THE INFLUENCE OF FARMER'S CHARACTERISTICS ON FARMERS' BEHAVIOR IN APPLYING HEALTHY RICE CULTIVATION IN EAST LAMPUNG REGENCY

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Abstract. This research aims to *knowing the characteristics of farmers in cultivating healthy rice plants that are eco-friendly in East Lampung Regency. This research was conducted in Sub-district of Braja Selebah and Sekampung Udik, East Lampung Regency in November 2022. The population in this* research *consisted of five farmers groups who received the Healthy Rice Cultivation Area Demonstration Program in 2021. The respondents in this* research *there are 69 people who were selected using simple random sampling technique with an allocation of the sample proportion. This* research *uses a survey method with a descriptive-quantitative used non-parametric statistics multiple linear regression test. The results showed that the characteristics of farmers that influenced the behavior of farmers in implementing healthy rice cultivation were education level and cosmopolitan level. Behavior that arises from within a person is certainly influenced by certain factors, especially from within himself which is associated with the characteristics possessed by a person so that the higher the level of education and cosmopolitan a person, the higher the level of behavior to do something.*

Keywords: *Characteristics, Behavior, Rice Cultivation, Healthy Rice.*

1. INTRODUCTION

The food needed for people in modern times is not only seen in terms of sufficient food needs, but has increased to become a need for healthy food for the global community, including in Indonesia. Food is a supporting thing as an edible ingredient to meet daily needs (Indriani, 2019). The problem that is often encountered in the field is that many farmers are not aware of whether the products they produce contain a lot of chemical residues or not. Unwittingly, excessive use of chemical fertilizers and unwise application of chemical pesticides will worsen the quality of the rice produced because of the residues contained in the rice.

Healthy rice plants cultivation is an option to reduce the unwise use of chemical fertilizers or pesticides so that the rice produced can be minimized from chemical residues. Unwittingly, the cultivation of healthy rice plants has several advantages, consist of its make soil conditions better, high biodiversity of natural enemies, no resistance to pests, plants are not susceptible to disease by using biological agents, higher yields due to reduced pest attacks and disease, and the resulting product is of higher quality. Of course, by healthy rice cultivation, in addition to producing low-residue rice products, it can also make the environment healthier. The rice produced becomes healthy food because it is free from the influence of chemical fertilizers and pesticides (Nurjanah, 2019).

The achievement of healthy rice cultivation is to provide agricultural products, especially food ingredients that are safe for the health of consumers and by maintaining a sustainable environment. Healthy rice cultivation prioritizes local potential and is eco-friendly so that it will greatly support the restoration of soil health and the health of its product

users and can benefit farmers by increasing productivity and product selling prices. Its application, of course, is not as easy as imagined, it takes adjustments to apply it, be it in terms of time, energy or other things.

2. RESEARCH METHODS

The research was conducted in two sub-districts, Braja Selebah and Sekampung Udik, East Lampung Regency. The location for the research was determined purpossive with the reasons and considerations that East District is one of the regencies that received the most Healthy Rice Cultivation Area Demonstration Program in 2021. The total population of the two sub-districts are 233 people. The sampling technique used is random sampling technique. A simple random sample is a formula used to determine the number of samples taken in such a way that each research unit or elementary unit from the population has the same opportunity to be selected as a sample. The sample is part or representative of the population studied (Arikunto, 2010). The resulting respondents amounted to 69 people from the total existing population. This research was conducted in November 2022.

The research method used in this research is survey method. There are two forms of data used in this study, namely primary data and secondary data. The tools for collecting research data were used by researchers to answer the objectives of this study, using three methods according to Fathoni (2011) : questionnaires, interviews, and literature studies. Analyzing the data that has been obtained using a quantitative descriptive analysis method. This test uses linear regression analysis using the SPSS (Statistical Package for the Social Sciences) application program. The multiple linear regression equation model is :

$$Y = a + b_{1.1} X_{1.1} + b_{1.2} X_{1.2} + b_{1.3} X_{1.3} + b_{1.4} X_{1.4}$$

Note :
Regression coefficient= $b_{1.1}$, $b_{1.2}$, $b_{1.3}$, $b_{1.4}$

Y	= dependent variable (farmer behavior)
Z	= dependent variable (success of area demonstration program healthy rice cultivation)
a	= constanta
$X_{1.1}$	= farmer's age
$X_{1.2}$	= education level of farmers
$X_{1.3}$	= lenght of farming
$X_{1.4}$	= cosmopolitan level

3. RESULTS AND DISCUSSION

This research involved 69 rice farmers as respondents in Braja Selebah and Sekampung Udik sub-district, East Lampung. Respondents are rice farmers spread across Braja Luhur Village and Purwo Kencono Village who have received and implemented the Demonstration Program for Healthy Rice Cultivation Areas with proportional sampling for Braja Luhur Village which are spread out in four groups totaling 60 people and in Sekampung Udik Village spread in one group of 9 people. Characteristics of respondents in this study include age, level of education, and length of farming, and cosmopolitan level.

1) Age

Age is one of the factors related to the ability of farmers to do their farming. The majority of respondents are in the age range of 15-64 years with a percentage of 95.65%. The youngest respondent is 22 years old, while the oldest is 75 years old and the average respondent is 44 years old (Table 1). This shows that almost all of the respondents in this study were productive age farmers. Farmers of productive age have great potential in carrying out farming activities properly because at that age farmers usually have excellent physical conditions so that they can carry out farming activities optimally.

2) Level of Education

The level of education will affect the ability of farmers to capture the information

provided. Based on data obtained from the field, the farmers' formal education consists of three categories, that is Elementary School, Junior High School, and Senior High School. The last education level of the majority of respondents was at the junior high school level with a percentage of 44.92%. In addition, it was noted that 31.90% of respondents were at the Senior High School level in the second most position and followed by the number of education lastly at least at the Elementary School level as much as 23.18% (Table 2).

3) Length of Farming
Farming is an activity of organizing assets and ways of managing agricultural activities. Farming activities are determined by various things, one of which determines is the length of time someone does farming, because the length of time farmers do business will determine the development of farmers in achieving the desired results. The results showed that the latest farming time was 2 years and the longest was 55 years. The average lenght of farming for respondents is 26 years (Table 3). This shows that almost all of the respondents in this study were in the old farming category. The longer the farmer's experience allows for higher crop production. In general, farmers who have long experience in farming are also able to determine strategies in planning for the development of their farming.

4) Cosmopolite Level
The cosmopolitan level is a characteristic that has broad relations and views with the outside world, with other social groups as well as high mobility. The sosmopolitanness of a farmer can be seen from his active search for the latest information or innovations or seeking information through the latest media in the near future. The results of this study indicate that almost all respondents fall into the cosmopolitan category. The majority of respondents have a cosmopolitan level with a cosmopolitan category with a percentage of 40.60%. The non-cosmopolitan category is in second place with a percentage of 31.90%, while the very cosmopolitan category is in the lowest position with a percentage of 27.50% (Table 4). This shows that most farmers have started to be open and enthusiastic in holding meetings and seeking information about healthy rice cultivation either through government officials, fellow farmers both inside and outside farmer groups, and through the latest media that can be accessed through print or electronic media. This shows that increasing the ability and openness of farmers needs to be done for the progress of farming, especially the cultivation of healthy rice plants so that life can be more prosperous.

3.1 Analysis of the Effect of Farmer Characteristics on Farmer Behavior
Behavior in this study was seen from three supporting aspects, namely knowledge, attitudes, and skills. Behavior is a set of actions that react to something and become habits based on the values that are believed. Human behavior is essentially an activity that can be observed or not observed through human interaction with the environment which is manifested in the form of knowledge, attitudes, and skills (Adventus et al, 2019). The existence of this will later determine the behavior of farmers in understanding and implementing environmentally friendly cultivation through organic farming which can be seen from the knowledge, attitudes and skills possessed by farmers, especially in the implementation of rice cultivation.The good behavior of farmers in maintaining the continuity and sustainability of the agricultural sector, of course, will create a balance of life in terms of food fulfillment and national economic conditions. In this study there were four factors originating from the characteristics of farmers in implementing healthy rice cultivation with the following results:

3.1.1 Age
The results showed that from multiple linear regression analysis, $t_{value} < t_{table}$ was obtained with a value of $-0.272 < -1.99962$ (Table 5). Based on the results of the field trip, it is known that the difference in age does not affect the enthusiasm of farmers in cultivating

healthy rice plants using a significance level of 5%. It can be said that the majority of farmers in Braja Selebah and Sekampung Udik sub-districts, East Lampung, fall into the productive age category, which ranges from 15-64 years. A strong desire for change makes farmers more active in seeking information regarding the cultivation of healthy crops and discussing them with other farmers. This means that in this study age was not the main factor influencing farmer behavior in implementing healthy rice cultivation. This is in line with the results of Astuti's research (2014) which states that age does not have a critical relationship with the degree of farmer behavior in rice cultivation on the grounds that old or young farmers both open up potential opportunities to help others in cultivating. Herminingsih (2014) also revealed that age is not related to individual behavior because experience and conditions in the field have more influence on farmers in cultivating, such as limited capital owned by these farmers.

3.1.2 Long Trying

The results showed that from multiple linear regression analysis, $t_{value} < t_{table}$ was obtained with a value of -0.272 < -1.99962 (Table 5). Based on the results of the field trip, it is known that the difference in age does not affect the enthusiasm of farmers in cultivating healthy rice plants using a significance level of 5%. Farmers in Braja District The results showed that from multiple linear regression analysis, tcount < ttable with a value of 1.727 < 1.99962 was obtained. Based on the results of the field trip, it is known that the length of farming does not affect farmers to implement healthy rice cultivation using a significance level of 5%. Many of the research results show that length of farming influences the behavior of farmers in conducting their farming, such as research by Damayanti (2021) which states thatThe old factor of farming has a real relationship with the adaptation behavior of farmers with the old category, meaning that farmers have mature experience in carrying out farming activities.The length of time the farmers have been farming in Braja Selebah and Sekampung Udik Subdistricts, East Lampung Regency is already in the old category because the majority of farmers already have farming experience ranging from 20-37 years. This of course cannot fully become a benchmark for farmer behavior in implementing healthy rice cultivation. According to the farmers when interviewed, they stated that what made them want to implement healthy rice cultivation was because their inner motivation wanted to accept change for the better by producing healthy food for themselves, their families and the community. In addition to self-motivation, government assistance, encouragement from field officers, in this case the Plant Destruction Organism Control and Field Agricultural Extension, and the support of strong farmer groups to jointly learn to implement the cultivation of these healthy crops in the hope of reducing production input costs, managing Plant Destructive Organisms, and protecting the soil from getting damaged due to continuous use. This is reinforced by the research of Farhana, et al. (2022) which states that how much and how long experience and ability do not affect the way farmers behave towards cultivation and the risks because it is influenced by other factors. This means that in this study the length of farming is not the main factor influencing farmer behavior in implementing healthy rice cultivation. and keep the soil from getting damaged due to continuous use. This is reinforced by the research of Farhana, et al. (2022) which states that how much and how long experience and ability do not affect the way farmers behave towards cultivation and the risks because it is influenced by other factors. This means that in this study the length of farming is not the main factor influencing farmer behavior in implementing healthy rice cultivation. and keep the soil from getting damaged due to continuous use. This is reinforced by the research of Farhana, et al. (2022) which states that how much and how long experience and ability do not affect the way farmers behave towards cultivation and the risks because it is influenced by other factors. This means that in this study the length of farming is not the main factor influencing farmer behavior in implementing healthy rice cultivation.

3.1.3 Level of education

The results showed that from multiple linear regression analysis, tcount < ttable was obtained with a value of 2.299 < 1.99962 (Table 5). This means that the level of education influences the behavior of farmers in implementing healthy rice cultivation. The level of education influences the behavior of farmers because the high level of a person's education will affect a person's behavior towards their environment. A high level of education will bring someone to an innovation and be able to implement it (Triana, 2017). Someone will behave according to the desired mindset. This is in line with the research by Widyasti and Sriyono (2015) which states that there is a relationship between education level and community participation in the Clean River program in Kalireyeng and is stated to be accepted or correlated. Strengthened by the results of Hadiyati's research (2011) which states that education can further expand interaction. Because the education level of farmers in Braja Selebah and Sekampung Udik Subdistricts is the majority up to Junior High School level which can be said to have fulfilled the 9 year compulsory education so they do not experience difficulties in interacting in accepting innovation by continuing to want to learn in every process supported by any factors.

3.1.4 Cosmopolitan Level

The results showed that the multiple linear regression analysis obtained $t_{value} < t_{table}$ with a value of 2.002 < 1.99962 (Table 5). This means that the cosmopolitan level influences the behavior of farmers in implementing healthy rice cultivation. Based on the results of fieldwork, it is known that the cosmopolitan level of farmers in Braja Selebah and Sekampung Udik sub-districts of East Lampung Regency is mostly in the cosmopolitan category. The cosmopolitan level influences farmer behavior because there is a will within oneself to seek information related to healthy crop cultivation through the mass media, electronic media, discussion forums, among farmers, from field officers or related agencies. This makes farmers' knowledge more extensive which will affect attitudes and also skills to do something. This is in accordance with the statement of Anggreini and Maryanti (2014) which explains that the level of cosmopolitan is a trait that describes the openness of farmers to the environment that is outside their social system. This trait describes individuals who have broad insights and knowledge that come from various regions and different backgrounds. This is reinforced by the research results of Suharyani and Oktoriana (2018) which state that the cosmopolitan level of the respondents has a significant effect on the farm management decisions made. The higher the level of cosmopolitanity, the higher the level of technology application, the more often respondents search for information related to farming activities and have a big influence on the application of technology to their farming.

The results of multiple linear regression analysis can be seen in Table 5. The function model of farmer behavior in implementing healthy rice cultivation in East Lampung Regency systematically is :

$$Y = -29.433 - 0.125X1.1 + 2.941X1.2 + 0.837X1.3 + 0.657X1.4$$

This equation means that:
1) If there is an increase in the level of education by 1%, it will affect the behavior of farmers by 2.94% to implement healthy rice cultivation.
2) If there is an increase in the cosmopolitan level of 1%, it will affect farmer behavior by 0.657% to implement healthy rice cultivation.

Table 1. Distribution of the number of respondents by age

Category (year)	Number (soul)	Percentage (%)
0-14	0	0
15-64	66	95.65

>65	3	4.35
Total	69	100.00

Source: Primary data analysis, 2022.

Table 2. Distribution of the number of respondents based on education level

Category	Number (soul)	Percentage (%)
Elementary School	16	23,18
Junior High School	31	44,92
Senior High School	22	31.90
Total	69	100.00

Source: Primary data analysis 2022.

Table 3. Distribution of the number of respondents based on length of farming

Classification	Intervals	Respondents (people)	Percentage (%)
New	2 – 19	23	33,33
Long	20–37	33	47,82
Very long	38–55	13	18.85
Total		69	100

Source: Primary data analysis 2022.

Table 4. Distribution of the number of respondents based on the cosmopolitan level

Classification	Intervals	Respondents (people)	Percentage (%)
Not Cosmopolitan	9 – 22	22	31.90
Cosmopolitan	23 – 36	28	40,60
Very Cosmopolitan	37–50	19	27.50
Total		69	100

Source: Primary data analysis 2022.

Table 5. The results of the regression analysis of farmer characteristics that influence farmer behavior in implementing healthy rice cultivation

Variable	Coefficient	t	Significant	VIF
Constanta (C)	-29,433	-1.006	0.000	
Age ($X_{1.1}$)	-0.125	-,272	0.786	4,533
Education level ($X_{1.2}$)	2,941	2,299	0.025*	1,823
Lenght of farming ($X_{1.3}$)	0.837	1,727	0.089	5,671
Cosmopolite level ($X_{1.4}$)	0.657	2,002	0.050*	1,478
F value	17,376		0.000	
R square	0.666			
Adjusted R-Square	0.628			

Note = * : Significant effect

CONCLUSION

The results showed that the influence of farmer characteristics did not all influence farmer behavior in implementing healthy rice cultivation. There are four factors from the characteristics of farmers that affect farmers are influenced by the level of education and cosmopolitan level. That is, if the level of education and cosmopolitan level of farmers increases, the behavior of farmers in implementing healthy rice cultivation will be higher.

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