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The Affecting Factors of Competency Farmer to Farmer Extension Agents in Helping to Meet the Needs of Rice Farmers in Sumbawa District

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Abstract – Farmer to farmer extension agents (PPS) are expected to cover the shortage of state agricultural extension agents. This role can be optimized if supported by high competency. The research objectives are to 1) identify the level of competence of PPS; 2) analyze the factors that influence the competency of PPS. The study was conducted in Sumbawa District in July 2018 - August 2018. The study used a quantitative approach with the census method. The research sample of 87 PPS in the rice center sub-districts in Sumbawa District. The data were collected by using questionnaires and were analyzed using descriptive analysis and inferential analysis using PLS. The results of the research showed the indicators of PPS competencies in high category were: in developing entrepreneurship, developing leadership, being a foster for farmers. The indicators of capability planning development, carrying out extension activities, coordinating, delivering information and innovation, solving problems, making activity reports were in medium category. The indicators of develop farmer groups and establish partnerships were in low category. The affecting factors of PPS competencies in variable PPS personal characteristics were represented by motivation in the business and creative-innovative character. Beside that, the affecting factors in variable institutional support represented by the support of the agriculture department and company or banking support.

Keywords – Affecting Factors, Competency, Farmer to Farmer Extension Agent (PPS).

I. INTRODUCTION

Recently, the amount of agricultural extension agents in Indonesia has not fulfilled at least in each village there is one agricultural extension agent. As the mention in constitution (UU No 19 year 2013) to concerning Farmer Protection and Empowerment. Pusluhtan-Kementan (2017) noted that there were 44,419 agricultural extension or 54 percent of the total number of villages and sub-districts, (Permendagri No. 39 of 2015), so that nationally the number of extension workers in assisting farmers still had a high gap (Haryanto et al. 2017) .

The Government's effort in overcoming this gap is to grow and optimize farmer to farmer extension agent (PPS). PPS is the main actor who succeeded in his business and other community members who, with their own awareness, were willing and able to become extension agents (Permentan No.61 year 2008). PPS is a counselor born from the social system of farmers, so that they have a good understanding of the problems and needs of other farmers in their area. PPS as extension agents from farmers themselves are expected to help other farmers in the business. Syahyuti (2014) said that extension from farmers was reliable in delivering innovation messages to other farmers.

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This also happened in Sumbawa District, West Nusa Tenggara Province where Sumbawa District consisted of 24 sub-districts and 157 villages. There are 87 state agriculture extension in Sumbawa District (55%) from the total number of villages. The gap in the number of extension workers is felt in Sumbawa District because 20.4 percent (89,950 people) of the population are food crop farmers, even 17.25 percent (76,088 people) of rice farmers (Sumbawa in 2016 Figures). This condition makes the existence of PPS very helpful in optimizing the performance of extension workers.

The presence of PPS in addition to being able to cover the shortage of instructors, is also expected to have the ability in accordance with what is needed by farmers. Anwas (2013) states that in addition to labor conditions, professionalism in agricultural extension is also demanded to adjust to the evolving needs and dynamics of society.) Farmers who act as extension agents for other farmers are a form of participation of a farmer in agricultural development (Ghimire 2009). PPS plays a role as an agent of change in rural areas that is able to assist farmers, move the community and become a reformer in their environment.

The success of PPS in carrying out its role is greatly influenced by the competencies possessed. This is due to differences in educational background or training (Syahyuti 2014), experience and age so that it leads to differences in competencies in carrying out their roles. Competence is the level of knowledge, skills and attitudes of individuals in carrying out a job in accordance with established procedures. Harijati (2007) defines competency as the ability possessed by someone in the form of knowledge, skills and mental attitude needed to complete a job in accordance with a predetermined size. The competencies possessed by PPS at this time are still not all good according to what was stated by Jatnika (2006), that not all farmer to farmer extension agents have good competence or ability in assisting farmers, or moving their communities.

The fact that is revealed at this time is that PPS has not shown an ideal role in helping other farmers in farming activities such as the purpose of the existence of PPS as partners of agricultural extension workers. This has an impact on meeting the needs of farmers in carrying out agribusiness activities. The ability of PPS in carrying out its functions is not yet optimal can be influenced by various factors, both from internal PPS or from external environmental conditions of PPS. Based on these conditions it is necessary to conduct research on PPS competencies and what factors affect these competencies. The research objectives are 1) Identifying the competence of PPS in helping to meet the needs of farmers in farming in Sumbawa District. (2) Analyzing the factors that influence the competence of PPS in helping to meet the needs of farmers in farming in Sumbawa District.

II. Research Methods

The approach of this research were quantitative and enriched with qualitative analysis. The method used is the census method. Respondents were farmer to farmer extentions agent found in the ten sub-districts of the Sumbawa District rice center, which are the sub-districts that have the largest level of rice production and land area in the Sumbawa District. The research location was determined purposively. These districts include: Moyo Hilir, Empang, Plampang, Lopok, Moyo Hulu, Lape, Lunyuk, Maronge, North Moyo and Utan. The research was conducted from July 2018 - August 2018.

Primary data obtained by questionnaire, including the PPS competence variable in carrying out its role (Y1), is PPS characteristic (X1), and institutional support (X2) which is filled directly by the respondent accompanied by the researcher. Primary data was also collected through in-depth interviews with respondents and several other farmers. Secondary data were collected through document and literature review. Data analysis was performed with descriptive analysis using Microsoft Excel 2010 and inferential analysis Partial Least Square (PLS).

The validity and reliability test of the research instrument was carried out at PPS outside the research area, in the districts of Utan, Buer and Alas with a total sample of 30 respondence. The determination of the validity and reliability test sites is done intentionally with the consideration that the PPS at these locations have the same characteristics as the PPS in the research area. The results of the validity test found that most of the statements in the research instrument were classified as valid. This can be seen from the calculated r value ranging from 0.384 to 0.854, this value is greater than r table that is 0.349. The cronbachs alpha value produced ranges from 0.642 to 0.847 indicating greater than the cronbachs alpha value (0.6).

III. Results And Discussion

A. Characteristics of PPS

PPS characteristics are characteristics inherent in PPS that can distinguish them from other PPS. The characteristics of PPS include: 1) Age of PPS is in the adult category; 2) PPS formal education level is in the high category. Most of the PPS have taken senior secondary or

high school education; 3) PPS non-formal education level is in the high category. PPS participates in non-formal education more than twice; 4) most of the PPS have a fairly large area of about two hectares; 5) the types of commodities managed by PPS are quite diverse such as three types of commodities; 6) the cosmopolitan level of PPS is relatively high because it is already in the provincial domain; 7) the interaction of PPS with information sources is high because PPS can interact with three different sources of information; 8) the motivation level of PPS in the high category; 9) high level business experience; and 10) and the PPS character of creative and innovative of were in the high category. In more detail, a description of the characteristics of PPS can be seen in Table 1.

Table 1. Total and percentage of respondents based on their characteristics and categories

Characteristics of PPS	Category	Total (Person)	Percentage
Age (years)	Young (<25)	0	0,00
	Adult (≥ 25)	83	100,00
Formal Education Level (years)	Low (≤ 9)	37	44,58
	Height (> 9)	46	55,42
Non-formal Education Level (PNF) (score)	Quite high (≤ 2)	31	37,35
	Height (> 2)	52	62,65
Land Ownership (ha)	Large enough (<2ha)	21	25,30
	Area (≥ 2 ha)	62	74,70
Variety of Business (score)	Sufficient (2)	67	80,72
	Many (3)	16	19,28
Cosmopolitan (Score)	Fair (2)	26	31,33
	Height (3)	57	68,67
Interaction with information sources (score)	Little (1)	24	28,92
	Enough (2)	48	57,83
	Height (3)	11	13,25
Business motivation (score)	Sufficient (≤ 10)	19	22,89
	Height (> 10)	64	77,11
Cultivation Experience (years)	Sufficient (≤ 17)	34	40,96
	Height (> 17)	49	59,04
Creative and Innovative (score)	Enough (≤ 8)	14	16,87
	Height (> 8)	69	83,13

Note: n=83

Respondents were mostly in the adult age category, ranging in age from 30-50 years with a percentage of 100 percent. The age in the rangeof productive age so many respondents are still actively involved. At the productive age, the ability to do business is still good so that it is able to carry out activities optimally and is supported by long experience in making decisions.

Education is a learning activity that is followed in school. The level of formal education of respondents is in the high category because 55.42 respondents percent took senior secondary education. This shows that respondents who have a good level of education. The high level of education makes the respondent's ability to absorb information well enough. Ease of absorbing information and being supported by experience in doing business makes PPS able to develop their business well. This qualified level of education allows PPS to innovate in their farming.

Nonformal education level of respondents is the level of respondents participation in training, courses related to farming that have been attended. The level of formal education of the respondents was in the high category at 62.65 percent. This is because respondents have more than three non-formal education courses that have been attended. Frequent training / courses / comparative studies or similar activities make the ability of respondents to develop their business because they have a lot of experience. Mirza et al.

(2017), said that having adequate knowledge and experience can carry out sustainable business management.

Land ownership is the area of planting area managed by the respondent. The level of land ownership of respondents is in the broad category. This is because nearly 75 percent of respondents manage land on two hectares. Land that is managed besides being owned by others, there is also land that is rented from other people. The extent of land managed is inseparable from respondents' belief in success in farming. This confidence was gained from their experience from the previous year, where they managed to run their business with satisfactory profits.

The variety of business is the many types of agricultural commodities sought by the respondent. The level of variety of respondents' businesses are in many categories. Nearly 70 percent of respondents own more than three types of businesses. In addition to rice farming, the average respondent also cultivated crops and livestock businesses. The types of crops cultivated are generally corn, while the other respondent's farms raise cattle.

Cosmopolitan is the vast network of respondents' relations with people outside their social system. The cosmopolitan level of respondents in the high category was 67.47 percent. This is because PPS has a strong desire to practice. PPS often goes out of the regions, especially in the scope of district and provinces to see the extent of the business development that they are in.

The more frequent interaction with the outside basiness line makes respondents more open minded. Respondents can hear a lot of input from others, especially regarding the development of rice farming. In addition, it can make respondents more innovative in rice farming. Mirza et al. (2017) say that farmers who are less active in seeking information tend to be less active in groups.

The Interaction with information sources is the ability of respondents to make contact with information sources such as extension agents, experts or related agencies. The level of interaction possessed by respondents in the high category is 72.29 percent. This makes respondents not to miss information about the latest information regarding their farming. This information also includes up-to-date information on assistance and policies from the government or relevant agencies, especially the agriculture service.

Motivation in business farming is the level of willingness of the respondents to carry out business activities in agriculture. Respondents' motivation in doing business in general is in the high category at 77.11 percent. This is because the respondents have sufficient knowledge and experience as well as the support of relevant parties.

Business farming experience is the length of time that respondents have used in carrying out their farming activities. The respondents' business farming experience is in the high category at 59.04 percent. This shows that the majority of respondents have been doing rice farming for more than 15 years. Business farming experience shows that the longer the business, the higher the knowledge they have about farming. Experienced farmers will easily solve various problems experienced both from the beginning of the cultivation process to the marketing process. This is such a difficulty finding saprodi. Experienced farmers will usually easily meet the need for input even though they are not subsidized by the government. This is as said by Hermawan et al. (2017), business farming experience indirectly demonstrates the ability of good farmers in running their businesses.

Creative and innovative is the ability of respondents to find new things to solve their problems and the ease of accepting new technology. The respondents character of creative and innovative is in the medium category at 83.13 percent. This can be seen from the fact that some PPS are easy to accept new technology and have been able to solve themselves the problems faced in rice farming, such as accepting new varieties, finding solutions to fertilizer scarcity, pest control or other information needs.

B. Institutional Support

Institutional support is the convenience obtained by rice farmers from related organizations in supporting their farming activities. Activities that reflect institutional support in this research include: 1) farmer group support in the medium category; 2) rural government support in the medium category; 3) support of the agriculture service in the high category; and 4) corporate / banking support in the Low category. In more detail, a description of institutional support can be seen in Table 2

Table 2. Total and percentage of respondents based on institutional support and their categories

Institutional Support	Category	Total (Person)	Percentage
Farmer Group Support	Low	2	2,41
	Moderate	46	55,42
	High	35	42,17
Rural Government Support	Low	9	10,84
	Moderate	57	68,67
	High	17	20,48
Agricultural Service Support	Low	0	00,00
	Moderate	34	40,96
	High	49	59,04
Corporate / banking support	Low	51	61,45
	Moderate	32	38,55
	High	0	00,00

Note n=83 (Low: ≤ 33.3; Moderate 33.34 - 66.67; High> 66.67)

Farmer group support is a farmer group activity facilitating respondents in extension activities. More than half of respondents said that the support of farmer groups was in the moderate or moderate category. This is because farmer groups hold regular meetings, the organizator are mostly active in group activities, group activities increase from year to year. Most of the PPS stated that they have often been involved in activities in the past year.

The high support from farmer groups makes PPS have a strong motivation in doing business. In accordance with the function of farmer groups, as a place of learning, a place to work together and a place to obtain a production unit (Permentan No. 82 2013). Participating in group activities intensively makes PPS discover new things in the business, such as information technology, ease of obtaining production input, partnerships.

Rural government support is that the village government facilitates farming activities carried out by respondents. Rural government support is in the medium category. This condition is due to the fact that some respondents received support from the government in terms of providing a meeting place and the village head also often provided time to attend the meeting. In addition, farm roads facilitated by the village government in the respondent area are on average already in the good category.

The existence of support from the village government makes it especially convenient for PPS. Extension agents have the advantage of being able to embrace village officials as it is easier to mobilize farmers to hold meetings or carry out activities.

Agricultural service support is the agricultural service activity in facilitating respondent farming activities. Support from the Agriculture Service is in the high category. The high level of support from the Agriculture Service can be seen from the frequent training, facilitation of production input and agricultural machinery, the provision of information on farms that are being cultivated by respondents, procurement of demonstration plots and coordination assistance with related parties in running farming.

The existence of support from the agriculture service makes PPS capability increasing. This is because every year PPS has the opportunity to get training related to the farming they work at. In addition, PPS had the opportunity to apply new technologies related to their farming without spending money as followed in the demonstration plot held by the agency in selected locations. PPS received assistance from agriculture extension assigned by the Agriculture Service in accordance with Sunarti's statement (2015) that the important role of the Agriculture Service in agriculture is one of the providers of extension workers as a farmer assistant.

Corporate or banking support is a partnership that exists between respondents and companies related to farming such as production input companies and banks providing farm credit. This corporate or banking support is in the low category. The low level of support is due to the limited number of companies that work together in farming. Likewise with banking, there is still no good trust between farmers and related banks, due to past experience so that the management of capital lending is quite complicated. The

complexity of the capital lending process makes only few respondents or farmers enter into partnerships with banks.

C. PPS competency

PPS competency is the ability of farmers to succeed in carrying out their role. Capabilities that reflect PPS competency in research include: competency in developing counseling activity plans, competency in conducting extension activities, coordinating competency, competency in conveying information and innovation, competency in setting an example for farmers, competency in solving problems, and competency in making activity reports in the category of being quite capable. Competency to develop farmer groups and competency in forming partnerships in the category of underprivileged. The competencies in the category of capable are the competencies to grow leadership and the competence to develop entrepreneurship. An overview of complete PPS competency levels is shown in Table 3.

Table 3 Total and percentage of respondents based on competency elements and their categories

PPS Competency	Category	Total (Person)	Percentage
Develop a plan for extension activities	Low	0	00,00
	Moderate	64	77,11
	High	19	22,89
Carry out outreach activities	Low	0	00,00
	Moderate	39	46,99
	High	44	53,01
Coordinate	Low	0	00,00
	Moderate	63	75,90
	High	20	24,10
Developing farmer groups	**Low**	44	53,01
	Moderate	39	46,99
	High	0	00,00
Establish a partnership	**Low**	59	71,08
	Moderate	24	28,92
	High	0	00,00
Develop leadership	Low	0	00,00
	Moderate	30	36,14
	High	53	63,86
Developing entrepreneurship	Low	0	00,00
	Moderate	23	27,71
	High	60	72,29
Convey information and innovation	Low	0	00,00
	Moderate	49	59,04
	High	34	40,96
Be a role model for farmers	Low	0	00,00
	Moderate	11	13,25
	High	72	86,75
Solve the problem	Low	0	00,00
	Moderate	67	80,72
	High	16	19,28
Make an activity report	Low	30	36,14
	Moderate	53	63,86
	High	0	00,00

Note: n=83 (Low: ≤ 33,3; **Moderate** 33,34 - 66,67; High > 66,67)

Competence in conducting extension activities is the ability of PPS to participate in planned extension activities. This competency of PPS is in the high category. This is due to the fact that respondents have already been able to carry out the program and demonstration plot. Shortage of respondents has not been able to carry out exhibitions.

Coordinating competence is the ability of PPS to establish communication with related parties regarding the smooth running of activities. This PPS competency is in the medium category. It is said to be moderate because PPS has been able to coordinate with relevant parties in carrying out extension activities, especially farming that is involved. At a minimum, PPS can coordinate with two parties, both related institutions and related companies, in their five year period.

Competence to develop farmer groups is the ability of PPS to help in forming and developing farmer groups and to improve the class of farmer groups. This competency is in the low category. This can be seen from the lack of development of PPS farmer groups or farmer groups in the PPS area. Most PPS still rarely provide motivation in terms of developing groups or growing new groups in the area where they live.

Competence in establishing partnerships is the ability of PPS to help cooperate with other parties in farming. This competency is in the low category. Most PPS have not been able to help other farmers in finding partnerships. Existing partnerships still stem from the approach of the relevant department or local officer. Some are able to get partners but are still small and in the last five years only two partners. This partnership exists because of the activities of the relevant agencies, not yet independent.

Competence to develop leadership is the ability of PPS to help other farmers have a leadership spirit. This competency is in the high category. This can be seen from the frequent PPS providing opportunities for other farmers in issuing ideas at a meeting. PPS also encourages other farmers to manage their business well or make reports on their farms so that they can share their experiences during group meetings

Competence to develop entrepreneurship is the ability of PPS to encourage farmers to increase business scale. This competency is in the high category. This is because PPS is quite intensive in encouraging other farmers in terms of doing business up to business development and the types of commodities being cultivated.

Competence in delivering information and innovation is the ability of PPS in providing counseling. This competency is in the medium category. PPS can provide information related to rice cultivation and other than rice to other farmers. This makes PPS able to share farming experience, especially rice in several meetings.

Competence to be an example for farmers is the ability of PPS to set an example in farming. This competency is in the high category. PPS already has the ability regarding the farming involved. Most of these can be role models by other farmers in farming both rice cultivation and other commodities.

Problem solving competence is the ability of PPS in overcoming problems that occur in farming activities. This competency is in the medium category. PPS is able to solve its own problems relating to the cultivation of rice plants or other commodities that it works on, and has been involved in the settlement of rice farming owned by other farmers or surrounding residents.

Competence to make an activity report is the ability of PPS to make an activity report specifically about rice farming. This competency is in the medium category. This can be seen from the involvement of PPS in making reports on the activities and management of the farming they work at. PPS can also help and motivate other farmers in making reports on farms that are being cultivated, such as what are the needs in conducting business, what are the obstacles encountered and so forth. This report will be used as a reference in the preparation of planning, agricultural programs and activities carried out by related agencies such as the agriculture department.

D. The Affecting Factors Of PPS Competency

Partial Least Square (PLS) analysis was conducted to find out the factors that influenced PPS competence and the needs of rice farmers in Sumbawa District. Evaluation of measurement and structural models conducted on the results of the PLS analysis showed that the factors that influenced PPS competence in Sumbawa District consisted of PPS characteristics and institutional support. The institutional support factor has a greater influence than the PPS characteristic factor. The measurement model (outer model) is presented in Figure 1.

R^2 value of 0.588 shows that most of the PPS competencies are influenced by factors examined in the study while the rest are influenced by other factors outside the study. Based on the value of R^2, the resulting model

belongs to the moderate category. The results of the research show that the factors that influence PPS competence are PPS characteristics that are represented by motivation in business and creative and innovative nature, as well as institutional support represented by the support of the agriculture department and the support of companies or banks. Respondents' motivation in doing business is generally in the high category. This is because the respondents have sufficient knowledge and experience as well as the support of relevant parties. The creative and innovative nature of respondents is in the medium category. Some PPS are easy to accept new technology and can solve themselves the problems faced in rice farming, such as accepting new varieties, finding solutions to scarcity of fertilizer, pest control or other information needs.

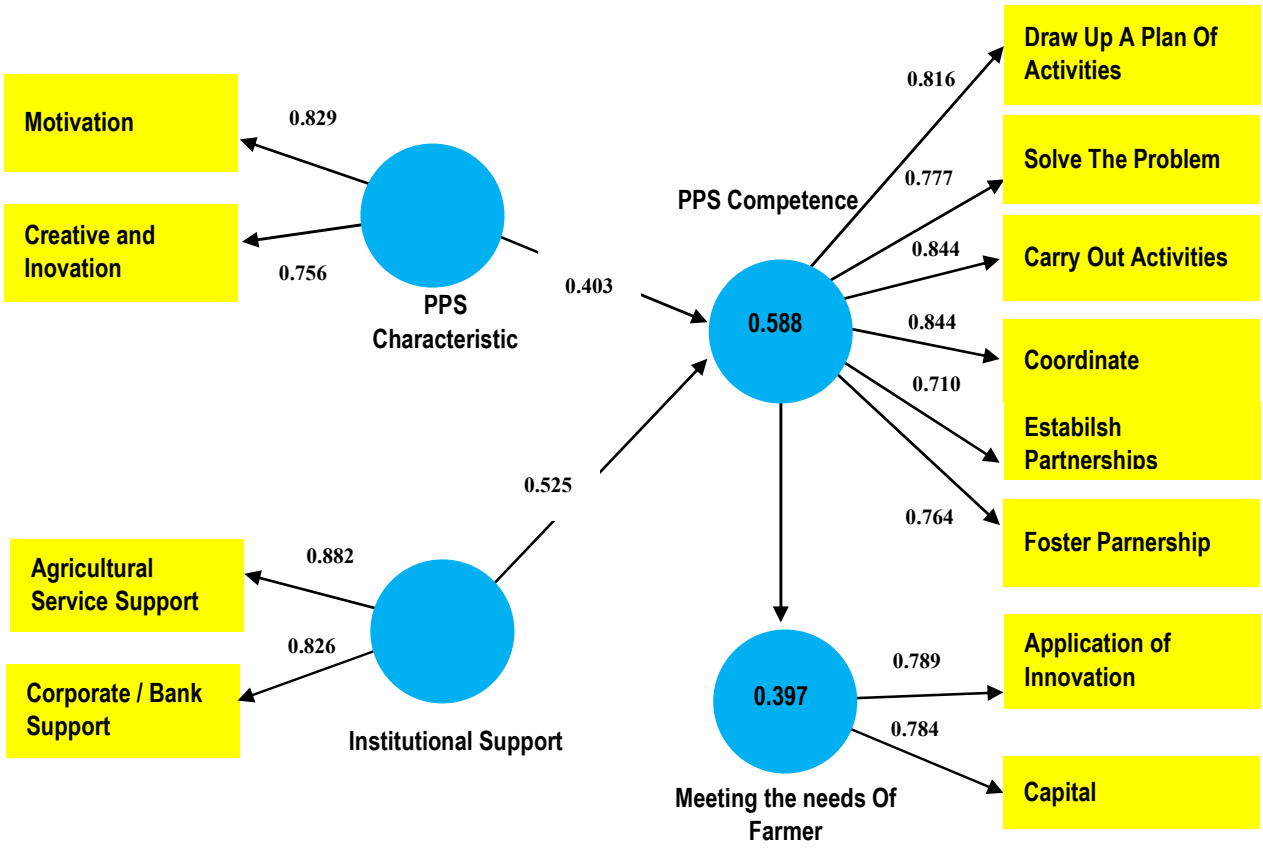

Figure 1 PPS Competency Measurement Model

Institutional support influences PPS competence in carrying out its role. The Department of Agriculture were kindly supports PPS as well. This condition is a strong encouragement for PPS to help other farmers in meeting their farming needs. The support of the Department of Agriculture can be seen with the assistance given to PPS in the form of facilitation of production input, support machine, and demonstration plot activities. The institutional support of the banking system despite being in the low category turned out to significantly influence PPS competence. This condition provides information that the existence of a banking company is needed by PPS for the development of its farming. This need is related to partnerships in production input, markets and capital. The partnership with a private company will facilitate the implementation of farming activities such as partnering in the supply of production input, where the company provides the production input needed but the farming products are sold to the company. Likewise with banking where banks provide farm credit with credit returns following the farming cycle such as payment at harvest time.

PPS competence positively and directly influences significantly to the needs of rice farmers. PPS competence is reflected in the competency in compiling activity plans, competence in conducting counseling activities, coordinating competence, competence in establishing partnerships, competency in developing entrepreneurship, and competence in problem solving. The more PPS has competence in these aspects, the easier it will be for rice farmers to meet their needs. PPS that has the competence will become an example in rice farming, become a friend to share information and be a solution when farmers get problems in carrying out rice cultivation.

IV. Conclusion And Suggestions

A. Conclusion

PPS competence in helping to meet the needs of farmers in Sumbawa District is mostly in the medium level, in terms of preparing a plan for extension activities, carrying out extension activities, coordinating, conveying information and innovation, solving problems and making activity reports. Although in general PPS competencies are in the medium category, in terms of developing farmers' groups and establishing partnerships the level of PPS competency is still low but in developing entrepreneurship, developing leadership, and being a role model for farmers, PPS has high competence.

Factors that influence PPS competence in helping to meet the needs of farmers in Sumbawa Regency are PPS characteristics and institutional support. The characteristics of PPS are characterized by motivation in business and creative and innovative nature, while institutional support is characterized by the support of the agriculture department and the support of companies or banks.

B. Suggestion

Rural government support is needed : 1) Related agencies or officers more often invite PPS in establishing partnerships with companies or individuals related to local farming; 2) Creating activities that can maintain or increase the motivation and creative and innovative spirit of PPS in doing business activities such as giving awards, competitions, capital assistance and so on; 3) more intensive in facilitating PPS in cooperating with private companies or banks.

Need further research on the factors that influence the ease of rice farmers in farming because it is still largely influenced by factors outside this research the study.

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