

FARMERS' RESPONSE TOWARD *KARTU TANI* PROGRAM IN LIMANGAN SUB DISTRICT, KENDAL REGENCY

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ABSTRACT

This research was conducted in Limbangan Subdistrict Kendal District with the purpose to determine the response's level of farmers toward "Kartu Tani" program and its influencing factors. Survey approach by descriptive was used in this research. From Limbangan Subdistrict was chosen purposively by 3 (three) sample villages with the most farmers receiving "Kartu Tani" which are Gondang Village, Limbangan Village, and Peron Village. From each of the sample village was chosen purposively by 1 (one) sample farmers group with the most members receiving "Kartu Tani" which are Wahyu Gondang Makmur, Ngudi Rahayu, and Kadang Maju. From each farmer group was taken 10 members with random simple; in addition, each sample village was taken 10 farmers who aren't members of the farmer group, so as a whole, there were 60 farmers who received the "Kartu Tani" as respondents. The analysis method used is the proportion test and multiple linear regression analysis. The average farmer has a moderate or hesitant response toward "Kartu Tani" program. Factors affecting the farmer's response are the level of education, perception, and membership status in the farmer group. The higher level of farmer education and the better perception of farmers cause the higher response toward "Kartu Tani" program; farmers who are members of the group have a higher response than farmers who aren't members of farmer groups. Factors that don't affect the farmer's response toward "Kartu Tani" program are age, motivation, and extension agents.

Keywords: farmers' response, "Kartu Tani" program, motivation

INTRODUCTION

The introduction includes background, research linkages with theoretical studies (State of the Art) and previous scientific findings, problem formulation, research objectives, and hypotheses (if any). The formulation of the problem, the purpose of the study, and the State of the Art and previous scientific findings are written in the introduction, do not need to be written in separate sub-chapters. Foreign words or phrases are written in italic letters. Abbreviations must be written in full when first mentioned, after which a short word can be written.

Agriculture remains the most crucial sector of human life. Through agriculture, the food needs of all humanity can be met. Based on this reason, it is only fitting that agricultural development continues to be pursued. Development in the agricultural sector aims to consistently meet the increasing demand of humans, which is directly proportional to population growth.

Agricultural development can take the form of improvements in the agricultural sector. The government-planned systems are expected to enhance the welfare of farmers and facilitate their

farm management. These systems are implemented through government programs aimed at streamlining agricultural practices. One crucial input in farming is fertilizer. Currently, fertilizer distribution in Indonesia often encounters issues. Government-subsidized fertilizers are not consistently distributed according to the plan. Therefore, the government has introduced the 'Kartu Tani' program, the primary role of which is to improve the distribution system of subsidized fertilizers.

According to Moko et al. (2017), the farmer card is a BRI co-branding debit card specifically used to track the allocation of subsidized fertilizers and conduct transactions for subsidized fertilizers through the Electronic Data Capture (EDC) machines of BRI (Bank Rakyat Indonesia) located at retailers, serving general banking transactions as well. The debit card is a multifunctional card that contains data such as farmer profiles, land size, agricultural input requirements, and harvest information. In addition, the farmer card can be used for transfers, cash withdrawals, payments, loan applications, and, most importantly, as data for receiving government subsidies and assistance.

Kartu Tani was distributed to all farmers in Indonesia. The distribution of Kartu Tani was completed by the end of 2017. One of the regions that had distributed Kartu Tani was Limbangan Subdistrict in Kendal Regency. The number of farmers who received Kartu Tani in Limbangan Subdistrict was 2,465. These farmers are spread across the 16 villages within Limbangan Subdistrict.

Kartu Tani remains one of the essential requirements that farmers must possess in the electronic commerce trading system called "Rego Pantes" through the system available on the regopantes.com website. Up to this point, there are 850 farmers who own the Kartu Tani and have downloaded the application. Additionally, there are 4,500 farmers who utilize the buying and selling application. This means that farmers have been utilizing the benefits obtained from Kartu Tani (Primus, 2017). A farmer from Lumansari, Gemuh, Kendal, states that farmers in their area are delighted to receive Kartu Tani because it makes it easier for farmers to obtain subsidized fertilizer. After acquiring Kartu Tani, farmers in Lumansari no longer encounter difficulties in procuring subsidized fertilizer. This farmer hopes that with Kartu Tani, the price of subsidized fertilizer will become more affordable and stable (Putranto, 2017).

However, in practice, there are still several farmers who have not yet availed themselves of the Kartu Tani. A total of 8,275 farmers across 22 regencies and cities in Central Java have declined to accept the Kartu Tani. Peni Rahayu, the Head of the Infrastructure and Natural Resources Bureau at the Central Java Provincial Government, has elucidated that farmers' refusal to accept the Kartu Tani is primarily rooted in misconceptions. Farmers remain unaccustomed to the use of passbooks and ATMs, leading to concerns about incurring administrative fees, despite the absence of such charges. Peni Rahayu posits that this phenomenon can be attributed to a dearth of awareness regarding the Kartu Tani (Huda, 2017). This spectrum of pro and con attitudes constitutes one manifestation of farmers' responses to the Kartu Tani. A thorough examination of farmers' responses is imperative to furnish an initial evaluation of the recently implemented program. The results of this evaluation may serve as pivotal considerations for the government's future actions. This backdrop serves as the rationale for undertaking this research, which seeks to discern farmers' responses to the Kartu Tani Program and the influential factors shaping these responses.

METHOD

The research method used must be written in a scientific manner, namely rational, empirical and systematic. The type and method of research, the time and place of research, the techniques of sampling and data collection, and data analysis should be clearly described including the formulation of hypotheses and decision criteria. If there are analytical tools used that are not general or more specific including the formulation of the calculation, then it should be described clearly and systematically. An example of the presentation of formulas and information from formulas can be seen below:

The fundamental method employed in this research is a descriptive approach using a quantitative method. This study was conducted in the Limbangan Subdistrict, Kendal Regency. Out of the 16 villages, three were purposively selected as sample villages. These sample villages are Peron Village, Limbangan Village, and Gondang Village. The selection of these three sample villages was based on the highest number of farmer recipients of Kartu Tani in the Limbangan Subdistrict, Kendal Regency.

From each of these sample villages, one farmer group was purposively selected as the sample using purposive sampling, specifically the group with the highest number of Kartu Tani recipients. The selected farmer groups as samples are Kadang Maju in Peron Village, Ngudi Rahayu in Limbangan Village, and Wahyu Gondang Makmur in Gondang Village. From each of these sample farmer groups, 10 samples were randomly selected using simple random sampling as respondents.

In each of the sampled villages, in addition to selecting 10 samples from the farmer groups, 10 non-member farmers were also randomly selected using simple random sampling to participate as respondents. Consequently, the total number of respondents in this study amounted to 60 farmers.

Data collection was carried out through techniques such as observation, interviews, documentation, and record-keeping. The data obtained encompassed both primary and secondary data.

The data were analyzed using proportion tests and multiple linear regression analysis, which will be elaborated on in detail as follows:

1. Proportion Analysis

The first hypothesis regarding farmers' response to the Kartu Tani Program is tested using a proportion test. The proportion test conducted with hypothesis as follows:

$$H_0: p \leq 60\%$$

$$H_a: p > 60\%$$

With the interpretation:

H0 : It is hypothesized that less than or equal to 60% of farmers in the Limbangan Subdistrict, Kendal Regency, have a high and very high response to the Kartu Tani Program.

Ha: It is hypothesized that more than 60% of farmers in the Limbangan Subdistrict, Kendal Regency, have a high and very high response to the Kartu Tani Program.

The significance level is set at $\alpha = 0.05$ (5%). Then the testing is carried out using the formula:

$$Z \text{ hitung} = \frac{\frac{x}{n} - P_0}{\sqrt{\frac{P_0(1 - P_0)}{n}}}$$

Information :

- x : The number of farmers with a high response to Kartu Tani.
- n : The total number of farmers used as the sample.
- Po : Population Proportion = 60%

With the testing criteria:

Z value < Z table: H0 is accepted, Ha is rejected.

Z value > Z table: H0 is rejected, Ha is accepted.

2. Multiple Linear Regression Analysis

For the second hypothesis, to determine the factors believed to influence farmers' response to the Kartu Tani Program in the Limbangan Subdistrict, multiple linear regression analysis is employed. The hypothesis used is as follows:

H0: It is hypothesized that there is no influence between age, education, motivation, perception, group membership status, and the role of extension workers on farmers' response to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency.

Ha: It is hypothesized that there is an influence between age, education, motivation, perception, group membership status, and the role of extension workers on farmers' response to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency.

Using SPSS 23.0 software, the analysis can be

conducted as follows:

- a. R-squared or the coefficient of determination indicates the percentage of the dependent variable that can be explained by the independent variables. For more than 2 (two) independent variables, adjusted R-squared is used.
- b. Based on the ANOVA or F-test to determine whether the independent variables, when considered together, have a significant impact on the dependent variable, the following conclusion can be drawn: If the Sig value < α (0.05), then the independent variables, collectively, have a significant impact on the dependent variable.
- c. The t-test is conducted to determine whether each independent variable has an influence on the dependent variable. The following conclusions can be drawn (with a significance level of $\alpha = 0.05$):
If Sig $\geq \alpha$: H0 is accepted, Ha is rejected.
If Sig < α : H0 is rejected, Ha is accepted.
(These conclusions are made based on a significance level of 0.05.)

RESULTS AND DISCUSSION

Farmers' Response to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency

Response refers to the decisions and behaviors of recipients after they receive a message. Responses can vary from the minimum level (low) to the maximum level (high). A low response is when the recipient decides to ignore or take no action after receiving the message. Conversely, a high response is an immediate and open action taken by the recipient (Mulyana as cited in Malik et al., 2015). According to Guire as cited in Wirawan as cited in Hanafi et al. (2011), response is an attitude that is a reaction to actions directed towards oneself. Response encompasses attitudes and attitudes consist of affective (feelings), cognitive (knowledge), and conative (behavior or participation) components. Farmers' response to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency can be observed in Table 1.

Table 1. Farmers' Response to the *Kartu Tani* Program in the Limbangan Subdistrict

No.	Indicator	Interval Score	Mean Score	Response (%)
Knowledge				
1	Understanding the purpose of the Kartu Tani Program	0 - 6	3,67	61,11
2	Understanding the benefits of the Kartu Tani	0 - 6	3,75	62,50
3	Understanding the requirements for obtaining the Kartu Tani	0 - 5	3,85	77,00

No.	Indicator	Interval Score	Mean Score	Response (%)
4	Understanding the process of obtaining the Kartu Tani	0 - 6	3,75	62,50
5	Understanding how to withdraw cash using the Kartu Tani	0 - 4	1,67	41,67
6	Understanding how to transfer money using the Kartu Tani	0 - 4	1,37	34,17
7	Understanding how to Use the Kartu Tani to obtain subsidized fertilizer or other government assistance	0 - 6	3,97	66,11
8	Understanding how to use the Kartu Tani for 'KUR (Kredit Usaha Rakyat)' application	0 - 8	3,35	41,88
9	Understanding how to sell harvested produce to BULOG (National Logistics Agency) using the Kartu Tani	0 - 8	3,75	46,88
Total		0 - 53	29,12	
Average				54,94
Cognitive				
1	Knowledge about the benefits of the Kartu Tani for the government	0 - 8	3,68	46,04
2	Knowledge about the requirements for obtaining the Kartu Tani	0 - 8	3,63	45,42
3	Knowledge about using the Kartu Tani for cash withdrawals	0 - 4	2,55	63,75
4	Knowledge about using the Kartu Tani for money transfers	0 - 4	2,53	63,33
5	Knowledge about using the Kartu Tani for 'KUR (Kredit Usaha Rakyat)' application	0 - 4	1,82	45,42
6	Knowledge about using the Kartu Tani to sell harvested produce to BULOG (National Logistics Agency)	0 - 5	1,82	36,33
Total		0 - 33	16,03	
Average				48,58
Affective				
1	Satisfaction with the Kartu Tani Program due to having clear objectives	0 - 5	3,75	75,00
2	Satisfaction with the Kartu Tani Program due to having numerous benefits	0 - 5	3,95	79,00
3	Satisfaction with the Kartu Tani Program because it can be used for cash withdrawals	0 - 4	2,50	62,50
4	Satisfaction with the Kartu Tani Program because it can be used for money transfers.	0 - 5	2,52	50,33
5	Satisfaction with the Kartu Tani Program because it can be used to obtain subsidized fertilizer or other government assistance.	0 - 4	1,70	42,50
6	Satisfaction with the Kartu Tani Program because it can be used for 'KUR (Kredit Usaha Rakyat)' application	0 - 4	1,77	44,17
7	Satisfaction with the Kartu Tani Program because it can be used to sell harvested produce to BULOG (National Logistics Agency).	0 - 4	1,85	37,00
8	Satisfaction with the effectiveness of the Kartu Tani in solving agricultural issues.	0 - 6	3,62	60,28
9	Satisfaction with the clarity of the extension worker's socialization about the Kartu Tani Program.	0 - 8	4,00	50,00
Total		0 - 45	25,65	
Average				57,00
Conative				
1	Inclination to use the Kartu Tani because of its clear objectives	0 - 5	3,77	75,33
2	Inclination to use the Kartu Tani because of its numerous benefits	0 - 5	3,82	76,33
3	Inclination to use the Kartu Tani because the requirements for	0 - 6	3,87	64,44

No.	Indicator	Interval Score	Mean Score	Response (%)
4	obtaining it are easy Inclination to use the Kartu Tani because it can be used for cash withdrawals	0 - 6	4,18	69,72
5	Inclination to use the Kartu Tani because it can be used for money transfers	0 - 8	4,27	53,33
6	Inclination to use the Kartu Tani because it can be used for 'KUR (Kredit Usaha Rakyat)' application	0 - 6	2,80	46,67
7	Inclination to use the Kartu Tani because it can be used to sell harvested produce to BULOG (National Logistics Agency)	0 - 6	2,55	42,50
Total		0 - 42	25,25	
Average				60,12

Source : Primary Data Processed (2018)

From Table 1, it is evident that the level of farmers' knowledge response is at a percentage of 54,94%. The highest level of attitude response is found in the conative aspect at 60,12%, followed by the affective aspect at 57,00%, and the cognitive aspect at 48,58%. Farmers show a high inclination to use the Kartu Tani, although their attitudes towards what they know and their pleasure-related attitudes still appear somewhat uncertain.

The research results regarding knowledge response and attitude response are combined to obtain the farmers' response to the Kartu Tani Program. These two indicators are compared to identify areas where the response is still low and needs improvement. A summary of the proportions of each component contributing to farmers' response can be seen in Table 2.

Table 2. Proportions of Components Farmers' Response to the *Kartu Tani* Program in Limbangan Subdistrict

No.	Response Aspect	Interval Score	Mean Score	Response Level (%)
1	Knowledge	0 - 53	29,12	54,94
2	Attitude	0 - 120	66,93	55,78
Total		0 - 173	96,05	
Average				55,52

Source: Primary Data Processed (2018)

Based on Table 2, it can be observed that farmers' response to the Kartu Tani Program is categorized as moderate or uncertain, at 55,52%. Attitude response is higher compared to knowledge response. The response of each farmer to the Kartu Tani Program varies. Therefore, an analysis of each farmer's response is conducted by

categorizing responses into 5 (five) categories: very low / very unsupportive, low / unsupportive, moderate / uncertain, high / supportive, and very high / very supportive. Table 3 presents the distribution of farmers based on their response to the Kartu Tani Program.

Table 3. Distribution of Farmers Based on Response in Limbangan Subdistrict

No.	Category (percentage of score)	Total (people)	Percentage (%)
1	Very Low (0% - 20%)	0	0,00
2	Low (21% - 40%)	3	05,00
3	Moderate (41% - 60%)	36	60,00
4	High (61% - 80%)	21	35,00
5	Very High (81% - 100%)	0	0,00
Total		60	100,00

Source: Primary Data Processed (2018)

Based on Table 4, it can be observed that the majority of farmers (60%) exhibit a moderate or uncertain response to the Kartu Tani Program. Approximately 35% of farmers show a high or

supportive response to the Kartu Tani Program, and 5% of farmers exhibit a low or unsupportive response to the Kartu Tani Program.

The data analysis used to determine the level of farmers' response to the Kartu Tani Program utilizes a proportion test as follows:

$$\begin{aligned}
 Z_{hitung} &= \frac{\frac{x}{n} - P_0}{\sqrt{\frac{P_0(1 - P_0)}{n}}} \\
 &= \frac{\frac{21}{60} - 0,6}{\sqrt{\frac{0,6(1 - 0,6)}{60}}} \\
 &= \frac{-0,25}{0,063} \\
 &= -3,968
 \end{aligned}$$

With the testing criteria:

Z value \leq Z table : H₀ is accepted, H_a is rejected

Z value $>$ Z table : H₀ is rejected, H_a is accepted

Conclusion:

Z value = - 3,968

Z table = 1,645

Z value \leq Z table : H₀ is accepted, H_a is rejected.

Based on the calculation using the proportion test, the calculated Z score is -3,968.

This result is smaller than the Z-table value of 1,645. Therefore, H₀ is accepted, and H_a is rejected. This means that the hypothesis stating that more than 60% of farmers have a high response to the Kartu Tani Program in Limbangan Subdistrict, Kendal Regency, is rejected. H₀ being accepted means that less than or equal to 60% of farmers in Limbangan Subdistrict, Kendal Regency, have a high and very high response to the Kartu Tani Program.

Factors Affecting Farmers' Response to the Kartu Tani Program in Limbangan Subdistrict, Kendal Regency.

This research not only examines the level of response but also investigates the factors that influence farmers' response to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency. It is hypothesized that these responses are influenced by age, education level, motivation, perception, membership status in farmer groups, and the role of agricultural extension officers.

These factors are analyzed using the SPSS software with the backward method. The Backward method is a technique used to analyze the factors that significantly influence farmers' responses to the Kartu Tani Program by removing factors that do not have an impact. The results of multiple linear regression analysis on the factors suspected to influence farmers' responses to the Kartu Tani Program can be seen in Table 4.

Table 4. Results of Multiple Linear Regression Analysis Regarding the Factors Suspected to Influence Farmers' Responses

No.	Variable	Coefficient Regression (B)	t value	sig	Inf.
1	Age (X1)	-0,25	-0,184	0,854	NS
2	Education Level (X2)	1,312	3,311	0,002	*
3	Motivation (X3)	0,216	1,297	0,200	NS
4	Perception (X4)	0,820	4,164	0,000	*
5	Membership Status in Farmer Group (X5)	8,483	3,234	0,002	*
6	Role of Extension Worker (X6)	-0,050	-0,440	0,662	NS
	Konstanta	24,386			
	R square	0,806			
	Adjusted R square	0,784			
	F value	36,652			
	F table	2,270			
	T table	2,006			

Information : *significance level at 5%

Source: Primary Data Processed (2018)

Based on Table 4, it can be observed that the independent variables (X) that do not have a significant impact on the dependent variable (Y) are age, motivation, and the role of the extension officer. The final model is the one in which all independent variables have a significant impact

on the dependent variable. This final model can be observed in Table 5.

Based on Table 5, the results of the multiple linear regression analysis regarding the factors suspected to influence farmers' responses

can be observed. The testing criteria for these factors are explained in the following description:

1. The obtained Adjusted R square value is 0,786. This indicates that 78,6% of farmers' responses are influenced by variables such as education level, perception, and membership status in farmer groups, while the remaining 21,4% is influenced by other variables outside the model.
2. The calculated F-value is 73,388, while the tabulated F-value is 2,770 at a significance level of 0,05. This result indicates that the calculated F-value (73,388) is significantly greater than the tabulated F-value (2,770). When F-value > F-tabulated, it means that the independent variables, namely education

level, perception, and membership status in farmer groups, collectively have a significant impact on the dependent variable, which is farmers' response to the Kartu Tani program.

3. The calculated t-values for the education level variable is 3,659, for the perception variable is 5,905, and for the membership status in farmer groups variable is 3.968. Compared to the respective t-table values, which is 2,003, each calculated t-value for each variable is greater. When t-calculated > t-table, it means that the independent variables have a significant impact on the dependent variable.

Table 5. Results of Multiple Linear Regression Analysis on Factors Suspected to Influence Farmers' Response

No.	Variable	Coefficient Regression (B)	t value	sig	Inf.
1	Education level (X2)	1,368	3,659	0,001	*
2	Perception (X4)	0,946	5,905	0,000	*
3	Membership status in farmers' group (X5)	9,610	3,968	0,000	*
Constanta		29,747			
R square		0,797			
Adjusted R square		0,786			
F value		73,388			
F table		2,770			
T table		2,003			

Information : *significance level at 5%

Source: Primary Data Processed (2018)

CONCLUSIONS

1. Most farmers are in their productive age and have completed elementary school education. The level of motivation among farmers in implementing the Kartu Tani Program is mostly categorized as high or they want to make use of Kartu Tani. The perception level of farmers is mostly categorized as moderate, while the perception of farmers regarding the ease of using Kartu Tani is categorized as low. The role of extension officers in the Kartu Tani Program is mostly categorized as moderate.
2. On average, farmers show a moderate or uncertain response to the Kartu Tani Program. This uncertainty is due to the fact that the Kartu Tani has not yet been widely adopted by farmers in the Limbangan Subdistrict, Kendal Regency.
3. The factors affecting farmers' responses to the Kartu Tani Program in the Limbangan

Subdistrict, Kendal Regency, are as follows:

- a. Education level: the higher farmers' education level, the higher their response to the Kartu Tani Program.
 - b. Perception of the Kartu Tani Program: the better the farmers' perception, the higher their response to the Kartu Tani Program.
 - c. Membership status within farmer groups: farmers who are members of farmer groups have a higher response to the Kartu Tani Program compared to non-member farmers.
4. Factors that do not influence farmers' responses to the Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency, are age, motivation, and the role of agricultural extension agents.
 5. The Kartu Tani Program in the Limbangan Subdistrict, Kendal Regency, has not been fully implemented due to a lack of preparation in terms of supporting infrastructure and pre-infrastructure, such

as training for KPL owners and the availability of EDC machines at each KPL.

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