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Analysis of Corn Production Determinants (Rural Lenteng Western District of Lenteng Sumenep)

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ABSTRACT
Carbohydrate biggest producer of rice and wheat in addition to corn. Indonesia's corn consumption is not more than 2 kg per person per year compared with the expenditure of rice in Indonesia amounted to 85kg per person per year. The phenomenon occurs because there are many obstacles in the maize farming such as lack of capital, the cost of fertilizer and the price of corn. Lenteng Village West is one of the villages located in the District Lenteng with an agricultural land area and the most massive corn production. The land area reaches 1,027 hectares and the most massive corn production with the amount of 9243 tons. (BPP District of Lenteng 2017). The purpose of this study was to determine how much influence the capital, land, and labor to the production of corn in the village of West Lenteng. The approach is that researchers use associative data approach. The population in this study were farmers who were in Lenteng West with a total population of 150 farmers and a sample of 60 people with a level of tolerance (error) of 10%. Meanwhile, researchers in data collection using primary and secondary data, and data analysis Researchers using multiple linear regression method by using SPSS 16. Results of regression showed that the variables of capital, land, and labor in a positive and significant effect on maize production in the village of West Lenteng.

Keywords: Production of maize, the Capital, Land, and Labor

1. INTRODUCTION

The primary target of today's agricultural development is the increase in agricultural production and farmers' income because the agrarian sector activity sought to be able to run smoothly with the rise in food products either through intensification, extension, and agricultural diversification. It is expected to improve the living standards of farmers, expand employment opportunities for vulnerable groups who are still dependent on agriculture (Ali & Wulan, 2018).

Indonesian agricultural development journey is still not able to show the maximum results when viewed from the level of welfare of farmers and their contribution to national income. Agricultural development in Indonesia is considered essential for the overall national development. There are some things that underlie why agrarian development in Indonesia has an important role, among others: the potential of Natural Resources large and diverse, the share of the national income is large enough, the size of the percentage of the nation's exports, the magnitude of the Indonesian population who depend on the sector, its role in the community food supply and become the basis of growth in the countryside.

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Agricultural development in the future is not only exposed to solve existing problems, but also faced with the challenge to deal with changes in the political order in Indonesia that led to the era of democratization which demands autonomy and empowerment of farmers. Also, also faced with the challenge of anticipating changes in the world order that led to the globalization of the world. Therefore, agricultural development in Indonesia is not only required to produce agricultural products that are highly competitive but also able to develop regional growth and community empowerment.

Maize as farming effort been intensified by the farmer to get maximum results. However, there are still many constraints faced by farmers. The problems in the agricultural economy, among others: the distance of time between expenditure and revenue receipts in agriculture, because the income received by farmers only at every harvest season, even though the expenditure to be incurred every day. Agricultural finance is also an obstacle to destitute farmers and the debt involved. The pressure of population and agriculture, where the population growth is not proportional to the number of peasant production.

Another issue of agriculture itself, regarding the determinants of the productivity in the agricultural sector, among others: first the external factors such as drought that inhibit agrarian productivity. The second factor is the shrinkage of agricultural land caused by the industrialization and urbanization. Furthermore, the limited use of technology and the low quality of human resources is also a determinant of agricultural productivity (Ali, 2014).

As well as the problems faced by farmers corn Lenteng West Village area to the condition of wetland and upland. Constraints faced by a corn farmer in the village of West Lenteng is low selling prices of corn in the market, while on the one hand, the more fertilizer prices surged, while subsidies still help optimize their corn farming.

2. METHODOLOGY

By the observed variables, the operational definition can be explained as follows.

1. Corn production is farmers in West Lenteng produce the amount of corn production.
2. Capital is the goods or the money together with other production factors produce new products, namely agricultural production in units of Rupiah permanent (i.e., all the costs during the process of producing corn)
3. The land is the total area of land used by farmers to planted corn harvest per unit area, the area that, in trying farmer in the research area that is 0.5 to 1 ha and above.
4. Labor is the amount of energy (people) used in production activity to complete the work in the farming, expressed in (Number of Working People)

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The analysis model that will be used in this research is multiple linear regression analysis models. Regression analysis was used to determine the effect of capital, land area, Labor, against the amount of maize production in West Lenteng that is expressed in the following functions:

Y = f (X1, X2, X3,) .....(3.2)

Or formulated in the form of Cobb-Douglas, becomes: Y =

β0X1β1X2β2X3 β3 eμ or

Y = A K β Lα .....(3.3)

Will further facilitate the settlement by using the natural logarithm (ln), namely:

Ln Y = β0 + β1 Ln LnLn β2 X1 + X2 + X3 + μ ln β3 .....(3.4)

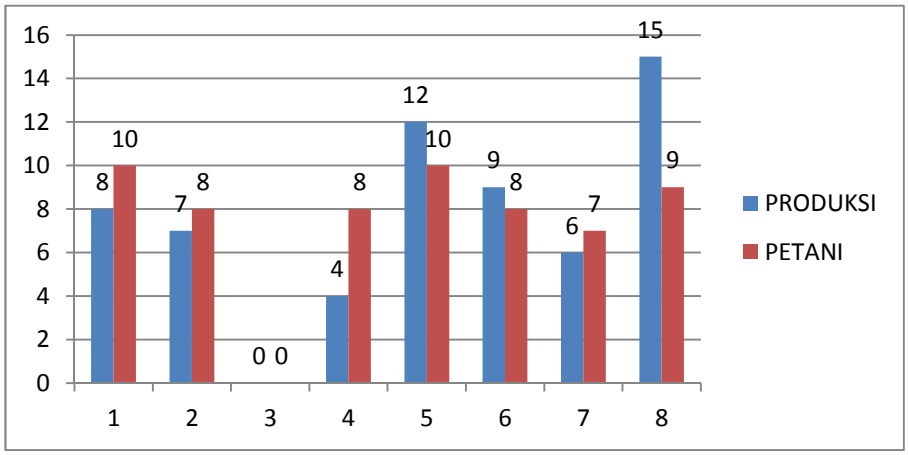
Where :

Y	= Productioncorn
X1	=Capital
X2	= Land / SizeLand
X3	= PowerWork
β0	=constants
β1, β2, β3,	= coefficientregression
μ	= Errorterm

3. RESULTS AND DISCUSSION

a. Corn production in West Lenteng

Based on Figure 2 that the results of the agricultural output 7 to yield 6 tons, 8 to produce 4 tons, 8 to generate 7 tons, 8 to yield nine tons, 9 person with a production of 15 tons, ten people with the output of 8 tons, 10 to produce 12 tons.



Picture1.Corn production in the village of West Lenteng

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b. Regression Testing

Analysis regression test is an analysis to see the dependence of the dependent variable (bound) with one or more independent variables (free). Regression analysis is a form of coefficients for each independent variable is obtained by predicting the value of the dependent variable with an equation. Multiple linear regression equation in this study are as follows:

Ln Y = β0 + β1 Ln LnLn β2 X1 + X2 + X3 + μ ln β3.....(4.1)

Where :

Y	= Productioncorn
X1	=Capital
X2	= Land / SizeLand
X3	= PowerWork
β0	=constants
β1, β2, β3,	= coefficientregression
μ	= Errorterm

After the regression test results are obtained coefficients SPSS output tables, ANOVA and Summary Model table as follows:

Table 1. Regression Testing

Coefficients

Model		Coefficients unstandardized		standardized Coefficients		
		B	Std. Error	beta	t	Sig.
1	(Constant)	.593	.271		2,186	.033
	Capital	.586	.098	.628	5964	.000
	land area	.179	.085	.207	2,100	.040
	Antenatal Gov	.287	.143	.148	2,016	.049

a. Dependent Variable: production

So from the results above, the SPSS output obtained multiple linear regression equation as follows:

Y = 0.593 + 0,586X1 + 0,179X2 + 0,287X3 + e

Interpretation of the multiple linear regression equation is:

1) Constants (α) had regression of 0.593, meaning that if the variable capital (X1), Land (X2) and Labor (X3) is considered zero, then there is an increase in maize production amounted to 0.593.
2) Capital (X1) has a regression coefficient of 0.586, meaning that any increase in the

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variable money amounting to 1%, it will increase corn production by 59.3%

3) Land (X2) has a regression coefficient of 0.179, meaning that any increase in the variable equal to 1% of land area, there will be an increase in corn production of 17.9%

4) Labor (X3) has a regression coefficient of 0.287, meaning that any increase in variable labor by 1%, there will be an increase in corn production of 28.7%.

b. coefficient of Determination

Tabel 2. Test the coefficient of determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. An error of the Estimate
1	.918a	.843	.835	.15922

a. Predictors: (Constant), labor, land area, capital

b. Dependent Variable: production

Based on the SPSS output correlation coefficient (R) of 0.918 which indicates that the degree of relationship (correlation) between the independent variables and the dependent variable of 91.8%. That is the coefficient of capital, land, and labor have a strong relationship with the production of corn.

The coefficient of determination adjusted (Adjusted R Square) of 0.835. This means that other variables outside variables used explain 83.5% of the maize production dependent variable defined by the independent variables, namely capital, labor and land area, and the remaining 16.5% (100% -83.5%).

c. Hypothesis Testing in Partial (t-test)

Results hypothesis (t-test) seen in the table Coefficients. T-test aims to determine the influence of each independent variable individually (partially) on the dependent variable.

Table 3.Hypothesis Testing somewhat

Coefficients

Model		unstandardized	coefficients	standardized Coefficients	t	Sig.
		B	Std. Error	beta		
1	(Constant)	.593	.271		2,186	.033
	capital	.586	.098	.628	5964	.000
	land area	.179	.085	.207	2,100	.040
	labor	.287	.143	.148	2,016	.049

Dependent Variable: production

To see the value table that df (n) k = 60-3 = 57, α 5%. The output shows, results:

a. Capital variables obtained t 5.964> 2.0047 table and the significant level of 0.000

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<0.0005; then the decision is to accept Ha and H0 is rejected. These results indicate that capital a significant effect on maize production. Results showed hypothesis is accepted.

b. Variable land area of 2,100 obtained t> t table 0,040 2.0047 and significant levels <0.0005, then the decision is to accept Ha and H0 is rejected. These results indicate that the vast land a substantial effect on maize production. Results showed hypothesis is accepted.

c. Labor obtained t Variable 2.016> 2.0047 table and a significant level of 0.049 <0.0005; then the decision is to accept Ha and H0 is rejected. These results indicate that the labor force has a substantial effect on maize. Results showed hypothesis is accepted.

d. Simultaneous Hypothesis Testing basis (Test F)

Results hypothesis (Test F) can be seen from the results in Table ANOVA regression of SPSS output. F test showed independent variables together (simultaneously) the effect on the dependent variable.To determine the simultaneous analysis of a hypothetical test can be seen from the SPSS output table Below:

Table 4. Simultaneously Hypothesis Testing (Test F)

ANOVAb

Model		Sum of Squares	df	mean Square	F	Sig.
1	Regression	7642	3	2,547	100 477	.000 a
	residual	1,420	56	.025		
	Total	9061	59			

a. Predictors: (Constant), labor, land area, capital

b. Dependent Variable: production

SPSS output the results above show sig 0.000 <0.05, significant meaning, Fhitung 100.477>Ftabel 3.16. To see the value Ftable is df (N1) = 3-1 = 2, df (N2) = 60-3 = 57. That is capital, land, and labor was simultaneously / together have a significant effect on the production of corn, then the decision is rejected, and Ha Ho accepted means that the hypothesis is accepted.

4. CONCLUSIONS AND RECOMMENDATIONS

a. Conclusion

Based on the results of research that has been done on the variable capital, labor, and land area to corn production in the village of West Lenteng it can be concluded that:

1. Capital variables positively affect the production of corn in the town of West Lenteng. The higher the capital owned or used, the more the production of corn produced. Supported by

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land owned and the quality of seeds used.

2. Variable land area positively affects the production of corn in the village of West Lenteng. Due to the growing field of land owned or used the more the production of corn that can be generated. The fertile soil conditions support sufficient land area and whether it will be able to increase the yield of corn production.
3. Labor variables positively and significantly affect corn production in the village of West Lenteng. This means that the longer the time spent processing the corn crop in both the treatment and control will be able to increase the production of corn.

b. Recommendations

Based on the research and the above conclusions, the author gives some ideas, as an implementation of the results of this study, as follows:

1. Capital is used wisely for the sake of the continuation of the production of corn. Money is not only used in per harvest but can also be used in the next harvest season.
2. For Local Government or any parties related to agriculture to provide counseling or direction to the corn farmers to increase production. Also, it should be made agricultural sector development program, mainly maize, including efforts to improve capability, provision of capital, the availability of fertilizers, medicines and no less important is the improvement of road infrastructure because this is to facilitate freight transport crops.

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