# FARMERS PERCEPTION AND SUSTAINABILITY STRATEGY ON AGRICULTURAL DEVELOPMENT PROGRAM IN RURAL

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#### ABSTRACT

This article aimed to describe the agricultural development program, to measure the farmers' perception of the agricultural development program, and to describe the strategy of the agricultural development program. This research was conducted in the Indralaya district of Muara Penimbung village Ogan Ilir Regency Indonesia by used a survey method. Involving 30 farmers as the samples by simple random sampling. Data processing is performed by scores and described in a descriptive. The results showed that the agricultural development program implemented were sufficiently varied to improve the well-being of farmers. These programs were Field School of Integrated Crop Management (SLPTT) and Village Irrigation Network. The farmers have good perceptions of the implementation of the agricultural development program is implemented involving key informants and a Field Agricultural Extension (PPL). The strategy of the agricultural development program is to conduct the internal assessment, group farmers together, rotate groups on the program and create high-quality, location-specific products.

Keywords: agricultural, development, implementation, perception, strategy.

#### **INTRODUCTION**

The existence of changed behavior in society has an impact on the state of mind in response to the changing. Indonesia is an agricultural country, the agricultural development sector has moved to human resources as actors of development. This is supported by the development program launched by the government to increase the income which applied diffusion of innovation. According to Talaviya *et al.*, (2020) that agriculture plays a significant role in the economic sector.

The linked mindset of farmers, many issues are often found in various development programs, especially between program goals, farmers perception, and program implementation, sometimes still a lot were not consistent so the program's success did not reach its full potential. To increase the income and well-being of the community, the government has distributed various development programs.

The government development program can be applied in all Indonesian areas that are adapted to the conditions of each region. The farmers tend to implement the knowledge, attitudes, and skills in traditional farming so it becomes a habit. This is what makes it difficult for farmers to make changes by the recommendations of change agents, in this case, the agricultural extension agents. Extension workers play an important role in behavior change and the dissemination of agricultural development programs so that they can be adopted by farmers. Based on the research of Padillah *et al.*, (2018), that the level of farmers' perception of the role of extension workers in increasing rice production was good, it means that the extension workers had played a sufficient role and fulfilled their roles by their main tasks and functions in the food production of paddy, corn and soybean program to increase rice production.

South Sumatra is one of the regions that has experienced various agricultural development programs in Ogan Ilir Regency, Muara Penimbung Ilir, and Muara Penimbung Ulu village. The aim of the program is not only changed behavior but to repair farmer's facilities and infrastructure. Ogan Ilir Regency has a potential area for rice and implemented the agricultural development program. The success of various existing development programs is necessary to examine the types of programs that have been implemented, farmer perceptions, and sustainable development program strategies for the Muara Penimbung Ilir and Muara Penimbung Ulu Village Ogan Ilir Regency.

#### **MATERIALS AND METHOD**

This research is located in Muara Penimbung village Indralaya district Ogan Ilir regency. The research method was a survey method *in* which the sampling technique used simple random sampling by choosing five members from five farmer groups which were obtained, 30 respondents. Primary data were collected directly from interviews through a *questionnaire* and in-depth interviews. Secondary data is obtained by information and data in agencies related to the topic of research.

The data obtained were analyzed in a systematic, descriptive, and data tabulation. The first aim of the research was to analyze descriptively using 5W + 1H which is seen in the history of the program, implementation of the program, charity programs, the accompaniment programs, and the implementation of the program. The second aim of the research was to measure farmer's perception in the implementation of the agricultural development program by using the Likert scale. The analysis of farmer perception through three indicators, namely: 1) Socialization, 2) Implementation, 3) Evaluation. These indicators are divided into five class intervals with a score of 80,01-100.00 for a very good, a score of 60,01-80,00 for good, a score of 40,01-60,00 for neutral, a score of 20,01-40.00 for bad, score of 1,00-20,00 for worst. The data are transformed from ordinal to interval by score transformation index (Sumardjo, 1999).

#### **RESULTS AND DISCUSSION**

#### **Characteristics of farmers**

Farmers who participated in the agricultural development program that exists in Muara Penimbung village were the farmers farming rice. The characteristics of farmers are based on age, education, land area, and experience.

#### Age

Age is an important factor in the conduct of agricultural activities. According to Soekartawi (1988), a farmer's age affects his physical working capacity and psychological maturity. The farmers ranged in this study from 37-62 years old. The distribution of the population aged from 15-64 years is considered the productive age as working capable, while over 64 years do not

have the age of the working population. Based on Figure 1, it can be seen that the age of the farmers is in the middle category was 11 people (37%) aged 46-56, 10 people (33%) are 37 years old, 45 years in the youth category, and 9 people (30%) aged 57-62 in the adult category.



Source: Author analysis, 2019 Figure 1. Characteristic of farmers

# Education

Education is an aspect of life that individuals live and aims to educate themselves. The higher the level of education can be influenced by the level of knowledge. In this study, the farmer education was various, ranging from elementary school (SD) to senior high school (SMA). Based on Figure 1, it can be seen that primary education has more farmers than other education, were 15 people (50%). This shows that the level of education of the farmers is still low due to the lack of funds to move to the next level and that at the time the school fees were not yet free as they are now. Besides, the school is not yet available in the village and had to go to another village which has a long distance to school. Most farmers have completed junior secondary school (SMP), 13 people (33,33%). The farmers who have studied senior high school were the smallest percentage, which is only 6,67 percent or 2 people. This is different from the current educational progress which is required to 12 years of education. Where it is considered that high school graduates always have better and more employment opportunities.

### Land area

The land area is the size of the land that used to do agriculture where the large land that farmers cultivated and affecting the production of farmer's income. This is in line with the research findings of Damanik (2014), Saputra & Wardana (2018), the larger the farmer's land, the higher the products produced. The area of land cultivated by lowland rice farmers in agricultural development programs ranges from 0,5-2 hectares and the average area of land cultivated by farmers is 1,27 hectares. Based on Figure 1, the area of less than 1 hectare is the least land owned by farmers, only 4 people or 13,33 percent, while the land area < 2 hectares is owned by 19 farmers or 63,34 percent that is the dominant. Very few farmers own large areas of more than 2 hectares or more, only 23,33 percent.

### Experience

The success of farming depends on the experience of farming. According to Rakhmat (2005), experience affects the accuracy of perception. Based on field data, each farmer has different experiences. The agricultural experience of farmers varies from 4-40 years. Based on Figure 1, shows that 14 people have less than 16 years of experience. This shows that of all farmers, the dominant is with little experience, namely 4-16 years. Farmers who have experience from 27-40 years as much as 7 peoples are the farmers with low experience of agriculture. The farmer experience average was 20 years.

#### **The Program Implementation**

Program ever held in Muara Penimbung District Indralaya Ogan Ilir form of an increase in human resources with implemented Field School of Integrated Crop Management (SLPTT) and the infrastructure in manufacturing by Village Irrigation Network (JIDES), the fish farming program, seeds captivity improvement, and the application IP-200. Based on the programs that have been implemented, the SLPTT program implements various components of agricultural technology through the use of efficient production inputs according to the location specifics to produce high productivity to support a sustainable increase in production (Balitbang, 2007).

Field School of Integrated Crop Management (SLPTT) is an agricultural innovation system directed mainly to improve rice production by applying bottom-up and the farmer's participative communication approach (Muchtar, 2016). The farmer field schools (SL) aim to change behavior and promote improved productivity among smallholder farmers (Zahra, 2018). SLPTT is a program that involves and improves the capacity of farmers. The agricultural development program is an empowering force that can increase the capability of farmers. It is according to the research findings of Hermanto & Dewa (2011), empowerment is a process of mentoring efforts to increase the capacity and capacity of farmers to be better. According to Desiana & Aprianingsih (2017), The most important empowerment strategy of the farmer's group was the understanding and knowledge of the conceptual model need to be increased among policymakers, practitioners, and government for developing agriculture in Indonesia by comprehensively organizing relevant theories on farmer's group behavior through empowerment strategy. Also this conceptually the farmer's group empowerment can be improving their income.

The Integrated Plant Management Field School (SLPTT) is a non-formal education for farmers to improve their knowledge and skills in recognizing potential, compiling farm plans, solving problems, decision making, and application of technology consistent with local resource conditions synergistically and ecologically for agriculture to become efficient, productive and sustainable.

SLPTT in Muara Penimbung Ulu village took place in 2008, 2011, 2012, 2013, and 2016. The activities of the SLPTT were no different from the previous year, the activities carried out by the field agricultural extension took the form of teaching and learning activities between farmers and field agricultural extension. SLPTT has a pre and post-assessment activities program and certificates. Before the SLPTT, it is necessary to register farmer groups and their member as participants, including the name and area of cultivated land, comparative studies, or visits on the ground. The requirements for participants in the SLPTT program come from members of the farmers' group from Muara Penimbung Ulu village.

SLPTT activities recognize the term of Field Laboratory (LL), which is an expanse of paddy fields that were practiced in the field school. The paddy area that has been selected as LL will be used as an experimental field for example and as a farmer learning to farm. In the field schools, who act as students are the participating farmers while the teachers are the field guides, but in the teaching and learning activities there is no barrier between the teachers and students, as farmers can also become teachers for other participating farmers by providing feedback in the field.

The rice cultivation models carried out by the farmers of Muara Penimbung Ulu village are supervised by field agricultural extension. The use of good quality seeds that have been allocated to the SLPTT program by planting rice using the "legowo" grid system with a distance of 20 cm x 20 cm, balanced fertilization, and maintenance of arable land. The skills required of farmers participating in SLPTT to implement PTT are the skills needed to bring PTT to their farms and other farmer's lands. Therefore, the farmers participating in SLPTT spend their time applying the technology in the field and only a small part of the time is spent in class discussing aspects related to agriculture such as cooperatives, Gapoktan, farmer groups, and the marketing of products.

The field agricultural extension will come to supervise the activities that have been carried out and evaluate the farmers every two weeks. Farmers participating in SLPTT are encouraged to become accustomed to analyzing the ecosystem and assessing the productivity and effectiveness of the technology being tested on the laboratory field plots and applying it on their land. Practical learning methods the SLPTT activity is designed in such a way that farmers can easily understand the problems encountered in the field and determine the technology that will be applied to overcome these problems. For example, how do farmers know the condition of crops that lack fertilizer, the relationship between climate and the presence of pests, or how they can determine soil fertility. The establishment of the Village Irrigation Network in Muara Penimbung Village aims to develop wetlands for agricultural enterprises, especially large-scale food crops, which require land arrangement and management networks. the water and the application of technology by regional conditions to obtain maximum results. The irrigation network in Muara Penimbung village has been built with the passage of the SLPTT program.

Muara Penimbung village is one of the villages that has tried to apply the rice of the IP 200 development program. The IP 200 development program is a twice cropping system in one year program that aims to increase the intensity of rice planting for one year. Previously, it was used to apply the planting index once a year (IP 100). IP 100 is a rice planting activity, where the farmers only plant rice in their agricultural activities, which is once a year. According to the research results, this IP 200 can not be fully put implemented, due to various constraints related to natural factors such as pests and water resources, so that farmers continue to practice IP 100 rice cultivation, which only plants once a year.

### Farmer perceptions in implementation of agricultural development programs

Perception is the process of forming the impression Rakhmat (2005), which is transmitted to farmers on an ongoing activity, in case it is an SLPTT program. The perception of the farmer's SLPTT program to identify and access that the program is acceptable as a program that is beneficial to the community. Perceptions of farmer's program SLPTT in the village of Muara

Penimbung, District of Indralaya, Ogan Ilir Regency have been implemented for a long time because it is a government program that aims to grow the community. The community perception of this government program is in good criteria with a score of 64,06, it shows that the farmers are always hoping for the existence of planning programs. Farmers always play an active role and are directly involved in every activity so the areas where government programs are implemented are more advanced than others. The farmer's perceptions towards agricultural development programs are measured using three indicators, namely socialization programs, implementation programs, and evaluation programs. These three indicators indicate the success of the program what extent the community is involved in the implementation of the government program. It is consistent with the results of the research Fachrista & Sarwendah (2014) that the farmers have a positive perception of the innovative technology of PTT paddy from fields where farmers consider that PTT rice paddy profitable, not complicated, easy to try, easy to see the results, not contrary with the local's tradition value and according to the community needs. The farmer perceptions of the SLPTT program can be seen in Table 1.

No	Perceptions of farmers	Score	Criteria
1	Program socialization	63,19	Good
2	Program implementation	66,50	Good
3	Program evaluation	62,50	Good
	Average	64,06	Good

Table 1. Farmer perceptions of the agricultural development program in MuaraPenimbung village.

Source: Author analysis, 2019

Farmer's perceptions of agricultural development programs are on average in good criteria where the program implementation indicator has the highest score, namely 66,50 compared to the socialization and program evaluation indicators. Indeed, the implementation program is the implementation phase of a program so that the changes that occur are visible, compared to the socialization phase which is an introduction. The tendency of farmers to see hard evidence rather than achieve something is more attractive to farmers.

# Socialization program

The socialization program is an indicator to determine farmer perceptions of agricultural development programs. The socialization program is measured through four parameters, namely the program form, the method of socialization, the involvement of community leaders in socialization, and the intensity of the socialization program. The farmer's perceptions on the socialization of agricultural development programs in Muara Penimbung village can be seen in Table 2.

No.	The description	Score	Criteria	
1	Program form	69,25	Good	The program is based on
				farmers real need
2	Method of socialization	70,00	Good	Key informant approaches
3	Involvement of community	59,25	Neutral	High participation
	leaders			
4	Intensity of socialization	54,25	Neutral	Intensive once a month
	Average	63,19	Good	The method of socialization
				and program formation is good
				and needs to be improved

# Table 2. Farmer perceptions of the socialization of agricultural development programs in Muara Penimbung village.

Source: Author analysis, 2019

Based on Table 2, it can be seen that the farmer's perception of the socialization of government programs is good with an average score of 63,19, It shows that the farmer's support and hope of the agricultural development program even though the program does not meet the farmer needs yet. The socialization of the agricultural development program in Muara Penimbung village went well place where the parameters of the socialization process have the highest score is 70,00. It shows that the program provided can be accepted by the local community, so it must be done with an approach to informant key as the leading community and extension field agent (PPL). The leader community and extension field agent are among the persons whom the community trusts because they tend to be close to the farmers, especially about agricultural innovation. According to Manolang (2013), the role of the leader community is to increase the knowledge in terms of development planning so its implementation can be carried out by the rules and values of the society. Based on Anwarudin & Dayat (2019) the participation of farmers in extension activity is high.

The agricultural development programs are the activities that promoted the new program aimed at increasing the production, income, and well-being of the local community. The forms of agricultural development programs that have been implemented are the Integrated Plant Control Field School (SLPTT) program, the rice paddy irrigation program, IP 200 development program, the village irrigation network program (Jides). The program brought many changes in terms of knowledge, attitudes, and skills. According to research by Hakim & Oktarina (2015a); Teka & Lee (2020) the farmer's perception as communicators is very satisfied with the program and participation in the SLPTT program. The farmers tend to be excited about the success of the program which made changes to the welfare of farmers. It's has been implemented in agricultural management which includes planning, organization, management, and supervision, which is good for the implementation and distribution to other farmers. Besides, participation heterogeneously affected households' welfare across different marital statuses.

#### **Implementation program**

The implementation program is the second step after the socialization program. Farmers' perception on the implementation of agricultural development programs that are in good criteria with an average score of 66,50. It shows that the community is highly enthusiastic about implementing agricultural development programs. According to the research results of Adwiyana *et al.*, (2016) that the participation of farmers at the implementation stage was in a good category, because the farmers' participation in these activities according to the guidelines and was accompanied by extension agents in the implementation of plant activities. Besides, the farmers were not participatory but the program must go on. Depends on the research result of Sadono *et al.* (2014) that farmer groups were not adequately involving their members in group activities and the effect of the participants as low. The farmer's perception of the implementation of agricultural development programs can be seen from four parameters which are the implementation, the companion availability, the community participation, and the availability of facilities and infrastructure.

# Table 3. Farmer perceptions of the implementation of the agricultural developmentprogram in Muara Penimbung village.

No.	The description	Score	Criteria	
1	Program implementation	67,50	Good	High community participation
2	Companion availability	66,75	Good	High credibility companion
3	Community participation	70,00	Good	The enthusiasm of the community and join in farmer group and
4	Availability of facilities and infrastructure	61,75	Good	cooperation Farmer have easy access to using facilities and infrastructure
	Average	66,50	Good	The implementation of the program is following the program instruction

Source: Author analysis, 2019

Based on Table 3, it can be seen that the highest score by farmers on the implementation of agricultural development programs is community participation with an average score of 70,00. It indicates that the presence of any government program, especially the rural farmer groups has received charity to support the implementation of the program. Support for each program varies depends on the program being implemented. Along with the implementation of the dissemination of government program as integrated program agriculture in the district of Muara Penimbung Indralaya with the charity in the form of rice seeds, fertilizer, and agriculture tools.

The success of the implementation program of the agricultural development program is inseparable from the companion availability and community engagement where the community activities were in groups to work according to the program planning. The involvement of the public who either shows that the community has a level of participation in the implementation activities of the program is also high. This is following the research findings of Simanjuntak & Witjaksono, (2016) that participation is high due to farmers interested in trying something new to get that much better harvest results.

The companion availability as assistants in the work of an integrated agricultural program where there are rice paddies that can directly use the fish is to change the mindset of the community, advance the village economy, increase income and develop agriculture. For the SLPTT program, with the existence of the field schools, of course, forms the balanced fertilization, the control of HPT, and increases the knowledge and skills of these farmers so that they can ultimately increase production and income. This is in line with the research N. Hakim & Oktarina (2015b), a change in the behavior of farmers in the diffusion of the management of rice field participants Field School of Integrated Plant Control (SLPTT) where farmers behaviors of knowledge, attitudes, and skills are in the high category.

### **Evaluation program**

The evaluation program is the final indicator for observing farmers' perceptions on the implementation of agricultural development programs. Farmers' perceptions of the evaluation of agricultural development programs are good with an average score of 62,50 which is seen from four parameters. The parameters are the program impact, the production increase, the number of membership, and increased income, detailed in Table 4.

No.	The description	Score	Criteria	0 0
		50010		
1	Program impact	61,75	Good	Farmer behavior-changing
2	Production increased	65,00	Good	Farmer can sell the product
3	Number of membership	60,00	Neutral	The serious membership in farmer
				group
4	Income increase	63,25	Good	Income added and profit increasing
	Average	62,50	Good	The evaluation carried out is good
				following the program objectives

 Table 4. Farmer perceptions on the evaluation of agricultural development programs in Muara Penimbung village.

Source: Author analysis, 2019

The farmer's perception of the agricultural development evaluation programs has an impact on the positive activity and addition of farmer group members. The existence of a development program creates farmer groups to increasingly active and the activity is good, especially at the regular meeting on schedule or demonstration. This is consistent with the opinion of Nuryanti and Swastika (2011) according to the community which participates in the program must be a member of farmers' groups. Therefore, the requirements for the farmer's participation in the program's agricultural development is the farmers who are members of a farmers group, to attract the surrounding community. Its shows the high score of the increase in production is 65,00, which currently is the production of rice on average per hectare of 3.200 kg per hectare per year of 'followed with a note of the increase in income of 63,25. The average income of farmers is Rp. 13.580.200/year with an average of Rp. 1.131.683/month. The low income from farming rice is linked to the land swampy are grown and once time to the planting in a year. that of, the farmer believes that every program in the village, they certainly have a positive impact, such as the development of agriculture, their field school, their way of planting

"legowo" line. All the programs that have been carried out aim to increase the production and income of farmers so that the community can thrive.

## Sustainable Strategy on Agriculture Development Program

The success of the development program requires a strategy development that can be performed with another. The program sustainability strategy which can implementation are :

- 1. The government programs tend top-down, which they are not all communities to implement programs. When the program has success evaluated, the program could be tried in the other farmer's group with rotate so that it can be seen by comparing the success of the program between the farmer groups. Ultimately obtained the success of the program in each village should be used as a distinctive character of the area as specific and superior products.
- 2. The charity for the implementation of the program is often arrived late, impeding on farming. Therefore, it is necessary to set up production facilities or loan inputs from cooperatives or related agencies. It is to prevent the aid from lenders or intermediate premises.
- 3. The program is given on the target concerning "gapoktan" and field agricultural extension and there is no social jealousy. It is related to the equalization for all groups that there can be active and dynamic.
- 4. Lack of capital hurts farmers. Therefore, it is necessary to have a cooperative or a savings and loan enterprise that can accelerate agriculture. According to Dinata, A.S., (2014) have stated that the majority of cooperatives provide companies providing fertilizers.
- 5. The government should make the clusterization region with the advantage of commodities that make it easier if there is a sustainability program.
- 6. The evaluation of the members of farmer groups involved in the agricultural development program should be carried out so that the participants are serious and enthusiastic about the success of the program.
- 7. The evaluation should be completed and then the program will be grouped according to the participant's severity level of the program so the success of the program is more quickly achieved.

### CONCLUSION

There are several types of agricultural development programs that have been implemented in Muara Penimbung Village ranging from variety testing, development of higher quality seeds, the SLPTT program, irrigation, rice field programs, and village irrigation network programs (Jides). The perception of farmers on agricultural development programs in Muara Penimbung village is good with a score of 61,79. The strategies that can be applied include the internal evaluation, manufacturing farmers' cluster area with a specific location, the group rotations program, and the advantage of commodities as a product basis.

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