

# THE ROLE OF THE ORGANIC FERTILIZER PROCESSING UNIT (UPPO) ON RICE FARMERS' INCOME IN DELI SERDANG DISTRICT

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## ABSTRACT

In efforts to minimize the use of inorganic fertilizers and support farmers in using and supplying organic fertilizers independently, the government facilitates providing assistance in the form of Organic Fertilizer Processing Units (UPPO). It is hoped that the availability of organic fertilizers can lead to organic farming. This study aims to determine the role of UPPO on the income of lowland rice farmers in Deli Serdang district and to analyze other factors besides UPPO that affect farmers' income. This research was conducted on eight beneficiary farmer groups spread over seven sub-districts in Deli Serdang district with a total population of 70 farmers. The research method uses analysis of validity and reliability tests, classical assumption tests, and regression analysis. The results showed that all research variables separately had a significant effect on farmers' income.

**Keywords :** Organic Fertilizer Processing Unit (UPPO), organic fertilizer, farmers' income.

## 1. INTRODUCTION

Empowering rural communities is not yet possible to be separated from increasing agriculture because most rural people still work as farmers. Rural communities still rely on agricultural areas as their main source of income. The agricultural area is an area that has great financial urgency for a country in its development period. This is reflected by the existence of attractive agricultural areas and providing employment opportunities. Increasing agriculture needs to get more attention, even if industrial policies are prioritized, agricultural areas can still outperform. The key to increasing agriculture is providing food for the growing population. When connected with food readiness, it will focus on economic equity. This process can be done to grow farmers' income so they can control agricultural production (Arianda, 2010 ; Tanjung et al., 2020).

To get more income, they carry out various activities by developing various other types of agricultural products that are economically viable if agricultural land allows it. Increasing non-agriculture income will also significantly increase livelihoods due to limited farming capacity, and several studies have shown that increased agricultural income can reduce farmer poverty (Sudarman, 2001; Zulkifly et al., 2020). In order for the rice to become a staple food with high strategic value, intensive cultivation is required. The government's important role in supporting social institutions or organizations in the lives of farming communities is one way the government can assist in advancing agriculture (Panjaitan et al., 2014; Syaifuddin, 2016). Providing the inputs with the farmer's needs, as well as occasionally increasing the bargaining power and experience of the farmer, are all the responsibility of the farm the farmer (Pradana, 2013 ; Zulham et al., 2020).

A farmer group is a group of people who informally work on agricultural land with the same target and have leaders based on uniformity, needs, equality of natural conditions and relationships and compatibility. The use of inorganic fertilizers on an ongoing basis is the main trigger for the current degradation of agricultural land, resulting in a decrease in soil fertility. The low levels of organic matter found in agricultural soils show this. The right method for maximizing the quality of agricultural soil, increasing soil production capacity, and maintaining conditions to achieve continuous rice fields is to increase soil fertility. Utilization of organic fertilizers is one strategy that needs to be utilized in maximizing soil humus for farming (Siregar, 2018 ; Nasution et al., 2016).

Organic fertilizers are fertilizers that can be used both for fertilizing and for physical processing of soil, as well as for medical and biological purposes. It may or may not be in a solid state, and may contain most or all of the natural seed derived from decaying plant or animal tissue. Organic fertilizers are better than inorganic fertilizers in many ways. The use of organic fertilizers is very helpful in improving soil structure, producing rich and fertile soil, encouraging cultivation and reducing cultivation costs. Soil productivity and yields are said to increase when organic and inorganic fertilizers are used together. To prevent soil degradation and maintain environmental sustainability, the use of organic and inorganic fertilizers must be carried out simultaneously

(Susetya, 2012; Sarmin et al., 2018). The government's efforts to facilitate the expansion of the Organic Fertilizer Processing Unit (UPPO) to assist farmers in supplying organic fertilizer independently. Farmers must be able to produce and utilize organic fertilizer on site by coordinating UPPO support (Dirjend TP, 2017). Therefore, it is necessary to study the extent to which UPPO has increased rice yields and increased the income of rice farmers.

## 2. RESEARCH METHOD

### Location, Population and Sample

The research was conducted in 7 (seven) sub-districts in Deli Serdang Regency, North Sumatra Province. The research location was allocated as a research location because this location was the location of a farmer group receiving UPPO assistance. The research was conducted from October 2022 to November 2022. A population is a group or combination of all items or individuals that are a source of information in research. The criteria included in the census of this study were all lowland rice farmers in the seven regions of Deli Serdang Regency, namely. 351 members of the farmer groups. According to Arikunto (2012), if the subject is less than 100, it is better to take all of them to be used as a population study. If there are a large number of respondents, only 10-15% or 20-25% or more of the population is taken. In this research, the population consisted of 351 subjects (> 100), therefore the sample size was assumed to be 20% of the 351 subjects, namely 70 subjects.

### Data Types and Sources

Primary literature is a source of information obtained from people who do research or from those who need it. Primary data were obtained directly from the field through direct observation and interviews with respondent farmers using a pre-designed questionnaire. For data accumulation, this questionnaire was introduced to survey members of farmer groups receiving UPPO assistance. Likewise, secondary data which is a supporting source of primary data obtained from related agencies such as the Central Bureau of Statistics includes an overview of Deli Serdang Regency and the economic area in Deli Serdang Regency. Each answer is assessed on numbered or weighted Likert parameters ranging from 1 to 5 as shown in the following table,

**Table 1.** Likert Scale Score

Statement	Answer	Value Weight
Strongly agree	SS	5
Agree	S	4
Disagree	KS	3
Don't agree	TS	2
Strongly Disagree	STS	1

Source: Sugiyono (2012)

### Validity and Reliability Test

Validity is how well the measuring instrument measures what it is supposed to measure. If the measuring instrument is valid, it means that the tool can measure exactly as desired (Neolaka, 2014). The score for each item must correlate strongly with the total score or demonstrate construct validity. The importance of each part is shown in Sig. (one-sided) in Pearson's correlation check and is less than 0.05 {Sig. (1-tailed) < 0.05}. If the appraiser already has legal entity authority, then the appraiser is correct. The data format used with SPSS version 22.0. Accuracy in measurement is related to reliability. To find measurement errors, statistical analysis can be used to evaluate this accuracy. By looking at things like stability, accuracy, and unity, loyalty is easy to understand. If an instrument can be trusted to measure research data, it is said to be reliable. Cronbach's alpha score is considered when looking for a reliable test.

### Data Analysis Schema

The quantitative data analysis method is one that is used. A measure in research that can be calculated in a certain quantity or expressed numerically is the method of analysis used.

#### 1. Descriptive Statistical Analysis

Variables are presented in addition to a summary or description of each variable as well as the maximum, minimum, and median (mean) standard deviation values in descriptive statistical analysis. If the data used has an average (mean) that is greater than the standard deviation, then descriptive statistics show the level of normality or reliability of the data.

## 2. Classic assumption test

### a. Normality test

The purpose of the normality check is to determine whether the independent variable, dependent variable, and regression model all have normal data distribution. The distribution of positive regression trends is usually normal or close to normal. The Kolmogorov-Smirnov test was used in this study for the assessment of normality.

### 3. Simple Regression Analysis

This study uses ordinary linear regression testing as a way of analyzing the data. The linear relationship between the independent component and the dependent component is the target of this test. The formula used is :

$$\text{Income (Y)} = \alpha + \beta_1 X_1 (\text{UPPO})_i + e$$

Income:

Y = Income

A = Constant

$\beta_1$  = Variable Regression Coefficient UPPO

X1 = UPPO

e = Standard Error

## 4. Hypothesis test

### a. F test

This test is conducted to see whether the dependent variable is affected by all the model's independent variables. The check parameters are:

- Ho :  $b_1 = 0$  shows that the free component simultaneously does not have a positive and significant impact on the bound component.
- Ho :  $b_1 \neq 0$  shows that the free component has a positive and significant impact on the bound component simultaneously.

The decision making criteria are:

- Ho accepted if F count < F table on  $\alpha = 5\%$
- Ho rejected if F count  $\geq$  F table on  $\alpha = 5\%$

To determine the value of F, it is necessary to have degrees of freedom in the numerator and degrees of freedom in the denominator, with the following formula:

- df (Numerator) =  $k - 1$
- df (Denominator) =  $n - k$

Information :

n = number of research samples

k = the number of independent and dependent variables

### b. Partial Hypothesis Test (t-test)

"t-score" is the metric used in hypothesis testing for partial regression analysis, so you can see the number of wins. n is the number of study specimens; k is the total of free and bound components. The following is the purpose of doing partial hypothesis testing:

- If the tcount value > ttable or a significance value > 0.05, so it has no effect.
- If the value tcount < ttable or a significance value < 0.05, so it has an influence..

## 3. RESULTS AND DISCUSSION

Deli Serdang Regency is one of the food production centres, especially rice. UPPO improvement activities must be supported by the active work of local farmers in farmer groups that receive UPPO assistance. Good yield management from UPPO is expected to meet the needs of farmers in the seven sub-districts for access to organic fertilizer in the right quantity and quality. The UPPO improvement activities carried out in Deli Serdang Regency are aimed at growing agricultural production and preserving the environment to achieve sustainable agriculture. Increased agricultural production will affect the income of farmers. The development of the land area and lowland rice production in Deli Serdang Regency in 2016 – 2020 can be seen in the following.

**Tabel 2.** Development of Harvested Area, Production and Productivity of Lowland Rice in Deli Serdang Regency

Tahun	Harvest Area (ha)	Productivity (kw/ha)	Production (ton)
2016	82.343,50	59,59	490.684,00
2017	88.881,50	57,64	512.321,30
2018	86.014,80	58,27	501.208,30
2019	83.692,50	58,68	491.110,00
2020	69.417,50	62,61	434.620,14
Average	82.069,96	59,36	485.988,75

Source: Deli Serdang Data in Figures, 2021

From the data described above, the harvested area in 2017 was 88,881.50 hectares, then decreased to 69,417.50 hectares and continued to decline in 2020. Similarly, the production also decreased from 512,321.30 tons in 2017 to 434,620.14 tons in 2020, in the Dili Serdang district, more than 50% agricultural land. From 2017 to 2020, 7 regions will receive UPPO with a total of 351 farmer union members.

**Table 3.** Farmer Groups Recipient of Organic Fertilizer Processing Unit Assistance (UPPO) in Deli Serdang Regency

No	Subdistrict	Village	Farmers	Number of Poktan Members
1	Beringin	Karang Anyar	Mekar Pasar Kawat	25
2	Pantai Labu	Denai Lama	Ternak Tunas	21
		Rugemuk	UPJA Berkah Tanl	34
3	Sunggal	Medan Krio	Jaya	46
4	Pagar Merbau	Sukamandi Hulu	Taruna Jaya	71
5	Biru-biru	Ajibaho	Tanjung Marolan	31
6	Percut Sei Tuan	Kolam	Sukma Tani	98
7	Bangun Purba	Rumah Deleng	Bunga Ncole	25
Amount				351

Source: Food Crops and Horticulture Office of North Sumatra Province

The research was conducted using a questionnaire to eight groups of farmers in seven sub-districts through a questionnaire and the test results will be displayed starting from testing the validity and reliability of the instrument on each research variable. Furthermore, data testing in this study will also be displayed starting from testing for normality, multicollinearity, and heteroscedasticity.

### Validity and Reliability Testing

The first examination in this sub-chapter examines the level of validity of each instrument for all variables in the study. In this study, validity was tested by comparing the value of  $r$  (corrected overall item-corrected overall) with the value of  $r$ -count (0.367). Early validity assessment was carried out on 30 farmers who were not included in the study sample. The following are the results of validity checks in this research.

**Table 4.** Validity Test

No	R-hitung (corrected Item Total Corellation)					
	Farmer Knowledge	Capital	Results	Organic fertilizer	Government policy	Income
1	0,733	0,664	0,733	0,636	0,424	0,782
2	0,830	0,789	0,867	0,821	0,731	0,750
3	0,815	0,760	0,832	0,758	0,599	0,760
4	0,857	0,782	0,833	0,758	0,748	0,780
5	0,838	0,759	0,897	0,737	0,705	0,653
6	0,885	0,780	0,756	0,852	0,515	0,776
7	0,859			0,787		0,706
8	0,717			0,821		
9				0,761		
10						

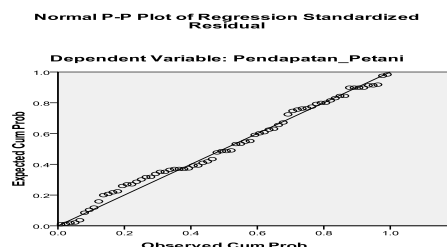
Based on the table above, the results of the validity check show that all variable models pass the validity check, namely  $r$  count  $>$   $r$  table (3.67). Furthermore, after the validity check was carried out, a reliability check was carried out where the Cronbach alpha value was compared to 0.60. The results of reliability testing in this study are as follows.

**Table 5. Reliability Test**

No	Cronbach Alpha					
	Farmer Knowledge	Capital	Hasil Harvest	Organic fertilizer	Government policy	Income
1	0,927	0,848	0,902	0,903	0,681	0,862

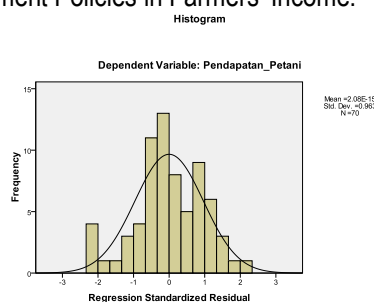
Based on the results in the table, all determined variables meet the reliability assumption because the Cronbach's alpha value is > 0.60.

- Classical Assumption Testing
- Normality Testing



**Figure 1. P-P Plot Normality Test**

The figure shows P-P Plot Normality Test Results for Equality of Farmers' Knowledge, Capital, Plants, Organic Fertilizers, and Government Policies in Farmers' Income.



**Figure 2. Standardized Histogram Normality**

The figure shows the results of the histogram normality examination of standardized farmer knowledge, capital, plants, organic fertilizers and government policies related to farmer income. A normality check of the PP plot reveals that the points generally move in the same direction as the diagonal line and are spread around the line. This shows that the data used in this study meet the assumption of normality, allowing the regression model to check it. On the other hand, the direction deviates from the line: The pattern of distribution of data that is not shifted to the right or skewed to the left in a skewed histogram does not correspond to a normal distribution. This indicates that the remaining data follows a normal distribution. The data and models used seem to meet the assumption of normality. After that, the following Kolmogorov-Smirnov coefficients are used for general checks.

**Table 6. Kolmogorov-Smirnov Normality Test Results**

One - Sample Kolmogorov-Smirnov Test		Res 1
N		0,700
Normal Parameters <sup>a,b</sup>	Mean	0,650
	Std. Deviation	0,505
Most Extreme Differences	Absolute	0,127
	Positive	0,127
	Negative	-0,106
Kolmogorov-Smirnov Z		1,063
Asymp.Sig.(2-tailed)		0,208

a. Test distribution is Normal

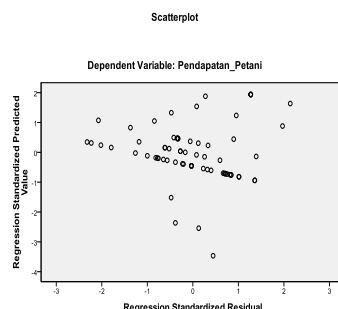
b. Calculated from data

Source: Outcome Data (2022)

The Asymp value is obtained from the presentation of Table 4.5 above because the Sig (two-tailed) value is 0.208 which is greater than 0.05, it can be concluded that the examination meets the assumption of normality in the initial comparison.

Heteroscedasticity Testing

The target of this test is to find out whether the regression model has a different variance. Homophony refers to the condition in which the residual variation does not change from note to note; heterochromia refers to the condition in which it does. A good regression model does not include hetero relationships in it.



**Figure 3.** Inelasticity Check

The figure shows the results of the formula for examining the inelasticity of farmers' knowledge, capital, plants, biological fertilizers and government policies for farmers' income. Based on the scatterplot, the points above and below the number 0 are spread on the y-axis in the elastic covariance model of the 2 (two) equations. The regression model does not have elastic covariance, the conclusion is that there is no heteroscedasticity in this regression model.

**Multicollinearity Testing**

Tolerance value and VIF express multicollinearity. Each independent component described by the independent component is associated with these two parameters. The variability of some of the dependent components cannot be described by the other independent components, which is referred to as tolerance. Multicollinearity is avoided when the tolerance value is > 0.1 and the VIF value is < 10.

**Tabel 7.** Multicollinearity Test Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	Pengetahuan petani	0,498	2,006
	Modal	0,387	2,586
	Hasil Panen	0,652	1,534
	Pupuk Organik	0,548	1,825
	Kebijakan pemerintah	0,667	1,499

a. Dependent Variable : Pendapatan Petani  
 Source: Outcome Data (2022)

The data presentation shows that the data (variables) are not affected by multiple linear relationships because the VIF value < 10 and the tolerance value is greater than 0.1, therefore regression modeling can be used to estimate farmer income based on the input component, farmer knowledge to predict capital, yield, organic fertilizers and government policies.

**Regression Analysis Testing**

Effects of Farmer Knowledge (X1), Capital (X2), Yields (X3) Organic Fertilizer (X4) and Government Policy (X5) on Farmer Income (Z)

In testing the researchers tested the effect of the variables of farmer knowledge (X1), capital (X2), crop yields (X3), organic fertilizer (X4) and government policies on farmers' income. Following are the results of multiple linear regression analysis using SPSS.

**Table 8.** Effect Data X1, X2, X3, X4 and X5 to Y

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	0,018	1,380		0,013	0,989
	Pengetahuan petani	0,149	0,031	0,268	4,754	0,000
	Modal	0,297	0,059	0,320	5,003	0,000
	Hasil Panen	0,086	0,040	0,107	2,178	0,033
	Pupuk Organik	0,073	0,035	0,111	2,063	0,043
	Kebijakan pemerintah	0,450	0,059	0,373	7,648	0,000

a. Dependent Variable : Pendapatan Petani

Source: Outcome Data (2022)

The research data above shows the number of beta coefficient ratings on the four components, namely Farmer Knowledge (X1) is worth 0.149, Capital (X2) is worth 0.297, Yield (X3) is worth 0.086, Fertilizer (X4) is

worth 0.073 and Government Policy (X5) is worth 0.450 These results shows that all dependent variables have a positive effect on farmer income (Y). Following are the results of examining the coefficient of determination of the effect of farmer knowledge, capital, yields, organic fertilizers and government policies on farmer income:

**Table 9.** Coefficient of Determination X1, X2, X3, X4, and X5 to Y

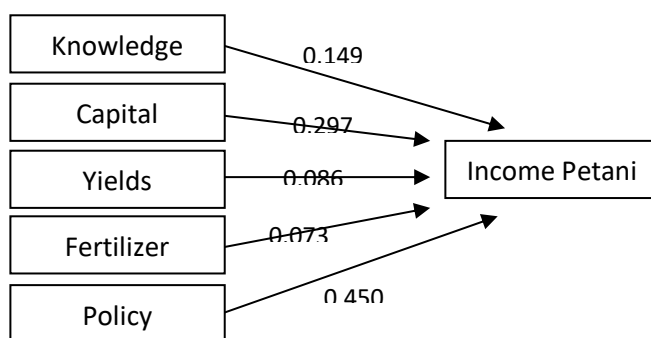
Model Summary <sup>b</sup>				
Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	0,948 <sup>a</sup>	0,989	0,891	0,8584

a. Predictors : (Constant) Kebijakan Pemerintah, Hasil Panen, Hasil Panen, Pupuk Organik, Pengetahuan Petani, Modal

b. Dependent Variable : Pendapatan Petani

Source: Outcome Data (2022)

Based on the results of the certainty check, the R-squared value was 0.898 or 89.8%. This study shows that the effect of farmer knowledge, capital, yield, organic fertilizer and government policies on farmer income is 89.8%, and the effect of research variables outside of research is 10.2%. When depicted, path analysis looks like the image below:



**Figure 4.** Analysis Results

Based on the picture on the results of path analysis, it can be obtained that the effect of Farmer Knowledge on Farmer Income is 0.149, the effect of the variable Capital on Farmer Income is 0.297, the effect of Harvest Results is 0.086 on Farmer Income, the effect of Organic Fertilizer is 0.073 on Farmer Income and the effect of Government Policy is 0.450 on Farmer's Income.

**Hypothesis test**

**Simultaneous Hypothesis Examination (F-Test)**

This check is carried out to examine all independent components used in the model that affect dependent components. The check parameters are:

- Ho :  $b_1 = 0$ , that is, it does not affect the simultaneous positive and significant free component to the dependent component.
- Ho :  $b_1 \neq 0$ , that is, it has a positive and significant effect on the free components on the bound components together.

The evaluation criteria are:

- Ho accepted if value  $F < F_{table}$  on  $\alpha = 5\%$
- Ho discarded if the table value  $F > F_{table}$  For  $\alpha = 5\%$

To determine the value of F, it is necessary to have degrees of freedom in the numerator and degrees of freedom in the denominator, with the following formula :

- $df$  (Numerator) =  $k - 1$
- $df$  (Denominator) =  $n - k$

Information :

$n$  = Number of research samples

$k$  = The number of independent and dependent variables

In this study, it was known that the number of samples ( $n$ ) was 70 and the total number of variables ( $k$ ) was 5, so that it was obtained:

- $df$  (numerator) =  $5 - 1 = 4$
- $df$  (denominator) =  $70 - 4 = 66$  (2,51)

The value of Fcount was determined using SPSS then compared with Ftable at the level  $\alpha = 5\%$ .

**Table 10.** Simultaneous Significance Examination Results

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	417,413	5	83,483	113,297	0,000 <sup>a</sup>
	Residual	47,158	64	0,737		
	Total	464,571	69			

a. Predictors : (Constant) Kebijakan Pemerintah, Hasil Panen, Hasil Panen, Pupuk Organik, Pengetahuan Petani, Modal

b. Dependent Variable : Pendapatan Petani

Source: Outcome Data (2022)

The calculations carried out show that the findings of  $F_{count}$  in column F are 113.297 at the sig level of  $0.000 > F_{table}$  score of 2.51 at the alpha error level = 5 percent or 0.05 / alternatively  $F_{count} > F_{table}$  ( $113.297 > 2.66$ ). The principle of checking assumptions, if  $F_{count} > F_{table}$  and the significance level ( $0.000 < 0.05$ ) shows that farmer's knowledge, capital, yields, organic fertilizers and government policies have the same and strong mass effect on farmers' income.

Partial Hypothesis Testing (T-Test)

The test parameters are:

- $H_0 : b_1 = 0$ , meaning that the independent component does not have a positive and significant effect on the dependent component.
- $H_0 : b_1 \neq 0$ , meaning that the independent component has a positive and significant effect partially on the bound component.

The evaluation criteria are:

- $H_0$  accepts that the  $t_{count} < t_{table}$  score for alpha = 5 percent
- $H_0$  is rejected if the  $t_{count} > t_{table}$  for alpha = 5 percent

The test results are for the following:

Percent error ( $\alpha$ ) = 5% and degrees of freedom (df) = (n-k)

n = number of samples, n = 70

k = number of variables used, k = 5

Degrees of freedom (df) = (n-k) = 70 - 5 = 65

The partial test is a one-sided examination, therefore the  $t_{table}$  used is  $t_{0.05} = 1.997$ . Following are the results of the T-Count examination using the SPSS analysis tool.

**Table 11.** Partial Significance Examination Results

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,018	1,380		0,013	0,989
	Pengetahuan petani	0,149	0,031	0,268	4,754	0,000
	Modal	0,297	0,059	0,320	5,003	0,000
	Hasil Panen	0,086	0,040	0,107	2,178	0,033
	Pupuk Organik	0,073	0,035	0,111	2,063	0,043
	Kebijakan pemerintah	0,450	0,059	0,373	7,648	0,000

a. Dependent Variable : Pendapatan Petani

Source: Outcome Data (2022)

The following can be observed from Table 4.10:

Farmer's Knowledge Variable (X1)

The Farmer Knowledge variable has a  $t_{count}$  value of 4.754 and a  $t_{table}$  value of 1.997. Because  $t_{count} > t_{table}$  ( $4.754 > 1.997$ ), it can be concluded that the Farmer's Knowledge component contributes to farmer's income positively and significantly ( $0,000 < 0,05$ ).

Capital Variables (X2)

The total t count is 5.003 and the total t table is 1.997, so it can be concluded that the capital variable has a positive and significant fractional effect ( $0.000 < 0.05$ ) on farmer income.

Yield Variable (X3)

With a  $t_{count}$  value of 2.179 and a  $t_{table}$  value of 1.997 it can be concluded that crop yields have an influence on farmers' income ( $0,03 < 0,05$ ).

Variable Organic Fertilizer (X4)

The calculated value of the organic fertilizer variable is 2.063, and the table value is 1.997. So it can be concluded that organic fertilizer variables have an influence on farmer income ( $0,03 < 0,05$ ).



#### Government Policy Variables (X5)

The government policy variable has a tcount value of 7.648 and a ttable value of 1.997. Because tcount > ttable (7.648 > 1.997), it can be concluded that public policy variables have a significant effect on farmers' income ( $0,03 < 0,05$ ).

#### Farmer Knowledge Variable (X1) to Farmer Income (Y)

Based on the results of the study, it was hypothesized that the results of a survey of 70 people showed that farmer knowledge had an effect on farmer income, this was reinforced by the education level of farmers in absorbing knowledge from processing organic fertilizers based on composting schemes, processing livestock manure and using the organic fertilizer itself. as well as the ability of farmers to adopt new technologies and encourage farmers to become more independent farmers by taking advantage of the government assistance offered. This study is supported by research by Anggoro (2003) which suggests that the factors behind the use of organic fertilizers in lowland rice production are farmer knowledge, organic fertilizer production practices, and farmer motivation.

#### Capital Variable (X2) to Farmer Income (Y)

UPPO is one of the main producers of organic fertilizers, and according to the results of this research path analysis, capital has a 29.7% impact on farmers' income which has a significant impact. Being aware of operational and labour costs is an important asset in determining the level and technology used. This is to research by Sardjono et al (2012), namely, the capital factor includes the issue of the cost of organic fertilizer production related to the needs of farmers and the cost of raising livestock as well as the availability of sufficient capital to support the production process.

#### Yield Variable (X3) to Farmer Income (Y)

One of the results of this study is that crop yields in the form of panem greatly affect farmers' income and the factors that influence yields are land area, use of fertilizers, use of superior certified seeds and good workforce, and higher yields with optimal production costs, then the higher the farmer's income.

#### Organic Fertilizer Variable (X4) to Farmer Income (Y)

The Organic Fertilizer Processing Unit (UPPO) is a component that can produce organic fertilizer. Based on these results it was concluded that organic fertilizers have a significant effect on farmers' income, according to research results by Lestari (2015) the price of organic fertilizers is lower than the price of inorganic fertilizers. and affordable. Farmers must know and understand that organic fertilizers are easy to produce and environmentally friendly.

#### Government Policy Variable (X5) to Farmer Income (Y)

According to the path analysis in this research, government policy on farmers' income is 45% and based on testing the hypothesis that government policy has a significant effect on farmers' income. The government's policy to support farmers' independence in supplying organic fertilizers by providing convenience in procuring organic fertilizers and ultimately enabling farmers to produce and use organic fertilizers in paddy fields is in line with the study of Sardjono et al. (2012) that the government, in this case, both the central and regional governments have the same role, especially in policy making. The development of UPPO is an initiative of the central government, but in principle, the local government is also involved in fostering farmer groups and farmers who receive assistance and empowerment should become independent in the availability of organic fertilizer and the management of the UPPO.

## 4. CONCLUSIONS

This program also shows that it has had a major impact on the economy of the farmers. Based on the results of the examination, it is proven that all research variables (farmer knowledge, capital, crop yields, organic fertilizers, and government policies) are known to have a real and significant effect on the income of people who work as farmers. So research shows that there are benefits to the income of farmers as a whole.

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