Available online freely at www.isisn.org

Bioscience Research

Print ISSN: 1811-9506 Online ISSN: 2218-3973

Journal by Innovative Scientific Information & Services Network

RESEARCH ARTICLE BIOSCIENCE RESEARCH, 2019 16(3): 2496-2512. **OPEN ACCESS**

The antecedent factors of national strategic food clusters' lowland rice the farmer groups' effectiveness in Kapuas District, Central Kalimantan Province, Indonesia

Tri Prajawahyudo[1,2], Kliwon Hidayat[3], Yayuk Yuliati[3], Edi Dwi Cahyono[3]

[1] University of Palangka Raya, Central Kalimantan, **Indonesia.**
[2] Postgraduate Program, Faculty of Agriculture, University of Brawijaya, Malang**, Indonesia.**
[3] Faculty of Agriculture, University of Brawijaya, Malang, **Indonesia.**

***Correspondence:** prajawahyudotri@yahoo.com **Accepted: 09** June 2019 **Published online:** 27 July. 2019

This study aims to analyze the antecedent factors influencing the effectiveness of the national strategic food clusters' farmer group in Kapuas District, Central Kalimantan Province. The antecedent factor consists of the internal and external factors that influence the farmer groups' effectiveness in achieving their stated objectives. The internal factors include the role of members, member interaction, group cohesiveness, self-efficacy, chairman leadership style, and group norms; while the external factors include: support of agricultural extension, support of *pambakal* (the village head), and the level of communication media use. The influence of antecedent factors can cause a decrease in the effectiveness of farmer groups, containing the indicators of performance, satisfaction, quality, and commitment. This potentially leads to the ineffectiveness of farmer groups in achieving the goals they have set. In processing data, the researcher utilized the PLS-SEM (Partial Least Square-Structural Equation Model) method. The results showed that the internal factors having a significant and positive impact on the effectiveness of the farmer groups were self-efficacy, chairman leadership style, and group norms; the members' interaction, however, showed a significant impact but a negative one. While the external factors showing a significant and positive impact on the farmer groups' effectiveness were agricultural extension support and the level of communication media use. The coefficient of determination (R^2) of 0.76 indicates that the antecedent factors influencing the farmer groups' effectiveness were 76%, the remaining 24% was influenced by other factors not included in the model.

Keywords: antecedents factors, the effectiveness of farmer groups, food clusters

INTRODUCTION

The empowerment of national strategic food clusters' farmer groups is a series of activities implementation to improve the quality of agricultural human resources in supporting the achievement of specific targets for increasing the production and productivity of the seven national strategic commodities. They are rice, corn, soybeans, various chilies, shallots, sugar cane, and beef. The target achievement of these commodities needs to be sustained and maintained. The Agricultural Human Resources Extension and Development Agency is responsible for preparing agricultural human resources related to the extension agents, officers, and farmers in order to become reliable actors through an integrated farmer empowerment movement supported by extension, education, and training. The empowerment activities of the national strategic food clusters' farmer groups

were carried out in 24,000 Agricultural Extension Work Areas in 34 provinces, collected from the 2016 Extension Center Deconcentartion Fund (Ministry of Agriculture, 2015). Kapuas Regency of Central Kalimantan Province is one of the locations of national strategic food clusters in improving the quality of human resources to achieve the seven national commodities' target.

Food as a basic human need must be fulfilled every time, because it is a very important and strategic commodity. Food availability is an important aspect in realizing food security, because it is needed to meet the needs and consumption of food for the community, households and individuals in a sustainable manner (Douglas, 2009; Ministry of Agriculture, 2015; Schipanski et al., 2016; Devereux, 2016).

Around 60% of the national rice production supplied from Java continues to decline. Van Tran (1998), Kaputra (2013), Xuan (2018), Dasgupta et al. (2018), Berg and Tam (2018), Zarić et al. (2018) found it is caused by the population increase, the narrowing of paddy fields due to land conversion, and the shrinking land productivity level. In order to maintain the production continuity, rice planting areas expansion must be immediately diverted to the outside of Java where the lands are still quite extensive. The government's efforts to maintain food self-sufficiency are by improving the quality of intensification, extensification, diversification, and rehabilitation of agricultural lands. The extensification program is done through opening new fields, especially in areas that already have irrigation networks outside Java. Although the cost of clearing rice fields is quite expensive, rice production is expected to increase with the application of the right and appropriate technology package (Kaputra, 2013). One of the important factors in achieving the expected production target is group effectiveness.

The more effective a group is, the better the life of group members. Group dynamics have the same concept as group effectiveness. The group is said to be dynamic if the group is effective in achieving the success of group goals (Makawekes et al., 2016).

The farmer groups' effectiveness is very essential for the groups' sustainability as the groups' objectives can be achieved (Nyang'au et al., 2018; Bachev, 2019; Wuepper et al., 2018; Knickel et al., 2018; Gabel et al., 2018; Wijaya et al., 2018; Hidayat et al., 2018; Giomi et al., 2018; Bloomfield et al., 2018). This makes the groups capable of analyzing their not-yet-accomplished goals so that planning group activities will run in a more productive and effective direction. Drucker in Hersey and Blanchard (2004) proposed the urgency of an organization's effectiveness; they stated that effectiveness is the basis for organizational success, including the group level (Hopkin, 2018; Sherman, et al., 2018; Kirschenbaum, 2019). This study aims to both internally and externally analyze the antecedent factors that influence the national strategic food clusters' the farmer groups' effectiveness in Kapuas District, Central Kalimantan Province.

The effectiveness focuses more on the results achieved. With the increasing effectiveness of rice paddy farmer groups, it is expected that it will have an impact on increasing production and productivity. The fostering and developing farmer groups cannot be separated from the influence of antecedent factors (internal and external). The research on antecedent factors (internal and external) on the farmer groups' effectiveness, with the Integrated Crop Management (ICM) model of the lowland rice through the Integrated Crop Management Implementation at the location of national strategic food clusters in Kapuas District, Central Kalimantan is very substantial, especially concerning the factors or variables influencing the farmer groups' effectiveness.

Research Framework

Effectiveness is the result of group work in achieving its goals (Raziq and Maulabakhsh, 2015; Forsyth, 2018; Harris and Sherblom, 2018; Zander, 2018). Effectiveness of interest groups by internal and external factors. Internal factors consist of member role (X1), member interaction (X2), member cohesiveness (X3), self efficacy (X4), chairman leadership style (X5), and group norms (X6), while external factors consist of agricultural extension support (X7), farmer support (X8), and the level of use of communication media (X9). Group effectiveness is influenced by internal and external factors. The four indicators of group effectiveness are based on Umstot's concept (1988): performance (the ability and results achieved in carrying out a job), quality (providing more benefits for the group members), satisfaction (the group success in meeting the needs of its members, which can be seen from the products created, the provision of production facilities, the eradication of pests and plant diseases, credit facilities, the availability of information and income earned), and commitment (the groups have the potential to progress and

develop). These four indicators of effectiveness complement each other. There is no weighting-distinction between these indicators because they constitute an inseparable unity; this means that each indicator is integrated and contributes equally to the forming elements of effectiveness. In the group behavior model, the input, process, environment, and output elements influence the accomplishment of the group's effectiveness. The group's effectiveness is influenced by both internal and external factors (Umstot, 1988) (Figure 1).

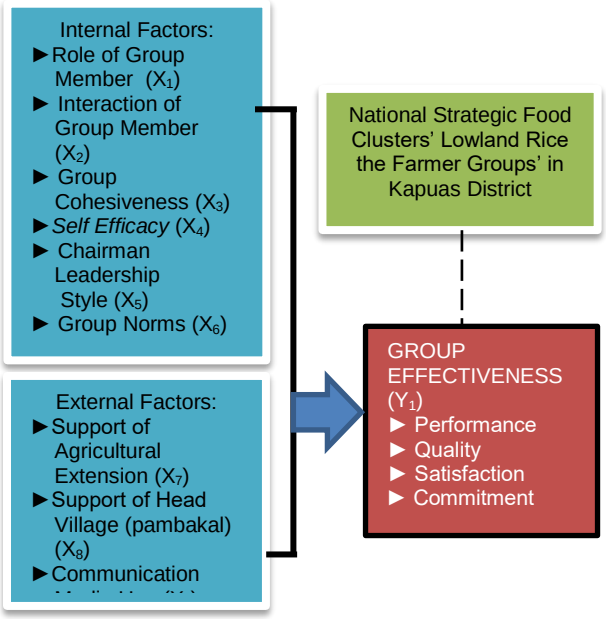

Figure 1. Frame of Research Concept

MATERIALS AND METHODS

Location and Time Research

This research was conducted in Kapuas District (Selat and Bataguh Subdistrict), Central Kalimantan Province. It is one of the national strategic food clusters locations in 34 provinces throughout Indonesia. from May to October 2018. Geographically, Kapuas Regency is located between 0º8'48 "up to 3º27'00" LS and 113º '36 "to 114º44 '00" on the Equator Line. Kapuas Regency has a tropical and humid climate with a minimum temperature ranging between 21-23ºC and a maximum of 36ºC. The intensity of solar radiation is always high and water resources are quite high. The rain mostly falls in December, between 886-1,789 mm per year; while the dry month (dry season) occurs in April-August (Kapuas District BPS, 2017). The research location is one of the national strategic food centers which carried out in 34 provinces throughout Indonesia (figure 2).

Determination of Sampling Methods

The measurement of the farmer groups' effectiveness used a Likert scale, and the unit of analysis was the farmer groups. The method of sample determination employed the proportionate stratified random sampling, in which farmer groups in the research area were recorded and listed, then grouped into group strata according to the criteria of the Ministry of Agriculture.

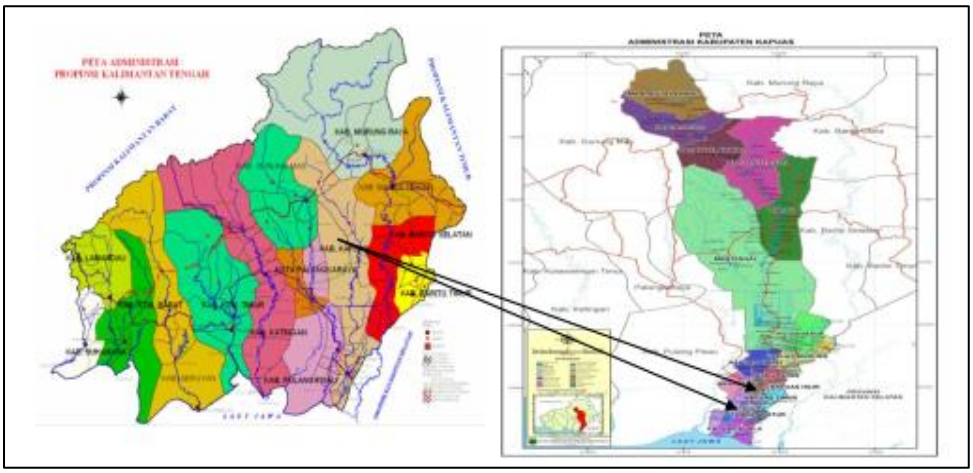

Figure 2. Map of Location and Research Activities

Table 1. The Number of Respondents Based on Farmer Groups' Ability Class

No	Ability Class	The Number of Farmer Groups	The Specified Number	Number of group sample	Number of respondents
1	Beginner	234	11%	26	130
2	Advanced	42	11%	5	25
	Total	276		31	155

Source: Data Processed obtained of The Agriculture Office of the Kapuas Regency (2018).

Furthermore, each stratum was randomly taken as a group sample (respondents) with the distribution of the number of groups representing the strata of the beginner and advanced classes, which amounted to 11% each. According to Arikunto (2013), if the number of subjects (samples) is large > 100, it can be taken between 10-15% and 20-25%. Then, the researcher randomly selected 5 members from each of the selected farmer group consisting of 2 administrators and 3 members of the non-management farmer group; so, the number of respondents from the two classes of the selected farmer groups' ability was 155 respondents (table 1).

Method of collecting data

Data collected in this study are primary data and secondary data. Primary data is data obtained from respondents through interviews using questionnaires arranged on a Likert scale. Questionnaires are a number of written questions that are used to obtain information from respondents in the sense of reports about the person, or things he knows. Data collection uses a technique triangulation method of the problem to be collected. Triangulation method is a technique of collecting data through interviews, observation, questionnaires, and documentation (Sugiyono, 2015).

Statistical analysis

Based on the research problem, the design of this study using mixed methods that are a blend of quantitative and qualitative. Quantitative data was collected using a questionnaire, while qualitative data was obtained from interviews with farmers. This study uses 10 variables, namely: group member role, group member interaction, group cohesiveness, self-efficacy, chairman leadership style, group norms, agricultural extension support, *pambakal* support (the village head), communication media use, and farmer groups' effectiveness. Qualitative data in this study analyzed using equation modeling structural models with the Partial Least Square (PLS) approach.

RESULTS

Analysis of Influence between Research Variables

The inferential statistical method used in the analysis of relationships between research variables is *Partial Least Square (PLS)*. The reason for using PLS is by considering that the causal relationship formulated in this study uses a one-way (recursive) causality model with measurement of reflective variables, Hair et al., (2017).

Test of Validity and Reliability

The construct validity shows how well the results obtained from the use of measurement are in accordance with the theory (concept) used to define a construct. A strong correlation between constructs, statement items, and a weak relationship with other variables is one way to test the construct validity. The construct validity test can be measured by loading score parameters. It uses the Rule of Thumb > 0.70, AVE parameters, and Communality. The AVE score must be > 0.50, and Communality > 0.50. The reliability test is utilized to measure the consistency of measuring instruments, in answering statement items in the research instruments (Cooper et al., 2006; Taber, 2018). The test is measured by the value of Cronbach's alpha and composite reliability. The Rule of Thumb, the value of alpha, or composite reliability must be > 0.70; even though the value of 0.60 is still acceptable. Nonetheless, the value of composite reliability is better used in PLS techniques to estimate the internal consistency of a construct (Wiyono, 2011; Abdillah and Jogiyanto, 2015; Cheah, et al. 2018; Ringle, et al. 2018).

Test of Hypothesis

The test is done by looking at the

percentage of the variance that is determined, namely R^2 (coefficient of determination) for the endogenous latent variable modeled. The higher the R^2 value means the better the prediction model of the proposed research model. Hypothesis testing is seen from the t-statistic value. Hypothesis testing uses statistical values for alpha 5% (0.05), the t-table value used is 1.96. Approved acceptance criteria or hypothesis rejected Ha accepted and Ho rejected compilation-t-statistics> 1.96.and vice versa (Hair, et al., 2017).

The theoretical model on the conceptual framework of the study is said to be fit if supported by empirical data. There are two indications to see whether the model used is good, namely goodness of fit outer model (measurement model) and goodness of fit inner model (structural model). The results of testing the goodness of fit outer model and inner model in accordance with the results of the PLS (Partial Least Square) analysis are presented in the Appendix.

Goodness of Fit Model

Table 2; The Outer Model Test and PLS Assessment Criteria

Model Test	Output	Criteria
The Outer Model (Indicator Test)	a. Convergent Validity b. Discriminant Validity c. Average Variance Extracted (AVE) d.Composite Reliability	a. The Value of factor loading is 0.50-0.60 b. The value of cross loading correlation with its latent variables must be greater than the correlation with other latent variables c. The AVE value must be > 0.50 d. The value of Cronbach's alpha or Composite Reliability must be > 0.70, even though the value of 0.60 is still acceptable

Source: Hair *et al*., (2017).

Table 3;The Inner Model Test and PLS Assessment Criteria

Model Test	Output	Criteria
The Inner Model (Hypothesis Test)	a.The coefficient of determination (R^2) for endogenous latent variables b.The Parameter coefficients, and t-statistics	a. The value of the coefficient of determination (R^2) is between 0 – 1; the higher the value of R^2, the greater the contribution to endogenous latent variables, due to exogenous latent variables. b. The value of the estimated path relationship in the structural model must be significant, with a bootstrapping procedure

Source: Hair *et al*., (2017).

Table 3; The Inner Model Equation

	Original Sample (O)	Equation
X1 -> Y1	0.098	Y1 = 0.098 X1 – 0.148 X2 – 0.086 X3 + 0.152 X4 + 0.228 X5 + 0.220 X6 + 0.210 X7 + 0.134 X8 + 0.353 X9 + e R^2 =0.756
X2 -> Y1	-0.148	
X3 -> Y1	-0.086	
X4 -> Y1	0.152	
X5 -> Y1	0.228	
X6 -> Y1	0.220	
X7 -> Y1	0.210	
X8 -> Y1	0.134	
X9 -> Y1	0.353	

Source: Data Processed (2018)

Table 4; The Results of Outer Model Discriminant Validity with Cross Loading

Indicators	Variabel									
	X1	X2	X3	X4	X5	X6	X7	X8	X9	Y1
X1.1	**0.89**	0,67	0,58	0,52	0,37	0,38	0,35	0,15	0,22	0,36
X1.2	**0.93**	0,56	0,49	0,46	0,39	0,51	0,47	0,17	0,23	0,44
X1.3	**0.49**	0,30	0,27	0,33	-0,10	0,15	0,27	0,13	-0,08	0,05
X2.1	0,59	**0.92**	0,71	0,62	0,43	0,47	0,52	0,32	0,48	0,45
X2.2	0,64	**0.94**	0,68	0,61	0,54	0,59	0,50	0,26	0,40	0,51
X3.1	0,55	0,67	**0.84**	0,63	0,32	0,40	0,48	0,19	0,34	0,36
X3.2	0,46	0,53	**0.81**	0,55	0,25	0,31	0,41	0,03	0,24	0,27
X3.3	0,45	0,64	**0.84**	0,61	0,40	0,42	0,44	0,19	0,33	0,41
X4.1	0,45	0,52	0,57	**0.86**	0,24	0,38	0,40	0,17	0,25	0,37
X4.2	0,52	0,65	0,71	**0.93**	0,31	0,52	0,63	0,24	0,37	0,52
X5.1	0,31	0,43	0,31	0,21	**0.91**	0,46	0,25	0,22	0,58	0,57
X5.2	0,34	0,48	0,36	0,29	**0.93**	0,55	0,34	0,31	0,59	0,63
X5.3	0,39	0,45	0,38	0,29	**0.84**	0,53	0,33	0,20	0,46	0,56
X5.4	0,39	0,50	0,37	0,30	**0.87**	0,52	0,34	0,22	0,43	0,54
X6.1	0,33	0,44	0,28	0,28	0,60	**0.81**	0,42	0,39	0,45	0,60
X6.2	0,37	0,48	0,42	0,51	0,40	**0.87**	0,55	0,35	0,33	0,55
X6.3	0,54	0,53	0,48	0,51	0,46	**0.86**	0,61	0,38	0,40	0,65
X7.1	0,37	0,40	0,39	0,54	0,25	0,53	**0.71**	0,33	0,19	0,41
X7.2	0,39	0,55	0,52	0,55	0,33	0,55	**0.87**	0,41	0,41	0,60
X7.3	0,34	0,40	0,42	0,41	0,21	0,43	**0.78**	0,32	0,30	0,46
X7.4	0,35	0,38	0,36	0,37	0,31	0,47	**0.78**	0,36	0,34	0,51
X8.1	0,23	0,31	0,22	0,30	0,10	0,38	0,46	**0.92**	0,22	0,40
X8.2	0,12	0,27	0,12	0,15	0,37	0,44	0,39	**0.95**	0,37	0,51
X9.1	0,13	0,36	0,25	0,23	0,57	0,40	0,28	0,35	**0.84**	0,62
X9.2	0,13	0,37	0,27	0,22	0,51	0,33	0,28	0,28	**0.89**	0,55
X9.3	0,34	0,47	0,43	0,45	0,41	0,46	0,47	0,19	**0.83**	0,61
Y1.1	0,53	0,48	0,47	0,57	0,36	0,59	0,56	0,24	0,43	**0.77**
Y1.2	0,32	0,35	0,29	0,38	0,63	0,61	0,51	0,37	0,55	**0.89**
Y1.3	0,33	0,51	0,39	0,43	0,66	0,65	0,56	0,63	0,87	**0.90**
Y1.4	0,31	0,42	0,32	0,36	0,48	0,53	0,53	0,38	0,40	**0.79**

Source: Data Processed (2018)

Table 5;The Latent Variable Reliability Results (Construct)

	AVE	Composite Reliability	Cronbach's Alpha
X1	0.63	0.83	0.74
X2	0.86	0.93	0.84
X3	0.69	0.87	0.78
X4	0.80	0.89	0.76
X5	0.79	0.94	0.91
X6	0.72	0.88	0.80
X7	0.62	0.87	0.80
X8	0.87	0.93	0.85
X9	0.73	0.89	0.82
Y1	0.71	0.91	0.86

Source: Data Processed (2018)

Table 6;The Hypothesis Testing Results of Direct Inter-Variable Influence

No.		Original Sample (O)	T Statistics	P-value	Explanation
1	X1 -> Y1	0.098	1.846	0.067	Insignificant
2	X2 -> Y1	-0.148	1.918	0.056	Insignificant
3	X3 -> Y1	-0.086	1.320	0.187	Insignificant
4	X4 -> Y1	0.152	2.248	0.025	Significant
5	X5 -> Y1	0.228	3.766	0.000	Significant
6	X6 -> Y1	0.220	3.351	0.001	Significant
7	X7 -> Y1	0.210	2.861	0.004	Significant
8	X8 -> Y1	0.134	2.967	0.003	Significant
9	X9 -> Y1	0.353	6.461	0.000	Significant

Source: Data Processed (2018)

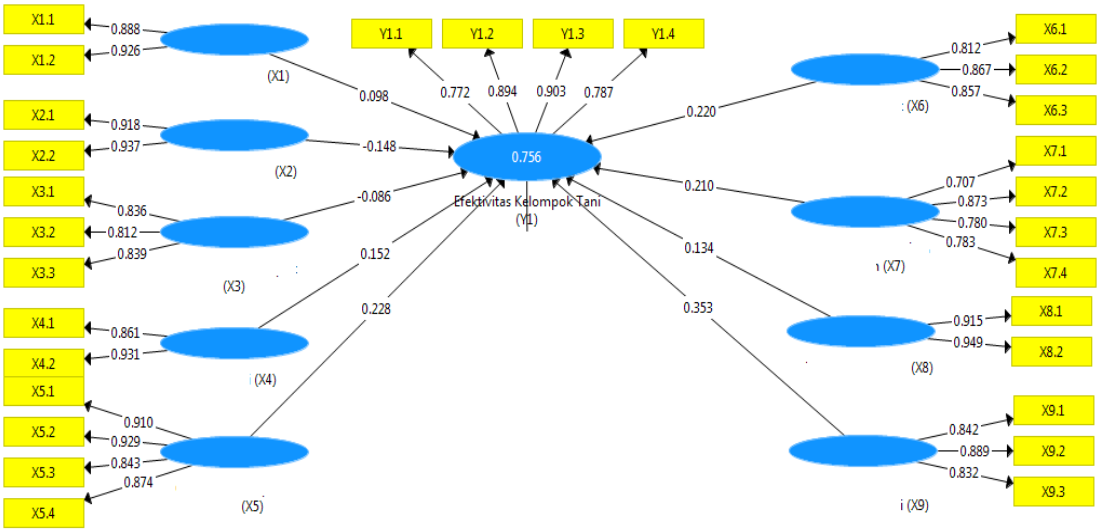

Figure 3. Path Diagram
Source: Data Processed (2018)

Hypothesis Testing Results

In the structural model test, there are 9 (nine) hypotheses that will be tested for the influence or relationship between exogenous variables on endogenous variables. The results of testing the influence between variables in detail or detail are presented in table 7. The results of the analysis in table 7. show that the influence or relationship between variables directly. Hypothesis testing can be explained as follows:

Hypothesis 1: Effects of Role of Group Members on Farmer Groups' Effectiveness

Testing the group member role variable (X_1) influence on the farmer groups' effectiveness (Y_1) was obtained through the statistical T-values of 1.846 < T-Table 1.960 (two-tailed) and P-Value > 0.05, this means that there was no significant influence between group member role variable (X_1) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis was rejected).

Hypothesis 2: Effects of Group Member Interaction on Farmer Groups' Effectiveness

The testing of member interaction variables (X_2) influence on the farmer groups' effectiveness (Y_1) obtained 1.918 T-Statistic values < T-Table 1.960 (two-tailed) and P-Value > 0.05; this means that there is no significant influence between member interactions (X_2) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis was accepted).

Hypothesis 3: Effects of Group Group Cohesiveness on Farmer Groups' Effectiveness

Testing the group cohesiveness variables (X_3) influence on the farmer groups' effectiveness (Y_1) obtained statistic T-values 1.320 < T-Table 1.960 and P-Value > 0.05 (two-tailed); this means that there is no significant influence between Group Cohesiveness (X_3) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (hypothesis rejected).

Hypothesis 4: Effects of Self-Efficacy on Farmer Groups' Effectiveness

Testing the self-efficacy variables influence (X_4) on the farmer groups' effectiveness (Y_1) obtained the statistic T-value 2.248 > T-Table 1.960 and P-Value < 0.05 (two-tailed); this displays that there is a significant effect between self-efficacy (X_4) on the effectiveness of farmer group ability (Y_1) with a significance level of 5% (the hypothesis is accepted). The path coefficient (0.103) shows that there is a positive effect, meaning that the stronger the self-efficacy (X_4) will cause the higher the effect (influence) on the effectiveness of the farmer group (Y_1).

Hypothesis 5: Effects of Chairman Leadership Style on Farmer Groups' Effectiveness

Testing the chairman leadership style variable (X_5) influence on the farmer groups' effectiveness (Y_1) obtained the Statistical T-value of 3.766 > T-Table 1.960 and the P-Value < 0.05 (two-tailed); this means that there is a significant influence between the leadership style (X_5) to the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis is accepted). The path coefficient (0.228) shows that there is a positive effect, meaning that the better leadership style of the chairman (X_5) will cause higher influence on the effectiveness of the farmer group (Y_1).

Hypothesis 6: Effects of Group Norms on Farmer Groups' Effectiveness

Testing the group norm variable (X_6) influence on the farmer groups' effectiveness (Y_1) obtained the Statistical T-value of 3.351 > T-Table 1.960 and P-Value <0.05 (two-tailed); this conveys that there are a significant effect group norms (X_6) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis is accepted). From the path diagram in table 5.30, the biggest influence on the farmer groups' effectiveness (Y_1) is the group norm variable (X_6), which is equal to 0.220. The path coefficient (0.220) shows that there is a positive influence, meaning that the stronger the group norm (X_6), the higher the effect on the effectiveness of the farmer group (Y_1).

Hypothesis 7: Effects of Agricultural Extension Support on Farmer Groups' Effectiveness

Testing the agricultural extension support variable (X_7) influence on the farmer groups' effectiveness (Y_1) obtained T-Statistic value of 2.861 > T-Table 1.960 and P-Value < 0.05; this means that there is a significant influence of agricultural extension support (X_7) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis is accepted). The path coefficient (0.210) shows that there is a positive influence, meaning that the better agricultural extension support (X_7), the higher the influence on the farmer groups' effectiveness (Y_1).

Hypothesis 8: Effects of Pambakal (The Village Head) on Farmer Groups' Effectiveness

Testing the *pambakal'* support variable (X_8) influence on the effectiveness of the farmer group (Y_1) obtained the Statistical T-value of 2.961 > T-Table 1.960 and P-Value < 0.05 (two-tailed); this means that there is no significant influence of *pambakal (*head of village*)* support (X_8) on the effectiveness of farmer groups (Y_1) with a significance level of 5% (the hypothesis is rejected). The path coefficient (0.134) indicates that there is a positive influence which means that the better the support of the farmer (X_8) will cause the influence of the farmer groups' effectiveness (Y_1).

Hypothesis 9: Effects of Communication Media Use on Farmer Groups' Effectiveness

Testing the communication media use (X_9) influence on the farmer groups' effectiveness (Y_1) obtained the Statistical T-value of 6.461 > T-Table 1.960 and P-Value < 0.05 (two-tailed); this means that there is a significant effect of using communication media (X_9) on the farmer groups' effectiveness (Y_1) with a significance level of 5% (the hypothesis is accepted). The path coefficient (0.353) shows that there is a positive effect, meaning that the better the level of use of communication media (X_9), the higher the effect on the farmer groups' effectiveness (Y_1).

Table 3. shows that the variable of the effectiveness of the farmer group (Y1) is influenced by the variables of member role (X1), member interaction (X2), member cohesiveness (X3), self efficacy (X4), chairman leadership style (X5), and group norms (X6), while external factors consist of agricultural extension support (X7), farmer support (X8), and the level of use of communication media (X9). with the value of the coefficient of determination (R square) equal to 0.76. This shows that the variables on the above has an effect of 76% on the effectiveness of the farmer group (Y1), while the remaining 24% is influenced or determined by other factors not included in the model.

(a) (b) (c)

Figure 4; Collaboration of farmer groups in processing (a) and planting of land (b, c)

(a) (b) (c)

Figure 5; Processing plant (a) and distribution of rice (b, c)

DISCUSSION

Effects of Role of Group Members on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is not an effect between group members on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. The results of this research analysis are inconsistent with the substance of the theory (concept) of Umstot (1988) in the group behavior model, in which the group's effectiveness (performance, quality, satisfaction, and commitment) is influenced by the behavior of the task role, maintenance role, and blocking roles.

The task implementing role is trying to achieve group goals with various activities carried out. This role proposes ideas, information seekers, information givers, assessors, and summaries of various opinions to achieve the goals. The implementer's role is to reconcile disputes, invite the members to respect differences, minimize conflicts, encourage, praise, be friendly, and compromise. The person implementing the maintenance role strives to maintain the group's harmony to achieve its goals. The inhibitor's role is characterized by those that dominate activities, take satisfaction in dominating a conversation, like to oppose group opinions, like to attack group opinions due to disagreement, and those who are cynical, impolite, aloof, always opposing the group's goals. The roles of task implementer, the maintainer, and the inhibitor always exist in the group's activities in achieving goals. The farmer group will easily progress and develop if the role of the task manager and the role of the maintainer are more dominant than the inhibitor. Conversely, if the inhibitor's role is more dominant than the task implementer and the maintainer, the farmer group cannot progress and develop; therefore, it will affect the effectiveness in achieving the farmer group's objectives.

Effects of Group Member Interaction on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is not an effect between group member interaction on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. This is contrary to Adawiyah's research findings (2017) which present that communication within farmer groups is an important component in delivering information material in the form of technology and other information. In the farmer group, in addition to communication, there is also a place for discussion and learning among fellow farmers, along with being a decision unit for the unity of action in adopting the technology. The nature of the interaction is a form of interdependence. Forms of dependence are the essence of grouping. The group includes the aspects of a) a number of people who communicate over time and face to face; b) a number of people interacting of which the interaction process distinguish groups from aggregation; and c) a system of open interaction and behavior that determines the structure and system (Shaw, 1979). Farmer groups, whose members meet more often, communicate between members and between administrators to discuss matters relevant to the group and their farming activities, indicate a strong interaction. This allows many ideas to emerge in solving the group's problems so that groups can play a role as well as function properly, and ultimately can improve the effectiveness of their farmer groups (Hariadi, 2011).

Effects of Group Cohesiveness on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is not an effect between group cohesiveness on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. The results of the study are not substantively supported by the theory that the more individuals value their group and want to be accepted by other members, the more they want to avoid something that will separate them from the group (Baron et al., 2012). In addition, cohesive (unified) and close group members turn out to easily work together in achieving the group goals (Smith et al. ,1999). According to Gibson et al., (2012) cohesiveness is a strong desire from group members to stay in groups and commit to groups. Ivancevich, et al. (2005) asserted that cohesiveness is considered as strength. Cohesiveness binds all group members to stay in the group and ward off the influence that draws members out of the group. A cohesive group consists of individuals who are attracted to one another. Highly cohesive groups typically consist of individuals who are motivated to unite, so that management tends to expect these cohesive groups to show effective performance. While according to Baron et al., (2012), the more cohesive a group is, the greater the tendency of a person to follow group norms and rules is.

Effects of Self-Efficacy on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between self-efficacy on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. This is theoretically supported by Bandura (2010), stating that higher self-efficacy causes more active effort so that it has an influence on the group's effectiveness. In groups, the high self-efficacy of group members causes more active effort so that groups can be effective in achieving goals. Achdiyat (2018) found the fact that there was a significant and positive engagement between trust or self-confidence and the effectiveness of farmer groups. Self-efficacy is the self-confidence that a person is able to do adequately, achieve goals and overcome obstacles in a situation. Self-efficacy refers to an individual's self-evaluation of believing that he is capable of doing tasks, achieving goals and overcoming obstacles (Bandura, 2010; and Gibson et al., 2012). Self-efficacy supports the urgency for effectiveness in any skills one has. Self-efficacy does not measure the skills possessed, but believe that one is able to do tasks with whatever skills he has. Self-efficacy comes from 4 (four) sources:1) direct experience that gives skills, 2) experience observing models (examples); 3) verbal and written persuasion; and 4) physiology (relevant to the physical), and knowledge (relevant to belief). Self-efficacy significantly influences motivation and performance (Bandura & Locke, 2003; and Vancouver et al., 2002). According to Bandura (2010), in its practice, higher self-efficacy causes more active effort so that it has an impact on group effectiveness. In groups, this makes them successfully achieve their goal.

Effects of Chairman Leadership Style on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between chairman leadership style on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. These

results are not supported by several findings, among others, According to Lumentut (2017), group effectiveness is influenced by leadership, good leaders are those who can communicate positively to influence groups to move towards group goals. Alfathan and Saleh (2018) that obtained the fact that there was a significant correlation between leadership style and group effectiveness. Situational leadership styles contribute significantly to managing conflict in groups (Oyelude and Fadun, 2018). Dewandini (2016) asserted that the group leader has an important role and determines the success of the group. Moreover, Prasetyo et al., (2017) stated that the success of farmer groups depends on the communication skills of the group leader and the group members. The effectiveness of communication between group leaders can be seen from the chairperson's attitude such as openness, empathy, supportive attitude, positive attitude, and equality attitude. According to Sugiyanto et al., (2012), the role of group leaders influences group performance which ultimately affects the achievement of group effectiveness. Muhdlor et al. (2018) found the fact that chair leadership had a significant and positive effect on the effectiveness of farmer groups.

There are 4 (four) leadership styles, they are:1) telling (determining the role needed to do the task, if the members are not capable and do not want to do the task); 2) selling (giving orders or structured instructions to members and providing enthusiasm and support, especially if the members are not capable of doing but want to do the task); 3) participating (the deliberation in making a decision about the best way to complete a job with good results, especially if the members are capable but do not want to do the task); and 4) delegating (giving a little specification with a personal direction approach to members, especially if the members are capable and want to do the task) (Gibson et al., 1997, Ivancevich et al., 2005, Bjugstad, et al., 2006, Vandayani, et al., 2015, Blanchard, 2018).

The leadership style of the group leader is analyzed based on the Hersey-Blanchard theory of Situational Leadership theory (SLT). The SLT theory was modified according to the role of the farmer group leader. The role emphasizes the readiness of the members which includes work readiness and psychological readiness, namely 1) if the members have no work readiness or are not capable of doing it, the group leader must play a dominant role as a leader, teacher, and independent instructor; as well as 2) if the group members have no psychological readiness or do not want to do the task, the group leader must be dominantly acting as a leader, guide, driver, and role model (Hariadi, 2011). A group leader that can act as a good chairman corresponding to its members' situation, improve work readiness for the members who are not capable, and increase the members lacking motivation, will be able to increase various activities of members and groups; thus, the group can improve its effectiveness.

Effects of Group Norms on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between group norms on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. The results of the analysis are supported by Postmes (2001) who found that groups having the norm to discuss, significantly and positively produce far more appropriate decisions when compared with groups that do not have rules of discussion; additionally, group norms influence the activities of farmer groups, and increasingly strong group norms tend to be higher in group effectiveness. Norms are implemented and trusted to direct group behavior (Tankard and Paluck, 2016; Chan, et al., 2016). Group members tend to accept norms that are regularly introduced and control the relations between members. Group norms control the behavior of members having high or low power (Jhonson and Jhonson, 2000). According to Shaw (1979), the members of cohesive groups will theoretically adjust to group norms and have a positive response caused by the influence of other members. The characteristics of important norms that influence the group members behavior are: a) the norms regulate various things (situations) to achieve goals; b) the norms apply to all members; c) all norms are accepted by each member, and (d) any violation (by any member) to the norms will result in sanctions. Whereas according to Gibson et al., 1997, Kim, and Shin, 2015, Higgs, 2015 norms are a standard for the group members. Norms have characteristics valuable for group members, they are a) norms are formed through respect for something that has a significant effect on the group; b) norms are accepted at various levels by its members; c) norms can be applied to each group member. Usually, the norms within a group are collective agreements. A farmer group's norms provide guidelines for group members' individual behavior. Therefore, when group norms are adhered to by

all members, this will support the farmer groups' effectiveness as well as the group activities to achieve group goals will run very well, and vice versa.

Effects of Agricultural Extension Support on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between agricultural extension support on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. Agricultural extension has a role to assist the farmers to help themselves in overcoming the problems they encounter in a good and satisfying manner so as to improve their lives. Thus, the important value adopted in extension is empowerment so that the independence of farmer groups is formed (Sadono, 2008). Singh (2009) asserted that agricultural extension employing the "mentality provider as a provider" approach only focuses on what is disseminated; moreover, the information conveyed is too broad, not real and is not locally suitable for the needs, and is not based on the farmers' needs. The results of the study conducted by Cahyono et al., (2016) presented that participatory extension approaches need the farmers' participation to run effectively.

Agricultural, fishery, and forestry extension is a learning process for key actors and business people so that they are willing and able to help and organize themselves in accessing market, technology, capital, and other resources in an effort to increase productivity, business efficiency, income and their welfare, as well as raising awareness in the preservation of environmental functions (Law No. 16 of 2006). Agricultural extension, in the classic approach, is to gradually develop farmers and their families to have intellectual abilities that increase, is able to solve (problems), and decide what is best for them and their families. Swanson and Rajalahti (2010) criticized the classical education paradigm that still uses a technology transfer model which tends to be in the same direction and narrow, and has not used a participatory approach. The reason is that extension activities are still dominated by the government. The government implements a system that is less innovative and is very dependent on the ability and mindset of the government in power.

Effects of Pambakal (The Village Head) on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between *pambakal* (the village head) on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. These results were supported by the findings of Anantayu et al. (2009) presenting that the local leadership directly and significantly influences the farmer groups' effectiveness. The results of this study are on the contrary to Hariadi's (2004) study, finding that village officials have a significant effect on the success of farmer groups, both as a cooperation unit and as a production unit. The better the guidance or support of the village administration, the better the success of the farmer groups. *Pambakal* has legitimate and informational power because of the *pambakal* acts as a coach for rural organizations, including the farmer groups. Legitimate power is a person's ability to influence others because of his position, while informational power is the power to be a source of information for others. According to Gibson et al., 1997, Allen, et al., 2016, Wrong, 2017, legitimacy power is an individual's ability to influence others because of his position. Individuals having positions possess the power of individuals with lower positions. When an individual has the power of legitimacy, group members believe that he has an influence on others because of his position in the group/ organization, or because of the responsibility of his role. In activities that are relevant to farmer groups, the legitimate power is possessed by a *pambakal*. This is due to the position of the *pambakal* as the coach of the organization in the countryside. Meanwhile, the *pambakal* can possess informational power because he is also a source of information for the members of farmer groups.

Effects of Communication Media Use on Farmer Groups' Effectiveness

Based on hypothesis testing shows that there is an effect between communication media use on the farmer groups' effectiveness of national strategic food center in Kapuas Regency. The results of the analysis are supported by a study conducted by Eko et al. (2000), stating that communication media are able to meet the information needs according to the motivation to use information media and their benefits, Thakur and Chander (2018) asserted that *WhatsApp* offers a new form of information dissemination on agricultural extension. Most of the farmer group members show that using mobile devices (handphones) helps them access agricultural inputs and relevant information (Okuboyejo et al., 2012); the use of cellular technology increases

efficiency and reduces transportation costs. According to Baumuller (2012), mobile phones assist in overcoming obstacles to adopting technology. Mittal and Mehar (2012) argued that mobile phones greatly help provide and improve intensive information dissemination services to the agricultural sector, as well as bridge the gap between the availability and delivery of agricultural inputs and infrastructure. Gan and Li (2018) stated that the media attractiveness has the greatest influence on continuing the intention to use *WeChat*, followed by hedonic gratification (perceived pleasure) and utilitarian gratification (information sharing).

The use of communication media is inseparable from agricultural development efforts. Dissemination of information through media is very beneficial for people's lives, especially in agricultural areas. For the sake of progress and welfare of the farmer community, the dissemination of information through communication media will encourage them to participate in agricultural development. Communication media can be grouped into three types, namely: communication media in the form of audio (radio, telephone, tape recorder, etc.), communication media in the form of visuals (newspapers, transparencies, charts or graphs, etc.), and communication media in the form of audio-visual (television, VCD, widescreen, Internet, interviews, visits, etc.) (Sanjaya, 2012). Today's development of science and technology has produced many communication media that can be used to convey information to farmers. On the other hand, with the increasing number of available media demanding consideration in establishing and using appropriate communication media to help disseminate information. The uses and gratifications theory states that media users play an active part in selecting and using these media. Media users try to find the best media sources in their efforts to meet their needs; it means, usability theory and satisfaction assume that users have alternative choices to satisfy their needs (Blumler and Katz, 1994). The dissemination of information through the media is very beneficial for the lives of the community or farmer groups. For the sake of progress and welfare of the Indonesian community or farmer groups, the dissemination of information through communication media will encourage the effectiveness of achieving farming objectives.

From the results and previous discussion, several variables that did not significantly influence the farmer groups' effectiveness included the role of members, group cohesiveness, and farmers' support; whereas theoretically, these variables influence the farmer groups' effectiveness. The ineffectiveness of these farmer groups will have an impact on not achieving their goals. Furthermore, the variables having a significant and positive effect on the farmer groups' effectiveness were self-efficacy (self-confidence), chairman leadership style, group norms, agricultural extension support, and the level of communication media use; the member interaction, however, had a significant but negative effect. Theoretically, these variables influence farmer groups' effectiveness. Thus, the influential variables need to be considered and improved because they will have an impact on achieving the objectives of the farmer groups.

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

ACKNOWLEGEMENT

Thank you Prof. Dr. Ir. Kliwon Hidayat., M.S. as a Promoter who has provided a lot of guidance, input and suggestions and valuable experience. Dr. Ir. Yayuk Yuliati, M.S. as Co-Promoter I who has provided guidance, and advice to the author so that this final report can be resolved. Ir. Edi Dwi Cahyono, M. Agr. Sc., M.S., Ph.D. who has provided guidance, advice to the author so that articles can be completed.

AUTHOR CONTRIBUTIONS

The article is part of the Dissertation of Doctoral and all the authors have contributed: PT data collection, data analysis and writing manuscript, Prof. KHY, Dr. YYL and EDC, Ph.D. contributed to review of manuscripts.

REFERENCES

Abdillah, W. and Jogiyanto, M.H. (2015). *Partial Least Square* : Alternatif *Structural Equation Modelling* dalam Penelitian Bisnis. Yogyakarta: Penerbit ANDI.

Achdiyat, D.G. (2018). *Relationship between Leadership of the Board with the Effectiveness of Farmers Group*. International Journal of Academic Research in Business and Social Sciences, 8(7), 573-582.

Adawiyah, C.R. (2017). Urgensi Komunikasi Dalam Kelompok Kecil Untuk Mempercepat Proses Adopsi Teknologi Pertanian. Jurnal Forum Penelitian Agro Ekonomi, 35 (1), 59-74.

Agunga, R., Cahyono, E.D., Buck, E., and Scheer, S. (2016). *Challenges of Implementing Participatory Extension in Indonesia.* Journal of Communication and Media Research (JCMR).8.21-45.

Alfathan, I.H. dan Saleh, A. (2018). *Styles of Leadership and Communication Intensity GPPT with Group Effectiveness in the Farm School*). Jurnal Sains Komunikasi dan Pengembangan Masyarakat (JSKPM), 2(3). 289-300.

Allen, R. W., Porter, L. W., and Angle, H. L. (2016). *Organizational influence processes*. Routledge.

Anantanyu, S., Sumarjo, Slamet, M., dan Tjitropranoto, P. (2009). Faktor Yang Memengaruhi Efektivitas Kelembagaan Petani (Kasus di Provinsi Jawa Tengah). Jurnal Penyuluhan, 5(1), 81-91.

Arikunto, S. (2013). Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: Penerbit Rineka Cipta, Edisi Revisi VI.

Bachev, H. (2019). *Sustainability of Farming Enterprises in Bulgaria*. Cambridge Scholars Publishing.

Bandura, A and Locke, E.A. (2003). *Negative Self Efficacy and Goal Effects Revisited.* Journal of applied Pyscholog, 88, 87-99.

Bandura, A. (2010). Self-efficacy. *The Corsini encyclopedia of psychology*, 1-3.

Baron, R. A. dan Byrne D. (1997). *Social Psychology*. USA: Allyn and Bacon A Viacom Company, 8th Edition.

Baron, R. A., Branscombe, N.R., dan Byrne, D. (2012). *Social Psychology*. Boston: Pearson Education, Inc, 13th Edition.

Baumüller, H. (2012).*Facilitating agricultural technology adoption among the poor: The role of service delivery through mobile phones*. ZEF Working Paper Series, No. 93 Provided in Cooperation with: Zentrum für Entwicklungsforschung/Center for Development Research (ZEF), University of Bonn.

Berg, H., and Tam, N. T. (2018). Decreased use of pesticides for increased yields of rice and fish-options for sustainable food production in the Mekong Delta. *Science of the Total Environment*, *619*, 319-327.

Bjugstad, K., Thach, E. C., Thompson, K. J., and Morris, A. (2006). A fresh look at followership: A model for matching followership and leadership styles. *Journal of Behavioral and Applied Management*, *7*(3), 304.

Blanchard, K. (2018). *Leading at a higher level: Blanchard on leadership and creating high performing organizations*. FT Press.

Bloomfield, G., Bucht, K., Martínez-Hernández, J. C., Ramírez-Soto, A. F., Sheseña-Hernández, I., Lucio-Palacio, C. R., and Ruelas Inzunza, E. (2018). Capacity building to advance the United Nations sustainable development goals: An overview of tools and approaches related to sustainable land management. *Journal of sustainable forestry*, *37*(2), 157-177.

BPS. (2017). Kabupaten Kapuas Dalam Angka. Kabupaten Kapuas. Kuala Kapuas.

Bungin, B. (2013). Metodologi Penelitian Kuantitatif: Komunikasi, Ekonomi, dan Kebijakan Publik Serta Ilmu-Ilmu Sosial Lainnya. Jakarta: Penerbit Kencana Prenada Media Grup, Cetakan Ketujuh (Edisi Revisi).

Chan, W. Y., Hollingsworth, M. A., Espelage, D. L., and Mitchell, K. J. (2016). Preventing violence in context: The importance of culture for implementing systemic change. *Psychology of violence*, *6*(1), 22.

Cheah, J. H., Memon, M. A., Chuah, F., Ting, H., and Ramayah, T. (2018). Assessing reflective models in marketing research: A comparison between pls and plsc estimates. *International Journal of Business and Society*, *19*(1), 139-160.

Chen, G. and Bliese, P.D., (2002). *The Role of Different Levels of Leadership in Predicting Self and Collective Efficacy.* Evidence for Discontinuity. Journal of applied Pyscholog, 87, 549-556.

Cooper, D.R., and Schindler, P.S. (2006). *Business Reserach Method*. New York: McGraw-Hill Companies, Inc., 9th Edition.

Dasgupta, S., Hossain, M. M., Huq, M., and

Wheeler, D. (2018). Climate change, salinization and high-yield Rice production in coastal Bangladesh. *Agricultural and Resource Economics Review*, *47*(1), 66-89.

Devereux, S. (2016). Social Protection for Enhanced Food Security in Sub-Saharan Africa. *Food Policy*, *60*, 52-62.

Dewandini, S.K.R. (2016). Kepemimpinan Dalam Upaya Pengoptimalan Pengelolaan Sumberdaya Manusia Untuk Keberlanjutan Kelompok, Jurnal Agros, 18(2), 181-190.

Douglas, I. (2009). Climate Change, Flooding and Food Security in South Asia. *Food Security*, *1*(2), 127-136.

Eko, S.M., Suryantini, H., Mansjur, S., dan Kusmayadi, E. (2000). Pemanfaatan Jasa Informasi Terseleksi Oleh Pengguna Badan Litbang Pertanian. Jurnal Perpustakaan Pertanian. Pusat Perpustakaan dan Penyebaran Teknologi Pertanian. Bogor Volume 15 (1).

Forsyth, D. R. (2018). *Group dynamics*. Cengage Learning.

Gabel, V. M., Home, R., Stolze, M., Birrer, S., Steinemann, B., and Köpke, U. (2018). The influence of on-farm advice on beliefs and motivations for Swiss lowland farmers to implement ecological compensation areas on their farms. *The Journal of Agricultural Education and Extension*, 24(3), 233-248.

Gan, C. and Li, H. (2018). *Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications*. Journal of Computer in Human Behaviour, 78.306-315.

Gibson, J.L., Ivancevich, J.M., Donnelly, J.H., and Konopaske, R. (2012). *Organizations: Behavior, Structure, Processes.* New York: Published by The McGraw-Hill, a business unit of The McGraw-Hill Companies, Inc., 14th Edition.

Giomi, T., Runhaar, P., and Runhaar, H. (2018). Reducing agrochemical use for nature conservation by Italian olive farmers: An evaluation of public and private governance strategies. *International journal of agricultural sustainability*, *16*(1), 94-105

Hair, J.F., Hult, G.T.M, Ringle, C.M., and Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Los Angeles: Sage Publication, Inc., Second Edition.

Hariadi, S.S. (2004). Kajian Faktor-Faktor Yang Berpengaruh Terhadap Keberhasilan Kelompok Tani Sebagai Unit Belajar, Kerjasama, Produksi dan Usaha. Unpublished Disertasi S3. Yogyakarta: Program Studi Psikologi Sosial. Sekolah Pascasarjana Universitas Gadjah Mada.

Hariadi, S.S. (2011). Dinamika Kelompok: Teori dan Aplikasinya Untuk Analisis Keberhasilan Kelompok Tani Sebagai Unit Belajar, Kerjasama, Produksi, dan Bisnis. Yogyakarta: Penerbit Sekolah Pasca Sarjana Universitas Gadjah Mada.

Harris, T. E. and Sherblom, J. C. (2018). *Small group and team communication*. Waveland Press.

Hersey, P. and Blanchard, K. (2004). *Management of Organizational Behavior.* Englewood Cliffts. New Jersey: Prentice Hall.

Higgs, S. (2015). Social norms and their influence on eating behaviours. *Appetite*, *86*, 38-44.

Hopkin, P. (2018). *Fundamentals of risk management: understanding, evaluating and implementing effective risk management*. Kogan Page Publishers.

Ivancevich, J.M., Konopaske, R., dan Matteson, M.T. (2005). *Organizational Behavior and Management*. Boston: McGraw Hill.

Jhonson, D.W. and Jhonson, F.P. (2000). *Joining Together: Group Theory and Group Skills*. The United States of America (USA): A Person Education Company, 7th Edition.

Kaputra, I. (2013). Alih Fungsi Lahan, Pembangunan Pertanian, dan Kedaulatan Pangan, Jurnal Strukturasi, 1(1), 25-39.

Kim, M., and Shin, Y. (2015). Collective efficacy as a mediator between cooperative group norms and group positive affect and team creativity. *Asia Pacific Journal of Management*, *32*(3), 693-716.

Kirschenbaum, A. (2019). *Chaos organization and disaster management*. Routledge.

Knickel, K., Redman, M., Darnhofer, I., Ashkenazy, A., Chebach, T. C., Šūmane, S., and Strauss, A. (2018). Between aspirations and reality: Making farming, food systems and rural areas more resilient, sustainable and equitable. *Journal of Rural Studies*, *59*, 197-210.

Lumentut, M.D dan Lucky, O.H.D. (2017). Pengaruh Motivasi Disiplin, dan Lingkungan Kerja Terhadap Kepuasan Kerja Karyawan Pada PT. Bank Sulut Cabang Airmandidi. Jurnal EMBA, 3(1), 74-85.

Makawekes, N.L.R.J., Pangemanan, L.R.J. dan Mewah, M.Y. (2016). Dinamika Kelompok Tani Cempaka di Kelurahan Meras

Kecamatan Bunaken Kota Manado. Jurnal Cocos, *7*(3), 1-14.

Ministry of Agriculture of the Republic of Indonesia. (2015). Technical Empowerment of Farmers' Groups in the Location of Food Centers in 2016. Jakarta: Center for Agricultural Extension of the Extension Agency and Development of Indonesian Agricultural HR.

Mittal, S., and Mehar, M. (2012). *How Mobile Phones Contribute to Growth of Small Farmers? Evidence from India*. Quarterly Journal of International Agriculture 51(3). 227-244.

Muhdlor, M.A.A., Eddy, B.T., dan Satmoko, S. (2018). Hubungan Kepemimpinan Ketua Dengan Efektivitas Kelompok Tani Di Kecamatan Singorojo Kabupaten Kendal. Jurnal Sungkai, 6(1),31-49.

Nyang'au, I., Kelboro, G., Hornidge, A. K., Midega, C., and Borgemeister, C. (2018). Transdisciplinary Research: Collaborative Leadership and Empowerment Towards Sustainability of Push–Pull Technology. *Sustainability*, *10*(7), 2378.

Oyelude, O.O. and Fadun, T.A. (2018). *Situational Leadership Style in Managing Conflicts in an Organization: A Case of Nigerian Eagle Flour Mill*. International Journal of Social Sciences and Management Research, 4(1), 44-50.

Postmes, T., Spears, R., and Cihangir, S. (2001). Quality of decision making and group norms. *Journal of personality and social psychology*, *80*(6), 918.

Prasetyo, A.S., Safitri, R., dan Kliwon, H. (2017). *Effectiveness of Interpersonal Communication of Head of Farmer Group to Maintaining Existence Sidodadi Farmer Group*. Journal of Habitat, 28 (3), 99-105.

Raziq, A., and Maulabakhsh, R. (2015). Impact of working environment on job satisfaction. *Procedia Economics and Finance*, *23*, 717-725.

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2018). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, 1-27.

Sadono, D. (2008). Pemberdayaan Petani: Paradigma Baru Penyuluhan Pertanian di Indonesia. Jurnal Penyuluhan, 4(1), 56-74.

Sanjaya, I. (2012). Pemanfaatan "*WhatsApp Messenger*" Sebagai Media Komunikasi Pada Remaja Akhir. Universitas Gunadharma. Diakses 21 Juli 2018 dari http://library.gunadarma.ac.id/repository/view/3742721

Schipanski, M. E., MacDonald, G. K., Rosenweig, S., Chappell, M. J., Bennett, E. M., Kerr, R. B., and Schnarr, C. (2016). Realizing Resilient Food Systems. *BioScience*, *66*(7), 600-610.

Shaw, E.R. (1979). *Group Dynamics: The Psychology of Small Group Behavior*. New York: McGraw Hill. Inc.

Sherman, S., Hadar, I., and Luria, G. (2018). Leveraging organizational climate theory for understanding industry-academia collaboration. *Information and Software Technology*, *98*, 148-160

Singh, B. (2009). *Partnership in Agricultiural Extension: Needed Paradigm Shift*. Indian Research. New Delhi: Journal of Extension and Education, 9(3).3.

Smith, E.R., Murphy, J., and Coast, s. (1999). Attachment to Group: Theory and Measurement. Journal of Personality and Social Psychology, 77.94-110.

Sugiyanto dan Palupi, D.T. (2012). Peran Ketua Kelompok Afinitas Mandiri Pangan Terhadap Pengelolaan Kinerja Kelompok Dalam Mencapai Efektivitas Kelompok. Journal of Agricultural Socio-Economics, 12(1). 25-37.

Sugiyono. (2015). Metode Penelitian Kuantitatif-Kualitatif dan R & D. Bandung: Penerbit CV Alfabeta, Cetakan 22.

Sugiyono. (2017). Statistika Untuk Penelitian. Bandung: Penerbit CV Alfabeta, Cetakan ke 28.

Swanson, B.E., and Rajalahti, R. (2010). *Strengthening Agricultural Extension and Advisory Systems: Procedures for Assesing, Transforming, and Evaluating Extension Systems*. Agriculture an Rural Development Disccusion Paper 44. Washington: The International Bank for Reconstruction and Development/The World Bank.

Tankard, M. E., and Paluck, E. L. (2016). Norm perception as a vehicle for social change. *Social Issues and Policy Review*, *10*(1), 181-211.

Thakur, D. and Chander, M. (2018). *Effectiveness of WhatsApp for Sharing Agricultural Information Among Farmers of Himachal Pradesh*. Journal of Hill Agriculture, 9(1),119-123.

Umstot, D.D. (1988). *Understanding Organizational Behavior*. USA: West Publishing Company, 2nd Edition.

Undang-Undang RI Nomor 16 Tahun 2006

Tentang Sistem Penyuluhan Pertanian, Perikanan, dan Kehutanan (SP3K). Jakarta: Presiden Republik Indonesia.

Van Tran, D. (1998). World rice production: main issues and technical possibilities. *Cahiers Options Méditerranéennes*, *24*(2).

Vandayani, P., Kartini, D., and Hilmiana, Y. A. (2015). The impact of national culture on effectiveness of situational leadership Hersey-Blanchard. *DEVELOPMENT*, *1*, S4.

Wijaya, A., Glasbergen, P., Leroy, P., and Darmastuti, A. (2018). Governance challenges of cocoa partnership projects in Indonesia: seeking synergy in multi-stakeholder arrangements for sustainable agriculture. *Environment, development and sustainability*, 20(1), 129-153.

Wiyono, G. (2011). Merancang Penelitian Bisnis Dengan Alat Analisis SPSS 17.0 dan SmartPLS 2.0. Yogyakarta: Unit Penerbit dan Percetakan STIM YKPN.

Wrong, D. (2017). *Power: Its Forms, Bases and Uses*. Routledge.

Wuepper, D., Sauer, J., and Kleemann, L. (2018). Sustainable intensification amongst Ghana's pineapple farmers: the complexity of an innovation determines the effectiveness of its training. *Environment and Development Economics*, *23*(1), 98-119.

Xuan, V. T. (2018). Rice production, agricultural research, and the environment. In *Vietnam's rural transformation* (pp. 185-200). Routledge.

Zander, A. (2018). *Motives and goals in groups*. Routledge.

Zarić, V., Petković, D., and Radošević, M. (2018). Consumer perception towards traditional Serbian agricultural and food products. *Economics of Agriculture*, *57*(Special nu), 57-66.