

## THE RELATIONSHIP BETWEEN FARMER COMPETENCE AND SHALLOT FARM INCOME (*Allium Ascalonicum L.*)

Siti Aisyah, Achmad Faqih, Anak Agung Putra, Siti Rahma Rahayu, Ma'aniyatun, Reza Taufiq Yahya  
Faculty of Agriculture, Universitas Swadaya Gunung Jati, Indonesia  
Email: siti.aisyahagri@ugj.ac.id, achmad.faqih@ugj.ac.id

### ABSTRACT

*One of the causes of low productivity of a crop is that farmers have not fully applied production technology. One of the efforts made to increase onion production is through the adoption of innovation and new technology. The purpose of this study was to determine the relationship between knowledge competence, attitudes and skills of farmers with shallot (*Allium ascalonicum L.*) farming income. The study will be conducted from January to April 2023. The method used in this study is a descriptive quantitative research method with survey research techniques. The respondents in this study were 55 shallot farmers in Sidamulya Village, Jalaksana District, Kuningan Regency. Data analysis techniques in this study use correlational analysis to measure the relationship of variables / sub-variables to other variables. The results showed that there was a moderate and real relationship between farmers' knowledge and shallot farm income, with a value of  $r_s = 0.560$  and tarithmetic value is 5.060. There is a moderate and real relationship between farmers' attitudes and shallot farm income, with a value of  $r_s = 0.544$  and a calculated value of 4.850. There is a moderate and real relationship between farmers' skills and shallot farm income, with a value of  $r_s = 0.550$  and tarithmetic value is 4.927.*

**KEYWORDS** Farmer Competence; Farming Income; Shallots



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### INTRODUCTION

Shallot (*Allium ascalonicum L.*) is an annual plant having layered tubers, fibrous roots, and hollow cylindrical leaves. Shallot bulbs are formed from the base of the leaves which unite and form a stem which then changes its shape and function, enlarges and finally forms a layered tuber. Shallot bulbs contain high

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levels of vitamin C, potassium, fiber and folic acid, sulfur, calcium and iron (Haryati & Nurawan, 2013). The shallot plant is a root vegetable that is multipurpose, can be used as a cooking spice, vegetable, food flavoring, as well as a traditional medicine because of the antiseptic effect of the aniline and allacin compounds it contains (Rukmana, 2014). The active ingredients of shallot essential oil consist of cycloalliin, methylalliin, kaemphenol, quercetin and phloroglucin (Muhlizah & Silence, 2019).

Onion production centers on Java Island are Kuningan, Brebes, Cirebon, Tegal, Pemalang, Pekalongan and Batang districts. One of the shallot producers in Kuningan Regency is Jalaksana District, especially Sidamulya Village, shallots in this area are quite an important commodity in contributing to increasing vegetable production and providing income for farmers (Department of Agriculture and Horticulture of Kuningan Regency, 2019). The average productivity of shallots in Kuningan Regency has only reached 7.82 tons per hectare (Department of Agriculture and Horticulture of Kuningan Regency, 2019). The productivity of shallots is still low when compared to the potential productivity of shallots. According to Kastijadi (2009) one of the causes of low productivity of a crop is that farmers have not fully implemented production technology. While the factors that affect the level of use of these technologies are the low level of farmers' ability to understand information and acquire knowledge, low capital and land ownership status, as well as production factor prices and production prices.

One of the efforts made to increase shallot production is through the adoption of innovation and new technology. In order for shallot farmers to be able to adopt new innovations and technologies, it is necessary to pay attention to several aspects, for example by looking at the problems they face (Berlian, 2011). The success of farmers in managing their farming business, especially shallots, is largely determined by the competence of farmers in carrying out shallot cultivation, because competence is a basic characteristic of a person which in itself is related to carrying out a job effectively and efficiently, as well as a combination of knowledge, skills, values and attitudes that are reflected in the habits of thinking and acting.

According to Mubyarto (2011) states that farmers are agents of development directly related to agricultural cultivation. Farmer skills can be successful if supported by the knowledge of shallot farming which can have implications for increasing shallot production. The results of this study are in line with research from Widyantera (2018) who concluded that, the farmer skills training model is directed at developing productive businesses that are adapted to environmental conditions, and carried out in an integrated manner. In this case, non-adopter farmers do not understand the suitability and complexity of technology as well as farmers' perceptions of the influence of interpersonal media/information as communicative technology carriers for farmers (Indraningsih, 2015).

Competence is the ability possessed by a shallot farmer in carrying out shallot cultivation farming which is a combination of the knowledge, attitudes and skills needed in carrying out their duties, so that they can carry out their duties in a professional, effective and efficient manner (Mulyasa, 2013). In order to increase the income of farmers in trying to farm shallots, it is necessary to have the

competence of farmers as farming actors. The competence that exists in farmers has a very important and large role in the activities which are the background of their actions. Therefore, farmers' efforts to increase the income of shallot farming are determined by the farmers themselves. The purpose of this study was to determine the relationship between knowledge competence, attitudes and skills of farmers with shallot (*Allium ascalonicum L.*) farming income.

## RESEARCH METHOD

This research was conducted in Sidamulya Village, Jalaksana District, Kuningan Regency. This research was conducted from January to April 2023. Respondents in this study were 55 shallot farmers in Sidamulya Village, Jalaksana District, Kuningan Regency. The sampling technique in this study is saturated or census sampling, where all members of the population are sampled and the sampling area is taken deliberately by considering certain reasons in accordance with the research objectives (Sugiyono, 2018).

The method used in this research is descriptive quantitative research method with survey research techniques. The descriptive survey method seeks to explain or record conditions or attitudes to explain what currently exists (Morissan, 2012). The data analysis technique in this study uses correlational analysis to measure the relationship of variables/sub-variables to other variables. The research variables consist of farmer competence (X) which includes: farmer knowledge (X1), farmer attitudes (X2) and farmer skills (X3) and shallot farming income variable (Y). Sugiyono (2019) said that to determine the relationship between farmer competency variable as the independent variable and shallot farming income as the dependent variable, use the Spearman correlation coefficient test (rs).

## RESULT AND DISCUSSION

### Shallot Farmer Competence

The competence of farmers in shallot farming activities is: the abilities possessed by farmers in the form of knowledge, skills and mental attitudes needed to complete their work (in this case shallot farming). For more details regarding the competence of farmers in shallot farming activities, it can be seen in Table 1.

**Table 1. Competence of Farmers in Shallot Farming**

No	Farmer Competency Components	Score		Percent (%)	Category
		Hope	Reality		
1.	Knowledge	80	57,81	72,27	Pretty good
2.	Attitude	24	16.96	70,66	Pretty good
3.	Skills	24	17.52	73.00	Pretty good
	Extension Competency	128	92,29	72,10	Pretty good

Source: Results of Data Analysis (2023)

Based on the results of interviews with shallot farmers, it shows that the competence of shallot farmers in Sidamulya Village is quite good, with an average competency score of shallot farmers of 92.29 (72.10%).

### The Relationship between Farmers' Knowledge and Shallot Farming Income

Based on the calculation results of the Spearman Rank Correlation statistical test, the correlation coefficient (rs) is 0.560. This means that the relationship between farmer knowledge and shallot farming income is 0.560, belonging to the moderate level of closeness. The coefficient of determination (rs<sup>2</sup>) is 0.314, meaning that farmer's knowledge influences shallot farming income by 0.314 (31.40%), and the remaining 68.60% is influenced by other factors not included in the model. From the results of the significance test (t-test) obtained  $t_{\text{arithmetic}}$  of 5.060 greater than  $t_{0.05}$  of 2.048 at a 5% significance level, meaning that the relationship between farmer knowledge and shallot farming income is significantly different.

**Table 2. The Relationship between Farmer Knowledge and Shallot Farming Income**

X1 variable	Y variable	rs	rs <sup>2</sup>	$t_{\text{arithmetic}}$	$t_{0.05} (48-2)$
Farmer Knowledge	Onion farming business income	0.560	0.314	5,060	2,048

Description: rs = correlation coefficient rs<sup>2</sup> = coefficient of determination

Source: Results of Data Analysis (2023)

From the results of this study it turns out that the knowledge of farmers has a significant relationship with the income of shallot farming. This shows that the better the farmer's knowledge, the higher the shallot farming income, and conversely the less good the farmer's knowledge, the lower the farming income he receives.

Farmers' knowledge in shallot farming includes: (a) seed preparation, (b) tillage, (c) planting, (d) fertilization, (e) irrigation, (f) pest control, and (g) harvest and postharvest. Farmers' knowledge of preparing shallot seeds to be used in shallot farming is very important in order to increase shallot productivity, because using good shallot seeds can produce better shallot production, so knowledge of shallot seeds indirectly related to onion farming income. As for farmers' knowledge about tillage for shallot farming, it is very important in order to increase shallot productivity,

Farmers' knowledge about planting in shallot farming is very important in order to increase shallot productivity, because good and proper shallot planting can produce better shallot production, so knowledge about planting shallot farming is indirectly related with onion farming income. Farmers' knowledge about fertilization for shallot farming is very important in order to increase shallot productivity, because proper and balanced fertilization can result in better shallot production, so knowledge of fertilization in shallot farming is indirectly related to income. onion farming.

Farmers' knowledge of irrigation for shallot farming is very important in order to increase shallot productivity, because good and proper irrigation can produce

better shallot production, so knowledge of irrigation in shallot farming is indirectly related to income. onion farming. Farmers' knowledge about OPT control in shallot farming is very important in order to increase shallot productivity, because good and proper OPT control can produce better shallot production, so knowledge about OPT control in shallot farming indirectly related to onion farming income.

Farmers' knowledge about harvest and post-harvest in shallot farming is very important in order to increase shallot productivity, because with good and proper harvest and post-harvest can produce better shallot production, so knowledge about harvest and post-harvest in shallot farming indirectly related to the income of the shallot farming business. Knowledge is the result of knowing that humans consist of a number of facts and theories that enable a person to solve the problems they face (Notoatmodjo, 2007). Knowledge is essentially all that we know about an object including science (Jujun, 2003). Furthermore, Junjun (2003) states there are two main ways for humans to acquire true knowledge. The first way is based on ratios, and the second is simply based on experience.

According to Sukmadinata (2013), there are several factors that affect one's knowledge. These factors include internal factors and external factors. Internal factors consisting of physical and spiritual. While external factors consist of education, exposure to mass media, economic status, social relations and experience. Knowledge is the result of knowing, and occurs after people sense a certain object. Sensing occurs through the human senses, namely sight, hearing, smell, taste and touch. Most of human knowledge is obtained through the eyes and ears. Knowledge or cognitive is a very important domain in shaping one's actions (Notoatmodjo, 2007). Measurement of knowledge can be done by interviews or questionnaires that ask about the content of the material to be measured from research subjects or respondents. The depth of knowledge that you want to know or measure can be adjusted according to the levels.

According to the opinion of Bandura (2019) explains that farmers can learn the consequences of their actions and will enrich and sharpen their knowledge. Observation and careful response to the results of trials or observations, even losses due to pests and diseases as well as damage due to nature (seasons, climate) will further enrich the knowledge system. Farmers' knowledge can also be increased from external sources such as radio, television, neighbors and extension workers.

### **The Relationship between Farmers' Attitudes and Shallot Farming Income**

Based on the calculation results of the Spearman Rank Correlation statistical test, the correlation coefficient ( $r_s$ ) is 0.544. This means that the relationship between farmer attitudes and shallot farming income is 0.544, belonging to the moderate level of closeness. The coefficient of determination ( $r_s^2$ ) is 0.296, meaning that the farmer's attitude influences the shallot farming income by 0.296 (29.60%), and the remaining 70.40% is influenced by other factors not included in the model. From the results of the significance test (t-test) obtained  $t_{arithmetic}$  of 4.850 greater than  $t_{0.05}$  of 2.048 at a 5% significance level, meaning that the relationship between farmer attitudes and shallot farming income is significantly different.

**Table 3. The Relationship between Farmers' Attitudes and Shallot Farming Income**

X2 variable	Y variable	rs	rs2	t <sub>arithmetic</sub>	t0.05 (48-2)
Attitude of Farmers	Onion farming business income	0.544	0.296	4,850	2,048

Description: rs = correlation coefficient rs2 = coefficient of determination  
Source: Results of Data Analysis (2023)

From the results of this study it turns out that the attitude of farmers has a significant relationship with the income of shallot farming. This shows that the better the farmer's attitude, the higher the shallot farming income, and conversely the less good the farmer's attitude, the lower the shallot farming income received by the farmer.

Attitudes of farmers in shallot farming include: (a) seed preparation, (b) commodity selection, (c) entrepreneurship, (d) production cost planning, (e) efficient use of land, and (f) efficient use of technology. The attitude of farmers towards seed preparation in shallot farming is very important in order to increase shallot productivity, because with good seed preparation farmers can produce better shallot production, so that farmers' attitudes towards seed preparation in shallot farming not directly related to the income of the shallot farming business. The attitude of farmers towards commodity selection in shallot farming is very important in order to increase shallot productivity.

The attitude of farmers towards entrepreneurship in shallot farming is very important in order to increase shallot productivity, because with a good entrepreneurial attitude farmers can produce better shallot production, so that farmers' attitudes towards entrepreneurship in shallot farming are indirectly related with onion farming income. The attitude of farmers towards planning production costs in shallot farming is very important in order to increase the productivity of shallots, because with production cost planning carried out by farmers properly, the production of shallots will be better, so that farmers' attitudes towards planning production costs in farming Shallots are indirectly related to shallot farming income.

The attitude of farmers towards efficient use of land in shallot farming is very important in order to increase the productivity of shallots, because with efficient use of land carried out by farmers properly the production of shallots will be better, so that farmers' attitudes towards efficient use of land in shallot farming is indirectly related to shallot farming income. The attitude of farmers towards the efficient use of technology in shallot farming is very important in order to increase the productivity of shallots, because with the efficient use of technology carried out by farmers properly the production of shallots will be better.

Azwar (2019) explains that one of the factors that influence attitudes is personal experience. Personal experience leaves a strong impression so that attitudes will be more easily formed if the person occurs in a situation that involves emotional factors. Allen et al., (2000) defines attitude as a pattern of behavior, tendency or anticipatory readiness, predisposition to adapt to social situations, or simply, attitude is a conditioned response to social stimulation. An attitude can be

completed because it is an instrument in achieving goals based on life and personal interests.

Attitudes have three main sources, namely personal experience, attitudes can be the result of pleasant or painful experiences with the attitude object. The second possible source of attitude, in this case a negative attitude, is the transfer of painful feelings. The third source of attitude is social influence and will likely be the main source. Whereas [Potter and Edwards \(2001\)](#) states attitude is the degree or level of a person's suitability for a particular object. Even though it is assumed that attitude is an evaluative predisposition that largely determines how individuals act, attitudes and actual actions are often very different. This is because real action is not only determined by attitude alone, but by various other external factors. In addition, it turns out that for just one kind of action there are many relevant patterns of attitude. Therefore disharmony of attitudes is more a matter of individual orientation towards the existing situation. Basically attitudes are more personal in nature while actions or behavior are more general or social in nature ([Irving & Leon, 1980](#)). So that changes in this attitude are often situational. While the usefulness of changing attitudes can be used for education and daily applications.

#### **The Relationship between Farmer Skills and Shallot Farming Income**

Based on the calculation results of the Spearman Rank Correlation statistical test, the correlation coefficient ( $r_s$ ) is 0.550. This means that the relationship between farmer skills and shallot farming income is 0.550, classified as a moderate level of closeness. The coefficient of determination ( $r_s^2$ ) is 0.302, meaning that the farmer's skills influence the shallot farming income by 0.302 (30.20%), and the remaining 69.80% is influenced by other factors not included in the model. From the results of the significance test (t-test) obtained  $t_{arithmetic}$  of 4.927 greater than  $t_{0.05}$  of 2.048 at a 5% significance level, meaning that the relationship between farmer skills and shallot farming income is significantly different.

**Table 4. The Relationship between Farmer Skills and Shallot Farming Income**

X3 variable	Y variable	$r_s$	$r_s^2$	$t_{arithmetic}$	$t_{0.05} (48-2)$
Farmer Skills	Shallot Farming Income	0.550	0.302	4,927	2,048

Description:  $r_s$  = correlation coefficient  $r_s^2$  = coefficient of determination

Source: Results of Data Analysis (2023)

From the results of this study it turns out that the skills of farmers have a significant relationship with the income of shallot farming. This shows that the better the farmers' skills, the higher the shallot farming income, and conversely the less good the farmers' skills, the lower the shallot farming income received by farmers.

Farmers' skills in shallot farming include: (a) seed preparation, (b) efficient land use, (c) fertilization, (d) postharvest, and entrepreneurship. The skill of farmers in preparing the seeds in shallot farming is very important in order to increase the productivity of shallots, because with the preparation of shallot seeds carried out by farmers properly, the production of shallots will be better, so that farmers' skills in

preparing shallot seeds in onion farming shallots are indirectly related to shallot farming income. Farmers' skills in efficient use of land in shallot farming are very important in order to increase shallot productivity.

Farmers' skills in fertilizing shallot farming are very important in order to increase shallot productivity, because with good and balanced fertilization farmers can produce better shallot production, so that farmers' skills in fertilizing shallot farming are indirectly related with onion farming income. Farmers' skills in post-harvest shallot farming are very important in order to increase shallot productivity, because with post-harvest carried out by farmers properly they can produce better shallot production, so that farmers' post-harvest skills in shallot farming are indirectly related to farming income. red onion.

Farmer skills in shallot farming entrepreneurship are very important in order to increase shallot productivity, because with good farmer entrepreneurship the shallot production will be better, so that farmers' entrepreneurial skills in shallot farming are indirectly related to shallot farming income. . Farmer skills can be successful if supported by knowledge of corn farming which can have implications for increasing shallot production. The results of this study are in line with research from [Sudirman \(2017\)](#) who concluded that the farmer skills training model is directed at developing productive businesses that are adapted to environmental conditions, and carried out in an integrated manner.

Research results from [Bandolan et al., \(2018\)](#) shows that the high skill of farmers is caused by the knowledge possessed by farmers so that skills include selecting superior seeds, planting, maintaining and harvesting can be carried out. Skills show a process of increasing the attitudes, abilities and skills of workers to carry out specific jobs. This expression shows that training activities are a process of helping learners to gain effectiveness in doing their jobs both now and in the future through developing habits of mind and actions, skills, knowledge, and attitudes at work.

## CONCLUSION

Based on the results of the research and discussion described above, it can be concluded that there is a moderate and real relationship between farmer knowledge and shallot farming income, with a value of  $r_s = 0.560$  and a  $t_{\text{arithmetic}}$  of 5.060. There is a moderate and real relationship between farmer attitudes and shallot farming income, with a value of  $r_s = 0.544$  and a  $t_{\text{arithmetic}}$  of 4.850. There is a moderate and real relationship between farmer skills and shallot farming income, with a value of  $r_s = 0.550$  and a  $t_{\text{arithmetic}}$  of 4.927. It is necessary to continue to increase the knowledge and skills of farmers through non-formal education, such as technical training and group financial management, in the context of developing shallot farming in order to increase farmers' income

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