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Analysis Of Allocative Efficiency Of Melon Farming In Banjarbaru City, South Kalimantan Province

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Abstract.*One of the horticultural commodities from fruits that has a fairly high economic value and still requires development, especially in increasing the yield and quality of the fruit is melon. This study aims to analyze the effect of the use of production factors and the allocative efficiency of production factors used by farmers in melon farming in Banjarbaru City. The results of the analysis showed that statistical testing of the production function of the Cobb-Douglas type showed that simultaneously (simultaneous) production factors (land area, number of seeds, organic fertilizers, inorganic fertilizers, pesticides and labor) had a significant effect on melon production. Partial factors of production of land area, seeds, organic fertilizers, inorganic fertilizers and labor have a significant effect on melon production, except for pesticide production factors. Statistical testing of allocative efficiency (price efficiency) in the use of all melon production factors in Banjarbaru City shows that the use is efficient, except for the production of organic fertilizers, in this case the use of fertilizer doses is still lacking and is suspected from the technical side of fertilization such as the right method and frequency of fertilization still not quite right by the farmer.*

Keywords:*efficiency, allocative, melon*

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I. Preliminary

Fruits are one of the horticultural commodities that have high economic value which can be a source of income for the community and farmers, both small, medium and large scale. This is because it has advantages in the form of high selling value, diversity of species, availability of land and technology resources, as well as the increasing potential for domestic and international market absorption.

Melon production in South Kalimantan Province from 2015-2020 has increased production and increased productivity every year. The increase in melon production was due to the addition of harvested area from 2015 to 7 ha to 73 ha in 2020. With the increase in melon production each year in South Kalimantan Province, this shows that melon farming has good prospects (Department of Food Crops and Horticulture, South Kalimantan Province, 2015-2020).

The average melon production for the City of Banjarbaru occupies the second position after Tapin Regency in South Kalimantan Province. Judging from the data above, in 2019 Banjarbaru City was the city with the largest contribution to melon yields in South Kalimantan Province, but in 2020 melon production experienced a sharp decline (Department of Food Crops and Horticulture, South Kalimantan Province, 2017-2020). The increase and decrease in melon production is caused by erratic weather and climate factors,pest and disease attacks and the use of production factors.

The city of Banjarbaru that produces melons is in the third position in 2020 with a production of 99 tons or is below the South Hulu Sungai Regency and Tapin Regency. In terms of productivity, melon farming in Banjarbaru City is in sixth place, which is 5.21 tons/ha. The scientific logic means that the average farm productivity can still be increased to achieve more optimal production.

One of the obstacles in melon farming in Banjarbaru City is business capital, melon plants require intensive care due to the nature of the plant which is very susceptible to pests and diseases compared to other horticultural crops. To prevent pest and disease attacks on melon plants, farmers use pesticides as a solution to prevent them. In addition, farmers usually use inorganic fertilizers for the resilience of melon plants and maintain the quality of the fruit they produce, from an economic point of view it will increase production costs due to the price of production facilities and labor wages so that it affects the profits obtained by melon farmers in Banjarbaru City. Thus, melon farmers must be able to allocate production factors that are used efficiently to produce maximum profits.

Goals and usage

This study aims to analyze: (1) the effect of the use of production factors; and (2) allocative efficiency of production factors used by farmers in melon farming in Banjarbaru City.

The benefits of this research: (1) for academics, it is hoped that reference materials and information related to melon farming efficiency are expected; (2) for the government, it is hoped that it will be considered in determining agricultural sector policies in the future, especially in increasing production so that melon farming is carried out more efficiently; and (3) for the community, it is expected to be information and additional knowledge in melon farming in terms of using production factors efficiently.

II. Method

Place and time of research

This research was conducted in Banjarbaru City, South Kalimantan Province. This research was conducted from April to October 2021.

Data Types and Sources of Data

Types of data collected include primary data and secondary data. Direct interviews with melon farmers using a list of questions or questionnaires that have been prepared in advance are a method for obtaining primary data. Meanwhile, secondary data was obtained from various offices or agencies related to this research such as the Central Statistics Agency of South Kalimantan, the Department of Agriculture for Food Crops and Horticulture of the Province of South Kalimantan, the Office of Food Security, Agriculture and Fisheries of the City of Banjarbar, as well as other literatures.

Sampling method

his research was conducted using purposive sampling method, to the Districts of Cempaka and LandasanUlin. With the consideration that these two sub-districts are sub-districts that carry out melon farming in Banjarbaru City. The total population is the number of melon farmers who are still active in melon farming in the district. The sample of farmers obtained was 55 farmers from 2 sub-districts who are still active in melon farming in two sub-districts, namely Cempaka and Platform Ulin.

Data analysis

The first objective is the influence of the use of production factors in melon farming using a multiple linear regression function model, namely the Cobb-Douglas function type model:

$Y = b_0 X_1^{bi} X_2^{b2} X_3^{b3} X_4^{b4} X_5^{b5} X_6^{b6} e^u$

The Cobb-Douglas function model when transformed into a linear form into an equation:

$\ln Y = \ln \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + €_i$

where:

Y : amount of melon production (kg)
X_1 : land area (ha)
X_2 : number of seeds (kg)
X_3 : amount of organic fertilizer (kg)
X_4 : amount of inorganic fertilizer (kg)
X_5 : pesticide amount (lt)
X_6 : number of human workes (HOK)
β_0 : constanta coefficient
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$: regression coefficient
$€_i$: error

Coefficient of determination (R^2):

$$R^2 = \frac{Kt_{regression}}{Kt_{total}}$$

Test-F:

$F_{count} = \frac{Kt_{regression}}{Kt_{remainder}} = \frac{\sum \hat{y}_i^2 / k}{\sum \hat{e}_i^2 / n-k-1}.$

The hypothesis:

$H_0 : b_i = 0$
$H_1 : b_i \neq 0$

If $F_{count} > F_{table}$ (α; n-k), then H_0 is rejected and H_1 is accepted, meaning that all production factors together have a significant effect on production. And if $F_{count} \leq F_{table}$ (α; n-k), then H_0 is accepted and H_1 is rejected, meaning that all production factors as a whole have no significant effect on production.

Test-t:

$t_{count} = \frac{b_i}{Se(b_i)}$.

where:

b_i : regression cofficientth-i

$Se(b_1)$: regression coefficient standard error th-i

The hypothesis:

$H_0 : b_i = 0$

$H_1 : b_i \neq 0$

If $t_{count} > t_{table}$ (α = 0.05), then H_0 is accepted and H_1 is rejected, meaning that the production factor X_i has no significant effect on production. And if $t_{count} \leq t_{table}$ (α = 0.05), then H_0 is rejected and H_1 is accepted, meaning that the production factor Xi has a significant effect on production.

The second objective, which is to analyze the economic efficiency of the use of production factors used by farmers in melon farming, can be seen from the Marginal Product Value (NPMx) for a factor of production with the production factor price (Px) equal to 1, with the formula:

$$\frac{NPM_{xi}}{Px_i} = 1$$

where:

$NPMx_i$: marginal product value for factor X_i production

Px_1 :factor price of X_i

$NPMx_i$is calculated using the first derivative of the Cobb-Douglas production function, that is:

$$Y = b_0 X_i^{bi}$$

$$PM_{xi} = b_i b_0 X_i^{bi-1}$$

$$= \frac{b_i b_0 X_i^{bi-1}}{X_i}$$

$$PM_{xi} = b_i \frac{\bar{Y}}{X_i}; \quad \text{where} NPM_{xi} = b_i \frac{\bar{Y}}{X_i} . \bar{P}_y$$

$$NPM_{xi} = \bar{P}_{xi}$$

$$\frac{NPM_{xi}}{\bar{P}x_i} = 1$$

$$\frac{b_i \bar{Y} \bar{P}_y}{\bar{P}x_i} = 1$$

$$k_i = 1$$

where:

k_i : price efficiency index

b_i : elasticity of the i-th factor of production

$\bar{Y}$: average production

$\bar{X}$: average production usage i

$\bar{P}_y$: average production price

$\bar{P}x_i$: the average price of the i-th factor of production

The hypothesis:

$H_0 : k_i = 0$ (efficient use of factors of production)

$H_1 : k_i \neq 0$ where i = 1,2,…,6 (the use of factors of production has not/inefficient)

To prove the truth of the hypothesis, the t-test statistic is used:

$$t_{count} = \left|\frac{k_i - 1}{Sk_i}\right|.$$

$$Sk_i = Sb_i \frac{\bar{Y} - \bar{P}_y}{\bar{X}_i . \bar{P}x_i}.$$

where:

Sk_i : standard error of efficiency coefficient

Sb_i : standard error of regression coefficient

$\bar{Y}$: average production

$\bar{X}$: average production usage i

$\bar{P}_y$: average production price

$\bar{P}x_i$: the average price of the i-th factor of production

$H_0$is rejected if$G_{count} \geq X^2_{k(p)}$

$H_0$is accepted if$G_{count}<X^2_{k(p)}$
If $t_{hit} \leq t_{table}$ (α/2: n-k-1), then accept H_0 which means that the use of the factors of production is efficient. On the other hand, if $t_{hit} > t_{table}$ (α/2: n-k-1), then reject H_0 or accept H_1 which means that the use of the production factor is not yet/inefficient.

III. Results And Discussion

Characteristics of Respondents

Age. Age is quite important information, this is because the difference in age will affect knowledge, attitudes, and quality of work in carrying out melon farming activities.

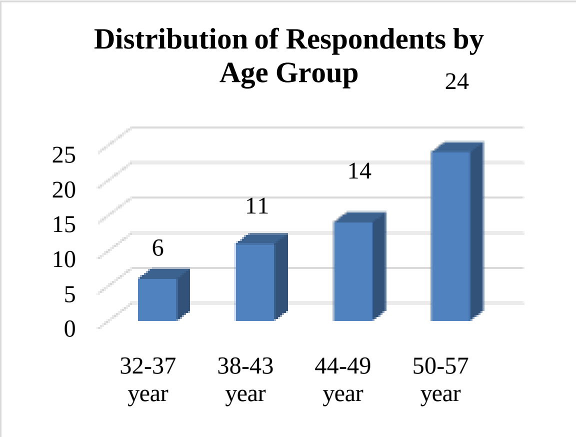

Figure 1. Distribution of respondents by age group

Based on Figure 1, the largest age group is between 50-57 years, as many as 24 farmers (44%), while the smallest age group is 32-37 years, namely 6 farmers (11%). The younger the farmer, the possibility of working in farming can be done by the respondent himself, thereby reducing the cost of labor outside the family. The higher the age of the farmer, the lower the level of ability to work and the way of thinking and acting in terms of making decisions to cultivate melons, because of their physical condition.

Level of education. Education is one of the determining or supporting factors for farmers in farming. Education can affect the ability of farmers to adopt an innovation.

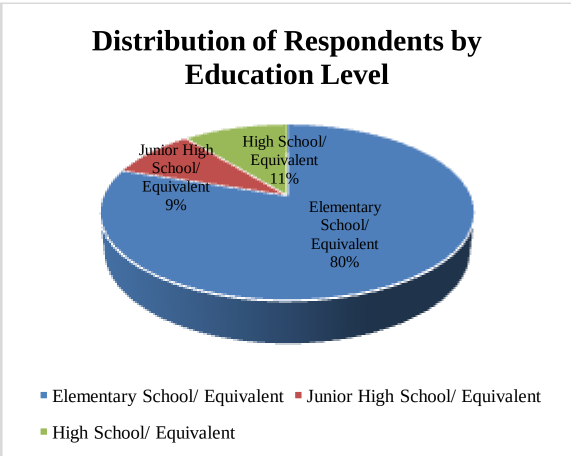

Figure 2. Distribution of respondents by education level

Based on Figure 2, the basic education level of rice melon farmers in Banjarbaru City is the majority with elementary education/equivalent of 80%. The highest education level of melon rice farmers is the education level of high school graduation/equivalent of 11%. This shows that the education condition of melon farmers in Banjarbaru City is still quite low, mostly only at the elementary/equivalent and junior high/equivalent levels.

Family Dependents. The number of family dependents is the number of family members who are still dependents of the family, both siblings and non-siblings who live in the same house.

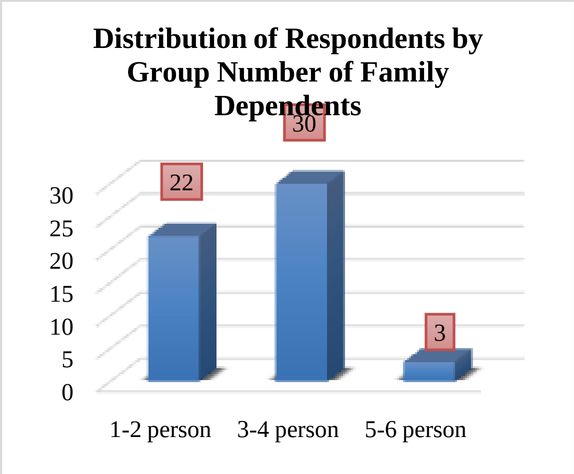

Figure 3. Distribution of respondents by dependents of farming families

Based on Figure 3, the number of family dependents is between 1-6 melon farmers. The majority of melon farmer families are between 3-4 people, as many as 30 farmers (55%). While the smallest number of family dependents is a melon farmer, which is between 5-6 people by 5%. This is because some of the children of farmers who are already married immediately move to their respective homes. The large number of family members can affect the level of household income.

Long Experience of Farming. Usually farmers have longer farming experience and a lot of knowledge in farming so they tend to be careful in making decisions. Respondent farmers who have farming experience in the range of 3-8 years, with an average of 4.95 years of farming experience.

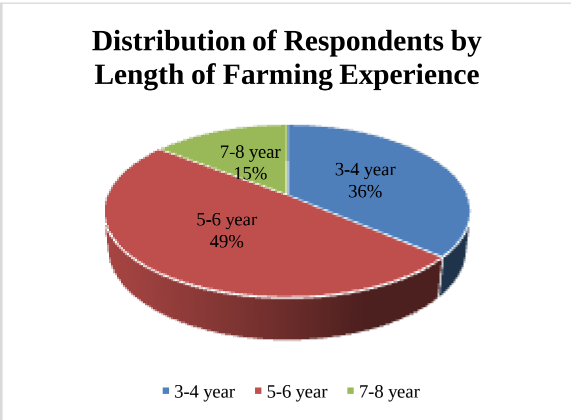

Figure 4. Distribution of respondents by length of experience in melon farming

Based on Figure 4, the highest respondent farmer's farming experience is between 5-6 as many as 27 farmers (49%), while the lowest respondent farmer's experience is between 7-8 years as many as 8 farmers (15%). With a high level of farming experience, a farmer can manage or manage his farm well.

The Effect of Using Production Factors in Melon Farming

To determine the effect of the use of production factors in melon farming, an estimate was made using a regression analysis of the Cobb-Douglas function type model, with the results of the analysis:

$ln\ Y = 4{,}364 + 0{,}275\ ln\ X_1 + 0{,}047\ ln\ X_2 + 0.297\ ln\ X_3 + 0{,}221\ ln\ X_4 + 0{,}046\ ln\ X_5 + 0{,}181\ ln\ X_6$

Based on the results of the regression analysis in Table 1, it can be seen that the value of the coefficient of determination (R2-adjusted) of the function is 0.987. This shows that the level of melon production 98.7% is determined by the size of the independent variables (land area, number of seeds, organic fertilizers, inorganic fertilizers, pesticides and labor) in this function, while the remaining 1.3% is determined by other variables not included in the function model.

In general, the production factors that affect melon production do not indicate that the model has multicollinearity between the variables. This can be seen from the value of the Variance Inflation Factor (VIF) for each variable, which is relatively smaller than 10 and the Tolerance value is greater than 0.10. In detail the results of the regression analysis of production factors that affect melon production are as shown in Table 1.

Table 1. Results of regression analysis of production factors that affect melon production

Model	*Unstandardized Coefficients*		*T*	*Sig.*	*Collinearity Statistics*	
	B	*Std. Error*			*Tolerance*	*VIF*
Production (Y)	4,364	0,814	5.359	0.000		
Land area (X_1)	0,275	0,097	2.837	0.007	0,209	8,544
Seed (X_2)	0,047	0,027	1.712	0,093	0,237	4,216
Organic fertilizer(X_3)	0,297	0,089	3.337	0,002	0,301	9,078
Inorganic fertilizer (X_4)	0,221	0,077	2.870	0,006	0,407	7,373
Pesticide (X_5)	0,046	0,030	1.513	0,137	0,442	2,262
Labot (X_6)	0,181	0,077	2.352	0,023	0,502	9,308
R^2-Adjusted = 0,987; F_{hit} = 665,090; *p* = 0,000						

Source: Primary data analysis (2021)

For the F-test, it is known that the F_{hit} value (665,090) with a probability value of 0.000 < 0.05 (α = 5%), means that the hypothesis H_0 is rejected and H_1 is accepted. This shows that land area (X_1), number of seeds (X_2), amount of organic fertilizer (X_3), amount of inorganic fertilizer (X_4), amount of pesticides (X_5) and number of workers (X_6) together have a significant effect on production. melons (Y).

To find out which independent variable has a significant effect on the dependent variable, namely melon production (Y) must go through a t-test test.

Land Area Production Factor (X_1). The variable area of land has a significant effect on melon production, this can be seen from the results of the t test, namely t_{hit} (2.837) with a probability value of 0.007 < 0.01 (α=1%). So that the hypothesis H_1 is accepted and H_0 is rejected, this means that the land area has a significant effect on melon production at the level of = 1%. In other words, an increase in land area of 1% can increase melon production by 0.275%. This shows that the addition of land area will result in farmers being able to increase their production. The average area of land cultivated by farmers for the implementation of melon farming is 0.41 ha (14.20 wholesale).

Land area has a positive relationship and has a significant effect on melon production. The addition of land area will be able to increase the yield of melon production. However, in reality, it is impossible to increase land area and become an obstacle for farmers due to the limited available agricultural land. Thus, farmers must be able to combine existing inputs in such a way that from the same area of land more yields are obtained.

Production Factors Number of Seeds (X_2). The variable number of seeds has a significant effect on melon production, it can be seen from the t test, namely thit (1.712) with a probability value of 0.093 < 0.1 (α = 10%). So that H_1 is accepted and H_0 is rejected, this means that the number of seeds has a significant effect on melon production at the level of = 10%. In other words, increasing the number of seeds by 1% can increase melon production by 0.047%. The more the number of seeds, the melon production will increase.

Seed is a means of production that determines the success of farming. The better the quality of the seed, it will increase production and can facilitate maintenance. Melon seeds used in farming on farmer's land are melon brands DC-03, Idola, Jumbo and Anvi. This melon seed was chosen by farmers because in terms of a more attractive shape, the melon net looks neat, bears fruit more quickly, and is in great demand by the public. The average use of melons by farmers in the implementation is 133.45 grams/farm or 323.21 grams/ha.

Production Factors Amount of Organic Fertilizer (X_3). The variable amount of organic fertilizer has a very significant effect on melon production, it can be seen from the t test, namely thit (3.337) with a probability value of 0.002 < 0.01 (α=1%). So that H_1 is accepted and H_0 is rejected, this means that the amount of organic fertilizer has a significant effect on melon production. In other words, increasing the amount of organic fertilizer by 1% can increase melon production by 0.297%. As the amount of organic fertilizer increases to the recommended limit for the extensionist to use organic fertilizer, the production of melons will increase. Provision of appropriate fertilizers on plants can increase the productivity of melon farming. The organic fertilizer used by farmers is manure. The average use of organic fertilizer by farmers in the management of melon farming is 5,262 kg/farm or 12,743 kg/ha.

Production Factor Amount of Inorganic Fertilizer (X_4). The variable amount of inorganic fertilizer has a very significant effect on melon production, it can be seen from the t test, namely thit (2.870) with a probability value of 0.006 < 0.01 (α=1%). So that H_1 is accepted and H_0 is rejected, this means that the amount of inorganic fertilizer has a significant effect on melon production. In other words, increasing the amount of inorganic fertilizer by 1% can increase melon production by 0.046%. The increase in the amount of inorganic fertilizers up to the limit of the instructor's recommendation for the use of inorganic fertilizers, the production of melons will increase. The use of doses and types of fertilizers must be considered because in the fertilization section there are main factors to increase the quality and quantity of production. Inorganic fertilizers used by farmers are NPK, KCl and TSP fertilizers. The average use of inorganic fertilizers by farmers in the management of melon farming is 294.45 kg/farm or 713.12 kg/ha.

Production Factors Amount of Pesticides (X_5). The variable amount of pesticides does not significantly affect melon production, it can be seen from the t test, namely thit (1,513) with a probability value of 0.137 < 0.1 (α=10%). So that H_0 is accepted and H_1 is rejected, this means that the amount of pesticides has no significant effect on melon production. This is in line with Utami's research (2019) that simultaneously variables of land area, labor, seeds, fertilizers and pesticides have a significant effect on melon production. However, partially only the labor and seed variables were significant, while the land area, fertilizer and pesticide variables were not significant.

In addition, the research that has been carried out by Kusumasari (2012), production factors in the form of land area, labor, manure, SP-36 fertilizer, ZA fertilizer, KCl fertilizer, liquid pesticides and solid pesticides together have a significant effect on melon production in the District. Sragen. However, based on the results of the t test, the production factor of liquid pesticides had a significant effect, but solid pesticides had no significant effect and the regression coefficient value was negative.

One of the obstacles in melon farming in Banjarbaru City is business capital, melon plants require intensive care due to the nature of the plant which is very susceptible to pests and diseases compared to other horticultural crops. To prevent pest and disease attacks on melon plants, farmers use pesticides as a solution to prevent them.

Pesticides used in farmers' melon farming are chemical substances to kill or control pests and diseases. Melon plant pests and diseases that often appear are fungus and bronze. Bronze disease in melon plants is quite dangerous because it can affect the quality and productivity of the fruit. When Bronze Disease attacks the melon plant cannot photosynthesize perfectly, so the result is that the melon fruit becomes small. This is because the intensity of spraying melon plants ranges from 20-30 times. In addition, melon plants with a plant age of approximately two months or 60 days require twice as much pesticide. This is due to regular spraying of melon plants.

Pesticides used by farmers in managing melon farming consist of BionM, Dithane, Antracol, Copice, Tandem Meurtieur, Sumo, Kanon, Winder, Mospilan, Prima-Up pesticides and Pegasus pesticides. The average use of pesticides by farmers in the implementation of melon farming is 8.35 liters/farm or 20.22 liters/ha.

The purpose of pest control is to control Plant Pest Organisms (OPT) to avoid economic losses in the form of loss of yield (quantity) and a decrease in product quality (quality). Some farmers carry out the recommendations for pest control, but the administration of drugs is carried out when the plants are already affected by the disease and the administration of drugs is not carried out according to a schedule.

Factors of Production Number of Labor (X_6). The variable number of workers has a very significant effect on melon production, it can be seen from the t-test, namely thit (2352) with a probability value of 0.023 <0.05 (α=5%). So that H_1 is accepted and H_0 is rejected, this means that the number of workers has a significant effect on melon production. In other words, an increase in the number of workers by 1% can increase melon production by 0.181%. The more the number of workers increases to the limits of the physical and biological abilities of farmers, the production of melons will increase.

This workforce is related to land cultivation, planting, maintenance (fertilizing, pest control and weeding) and harvesting activities. The average use of labor to carry out melon farming is 79.57 HOK/farm or 192.71 HOK/ha consisting of workers within the family of 57.14 HOK/farming or 138.38 HOK/ha and workers outside the family of 22.44 HOK/farm or 54.34 HOK/ha.

Allocative Efficiency of Using Production Factors in Melon Farming

Based on the results of the study, it can be seen that the use of production factors of land area, seeds, inorganic fertilizers, pesticides and labor used is efficient. Meanwhile, the use of organic fertilizer production factors is not yet efficient. Table 2 shows the results of statistical tests of allocative efficiency of the use of production factors in melon farming.

Factors of Production Land Area. The land area has a marginal product value (NPM_{x1}), which is Rp. 25,368,515.93. The production factor price of land area (P_{x1}) is Rp. 29,934,207/ha. This NPMx1 value means that each additional area of arable land to carry out melon farming by one hectare will increase revenue by Rp. 25,368,515.93. The price efficiency index between the marginal product value of land area (NPM_{x1}) and the production factor price of land area (P_{x1}) is 0.85 with a t_{-hit} value (0.51024) < t-table (2.67182) at =1% . So that H_0 is accepted and H_1 is rejected, this means that the land area is efficient in its use.

Table 2. Statistical test results of allocative efficiency of the use of production factors in melon farming

VariabelBebas	NPM_{xi}	$\bar{P}_{Xi}$	k_i	Sk_i	t_{hitung}	Ket.
Land area (X_1)	25.368.515,93	29.934.207	0,85	0,30	0,51024	Efficient
Seed (X_2)	13.180.963,43	12.500.000	1,05	0,61	0,08993	Efficient
Organic fertilizer(X_3)	2.112,46	333	6,34	1,90	2,81051	Not efficient
Inorganic fertilizer	28.090,32	6.200	4,53	1,58	2,23664	Efficient

(X_4)						
Pesticide (X_5)	206.179,07	282.083	0,73	0,48	0.56449	Efficient
Labot (X_6)	85.132,82	100.000	0,85	0,36	0,41051	Efficient
$t_{\alpha/2}$ = 2,00575for α = 0,05 dan db = 53						
$t_{\alpha/2}$ = 2,67182for α = 0,01 dan db = 53						

Source: Primary data analysis (2021)

Seed Production Factors. Seeds have a marginal product value (NPM_{x2}), which is Rp. 13,180,963.43. The land production factor price (P_{X2}) is Rp 12,500,000/kg. This NPMx2 value means that each additional use of seeds to carry out a melon farming as much as one kilogram will increase revenue by Rp. 13,180,963.43. The price efficiency index between the value of the marginal product of the number of seeds (NPM_{x2}) and the price of the production factor of the number of seeds (P_{X2}) is 1.05 with a t_{-hit} value (0.08993) < t-table (2.00575) at =5% . So that H_0 is accepted and H_1 is rejected, this means that the seeds are efficient in their use.

Organic Fertilizer Production Factors. Organic fertilizer has a marginal product value (NPM_{x3}) which is Rp. 2,112.46. The price of the production factor of organic fertilizer (P_{X3}) is Rp. 333/kg. This NPMx3 value means that each additional use of organic fertilizer to carry out melon farming by one kilogram will increase revenue by Rp. 2,112.46. The price efficiency index between the value of the marginal product of the amount of organic fertilizer (NPM_{x3}) and the price of the production factor of the amount of organic fertilizer (P_{X3}) is 6.34 with a t_{-hit} value (2.81051) > t-table (2.67182) at = 1%. So that H_1 is accepted and H_0 is rejected, this means that organic fertilizers are not efficient in their use. In this case, the use of organic fertilizer doses is still lacking and it is suspected from a technical point of view of fertilization, such as the correct method and frequency of fertilization by farmers, so that the use of fertilizers must be increased and the technical accuracy of fertilization such as the right dose, method and frequency to achieve efficiency.

Inorganic Fertilizer Production Factors. Inorganic fertilizers have a marginal product value (NPM_{x4}), which is Rp. 28,090,32. The price of inorganic fertilizer production factors (P_{X4}) is Rp. 6,200/kg. This NPM_{x4} value means that each additional use of inorganic fertilizers to carry out melon farming by one kilogram will increase revenue by Rp. 28,090,32. The price efficiency index between the value of the marginal product of the amount of inorganic fertilizer (NPM_{x4}) and the price of the production factor of the amount of inorganic fertilizer (P_{X4}) is 4.53 with a t_{-hit} value (2.3664) < t-table (2.67182) at = 1%. So that H_0 is accepted and H_1 is rejected, this means that inorganic fertilizers are efficient in their use. The increase in the amount of inorganic fertilizers up to the limit of the instructor's recommendation for the use of inorganic fertilizers, the production of melons will increase. The use of doses and types of fertilizers must be considered because in the fertilization section there are main factors to increase the quality and quantity of production. The purpose of fertilization is to meet the nutritional needs of plants to ensure optimal plant growth and produce good quality production.

Pesticide Production Factors. Pesticides have a marginal product value (NPM_{x5}) of Rp 206,179.07. The price of the pesticide production factor (P_{X5}) is IDR 282,083/liter. This NPM_{x5} value means that each additional use of pesticides to carry out a melon farming as much as one liter will increase revenue by Rp. 206,179.07. The price efficiency index between the marginal product value of the amount of pesticides (NPM_{x5}) and the production factor price of the amount of pesticides (P_{X5}) is 0.73 with the t_{-hit} value (0.56449) < t-table (2.67182) at =1% . So that H_0 is accepted and H_1 is rejected, this means that pesticides are efficient in their use. The increase in the number of pesticides up to the recommended limit of the extension worker on the use of pesticides, the production of melons will increase. The use of the dose and type of pesticide must be very careful because this section of the pesticide is very susceptible to melon plants.

Labor Production Factors. Labor has a marginal product value (NPM_{x6}) which is Rp 85,132.82. The price of labor production factors (P_{X6}) is IDR 100,000/kg. This NPM_{x6} value means that each additional use of labor to organize melon farming by one HOK will increase revenue by Rp. 85,132.82. The price efficiency index between the value of the marginal product of the number of workers (NPM_{x6}) and the price of production factors for the number of workers (P_{X6}) is 0.85 with a t_{-hit} value (0.41051) < t-table (2.67182) at = 1%. So that H_0 is accepted and H_1 is rejected, this means that the workforce is efficient in its use.

IV. Conclusions And Suggestions

Conclusion

1. The results of statistical testing of the Cobb-Douglas type of production function show that simultaneously (simultaneous) production factors (land area, number of seeds, organic fertilizers, inorganic fertilizers, pesticides and labor) have a significant effect on melon production, while the partial test Production factors of land area, seeds, organic fertilizers, inorganic fertilizers and labor have a significant effect on melon production, except for pesticide production factors.
2. Statistical testing of allocative efficiency (price efficiency) in the use of all melon production factors in Banjarbaru City is showing efficient use, except for organic fertilizer production factors, in this case the use of

fertilizer doses is still lacking and is suspected from the technical side of fertilization such as the right method and the frequency of fertilization is still not appropriate by farmers.

Suggestion

1. The use of pesticide production factors in the implementation of melon farming must comply with the instructions and follow the recommended procedures, and the application of chemical pesticides should be reduced or chemical pesticides replaced with plant-based pesticides that are known to be environmentally friendly.
2. Production factors of organic fertilizers must be added to the amount of their use and proper fertilization techniques, so that the role of extension and additional knowledge of farmers is needed through training, demonstration plots and field study visits.
3. Further research is needed to determine the amount of use of organic fertilizers and solid pesticides in order to achieve efficiency.

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