THE RELATIONSHIP BETWEEN SOCIOECONOMIC CHARACTERISTICS AND COMPETENCE OF RICE SEED PRODUCERS

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Abstract: The success of crop cultivation is largely determined by the quality of the seeds used, therefore the use of certified superior varieties of seeds is needed. However, the obstacle faced in the supply of high-quality varieties of seeds at present is the limited human resources, both in number and competence of farmers in managing high quality rice seed business. The purpose of this study is to analyze the characteristics and competence level of rice seed producers in Bogor regency of West Java. This research use survey method to 59 rice seed producer which spread in the three sub districts Bogor district. The study was conducted from April to May 2017. Data analysis used descriptive statistical analysis and statistical analysis of rank spearman inferences. The result showed that the characteristics of farmers producers of rice deed on average productive age, low education, experienced, narrow, lots of family dependents, low production, low income, high motivation, contact with high councilors and high capital. The competency level of the management aspects category high enough, while competence of technical aspects 71,4% have category low. Factors that have a relationship with the competence of rice seed producers is length of farming, land area, motivation, production, income, education and access to capital. To improve the competence of rice farmers is needed to improve the quality of characteristics and improvement of the technical aspects competence by providing additional non formal education in the form of trainings related to rice seed.

Keywords: characteristics; socioeconomic; competence; producers; rice seed.

1. INTRODUCTION

The share of seeds in agricultural development has been proven, that the increase in rice seed production in Indonesia is in line with the development of quality seeds by farmers. Rice production from 1975 to 2004 continued to increase in line with the use of quality seeds. In 1975 the use of quality seeds nationally below 10,000 tonnes. Rice production in that year was below 30 million tons. In 2004 the use of quality seeds increased by 60,000 tonnes, rice production increased to 55 million tonnes (Surahman, 2015).

The government, in an effort to provide superior quality seeds, has been relying on PT Pertani (Persero), to meet the needs of government programs through APBN financing, PT. Pertani (Persero) has supplied 70,500 tons of rice seeds, this rice seed is produced through 13 seed production units owned by the company throughout Indonesia, the need for scatter seeds needs to synergize with small seed producers or breeders to facilitate farmers' accessibility to quality seeds

while improving welfare farmers because they are involved as breeders of seeds. In achieving sustainable rice self-sufficiency, it is necessary to pay attention to adequate carrying capacity such as infrastructure and technology, another important thing that needs to be promoted is the use of high-quality seeds. Seed is one of the basic inputs in plant production activities, seed is the part of the plant used for reproduction, both the generative (true seed) and the vegetative part. The success of plant cultivation is largely determined by the quality of the seeds used. Availability of seeds alone is not sufficient if it is not followed by high seed quality. Therefore, the use of certified superior variety seeds is needed, because it is an initial step in the success of an agricultural business by (Ilyas, 2012).   The government in an effort to increase the use of quality seeds at the farm level and ensure timely availability of seeds at the rice development location, the government created a program 1000 Independent Seed Villages which was launched in 2016. Seed Independent Villages, among others, make breeding seeds covering an area of 10 hectares and get a social assistance fund of 170 million rupiah per unit. One of the provinces that received a program budget allocation of 1000 Seed Independent Villages, is the Province of West Java covering an area of 550 hectares, with 55 units (Kementan, 2016). Bogor Regency is an area that has a large enough potential for rice seedling business and is one of the centers of rice production in West Java Province. The seeds produced by the farmers in the vicinity, show that they do not depend on other regions for seed. The certified superior variety seeds were the product of large, medium and small producers (breeders). The obstacle faced in the supply of high-quality varieties of seeds at this time is the limitations of human resources, both in number and competence. Competence is defined as the main characteristic that a person has, which causes him to be able to perform effectively or excel at a job (Marwansyah, 2009). Seed producers as managers play a very important role in making decisions about everything related to the seedling activities they manage. Competent seed producers can reduce the risk of loss by optimally utilizing existing production factors so that the expected results are in accordance with predetermined seed quality standards and benefit from the seedling business they manage. On the other hand, incompetent producers depend only on the factors of production they own.   This study specifically aims to analyze the characteristics of rice seed producers and their level of competence in managing rice seed farming in Bogor district, West Java Province.

2. METHODS

This research is an explanatory research using survey method in 3 districts with 59 respondents producing rice seeds determined by Stratified Random Sampling (Singarimbun & Effendi, 1987). The observed variables consisted of: characteristics of rice seed producers including; age, formal education, family dependents, length of business, land area, motivation, production, income, counseling and access to capital. The competency aspects of management consist of; planning seed production, obtaining capital and marketing the results; technical aspects of competency include land preparation, seedbed, planting, maintenance, harvesting, postharvest and seed testing. Collecting data needed to explain the research variables, using instruments in the form of questionnaires (Kerlinger, 2000). Data analysis was performed using descriptive statistical analysis, Sperman rank and inferential statistic.

3. RESULTS AND DISCUSSION

3.1. Characteristics of Rice Seed Producer Farmers in Bogor Regency

The results showed that rice seed farmers in Bogor Regency, had the characteristics as outlined in the following Table 1:

Table 1 Characteristics of rice seed farmer producers in Bogor Regency

No	Characteristics	Category	Percentage (%)	
1	Age	Productive	62,7	
2	Formal education	Low (Elementary School / equivalent)	78,0	
3	Farming Experience	Low (<6x planting season)	49,2	
		Height (> 6x planting season)		50,8
4	Family Liability	Height (> 3 people)	81,4	
5	Land area	Narrow (0,25 - 0,8 Ha)	33,9	
		Medium (0.9 - 1.5 Ha)	50,8	
6	Motivation	Height (Score > 29)	62,0	
7	Rice Seed Production	Low (< 1 ton)	44,1	
8	Income	Low (<Rp. 12.000.000,-/ planting season)	37,3	
		Medium (Rp 12 milion – Rp 25 million / season)	33,9	
9	Contact with Extension Service	Height (score > 15)	67,8	
10	Access Capital	Height (score >30)	55,9	

Source: Primary data processed, 2017

3.1.1. *Age*

Characteristics of rice seed producers in Bogor district are on average peroductive age (62.7%), this productive age is an ideal age for work and has the ability to increase work productivity and has a great ability to absorb information and innovative technology in agriculture especially rice seedlings. According to Soekartawi et al., (1986), stated that the work ability of farmers is largely determined by the age of the farmers themselves.

3.1.2. *Formal Education*

Characteristics of rice seed producers in Bogor district are on average productive age (62.7%), this productive age is an ideal age for work and has the ability to increase work productivity and has a great ability to absorb information and innovative technology in agriculture especially rice seedlings. Meanwhile Soekartawi et al., (1986) stated that the work ability of farmers is largely determined by the age of the farmers themselves. In line with the results of research by Maad & Humaira, (2019), local food industry players show that the individual characteristics shown by formal and non-formal education are categorized as low, because the age of industry players is in the old age position.

3.1.3. *Farming Experience*

Farmers' experience in cultivating rice seeds on average has been categorized high (50.8%), they have tried rice seeds more than six times the planting season. According to Muhibuddin et

al., (2015), a person can learn to acquire or improve the ability to carry out an attitude pattern through experience and practice. The things that have been experienced will help shape and influence the appreciation of social stimulus (Batoa et al., 2008).

3.1.4. *Family Liability*

The number of dependents of farm families is high / many on average bear > 3 people (81.4%). According to Soekartawi et al., (1986) the number of family dependents will have an impact on meeting family needs. The increasing number of families causes a person to need additional expenditure or higher income needs to pay for his life, so that it can motivate farmers to be even better in their business.

3.1.5. *Land Area*

Mastery of arable land area that is used as rice seed production in general (33.9% -50.8%) is categorized as narrow to moderate land. The area of farming land is an asset for farmers in producing total production, and at the same time a source of income. Land area is a place for agricultural activities to produce production as a source of family income. Meanwhile, Batoa et al., (2008) states that a very narrow area of land with traditional management can lead to: (1) poverty, (2) lack of producing staples, especially rice, (3) inequality in technology use, (4) increasing the number of unemployed, and (5) inequality in the use of natural resources.

3.1.6. Motivation

Farmers 'motivation in cultivating high-ranking rice seeds (62%), this motivation is in line with the many dependents of farmers' families that can motivate farmers to do better business, because to meet the needs of their families. According to Syafruddin et al., (2006) motivation is an internal state of someone who encourages that person to do something.

3.1.7. Rice Seed Production

The average rice seed production that is produced is categorized as low (44.1%); this low production is reflected from the ownership of land area that is on average low to moderate. The amount of production produced by a farmer will have an impact on the income which is the entirety of what he gets from the use of labor, land and other capital.

3.1.8. Income

Farmer income from rice seed farming is still categorized low (37%), while Soekartawi et al., (1986) states that income is a reflection of farmers' lives. Low farmer income is characteristic of small farmers and belongs to the poor farmers group.

3.1.9. Contact with Extension Service

Rice seed farmers who make contact with agricultural instructors are categorized as high (67.8%), although the level of frequency of contact with extension workers, farmers' education is generally elementary, so the ability to absorb innovation adoption is lacking. Law number 16 of 2006 in Amanah (2007) concerning Agricultural, Fisheries and Forestry Extension Systems, defines extension as a learning process for businesses so that they are willing and able to help and organize themselves in accessing market information, technology, capital, and resources others as an effort to increase productivity, business efficiency, income, and well-being as well as increase awareness in environmental preservation.

3.1.10. Access Capital

The ability of farmers to access capital has a high category (55.9%), access to credit is the ability to obtain goods or services now to be returned later Batoa et al., (2008); Soekartawi et al., (1986) stated that credit needs are available to money-lenders or banks and farmers can pay interest or the principal loan amount of the projected income stream. One of the government policies that was rolled out in 2012 is agricultural insurance, agricultural insurance needs to be developed because it is very helpful for farmers in overcoming capital problems. Other capital access assistance provided through banking facilities or direct assistance programs.

3.2. Competency of Paddy Seed Producers in Bogor Regency

The results of research on the competence of farmers of rice seed producers with indicators: Aspects of management: planning seed production, obtaining capital, and marketing the results. Technical aspects include: land preparation, seedbed, planting, maintenance, harvesting, postharvest and seed quality testing are illustrated through the following Table 2:

Table 2 Competence of Seed Producers in Bogor Regency

No	Competency Description	Percentage	Competency Category
I	Management aspects:		
1	Planning for seed production	68	
2	Getting capital	76	high
3	Market the results	81	high
II	Technical aspects:		
4	Land preparation	68	low
5	Nursery	66	low
6	Planting	69	high
7	Maintenance	98	high
8	Harvest	63	low
9	Post-harvest	54	high
10	Seed quality testing	56	high

Source: Primary data processed, 2017

3.2.1. Management aspects

Competence of rice seed producer farmers is seen from ten components from two aspects of farm management. From the aspect of management, the average hatchery is already competent, i.e farmers are able to plan seed production, are able to get capital and are able to market their produce. This is in line with the age level of farmers who are in productive periods and the ability to access capital so that farmers are able to manage their farming.

3.2.2. Technical aspects

While the competence of 71.4% rice seed producers from the technical aspect is still low and 28.6% is in the high category. In general, farmers are still low in the ability to carry out land preparation, nursery, maintenance, harvesting, and seed testing capabilities.

3.3. Factors Related to the Competence of Rice Seed Farmer Producers in Bogor Regency

Based on data processing using Statistical Package for the Social Science version 24 for Windows, the association relationship between internal and external factors of rice seed producers with a level of competence at 95% confidence level, obtained the following table:

Table 3 Results of Spearman's correlation analysis π at α = 5%

Variable	Correlation coefficient r-Spearmans	Competence
Age	Correlation Coefficient	0,005
	Sig.(2-tailed)	0,958
	N	59
Formal education	Correlation Coefficient	0,181
	Sig.(2-tailed)	0,224
	N	59
Farming experience	Correlation Coefficient	0,859
	Sig.(2-tailed)	0,000
	N	59
Liability family	Correlation Coefficient	0,061
	Sig.(2-tailed)	0,646
	N	59
Land area	Correlation Coefficient	0,451
	Sig.(2-tailed)	0,000
	N	59
Motivation	Correlation Coefficient	0,980
	Sig.(2-tailed)	0,000
	N	59
Production	Correlation Coefficient	0,461
	Sig.(2-tailed)	0,001
	N	59
Income	Correlation Coefficient	0,414
	Sig.(2-tailed)	0,001
	N	59
Counseling	Correlation Coefficient	0,952
	Sig.(2-tailed)	0,000
	N	59
Access capital	Correlation Coefficient	0,586
	Sig.(2-tailed)	0,000
	N	59

Source: Primary data processed, 2017.

Based on the table 3, with a 95 percent confidence level the factors related to the competence of rice seed producer farmers in Bogor Regency are length of effort, land area, motivation, production, income, counseling and access to capital.

3.3.1. *Land area*

Lama tried to have a high relationship with the competence of farmers who produced rice seeds, amounting to 0.859. The experience of farming has an important role in increasing the competence of farmers. Farmers who have high experience will usually be more mature in dealing with various problems in farming, this is in accordance with the results of Manyamsari & Mujiburrahmad (2014) which states that farmers with more than 10 years experience master the field of competency in a combination of business branches to increase production output, whereas farmers with new experience are more concerned with mastering entrepreneurship and harvesting. Land area factor is significant to farmers' competence but in a relationship that is not too close

(0.451). This is presumably because the mastery of farmers producing seed in this study is a narrow area that ranges from 0.25 to 0.80 ha and reaches 33.9 percent (Table 1). According to Manyamsari & Mujiburrahmad (2014) mentioned in their writings that the more extensive land is controlled by farmers, usually farmers have a quick attitude to adopt innovation because they have better economic capabilities.

3.3.2. *Motivation*

The results of this study indicate that 62 percent of respondents have a high motivation to try rice seeds and based on the Spearman's rho correlation test shows that significantly motivation has a close relationship with competence that is equal to 0.980. Motivation plays an important role in the competence of farmers as stated by Harijati (2007) that the increase in agribusiness competence of farmers is influenced by its characteristics including motivation to do business.

3.3.3. *Production*

Factors of production also have a significant relationship to competence (0.461). Although this relationship is not too close, this factor shows that the production produced by seed producers plays an important role in increasing competence. Based on Table 1 it is shown that the productivity of seed growers ranges from low to moderate. For this reason, farmers can be encouraged to increase their productivity through the introduction of technological factors into the farming of seed producing farmers.

3.3.4. *Income*

Farmers' income in this study based on Table 1 stated that 37 percent of respondents had income less than Rp. 12,000,000 / growing season. Correlation test shows that significantly this factor has a low relationship (0.414) to competence. Based on the theory, this income factor is related to the production factor because the higher the farmer's production, the higher the income. And the factor of production will be determined by the performance of the farmer. This is reinforced by the results of Oktini (2017) concerning the competence and performance of floating pond fish farmer farmers. It is stated that competency when correlated with the performance associated with farmer's income shows that the higher the competency, the higher the farmer's performance, and conversely the lower the competency the more the lower the performance and the lower the income will be.

3.3.5. *Counseling*

Counseling factor is a factor that has a relationship with competence of 0.952 and is statistically significant test. Table 1 shows that 67.8 percent of the respondent farmers had a high frequency with agricultural extension workers in each study location. The high frequency shows the synergy between farmers and extension workers. The increasingly high consumer preferences for agricultural products in the era of globalization require increasingly dynamic patterns of agricultural extension. The instructor must function as a technology and information disseminator to the farmer who focuses as a motivator, dynamist, educator, facilitator and consultant for farmers. With this pattern, it is expected that counseling will further improve the welfare of

farmers according to Widjonarko's research on the analysis of farmer competencies and land area and their influence on farmers 'opinions in Lampung Province in 2017, it is mentioned that the variable participation of farmers in counseling simultaneously has a significant effect on farmers' income.

3.3.6. *Access capital*

The ability of farmers to access capital in this study 53 percent are in the moderate to high category. This shows that seed producer farmers did not experience significant obstacles in accessing capital from various funding sources available at the study site. This capital access factor is significant and has a relationship to competence at a moderate level (0.586). The factor of availability of capital access for farmers becomes crucial because the easier it is for farmers to access capital will increase the chances of increasing rice production and productivity.

4. CONCLUSIONS

Characteristics of paddy farmers in Bogor Regency are of productive age, low level of education but have experience, have many family responsibilities, narrow land, high motivation, low production, low income, often in contact with extension workers, able to access capital. The level of competence of farmers from the management of rice is already competent, while from the technical aspect 71.4% is still low. The factors that have a close relationship with the competence of rice seed producers are length of effort, land area, motivation, production, income, counseling and access to capital.

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