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Analysis Of Allocative Efficiency And Factors Affecting The Production Of Inorganic And Semi-Organic Rice Farming In Papar Sub- District, Kediri District

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Abstract

The purpose of this research is to determine the allocative efficiency of the use of production inputs and factors that affect inorganic and semi-organic rice farming in Papar District, Kediri Regency. The methods used in this study are multiple linear regression analysis and allocative efficiency (price) analysis. The results of this study show that the factors that affect the production of inorganic rice fields are land area, chemical fertilizers, and pesticides, among the three factors that affect inorganic rice farming, the use of land area production inputs is not efficient so there needs to increase the land area. While the use of inputs in the production of chemical fertilizers and pesticides is known to be inefficient so there needs to be a reduction in the production input. Meanwhile, the results for factors that affect the production of semi-organic rice fields are land area, seeds, and manure. The use of land area production inputs is not yet efficient so it is necessary to add these inputs, while the use of seed and manure inputs is not efficient so there needs to be a reduction in the production input.

Keywords: allocative efficiency, inorganic, production factor, rice, semi-organic

Introduction

The agricultural sector, which is the leading sector in agrarian countries, has several supporting subsectors, one of which is the food crop subsector. Haris (2017) explains that food crops have become an important sector in Indonesia's development along with the establishment of the main target of strengthening food supply and diversifying food consumption in Indonesia's development, namely increasing the availability of domestically sourced food for basic commodities, including rice, corn and soybeans. The important role of rice commodities in the economy has become a major issue in realizing rice self-sufficiency.

Rice is a staple food in the life of the Indonesian people. The need for rice will continue to increase along with the rate of population growth. Therefore, to balance the need for national rice, various breakthroughs are needed in increasing rice production. Population growth is increasing, resulting in increased demand for food. One of the efforts that can be made to meet this demand is by farming on rice commodities. The aspect of rice supply is important considering Indonesia's high

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population. Provinces that are pockets of rice providers, one of which is East Java Province. As a national rice production pocket, land productivity in East Java for rice commodities is quite extensive. Meanwhile, the need for rice in East Java is sufficient and is even able to buffer food security in provinces outside Java.

Papar Sub-district is one of the sub-districts in Kediri District which has a high productivity of 6.319 tons/ha in 2022 (BPS, 2022). To increase its productivity, farmers in Papar sub-district apply agricultural systems by means of inorganic farming and semi-organic farming to cultivate rice plants. Problems experienced by inorganic farmers in rice farming. First, agricultural land is decreasing over time, as a result of the conversion of agricultural land to non-agricultural uses. Second, the allocation of subsidized fertilizer is less than the proposed needs of farmers through the definitive plan of group needs. While the problems experienced by semi-organic farmers are the difficulty of farmers finding land that is in good condition or not polluted by chemicals, and semi-organic farming requires more maintenance and continuous supervision of rice plants.

Based on the description above, it is necessary to conduct research with the title "Analysis of Allocative Efficiency and Factors Affecting the Production of Inorganic and Semi-Organic Rice Farming in Papar District, Kediri Regency" with the aim of (1) To find out what factors are used for the production of rice farming in Papar District, Kediri Regency (2) To analyze the influence of farming factors on the production of rice farming in Papar District, Kediri Regency (3) To analyze the level of allocative efficiency of the use of production factors of inorganic and semi-organic rice farming in Papar District, Kediri Regency.

Method

This research was conducted from November 2023 to January 2024 in Papar District, Kediri Regency. The selection of locations was done purposively because Papar Sub-district is the area with the highest productivity in Papar Sub- district and the location has the potential for rice cultivation. The sample used in this study amounted to 60 respondents. Sampling was done with purposive sampling technique. The sampling technique is done by taking samples from the population based on criteria. This is because the selection of farmers is not done randomly, but based on the direction of the Agricultural Extension Agency with the following criteria: (1) active farmer group members (2) inorganic and semi-organic rice farmers.

This research data collection method uses primary and secondary data. Primary data is data obtained directly from farmers through interviews and questionnaires. Secondary data is data obtained from other sources that are used for supporting data, namely from books, the results of the research. Research reports that have been conducted, and data from the agriculture office and related agencies in Kediri District.

The data analysis method used in this study is as follows:

1. Analyzing production factors that influence farming in the research location.
   The production function multiple regression analysis tools with the following equation (Gujarati, 2003):

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + e$$

Explanation :

Y = Production (kg)
X_1 = Land Area (m^2)
X_2 = Seeds (kg)
X_3 = Chemical Fertilizer (kg)
X_4 = Pesticides (kg)
X_5 = Labor

b_0 = Constant
b_1 = Coefficient of Land Area
b_2 = Coefficient of Seeds
b_3 = Coefficient of Chemical Fertilizer
b_4 = Coefficient of Pesticides
b_5 = Coefficient of Labor
e = Error

In order for the production function to be estimated using the least squares method, it needs to be transformed into a linear function form as follows:

$$LnY = Ln\ b_0 + b_1\ Ln\ X_1 + b_2\ Ln\ X_2 + b_3\ Ln\ X_3 + b_4\ Ln\ X_4 + b_5\ Ln\ X_5 + e$$

The above function is used for inorganic rice. Meanwhile, the function used for semi organic adds one manure variable.

2. Analyzing the allocative efficiency of factors affecting farming in the research location.
   Analysis of allocative efficiency is carried out to see whether the use of production factors used in rice production activities has achieved allocative efficiency (price efficiency). Nicholson (2002) states that allocative efficiency can be achieved if the comparative Marginal Product Value (NPMxi) of each production factor is equal to the price of production factors issued (Pxi). In actual conditions, the value of NPMxi is not always equal to Pxi. Soekartawi (2002) revealed that the things that often happen are as follows:
   a. $\frac{NPMxi}{Pxi} > 1$ means that the use of production factor Xi is "not efficient", and additional use of production factor Xi is required to achieve allocative efficiency.
   b. $\frac{NPMxi}{Pxi} = 1$ means that Xi's use of factors of production is "efficient".
   c. $\frac{NPMxi}{Pxi} < 1$ means that the use of production factor Xi is "inefficient", and a reduction in the use of production factor Xi is required to achieve allocative efficiency.

RESULT AND DISCUSSION

Farmer Characteristics

Socio-economic factors in rice farming activities affect farmers' decisions in their farming activities. The socio-economic factors in the study, which consist of:

1. Farmer age

Table 1. Characteristics of Respondents Based on Age

Characteristic		Inorganic		Semi-Organic	
No.	**Age**	**Total**	**Percentage %**	**Total**	**Percentage %**
1	<= 30	0	0.00	0	0.00
2	31-40	1	3.33	2	6.67
3	41-50	8	26.67	9	30.00
4	51-60	16	53.33	13	43.33
5	>=61	5	16.67	6	20.00
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

The age of rice farmers in Kecamatan Papar varies, most of the rice farmers have the age of 51-60 as many as 29 people (48.33%). This shows that the respondent farmers of rice farming in Kecamatan Papar are mostly farmers of unproductive age.

2. Gender

Table 2. Characteristics of Respondents Based on Gender

Characteristic		Inorganic		Semi-Organic	
No.	**Age**	**Total**	**Percentage %**	**Total**	**Percentage %**
1	Male	23	76.67	13	43.33
2	Female	7	23.33	17	56.67
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

Based on table 2, it can be seen that inorganic farmers are male as many as 23 or 76.67 percent. While semi-organic farmers are dominated by women as many as 17 or 56.67 percent. This shows that inorganic rice farming requires a lot of physical strength of men, because activities such as land cultivation, weeding, and harvesting require strong energy to optimize the work. While the respondents of semi-organic rice farming are more dominated by farmers who are female. Because female farmers participate in rice management and management activities, but are still accompanied by male farmers or family heads to optimize these farming activities.

3. Land area

Land area generally affects the acquisition of production and income generated in rice farming activities. The more land area used for rice farming, the higher the production and income of rice farmers. However, the larger the land area used in farming, the greater the costs incurred by farmers.

Table 3. Characteristics of Respondents Based on Land Area

Characteristic		Inorganic		Semi-Organic	
No.	**Land Area (hectare)**	**Total**	**Percentage %**	**Total**	**Percentage %**
1	0.10 - 0.50	21	70.00	14	46.67
2	0.51 - 1.00	9	30.00	12	40.00
3	1.01 - 1.50	0	0.00	3	10.00
4	>= 1.51	0	0.00	1	3.33
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

Based on Table 3, it can be seen that the land area is at the maximum percentage at an area of <0.50 ha. The reduction in land area is due to land conversion, from agricultural land to residential land, causing agricultural production to decrease. To overcome this, farmers use a land tenure system in the form of land leases, to parties who have a larger land area.

4. Education Level

This shows that the state of the education level of respondents of rice farmers in Papar Subdistrict is quite high, with a relatively high level of formal education taken by farmers, the

management of rice farming is carried out with the ability and skills possessed and utilize the technology that comes from the group and the extension workers in accordance with the habits that have been done and the information obtained among farmers.

Table 4. Characteristics of Respondents Based on Last Education Level

Characteristic		Inorganic		Semi-Organic	
No.	**Education**	**Total**	**Percentage %**	**Total**	**Percentage %**
1	Elementary school graduate	11	36.67	11	36.67
2	Junior high school graduate	5	16.67	4	13.33
3	High school graduate	12	40.00	14	46.67
4	College Graduation	2	6.67	1	3.33
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

5. Farming experience

Table 5. Characteristics of Respondents Based on Farming Experience

Characteristic		Inorganic		Semi-Organic	
No.	**Farming Experience (year)**	**Total**	**Percentage %**	**Total**	**Percentage %**
1	< 5	3	10,00	2	6,67
2	6 to 10	11	36,67	8	26,67
3	>10	16	53,34	20	66,67
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

Experience varies in doing rice farming, most farmers have experience in rice farming more than 10 years as many as 36 farmers. From these results, farmers can be said to have long enough to cultivate rice plants. The experience is the initial capital for farmers in rice farming because with this experience, farmers can face various obstacles in rice farming. In addition, farmers can also make decisions according to the circumstances they experience.

6. Number of family dependents covered

The number of family dependents varies and most farmers have a number of family dependents, namely 2-3 dependents totaling 46 people. Farmers' family members are a potential source of labor for their farms. Family members are directly related to the number of family dependents and the magnitude of the burden of living needs of the head of the family. Based on interviews with respondents, most family members are rice farmers in the village. However, there are some family members who prefer to work in the industrial and trade sectors

Table 6: Characteristics of Respondents Based on Number of Family Members

Characteristic		Inorganic		Semi-Organic	
No.	**Dependents Family**	**Total**	**Percentage %**	**Total**	**Percentage %**

1	<= 3	21	70.00	25	83.33
2	4 to 6	9	30.00	5	16.67
Total		**30**	**100.00**	**30**	**100.00**

Source: Primary data processed, 2023

Analysis of factors affecting the production of inorganic rice farming in Papar Subdistrict

Production inputs identified as influencing the production of rice in Papar District, Kediri Regency are land area, seeds, chemical fertilizers, pesticides, and labor.

Table 7. Results of Regression Analysis of Inorganic Rice Production Function

Independent Variable	Regression Coefficient	t-Count	Sig
Constant	1.348	1.109	.278
Land Area (ln.X1)	.281	2.210	.037
Seed (ln.X2)	.102	.727	.474
Chemical Fertilizer (ln.X3)	.309	3.803	.001
Pesticides (ln.X4)	.182	4.484	.000
Labor (ln.X5)	.034	.155	.878
R^2 = 0,946			
F Count = 84.850			
F table α 0.05 = 2.6207			
t table α 0.05 = 2.060			
95% Confidence Level			

Source: Primary data processed, 2023

Based on the results of the F test that has been carried out through data processing using quantitative analysis tools, that in the study obtained an Fcount value of 84.850, the Ftable value with a confidence level of 95% (α = 0.05) with a df value of N1 = 5 and df N2 = 24, the Ftable value is 2.6207. From these results it can be concluded that the value of Fcount (84.850) > Ftable (2.6207), meaning that together from all independent variables (land area, seeds, chemical fertilizers, pesticides, and labor) affect the dependent variable (rice production).

The coefficient of determination test shows how well the independent variables explain the results (multiple correlation coefficient). The range of R values is 0 to 1. The more the R value approaches 1, the stronger the independent variables predict the dependent variable. In this study, the value of R 2 is 0.946 or reaches 94.6%, so from these results it can be concluded that the independent variables (land area, seeds, chemical fertilizers, pesticides, and labor) have a great influence on the increase or decrease in rice farm production and the remaining 5.4% is not explained by the model, but is explained by other factors outside the model.

Land Area (X1). Land area has a regression coefficient of 0.281 and a positive sign on production output. With a t value of 2.210 and a t table of 2.060, it can be concluded that land area has a significant effect on the production of inorganic rice in Papar District. This is in line with the positive sign which means that the more land owned by a farmer, it will increase the amount of rice production.

Seeds (X2). The regression coefficient of the seed variable of 0.102 which is positive indicates that if the use of seeds is increased by 1% and other factors are considered constant, it will not reduce the production of rice. The government recommends that in 1 ha or 10000 m^2 only use 25 kg of seeds but the average use of seeds in the research location is 42 kg. This happens because the use of seeds in the planting process is too much causing a high population per planting hole, there is competition

between plants in the absorption of nutrients, oxygen and sunlight so that rice production becomes low.

Chemical Fertilizer (X3). Based on the results showed that the amount of chemical fertilizer has a significant effect. This can be seen in table 7 which shows that the t value is 3.803 from the t table 2.060 which means that H0 is rejected H1 is accepted with a significance level of 0.001, this can be interpreted that fertilizer has a real effect on production and the regression coefficient value is 0.309 and has a positive sign, which means that every 1% increase in fertilizer will increase production by 0.309 kg. this is in accordance with the results of the study. Previous research conducted by Murdiantoro (2011), in Sragen Regency found that the volume of fertilizer has a positive and significant effect on the amount of rice production.

Pesticides (X4). The regression coefficient of the pesticide variable of 0.182 indicates that if the use of pesticides is increased by 1% and other factors are considered constant, it can increase the production of inorganic rice by 0.182%. Research conducted by Permatasari, et al (2021), on the analysis of factors affecting rice farming production said that pesticides have a significant effect on increasing rice production.

Labor (X5). In table 7 which shows that the t value is 0.155 followed by a regression coefficient value of 0.034 with a significance level of 0.878 is much greater than the significance level used in the study which is 5 percent or 0.05. The insignificant effect is thought to be due to the maintenance of rice plants that are not yet intensive, especially maintenance. Because not all farmers do the maintenance of rice plants. The use of labor in the production process of rice plants did not have a strong influence in this study, due to the lack of maximum labor in plant maintenance.

Analysis of factors affecting the production of semi-organic rice farming in Papar Subdistrict

The variables used in this calculation are land area, seeds, manure, chemical fertilizers, pesticides, and labor in the production of semi-organic rice in Papar District, Kediri Regency. The Fcount of this study was obtained at 42.209, the Ftable value with a 95% confidence level ($\alpha = 0.05$) with a df value of N1 = 6 and df N2 = 23 then the value of Ftable is 2.5277. From these results it can be concluded that the value of Fcount (42.209) > Ftable (2.5277), meaning that together from all independent variables (land area, seeds, manure, chemical fertilizers, pesticides, and labor) affect the dependent variable (rice production). The R^2 value is 0.917 or reaches 91.7%, this figure shows that the ability of the independent variables in providing information to explain the magnitude of the dependent variable is relatively high. So from these results it can be concluded that the independent variables (land area, seeds, manure, chemical fertilizers, pesticides, and labor) have a great influence on the increase or decrease in rice farming production and the remaining 8.3% is not explained by the model, but explained by other factors outside the model.

Table 8. Results of Regression Analysis of Semi-Organic Rice Production Function

Independent Variable	Regression Coefficient	t-Count	Sig
Constant	.033	.020	.984
Land Area (ln.X1)	.407	2.309	.030
Seed (ln.X2)	.415	2.581	.017
Manure (ln.X3)	.294	2.079	.049
Chemical Fertilizer (ln.X4)	-.086	-.624	.539
Pesticides (ln.X5)	-.025	-.388	.702
Labor (ln.X6)	.067	.437	.666
R^2 = 0,917			
F Count = 42.209			

F table α 0.05 = 2.5277
t table α 0.05 = 2.064
95% Confidence Level

Source: Primary data processed, 2023

The factors of land area, seeds, and manure have a significant effect on the production of semi-organic rice in Papar Subdistrict. Meanwhile, the factors of chemical fertilizers, pesticides, and labor do not significantly affect the production of semi-organic rice crops.

Land Area (X1). The regression coefficient is 0.407 and has a positive sign on production output. With a t value of 2.309 and a t table of 2.064, it can be concluded that land area has a significant effect on the production of inorganic rice in Papar District. This means that if the production factor of land area is increased by 1%, the production output will increase by 0.407%. This is in line with the positive sign which means that the more land owned by a farmer, it will increase the amount of rice production. in line with research conducted by Ilona (2015) that land area has a significant effect on rice production.

Seed (X2). The regression coefficient of the seed variable is 0.415 and is positive, this indicates that the seed production factor has a real effect on rice production and this indicates that if the use of seeds is increased by 1% and other factors are considered constant, it can increase the production of semi-organic rice by 0.415%. These results are in accordance with research conducted by (Triyanto, 2006) that seeds have a positive and significant effect on in Central Java which means that if the number of seeds is greater, the greater the amount of rice production that will be obtained.

Manure (X3). The result of the t-test hypothesis for the manure variable is Ho is rejected. This shows that the production factor of manure has a real effect on rice production in upstream and downstream areas. The regression coefficient of the manure variable is 0.294 and has a positive sign, indicating that if the use of manure is increased by 1% and other factors are considered constant, it can increase the production of rice by 0.294%. Manure is fertilizer derived from processed livestock manure that is applied to agricultural land to improve soil fertility and texture. Manure is an organic fertilizer that contains nutrients that are good for plants. Anggara, et al (2023), on the analysis of factors affecting the production of semi- organic rice farming said that organic fertilizer partially had a significant effect on the production of semi-organic rice.

Chemical Fertilizer (X4). The amount of chemical fertilizer has no significant effect. This can be seen in table 14 which shows that the t value of 0.624 is smaller than the t table of 2.064 which means that H0 is accepted H1 is rejected with a significance level of 0.539, this states that the coefficient value is much greater than the significance level used in this study which is 5 percent or 0.05 so that it means that the volume of fertilizer has no real effect on the production of semi-organic rice in Papar District.

Pesticides (X5). The negative regression coefficient value of -0.025 indicates that the addition of pesticides by 1% will reduce production by 0.025% with the assumption that other factors are constant, so statistically pesticides used for rice farming activities have no real effect on the amount of rice production. Based on the results of research conducted, that the average use of pesticides in the research location there are several pesticides, but the most dominant is liquid pesticides.

Labor (X6). The calculated t value of 0.437 followed by the regression coefficient value of 0.067 with a significance level of 0.666 is much greater than the significance level used in the study of 5 percent or 0.05. The results showed that the amount of labor had no real effect on rice production. The use of labor in the production process of rice plants does not have a strong influence in this study, due to the lack of maximum labor in plant maintenance.

Analysis of allocative efficiency of influential factors on production inputs of inorganic rice farming in Papar Subdistrict

The results of the calculation of allocative efficiency of production factors that significantly affect the production of inorganic rice can be seen in Table 9 as follows:

Table 9. Results of Allocative Efficiency Analysis of the Use of Production Factors of Inorganic Rice in Papar Subdistrict

Variables	Bi	Y	Py	X	Px	Pmx	NPMxi	NPMxi/ Pxi	Conclusion
Land Area	0.281	3403	5221	0.5	6256133	1912.49	9985089	1.596	Not yet Efficient
Chemical Fertilizer	0.309	3403	5221	315	1974998	3.33818	17428.64	0.008	Inefficient
Pesticides	0.182	3403	5221	558	229790	1.10994	5794.992	0.025	Inefficient

Source: Primary data processed, 2023

Based on table 9, it is known that the value of the marginal product with the price of production inputs on the production factor of land area is greater than 1, so it can be concluded that the marginal product value is greater than 1. It can be concluded that the production input of land area is not efficient. While the NPMxi/Pxi of chemical fertilizers and pesticides is less than 1, so it can be concluded that the use of these production factors is not allocatively efficient.

Land Area. The use of land area in the research location is known that the value of NPMxi / Pxi is 1.596 which indicates that the use of land area is not efficient because the value of NPMxi / Pxi is more than one, this is because the land area in Papar District is considered inefficient because of the conversion of some agricultural land into non-agricultural land. So that the addition of the allocation of land use of inorganic rice farming can be done if rice farmers in the study area want to increase their profits to be greater. This finding is in line with Kurniati, et al. (2017) which states that land use in rice farming is allocatively inefficient.

Chemical Fertilizer. The use of chemical fertilizer production factors obtained NPMxi/Pxi value of 0.008 which means that the allocation of the use of chemical fertilizers is inefficient because the value of NPMxi/Pxi < 1. The average use of chemical fertilizers in the research location per ha is 315 kg. Whereas according to MOA gives a recommendation of chemical fertilizer application of 200kg/ha. So, a reduction in the allocation of chemical fertilizer use in rice farming can be done so that farmers can increase production and reduce the use of chemicals.

Pesticides. The use of pesticide production factors obtained NPMxi / Pxi value of 0.025 indicates that the allocation of the use of pesticides is not efficient because the value of NPMxi / Pxi < 1. Thus, a reduction in the allocation of the use of pesticides on inorganic rice farming can be done in the research area if you want to increase profits to be greater. The average use of pesticides is 558 ml/Ha. Farmers only eradicate pests and plant diseases if farmers have seen symptoms of attacks on their plants. The use of pestisisda by farmers aims to eradicate pests and diseases that attack rice plants, where the amount of use depends on the intensity of pest and disease attacks that occur.

Analysis of allocative efficiency of influential factors on production inputs of semi-organic rice farming in Papar District

The results of the calculation of allocative efficiency of production factors of semi-organic rice can be seen in table 9 as follows:

Table 9. Results of Analysis of Allocative Efficiency in the Use of Production Factors for Semi-Organic Rice in Papar Subdistrict

Variables	Bi	Y	Py	X	Px	Pmx	NPMxi	NPMxi/ Pxi	Conclusion
Land Area	0.407	4926	5.779	0.7	474.833	2864.11	16551.7	34.858	Not yet Efficient
Seeds	0.415	4926	5.779	36	453.129	56.785	328.165	0.724	Inefficient
Manure	0.01	4926	5.779	3.969	178.618	12.411	71.7242	0.401	Inefficient

Source: Primary data processed, 2023

Based on Table 9, it is known that the comparison value between the marginal product value and the price of production inputs on the production factor of land area is greater than 1, so it can be concluded that the use of land area production factors is not efficient. While the value of the marginal product with the price of production inputs on the production factor of chemical fertilizers and pesticides is smaller than 1, so it can be concluded that the use of production factors of seeds and manure is not allocatively efficient.

Land Area. The NPMxi/Pxi value of land area obtained a value of 34.858 which indicates that the allocation of the use of production factors is not yet efficient because the value of NPMxi/Pxi> 1. The average use of land area in the study area is less than 0.5 ha, so it is necessary to increase the allocation of these factors if rice farmers in the study area want to increase profits.

Seed. The NPMxi / Pxi value on the seed production factor obtained a value of 0.724 which indicates that the allocation of seed use at the research location is inefficient because the NPMxi / Pxi value < 1. So that the need to reduce the allocation of seed use on the farm. The use of seeds is inefficient so that it is necessary to reduce the use, farmer can use more types of seeds profitable (Rahmi & Fadli, 2017; Mudaffar, 2023) argues that. The use of seeds in the research location averaged 36kg/ha, but the government recommends the use of adequate rice seeds is 25kg/ha.

Manure. The use of manure production factor obtained NPMxi/Pxi value of 0.401 which indicates that the allocation of the use of manure in the research location is inefficient because the value of NPMxi/Pxi < 1. The average use of manure in the research location is 3,969kg/ha, while in the research of Siwanto, et al (2015), said if the addition of organic fertilizer as much as 750 kg and added chemical fertilizer as much as 300 kg is enough to increase production. Thus, reducing the allocation of manure use in semi-organic rice farming can be done if rice farmers in the study area want to increase their profits to be greater.

Conclusion

Based on the above research, it can be concluded as follows:

1. Production factors that affect the production of inorganic rice farming are the production factors of land area, seeds, and chemical fertilizers. While the factors that influence the production of semi-organic rice farming are the production factors of land area, seeds, and manure.
2. Price efficiency of inorganic rice farming on the use of production factors of land area is not efficient so there is a need for addition while the production factors of seeds and chemical fertilizers are not efficient so there is a need for reduction.
3. Price efficiency of semi-organic rice farming on the use of production factors of land area is not efficient so there is a need for addition while the production factors of seeds and manure are inefficient so there is a need for reduction.

References

Anggara, I. W. R., Sutarni, Handayani, S., & Fitriani. (2023). Analisis Faktor-Faktor yang Mempengaruhi Produksi Usahatani Padi Semi Organik di Desa Pangkal Mas Jaya Kecamatan Mesuji Timur Kabupaten Mesuji. Jurnal Ekonomika dan Bisnis (JEBS), 3(1): 126-132

Badan Pusat Statistik. 2022. Potensi Padi Kabupaten Kediri Menurut Kecamatan. Kecamatan Papar Dalam Angka. Retrieved from https://kedirikab.bps.go.id/

Gujarati, D. N. 2003. Basic Econometricse, Fourtd Edition. New York: Mc Graw Hill

Haris, W. A., Ma'mun, S., & Falatehan, A. F. 2017. Analisis peranan subsektor tanaman pangan terhadap perekonomian Jawa Barat. Journal of Regional and Rural Development Planning, 1(3): 231-242.

Kurniati, N, Hasanawi, & D Fitriani. (2017). Produktivitas dan Efisiensi Penggunaan Faktor Produksi Pada Usahatani Jagung di Kecamatan Lubuk Pinang Kabupaten Mukomuko Provinsi Bengkulu. JurnalAgripta. 1(1): 30–36

Mafor, K. I. 2015. Analisis Faktor Produksi Padi Sawah di Desa Tompasobaru Dua Kecamatan Tompasobaru. COCOS, 6(2)

Mudaffar, R.A., 2023. Analisis Efisiensi Alokatif Input Produksi pada Usahatani Padi di Desa Harapan Kecamatan Walenrang. Perbal: Jurnal Pertanian Berkelanjutan, 11(2): 149-159

Murdiantoro, B. 2011. Faktor – Faktor Yang Mempengaruhi Produksi Padi Di Desa Pulorejo Kecamatan Winong Kabupaten Pati. Semarang: Fakultas Ekonomi UNNES. (Undergraduated Thesis). https://lib.unnes.ac.id/7379/1/10503.pdf

Nicholson, W. 2002. Mikroekonomi Intermediate, Ed. 8. Jakarta : Binarupa Aksara

Permatasari, P., Zain, K.M., Rusdiyana, E., Firgiyanto, R., Hanum, F., Ramdan, E.P., Septiana, Hasbullah, U.H., and Arsi. 2021. Pertanian Organik. Ed.1. Medan: Yayasan Kita Menulis.

Rahmi, H., & Fadli. 2017. Faktor-faktor yang Mempengaruhi Pengambilan Keputusan Petani terhadap Penggunaan Benih Padi di Kecamatan Nisam Kabupaten Aceh Utara. AGRIFO, 2(2): 18-26

Siwanto, T., Sugiyanta, Melati, M. 2015. Peran Pupuk Organik dalam Peningkatan Efisiensi Pupuk Anorganik pada Padi Sawah (Oryza sativa L.). Jurnal Agronomi Indonesia, 43(1): 8-14

Soekartawi. 2002. Analisis Usahatani. Jakarta : Universitas Indonesia.

Triyanto, J. 2006. Analisis Produksi Padi di Jawa Tengah. Semarang: MIESP Fakultas Ekonomi-Universitas Diponegoro. (Thesis). http://eprints.undip.ac.id/15686/#