

# The Influence of Participatory Technology and Institutional Participation of Farmer Groups on Farmer Business Development

## Pengaruh Teknologi Partisipatif dan Partisipasi Kelembagaan Kelompok Tani Terhadap Pengembangan Usaha Tani

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### ABSTRACT

*Janti Village, Jogoroto, Jombang has a corn productivity of 2020 reaching 84.5 Kw/Ha, this achievement exceeds national average corn productivity. However, this is inversely proportional to the unstable price of corn, which can even be far from the normal price. Besides, the lack of farmer participation makes the problem drag on longer. The existence of farmer group institutions is very important to solve this problem. In addition, the application of participatory technology to farmers also provides clear goals for future agricultural production activities. Therefore, it is necessary to be active and participate in the Janti Village farmer group members. The purpose of this study is to describe the influence of participatory technology (discussions, workshops, and action planning) and institutional participation of farmer groups (participation in planning, implementation, utilization of results, and evaluation) on farming development (social, economic, and environmental) in Janti Village, Jogoroto District, Jombang Regency. The research method uses descriptive quantitative data collection techniques namely interviews, observation, and questionnaires. Previously, the questionnaire had to be tested for validity and reliability tests to support the validity of the research data obtained. The sampling method used is a simple random sample. Then the data analysis used is multiple linear regression analysis using the ordinary least square method including data tabulation, estimation of multiple linear regression models, classical assumption tests, regression feasibility tests, and interpretation of multiple linear regression models. Results showed that there was no significant effect if independent variables moved independently on dependent variables. Meanwhile, if independent variables move simultaneously, there will be a significant influence between participatory technology and the institutional participation of farmer groups in the development of farming businesses.*

**Keywords:** farmer, institutions, participation, participatory technology



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## INTRODUCTION

The existence of the agricultural sector is very important in meeting human food needs. This condition must be supported by a concept that encourages both the main actors and business actors to increase their farming business. Therefore, Indonesia has launched the concept of agricultural development. According to Sapja (2011), it is necessary to base on the orientation of agricultural development in Indonesia today, which is based on the agribusiness system, so the role of agricultural institutions, including farmer institutions, will determine the success of agricultural development. Farmers' institutions in rural areas contribute to the acceleration of the socio-economic development of farmers; accessibility to agricultural information; accessibility to capital, infrastructure, markets, and adoption of agricultural innovations. In addition, the existence of farmer institutions will make it easier for the government and other stakeholders to facilitate and provide strengthening for farmers.

Agricultural institutions are norms or habits that are structured and patterned, then practiced continuously to meet the needs of community members who are closely related to livelihoods from agriculture in the countryside. In the life of the farming community, the position and function of farmer institutions are part of the social institutions that facilitate social interaction and social interplay in a community. Agricultural institutions also have a strategic point (entry point) in driving the agribusiness system in the countryside. For this reason, all existing resources in rural areas need to be directed/prioritized in order to increase professionalism and farmers' bargaining position (Nasrul, 2012).

Farmer group development aimed at the application of the agribusiness system, increasing the role, and participation of farmers and other members of rural communities, to foster cooperation between farmers and other related parties to develop their farming. In addition, farmer group development is expected to help explore potential, solve farming problems of its members more effectively, and make it easier to access information, markets, technology, capital and other resources (Ministry of Agriculture No. 273 of 2007).

One of the ways to increase the participation of farmers in farmer group institutions is by using participatory technology. Participatory technology is a method that can reduce big ideas about participatory processes into technical steps that are easy to implement. The participatory technology method includes discussion methods, workshops, and action planning, which is applied dynamically; it is not a rigid stage, but a continuous process of building institutions that strengthen the production, distribution and consumption systems through export market. These methods are done formally but more effectively informally (Indriana, 2015).

One of the problems in managing agricultural resources is the problem of unsupported agricultural institutions, one of which is farmer institutions (Sapja, 2011). This problem often occurs in Janti Village, Jogoroto District, Jombang Regency. Corn is the leading commodity for Janti Village due to the higher demand for corn. The Janti Village Agricultural Extension Program (2020) shows that corn productivity in 2020 reached 84.5 Kw/Ha, this achievement exceeds the average national corn productivity. However, this is inversely proportional to the price of corn which is unstable and can even be far from the normal price. The institutional existence of farmer groups is very important to solve this problem. Besides that, the application of participatory technology to farmers also provides clear objectives for future agricultural production activities. Therefore, it is necessary for the farmers to be active and participate in a farmer group of the Janti Village. So later a farming business innovation can be formed to increase the selling value of corn commodities. Besides, farmers can be independent in managing their farming business in the future, and they do not need to worry about the price of corn dropping. Participatory technology and farmer institutions are also a means of forming a conducive social, economic, cultural and farmer environment in accordance with the goal of bottom-up development where farmers are the main actors who fully participate in problem solving, institutional improvement of farmer groups and the development of their farming business.

This research is located in Janti Village, Jogoroto District, Jombang Regency and the focus of the research is on farmer groups in Janti Village who are currently experiencing institutional problems due to low participation. The location selection was based on the following considerations: (1) The large number of potential farming businesses that could be developed, (2) The low institutional participation of farmer groups, (3) The lack of knowledge about benefits of farmer group institutions, (4) Low development of farming business. The objectives of this study are as follows: (1) knowing the effect of participatory technology including discussion methods, workshops and action planning on farming business development, (2) knowing the influence of farmer group institutional participation including

participation in planning, implementation, utilization of results, and evaluation of business development farmers, and (3) knowing the effect of the application of participatory technology and institutional participation of farmer groups on the development of corn commodity farming in Janti Village, Jogoroto District, Jombang Regency. The purpose of this study is to describe the influence of participatory technology (discussions, workshops, and action planning) and institutional participation of farmer groups (participation in planning, implementation, utilization of results, and evaluation) on farming development (social, economic, and environmental) in Janti Village, Jogoroto District, Jombang Regency.

## RESEARCH METHODS

The research is located in Janti Village, Jogoroto District, Jombang Regency, especially in the Janti Village farmer group including the Janti Farmer Group, Corogo Farmer Group, and Gerih Farmer Group. Data collection techniques are interviews, observations, and questionnaires. Firstly, the questionnaire was tested for validity and reliability testing to support the validity of the research data obtained. The sampling method used was a simple random sample. Then the data was analyzed using multiple linear regression with the ordinary least square method including data tabulation, estimation of multiple linear regression model, classical assumption test, regression feasibility test, and multiple linear regression model interpretation. As described, the regression analysis is aimed at seeing the effect of the participatory technology variables (Discussion, Workshop, and Action Planning) and the farmer group institutional participation variable (Planning Participation, Implementation, Utilization of Results, and Evaluation) on the variables of farming development of corn commodity. There are two hypotheses in this research, namely (1) Participatory Technology has an effect on the development of farming business, and (2) Institutional Participation of Farmer Groups has an effect on the development of farming business.

## RESULTS AND DISCUSSION

### The Effect of Participatory Technology on Farming Business Development

In this research, participatory technology consists of discussion, workshops, and action planning. The data that has been obtained from the respondents, namely the farmers of Janti Village, Jogoroto District, Jombang Regency, is analyzed with multiple linear regression. Then the results are obtained from data analysis on the effect of participatory technology on the development of farming, where each variable gives a partial influence on the dependent variable. The results of multiple linear regression analysis on the effect of participatory technology on farming business development and the following conclusions can be drawn.

**Table 1.** The Effect of Participatory Technology on Farming Business Development

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	10.877	2.982		3.648	.001		
Discussion (X1.1)	.131	.221	.089	.593	.556	.536	1.866
Workshop (X1.2)	.239	.216	.148	1.108	.273	.675	1.482
Action Planning (X1.3)	.137	.216	.088	.635	.528	.630	1.588

Source: Data processed, 2022

The table above is the result of multiple linear regression analysis about the influence of participatory technology on farming development. Several things can be concluded:

**Discussion.** The result of the sig value and the t table value shows that the discussion variable has no effect on the development of farming businesses. In the opinion of Indriana (2015) discussion can be defined as discussing problems, feeling the negative impact of problems, taking steps to overcome problems, and determining the solution to a problem. Discussion is a meeting held to exchange opinions about an activity to be held or to collect suggestions to solve problems (Malia & Rahayu, 2019). This is

not in line with the condition of the farmers of Janti Village who still have difficulties or are not accustomed to discussing or exchanging ideas. On the other hand, non-routine farmer group meetings make the communication power between farmers to solve problems still tend to be low. This results in misunderstandings and can affect the level of development of their farming business.

**Workshop.** The result of the sig value and t table value shows that the workshop variable has no effect on farming business development. A workshop is a small scientific meeting. A group of people who have the same concern comes together under the leadership of several experts to explore one or more specific aspects of a topic (Taufik, 2015). This is not in line with the field conditions that the farmers of Janti Village independently still find it difficult to develop and explore their creativity in self-capacity development. This is indicated by the low attendance of Janti Village farmers every time the agricultural extension center holds counseling, field schools, or training. At other times, farmers will choose sufficient time to be able to participate in these activities. As a result, programs that are held in an effort to develop farming businesses do not run smoothly. Therefore, it is necessary to approach and facilitate activities to build the capacity of farmers in an easy and friendly manner so that it can attract interest in farmers' self-capacity development activities.

**Action Planning.** The result of the sig value and the t table value shows that the action planning variable has no effect on the development of the farm. The action planning method is to develop a real plan after a consensus has been reached on the program idea, to create a clear form of accountability, and to initiate joint action in groups (Indriana, 2015). This is not in line with the field conditions where the farmers of Janti Village are still not interested in participating in and managing an activity. There are still frequent misunderstandings because farmers still do not have a close relationship in supporting an activity of a farmer group. In achieving independence, it is necessary for the farmers of Janti Village to be active and independent in managing activities or making self-capacity development activities. Managing activities is also necessary to improve the development of farming businesses so that the relationship between farmers can be stronger.

**Participatory Technology for Farming Business Development.** The results of multiple linear regression analysis show the value of  $\text{sig} < 0.004$  and the value of  $f \text{ arithmetic} > f \text{ table}$  with  $f \text{ arithmetic i.e., } 4.936$ . These data indicate that participatory technology can significantly and positively affect the development of farming. It can be interpreted that the better the application of participatory technology, the better the development of farming businesses. Thus, it can be concluded that in increasing the participation of farmers, participatory technology is certainly needed so that it can also affect the development of their farming business. Collaboration between methods in participatory technology applied together will yield significant results. The table above also shows the acceptance of the hypothesis about the influence of participatory technology on the development of farming. In this research, the institutional participation of farmer groups consists of planning, implementation, utilization of results, and evaluation. The data that has been obtained from respondents, namely farmers in Janti Village, Jogoroto District, Jombang Regency, has been analyzed with multiple linear regression. The results of data analysis on the effect of institutional participation of farmer groups on the development of farming show that each independent variable gives a partial effect on the dependent variable.

**Table 2.** The Effect of Participatory Technology on Farming Business Development

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	73.806	3	24.602	4.936	.004 <sup>b</sup>
1	Residual	279.128	56	4.984		
	Total	352.933	59			

Source: Data processed, 2022

### The Effect of Institutional Participation of Farmer Groups on Farming Business Development

In this study, the institutional participation of farmer groups consists of planning, implementation, utilization of results, and evaluation. The data that has been obtained from respondents, namely farmers

in Janti Village, Jogoroto District, Jombang Regency, has been analyzed by multiple linear regression. The results of data analysis on the effect of institutional participation of farmer groups on the development of farming show that each independent variable gives a partial effect on the dependent variable.

**Table 3.** Effect of Farmer Group Institutional Participation on Farming Business Development

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	10.877	2.982		3.648	.001		
Planning (X2.1)	.195	.317	.095	.615	.542	.504	1.984
Implementation (X2.2)	.002	.219	.002	.009	.993	.369	2.711
Utilization of Results (X2.3)	.435	.288	.214	1.509	.137	.604	1.656
Evaluation (X2.4)	.326	.228	.233	1.426	.160	.453	2.206

Source: Data processed, 2022

The table above is the result of multiple linear regression analysis about the influence of participatory technology on farming development. Several things can be concluded:

**Planning.** The result of the sig value and the t table value shows that the participation variable in planning does not affect the development of the farming business. In Suryapermana's opinion (2017), planning contains a series of broad decisions and explanations of objectives, policy determination, program determination, determination of certain methods and procedures, and determination of activities based on daily schedules. Planning here emphasizes efforts to select and connect something with future interests and efforts to achieve it (Qasim & Maskiah, 2016). This is not comparable to the condition of the farmers of Janti Village who are still difficult to participate in planning an activity. The majority of farmers in Janti Village are aged between 45-60 years. Old-age farmers think that they are no longer suitable for carrying out an activity. On the other hand, due to age, activities are limited and productivity decreases, of course, this will hinder activities in participating in planning farmer group activities. Thus, it is necessary to regenerate agriculture to young farmers or provide opportunities for youth to innovate in farming activities. As a result, it will increase participation in institutional planning of farmer groups to support farming business development.

**Implementation.** The result of the sig value and the t table value shows that the participation variable in the implementation has no effect on the development of farming businesses. According to Kalesaran et al. (2015), participation in implementation includes moving resources and funds, administrative activities, coordination and program elaboration. Implementation should put more emphasis on conscious self-will / self-mobilization to carry out activities. This is not comparable to the condition of the farmers in Janti Village who do not have an interest in implementing an institutional activity of a farmer group. This is in line with the low participation in planning. Good institutional activities must begin with good implementation. Because the majority of the farmers in Janti Village are of old age, they think that they are no longer worthy to enter the implementation of farmer group activities. Farmers still depend on farmer group leaders and their staff to take care of their activities. On the other hand, it is also known that changes in the institutional structure of farmer groups have never been carried out even more than a decade ago. If the awareness to participate in the implementation does not change, it will automatically affect the development of farming.

**Utilization of Results.** The result of the sig value and the t table value shows that the participation variable in the utilization does not affect the development of farming business. Participation in taking benefits cannot be separated from the implementation results that have been achieved both in terms of quality and quantity. Quality can be seen from the output, while quantity can be seen from the percentage of success. Community participation in receiving the results of development depends on the maximum distribution of a development result that is enjoyed or felt by the community (Kalesaran et al., 2015). The farmers of Janti Village have a slight inclination towards the activities of utilizing agricultural products. This can also mean that the farmers of Janti Village like things that manage and

utilize agricultural products to increase the income and welfare of farmers. The results of the research show that the farmers of Janti Village have quite a lot of activities to utilize agricultural products by having small businesses or side businesses such as managing young corn, making corn rice, saving and loan units for farming groups and processing corn waste into fertilizer, etc. In this case, farmers are able to cooperate with other farmers to manage the business of utilizing agricultural products. However, the participation in the use of the results was only carried out by a small number of farmers in Janti Village. Therefore, the farmers of Janti Village experience problems in coordination to realize the development of their farming business.

**Evaluation.** The result of the sig value and t table value shows that the participation variable in the evaluation has no effect on the development of farming business. According to Wibowo (2015), evaluation is a planned activity that aims to assess the results that have been achieved by taking into account aspects of the learning process as an integrated thing. According to Kalesaran et al. (2015), Active community participation in evaluating the implementation of development is very important and needed in ensuring the success of development goals. Janti Village farmers hold non-routine meetings to discuss a farmer group activity with extension workers. However, this activity is not an initiative of the Janti Village farmers but from the extension workers. Farmers are aware that evaluation or assessment throughout the activities of the farmer group or farming activities is important. According to the farmers of Janti Village, evaluation is able to assess whether farming activities are appropriate or not; evaluation can also improve coordination in farming to deal with pests by planting simultaneously.

**Institutional Participation in Farming Business Development.** The results of multiple linear regression analysis show the value of sig < 0.004 and the value of f arithmetic > f table with f count i.e., 6.476. Based on these data, it shows that the institutional participation of farmer groups can significantly and positively affect the development of farming. It can also be interpreted that the better the institutional participation of the Janti Village farmer group, the better the development of farming business. Thus, when all stages of institutional participation are carried out simultaneously, it will produce significant results. From the table above, it also shows that the acceptance of the hypothesis about the effect of farmer group institutional participation on farming business development importantly evaluation is used to maintain prices of agricultural crops in the market so that prices become stable, and farmers get a decent yield to continue their farming activities.

**Table 4.** Effect of Institutional Participation with Farming Business Development

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	112.999	4	28.250	6.476	.000 <sup>b</sup>
	Residual	239.935	55	4.362		
	Total	352.933	59			

Source: Data processed, 2022

## CONCLUSION

From the results of multiple linear regression analysis data, it shows that the participatory technology variables which include discussion methods, workshops, and action planning, the sig value is 0.004 and the f-count is 4.936. As a result, there is a significant influence between the variables of participatory technology on the development of farming businesses. From the institutional participation of farmer groups including participation in planning, implementation, utilization of results, and evaluation, it shows a sig value of 0.000 and a calculated f value of 6.476. As a result, there is a significant influence on the development of farming. However, when the sub-variables run independently on the development of farming, the effect will be insignificant. Of course, in terms of the application of variables, it must run simultaneously so that it has a significant influence on the development of farming businesses. Thus, these two hypotheses can be accepted in this study.

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