Farming Income Analysis of Citronella Oil in Suri Musara Village, Pantan Cuaca district of Gayo Lues

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Abstract: Lemon grass is one of essential oils that has been classified as a long time developing. From the distillation of the leaves, lemon grass oil is obtained which is known in the world trade as Citronella Oil. The aim of this study was to analyze the income of lemongrass oil farmers in Suri Musara Village, Pantan Cuaca District, Gayo Lues District. The method used in this research is income analysis. The results showed that the area of respondent farmers' land was 1 Ha, the production costs in the form of agricultural inputs which had to be spent by farmers were Rp. 2,139,828, labor costs of Rp. 13,734,722, the cost of equipment and land rent is Rp. 8,064,444, the cost of producing lemongrass farming in the study area was Rp. 23,938,994, and the average income of lemongrass farmers during the 4 harvests is Rp. 17,331,250, the average net income of lemongrass farmers is Rp. 4,105,182. then the B C ratio is obtained at 1.75. This means that for every 1 rupiah spent by lemongrass farmers, it will generate a profit of 1.75. Because the value of B/C Ratio is greater than one (B/C Ratio> 1), farming is feasible.
Keywords: Analysis, Income, Farming, Oil Citronella

Introduction

Lemongrass (*Cymbopogon Nardus L.*) is an upright grass plant with profound and robust roots, upright stems, and clumps. This plant can grow to a height of 1 to 1.5 meters. The leaves are single, complete leaves, and the leaf midrib is cylindrical, bald, often with a red inner surface, with a tongue tip, 70-80 cm long and 2.5 cm wide.

Essential oils have now been developed and become an Indonesian export commodity, which includes essential oils from patchouli, vetiver, nutmeg, cloves, citronella, cananga, eucalyptus oil, sandalwood, pepper, and cinnamon. Lemongrass oil is a commodity in the agribusiness sector with a fair market and is highly competitive in foreign markets. The product produced by this essential oil producer is known as "Lemongrass Oil." The development of the lemongrass oil refining industry is very potential because it is supported by firewood availability as traditional fuel.

Problems faced by farmers in citronella farming are post-harvest handling, harvesting, production processes, trading systems, processing technology, and the use of traditional equipment. These result in the resulting lemongrass oil not being optimal and causing inconsistent yield and quality.

In the research location, lemongrass's production centre is in Suri Musara Village, Pantan Cuaca District, Gayo Lues Regency. The area developed by the farmer groups is 36 Ha. In January 2018, planting began in the farmer's land area. The advantages of citronella that grown by farmers in Suri Musara Village are more economical in spending because they have fertile soil, no use of fertilizers, only plant maintenance, and pest control.

Literature Review

The growth of lemongrass is influenced by soil fertility, climate, and altitude. It grows in various soil types, both low and high land up to a height of 1,200 masl, with an optimum size of 250 masl. For profitable leaf growth, a humid climate is needed so that in the dry season, the development is relatively slow. Cover crops harm leaf production and oil content. In general, lemongrass grows well on loose to clay soil with a pH of 5.5 - 7.0. With an average rainfall of 1,000 - 1,500 mm / year with dry months of 4 - 6 months, leaf production decreases but the yield and quality of oil increase (Zainal et al., 2004).

According to Daswir and Indra Kusuma (2007), the business of citronella plantation and refining is profitable and can increase farmers' income. The optimum farming area for a farmer is 1 ha of citronella monoculture garden.

The production of lemongrass oil depends on the variety, cultivation, and refining techniques. According to Damanik (2007), the yield of oil produced ranges from 0.60 to 0.70%, and according to Risfaheri (1990), the product of citronella oil can reach 0.80-1.20%.

Research Methods

The research was conducted from January 2018 to February 2019 in Suri Musara Village, Pantan Cuaca District, Gayo Lues Regency. The research method used was a survey method of lemongrass farmers with a total population of 36 lemongrass farmers. The data collected will be tabulated to facilitate data analysis to determine the income of Serai Wangi farming. The formula used according Rahim and Hastuti (2007): $\pi = TR–TC$; $TC = FC+VC$; Where π=Profit; TR=Total Revenue; TC =Total Cost; FC =Fixed Cost; VC =Variable Costs.

Acceptance of Serai Wangi farming is used the acceptance formula, according to Mulyadi (2007): $TR = P \times Q$; Where TR = Total Revenue (Rp / Period); P =Selling Price (Per /Kg); Q = Total Production (Kg/Period).

Results

Citronella plants are plants that can survive in marginal land conditions. In farming, this plant can be harvested three times a year, with the amount of oil obtained in the third harvest more than in the first or second harvests, this is because the citronella plant is old enough to produce oil, the increasing age of the citronella plant causes the more clumps produced so that at the 3rd and 4th harvest the number of leaves that were cut (harvested) was increasing.

Table 1. Production of Lemongrass (Kg/Ha/Thn)

Harvest/years	*Oil production (Kg)*	*Oil price (Kg)*	*Value (Rp)*
The first (Jun, '18)	25	340.000	8.500.000
The second (October, '18)	50	320.000	16.000.000
The Third (February, '19)	80	225.000	18.000.000
The fourth (Jun, '19)	80	225.000	18.000.000

Table 2. analysis of revenue, the income of Lemongrass farming/Ha

Hervest/years	*Revenue (Rp)*	*Cost (Rp)*	*Profit (Rp)*
The first (Jun, '18)	8.500.000	14.864.444	-6.364.444
The second (October, '18)	16.000.000	5.300.000	10.700.000
The Third (February, '19)	18.000.000	7.100.000	10.900.000
The fourth (Jun, '19)	18.000.000	7.100.000	10.900.000

Table 3. analysis of the cost Lemongrass farming/Ha

Description	*Cost (Rp)*
Seeds	1.696.078
Roundup	443.750
Hoe	159.722
Machete	192.361
Bucket	15.000
Sprayer	812.500
Axe	125.000
Refining tool	2.250.000
Sickle	221.667
Jerry can	93.750
Plastic sheeting	125.000
Land lease	4.069.444
Labour cost	5.360.000
Total	13.364.444

Lemongrass farming costs can be divided into two parts, namely fixed costs and variable costs. Fixed costs include equipment in farming and land rent amounting to IDR 8,064,444. Meanwhile, the variable cost is the cost of seeds, pesticides, and labour costs starting from soil processing, planting, spraying, harvesting, transporting leaves to refining oil is Rp. 15,874,550. Table 1 above can be calculated the feasibility of citronella farming through a balanced analysis of revenue and costs or B / C ratio = total revenue: Total cost = Rp. 15,125,000: Rp. 8,591,111 = 1.75. In theory, if the B / C is above the value of 1, the citronella farming is feasible to be cultivated or can provide a profit level. The average revenue per distillery is Rp. 4,105,182 for every four months, so the average monthly income of lemongrass farmers is Rp. 1,026,296.

Conclusions

The average land area of the respondent farmers is 1 hectare, so the cost of seed and roundup production facilities is Rp. 2,139,828, the cost of using citronella farmer labour is Rp. 13,364,444, the cost of equipment and land rent is Rp. 8,064,444, and the average income of lemongrass farmers for four harvests is Rp. 15,125,000. The average income obtained by citronella farmers is Rp. 6,533,889 per harvest. The feasibility analysis of citronella farming can be calculated using a B/C ratio of 1.75. Because the B/C ratio value is greater than 1, the citronella farming is feasible to cultivate.

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