

ECONOMIC ANALYSIS OF PATCHOULI FARMING IN KLUET TIMUR SUB-SUB-DISTRICT, ACEH SELATAN

¹Sri Harita, ^{2*}Adhiana, ³Naz'aina

^{1,2}Agribusiness Study Program, Faculty of Agriculture, Malikussaleh University

³Accounting Study Program, Faculty of Economic, Malikussaleh University

Corresponden author : ^{2*}adhiana@unimal.ac.id

Abstract

Patchouli plants are one of the potential commodities cultivated in Kluet Timur Sub-District. To be able to grow and produce well, patchouli plants require feasibility analysis and utilization of production factors Which is optimal. Study This aims For analyzing (1) Factors that influence the production of patchouli plants in Kluet Timur Sub-Sub-District, (2) The level of economic feasibility of patchouli farming in Kluet Timur Sub-District, Aceh Selatan. This research was carried out in Kluet Timur Sub-Sub-District, Aceh Selatan. The research was carried out using the Census method, with respondents deliberately selected using the criteria of independent farmers who have patchouli gardens. From the research results, the results showed that factors that have a significant influence on the production of patchouli farming in Kluet Timur Sub-Sub-District are land area, chemical fertilizer and labor. Meanwhile, seed and pesticide factors do not have a significant effect on patchouli farming production in Kluet Timur Sub-District. The value of the R/C Ratio is 2.64 (R/C Ratio > 1), the B/C Ratio is 1.64 (B/C Ratio > 1), which means that patchouli farming is feasible. The production BEP is 13.26, the price BEP is 208,358, the production value of the patchouli farming business obtained is more than the BEP value. So patchouli farming in Kluet Timur Sub-District is profitable.

Keywords: Farming, Production Factors, Feasibility, Patchouli Farming.

INTRODUCTION

Kluet Timur Sub-District, Aceh Selatan has very good potential for developing patchouli plants. The main problem faced by patchouli farmers in this area is that the price of patchouli oil often fluctuates, thus greatly affecting the production volume of patchouli cultivation. In 2000 the price of patchouli oil in Aceh Selatan and its surroundings rose drastically from 800,000 IDR to 1,000,000 IDR per Kg. However, currently the patchouli oil obtained from farmers is only worth 300,000 IDR to 500,000 IDR/Kg. Apart from the problem of fluctuating prices, the problem faced by patchouli farmers in Kluet Timur Sub-District is the farmers' low knowledge regarding patchouli cultivation. So if problems occur regarding patchouli cultivation in their farming, farmers are somewhat overwhelmed in controlling them.

One of the factors that is taken into consideration in developing farming is the level of feasibility of the farming and the factors that influence the production of patchouli plants. For this reason, it is necessary to conduct an assessment regarding the feasibility and factors that influence patchouli farming in Kluet Timur Sub-District. Business feasibility is a study of whether or not a business is feasible or not to be implemented successfully (Husnan and Suwarsono, 2000). The results of the feasibility analysis describe the level of profit obtained compared to the risks of the business including the possibilities that will occur, so that finally farmers can make decisions

ECONOMIC ANALYSIS OF PATCHOULI FARMING IN KLUET TIMUR SUB-SUB-DISTRICT, ACEH SELATAN

¹Sri Harita, ^{2*}Adhiana, ³Naz'aina

regarding investment policies in patchouli farming. On the other hand, the feasibility analysis is expected to attract investors' interest in investing in patchouli farming in Aceh Selatan, especially Kluet Timur Sub-District.

RESEARCH METHODS

This research was carried out in Kluet Timur Sub-District, Aceh Selatan with the consideration that the area chosen was one of the patchouli leaf producing areas in Aceh Selatan. The population in this study were all farmers who cultivated patchouli plants, totaling 52 respondents. The entire population is sampled. In carrying out this research, the types of data used are qualitative data and quantitative data. Then the data source used is primary data, namely data obtained directly from patchouli plantation land owners through interviews and questionnaires regarding questions and statements with research needs. Secondary data, namely data obtained from various agencies or services related to research problems. The research focus in carrying out this research is: The influence of production factors (land area, seeds, chemical fertilizers, pesticides, and labor) on patchouli farming production using production function analysis, and feasibility analysis for patchouli farming in Kluet Timur Sub-District. To determine the influence of production factors (land area, seeds, chemical fertilizers, pesticides, and labor) on the production of patchouli farming in Kluet Timur Sub-District, Aceh Selatan, it was analyzed using the Cobb Douglass Production Function Analysis Method (Soekartawi, 2011) as follows:

$$Y = b_0 X_1^{b_1} X_2^{b_2} X_3^{b_3} X_4^{b_4} X_5^{b_5}$$

The Production Function is transformed into natural logarithmic form as follows:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5$$

Information:

- Y = Patchouli production (Kg)
- X₁ = Land Area (Ha)
- X₂ = Seedlings (Stems)
- X₃ = Chemical Fertilizer (Kg)
- X₄ = Pesticide (Ml)
- X₅ = Labor (HOK)
- μ = Disruptor Error
- β₁, β₂, β₃, β₄ = Regression Coefficient of Each variable

The next test is to use the t statistical test with the aim of seeing the influence of each independent variable on the dependent variable. To determine the feasibility analysis of patchouli farming in Kluet Timur Sub-District, Aceh Selatan, it was analyzed using a feasibility test using the R/C Ratio, B/C Ratio, and BEP analysis as follows:

$$R/C = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

Information:

- R/C : Total Revenue Cost Ratio
- TR : Total Revenue
- T.C : Total Cost (Total Cost)

Farming businesses can be analyzed using the following formula:

$$B/C = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

Information :

- BC : Benefit Cost Ratio
- TB : Total Benefit

T.C : Total Cost

The formula for calculating BEP is as follows:

$$\text{BEP Production Volume} = \frac{\text{Total Cost}}{\text{Harga Benefit}}$$

$$\text{BEP Production Price} = \frac{\text{Total Cost}}{\text{Total Production}}$$

RESULTS AND DISCUSSION

a. Factors Affecting Patchouli Farming Production

This production factor analysis was carried out on 52 respondents who had patchouli plants. The variables used in this research consist of the dependent variable, namely the results of patchouli farming production, and the independent variables, namely land area, seeds, chemical fertilizers, pesticides, and labor. The results of the analysis of the use of production factors are presented in Table 1.

Table 1. Results of regression analysis of production factors on patchouli farming in Kluet Timur Sub-District

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2,318	,661		-3,508	,001
	LnX1	-.060	,022	-.389	-2,728	,009
	LnX2	-.004	,008	-.021	-.471	,640
	LnX3	,884	,162	,799	5,462	,000
	LnX4	.021	,034	.028	,632	,531
	LnX5	,244	.102	,523	2,392	.021

The Cobb-Douglas production function model is used to determine the production factors that influence patchouli farming production, as follows:

Based on table 12, you can see the results of the regression coefficient (β) above, so the following regression equation is obtained:

$$\begin{aligned} \text{Ln } Y &= \beta_0 + \beta_1 \text{Ln } X_1 + \beta_2 \text{Ln } X_2 + \beta_3 \text{Ln } X_3 + \beta_4 \text{Ln } X_4 + \beta_5 \text{Ln } X_5 + \mu \\ \text{Ln } Y &= -2.318 - 0.060 \text{Ln}X_1 - 0.004 \text{Ln}X_2 + 0.884 \text{Ln}X_3 + 0.021 \text{Ln}X_4 + 0.244 \text{Ln}X_5 + \mu \end{aligned}$$

The explanation of the data processing results is explained as follows:

1. R Squared (R^2)

The R square (R^2) value is used to see the model's ability to reveal the independent variables of the dependent variable from the model being built. From data processing, the value of $R^2 = 0.914$ is obtained, which means that the variance of the dependent variable (patchouli farming results) can be explained by the independent variables (land area, seeds, chemical fertilizers, pesticides and labor) of 91.4%, while the remaining is 8.6% explained by other variables outside the research.

2. Simultaneous Test (F Test)

The results of the analysis can be seen in table 25. From the regression results shown in table 25, the influence of the variables land area (X_1), seeds (X_2), chemical

ECONOMIC ANALYSIS OF PATCHOULI FARMING IN KLUET TIMUR SUB-SUB-DISTRICT, ACEH SELATAN¹Sri Harita, ^{2*}Adhiana, ³Naz'aina

fertilizers (X3), pesticides (X4) and labor (X5) on production in patchouli farming (Y), then a significant value of $0.000 < 0.05$ is obtained. This shows that the five independent variables simultaneously have a significant effect on the dependent variable.

3. Partial Test (t Test)

Ttest calculations can be seen from partial test results on each independent variable (land area, seeds, chemical fertilizers, pesticides, and labor) partially on the dependent variable. Patchouli farming production in Kluet Timur Sub-District can be analyzed as follows:

1. The Land Area variable (X_1) obtained a coefficient value of -0.060 and a significant value of 0.09, this value indicates that the significant value is smaller than the level of significance ($\alpha = 0.05$). This shows that land area has a significant effect on patchouli farming production in Kluet Timur Sub-District. Based on the research results, the coefficient value of the land area factor is negative. The coefficient is negative due to various conditions in the field. There is a decrease in land and production has increased due to agricultural intensification such as fertilization, selection of superior seeds, good soil management. Meanwhile, land increases and production decreases due to other factors such as floods, wind rain, pest attacks, collapsed rice and other unexpected things. This is in line with research conducted by Kharismawati, et-al (2021) which states that land area has a negative effect on rice production. This indicates the research findings, where the larger the land area, the rice production will decrease, conversely, the more land area decreases, the more rice production will be able to increase.
2. Seed (X2) obtained a coefficient value of -0.004 and a significant value of 0.640. This value indicates that the significant value is greater than the level of significance ($\alpha = 0.05$). This shows that seeds do not have a significant effect on patchouli farming production in Kluet Timur Sub-District. The coefficient value is negative because farmers plant patchouli with spacing that is not in accordance with recommendations. Plant spacing that is too close will require more seeds and make the plants develop less well. so that production will be reduced. This is in line with research conducted by Moh. Lutfi (2018), who stated that seed production factors had a negative effect on tobacco production in Polagan Village, Galis Sub-District, Pamekasan Regency.
3. Chemical fertilizer (X3) obtained a coefficient value of 0.884 and a significant value of 0.000, this value shows that the significant value is smaller than the level of significance ($\alpha = 0.05$). This shows that chemical fertilizers have a significant effect on patchouli farming production in Kluet Timur Sub-District. This research is in line with Mutmainnah Rusdi (2017) who states that fertilizer has a positive effect on clove production or for every 1% addition of fertilizer, clove farming production increases. This is because every addition of fertilizer with intensive handling will stimulate the growth of cloves so that production will increase.
4. Pesticides (X4) obtained a coefficient value of 0.021 and a significant value of 0.531, this value shows that the significant value is greater than the level of significance ($\alpha = 0.05$). This shows that pesticides do not have a significant effect on patchouli production in Kluet Timur Sub-District. This is in accordance with research conducted by Serafina Laka Neonbota (2016) with the research title "Factors that Influence Rice Farming in Haekto Village, East Noemuti Sub-District". The results of his research show that pesticides do not have a significant effect on lowland rice production because the use of pesticides is not in accordance with farming guidelines.

5. Labor force (X5) obtained a coefficient value of 0.244 and a significant value of 0.021, this value shows that the significant value is smaller than the level of significance ($\alpha = 0.05$). This shows that labor has a significant influence on patchouli production in Kluet Timur Sub-District. These results are in line with the results of research from Mutmainnah Rusdi (2017) which states that labor has a positive effect on clove production in Palangka village.

6.

b. Feasibility Test for Patchouli Farming in Kluet Timur Sub-District

For feasibility testing, a production cost analyst is required. The analysis of production costs in patchouli farming in Kluet Timur Sub-District can be seen in table 2 as follows:

Table 2. Analysis of Production Costs, Revenue and Farming Income
In Kluet Timur Sub-District

Component	Amount (Rp/Ha/Planting Season)
A. Fixed Costs	
Equipment Depreciation Costs	319,918
Fixed Cost Amount	
B. Variable Costs	
1. Production Facilities	
Seedlings	1,869,508
Fertilizer	1,564,590
Drugs	52,213
Amount of Production Production Costs	3,486,311
2. Labor	
Land Management 6	500,984
Planting 6	448,525
Fertilization 2	167,869
Maintenance 10	789,509
Harvest 2	167,869
Post-Harvest 9	710,819
Total Labor Costs	2,785,575
Total Variable Costs	6,972,622
C. Total Cost	7,292,540
D. Acceptance	
Production 35 Kg	
Price Rp. 550,000 / Kg	
Reception	19,250,000
Total Cost	7,292,540
E. Income	11,957,460

Source: Primary Data, processed, 2023

From the results of the analysis, the value of the R/C Ratio is 2.64 (R/C Ratio > 1), the B/C Ratio is 1.64 (B/C Ratio > 1. Production BEP is 13.26, price BEP is 208,358 So patchouli farming in Kluet Timur Sub-District is worth pursuing.

ECONOMIC ANALYSIS OF PATCHOULI FARMING IN KLUET TIMUR SUB-SUB-DISTRICT, ACEH SELATAN

¹Sri Harita, ²*Adhiana, ³Naz'aina

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

From the results of research conducted in Kluet Timur Sub-District, Aceh Selatan, the following conclusions were obtained:

1. Factors that have a significant influence on patchouli farming production in Kluet Timur Sub-District are land area, chemical fertilizers and labor. Meanwhile, seed and pesticide factors do not have a significant effect on patchouli farming production in Kluet Timur Sub-District.
2. From the research results, the value of the R/C Ratio was 2.64 (R/C Ratio > 1), the B/C Ratio was 1.64 (B/C Ratio > 1. Production BEP was 13.26, price BEP was 208,358 So patchouli farming in Kluet Timur Sub-District is worth pursuing.

Suggestion

1. It is recommended that farmers continue to carry out patchouli farming and expand the area of land planted with patchouli so that farmers' income increases.
2. Regarding production results, patchouli farmers should further improve their farming considering the fairly high price of patchouli oil.

REFERENCES

- A. Muri Yusuf. 2014. "Quantitative, Qualitative & Combined Research Methods". Jakarta: prenadamedia group.
- Astuti, PW (2017). "The Influence of Profitability, Company Size, Leverage, and Audit Quality on Earnings Management". Thesis. Surakarta: Muhammadiyah University of Surakarta
- Husnan, Suad and Suwarsono Muhammad. (2000). Project Feasibility Study. Edition. Fourth, Publisher UPP AMP YKPN, Yogyakarta. Cashmere
- Kharimawati, et al. 2021. The Influence of Land Area and Number of Workers on Rice Production in 10 East Java Regencies 2014-2018. *ejournal.upbatam.ac.id*
- Lutfi, Moh, et al. 2018. Technical Efficiency Analysis of the Use of Agricultural Production Factors in Tobacco Farming (Case Study in Polagan Village, Galis Sub-District, Pamekasan Regency). *Journal of Agricultural Economics and Agribusiness. jepa.ub.ac.id*
- Neonbota, Serafina Laka. 2016. Factors that influence lowland rice farming in Haekto Village, East Noemuti Sub-District. *Dry Land Agribusiness Journal*.
- Romauli Simanjuntak, et al. 2019. Feasibility Analysis and Factors that Influence Sweet Corn Farming Production (Case Study in Nagori Negeri Malela, Gunung Malela Sub-District). *Agrilink Urnal Volume 1 no.2. Simalungun University*.
- Rusdi, Mutmainnah. 2017. Analysis of the Efficiency of Using Production Factors in Clove Farming in Palangka Village, South Sinjai Sub-District, Sinjai Regency. Thesis. Alauddin Makassar State Islamic University
- Soekartawi. 2011. *Agricultural Business Science*. University of Indonesia: Jakarta
- Sri Juliarti, et al. (2022). Feasibility Analysis of Corn Farming in Bantulanteh Village, Tarano Sub-District, Sumbawa Regency. *Agrimansion Journal Vol. 23 No.2. Mataram University*.
- Tudu RA, Yatim H & Sataral M. 2021. The effect of liquid NPK fertilizer concentration and the number of shoot cutting segments on the growth of patchouli plants (*Pogostemon cablin* Benth). *Faculty of Agriculture Student Scientific Journal*, 1(1), 7-14.
- Wijaya, Andy et al. 2020. *Production Operations Management*. Medan: Kita Write