



INFLUENCE OF PRODUCTION COSTS ON INCOME OF OIL PALM FARMERS (*Elaeis Guineensis*)

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Abstract

Oil palm plantations were first introduced in Indonesia by the Dutch in 1848. Oil palm (*Elaeis Guineensis*) is one of the plantation commodities that occupies an important position as a source of foreign exchange for Indonesia, so it has bright prospects. One of the oil palm producing areas in Labuhan Batu Regency is Bulu Cina Village. This study aims to (1) find out how the effect of production costs on the income of oil palm farmers, (2) to find out how much profit the oil palm farmers get. The method of determining the research area is purposive, the sampling method is by census (saturated sampling), data collection is primary data and secondary data, data analysis method is regression analysis, to answer the second problem using the income formula. The results showed (1) Based on the results of the regression there was a simultaneous significant effect of production costs on the income of oil palm farmers. (2) Based on the regression results, there is a partial significant effect of fertilization costs on the income of oil palm farmers, (3) Based on the regression results, there is a partial significant effect of FFB transportation costs on the income of oil palm farmers, (4) Based on the regression results there is a partial significant effect the cost of weed control on the income of oil palm farmers, (5) Based on the regression results, it can be seen that partially there is no significant effect on the cost of procurement of harvesting equipment on the income of oil palm farmers, (6) The average income of oil palm farmers received per year is Rp 69,239,566, - for an average land area of 1.9 hectares. The average production cost incurred by farmers per year for an average land area of 1.9 ha is Rp. 15,238,900,-.

Keywords: Oil Palm Plants, Regression, Production Costs, Income of Oil Palm Farmers.

1. Introduction

Oil palm (*Elaeis Guineensis*) is one of the plantation commodities that occupies an important position as a source of foreign exchange for Indonesia, so it has bright prospects. The area of oil palm plantations in Indonesia in 2015 was 11,300,370 ha. Meanwhile, in the North Sumatra region in 2015 the existing oil palm plantation area was 1,443,882 Ha. The number of oil palm plantations in North Sumatra consists of 417,357 ha of community plantations, 324,143 ha of state plantations, and 702,382 ha of private plantations. (Ditjenbun, 2015).

One of the things that influence is the production costs incurred by farmers to carry out production. Production costs are very influential, because the greater the production costs incurred, the less income will be obtained by oil palm farmers, and vice versa, the smaller the production costs, the greater the income that will be obtained by oil palm farmers. Production costs include the following: Plant maintenance costs, such as weed control, fertilization; Harvest costs or costs incurred to launch all activities to issue field production results (areas) to agents or directly to factories such as the cost of procurement of work tools, transportation costs of harvested produce.

In Bulu Cina Village itself, there are many oil palm farmers who use the workforce around Bulu Cina Village to carry out plant maintenance and harvesting activities. The workers in Bulu Cina Village usually do not have the status of permanent or bonded workers. For labor wages are usually calculated on a piece-rate basis, so workers do not have a fixed income.

According to Bangun (2005) in Bambang Hermanto (2012), fruit cutting (harvesting) is the main job in oil palm plantations because it directly becomes a source of income for oil palm farmers. Citing fruit cut, transport and processing are closed links that must be

implemented in an integrated manner because of the interplay of interests that affect the production costs incurred with the farmers' income to be received.

2. Methods

The research was conducted in Bulu Cina Village, Rantau Selatan District, Labuhan Batu Regency, North Sumatra Province. Methods The location determination was carried out purposively, with the consideration that quite a lot of Bulu Cina Village residents were cultivating oil palm plantations. The time of the research was carried out in March 2017.

In this study, the sample was residents of Bulu Cina Village, Rantau Selatan District, Labuhan Batu Regency, North Sumatra Province who cultivated oil palm plantations. Sampling was carried out by means of a census (saturated sampling), in order to obtain a sample of 30 farmers.

The data in this study are primary data and secondary data. Primary data was obtained directly from the sample through interviews using a list of questions that had been prepared in advance. Meanwhile, secondary data were selected from various agencies related to this research.

3. Results And Discussion

3.1 Annual Cost of Palm Oil Production

The average use of production costs per year with an average plant area of 1.9 hectares in oil palm farming in Bulu Cina Village, Rantau Selatan District, Labuhan Batu Regency can be seen in the following table:

Table 1. The average use of production costs per year with an average plant area of 1.9 hectares in oil palm farming in Bulu Cina Village, Rantau Selatan District, Labuhan Batu Regency

No.	Production cost	Land area (Ha)	Total Production Cost (RP)
1.	Fertilization	1,9	6.229.733,-
2.	FFB Transportation	1,9	2.640.000,-
3.	Procurement of Harvest Tools	1,9	436.666,-
4.	Weed Control	1,9	5.932.500,-
	Total Production Cost		15.238.900,-

3.2 The Effect of Production Costs on the Income of Oil Palm Farmers

From the results of the study, the results obtained from the use of production costs on each variable with an average land area of 1.9 Ha as follows:

Table 2. The use of production costs on each variable with an average land area of 1.9 Ha

Variabel	Total Annual Cost(RP)	Average per year (Rp)
X_1(Fertilization)	186.692.000	6.229.733
X_2(FFB Transport)	79.200.000	2.640.000
X_3(Procurement of harvesting tools)	13.100.000	436.666
X_4(Weed Control)	177.975.000	5.932.500
Total	457.167.000,-	15.238.900,-

Production costs used in oil palm farming in Bulu Cina Village consist of fertilization costs, weed eradication, procurement of harvesting equipment and costs of transporting

harvested produce. In a year, oil palm farmers spend an average of IDR 15,238,900 for an average land area of 1.9 ha.

To see the effect of production costs on the income of oil palm farmers, the analysis method is used with the following formula:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4$$

3.3 Simultaneous Effect of Variables

Based on the regression table (Table Attached), it can be seen that it can be seen that Sig F < (0.00 < 0.05), which means that the variables of fertilization, transportation of harvested crops, procurement of harvesting equipment, and eradication of weeds have a significant simultaneous effect on income. oil palm farmers in the study area with a 95% level of trust. From the table above, it can be concluded that Ho is rejected and Ha is accepted. Thus, it can be concluded that simultaneously all variables have a significant effect on the income of oil palm farmers.

3.4 Partial Effect of Variables

a. Effect of Fertilization Costs on Revenue

Based on the regression table (Attached Table) it can be seen that the results of the significance test of the amount of fertilization costs are 0.00 < 0.05, meaning that the fertilization costs have a significant effect on the income of oil palm farmers. Based on the coefficient value, it shows the number -0.974, meaning that if the fertilization cost is increased by Rp. 1 ceteris paribus (other factors are considered constant), the income of oil palm farmers will decrease by Rp. 0.974.

b. Effect of FFB Transportation Costs on Revenue

Based on the regression table (attached table) it can be seen that the results of the significance test of the total cost of transporting FFB is 0.00 < 0.05, meaning that the transportation cost of FFB has a significant effect on the income of oil palm farmers. Based on the coefficient value, it shows the number 30,846, meaning that if the cost of transporting FFB increases by Rp. 1 ceteris paribus (other factors are considered constant), the income of oil palm farmers will increase by Rp. 30,846. increase in the income of oil palm farmers.

c. Effect of Harvest Equipment Procurement Costs on Income

Based on the regression table (Table Attached) it can be seen that the results of the significance test of the cost of procurement of harvesting equipment are 0.603 > 0.05, meaning that the cost of procurement of harvesting equipment has no significant effect on the income of oil palm farmers. Based on the coefficient value, it shows the number -0.019, meaning that if the cost of procurement of harvesting equipment is added by Rp. 1, the farmer's income will decrease by Rp. 0.19.

d. Effect of Weed Control Costs on Revenue

Based on the regression table (Table Attached) it can be seen that the results of the significance test of weed control costs are 0.00 < 0.05, meaning that the costs of weed control have a significant effect on the income of oil palm farmers. Based on the coefficient value, it shows the number -0.986, meaning that if the cost of weed control is added by Rp. 1 ceteris paribus (other factors are considered constant), the farmer's income will decrease by Rp. 0.986. Thus, if the cost of weed control increases, the farmer's income will decrease.

e. Profit/Income of Oil Palm Farmers in Bulu Cina Village

To obtain the calculation of the profits of oil palm farmers, the following formula is used:

$$\pi = TR - TC$$

Description : **TR = Total Revenue (Total Revenue)**

TC = Total Cost (Total Cost)

By using the above formula, the following calculation results are obtained:

Based on the income/profit table (attached table), it can be seen that all sample farmers receive a total income of IDR **2,534.400.000,-** per year, while the total cost incurred by all sample farmers is IDR **457,167,000,-** per year. The total income of all sample farmers is IDR 2,077,187,000 per year.

4. Conclusion

Based on the results of the study, the following conclusions can be drawn:

1. Simultaneously the variables X₁ (fertilization costs), X₂ (FFB transportation costs) X₃ (Harvest Equipment Procurement Costs) and X₄ (Weed Control Costs) simultaneously significantly affect the income of oil palm farmers in Bulu Cina Village. This can be seen from the results of the significance test which shows the number $0.00 < 0.05$
2. Partially, the variables X₁ (fertilization costs), X₂ (FFB transportation costs) and X₄ (weed control costs) had a significant and partial effect on the income of oil palm farmers in Bulu Cina Village. While the variable X₃ (Cost for Procurement of Harvesting Equipment) does not have a significant partial effect on the income of oil palm farmers in Bulu Cina Village.
3. H₀ is rejected, H_a is accepted, this can be seen from the results of the significance test which shows the number $0.00 < 0.05$, which means that all production cost variables have a significant effect on the income of oil palm farmers simultaneously. The average income of oil palm farmers received per year is Rp. 69,239,566, - for an average land area of 1.9 hectares. The average production cost incurred by farmers per year for an average land area of 1.9 ha is IDR 15,238,900,-

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