



Analysis of Farmer's Group Functions in the Adoption Process of Superior Seed Innovation in Waimital Village, Kairatu District, Central Maluku Regency

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Article History:

Submitted: Jan 18, 2023

Accepted: Jan 27, 2023

Published: Jan 27, 2023

Keywords:

Farmer's group; adoption; innovation; superior seed, Inpari Sidenuk

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ABSTRACT

The objective of this research was to analyze the function of farmer groups in the process of adopting superior seed innovation in Waimital Village, including Inpari Sidenuk. The research was conducted in Waimital Village as one of the centers of rice production in Maluku. The research population was all farmer groups who participated in the trial of planting superior seeds of Inpari Sidenuk, there were 11 groups and all of groups was taken as sample with 82 farmers as group member. The data were analyzed using a simple statistical test, namely cross tabulation and then was interpreted according to the research objectives. The results showed that according to the farmers the function of farmer groups (as a vehicle for learning and for collaboration) was useful in general, but in making the decision to adopt or not to adopt a superior seed, including Inpari Sidenuk, there was no farmer group involvement. Each farmer was free to decide whether or not to adopt the new superior seeds. After the trial planting, the majority of farmers did not adopt seeds of Inpari Sidenuk because they worried about the availability of the seed and other production facilities and the difficulties to sell the yields. These worries should be anticipated by farmer groups by increasing the capacity of farmer groups as a vehicle for learning and collaboration. For example, making farmer groups as "farm shops" and as "farm product marketing agents". For this, it is necessary to make improvements of farmer group management, make cooperation with distributors of agricultural production facilities and with product buyers. Another thing is to keep quality, quantity, and continuously product.

INTRODUCTION

The innovation in agriculture is needed to increase farming productivity which in turn can increase farmers' income. Therefore, the innovations produced need to be conveyed to farmers as users for adoption. Adoption of innovation is a mental process that starts from the first time someone knows about an innovation. In agriculture, generally the process of adopting innovation by farmers is inseparable from the role of an agricultural extension worker. Through extension activities, agricultural extension agents introduce new innovations to farmers, either through mass, group or individual approaches.

The mass approach was chosen by agricultural extension workers to arouse farmers' awareness and interest in new innovations. Furthermore, extension agents will use a group approach to motivate farmers to assess the pros and cons and try these innovations and the individual approach selected by agricultural extension agents to convince and strengthen farmers' decisions to adopt innovations. Compared to mass and individual approaches, the group approach is considered the most efficient in disseminating agricultural technology (Adawiyah et al, 2017).

In the group approach, the existence of farmer groups is important, but not all farmer groups function as they should. The function of farmer groups generally works well if there is an attachment to farming management between farmers, for example in paddy rice farming. The need for water in lowland rice plants and the preparation of a Group Definitive Plan (RDK) causes lowland rice farmer groups to be more active than farmer groups in other farming branches. One example of a farmer group that is still running is the paddy rice farmer group in Waimital Village, Kairatu District, Central Maluku Regency, Maluku Province.



Waimital Village is one of the rice-producing villages in Maluku. There are 11 active farmer groups and one combined farmer group (Gapoktan). Born as a transmigration village in Maluku, rice farming has been going on since the placement of transmigrants from Java Island in the area in 1954/1955. Thus, lowland rice farming is the main source of income for farmers in Waimital Village so that the existence of farmer groups is not new in Waimital Village.

The existence of various new innovations in lowland rice cultivation, including new superior seeds, new cropping systems, new agricultural tools and machinery, new fertilizers and fertilization, and others requires the function of farmer groups to run well so as to accelerate the process of adopting innovations by farmers. This becomes interesting by looking at the various new innovations that have been known and/or adopted by farmers in Waimital Village, including the superior Inpari Sidenuk seeds which were introduced to farmers as well as planting trials in 2018. After the planting trials, not all farmers involved went through group farmers adopt these superior seeds. In this regard, it is interesting to analyze the function of farmer groups in the process of adopting Inpari Sidenuk superior seeds in Waimital Village considering that farmers in Waimital Village are farmers who are able to access information through cyberspace and Waimital Village is close to sources of agricultural information, namely the Agricultural Extension Office (BPP)) with agricultural extension workers who always interact with farmers. In other words, is the process of adopting the Inpari Sidenuk superior seed innovation the contribution of the farmer group or is it purely a personal decision of the farmer who is a member of the farmer group? In this regard, the purpose of this study was to analyze the function of farmer groups in the adoption process of Inpari Sidenuk superior seed innovation.

LITERATURE REVIEW

In general, the functions of farmer groups can be categorized as learning vehicles, collaboration vehicles, and production units (Karim et al, 2012), in this case farmer groups are a place for farmer group members to exchange knowledge and experience and work together to achieve goals. . The existence of farmer groups is important as a supporting factor in increasing farmer capacity because most farmer capacity strengthening activities are carried out through the farmer group approach (Damanik and Tahitu, 2020). The group approach is the main focus in various agricultural activities because it is considered more efficient than individual and mass approaches (Adawiyah et al, 2017). In addition, farmer groups can also strengthen the ability of farmers to deal with various farming problems, including limited business capital. Most farmers are constrained to adopt new innovations due to limited capital. This was also found in lowland rice farmers in Debowae Village, Buru Regency, Maluku Province, to adopt the use of a rice transplanter machine, in this case renting a machine and operator (Safitri et al, 2022). Therefore, strengthening the capacity of farmer groups is important so that they can play their proper role.

Strengthening the capacity of farmers and farmer groups is inseparable from the existence of agricultural extension workers who act as facilitators, motivators and catalysts through a continuous mentoring process. Various studies have shown the significant role of agricultural extension workers in developing farmers and farmer groups to become advanced farmers and farmer groups who have successfully adapted according to progress in agriculture, including the role of agricultural extension agents on farmer behavior in implementing integrated crop management and rice productivity in Buleleng Regency (Sugiarta et al. , 2017); in empowering the Tampilon Putra farmer group in Belayan Village, North Malinau (Arbaik et al, 2022); the role of extension workers as the frontline in empowering farmers (Pradiana and Maryani, 2019), and others. Thus the sectors that are potentially or dominant to production and have added value (value added), both by line of business (sector) and its components will be attraction and a high sensitivity and the impact multiplier effect of the sector the leading sectors to other sectors (Esther Kembauw, et al. 2018).

METHODS

The research was conducted in Waimital Village which was determined deliberately based on the consideration that Waimital Village is one of the main rice production centers in Maluku. The population is all farmer groups who participated in the trials of planting superior Inpari Sidenuk seeds, totaling 11 farmer groups. The sample was determined by census so that the sample size was the same as the population size, namely 11 farmer groups with 82 farmer group members.

The research data consists of primary data and secondary data. Primary data was obtained through direct interviews with respondents guided by a questionnaire, while secondary data was obtained from various sources, namely from the Waimital Village office, documents obtained from various libraries both offline and online. Data analysis was carried out using cross-tabulations, the results of which were interpreted according to the research objectives with the support of appropriate data.

RESULTS

Description of Farmer Groups

Almost all farmer groups in Waimital Village are farmer groups whose members come from generation to generation. This means that if a member of a farmer group has grown-up children and is married and also works as a farmer in the village, then he will become a member of the farmer group according to the location of the rice fields



managed because the farmer groups in Waimital Village were formed based on the proximity of the location of the rice fields. And so on so that when viewed from the perspective of the age of the farmer groups, most of the farmer groups are over 20 years old, but the membership of farmer groups varies based on the age of the farmer group members.

The number of members of farmer groups varies from 6-16 people, but the dominant is 6-9 people. The number of members is relatively small so that interaction between members can run well. The ages of the group members were in the range of 35 – 70 years with the mean age being 45 years. The level of formal education is dominated by elementary school.

Implementation of Farmer Group Functions

Broadly speaking, the function of farmer groups is divided into two, namely (1) as a vehicle for learning, and (2) as a vehicle for collaboration. As a vehicle for learning, farmer groups become a forum for farmer group members to share experiences, exchange ideas, and share new ideas, both with extension agents and without extension agents. Thus, each member will be assisted in managing the farm even though they are less active in personally seeking new information. For this to happen, a sense of togetherness is needed between members so that each member feels responsible for the progress of the farming of each member of the farmer group. As a media for collaboration, farmer groups should also be the right forum so that each member of the farmer group does not experience difficulties in meeting the needs of their farming business, especially in terms of fulfilling the needs for fertilizers and medicines, the need for labor, fulfilling the planting schedule simultaneously, regulating irrigation water, milling, and rice, to production marketing. If this goes well, then each member will feel the benefits of being a member of a farmer group, one of which is the achievement of personal goals and group goals. The level of achievement of these goals will generally lead to a good assessment of the group. In line with that, the assessment of farmer group members on the implementation of farmer group functions in Waimital Village is presented in Table 1.

Table 1
Assessment of Farmer Group Members on the Implementation of Farmer Group Functions in Waimital Village

No.	Farmer Group Functions	Assessment of the Implementation of Functions of Farmer Groups (person)		
		Good	Not Good	Bad
1	Wahana belajar	67 (81,7)	10 (12,2)	5 (6,1)
2	Wahana bekerjasama	74 (90,2)	8 (9,8)	0 (0,0)

Remarks : Numbers in brackets show percentages

Process of Planting Test of Superior Inpari Sidenuk Seeds in Waimital Village

One of the superior rice seed innovations given to farmers in Waimital Village is the Inpari Sidenuk seed. The innovation adoption process begins when farmers are introduced to these seeds through a government activity. After being introduced, it was continued with the distribution of seeds through farmer groups. In addition to seeds, other production inputs provided include fertilizers and pest, disease and weed control drugs.

This activity involved 11 farmer groups with a total of 82 farmers and the total land area for trials reached 50 ha. Not all farmers' paddy fields are planted with rice seeds, but only around 0.25 – 1 ha per farmer. The trial process for planting Inpari Sidenuk seeds was directly accompanied by local agricultural extension workers. Various farmer responses emerged related to this planting trial activity, but most farmers considered it good and happy to participate in this activity (Table 2). The availability of seeds and other production facilities is considered good because they are provided by the government in accordance with the amount needed for planting tests. The PPL assistance also ran smoothly because in Waimital Village the extension activities ran smoothly.

Table 2.
Farmers' Responses to Trial Planting of Inpari Sidenuk Variety

Trial activity	Farmer response		
	Good	Not Good	Bad
Seeds availability	80 (97,6)	2 (2,4)	0 (0,0)
Fertilizers availability and pest, disease and weed control	71 (86,6)	11 (13,4)	0 (0,0)
PPL Assistance	69 (84,1)	10 (12,2)	3 (3,7)

Remaks : Numbers in brackets show percentages



Personal decision-making provides freedom for farmers by considering all aspects including risks in adopting superior seeds including the Inpari Sidenuk variety seeds. After completing the trial planting of these seeds, the majority (82%) of farmers did not replant the seeds and replanted the previous variety. There are various reasons for farmers not to adopt the Inpari Sidenuk variety seeds (Table 3), including concerns about the availability of fertilizers and drugs to eradicate pests, diseases and plant weeds.

Table 3
Factors Causing Farmers Not to Adopt Superior Inpari Sidenuk Seeds

Causative factor	Number of Farmer (Person)	Percentage
Availability of seeds	79	96,3
Availability of fertilizers and medicines	78	95,1
Production uncertainty	75	91,5
Uncertainty in the market for crops	75	91,5
The influence of other farmers	69	84,1

DISCUSSION

Implementation of Farmer Group Functions

Data pada Tabel 1 menunjukkan bahwa bagi anggota kelompok tani di Desa Waimital, fungsi kelompok tani sudah implemented properly so that the benefits are felt. Most (81.7%) members of the farmer group considered that the application of the function of the farmer group as a vehicle for learning was very useful, in the sense that through the farmer group farmers gained new knowledge and experience about farming management, from upstream to downstream. Through farmer groups, farmers learn together about new things, either through other farmers in the group who have previously received new information, or through agricultural extension workers in Waimital Village. Farmer groups are also a gathering place for farmers if there are socialization activities or counseling and assistance from related agencies. There are 12.2 percent of farmers who think that the application of farmer groups as a vehicle for learning is not good and 6.1 percent think it is not good. The reason underlying this assessment is the different ability of farmers to understand messages or information discussed in farmer groups so that some farmers are slow to understand information while other farmers have exchanged discussion topics. Likewise, in accessing information, farmers who rely on agricultural extension workers as a source of information judge that farmer groups are less or not useful as learning media. The vehicle for learning should be agricultural extension workers. This is because farmers put full trust in agricultural extension workers as a source of information and a place to ask questions, discuss and learn.

As a vehicle for cooperation, farmer groups are considered to be very useful in helping farmers manage farming. Some of the collaborative activities carried out by farmers through farmer groups are the preparation of RDKK, simultaneous planting, arranging the distribution of irrigation water, planting rice seeds, and harvesting. This collaboration helps farmers to be able to plant rice according to the growing season and fulfill all the needs of farmer's farming. There are 9.8 percent of farmers who think that the implementation of the function of farmer groups as a vehicle for cooperation is classified as not good. This assessment is based on certain conditions such as at the start of the Covid 19 pandemic which also had an impact on the disruption of the availability of plant production facilities. Farmers hope that farmer groups can help find a way out, but the conditions that are not possible cause farmer groups to not be able to carry out activities as usual.

The Function of Farmer Groups in the Adoption of Inpari Sidenuk Seeds

Table 1 shows that the application of the farmer group function as a vehicle for learning and collaboration is considered by farmers to be very good in helping farmers manage their farming business. This is understandable because lowland rice farming does require farmer groups, especially in collaboration. Various decisions related to farming management are decided in groups such as planting schedules, irrigation water arrangements, grain milling, and other matters deemed necessary to be decided in groups.

In relation to the adoption of Inpari Sidenuk seeds, farmer groups do not make a joint decision, but it is up to each farmer to decide whether to adopt the seed or not. Farmer groups only facilitate Inpari Sidenuk seed trial activities through their function as a vehicle for learning and a vehicle for collaboration. This also happened to the previous superior seeds. The decision that rests with each farmer causes the rice varieties planted in Waimital Village to be not uniform, but to vary according to the wishes of the farmers, including IR64, Mekongga, and Ciherang.

The dominant causative factor for not adopting superior Inpari Sidenuk seeds by farmers is the farmer's fear of the availability of plant production inputs if they have to buy them themselves, not only about the availability of these production inputs at local agricultural shops but also the availability of money to buy other production inputs besides the production inputs. production which is always used because there are several types of fertilizers and medicines that



have never been used before by farmers. Uncertainty in production is intended as a target for harvested dry grain (GKP) which can be produced because during the planting trial some farmers did not reach the expected target even though the GKP target was achieved as a whole. Farmers' production did not reach the target because the rice plants were attacked by various diseases that were not predicted in advance due to extreme weather changes. Market uncertainty for Inpari Sidenuk rice yields is also a concern for farmers because buyers are used to the previous variety of rice. Farmers want a guarantee to sell the crops they produce.

Based on Table 3, it can be said that every farmer has the freedom to adopt or not adopt superior Inpari Sidenuk seeds, but what is interesting about the various causal factors is the influence of other farmers who do not adopt these seeds. In general, this condition is often found in farming communities, especially if the farmers who do not adopt are farmers who are classified as more successful than other farmers and are used as role models for other farmers.

The results of the study also showed that farmer groups did not play a role in the farmer's decision-making process in adopting superior Inpari Sidenuk seeds. The same thing was also found in the adoption process of Growth Stimulating Substances (ZPT) innovations by members of farmer groups in Cilaku District, Cianjur Regency, West Java (Dyanto et al, 2020). When it is related to the research results of Wicaksono et al (2017) which found that the higher the dynamics of farmer groups will increase the ability of farmer group members to adopt the GTP (Good Tobacco Practices) technology package, and research requires efforts to improve the dynamics of farmer groups in Waimital Village. Farmer groups should play a role in farmer decision making. All farmers' concerns in adopting these superior seeds need to be anticipated or resolved in farmer groups. This is because philosophically farmer groups are formed to help solve farmer problems that cannot be solved individually (Nuryanti and Swastika, 2011) so that farmer membership in farmer groups significantly influences farmers' decisions to adopt an innovation (Addai et al, 2022; Hariadi and Widhiningsih, 2015). Farmers' groups in Waimital Village need to act as a kind of "farmer's shop" to guarantee the availability of seeds and all other production inputs if farmer group members want to adopt a new superior seed that has gone through a trial planting in the village. Procurement of agricultural production facilities can be facilitated by the local PPL in collaboration with related parties and or agencies.

Concerns about the marketing of farmers' products can be solved through farmer groups by acting as "agents for marketing agricultural products", namely farmer groups accommodate all rice or rice farmers' products. If what is agreed is that the farmer groups accommodate the rice (gkg) from the farmers, then the farmer groups will arrange the farmers' rice milling process and then look for markets for the rice produced by the farmers. If what is agreed is that the farmer group will receive the rice from the farmer, then the farmer group will look for a market to sell it. All of this is not done in a hurry, but it is better to be prepared from the start so that when the harvest season arrives, the farmers' worries do not occur.

Farmer groups in Waimital Village really need to develop themselves according to the needs of farmers as members of farmer groups. Farmer groups as a vehicle for cooperation are extended to aspects of procuring agricultural production facilities and marketing agricultural products, especially rice. If the yields of other commodities such as vegetables increase, marketing can also be done through farmer groups. This is also useful for determining selling prices at the farmer level, meaning that if farmers sell through farmer groups, the bargaining position of farmers becomes stronger.

Related to this, improvements are needed, both from the management aspect of farmer groups, cooperation networks with distributors of agricultural production inputs and product buyers; as well as from the quality and quantity of production according to the agreement within the group. Production quantity is intended as the amount of farm production that is ready to be accommodated by farmer groups, while product quality is the uniformity of crop quality so that it is not difficult in sorting for determining the selling price by farmer groups which continues to payment to farmers who own the crops. The quantity of the harvest is done by adjusting the harvest schedule so that the harvest period can take place as expected, planting and harvesting simultaneously. The quality of the harvest is the responsibility of all farmers with PPL assistance.

The function of farmer groups as a vehicle for learning can be developed with regular assistance from local PPLs and collaboration with universities, research institutions and other parties who have various innovations related to the growth of plant products. Thus, according to Effendy and Apriani (2018), the function of farmer groups as a vehicle for learning can be felt by group members and farmers in general.

Increasing the function of farmer groups as a vehicle for learning and collaborating is an opportunity for farmer groups to better support group members in developing farming through (Fredericks et al, 1980): provision of extension and training services, provision of plant production facilities, provision of credit facilities, provision of marketing services, storage, warehousing, facilitating capital formation, and others. If farmer groups can function like that, then the hope that farmer groups can become important institutions that support the transformation of small farmers, increase farming productivity and farmer income which can further reduce poverty (Tolno et al, 2015) can be achieved.

CONCLUSION

In the process of adopting an innovative rice seed innovation, including Inpari Sidenuk superior seed among lowland rice farmers in Waimital Village, farmer groups have not functioned optimally, even though farmers have



assessed them as a vehicle for learning and collaboration. The decision to adopt or not adopt an innovation, including Inpari Sidenuk superior seeds, rests entirely with farmers.

The main concern for farmers in adopting Inpari Sidenuk superior seeds is the difficulty in obtaining production facilities including these superior seeds and marketing the crops. This concern can be overcome by increasing the capacity of farmer groups as a vehicle for cooperation, namely by making farmer groups as farmer shops and marketing agents for farming products.

Increasing the capacity of farmer groups as farmer shops requires collaboration with various providers of plant production facilities; while farmer groups as marketing agents for farming results require an even quality of yields from each farmer as well as continuity of yields. In this regard, cooperation is needed from various parties who have various innovations related to farming in Waimital Village, including universities, research institutions, and other related parties.

PPL plays an important role in assisting farmer groups towards farmer groups that can support farmers in adopting various innovations in agriculture. PPL assistance includes improving the management of farmer groups, increasing the function of farmer groups as a vehicle for learning and collaboration, as well as facilitating farmer groups to collaborate with various related parties, including distributors of plant production facilities, universities, research institutions, private parties bound, and so on.

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