ADDED VALUE ANALYSIS OF OIL PALM FROND WASTE INTO THE WHITE OYSTER MUSHROOM (*Pleurotus ostreatus*) GROWING MEDIA TO INCREASING BUSINESS OPPORTUNITIES IN SAMPALI VILLAGE, PERCUT SEITUAN, DELI SERDANG REGENCY

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ABSTRACT

The oyster mushroom cultivation business using oil palm frond waste processing medium is a business that the whole or part of the fund is owned by the local communities and plantation of PTPN2 Sampali and it is expected to improve the economy of the plantation community and surrounding plantations based on the needs and potential of oil palm frond waste as raw material for mushroom baglog. The society around PTPN2 Sampali is one of the productive communities that utilizes plantation waste as raw material for mushroom baglogs, located in Sampali Village, Engal Mukti Village, Percut Sei Tuan District. Processing of oil palm fronds carried out by community business units is a value addition to converting waste into mushroom baglog products become economic value. The purpose of this research is to analyze the profit and added value of the waste of oil palm fronds into Baglog Oyster mushroom, the business unit of the plantation community and around PTPN2 Sampali. The analytical method used is value added analysis and income statement. The results of the analysis showed that the Cost of Production (HPP) for every one kilogram of baglog production costs Rp. 2,105, and gets an income of Rp. 3,360,000 with a profit of Rp. 688,666. The added value obtained per kilogram from the composting business is Rp. 2,111.

Keywords: *Value Added Analysis, Oil Palm Frond, Baglog Oyster Mushroom*

1. INTRODUCTION

Todaro (2005) stated that economic growth as a process of increasing output year after year is an important indicator to measure the success of a country's development. The economy changes when the level of economic activity is higher than before. The enhancement of economic growth is not only in big cities, likewise villages have a role in increasing the economy. Villages play an important role in national development because most of the Indonesian people live in villages, so that villages can make a major contribution in creating national stability.

The village is a producer area for staples that are consumed by the wider community, especially urban communities, and the industrial sector. Rural communities generally cultivate food crops and plantations to support the daily economy in meeting their needs. The economy of rural communities has improved with the processing of land and natural materials into products that are ready to be sold. One of the businesses that are used by the community in meeting the needs of life, one of which is cultivating horticultural crops, plantations, animal husbandry, and oyster mushroom cultivation.

Generally, the cultivation of white oyster mushrooms that are applied by mushroom farmers is to use sawdust as a planting medium. The common mushroom growing medium used is a planting medium consisting of a mixture of sawdust, bran, and lime added with water. According to Chazali and Pratiwi (2010), the composition or formula for growing white oyster mushroom is 100 kg of sawdust, 10 kg of bran, and 0.5 kg of lime as a mineral source. As a mineral source, rice husk ash can also be used, where rice husk ash has a high main content of silica. Silica is one of the beneficial nutrients for plants.

The usage of wood sawdust in oyster mushroom cultivation can be obtained from wood processing factories. It will cause problems if in the future sawdust is difficult to obtain. The reduction in sawdust reserves will have an impact on oyster mushroom cultivation farmers. To overcome the scarcity of sawdust in the future, there are several alternatives that can be used as a growing medium for oyster mushrooms, namely the utilization of palm oil frond waste belonging to plantations and the community.

Physical oil palm plantation waste production is quite potential to be utilized, one of which is palm fronds with a production of 486 tons/ha (Sianipar, et al, 2008). The increase in palm frond waste is based on the rise in the production of oil palm plantations. Data on the production of oil palm plantations in North Sumatra from 2015 to 2017 showed that most of them were sourced from private plantations with an area of 720,0009 hectares and production yields of 3,167,849 tons. Furthermore, production results were also obtained from state plantations with an area of 324,938 Ha and production yields reaching 1,258,813 tons, the rest from local communities plantation with an area of 429,951 Ha and production reaching 1,333,485 tons. Thus, the total area of oil palm plantations in North Sumatra is 1,474,897 Ha with a total production of 5,760,147 tons (Plantation Statistics, 2017). The high production of waste based on the area of plantation production gradually raised the problem of frond waste which is increasingly in the plantation area, because it was necessary to treat oil palm fronds waste that can be cultivated and utilized by the surrounding community and plantations (Mardiana, et al, 2014).

Based on the data, it can be concluded that the potential of oil palm frond waste has an important meaning in its management as a growing medium for oyster mushrooms for helping the economy of oyster mushroom cultivators. By finding the potential of palm oil frond waste, it would be able to determine several actions in its management. Parameters that can be used to determine the potential of the frond to become a mushroom growing medium include determining the data on the number of fronds that have been processed or utilized, the area of plantation land, the amount of frond waste for each harvest, the financial contribution given by the waste powder of oil palm frond as raw material for mushroom medium. The description above showed that the research has the objectives of (1) knowing the potential of oil palm fronds as staple, (2) the contribution of financial added value as a provider of raw materials, (3) knowing the economic benefits of palm oil wasteTodaro (2005) stated that economic growth as a process of increasing output year after year is an important indicator to

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2. LITERATURE REVIEW

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3. RESEARH METHOD

The study was conducted from July to December 2019, the study location was determined by purposive sampling, namely in Sampali Village, Percut Sei Tuan District. It is a community area around the plantations of PTPN 2 Sampali. Data retrieval is done by collecting primary data. According to Riadi (2016), primary data was data that comes from original sources or not through intermediaries, data is obtained in the form of opinions from the unit head of the peeling division and employees by asking questions. Primary data collection activities were carried out through observation and interviews. Secondary data according to Riadi (2016) was the second information that has been collected and processed. Secondary data can be obtained from various sources such as literature, books, journals, statistical data, and supporting materials. The data obtained from the community was used as material for the preparation of research reports, namely data on production costs for processing waste from oil palm fronds.

4. RESULTS AND ANALYSIS

A. ANALYSIIS DATA

The data was obtained from the frond processing by local communities and oyster mushroom cultivators were analyzed using descriptive and quantitative methods. The descriptive method was used to describe the process of processing oil palm frond into oyster mushroom growing medium. Quantitative method was used to analyze the amount of profit and added value of oil palm frond into oyster mushroom growing medium.

1. The Advantage

The first quantitative method was used to calculate profit or benefit. Profit is the net income received by the entrepreneur, after deducting production costs, or in other words, the entrepreneur's profit is the difference between gross income and production costs.

2. Added Value

The second quantitative method used value added analysis to determine the added value of composting in the peeling unit division. This method was applied to find out how big the difference between the value of compost production minus the value of staple materials and the value of other inputs besides labor. The method of calculating the added value can be seen in Table 2.

No	Variable	Result	Unit
I	**Output, Input and Price**		
1	*Output*	A	Baglog/month
2	Staple material	B	Kg/month
3	Labor	C	Person/Process
4	Conversion factor	D = A / B	-
5	Labor coefficient	E = C / B	working people's day /kg
6	Product price	F	Rp
7	Labor average wage	G	Rp/ working people's day
II	**Revenue and Profit**		
8	Staple material price	H	Rp/kg
9	Labor input contribution	I	Rp/kg
10	Production value	J = D x F	Rp/kg
11	a). Production value	K = J – I –H	Rp/kg
	b). Production value ratio	L = (K / J) x 100%	%
12	a). Labor rewards	M = E x G	Rp/kg
	b). Labor section	N = (M – K) x 100%	%
13	a). Profit	O = K – M	Rp/kg
	b). Profit rate	P = (O / K) x 100%	%
III	**Retribution for the Owner of the Production Factors**		
14	Margin	Q = J – H	Rp/kg
	a). Labor income	R = (M / Q) x 100%	%
	b). Other Input Donations	S = (I / Q) x 100%	%
	c). Entrepreneur's Profit	T = (O / Q) x 100%	%

3. Labor Cost

Working people’s day (HOK) was implemented to calculate the cost that should be paid for labor used during one working day.

$$\text{HOK} = \frac{\Sigma \text{Jam/hari}}{7\ \text{Jam/hari}} \text{ x AKP x jumlah hari x jumlah orang}$$

Labor Cost = HOK x Rp 70.000, (Labor wages per day)

Note : Women’s HKP : 0,8 dan Men’s HKP Pria : 1

4. Cost of depreciation

Depreciation cost is the allocation of the acquisition cost or most cost of a property, plant and equipment as long as the usefulness of the asset can still be used. The amount that can be depreciated is the difference between the acquisition cost and the residual value, which is the value of the asset at the end of its useful life. Depreciation can be formulated as follows:

Depreciation = $\frac{\text{Nb}-\text{Ns}}{\text{n}}$ x 2

Then calculating the depreciation per period:

Depreciation (Goods name) = $\frac{depreciation\ result\ per\ year}{\text{numbers of period per year}}$ x 2

Note:
Nb : New value
Ns : Residual value
N : Economic age

B. RESULT AND DISCUSSION

1. Cost of goods sold (COGS)

The cost of production refers to the direct costs of producing the goods sold by a company or the activity of converting staple materials into finished products. The calculation was conducted by adding up which consists of staple material costs, depreciation costs, labor costs and factory overhead costs.

a. Cost of staple material

The cost of staple materials is the value of all business inputs incurred in processing oil palm frond into oyster mushroom growing media. The cost of staple materials for processing palm fronds in community business units for one production is Rp. 597,000. The raw material used to produce mushroom growing media is 1610 kg consisting of oil palm frond powder, rice bran, dolomite lime and corn flour.

b. Labor Cost

The activity of processing oil palm frond into oyster mushroom growing media required a workforce of 2 people with a total active production of baglog for 10 days. The number of workers is male workers. The labor cost of mushroom baglog media processing is Rp. 1,397,900.

c. Factory Overhead Cost

Business overhead costs are production costs that are not directly related to the product and are not included in the cost of raw materials or labor costs.

- Cost of auxiliary materials

The supporting materials are materials other than raw materials that contribute to the formation of the oyster mushroom baglog during one single production. The cost of supporting materials for the processing of baglog of oyster mushrooms from palm frond is Rp. 239,000.

- Equipment costs and depreciation

Planning for the procurement of equipment from raw materials that is effective and efficient can make production activities run smoothly and can increase results and profits for business actors. The cost of equipment and depreciation for processing palm fronds into baglog of oyster mushrooms is Rp. 27,661,000 with depreciation for one year of Rp.3,594,733, and for monthly depreciation of Rp. 299,561. The number of HPP in the production of oyster mushroom baglog during one production is

the total cost of raw materials plus the amount of labor wages and added the total factory overhead costs. Total Cost of Production needed once production reaches Rp. 2,533,461.

2. Load

Expenses are costs associated with the production and marketing of oyster mushrooms. The burden contained in the production of compost is in the form of transportation loads, electricity loads, PBB burdens and communication loads. expenses incurred by the Peel business unit for processing compost is Rp.144,773.

3. Production and receiving

The production produced by the oyster mushroom cultivation community business unit assisted by the University of Medan Area with 1610 kg of raw materials produces an output in the form of 1200 baglog of oyster mushroom media. Production activities are carried out once a month. The results of the calculation of the cost of production obtained for the processing business of midrib waste into mushroom baglog media are Rp. 2,111 per baglog. The selling price determined by the community business unit for one mushroom baglog is with a margin of 24.9% so that the unit baglog selling price is IDR 2,800.

4. Receipts and profits

The revenue obtained from the sale of baglogs is 1,200 x Rp. 2,800 = Rp. 3,360,000. The results will be deducted by the costs associated with the baglog processing process so as to get a net profit. Cost of Production is the largest cost component in baglog processing, which is Rp. 2,533,461 of the total costs incurred. Costs incurred other than the cost of production are operating expenses. Operating expenses which include PBB, electricity, fuel and communication costs amounting to Rp144,733 and for interest expense and income tax no fees are charged, because the business does not borrow from lending institutions. The results of the calculation on the income statement explain that to get a net profit, the processing of palm oil frond waste into baglog in community business units is Rp.

5. Added value of composting business

The calculation of the added value of processing oil palm frond into baglog of oyster mushroom media aims to determine the added value of the processing of raw materials for oil palm frond into baglog. The table of the value added for composting can be seen in Table 3 below.

Table 3. Analysis Result of Value Added Processing of oil palm fronds into Baglog Mushrooms

No	Variable	Result	Unit
I	**Output, Input and Price**		
1	*Output*	1.200,00	Baglog/Bulan
2	Raw materials	1.610,00	Kg/bulan
3	Labor	10	Orang/proses
4	Conversion factor	0,75	-

5	Koefisien tenaga kerja	0,0062	Hok/kg
6	Product price	2.800,00	Rp
7	Labor average wage	47.000,00	Rp/hok
II	**Revenue and Profit**		
8	Staple material price	1.350,00	Rp/kg
9	Labor input contribution	199	Rp/kg
10	Production value	2.086,96	Rp/kg
11	a). Added value	537,96	Rp/kg
	b). Added value ratio	25,78	%
12	a). Labor rewards	291,93	Rp/kg
	b). Labor Section	54,27	%
13	a). Profit	246,03	Rp/kg
	b). Profit rate	45,73	%
III	**Retribution for the Owner of the Production Factors**		
14	Margin	736,96	Rp/kg
	a). Labor income	39,61	%
	b). Other input donation	27	%
	c). Entrepreneur's Profit	33,38	%

Based on Table 13, it can be analyzed that the calculation of the added value of processing oil palm fronds into baglog of oyster mushroom media using the hayami method can be explained as follows:

The average number of outputs of processing palm fronds into baglog of oyster mushroom media produced is 1,200 baglog per production, by processing 1,610 kg of raw materials. The conversion factor obtained is 0.75. This conversion value shows that each processing of 1 kg of raw material for palm oil fronds will produce 0.75 kg of baglog products. The average workforce used is 10 HOK, so the coefficient of labor used to process 1 kg of frond into baglog powder is 0.0062 HOK. The labor coefficient shows that to make one kilogram of palm frond powder requires a workforce of 0.0062 HOK.

The added value obtained from 1 kg of palm frond powder is Rp. 537.96 per production. This added value is obtained from reducing the value of the product with the price of raw materials and other input values. The added value obtained is still gross added value, because it has not been deducted by employee benefits. Value-added ratio is a comparison between added value and product value. The added value ratio obtained is 25.78%. This means, in the processing of oil palm fronds into baglog, the media for growing oyster mushrooms provides added value of 25.78%. of product value.

The benefits of labor in processing oil palm frond into baglog of oyster mushrooms were obtained from the multiplication of the labor coefficient with the average wage for workers, which is Rp.291.93. The labor income obtained from the labor coefficient is multiplied by the labor wage, which is Rp. 47,000 per production process. The percentage of employee benefits to value added is 54.27%. Returns to capital and profits are derived from reducing value added in exchange for labor.

The profit is Rp.246.03, or the profit rate is 45.73% of the product value. This advantage shows the total profit obtained from each processing of oil palm fronds into oyster mushroom baglog jamur

The results of this value-added analysis can also show the margin of raw material for oyster mushroom baglog which is distributed to employee benefits, other input contributions, and business profits. This margin is the difference between the value of the product and the price of raw material for oyster mushroom baglog per kilogram, each processing 1 kg of palm midrib into oyster mushroom baglog obtained a margin of Rp736.96 which is distributed for each labor factor, namely labor income of 39 ,61%, then for the contribution of other inputs that is equal to 27.00%, and also for the company's profit of 33.38%.

5. CONCLUSION

a. Processing oil palm fronds into baglog of oyster mushrooms in the Business Unit of the surrounding community and the PTPN 2 Sampali plantation earns a profit of Rp. 681,766. Processing of oil palm frond into oyster mushroom baglog in the surrounding community business unit and PTPN 2 Sampali plantation produces an added value of IDR 537.96 per oyster mushroom baglog.
b. Based on the conclusions above, the processing of oil palm fronds into baglog can provide benefits to the business of the plantation and surrounding communities and provide income for the managing community. Processing of palm fronds, community business units, also provides social benefits in the form of reducing the amount of waste oil palm fronds at PTPN2 Sampali, Percut Sei Tuan sub-district and helping some of the economy of the Sampali Village community.

Suggestion

Based on the conclusions of the study, the suggestions that can be submitted are as follows:

1. The business of processing palm fronds into Baglog that is carried out needs to be continuously developed by increasing the amount of raw materials processed, increasing the number of workers because it is proven that the business is able to provide high profits and added value.
2. Continuity of oil palm frond baglog products must be maintained so that productivity does not decrease. Because if productivity decreases, consumer needs will not be met.
3. Community business units should expand their marketing areas so that many people know about the existence of mushroom baglogs from oil palm midrib waste produced by the Plantation and Surrounding Community Business Units so that they can support business development.

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