

## DETERMINATION OF COST OF GOODS PRODUCED IN PROCESSED AGRIBUSINESS BASED ON MANGOSTEEN PEEL FLOUR

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### ABSTRACT

The Peasant Women's Group is a forum that provides opportunities for women to advance in the agricultural sector, one of which is the Pelangi Gunung Suling, located in Barendkok Village, Leuwiliang District, Bogor Regency. This group focuses on agribusiness-processed agricultural products. But in determining the cost of goods produced by processed products, they are still based on estimates only; for this reason, it needs to be studied in determining the cost of goods produced in processed agribusinesses based on Mangosteen peel flour. This study aims to determine the cost of goods produced to determine the selling price of processed cookies produced from mangosteen peel flour. The research method is used purposively or intentionally in the Gunung Suling farmer women's group through recording during the production and documentation process and analyzed by descriptive analysis with a quantitative approach and calculation analysis using the full costing method. The results showed that the calculation of the cost of goods produced by mangosteen peel pao cakes charges raw materials of IDR 89,771 per production per day. In contrast, direct labor costs of IDR 50,000 with overhead costs only consider baking paper, fuel gas, and packaging only Rp. 21,800, -. The total production cost to produce 80 pao cakes per day is IDR 151,671, so the cost of goods produced per piece is IDR 2,020. Using the full costing method, a reasonable selling price of IDR 2,121.86 is obtained; this method can cover all production costs of making pao cakes per piece per production. Determining the cost of goods can be used as a basis for determining the selling price of the production of pao cakes made from additional mangosteen skin flour.

## 1. INTRODUCTION

Mangosteen is an excellent fruit from Bogor regency and has contributed to national mangosteen exports. One of the mangosteen fruit-producing villages is Barengkok Village. Still, until now, there is no accurate data on how many mangosteen trees there are in Barengkok Village, but it has been able to penetrate exports to several Asian countries. The research results by Andriyanty & Humaira (2017) showed that the production of mangosteen fruit produced from Leuwiliang District that passed export was 40-10%. The rest was sold in the local market because the quality of mangosteen fruit produced was not up to the standards. The mangosteen fruit produced by farmers is generally sold in primary form. The one enjoyed from the mangosteen fruit is the fruit (Humaira et al., 2021), while the skin is discarded even though the mangosteen peel has the potential to be utilized for health, namely the presence of xhanton and thanin substances that are beneficial for health. Currently, many research results utilize organic residues of mangosteen peel. However, they are generally used as herbal medicine (Vardhan et., 2019), while using mangosteen peel as a substitute for flour in manufacturing pastries is still challenging. Materials that can be used as a substitute for wheat flour include kimpul flour; research results from Nurani & Yuwono (2013) showed that Kimpul flour could be used in cake making with the proportion of kimpul flour: tapioca flour 60: 40%. In addition, the use of taro tubers as a substitute for wheat flour in cake making (Yuliatmoko & Satyatama, 2012).

The business of processing agricultural products or participating products from agricultural products and processed products based on agricultural products is an activity in Agribusiness. According to Nyoman (2021), agribusiness is any economic business related to farming, which includes procuring agricultural production facilities, processing products processing businesses and trading business production facilities, farming products, and processed agricultural products. Thus, the production of processed mangosteen peel is one of the economic activities of agricultural companies (Agribusiness) (Isnasari et al., 2020). Every business actor is required to be more effective and efficient in running their business to compete with their competitors. Therefore, it is inseparable from how big or small a company is. The pricing of goods produced is important before setting the selling price of its products so that its resources can be as efficient and effective as possible. The company's profits can be obtained optimally (Drucker, 2012).

It processed agricultural production activities, which generally take home industry form and absorb family or local community labor (Boserup et al., 2013). The problems faced in the Wanita Tani Group are only based on the simple recording. Acquiring raw materials for volatile agricultural products will affect production costs and determine the cost of goods produced so that recording is only done incidentally. This group of peasant women is a group of women as a forum for exchanging information on various processed agricultural products. Group members can be individuals of home-based food products made from fruit or mangosteen peels. However, in every processed production, members of this group still do not pay attention to good profitability or administration, so the selling price determination is still based only on estimates. An appropriate calculation method is needed to avoid errors in determining the cost of goods produced (Mitchell & Carson, 2013). Therefore, it is necessary to calculate the cost of goods produced to determine the selling price of cookie products made from additional raw materials of mangosteen peel that can compete.

Cake or cookies are food products made from wheat flour. So far, the nutritional content consists of carbohydrates and fats, while the other nutritional content is still lacking or even absent. Processed mangosteen peel flour products become additional cake ingredients that complement the nutrients we need, including increasing beta-carotene levels, and can also reduce dependence on wheat flour (Hardiman, 2010). However, the question of the peasant women's group members that focuses on processed agricultural products in determining the cost of goods produced is only based on estimates. Even though the company or business unit must consider several factors that influence its decision in determining the selling price, according to Widodo (2014), namely; 1. Desired profit factor, 2. Factors of production or sale of products, 3. Factors of the cost of the product, and 4. Factors from outside the company (consumers), such as whether the demand for the product is elastic or inelastic, who the target customers are, whether the product is homogeneous or heterogeneous and whether the price competition is sharp enough. In manufacturing products, there are two groups production costs and non-production costs. Production costs are costs incurred in processing raw materials into products. In contrast, non-production costs are costs incurred for non-production activities, such as marketing and administrative and general activities (Mulyadi, 2018).

There are two approaches to calculating the elements of costs in determining the cost of goods produced: full costing and variable costing. The complete costing method is a method of determining production costs that take into account all production costs into production costs, which consist of raw material costs, direct labor costs, and factory overhead costs, both variable and fixed behavior (Gersil & Kayal, 2016). The Variable Costing Method is a method of determining production costs that only consider production costs that behave variably into production costs, which consist of raw material costs, direct labor costs, and variable factory overhead costs. Of course, as stated by Swastha & Handoko (2002), several procedures need to be considered: 1. Estimating demand for goods sold, 2. It knows the reaction in competition in advance, 3. It determines the expected Market Share, 4. It is choosing a selling price strategy to reach the market price. Based on the problems faced, it is necessary to calculate the cost of goods produced in processed mangosteen skin products as functional food substitution products, one of which is used in the processed manufacture of pao cakes (a type of bread from China).

## 2. METHODS

This research is a descriptive study with a case study approach. The study's object was intentionally (purposive sampling) at the Pelangi Gunung Suling Peasant Women's Group in Barengkok Village, Leuwiliang District, Bogor Regency, in March-May 2021. The data collected is in the form of quantitative data. Grouping production costs include raw material costs, direct labor, and overhead costs, carried out through direct recording during the production period of making processed products made from mangosteen skin flour in the form of choco-chip cookies and pao cakes. In addition, qualitative data, in the form of information from the chairman of the Pelangi Gunung Suling Peasant Women's Group and group members, related to the data needed in the production process. The data collection method is carried out through recording, observation, and interviews with the chairman and members of the Pelangi Gunung Suling Peasant Women's Group.

The data were analyzed using the calculation of the cost of goods produced from each processed mangosteen skin product using the concept of determining the cost of goods produced in a complete costing approach, with the following elements of production costs (Mulyadi, 2018) :

The cost of raw materials	xx
Direct labor costs	xx
Variable overhead costs	xx
Fixed overhead costs	xx
Total production cost	xx
Total of Productions	xx
	-----
Cost of goods produced per piece	xx

Calculating the cost of goods produced from each processed product of mangosteen skin is used as a basis for determining the selling price of the product by grouping costs based on their classification. Calculating production costs using the complete costing method and determining a reasonable selling price for the case of small businesses in women's farmer groups. The flow of activities of the data analysis process is carried out according to the following chart:

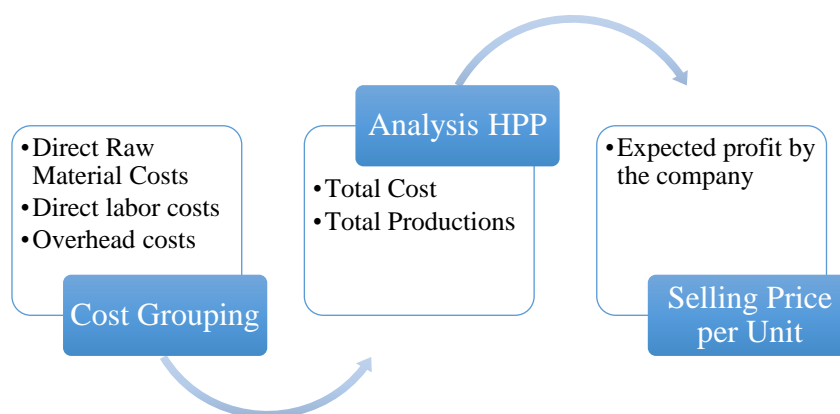


Figure 1 Analysis of process flow

In Figure 1, the process of data analysis activities as a result of this research starts from the grouping of production costs, namely the cost of raw materials for making cakes (wheat flour, mangosteen rind flour, margarine, refined sugar, fermifan, baking powder, water, and jam), then direct labor costs, and overhead costs (baking paper, fuel, packaging). After the data is collected, the total cost used and the amount of cake production produced can then be calculated as the cost of production per unit. The next step is to calculate the selling price per unit by calculating the percentage of profit expected by the business unit. Determining the selling price per unit or piece is done by fixing the cost of goods obtained from the cost of production plus non-production costs (marketing costs and administrative costs) and then dividing by the amount of production per production period. This price is used as a basis for selling products per unit (pao cake per piece) so as not to sell the product (pao cake) below that price. Based on this calculation, it is then added with the percentage of profit expected from the cost of goods sold. This calculation can be used as a basis for determining the selling price of the product per unit (pao cake per unit), with the calculation:

$$\text{Selling price/unit} = \text{Cost of goods sold} + \% \text{ of the company's expected profit.}$$

From the calculation of the cost of production according to the results of the study using the Full Costing method, the selling price per unit can be determined according to the percentage of profit expected by the company.

### 3. RESULTS AND DISCUSSION

The products produced by the Peasant Women's Group from processed mangosteen peel are in the form of pastries called Garcia Pao. The analysis calculation is made in one production day and converted to one month in 25 working days. The production process starts with manufacturing mangosteen peel simplistic, which is then dried by drying under the sun for approximately three days. After drying, bending is carried out by finely grinding such as and filtered with a size of 60 mesh. The following processed process is mangosteen peel flour, which is used as a substitute for raw wheat materials that use as much as 10% of the total flour needs. In line with the study's results (Tantri, 2019), the panelists accepted the use of 10% mangosteen peel flour in baking.

Determining the cost of goods produced is done by direct grouping costs consisting of direct raw material costs, direct labor costs, and indirect production costs or overhead costs (Wahidi et al., 2021). Direct production costs are calculated as the cost of goods produced based on the costs that actually occur in the production process (Woodhouse et al., 2019). Direct labor costs are costs incurred directly to reimburse labor inputs. Meanwhile, overhead costs here are costs incurred but do not directly affect the production process. The results of the cost grouping are analyzed in the following Table 1.

Table 1 Cost of Goods Produced by Mangosteen Peel Flour-Based As of Production Period, April 2021

No.	Component	Description				
		Necessity	Unit	Price	Price/Unit	Total
<b>Raw Material Costs</b>						
1	Low Protein Wheat Flour	1800	gr	10,000	IDR/Kg	18,000
2	Mangosteen Peel Flour	200	gr	35,000	IDR/kg	7,000
3	Margarin	100	gr	17,500	IDR/kg	1,750
4	Refined Sugar	20	gr	18,200	IDR/kg	364
5	Fermipan	50	gr	3,000	IDR/pack	13,636
6	Baking powder	25	gr	6,000	IDR/45 gr	3,333
7	Water	1,100	ml	1,875	IDR/600ml	3,438
8	Mangosteen Jam	2.5	bottle	16,900	IDR/bottle	42,250
<b>Direct Labor Costs</b>						
9	Labor	1	workforce	50,000	IDR/HOK	50,000
<b>Biaya Overhead</b>						
10	Parchment paper	80	sheet	20	IDR/sheet	1,600
11	LPG Gas Contents	0.2	tube	21,000	IDR/tube	4,200
12	Foodgrade paperbag packaging	80	sheet	200	IDR/sheet	16,000
12	Total Cost					161,571
13	Number of Productions	80	piece			
14	Cost of goods produced/piece					<b>2,020</b>

Source: Primary data processed, 2021.

Based on the calculation of cost grouping results, the cost of raw materials is the largest in using the jam as a cake filling. This reaches 47.1%, followed by the use of the main ingredients, which is as much as 20% then, followed by the use of cake development materials, which is 15.2% the rest is used for other auxiliary materials, 17.7%. The cost that can still be reduced is using pao cake fillings that can be made by themselves. In making pao cakes still use the filling of finished products, so the price is relatively higher. As a result, the cost of

goods produced from the total production of 80 pieces per production per day, which is IDR 2020, is still considered to be optimized again.

The calculation of the cost of goods sold for this pao cake product is as shown in Table 2 below:

Table 2 Calculation of cost of goods sold based on full costing

No	Description	Information
1	Cost of goods produced (IDR)	161,571.20
2	Non Production Cost marketing (IDR)	8,078.00
3	Administration Fee (IDR)	100
4	Total Cost (Rp)	169,749.20
5	Number of productions (Piece)	80
6	Cost per piece (IDR)	2121.86

Source: Primary data processed, 2021.

Based on the cost of goods sold using the full costing method, the price of pao cake is IDR 2121.86, obtained from production costs plus non-production costs and administrative costs, then divided by the amount of pao cake production per day. The price is used to determine the selling price per pao cake piece. The profit desired by the company is assumed to be 30% of the cost of goods sold for cake products in this study. So that the calculation of the selling price can be determined as follows:

Selling price per seed = cost of goods sold + desired percentage of profit

$$\begin{aligned} \text{Selling price} &= \text{IDR } 2121,86 + (30\% \times \text{IDR } 2121,86) \\ &= \text{IDR } 2,758.42 \\ &= \text{IDR } 2,760.00 \text{ (rounding)} \end{aligned}$$

Based on the cost of goods sold using the full costing method, the selling price of pao cake made from mangosteen peel flour can be reasonably priced. Products have advantages because of the addition of mangosteen rind flour, which can increase the nutritional value of beta-carotene in cakes compared to pao cake products which are generally only made from wheat flour. So that it can compete with cake products on the market. In addition, the number of units produced will also determine the cost of goods sold. This is the same as the results of research by Widodo (2014) also stated that the factors that affect the selling price of products using cost plus pricing analysis are the amount of Return On Investment, the number of product units produced, and the Percentage of Mark Up.

#### 4. CONCLUSION

Calculating the cost of goods sold based on the full costing method is one of the determinations of the selling price to avoid the sales value being below the cost of production or to cover the cost of production. Companies (business units of women farmers groups) often ignore the recording process according to the usual accounting system. Especially in grouping factory overhead costs and other production costs, the costs that have been incurred are not counted and do not become a component of the actual cost of production. By calculating the

cost of production using the Full Costing method for this wet cake made from mangosteen rind flour for Rp. 20.200.00 per piece of cake. This cost of production can be used as the basis for the company to determine the selling price of cakes per unit. From the results of this study, it is still necessary to reduce production costs through auxiliary raw materials so that low production costs can be obtained and increase company profits.

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