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THE ROLE OF FARMER GROUP HEADS IN THE ADOPTION OF RICE PADDY CULTIVATION INNOVATIONS IN RANGDUMULYA VILLAGE

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ABSTRACT

Most farmers still need more efficient ways to increase the effectiveness of their farms. To allow farmers' farms to advance from before, it is essential to increase the role of farmer group heads in enhancing their capacity to adopt farming innovations. Interactions between farmers in the group create a flow of information exchange, forming a communication network. The study aimed to examine how the head of the farmer group affected the adoption of innovations in paddy rice cultivation in Rangdumulya Village and analyze the communication network in Gapoktan Karya Sentosa in Rangdumulya Village. The village was selected purposively. The study ran from January through April of 2024. With a population of 536 farmers, 42 respondents were selected from among the samples using proportional random sampling. The research's variables are the roles of farmer group leaders as motivators, communicators, organizers, facilitators, and innovators. Data analysis employed multiple linear regression analysis and sociometric analysis. The role of farmer group leaders as facilitators and innovators significantly and positively influences the adoption of paddy rice cultivation innovations. The communication network of Gapoktan Karya Sentosa shows that the actor who is most often the source of information for farmers is Mr. Jalaluddin because he is the head of Gapoktan. The results of identifying the role figures play in the Gapoktan Karya Sentosa's communication network show that Mr. Jalaluddin plays the opinion leader, and Mr. Jalaluddin plays the gatekeeper.

Keywords: communication network; farmer group chairperson; innovation adoption; role.

INTRODUCTION

Agriculture is a field that is crucial to providing for the needs of the Indonesian people. The role of agriculture in the lives of the Indonesian people is related to various fields, especially as a food provider for the Indonesian people every day. However, the agricultural sector has several challenges ahead, such as the younger generation's disinterest in working in agriculture and becoming human resources in the agricultural sector and the demand for agricultural products, which can increase as Indonesia's population increases. According to the United Nations Population in the Ministry of Agriculture's Strategic Plan 2020 - 2024 by Kementerian Pertanian (2021), meeting the community's food demands is a significant undertaking that is not easy given that Indonesia's population is predicted to reach 330.9 million by 2050

It is essential to acknowledge that farmers operating on a relatively small scale are the main contributors to the development of Indonesia's agricultural sector (Anantanyu, 2011). Small-scale farms managed by farmers with low productivity, challenging to obtain capital, very traditional business practices, and limited accessibility to information and appropriate technology, as well as the limited capacity of the farmers themselves, are also the causes of the increase in farm effectiveness to be very slow. Therefore, farmers still really need other alternatives that are more efficient and still need to feel more open to meet their needs and increase their farms' effectiveness.

Rangdumulya Village has quite several farmers who have joined farmer groups. This location was chosen with the understanding that this area has good agricultural potential, so it was chosen as

the location for implementing the "Food Security Assistance Program for Agriculture in 2022" held with *Bintara Pembina Desa (BABINSA)*. This program provides essential and liquid organic fertilizers, regularly regulates soil pH, explains how to apply them, and assists. The implementation of this program is also inseparable from the need for coordination between the facilitator and local farmers, especially the farmer group's leader, who mobilizes and invites his group members.

In rural areas, farmer institutions play a crucial role in advancing the agribusiness system (Wahyuni, 2017). The function of farmer institutions is to accommodate and facilitate social interactions in a farmer community. Farmers are also social beings, meaning they cannot live naturally without the help of others. In addition, they need a community to increase their motivation, knowledge, and business skills to be more empowered in making decisions.

The farmer group leader's function within the group has various functions that can bring its members forward. According to Utama (2008), a person who can influence, direct, mobilize, and manage groups to achieve group goals, where leadership effectiveness is closely related to a group's sustainability. These roles must be well adapted to support members' farms running more efficiently than before.

Effective communication between farmers in the group is essential in accepting innovations for farmers. The communication process between farmers in the group creates a flow of information exchange, forming a communication network. According to Puspanjani (2012), information exchange interactions in the form of technological innovations in the communication network impact the adoption process. Communication networks can also be used to identify key members of a group.

The study of Putra et al. (2016) resulted in the farmer group leader's role in adopting shallot cultivation technology at the research site, often carrying out their role as a motivator and organizer, while as a communicator, it is only sometimes done. As a facilitator, it is rarely done. In addition, Mustopa (2021) discovered that the farmer group leader's role as motivator, communicator, innovator, and controller has a real relationship with the level of productivity of paddy rice of farmer groups in the research location. It implies that paddy productivity increases with the degree of the farmer group leader's influence.

Based on the description above, the farmer group leader's role as motivators, communicators, organizers, facilitators, and innovators should be maximized according to their functions by farmer group leaders everywhere, including farmer group leaders in Rangdumulya Village. For farmers' farms to advance from before, this study focuses on evaluating the capacity and intensity of farmer group leaders to enhance the knowledge, attitudes, and abilities of farmer group members in adopting innovations in paddy rice cultivation. This study aims to, among others: for the first objective is to analyze the influence of farmer group leader's role in the adoption of innovations in paddy rice cultivation in Rangdumulya Village, Pedes Sub-district, Karawang Regency, and for the second objective is to analyze the communication network in Gapoktan Karya Sentosa in Rangdumulya Village, Pedes Sub-district, Karawang Regency.

MATERIALS AND METHODS

This study employed a mixed method, combining quantitative and qualitative techniques. Quantitative methods are used to collect, present, and analyze respondents' answers, which are then analyzed to conclude. The qualitative method in this research is a way to observe respondents' answers in more detail and is used as supporting data or information for the results of data analysis that will be generated from quantitative methods. Qualitative research methods are also used to analyze the object of communication network research. This study was executed in Rangdumulya Village, Pedes Sub-district, Karawang Regency, and the implementation time of this research lasted for four months, namely from January to April 2024.

The study's population consisted of 536 farmers who belonged to nine different farmer groups within Gapoktan Karya Sentosa in Rangdumulya Village. Forty-two respondents (9 farmer group leaders and 33 farmer group members) were the sample, obtained using proportional simple random. According to Sugiyono (2014), With proportionate random sampling, each participant has an equal chance of being sampled based on their proportion or the total number of subjects in each group. Sample calculation based on the Slovin equation using an error rate of 15%. Then, from the sample, the sample of farmers from each group, according to Sugiarto (2003), can use the proportional allocation formula. Table 1 shows the number of sample units for each farmer group.

Primary and secondary data are the two categories of data used in this study. This study's secondary data includes sources from the Badan Pusat Statistik of Indonesia, Badan Pusat Statistik of Karawang Regency, and literature studies. Techniques for primary data collection were observation, interview, questionnaire, and documentation methods. The questionnaire was prepared

using a Likert scale to assess each respondent's perceptions. According to Siregar (2016), the Likert scale is a scale that can measure attitudes, opinions, and a person's attitude toward a particular object or phenomenon.

Table 1. The proportion of members and sample size of each farmer group in Rangdumulya Village

Farmer group's Name	Proportion of Members (People)	Sample Size (People)
Subur Makmur	49	4
Sri Asih	70	5
Sepakat	58	5
Sentosa	64	5
Mukti II	69	5
Mukti I	56	4
Mekar II	58	5
Mekar I	60	5
Cahaya Barokah	52	4
Total	536	42

Multiple regression analysis was used to analyze quantitative data using SPSS 26.00 edition. The application of multiple linear regression analysis is used to examine the first research objective, which is to determine the effect of one or more of the independent variables, namely the role of farmer group leaders as motivators, communicators, organizers, facilitators, and innovators on the dependent variable, which is the adoption of paddy rice cultivation innovations. Furthermore, sociometric analysis is employed to address the second research objective: to analyze the communication network formed in Gapoktan Karya Sentosa and identify a figure with a unique role in the communication network. Sociometric analysis is a qualitative analysis used in the presentation of data whose results in the form of sociogram images are obtained with the help of UCINET software version 6.0.

RESULTS AND DISCUSSION

Respondents' Attributes

Respondents' characteristics included gender, age, education level, farming experience, and land size. It was found that male farmers dominated the research respondents at 95.2%. This can be caused by farming, which requires sufficient and consistent physical strength, so male farmers tend to fulfill more capacity in farming. According to Putri (2016), male labor generally can be more productive in doing work that relies on physical strength, while women can be more productive in work that relies on accuracy, patience, and perseverance.

Based on age, the majority of respondents had an age of 50 years < age ≤ 64 years with a proportion of 50%. This demonstrates that most respondent farmers are still included in the productive age to maximize their ability to be reliable in farming activities and make it possible to apply innovation. According to Simanjuntak's opinion in Ranti (2009), they claim that farmers between the ages of 15 and 54 are considered productive labor. These farmers can provide more work for their business since they are physically stronger.

Based on the level of education, it was found that most respondents were farmers with an educational background at the elementary school level, with a percentage of 42.9%, indicating that the public awareness of formal education was still relatively low. This implies that other elements, such as firsthand practical experience, are just as crucial for farming success as formal education. This differs from the opinion of Hapsari et al. (2012), who state that higher-level educated people are typically better equipped to assess the advantages of the actions that will be undertaken.

Based on the length of farming experience, most respondents had farming experience of 10 years < experience ≤ 20 years, with a proportion of 38.1%. This demonstrates that most of Rangdumulya Village's farmers have sufficient farming experience, so they tend to understand better efforts to minimize business risks and optimize resources on their farms. According to Manyamsari and Mujiburrahmad (2014), highly experienced farmers typically exhibit greater maturity in handling various farming-related issues.

Based on land area, the research respondents were dominated by farmers with a rice field area of 0.5 ha < land area ≤ 1 ha with a proportion of 45.2%. This reveals that most of the farmers who responded have comparatively medium-sized land areas, so farmers can further optimize their land to produce better productivity during the harvest season. Wahed (2015) claims a positive

relationship exists between land area and crop production, with land area playing a significant role in raising yields and enhancing farmer welfare.

The Influence of the Role of Farmer Group Leaders in the Adoption of Innovations in Paddy Rice Cultivation in Rangdumulya Village, Pedes Sub-district, Karawang Regency

The influence of the role of farmer group leaders as motivators, communicators, organizers, facilitators, and innovators on the adoption of paddy rice cultivation innovations was analyzed by passing the data instrument test, classical assumption test, and multiple linear regression analysis. Table 2 summarizes the findings of the multiple linear regression analysis for this research.

Table 2. Outcomes of multiple linear regression analysis regarding the farmer group heads' role in the adoption of paddy rice cultivation innovations

Variable	Regression Coefficient	t-count	Significance	Remarks
Motivator (X1)	-0,048	-0,265	0,793	ns
Communicator (X2)	0,450	2,005	0,053	ns
Organizer (X3)	-0,406	-1,502	0,142	ns
Facilitator (X4)	0,465	2,329	0,026	*
Innovator (X5)	0,433	2,359	0,024	*
Constant	12,432			
R	0,826			
R-*square*	0,682			
Adjusted R-Square	0,638			
F-count	15,446			

Remarks: * : Significant at 5% level; ns : Non-significant at 5% level

The results of the regression test on the five variables imply that the variable of farmer group leaders' role as facilitators and innovators has a natural effect on the adoption of paddy rice cultivation innovations because it has a significance value smaller than 0.05. Then, the variables of the farmer group leader's role as a motivator, communicator, and organizer do not affect the adoption of innovations in paddy rice cultivation because they have a significance value greater than 0.05. The regression equation was generated as follows, based on the multiple linear regression analysis findings in Table 2:

$$Y = 12{,}432 - 0{,}048\ X_1 + 0{,}450\ X_2 - 0{,}406\ X_3 + 0{,}465\ X_4 + 0{,}433\ X_5 \quad (1)$$

Remarks: Y = Variable adoption of paddy rice cultivation innovation; X_1 = Variable farmer group leader's role as motivator; X_2 = Variable farmer group leader's role as communicator; X_3 = Variable farmer group leader's role as organizer; X_4 = Variable farmer group leader's role as facilitator; X_5 = Variable farmer group leader's role as innovator

The following is an explanation of the analysis's findings for each variable influencing the adoption of rice paddy cultivation innovations:

1. The role of farmer group leaders as motivator

Table 2 points out that the variable role of farmer group leaders as motivators has a regression coefficient of (-0.048) and a Sig. A value of 0.793 > 0.05 means that H_0 is approved and H_α gets disapproved. This confirms that the variable role of farmer group leaders as motivators does not significantly affect the adoption of paddy rice cultivation innovations.

The insignificant role of the farmer group leader as a motivator in this study is supported by field conditions in that the farmer group leader tends to provide limited encouragement/ motivation and appreciation to members. For example, if farmer group members do not want to follow the application of innovations, the chairman will occasionally sensitize them by giving directions/suggestions. According to Ashari (2002), the contribution of farmer contacts in providing support, rewarding successful members, and providing guidance and assistance to members who experience difficulties can all increase member motivation. This can be overcome by the farmer group leader sorting out the concept of applying innovations to make it simpler and easier to understand for farmers or by conducting innovation trials on the member's land. In addition, it is necessary to give appreciation or awards more often to farmer members who are successful in implementing an innovation.

2. The role of farmer group leaders as communicators

Table 2 points out that the variable role of farmer group leaders as communicators has a regression coefficient of 0.450 and a Sig. A value of 0.053 > 0.05 means that H_0 is approved and H_α gets disapproved. This confirms that the variable role of farmer group leaders as communicators does not significantly affect the adoption of rice paddy cultivation innovations.

The insignificance of the farmer group leader's role as a communicator in this study is supported by respondents stating that the frequency of routine meetings between farmer group leaders and members is not frequent in 1 growing season. They usually meet at the beginning of the season and during meetings related to pest control in paddy fields. Therefore, members argue that the frequency of meetings between farmer group leaders and members who discuss practical implementations of innovation is still lacking, even though meetings outside of routine meetings can support the progress of the adoption of innovations in paddy rice cultivation of farmers. In addition, it can also realize better communication between the chairperson and members. According to Zakariyya (2010), a well-established relationship between a farmer group leader and its members enables the leader to influence the group's effectiveness. This means that it is necessary to increase the frequency of meetings that only discuss the application of innovations in paddy rice cultivation so that farmers' awareness and abilities improve from before.

3. The role of farmer group leaders as organizer

Table 2 points out that the variable role of the farmer group leader as an organizer possesses a regression coefficient of (-0.406), hasaving a Sig. A value of 0.142 > 0.05 means that H_0 is approved and H_α gets disapproved. This confirms that farmer group leaders' variable role as organizers does not significantly affect innovation adoption in paddy rice cultivation.

The insignificant farmer group leader's role as an organizer in the results of this study is supported by field conditions, in which respondents stated that the farmer group leader rarely supervises and evaluates an activity or program. This can impact activities such as the existence of an idea/innovation that farmers want to learn and try to run less optimally so that farmers still cannot progress in adopting rice paddy cultivation innovations. According to Thoha in Mustopa (2021), the leader, as a controller / supervisory function, aims to prevent activities from deviating from implementation to achieve goals effectively and efficiently. This means that the head of the farmer group still needs to conduct more frequent reviews or observations and evaluations of the activities followed by the group so that no member feels left behind by other farmers.

4. The role of farmer group leaders as facilitator

Table 2 points out that the variable role of farmer group leaders as facilitators has a regression coefficient of 0.465 and a Sig. A value of 0.026 < 0.05 means that H_0 gets disapproved and H_α is approved. This indicates that the variable role of farmer group leaders as facilitators significantly and positively influence the adoption of paddy rice cultivation innovations.

Field conditions that support the influence between the two variables include farmer group leaders conducting counseling in group meetings and providing counseling in the field with farmer group members and at meetings at the beginning of the season, usually planning the quality of seeds, types of varieties, determination of planting distance, and planting time to be synchronous, held at the farmer's house close to the land. Then, the meeting occurs when the rice plant enters a pest-prone age or at times when the rice plant is attacked by Plant Disturbing Organisms (OPT). At the meeting, the head and farmer group members discuss pest control experienced by farmers' land in that season. Then, the head of the farmer group practices directly how to control it in the field for members so that farmers can increase their knowledge and improve their farming abilities according to changes in conditions on farmers' land. Nurmalia and Susilawati (2016) claim a strong correlation between group effectiveness and the willingness of group leaders to share information, knowledge, and experience.

5. The role of farmer group leaders as innovator

Table 2 shows that the variable role of farmer group leaders as innovators has a regression coefficient of 0.433 and a Sig. A value of 0.024 < 0.05 means that H_0 gets disapproved and H_α is approved. This confirms that the variable role of farmer group leaders as innovators significantly and positively influences the adoption of paddy rice cultivation innovations.

Field conditions that support the influence of the variable role of farmer group leaders as innovators in adopting paddy rice cultivation innovations are that the farmer group's leaders have a sense of openness to researchers and PPLs, so they always try to relate well with outsiders. This is beneficial because the head of the farmer group can receive good knowledge/insights and new skills

about farming from researchers or PPLs. Then, the head of the farmer group provides information/innovations / new ideas in farming to members so that farmers can increase their knowledge, improve their abilities, and get new opportunities/innovations in farming. According to Thoha in Mustopa (2021), leaders as innovators can make various innovations related to the management system to maintain and improve group performance.

The Communication Network in Gapoktan Karya Sentosa in Rangdumulya Village, Pedes District, Karawang Regency

Communication network analysis uses data obtained from in-depth interviews/questions and observations. The research on communication network analysis used is descriptive type, which aims to describe the actors' roles and the communication network structure. The sociometric analysis conducted to analyze the structure of the communication network in this research goes through 3 (three) steps, according to Eriyanto (2014), with the following explanation.

1. Identifying the names of actors and relationships

The initial stage is to identify all actors in the network in detail before conducting a sociometric analysis. This aims to reduce the risk of actors not in the communication network.

2. Creating relational data in matrix form

The results of identifying actors in the communication network are then used to create relational data. The data can be entered into a matrix table adjusted to the intensity of each interaction between actors. The number symbols in the table indicate the intensity of each interaction or relationship. The number 1 means there is interaction 1-3 times in 4 months/1 growing season (MT), Number 2 means there is interaction 1-3 times in a month, Number 3 means there is interaction 1-4 times in a week, Number 4 means there is interaction 5-7 times in a week, while the number 0 indicates no interaction between actors. This stage can also be done using Microsoft Excel software. Figure 1 illustrates the findings of the matrix table displaying the relational data used in this research.

3. Sociometric Drawing

The next stage is to conduct a sociometric analysis of the actor (node) and relationship (link) data compiled with the help of the UCINET 6 software. Figure 2 displays the findings from the sociogram image representing Gapoktan Karya Sentosa's communication network.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		Ta	Ad	En	Im	Ak	Ya	Da	Om	Al	Su	Op	Ad	Ma	Da	Su	En	Kh	Ka	Is	De	Am	An	Ac	Ma	Ja	Ah	Ab	Di	Ro	Ak	Ca	Ta	Ta	Ka	He	Sa	Ju	He	As	Ra	Ro	Mu	PP
		ta	an	da	am	hm	ya	rp	as	i	ha	i	e	hd	ce	wa	ti	ot	rs	ro	di	in	wa	un	rs	la	ma	du	di	ml	um	rw	rm	rs	ma	ri	lj	na	ra	ep	hm	pi	hi	L
		ng	g	ng	M	ad		in		Yu	rt		Su	i	p	nd	ng	ip	on	m			r		id	lu	d	l	ng	i		an	o	a	rd	ya	u	ri	wa	H	at	k	d	(U
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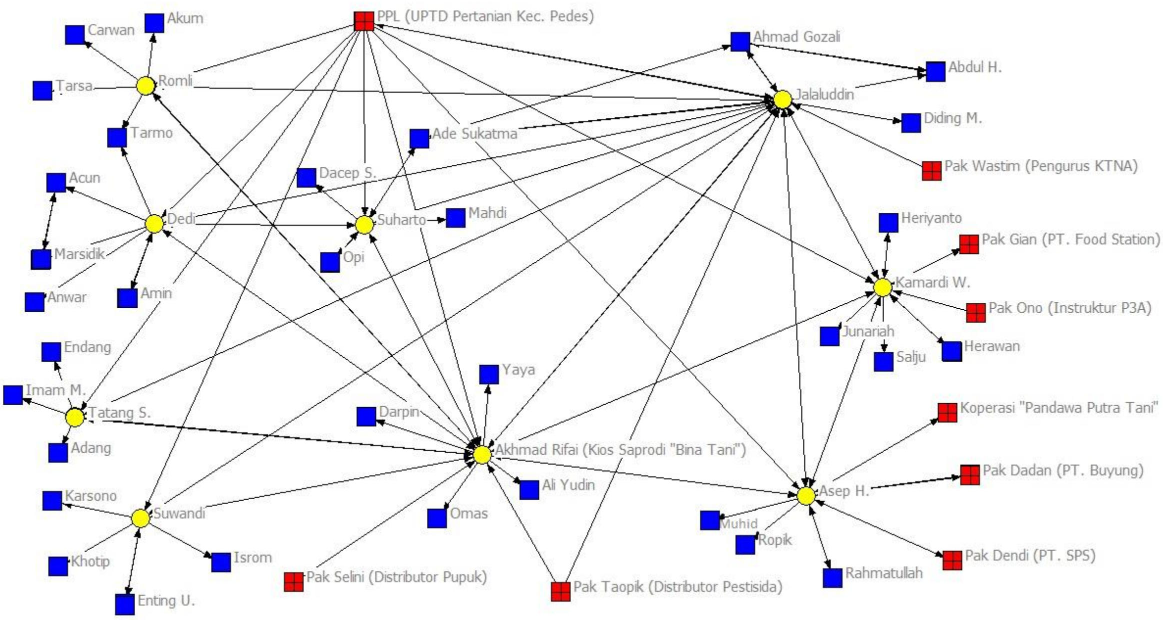
1	Tatang S.	0	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Adang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Endang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Imam M.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Akhmad Rifai (Kios Saprodi "Bina Tani")	1	0	0	0	0	2	2	2	2	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0
6	Yaya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Darpin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Omas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Ali Yudin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Suharto	0	0	0	0	1	0	0	0	0	0	2	2	2	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Opi	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Ade Sukatma	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Mahdi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Dacep S.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Suwandi	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	3	3	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Enting U.	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Khotip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Karsono	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Isrom	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Dedi	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	4	3	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
21	Amin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Anwar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Acun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Marsidik	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Jalaluddin	1	0	0	0	1	0	0	0	0	1	0	2	0	0	1	0	0	0	0	1	0	0	0	0	4	4	4	1	0	0	0	0	1	0	0	0	0	1	0	0	0	2
26	Ahmad Gozali	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(a)

		1 Tatang S.	2 Adang	3 Endang	4 Imam M.	5 Akhmad Rifai (Kios Saprodi)	6 Yaya	7 Darpin	8 Omas	9 Ali Yudin	10 Suharto	11 Opi	12 Ade Sukatma	13 Mahdi	14 Dacep S.	15 Suwandi	16 Enting U.	17 Khotip	18 Karsono	19 Isrom	20 Dedi	21 Amin	22 Anwar	23 Acun	24 Marsidik	25 Jalaluddin	26 Ahmad Gozali	27 Abdul H.	28 Diding M.	29 Romli	30 Akum	31 Carwan	32 Tarmo	33 Tarsa	34 Kamardi W.	35 Heriyanto	36 Salju	37 Junariah	38 Herawan	39 Asep H.	40 Rahmatullah	41 Ropik	42 Muhid	A PPL (UPTD Pertanian Kec. Pedes)	B Pak Wastim (Pengurus KTNA)	C Pak Dendi (PT. SPS)	D Pak Dadan (PT. Buyung)	E Pak Gian (PT. Food Station)	F Pak Ono (Instruktur P3A)	G Pak Selini (Distributor Pupuk)	H Pak Taopik (Distributor Pestisida)	I Koperasi "Pandawa Putra Tani"
27	Abdul H.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Diding M.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Romli	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Akum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Carwan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Tarmo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Tarsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Kamardi W.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	2	2	2	3	0	0	0	0	0	0	0	1	0	0	0	0
35	Heriyanto	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Salju	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Junariah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Herawan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Asep H.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3	3	0	0	1	1	0	0	0	0	4
40	Rahmatullah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
41	Ropik	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Muhid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	PPL (UPTD Pertanian Kec. Pedes)	1	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
B	Pak Wastim (Pengurus KTNA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	Pak Dendi (PT. SPS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
D	Pak Dadan (PT. Buyung)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
E	Pak Gian (PT. Food Station)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	Pak Ono (Instruktur P3A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	Pak Selini (Distributor Pupuk)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	Pak Taopik (Distributor Pestisida)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	Koperasi "Pandawa Putra Tani"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0

(b)

Figure 1. Relational data matrix (a) and (b)



Remarks:

= Nodes within Gapoktan Karya Sentosa

= Nodes outside Gapoktan Karya Sentosa

= Center nodes

Figure 2. Sociogram of the communication network at Gapoktan Karya Sentosa

From Figure 2, we can identify the presence or absence of specific roles in the communication network. A complete explanation of these roles can be seen in the following discussion.

1. Opinion Leader

The figure who has the role of opinion leader is Mr. Jalaluddin. This is supported by his long-standing position as chairman of Gapoktan Karya Sentosa in Rangdumulya Village, where he often serves as an example and influence for farmers and is even trusted in his decisions. In addition, he actively participates in broader agricultural activities. For example, he participated in the Contact Tani Nelayan Andalan (KTNA) organization and represented Rangdumulya Village when attending activities or events at the agricultural organization.

2. Gate Keeper

Gatekeepers are individuals who control the flow of information between members of the organization Muhammad (2004). The figures who act as gatekeepers are Mr. Jalaluddin and Mr. Akhmad Rifa'i. Mr. Jalaluddin's role as a gatekeeper is shown by his position as the first recipient of information from the source of information, namely the Field Extension Officer (PPL). Then, he will inform the other heads. For example, when there is agricultural medicine or seed assistance, it will wait for a signal from him regarding the quota for each Poktan.

Then Mr. Akhmad Rifa'i's role as a gatekeeper is shown by the fact that he is the chairman of the Sri Asih Farmer Group, the owner of the "Bina Tani" *saprodi* shop, which is a store shop that provides saprodi to support farmers' farming in Rangdumulya Village and its surroundings. As the manager of the kios, he gets the latest information sourced from outside parties, such as fertilizer and pesticide distributors, then conveys it to farmers looking for solutions to their farming problems.

3. Cosmopolite

Cosmopolites collect information from existing sources and provide it to their groups. In the communication network, the position of cosmopolite is held by all the heads of farmer groups in Rangdumulya Village, namely Mr. Jalaluddin, Mr. Akhmad Rifa'i, Mr. Tatang S., Mr. Suharto, Mr. Dedi, Mr. Romli, Mr. Suwandi, Mr. Karmadi, and Mr. Asep H. The figures who hold the cosmopolite role in the communication network are divided based on related parties outside the group, which is indicated by a red round symbol on the sociogram.

There are 6 (six) parties related to the Gapoktan Karya Sentosa communication network, among others: 1) Field Agricultural Extension Workers (PPL) usually communicate with farmers through the heads of farmer groups, namely nine farmer group heads. 2) The distributor of fertilizer and pesticide inputs, Pak Akhmad Rifa'i, is the person who most often interacts with this party. Two parties interact with the kiosk: Pak Selini (Fertilizer Distributor) and Pak Taopik (Pesticide Distributor). 3) The harvest marketing channel is the rice milling factory. The figures who most often interact with this party are Mr. Karmadi and Mr. Asep Hasanudin. 4) The cooperative "Pandawa Putra Tani" most often interacts with this party, Mr. Asep Hasanudin. 5) Water User Farmers Association (P3A), the person most frequently interacting with this party is Mr. Karmadi. 6) Kontak Tani Nelayan Andalan (KTNA), the person most often interacting with this party is Mr. Jalaluddin.

4. Bridge

A bridge links the group and other groups Muhammad (2004). All farmer group leaders in Rangdumulya Village own the role of bridge in the Gapoktan Karya Sentosa communication network. This role relates to forming small groups in the Gapoktan Karya Sentosa communication network. Each figure who becomes the clique's leader acts as a bridge connecting one group with another. Therefore, the clique in the Gapoktan Karya Sentosa communication network represents or is equal to the number of farmer groups in Rangdumulya Village.

5. Liaison

Liaison is a connector between one group and another and does not enter into any group Muhammad (2004). The role of liaison is not found in the Gapoktan Karya Sentosa communication network. This is because all the figures who become liaisons between groups are members of the group itself. In other words, they act as bridges.

6. Isolate

Isolates are members of organizations with minimal contact with other people in a network (Muhammad. The role of isolation is not found in the Gapoktan Karya Sentosa communication network. One of the reasons is that the respondents in this study are group members who were recommended to the researcher by farmer group leaders to be employed as respondents. As a result, a relationship has already occurred between the suggested member and farmer group leaders.

These results indicate that the farmer group leaders in Rangdumulya Village communicate with their members following their role as opinion leaders, gatekeepers, cosmopolites, and bridges in the communication network. The communication in question is in the form of exchanging information

or holding meetings or counseling. Therefore, it shows that some of the efforts of the farmer group leaders in improving the adoption process of farmers' paddy rice cultivation innovations have been carried out, but the farmer group leaders still need to improve it both in terms of their ability and intensity. To continue the analysis of the communication network with more depth, it can be done by examining the connectedness index to measure how much (percentage) a person is influential in the system or examining the central figure from the communication network with centrality analysis.

CONCLUSIONS AND SUGGESTION

The study's findings support the analysis of the first objective, which states that the farmer group leader's role as a facilitator and innovator significantly influences the adoption of paddy rice cultivation innovations in Rangdumulya Village, Pedes Sub-district. The higher the farmer group leaders' role as facilitators and innovators, the higher the adoption of paddy rice cultivation innovations. For the results of the second objective, it can be concluded that the communication network of Gapoktan Karya Sentosa shows that the actor who is most often the source of information for farmers is Mr. Jalaluddin because he is the head of Gapoktan Karya Sentosa. Figures' roles in the communication network demonstrate that the opinion leader is played by Mr. Jalaluddin, Mr. Jalaluddin and Mr. Akhmad Rifa'i play gatekeeper (*saprodi* store owner), cosmopolite and the bridge is played by all nine heads of farmer groups in Rangdumulya Village. According to the study's findings, it is projected that external parties, significantly PPL, can increase the activeness and frequency of communication with farmers and farmer group leaders to increase their role in helping members and the members to be more open in accepting an innovation.

REFERENCES

Anantanyu, S. (2011). Kelembagaan Petani: Peran Dan Strategi Pengembangan Kapasitasnya. *Jurnal SEPA*, *7*(2), 102–109. https://jurnal.uns.ac.id/sepa/article/view/48895/30162.

Ariska, F. M., & Qurniawan, B. (2021). Perkembangan Impor Beras di Indonesia. *Journal of Agriculture and Animal Science*, 1(1), 27-34. https://jurnal.umko.ac.id/index.php/agrimals/article/view/342.

Ashari, D. I. (2002). *Pengaruh Kepemimpinan Kontak Tani terhadap Dinamika Kelompok Tani di Kecamatan Ambulu Kabupaten Jember*. Universitas Jember.

Budiandrian, B., Azzahra, F., & Setyadi, A. (2022). Peran Organisasi Petani Dalam Peningkatan Kesejahteraan Ekonomi Keluarga Petani Di Indonesia. *Jurnal Agrimanex: Agribusiness, Rural Management, and Development Extension,* 2(2), 123-134. https://doi.org/10.35706/agrimanex.v2i2.6477.

Burhansyah, R. (2014). Faktor-faktor yang Mempengaruhi Adopsi Inovasi Pertanian pada Gapoktan PUAP dan Non PUAP di Kalimantan Barat (Studi kasus: Kabupaten Pontianak dan Landak). *Jurnal Informatika Pertanian*, 23(1), 65-74. https://www.neliti.com/id/publications/69938/faktor-faktor-yang-mempengaruhi-adopsi-inovasi-pertanian-pada-gapoktan-puap-dan.

Chrysanthini, B., Sumarwan, U., & Rifin, A. (2018). Preferensi Konsumen terhadap Produk Sayuran Organik (Studi Kasus Konsumen UD Fabela-Myfarm) di Bogor Jawa Barat. *Jurnal Manajemen Pengembangan Industri Kecil Menengah,* 12(2), 151. https://journal.ipb.ac.id/index.

Dzoelkarman, Salam, I., & Hamzah, A. (2019). Partisipasi Kontak Tani dalam Perencanaan dan Pelaksanaan Program Penyuluhan Pertanian. *Jurnal Ilmiah Membangun Desa Dan Pertanian,* 4(1), 18–22. http://dx.doi.org/ 10.33772/jimdp.v4i1.6411.

Eriyanto. (2014). *Analisis Jaringan Komunikasi: Strategi Baru dalam Penelitian Ilmu Komunikasi dan Ilmu Sosial Lainnya*. Prenamedia Group.

Ghozali, I. (2018). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 25*. Badan Penerbit Universitas Dipenogoro.

Hapsari, D. T., Suprijanto, Marijati, S., & Susilawati. (2012). Faktor-Faktor Yang Mempengaruhi Partisipasi Masyarakat Pada Kebun Bibit Rakyat (Studi Kasus Pengadaan Bibit Karet Untuk Petani Di Kota Banjarbaru). *Jurnal EnviroScienteae*, *8*(2), 55–61. https://www.neliti.com/id/publications/278836/faktor-faktor-yang-mempengaruhi-partisipasi-masyarakat-pada-kebun-bibit-rakyat-s.

Hutomo, F. S., Effendi, I., & Silviyanti, S. (2018). Kepemimpinan Ketua Kelompok Tani Dalam Meningkatkan Dinamika Kelompok di Kecamatan Natar Kabupaten Lampung Selatan. *Jurnal Ilmu-Ilmu Agribisnis,* 6(1), 57-64. https://jurnal.fp.unila.ac.id/index.php/JIA/article/view/2499.

Kementerian Pertanian. (2021). *Buku Statistik Ketenagakerjaan Sektor Pertanian Agustus 2021*.

Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal - Kementerian Pertanian 2021.

Manyamsari, I., & Mujiburrahmad. (2014). Karakteristik Petani Dan Hubungannya Dengan Kompetensi Petani Lahan Sempit (Kasus : Di Desa Sinar Sari Kecamatan Dramaga Kab. Bogor Jawa Barat). J*Agrisep*, *15*(2), 58–74. https://jurnal.usk.ac.id/agrisep/article/view/2099.

Metalisa, R., Saleh, A., & Tjitropranoto, P. (2014). Peran Ketua Kelompok Wanita Tani dalam Pemanfaatan Lahan Pekarangan yang Berkelanjutan. *Jurnal Penyuluhan,* 10(2). https://doi.org/10.25015/penyuluhan.v10i2.9924.

Muhammad, A. (2004). *Komunikasi Organisasi*. Bumi Aksara.

Mustopa. (2021). *Peran Ketua Kelompok Tani Pada Peningkatan Produktivitas Padi Sawah Di Desa Margosari Kecamatan Pagelaran Utara Kabupaten Pringsewu*. Universitas Lampung.

Nurmalia, N., & Susilawati, T. (2016). Hubungan Kepemimpinan Ketua Kelompok dengan Keefektifan Kelompok. *Jurnal Penyuluhan Perikanan Dan Kelautan*, *10*(2), 71–87. https://doi.org/10.33378/jppik.v10i2.69.

Popana, K., Meilvis, E. T., & Jeter, D. S. (2023). Hubungan Kepemimpinan Ketua Kelompok Tani Dengan Efektivitas Kelompok Tani Di Desa Waiheru Kecamatan Baguala Kota Ambon. *COMSERVA Indonesian Journal of Community Services and Development,* 2(10), 20-31. https://doi.org/10.59141/comserva.v2i10.643.

Puspanjani, A. (2012). *Jaringan Komunikasi dan Difusi Adopsi Inovasi Pertanian (Studi Perbandingan Jaringan Komunikasi terhadap Difusi Adopsi Sistem Integrasi Padi - Ternak Sapi Bebas Limbah [SIPTBL] pada Kelompok Tani Marsudi Kromo Bogo dan Kelompok Tani Marsudi Utomo di Desa* . Universitas Sebelas Maret.

Putra, E. A. S., Witjaksono, R., & Harsoyo. (2016). Peran Ketua Kelompok Tani Dalam Adopsi Teknologi Budidaya Bawang Merah Di Lahan Pasir Pantai Kecamatan Sanden Kabupaten Bantul. *Agro Ekonomi*, *27*(2), 150–164. https://jurnal.ugm.ac.id/jae/article/view/22746.

Putri, R. H. (2016). Pengaruh Pendidikan, Pengalaman Kerja dan Jenis Kelamin terhadap Produktivitas Kerja. *Jurnal Pendidikan Dan Ekonomi*, *5*(4), 292–300. https://eprints.uny.ac.id/41147/.

Rahayu, W. (2017). *Jaringan Komunikasi pada Kelompok Wanita Tani Sido Lestari dalam Program Kawasan Rumah Pangan Lestari (KRPL) di Dusun Gondang Legi Kecamatan Sutojayan Kabupaten Blitar*. Universitas Brawijaya.

Ranti, D. (2009). *Peranan Program Pemberdayaan Pertanian Lembaga Amil Zakat (LAZ) Swadaya Ummah Terhadap Peningkatan Pendapatan Petani di Kelurahan Kulim Kecamatan Tanayan Raya Kota Pekanbaru*. UNRI Pekanbaru.

Siregar, S. (2016). *Statistika Deskriptif untuk Penelitian Dilengkapi Perhitungan Manual dan Aplikasi SPSS Versi 17*. PT. Raja Grafindo Persada.

Sugiarto. (2003). *Teknik Sampling*. Gramedia Pustaka Utama.

Sugiyono. (2014). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. CV. Alfabeta.

Sulastri, S., Putri, Y. H., & Muthia, F. (2020). Peningkatan Produktivitas Usaha Tani Melalui Kewirausahaan Masyarakat Di Desa Tanjung Raya. *Journal of Sriwijaya Community Services,* 1(3), 115-24. https://doi.org/10.29259/jscs.v1i2.20.

Utama, S. (2008). *Pemberdayaan Masyarakat Sekitar Hutan Melalui Pendekatan Kelompok (Kasus Pengelolaan Hutan Bersama Masyarakat pada Areal Hutan Produksi Perhutani Unit I Provinsi Jawa Tengah)*. Institut Pertanian Bogor.

Wahed, M. (2015). Pengaruh Luas Lahan, Produksi, Ketahanan Pangan Dan Harga Gabah Terhadap Kesejahteraan Petani Padi Di Kabupaten Pasuruan. *JESP*, *7*(1), 68–74. https://repository.ub.ac.id/id/eprint/155963/.

Wahyuni, D. (2017). Penguatan Kelembagaan Petani Menuju Kesejahteraan Petani. *Jurnal Kesejahteraan Sosial*, *IX*(17). https://www.academia.edu/34616037/2017_17_Penguatan_Kelembagaan_Petani_Menuju_Kesejahteraan_Petani_pdf.

Zakariyya, M. D. (2010). *Hubungan Kepemimpinan Ketua Kelompok Tani dengan Efektivitas Kelompok Tani di Kecamatan Pacitan Kabupaten Pacitan*. Universitas Sebelas Maret.