Costs Analysis of Fungal Basic Production Cost On Purbalingga Farmers’ and Private Sectors Group

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Abstract. The research titled is "Cost Analysis of Fungal Basic Production Cost on Purbalingga Farmers and Private Sector Group". This research activity is part of the community service program of the Hi-Link scheme which is carried out by the Team in order to increase the income of the community, especially members of Fungal Farmers and Private Sector Group in Purbalingga. This group has been developed by the Bappelitbangda of the Purbalingga regency since 2015. This study aimed to analyzed the calculation of Basic Production Cost and Statement of Profit or Loss conducted by center manager and farmers that will be compared to the calculation based on accounting concept. Therefore, the sample in this study are members of Private Sector Group and Fungal Farmers in Purbalingga. The analysis technique used are calculating the basic production cost and statement of profit or loss according to the center manager and farmers then compared with the calculations result at the center and at the farmer level based on the accounting concept by using the full costing method. The result showed: 1) there is a difference in determining the Basic Production Cost and Statement of Profit or Loss of bag-log products at the center according to the calculation of the center manager compared to accounting concepts; 2) there is a difference in determining the Basic Production Cost and Statement of Profit or Loss in fungal growth according to the calculation of farmers compared to accounting concept. This result implies that the center manager and farmers should calculate the Basic Production Cost and the Statement of Profit or Loss based on the accounting concept in order to ensure the continuity of their business.

Keyword: Baglog, Fungal, Basic Production Cost, Full Costing Method.

1. Introduction
To support food security, increase production and to achieve national self-sufficiency in food, since 2015, Purbalingga Regency government has established a Food Sovereignty Program. Through this program the Purbalingga Regency Government seeks to open business opportunities in the field of agriculture, become a facilitator for farmers, conduct socialization and communication with farmers so that the problems that exist in farmers can be found a solution. In order to support the program, the Development Planning Agency at Sub-National Level (Bappelitbangda) of Purbalingga Regency through the Forum for Economic Development and Employment Promotion (FEDEP) trying to find and develop agricultural products in Purbalingga Regency which can be developed into leading sectors.

One of the featured products that are being developed in Purbalingga was fresh fungal businesses and processed fungal products, because the demand for both products is now very large. The need for fungals in Purbalingga Regency only 40% can be fulfilled, while the remaining 60% is met from other regions. The data was obtained from the management of Purbalingga’s Fungal Farmers and Private Sector Group (KPPJP) which has been incorporated under the Ministry of Justice and Human Rights No. AHU-0059231.AH.01.07 in 2016. KPPJP which currently consists of 21 fungal farmers and 8 fungal processed entrepreneurs and it was established on November 16, 2014 under the name of Purbalingga’s Fungal Farmers Association (PPJP).
In order to support the program that launched by the Purbalingga Regency Government, PKM Hi-Link was held which was a collaboration between Team Hi-Link, partners of the PPJP Group with full support from the Bappeda of Purbalingga Regency through Agriculture and Forestry office and FEDEP. The main activity carried out is making fungal business center together. The first stage is to create a baglog center where baglog is made in the center for further distribution to farmers to grow, then the products are sold back to the center and the center will sell to the market. With the center, the fungal business will be done through one door system, where production will be carried out together and sales will also be carried out together in groups.

The existence of baglog manufacturing centers can overcome the problems faced by fungal farmers including the high failure rate in making baglog, low baglog quality so that the harvest of fresh fungals is also low quality, as well as the skills of farmers in low fungal cultivation. Based on the preliminary survey, it was found that both baglog center managers and fungal farmers have not been accurate in calculating the Basic Production Cost and Profit and Loss of their businesses, whereas the accuracy in determining the Basic Production Cost is very important because it is used as a basis in determining the selling price of the product [11].

In calculating the Cost of Production, companies can use the full costing method or variable costing [2]. Full costing method is a method of determining the cost of a product that charges all production costs, both variable costs and fixed costs to the product. In this method the Factory Overhead Cost is charged to the Finished Product based on the rates determined in normal or actual activities [3].

This research aims to evaluate and compare the calculation of Basic Production Cost and Statement of Profit or Loss that commonly carried out by center managers in baglog production and farmers in conducting fungal growth business compared to the correct calculation method based on the accounting concept using full costing.

2. Materials and Methods

- Types of Research: case study
- Object of Research: farmers in Purbalingga’s Fungal Farmers and Private Sector Group (PPJP)
- Population and Sample: the population in this study is 20 PPJP members, the sample is determined by purposive sampling with the criteria of being PPJP members who are active in 2017 and only distributing their products to PPJP baglog centre.
- Collection Method: interviews, observation and documentation
- Data and Types of Data: primary and secondary
- Variables and Measurement:
  a. Production costs are costs incurred to produce baglog and grow fungals which include raw material costs, direct labor costs and factory overhead costs.
  b. Raw material costs are costs incurred to buy materials that issued in baglog production and fungal growth, in rupiah units.
  c. Direct labor costs are wage costs in making baglog and fungal growth, in rupiah units.
  d. Factory overhead costs are costs incurred in producing baglog and growing mushrooms in addition to the costs of direct raw materials and direct labor such as auxiliary materials, indirect labor wages and maintenance of machines, in rupiah units.

2.1. Analysis Method

- Calculate Basic Production Cost according to baglogcenter
- Calculate Profit and Loss according to baglogcenter
- Calculate Basic Production Cost based on the accounting concept with the full costing method
- Calculate Profit and Loss based on accounting concept
- Calculate Basic Production Cost of fungal growth according to farmers
- Calculate Profit and Loss according to farmers
- Calculate the Basic Production Cost based on the accounting concept with the full costing method
- Calculate Profit and Loss based on accounting concept
- How to calculate Basic Production Cost based on full costing method [4] as follows:
  
  **Beginning inventory of goods in process** xxx
  
  **Beginning inventory of raw materials** xxx
  
  **Purchase of raw material** xxx
  
  **Raw materials that available for use** xxx
  
  **Less: ending inventory of raw materials** xxx
  
  **Raw materials cost** xxx
  
  **Add: direct labor cost** xxx
  
  **Add: factory overhead cost** xxx
  
  **Total production cost** xxx
  
  **Total goods ready for processing** xxx
  
  **Less: inventory in process** xxx
  
  **Basic production cost**

- Comparing between Basic Production Cost based on farmers and Basic Production Cost based on accounting concepts.

### 3. Results and Discussions

**Table 1. Calculation of Basic Production Cost of Baglog by Center**

| Materials          | Units | price | total     |
|--------------------|-------|-------|-----------|
| Powder             | 1,000 | 5,000 | 5,000,000 |
| Bran               | 2,500 | 3,500 | 8,750,000 |
| Chalk              | 400   | 1,000 | 400,000   |
| Corn Flour         | 0     | 0     | 0         |
| Nutrition/Molasses | 100   | 8,000 | 800,000   |
| Gypsum             | 200   | 2,000 | 400,000   |
| Plastic            | 200   | 30,000| 6,000,000 |
| Seeds              | 1,425 | 4,000 | 5,700,000 |
| Baglog Ring        | 50,000| 150   | 7,500,000 |
| Cotton Patch       | 50    | 6,000 | 300,000   |
| Gas                | 63    | 80,000| 5,040,000 |
| Spiritus           | 10    | 12,000| 120,000   |
| Alcohol            | 7     | 35,000| 245,000   |

**Total of Material Cost** 40,255,000

Raw Material Prices per Baglog = 805.1
| Labor for Mixer | 1 | 45,000 | 45,000 |
|-----------------|---|---------|---------|
| Labor for Press Engine | 3 | 45,000 | 135,000 |
| Labor for Inoculation | 2 | 45,000 | 90,000 |
| Labor for Distribution | 1 | 45,000 | 45,000 |
| Labor for Supervision | 1 | 65,000 | 65,000 |
| **Total** | | | 380,000 |

| Labor for 4 Weeks (24 Days) | | 9,120,000 |
| **Total of Raw Materials and Labor** | | 49,375,000 |

**Basic Production Cost (HPP)** | 987.5 |

**Table 2. Calculation of Basic Production Cost of Baglog by Center According to Accounting**

| Production Cost | UNIT | RP  |
|-----------------|------|-----|
| Raw Material Cost |  |  |
| Powder | 240 | 1,440,000 |
| Bran | 600 | 2,100,000 |
| Chalk | 72 | 86,400 |
| Gypsum | 48 | 96,000 |
| Molasses | 24 | 192,000 |
| Seeds | 300 | 1,200,000 |
| **TOTAL Raw Material Cost/Month** | | 5,114,400 |

| Direct Labor Cost |  |  |
| Mixing | 240,000 |
| Logging | 1,440,000 |
| Sterilization | 900,000 |
| Inoculation | 900,000 |
| **TOTAL Direct Labor Cost/Month** | | 3,480,000 |

| Factory Overhead Cost |  |  |
| Depreciation Cost | 850,000 |
| Assistance Cost | 3,804,000 |
| Indirect Labor Cost | 4,500,000 |
| **TOTAL Factory Overhead Cost** | | 9,154,000 |

**BASIC PRODUCTION COST PER MONTH** | 17,748,400 |
**BASIC PRODUCTION COST PER UNIT (12000 UNIT)** | 1,479 |

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a. Comparison of Basic Production Cost of baglog production and Statement of Profit or Loss according to the center manager compared to calculations based on accounting concepts.

1. Analysis of comparative Basic Production Cost
Based on the results of the calculations contained in Table 1 and Table 2, there are differences in Basic Production Cost between centers calculations and accounting calculations that caused by:

a. There are differences in understanding the concept of cost classification. Some items that should be included in the cost of assistance are included in the cost of raw materials. Although there is no significant effect on the final result of the calculation, things like this will be confusing and not in accordance with the accounting concept.

b. Central calculations do not take account depreciation into the calculation of basic production cost. Resulted in Basic Production Cost which is calculated by the centers becomes too low. In addition, business continuity, especially in the centers, is not good. There is no allocation for depreciation, resulting in centers will unable to buy or repair the facilities needed in the production process.

c. Central does not take account of indirect labor costs which should be included in the element of factory overhead costs. This also resulted in Basic Production Cost (HPP) of the centers being too low.

2. Analysis of calculation of Profit and Loss for baglog production

a. Based on the results of calculations in Tables 3 and 4 it is known that the profit generated by the calculation of the center manager appears to be greater than the profit according to accounting. The difference was due to the absence of depreciation and indirect labor costs on the Basic Production Cost calculated by the center.

b. Although the center profit appears to be bigger, but actually the center still has to spend costs that were not previously included in the calculation of Basic Production Cost.

Table 3. Calculation Statement of Profit or Loss based on Center Manager

|          |               |            |
|----------|---------------|------------|
| **SALES**| 20,400,000    |            |
| **BASIC PRODUCTION COST** |               |            |
| BEGINNING INVENTORY | 0             |            |
| PRODUCTION COST | 10,770,000    |            |
| ENDING INVENTORY |                |            |
| BASIC PRODUCTION COST | 10,770,000    |            |
| **GROSS PROFIT** | 9,630,000     |            |
| **OPERATIONAL COST** | 0             |            |
| **SHIPPING COST (200*12,000)** | 2,400,000 |            |
| **NET PROFIT** | 7,230,000     |            |

Note: Profit and Loss according to the center manager with sales of 12,000 units, selling price about 1,700/units (including 200/unit of transport costs) and basic production cost is 987.5/unit

Table 4. Calculation Statement of Profit or Loss based on Accounting Concept

|          |               |            |
|----------|---------------|------------|
| **SALES**| 20,400,000    |            |
| **BASIC PRODUCTION COST** |               |            |
| BEGINNING INVENTORY | 0             |            |
| PRODUCTION COST | 17,748,000    |            |
| ENDING INVENTORY |                |            |
| BASIC PRODUCTION | 17,748,000    |            |
### Table 5. Calculation Basic Production Cost of Fungal Growth by Farmers

| Raw Material Costs | Rp14,400,000 |
|--------------------|--------------|
| Plastic            | Rp10,000     |
| Total Basic Production Cost | Rp14,410,000 |
| Basic Production Cost Per Unit | Rp7,205 |

Note: So, in calculation of Basic Production Cost by farmers, only the purchase costs of baglog and plastic are included into account.

### Table 6. Calculation of Basic Production Cost of Fungal Growth based on Accounting Concept

| Production Cost | UNIT | RP     |
|-----------------|------|--------|
| Raw Material Cost | baglog | 8000 | 14,400,000 |
| Direct Labor Cost |         |       | 1,000,000   |
| Factory Overhead Cost | Depreciation Cost | 208,000 |
|                     | Assistance Cost   | 10,000 |
| TOTAL Factory Overhead Cost |         |        | 218,000     |
| BASIC PRODUCTION COST PER MONTH |         |        | 15,618,000 |
| BASIC PRODUCTION COST PER UNIT |         |        | 7,809      |

Note: Profit and Loss according to Accounting Concept with sales of 12,000 units, selling price about 1,700/units (including 200/unit of transport costs) and basic production cost is 1,479/unit.

b. Comparison of Basic Production Cost of fungal growth and Statement of Profit or Loss according to the farmers compared to calculations based on accounting concepts.

1. Analysis of comparative Basic Production Cost

   Based on the results of the calculations contained in Table 5 and Table 6, there are differences in Basic Production Cost between farmers calculations and accounting calculations that caused by:

   a. Farmers calculations do not take account depreciation into the calculation of basic production cost. Resulted in Basic Production Cost which is calculated by the farmers becomes too low. In addition, business continuity, especially in the centers, is not good. There is no allocation for depreciation, resulting in the farmers will unable to buy or repair the facilities needed in the production process.

   b. Farmers does not take account of indirect labor costs which should be included in the element of Basic Production Cost. This also resulted in Basic Production Cost of the farmers being too low.
2. Analysis of calculation of Profit and Loss for fungal growth

Based on tables 7 and 8 it is known that there are differences between the calculation of profit and loss according to farmers and based on accounting concepts that caused by:

a. The profit generated by the calculation of the farmers appears to be greater than the profit according to accounting. The difference was due to the absence of depreciation and indirect labor costs on the Basic Production Cost calculated by the farmers.

b. Although the farmers profit appears to be bigger, but actually the farmers still has to spend costs that were not previously included in the Basic Production Cost calculation.

| Table 7. Calculation of Statement of Profit or Loss based on Farmers |
|---------------------------------------------------------------|
| **SALES** | 16,000,000 |
| BEGINNING INVENTORY | 0 |
| PRODUCTION COST | 14,410,000 |
| ENDING INVENTORY | 14,410,000 |
| GROSS PROFIT | 1,590,000 |
| OPERATIONAL COST | 0 |
| NET PROFIT | 1,590,000 |

Note: Profit and Loss according to the farmers with sales of 2.000 kg, selling price about Rp. 8.000/kg and basic production cost is Rp. 7.205/kg

| Table 8. Calculation Statement of Profit or Loss based on Accounting Concept |
|---------------------------------------------------------------|
| **SALES** | 16,000,000 |
| BEGINNING INVENTORY | 0 |
| PRODUCTION COST | 15,618,000 |
| ENDING INVENTORY | 15,618,000 |
| GROSS PROFIT | 382,000 |
| OPERATIONAL COST | 0 |
| NET PROFIT | 382,000 |

Note: Profit and Loss according to Accounting Concept with sales of 2.000 kg, selling price about Rp. 8.000/kg and basic production cost is Rp. 7.809/kg
4. Conclusions
There is a difference between the calculation of Basic Production Cost in buglog production which is done by center manager and the calculation based on accounting concept. There is a difference between the calculation Statement of Profit or Loss which is done by center manager and the calculation based on accounting concept. There is a difference between the calculation of Basic Production Cost in fungal growth which is done by farmers and the calculation based on accounting concept. There is a difference between the calculation Statement of Profit or Loss which is done by farmers and the calculation based on accounting concept.

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