raw material cost	Qty x price per unit of raw material	Ratio
	Direct labor costs	total direct labor x labor wages	
	Variable manufacturing	Cost of electricity + cost of auxiliary materials	
	fixed manufacturing overhead	Depreciation costs + maintenance costs + building rent + indirect labor	
Variable Costing Method	Raw material cost	Qty x price per unit of raw material	Ratio
	Direct labor costs	Total direct labor x labor wages	
	Variable manufacturing	Cost of electricity + cost of auxiliary materials	
Selling Price Cost plus pricing	Cost of goods manufactured and mark up	Total selling price = total cost + (% mark up x total cost)	Ratio

Method of collecting data

In the process of collecting data for this study using survey methods. While the data collection techniques in this study are as follows:

- a. Interview
- b. Documentation

Data analysis method

The analytical method in this study uses a quantitative descriptive.

The first stage is the process of analyzing the cost of goods manufactured of the Subur cracker factory by:

1. Data was gathered through interviews and documentation of the Subur cracker factory.
2. Explains how the cost of production at the Subur cracker factory is calculated by gathering production costs incurred over time.
3. Calculating the cost of goods manufactured using the full costing method.
4. Calculating the cost of goods manufactured using the variable cost method (variable costing method).

After the goods manufactured is determined, the next stage is the process of setting the selling price.

1. Describe the calculation of the selling price used by the company.

2. Determine the selling price using the cost plus pricing method by adding the desired mark up to the goods manufactured. By :
 - a. Collect data on production and non-production costs over a certain period of time.
 - b. Describe and calculate the selling price of the product using the cost plus pricing method. In determining the selling price of the product, there are two approaches, full costing and variable costing.
 - c. Calculate the unit price of the product.

After carrying out the steps above, the last step is to compare the calculation of the goods manufactured of factories using the full costing method and variable costing and determine the selling price using the cost plus pricing method over a period of time.

Results and Discussion

Calculation of Cost of Goods Manufactured According to Subur Crackers Factory

In Figure 2, the cost of the raw materials used to produce crackers is shown. In addition, there are direct labor costs consisting of 4 employees who are paid IDR 120,000 per day with 26 working days per month. There is also the cost of auxiliary materials in the form of gas and firewood.

Table 2. Calculation of the Cost of Goods Manufactured According to the Subur Crackers Factory for 2020, 2021 and 2022 in IDR

No	Elements of Cost Production	Total Cost Per year		
		2020	2021	2022
1	Raw material costs			
	Tapioca flour	334,620,000.00	371,280,000.00	412,152,000.00
	Salt	10,504,000.00	10,920,000.00	10,920,000.00
	Sardines	18,720,000.00	19,656,000.00	20,592,000.00
	Garlic	7,060,000.00	6,360,000.00	6,500,000.00
	Condiment	12,480,000.00	12,480,000.00	12,480,000.00
	Shrimp paste	7,410,000.00	7,410,000.00	7,800,000.00
	Cooking oil (16kg)	319,280,000.00	349,440,000.00	368,160,000.00
	Water	0.00	0.00	0.00
	Total raw material cost	710,074,000.00	777,546,000.00	838,604,000.00
2	Direct labor cost	149,760,000.00	149,760,000.00	149,760,000.00
3	Auxiliary material costs			
	LPG (3kg)	56,160,000.00	65,208,000.00	71,760,000.00
	Firewood	14,352,000.00	14,976,000.00	15,600,000.00
	Total Auxiliary material costs	70,512,000.00	80,184,000.00	87,360,000.00
	Total cost of production	930,346,000.00	1,007,490,000.00	1,075,724,000.00
	Number of production units	2,340,000	2,496,000	2,652,000
	Cost of goods manufactured per units	397.58	403.64	405.63

The price of raw materials increases with the turn of the year from 2020 to 2022, causing the cost of production increase.

Determination of Selling Prices at Subur Crackers Factory

Mrs. Engkan stated in an interview that she did not employ any particular method while determining the selling price for the crackers. As a result, the Subur cracker factory has not specified the expected profit percentage with certainty when setting the selling price of the crackers. In fact, the owner should be able to establish the right selling price based on the cost of goods manufactured assessment.

Given the presence of competing factors, the selling price is adjusted to estimations or estimated market pricing, specifically the unit price of crackers supplied to collectors of IDR 600, which collectors will later sell back to stalls or restaurants for IDR 800. So a result of this, the end consumer will pay IDR 1000.

Because the profit percentage has not been determined for 2020 to 2022, the following can calculate the percentage (%) of profits earned by the Subur cracker factory:

$$\begin{aligned} \text{mark up} &= \frac{\text{Selling price/unit} - \text{HPP/unit}}{\text{HPP/unit}} \\ \\ \text{mark up}_{2020} &= \frac{600-397.58}{397.58} \times 100\% \\ &= 51\% \\ \text{mark up}_{2021} &= \frac{600-403.64}{403.64} \times 100\% \\ &= 49\% \\ \text{mark up}_{2022} &= \frac{600-405.63}{405.63} \times 100\% \\ &= 48\% \end{aligned}$$

It can be assumed that the average profit on cracker sales from 2020 to 2022 is 49%.

Analysis of Determination of Cost of Goods Manufactured Using the Full Costing Method

The Subur cracker factory did not account for the following costs:

1. Variable Manufacturing Overhead

a. Electricity cost

Electricity is needed as power to operate grinding machines and printing presses. The following is the calculation of the cost of electricity used during 2020, 2021 and 2022:

Table 3. Electricity cost

Year	Per month	Per year
2020	360,000.00	4,320,000.00
2021	380,000.00	4,560,000.00
2022	400,000.00	4,800,000.00

2. Fixed Manufacturing Overhead

a. Depreciation Expense

So far, the Subur cracker factory has not included depreciation expense in the calculation of the cost of production. This is because the Subur cracker factory classifies machinery and equipment as the company's initial capital.

The method used in calculating depreciation is the straight-line method, namely the acquisition cost minus the residual value and divided by the economic life. The acquisition price of machinery and equipment is known based on the purchase price; the residual value of the company cannot be estimated; and the economic life is based on the owner's estimation.

Table 4. Depreciation expense

Description	Acquisition cost	Total Unit	Total Acquisition cost	Economic life	Depreciation expense
Printing press	26,000,000.00	1	26,000,000.00	15	1,733,333.33
Steam machine	16,000,000.00	1	16,000,000.00	15	1,066,666.67
Dry oven machine	15,000,000.00	2	30,000,000.00	15	2,000,000.00
Milling machine	9,500,000.00	1	9,500,000.00	15	633,333.33
Garangan	800,000.00	1	800,000.00	8	100,000.00
Cans	20,000.00	125	2,500,000.00	4	625,000.00
Total depreciation expense in a year					6,158,333.33

b. Costs of Maintenance

The Subur cracker factory performs machine maintenance as needed, that is, when the machine is due for maintenance.

Table 5. Machine maintenance costs

Cost	Per period 2020, 2021 & 2022		
	Total unit	Cost	Total cost
Maintenance of the printing press	1	1,020,000.00	1,020,000.00
Steam machine maintenance	1	420,000.00	420,000.00
Dry oven maintenance	2	960,000.00	960,000.00
Milling machine maintenance	1	360,000.00	360,000.00
Total maintenance expense			2,760,000.00

c. Building Rental Fees

In carrying out its business, the Subur cracker factory requires a building to produce crackers. The Subur cracker factory will certainly incur expenses to pay for the building rent. In the calculation, according to the Subur cracker factory, renting fees are not included in production costs, which is IDR 18,000,000 per year.

Table 6. Building rental fee



Year	Per month	Per year
2020	1,500,000.00	18,000,000.00
2021	1,500,000.00	18,000,000.00
2022	1,500,000.00	18,000,000.00

d. Indirect Labor Costs

This direct labor cost is a cost set aside for the owner as wages from the purchase of various kinds of raw materials and the provision of raw materials and seasonings. which is IDR 12,000,000 per year.

Table 7. Indirect labor costs

Description	Wages per month	Wages per year
Fixed indirect labor costs	1000,000.00	12,000,000.00
Total Fixed indirect labor		12,000,000.00

Calculations at the Subur cracker factory only include the cost of auxiliary materials such as firewood and LPG gas, due to the owner's ignorance of manufacturing overhead.

However, in the full costing method, the imposition of manufacturing overhead is included in the calculation, such as variable manufacturing overhead, namely the cost of auxiliary materials and electricity costs, as well as fixed manufacturing overhead, namely building rental costs, depreciation costs and machine maintenance costs. Based on the costs that have been described, the cost of goods manufactured using the full costing method is as follows:

Table 8. Calculation of Cost of Goods Manufactured Using the Full Costing Method Year 2020, 2021 and 2022 In IDR

No	Elements of Cost Production	Total Cost Per year		
		2020	2021	2022
1	Raw material costs			
	Tapioca flour	334,620,000.00	371,280,000.00	412,152,000.00
	Salt	10,504,000.00	10,920,000.00	10,920,000.00
	Sardines	18,720,000.00	19,656,000.00	20,592,000.00
	Garlic	7,060,000.00	6,360,000.00	6,500,000.00
	Condiment	12,480,000.00	12,480,000.00	12,480,000.00
	Shrimp paste	7,410,000.00	7,410,000.00	7,800,000.00
	Cooking oil (16kg)	319,280,000.00	349,440,000.00	368,160,000.00
	Water	0.00	0.00	0.00
	Total raw material cost	710,074,000.00	777,546,000.00	838,604,000.00
2	Direct labor cost	149,760,000.00	149,760,000.00	149,760,000.00
3	Variable manufacturing overhead			
	Auxiliary material costs	70,512,000.00	80,184,000.00	87,360,000.00
	Electricity cost	4,320,000.00	4,560,000.00	4,800,000.00
	Total variable manufacturing overhead	74,832,000.00	84,744,000.00	92,160,000.00
4	Fixed manufacturing overhead			
	Building rental fees	18,000,000.00	18,000,000.00	18,000,000.00
	Depreciation expense	6,158,333.33	6,158,333.33	6,158,333.33
	Costs of Maintenance	2,760,000.00	2,760,000.00	2,760,000.00
	Indirect Labor Costs	12,000,000.00	12,000,000.00	12,000,000.00
	Total fixed manufacturing overhead	38,918,333.33	38,918,333.33	38,918,333.33
	Total cost of production	973,584,333.33	1,050,968,333.33	1,119,442,333.33
	Number of production units	2,340,000	2,496,000	2,652,000
	Cost of goods manufactured per units	416.06	421.06	422.11

Calculation of Cost of Goods Manufactured Using Variable Costing Method

The calculation of the cost of goods manufactured using the variable costing method has a difference from the full costing method. This difference can be seen in the cost element. In the full costing method, all cost elements, both variable and fixed, are included in the calculation of the cost of production.

Meanwhile, in the variable cost method, only variable costs are considered. That is, only variable manufacturing overhead. Therefore, the following is the determination of the cost of goods manufactured using the variable costing method:

Table 9. Calculation of Cost of Goods Manufactured Using the Variable Costing Method for 2020, 2021 and 2022 in IDR

No	Elements of Cost Production	Total Cost Per year		
		2020	2021	2022
1	Raw material costs			
	Tapioca flour	334,620,000.00	371,280,000.00	412,152,000.00
	Salt	10,504,000.00	10,920,000.00	10,920,000.00
	Sardines	18,720,000.00	19,656,000.00	20,592,000.00
	Garlic	7,060,000.00	6,360,000.00	6,500,000.00
	Condiment	12,480,000.00	12,480,000.00	12,480,000.00
	Shrimp paste	7,410,000.00	7,410,000.00	7,800,000.00
	Cooking oil (16kg)	319,280,000.00	349,440,000.00	368,160,000.00
	Water	0.00	0.00	0.00
	Total raw material cost	710,074,000.00	777,546,000.00	838,604,000.00
2	Direct labor cost	149,760,000.00	149,760,000.00	149,760,000.00
3	Variable manufacturing overhead			
	Auxiliary material costs	70,512,000.00	80,184,000.00	87,360,000.00
	Electricity cost	4,320,000.00	4,560,000.00	4,800,000.00
	Total variable manufacturing overhead	74,832,000.00	84,744,000.00	92,160,000.00
	Total cost of production	934,666,000.00	1,012,050,000.00	1,080,524,000.00
	Number of production units	2,340,000	2,496,000	2,652,000
	Cost of goods manufactured per units	399.43	405.47	407.44

It can be seen that the calculation of the cost of production using the variable costing method also from year to year there is an increase in production costs and there is an increase in the number of production units.

Selling Price Determination Analysis

Based on the results of interviews conducted, it is known that the owner of the Subur cracker factory wants an expected profit percentage of 55% for the crackers to be sold. Non-production costs are costs that are not related to the production process. However, the company still incurs these costs. Following are the non-production costs of the Subur cracker factory.

- Transportation costs

The Subur cracker factory, in distributing these crackers, requires about 20 collectors to market them to Pabuaran and surrounding areas. According to Mrs. Engkan, the owner's wife, the person distributing the crackers would also be given IDR 10,000.00 for transportation, bringing the total production cost to IDR 200,000 per production.

Table 10. Transportation costs

Description	Cost per month	Total Cost		
		Tahun 2020	Tahun 2021	Tahun 2022
Transportation costs	5.200.000,00	62.400.000,00	62.400.000,00	62.400.000,00

a. Selling Price Determination According to Cost Plus Pricing Method with Full costing Approach

- 2020 year

The cost of production	IDR 973,584,333.33
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 1,035,984,333.33

Then the total selling price is:

$$\begin{aligned}
 &= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost}) \\
 &= \text{IDR } 1,035,984,333.33 + (55\% \times \text{IDR } 1,035,984,333.33) \\
 &= \text{IDR } 1,605,775,716.67
 \end{aligned}$$

Selling Price per Cracker	Total selling price
	<u>Number of units per year</u>
	IDR 1,605,775,716.67
	<u>2,340,000</u>
	IDR 686.23

- Year 2021

Cost of production	IDR 1,050,968,333.33
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 1,113,368,333.33

Then the total selling price is:

$$\begin{aligned}
 &= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost}) \\
 &= \text{IDR } 1,113,368,333.33 + (55\% \times \text{IDR } 1,113,368,333.33) \\
 &= \text{IDR } 1,725,720,916.67
 \end{aligned}$$

Selling Price per Cracker	=	Total selling price
		<u>Number of units per year</u>
		IDR 1,725,720,916.67
	=	<u>2,496,000</u>
	=	IDR 691.39

- Year 2022

Cost of production	IDR 1,119,442,333.33
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 1,181,842,333.33

Then Total Selling Price

$$\begin{aligned} &= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost}) \\ &= \text{IDR } 1,181,842,333.33 + (55\% \times \text{IDR } 1,181,842,333.33) \\ &= \text{IDR } 1,831,855,616.67 \end{aligned}$$

$$\begin{aligned} \text{Selling Price} &= \frac{\text{Total selling price}}{\text{Number of units per year}} \\ \text{per Cracker} &= \frac{\text{IDR } 1,831,855,616.67}{2,652,000} \\ &= \text{IDR } 690.74 \end{aligned}$$

b. Determination of Selling Price According to Cost-Plus Pricing Method with Variable Costing Approach

With the expected profit percentage of 55%, the calculation of cost-plus pricing using the variable costing method is as follows:

• Year 2020

Cost of production	IDR 934,666,000.00
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 997,066,000.00

Then the total selling price is:

$$\begin{aligned} &= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost}) \\ &= \text{IDR } 997,066,000.00 + (55\% \times \text{IDR } 997,066,000.00) \\ &= \text{IDR } 1,545,452,300.00 \end{aligned}$$

$$\begin{aligned} \text{Selling Price} &= \frac{\text{Total selling price}}{\text{Number of units per year}} \\ \text{Per Cracker} &= \frac{\text{IDR } 1,545,452,300.00}{2,340,000} \\ &= \text{IDR } 660.45 \end{aligned}$$

• Year 2021

Cost of production	IDR 1,012,050,000.00
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 1,074,450,000.00

Then the total selling price is

$$= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost})$$

$$\begin{aligned} &= \text{IDR } 1,074,450,000.00 + (55\% \times \text{IDR } 1,074,450,000.00) \\ &= \text{IDR } 1,665,397,500.00 \end{aligned}$$

$$\begin{aligned} \text{Selling Price} &= \frac{\text{Total selling price}}{\text{Number of units per year}} \\ \text{Per Cracker} &= \frac{\text{IDR } 1,665,397,500.00}{2,496,000} \\ &= \text{IDR } 667.23 \end{aligned}$$

- Year 2022

Cost of production	IDR 1,080,524,000.00
Non-production costs	
Transportation costs	<u>62,400,000.00</u>
Total cost	IDR 1,080,524,000.00

Then the total selling price is:

$$\begin{aligned} &= \text{Total cost} + (\% \text{ Mark up} \times \text{Total cost}) \\ &= \text{IDR } 1,142,924,000.00 + (55\% \times \text{IDR } 1,142,924,000.00) \\ &= \text{IDR } 1,771,532,200.00 \end{aligned}$$

$$\begin{aligned} \text{Selling Price} &= \frac{\text{Total selling price}}{\text{Number of units per year}} \\ \text{Per Cracker} &= \frac{\text{IDR } 1,771,532,200.00}{2,652,000} \\ &= \text{IDR } 668.00 \end{aligned}$$

Comparison of Cost of Goods Manufactured by Subur Crackers Factory, Using the Full Costing Method and the Variable Costing Method in 2020, 2021 and 2022.

The Subur cracker factory has not recorded all costs involved in the production process, just by adding up the cost of raw materials, direct labor costs, and auxiliary material costs, in the calculation of the cost of goods manufactured. Regarding the cost of manufacturing overhead, the Subur cracker factory is unaware of these costs, so they are not charged in detail, despite the fact that the cost of goods manufactured is calculated by adding up the elements of production costs, namely raw material costs, direct labor costs, and manufacturing overhead, according to theory.

The cost of goods manufactured per unit at the Subur cracker factory differs depending on whether it is calculated using the full costing approach or the variable costing method. When compared to the Subur cracker factory, the cost of goods manufactured utilizing the full costing and variable costing methodologies resulted in a higher cost of goods manufactured per unit. The difference can be observed in the accompanying table, which compares cost of goods manufacturing.

Table 11. Comparison of Calculation of Cost of Goods Manufactured for 2020, 2021 and 2022

Year	Subur Cracker Factory	Method		Difference	
		Full Costing	Variable Costing	Subur Cracker Factory and Full Costing	Subur Cracker Factory and Variable Costing
2020	397,58	411,53	399,43	13,94	1,85
2021	403,64	416,81	405,47	13,17	1,83
2022	405,63	418,11	407,44	12,48	1,81

The difference in calculating the cost of goods manufactured using the full costing method is obtained in 2020 IDR 18, in 2021 IDR 17 and in 2022 IDR 16. Meanwhile, the difference in the cost of goods manufactured using the variable costing method in 2020 to 2022 is IDR 1.

The difference occurs because, while calculating the goods manufactured using the full costing approach, all cost elements, both variable and fixed, were included. Meanwhile, the variable costing method calculation shows that the results are not significantly different from the company's calculated cost of goods manufactured, so there is a slight difference because the variable costing method calculation includes variable manufacturing overhead.

Comparison of Selling Prices According to Subur Crackers Factory and According to Cost plus Pricing Method with Full Costing Approach and Variable Costing Approach

The Subur cracker factory has not employed any method to set the selling price; it is solely based on market assessments or predicted selling prices. The Subur cracker plant, on the other hand, evaluates the cost of goods manufactured to determine the production costs incurred during the agar production process and can then estimate the selling price so that it is not too low.

Meanwhile, using the cost-plus pricing method using full costing and variable costing approaches to calculate the selling price raises the markup or profit expected by the Subur cracker factory by 55% on the overall cost.

Table 12. Comparison of Calculation of Selling Prices for 2020, 2021 and 2022 In IDR

Year	Subur Cracker Factory	Cost Plus Pricing		Selisih		
		Full Costing	Variable Costing	Subur Cracker Factory and Full Costing	Subur Cracker Factory and Variable Costing	Full Costing and Variable Costing
2020	600	686	660	86	60	26
2021	600	691	667	91	67	24
2022	600	691	668	91	68	23

According to the table above, there is a difference in the selling price of the Subur cracker factory and the selling price based on the cost-plus pricing approach. From 2020 to 2022, the

selling price set by the Subur cracker factory is lower than the selling price based on the cost-plus pricing method, whereas the selling price based on the cost-plus pricing method using the full costing and variable costing approaches shows a different selling price. This is because, according to the theory, the selling price must account for all costs, including fixed costs, when using the full costing approach.

Meanwhile, in the variable costing approach, if the selling price creates enough profit to cover costs, it is preferable over those that generate no profit at all. All costs are specifically included when setting the selling price utilizing the cost-plus pricing approach. The Subur cracker factory, on the other hand, does not define the predicted profit amount and discloses production costs and non-production costs in detail.

Closing

Conclusion

1. According to the Subur cracker factory, the cost of goods manufactured solely covers the cost of raw materials, labor costs, and auxiliary material costs. The Subur cracker factory establishes a selling price of IDR 600 per cracker. The company sets this pricing without using any kind of method.
2. Based on the findings of the cost of goods manufactured analysis using the full costing method and the variable costing method, it is determined that the cost of goods manufactured calculation using the full costing method is higher than the calculation using the variable costing method from 2020 to 2022. According to the results of the selling price analysis based on the cost-plus pricing method, the full costing approach shows a higher result than the variable costing approach.
3. Comparison There is a difference between the calculation of the goods manufactured at the Subur cracker factory and the results of the analysis based on the full costing method and variable costing, especially in manufacturing overhead. From 2020 to 2022, the Subur cracker factory will continue to sell at a price of IDR 600 per cracker. Meanwhile, the calculation of the selling price using the cost-plus pricing method with the full costing approach has increased from 2020 to 2022, as has the use of the variable costing approach. With the cost-plus pricing method, all costs are clearly specified, be they production costs, non-production costs, or the expected profit with a markup percentage.

Acknowledge

The cost of goods manufactured, calculated using the full costing or variable costing approach, can be used as advice for the MMEs, to implemented as the foundation for setting selling prices. Meanwhile, determine the selling price using the cost-plus pricing method by determining the expected profit percentage and correctly calculating production and non-production costs, so that the owner can determine the selling price that will cover all costs incurred to produce the product. However, the owner must pay attention to the market price so that the selling price of the product is not too low or too high.



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