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Effectiveness of Subsidized Fertilizer Distribution on Corn Farming in South Ogan Komering Ulu District

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A B S T R A C T

The main objective of this study was to analyze the effectiveness of the distribution of subsidized fertilizers in corn farming in the South OKU District. Analyzing the effectiveness of subsidized fertilizer distribution is to use the scoring method and to see the correlation between the effectiveness of subsidized fertilizer distribution and corn production, the Spearman correlation coefficient is a nonparametric statistic. Based on the results of the study, it was found that the average level of effectiveness of the six indicators was 75.25%. From the results of the percentage of the six indicators that are greater than 61% and less than 80%, the fertilizer subsidy policy of the South OKU District is said to be quite effective. The relationship between the effectiveness of the distribution of subsidized fertilizers on corn production in South OKU District. there is no significant relationship with a significance value greater than the value, which is 0.336>0.05. Based on the results of the correlation test of the effectiveness of the distribution of subsidized fertilizers with corn production, the indicators of price effectiveness and type have a unidirectional relationship. While the indicators of the effectiveness of place, time, quality, and quantity have a non-unidirectional relationship.

1. INTRODUCTION

1.1. Research Background

Agriculture in Indonesia is targeted by 2045 to become the world's food barn by the government and the Indonesian Ministry of Agriculture. The performance of agricultural exports continued to show a positive impact with a growth of 24.10% from the previous year. The Ministry stated that the increase was evidence that the opportunities for the Indonesian agricultural sector in the future would be wider. Historically, the development of corn production in Indonesia has tended to increase in the last five years by 3.91%. This is directly proportional to the average productivity increase of around 3.64% per year. The total area in the same period also increased by an average of 0.27% per year (BPS, Indonesia in 2018 figures) [1]. The development of corn production is obtained from the contribution of major corn producers in Indonesia, one of which is South Sumatra province with the tenth place by producing corn as much as 0.80 million tons with a harvested area of 137 thousand ha.

South Sumatra, which ranks tenth as the largest producer of corn in Indonesia, gets a large contribution from corn production in South OKU District. According to statistical data [2], South OKU District is the District with the Highest Corn production out of 17 existing regencies, namely with corn production of 392,258 tons with an area of 49,940 ha. Based on this data, it means that South OKU has contributed to corn production by 38.04% of the overall corn production in the South Sumatra region in 2018.

Buana Pemaca and Buay Pemaca sub-districts are the two sub-districts that provide the highest contribution to corn production with average corn productivity of 6.3 to 7 tons/ha in 2019. The high level of corn production in the South OKU District shows that the role of the sector is Agriculture in improving the regional economy is very influential. As stated in the Gross Regional Domestic Product of South Ogan Komering Ulu District by Business Field 2016-2020, Over the last five years, the economic structure of South Ogan Komering Ulu Selatan is dominated by 3 (three) categories of business fields, including Agriculture, Forestry, and Fisheries; Wholesale and Retail Trade, and Car and Motorcycle Repair; and Construction. This can be seen from the role of each business field in the formation of the GRDP of Ogan Komering Ulu Selatan. The

biggest role in the formation of Ogan Komering Ulu Selatan's GRDP in 2020 is produced by Agriculture, Forestry, and Fisheries, reaching 31.09 percent, this figure has increased from 30.96 percent in 2019 [3].

1.2. Literature Review

Although corn production is high, and can play a role in improving the regional economy, it does not escape the many problems that occur, namely problems in efforts to increase corn production which are summarized by Ref. [4], among others: (1) Reducing technical irrigation rice area and land other agricultural sectors (2) The increasingly tight competition in the use of water between the agricultural sector and other sectors which causes the availability of irrigation water to decrease, (3) The prices of high-quality seeds, fertilizers and pesticides are becoming increasingly expensive, (4) The labor shortage in the productive sector agriculture because of job opportunities in the non-agricultural sector with higher wages so that wages in rural areas increase.

Fertilizer is one of the factors that affect the high and low production of an agricultural commodity that is cultivated because, without fertilizer, the production results will not be optimal. In addition to the amount of fertilizer, other factors that affect corn production are land area, capital, number of seeds, and the amount of labor used. As for where the theory of production, Ref. [5] describes the relationship between the factors of production with the level of production created. The theory of production can be expressed in terms of the production function and the level of production created. Factors of production are also known as inputs, and the amount of production is called output. To help farmers to facilitate their farming, the government issued a policy regarding the distribution of subsidized fertilizers to achieve an increase in productivity and quality of agricultural products through the application of appropriate cultivation technology with the use of production facilities according to the recommended technology in each region.

Problems that often arise related to the distribution of subsidized fertilizers include the kiosk selling subsidized fertilizers located outside the village, causing farmers to increase the costs incurred for purchasing subsidized fertilizers because some farmers travel quite far. the unavailability of subsidized fertilizers from time to time makes some farmers buy non-subsidized fertilizers to meet fertilizer needs, the types of subsidized fertilizers are not following what farmers want, and the amount of subsidized fertilizers is not by the definitive plan for the proposed group needs [6]. As one of the main production facilities, especially subsidized fertilizers, it is hoped that it can be fulfilled according to the right 6 (six) principles, namely: on time, quantity, type, place, quality, and price[7].

1.3. Research Objective

Determine the level of success of a policy, it can be done by measuring its effectiveness. The effectiveness of fertilizer subsidies is measured based on these six indicators so that farmers can use fertilizers according to their needs. The effectiveness of fertilizer subsidies is important in supporting the production of the agricultural sector. Therefore, the purpose of this study was to determine the effectiveness of the distribution of subsidized fertilizers in corn farming in the South OKU District.

2. MATERIALS AND METHODS

The research was conducted in South OKU District, precisely in the Districts of Buana Pemaca and Buay Pemaca. Determination of the location is done intentionally with the consideration that Kec. Buana Pemaca is the largest sub-district in South OKU District, covering an area of 13.01% of the total area of South OKU District of 549,394 km^2 [8]. In addition, Buana Pemaca District is also a District that has the highest corn production in the District. South OKU with average corn productivity of 6.3-7 tons/ha [9]. The research method used is a survey method, namely interviews using questionnaires, where according to Ref. 10] the material of this method can trace all information that is expected to represent the research objectives. The research method used for determining the sample is the purposive sampling method, which is one of the sampling techniques that is often used in research. that is, the sample is determined by the researcher himself [11]. To get a representative sample in a large population, the sampling process can be carried out in several stages or also known as multistage random sampling or multistage sampling (stepwise/staged sampling method) [12]

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Table 1. Selected Villages for Research Sample

No	Subdistrict	Selected Village	Number of Farmers	Number of Samples
1.	Buana Pemaca	Geminung	635	30
		Bandar	512	30
2.	Buay Pemaca	Sumber Ringin	539	30
		Tj.Durian	462	30
Amount				120

The method used in data processing and analysis is Analysis of the Effectiveness of Subsidized Fertilizer Distribution, the analysis used is based on six appropriate indicators namely, right time, right place, right quantity, the right price, right type, and right quality. Analyzing the effectiveness of the distribution of subsidized fertilizers is to using the scoring method. Each question item in the questionnaire is made an alternative. The data obtained from this study is qualitative, so the qualitative data is scaled so that it becomes quantitative data. The Likert scale is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about the phenomenon [13]. This study uses several statements on a scale of 1-5 indicating agrees or disagrees with the statement. The scores determined are as follows:

Strongly Agree (S) value :5

Agree (S) value: 4

Disagree (KS) score: 3

Disagree (TS) score: 2

Strongly Disagree (STS) value: 1

According to Ref. [14, 15] the effectiveness criteria can be seen as follows:

k ≤40%	= Very ineffective
40%≤ k ≥60%	= Ineffective
60% ≤ k ≥ 80%	= Fairly effective
80% ≤ k ≥90%	= Effective
90% ≤ k ≥ 100%	= Very effective ,
k = Interval effectiveness.	

3. RESULT AND DISCUSSION

The results of this study include the character of the respondents, the effectiveness of the distribution of subsidized fertilizers, and their relationship with corn production. The results of this study are as follows:

3.1. Price Indicator

Pricing accuracy in the implementation of the fertilizer subsidy program can ease the burden on farmers in the supply and use of fertilizers for their farming activities. The price variable has an effective level of 79.84% stating that this variable is quite effective. The price of subsidized fertilizer is cheaper than non-subsidized, this means that subsidized fertilizer is indeed cheaper than non-subsidized because the price difference is quite far making farmers prefer subsidized fertilizer. So subsidized fertilizers are considered by most respondents according to their purchasing power.

Table 2. Level of Effectiveness Based on Price Variables.

Correlation			Price Effectiveness Indicator	Corn Production
Spearman's rho	Price Effectiveness Indicator	Correlation Coefficient	1.000	.004
		Sig. (2-tailed)	.	.962
		N	120	120
	Corn Production	Correlation Coefficient	.004	1.000
		Sig. (2-tailed)	.962	.
		N	120	120

Subsidized fertilizers experience price changes every year, but this change will not make most respondents reduce or influence changes in purchases of subsidized fertilizers considering that subsidized fertilizers are cheaper than non-subsidized fertilizers so that farmers can reduce their production costs. The positive coefficient means that there is a positive relationship between production costs and production results.

3.2. Place Indicator

The lowest indicator in the variable place is the place to buy subsidized fertilizer which can be reached in a fast time 74%. The location where the subsidized fertilizer is purchased is following what has been determined by the government, where the official kiosks for the purchase of subsidized fertilizer are located in each village. This shows that most of the respondents buy subsidized fertilizer directly at official kiosks.

However, not all farmers can buy fertilizer in a short time, considering the distance and condition of the location of farmers to the official kiosk of subsidized fertilizer retailer, although the official kiosk of subsidized fertilizer retailer is located in a strategic location that has been determined, so there are still problems. to buy subsidized fertilizers. With the condition of the distance traveled and the condition of the road to the retail kiosk, farmers incur additional costs to obtain fertilizer with additional costs ranging from Rp. 5,000 to Rp. 10,000 rupiah per bag according to the distance traveled by each location. However, from this percentage, it can be seen that there are still many respondents who buy subsidized fertilizer at official kiosks so the fertilizer subsidy policy can be categorized as quite effective in terms of the right place indicator.

Table 3. Effectiveness Level Based on Place Variables.

Correlation			Place Effectiveness Indicator	Corn Production
Spearman's rho	Place Effectiveness Indicator	Correlation Coefficient	1.000	-.088
		Sig. (2-tailed)	.	.341
		N	120	120
	Corn Production	Correlation Coefficient	-.088	1.000
		Sig. (2-tailed)	.341	.
		N	120	120

3.3. Time Indicator

The lowest indicator in the time variable is 61.8%, this is because subsidized fertilizers are not available at times when farmers need them. This will cause farmers who have limited costs to delay fertilization because farmers will wait for subsidized fertilizers to be available and this will cause production decreases, some of the corn farmers based on interviews when the desired subsidized fertilizer is not available, then the farmers will buy non-subsidized fertilizer at a higher price, so that their fertilization needs can be met.

3.4. Type Indicator

The highest level of effectiveness on the type variable is that farmers know the function of each type of fertilizer so that farmers use fertilizers with the right function. With the presence

of agricultural extension workers in assisting farmers in providing counseling about fertilizers and fertilization in the field both in

Table 4. Level of Effectiveness Based on Time Variables.

Correlation			Time Effectiveness Indicator	Corn Production
Spearman's rho	Time Effectiveness Indicator	Correlation Coefficient	1.000	-.079
		Sig. (2-tailed)	.	.391
		N	120	120
	Corn Production	Correlation Coefficient	-.079	1.000
		Sig. (2-tailed)	.391	.
		N	120	120

theory and practice, it helps farmers to know about fertilizers so that farmers know the function and the right fertilizer dosage, thus there are no mistakes made by farmers in fertilization. . In addition, the official kiosk for subsidized fertilizer retailers also provides various kinds of medicines or other types of fertilizers, making it easier for farmers to meet their farming needs.

Table 5. Level of Effectiveness by Variable Type

Correlation			Type Effectiveness Indicator	Corn Production
Spearman's rho	Type Effectiveness Indicator	Correlation Coefficient	1.000	.066
		Sig. (2-tailed)	.	.477
		N	120	120
	Corn Production	Correlation Coefficient	.066	1.000
		Sig. (2-tailed)	.477	.
		N	120	120

3.5. Quantity Indicator

The lowest indicator of the Amount variable is the amount of subsidized fertilizer following the proposed RDKK, 70% of the respondents complained that the amount of fertilizer received did not match the amount of fertilizer requested, this would cause farmers who have limited funds to reduce the amount of fertilizer. The amount of subsidized fertilizer that is not following the definitive plan for the needs of the proposed group also makes the effectiveness of subsidized fertilizer not fully affect production.

Table 6. Level of Effectiveness Based on Quantity Variable

Correlation			Quantity Effectiveness Indicator	Corn Production
Spearman's rho	Quantity Effectiveness Indicator	Correlation Coefficient	1.000	-.081
		Sig. (2-tailed)	.	.376
		N	120	120
	Corn Production	Correlation Coefficient	-.081	1.000
		Sig. (2-tailed)	.376	.
		N	120	120

3.6. Quality Indicator

From the table above, it can be seen that according to farmers, fertilizer is an item under government supervision and has a valid distribution permit so that it has good quality. According to farmers, goods under government supervision must have good quality to use. The lowest indicator of the quality variable is a Subsidized Fertilizer whose characteristics are in the form of prill or granules (larger granules), pink in color, and Phonska NPK is brownish pink, and SP36 is gray. Some respondents think that this is a physical/appearance characteristic of subsidized fertilizers, as a differentiator from fake fertilizers, not a determinant of the quality of the subsidized fertilizer itself. On the quality variable,

the level of effectiveness that is owned is 71.64%, this explains that the level of effectiveness of subsidized fertilizer in South OKU District on the quality variable is quite effective.

The suggestions that can be given by the author through this research are as follows: The government must further improve the mechanism for distributing fertilizer subsidies because fertilizer subsidies are categorized as quite effective. This improvement is mainly related to the timely and appropriate mechanism, where it is better to give fertilizer subsidies closer to the target or target recipients of fertilizer subsidies. It is recommended that official kiosks can also reach locations far from the official kiosks that have been previously determined, making it easier for farmers to buy subsidized fertilizers. In

addition, continuing to improve extension activities and assistance to farmers in every process of distributing subsidized fertilizers and the need for a commitment from the government so that the effectiveness of the distribution of subsidized fertilizers can be categorized as very effective and following farmers' expectations.

Table 7. Level of Effectiveness Based on Quality Variables

Correlation			Quality Effectiveness Indicator	Corn Production
Spearman's rho	Quality Effectiveness Indicator	Correlation Coefficient	1.000	-.079
		Sig. (2-tailed)	.	.393
		N	120	120
	Corn Production	Correlation Coefficient	-.079	1.000
		Sig. (2-tailed)	.393	.
		N	120	120

The fertilizer subsidy policy must still be implemented because based on research results subsidized fertilizer can reduce the production costs of farmers who have low purchasing power. In addition, the existence of an insignificant relationship between the effectiveness of the distribution of subsidized fertilizer and production indicates that it is still necessary to improve the fertilizer subsidy policy with the availability of fertilizer when needed with the right mechanism. The fertilizer subsidy policy must also be the main concern of the government so that the level of effectiveness increases.

4. CONCLUSION

Based on the research results, it can be concluded that the fertilizer subsidy policy can be categorized as quite effective. There is an insignificant relationship between the effectiveness of subsidized fertilizer distribution in corn farming, this is because not all farmers can buy fertilizer in a fast time, considering the distance and condition of the location of farmers to the official kiosk of subsidized fertilizer retailer, although the official kiosk of fertilizer retailer is different. Subsidized is located in a strategic location that has been determined. In addition, the thing that makes subsidized fertilizers not fully related to production is that subsidized fertilizers are not available at any time. This will cause some respondents to buy non-subsidized fertilizers to meet their fertilizer needs. Some respondents will also delay the time of fertilizing because they are waiting for the subsidized fertilizer needed to be available due to limited costs. In terms of quality effectiveness, farmers know that the characteristics of subsidized fertilizers are in the form of prill or granules (larger grains), pink in color, NPK Phonska brownish pink, and SP36 gray. Some respondents think that this is a physical/appearance characteristic of subsidized fertilizers, as a differentiator from fake fertilizers, not a determinant of the quality of the subsidized fertilizer itself. Thus, the effectiveness of quality is not significantly correlated with production. In addition, the amount of subsidized fertilizer that is not following the definitive plan for the needs of the proposed group also makes the effectiveness of subsidized fertilizer not fully affect production. This makes respondents get an amount of fertilizer that is not following their needs and will cause farmers to reduce the amount of fertilizer used.

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