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Factors Influencing Farmers' Decisions in Using Shallot Seeds of the Crok Kuning and Thai Varieties in Bantul Regency

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ABSTRACT

Shallot farmers in Bantul Regency know various onion varieties, both local and introduced varieties. Each variety has its advantages and disadvantages. Due to the wide variety of onion varieties available, farmers are faced with various choices. This study aims to analyze the factors that influence farmers' decisions to use shallot seeds of Crok Kuning and Thai varieties. Crok Kuning and Thailand varieties of shallots farmers in Bantul Regency often use. This study involved 50 farmers who used shallot seeds of Crok Kuning varieties and 50 farmers who used Thai shallot seeds. The analysis method used is logistic regression. The results showed that the main difference in decision-making between the two groups of farmers was in the aspect of reasons and expected benefits. Factors significantly influencing farmers' decisions to use Thai varieties of shallot seeds are education, land area, seed prices, seed access, productivity, seed resistance to plant disease pests (HPT), and influences from other parties. Education and land area have a negative influence. In contrast, seed price, seed access, productivity, seed resistance to plant disease pests (HPT), and other parties' influence positively influence the use of Thai onion seeds.

Keywords: Farmer Decision Making, Influential Factors, Shallot Seeds, Crok Kuning Variety, Thai Variety

INTRODUCTION

People in Indonesia are generally well acquainted with seasonal vegetables known as shallots. Shallots are one type of horticultural crop that has high economic value and many benefits (Theresia et al., 2016). This plant has become an essential part of many cuisines and is often used as a food flavouring (Ashari, 1995; Suharni et al., 2017). Shallots have a high demand in the community, as can be seen from the data from the Socioeconomic Survey (Susenas) in September 2021, where, on average, each person consumes around 2.49 kilograms of shallots every month. The culinary habits of the Indonesian people influence the high consumption of shallots (Badan Pusat Statistik Indonesia, 2022).

Based on data from the Central Statistics Agency, Indonesia has imported shallots in relatively large quantities for three consecutive years, namely in 2013, amounting to 96,139 tons/year; 2014, amounting to 74,903 tons/year and in 2015, amounting to 17,429 tons/year (Badan Pusat Statistik Indonesia, 2023). The government was forced to issue a shallot import policy at that time because national shallot production was equivalent to the consumption needs of the people,

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while in essence, shallot production was not only for consumption needs but for the needs of seeds, the food industry and other processing industries.

According to Endrasari & Prayudi, (2011), due to the similarity of product conditions, the role of imported shallots for the consumption of shallots or onion seeds is, in fact, challenging to distinguish. Therefore, Indonesia has varieties of shallot seeds that are introduced from imports. According to Mangoendidjojo, (2007) dalam Zuraida et al., (2018), plant introduction is a step to introduce plants from their original habitat to new territories. This process involves the introduction of plant varieties from abroad into a country. One of the purposes of plant introduction is to obtain new varieties (Nazirwan et al., 2014).

Yogyakarta Special Region is one of Indonesia's top ten shallot production centers. The largest shallot production center in the Special Region of Yogyakarta is in Bantul Regency, with a production value 2022 of 11,619 tons/year (Badan Pusat Statistik D.I. Yogyakarta, 2023). The shallot varieties developed in the Bantul Regency are Tiron, Crok Kuning, Srikayang, and Thailand (Tajuk). The Tiron and Crok Kuning varieties are site-specific from the Bantul Regency itself, and the Srikayang variety originates from the Kulonprogo Regency. In contrast, the Thai variety (Tajuk) is an introduced variety from Thailand from the Nganjuk Regency.

Shallot farmers in Bantul Regency began to be reluctant to develop their local varieties and preferred to grow other varieties, namely Thai varieties. Research on the decision-making process and factors that influence farmers' decision-making in using shallot seeds, Crok Kuning varieties, and Thai varieties has never been carried out before in the Bantul Regency area, Yogyakarta Special Region Province, which incidentally is among the top ten national shallot production centers (Badan Pusat Statistik Indonesia, 2023).

When discussing the onion seed options available to farmers, it is essential to understand farmers' decision-making process in choosing between Crok Kuning and Thai shallot seeds, as well as what factors influence their decision to use shallot seeds.

METHODS

The location of the study was determined based on the consideration that Bantul Regency is one of the shallot production centers in the Special Region of Yogyakarta. The object of the study is shallot farmers who carry out shallot farming using shallot seeds of crok kuning varieties and Thai varieties located in Sanden and Kretek Districts in Bantul Regency. Because in population research, the number of members is not known, the sampling technique used in this study is non-probability sampling, namely by purposive sampling method, where the sample taken falls into specific criteria (Cooper & Schindler, 2014), to obtain samples that match the requirements that have been determined. The number of samples used in the study was 100 respondents. Consisting of 50 farmers who use crok kuning shallot seeds and 50 farmers who use Thai shallot seeds. The data used consists of primary and secondary data. Primary data were collected through direct observation and interviews using structured questionnaires to respondents. Secondary data were obtained from the Central Bureau of Statistics, the Food Security and Agriculture Office of Bantul Regency, the Directorate General of Horticulture, and the Ministry of Agriculture. In addition, theories and other scientific facts are obtained by browsing the literature through books, journals, the internet, previous research, and so on related to purchasing decisions and onions. This research will be conducted from July to September 2023. Data analysis was done using Logistic Regression using the Maximum Likelihood Estimation (MLE) method. Equation (1)

presents the regression model in its explicit form.

$$Y_i = Ln\left[\frac{p_i}{1-Pi}\right] = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + e \quad (1)$$

Where:

Y_i is the farmer's chance of using shallot seeds of crok kuning or Thai varieties, Y_i is 1 if farmers use Thai varieties of shallot seeds, Y_i is 0 if farmers use shallot seeds of crok kuning varieties, β_0 is constant, $\beta_1 - \beta_{10}$ is regression coefficient, X_1 is age (years), X_2 is education (years), X_3 is land area (ha), X_4 is the status of land ownership (1=owner, 0=non-owner), X_5 is the experience of shallot farming (years), X_6 is the purchase price of seeds (IDR), X_7 is seed access (1=easy, 0=difficult), X_8 is productivity (ton/ha), X_9 is resistance to pests and plant diseases (HPT) (1=resistant, 0=not resistant), X_{10} is the influence of other parties (1=there is influence, 0=no effect) and *e* is the error term.

RESULTS AND DISCUSSION

Socioeconomic Profile Respondent

Characteristics considered essential to know in farmers include age, education level, farming experience, land area, and land status. Each farmer has different factors that can affect farm performance regarding cultivation techniques.

Table 1
Characteristics of Shallot Farmer Respondents in Bantul District

Characteristic	Crok Kuning Variety Growers		Thai Variety Growers	
	Category	Percentage (%)	Category	Percentage (%)
Age	40–55	54	40–55	50
Education level	High school	46	High school	62
Farm experience	5–10	50	5–10	64
Land area	<0.5	96	<0.5	96
Land tenure status	Rent	64	Rent	70

Source: Primary data analysis, 2023

Shallot farmers, both those who use seeds of crok kuning and Thai varieties, are dominated by farmers aged between 40 to 55 years, namely in the productive age range. (Mantra, 2004), the economically productive age group for work is generally in the age range of 15-64 years. Typically, farmers of productive age tend to have high enthusiasm to develop their business, driven by urgent life needs (Theresia et al., 2016), so that they can manage shallot farming better than farmers of non-productive age. Young farmers will also be more motivated to adopt agricultural technology innovations if the technology is economically beneficial and can provide real intensiveness (Citra Irawan et al., 2023).

The education level of farmers, both those who use seeds of crok kuning and Thai varieties, is also dominated by those who have the last education of high school (SMA). This shows that most farmers have a relatively high level of formal education. The better the level of education of farmers, the more it will influence essential and complex decision-making in farming, including the efficient use of inputs. The

high level of education also impacts the willingness and ability of farmers to seek information about the use of production factors (Sukiyono, 2005). In addition to age, a higher level of education in farmers can also contribute to increasing agricultural productivity (Guo et al., 2015 in Arvianti et al., 2022).

In general, onion farmers, both those who use seeds of crok kuning and Thai varieties, have between 5 to 10 years of farming experience. This experience reflects farmers' understanding of cultivation techniques in shallot farming activities. Rachmat (2012) in Haryanto et al., (2022) states that experience includes the ability to interpret objects, events, or events experienced. Experience is only sometimes related to formal learning and can be gained through the various series of events that a person faces. The more events encountered, the more sensitive a person will become.

As a foundation in agricultural activities, land acts as one of the main capitals in agriculture, in addition to labor and financial capital. According to Soekartawi et al., (2002), the grouping of farmers' land area can be divided into 3 levels, namely narrow (< 0.5 ha), medium (0.5-0.8 ha), and area (>0.8 ha). Shallot farmers who use shallot seeds of Crok kuning and Thai varieties in Kretek and Sanden Districts, Bantul Regency, tend to be included in the small-scale farmers with an average land area of less than 0.5 hectares. The majority of farmers, both those who use seeds of the crok kuning and Thai varieties, have agricultural land, most of which is also leased land. The main reason behind farmers' decision to rent land is their limited land.

Seed Use Decision-Making Process

The decision-making process by farmers in choosing between using crok kuning or Thai onion seeds consists of five stages. These stages include problem recognition, information search, evaluation of alternatives, purchase decisions, and post-purchase evaluation.

Problem Recognition

The decision-making process by farmers in choosing between shallot seeds of crok kuning varieties and Thai varieties begins when farmers begin to realize their needs for onion seed products and strive to meet these needs. The motivations of farmers to farm shallots vary. For farmers who use seeds of crok kuning varieties, half of them have the primary motivation for profit. However, of farmers who use seeds of Thai varieties, the vast majority, that is, 90%, use seeds of such varieties because of the motivation to make a profit. Farmers see growing shallots as an opportunity to earn greater profits than growing rice or other vegetables. Several factors trigger the need for onion seeds, which is influenced by farmers' motivation to purchase seeds.

Based on the study's results, in farmers who use seeds of crok kuning varieties, the majority (62%) are driven by relatively low seed prices. Unlike the case with farmers who use Thai variety seeds, as many as 74% choose these seeds because of the easy access to seeds and the abundant availability of seeds in the market. Farmers who use the crok kuning variety's primary goal is to purchase seeds to improve production quality (54%). Conversely, for farmers who use Thai variety seeds, the majority of the benefits are to increase production (84%).

Information Search

In this stage, farmers search for information about the advantages and disadvantages of seeds used in their agricultural business. The acquisition of this information will influence his purchase decision. The choice of seed type can be influenced by the knowledge of farmers and the information they obtain from other parties. The results showed that the most influential source of information for farmers using shallot seeds, crok kuning varieties, and Thai varieties was information

obtained from fellow farmers or farmer groups. Farmers and farmer groups are considered the most reliable sources of information because they have first-hand experience using the seeds. For farmers who use crok kuning variety seeds, information from fellow farmers or farmer groups has the highest influence at 72%, followed by information from personal experience at 16%, and information from traders or seed intermediaries at 12%. Likewise, for farmers who use Thai variety seeds, the primary source of information comes from fellow farmers or farmer groups at 82%, followed by information from personal experience at 6%, and information from traders or seed intermediaries at 12%.

Table 2
Introduction to Needs by Farmers Using Seeds of Crok Kuning and Thai Varieties

Description	Crok Kuning Variety Growers		Thai Variety Growers	
	Respondent (People)	Percentage (%)	Respondent (People)	Percentage (%)
Motivation in farming				
− Earn profits	25	50	45	90
− Hereditary	12	24	0	0
− Meet your own needs	13	26	5	10
Benefits you want to get				
− Increase production amount	8	16	42	84
− Improve production quality	27	54	6	12
− Reduces affected by pests	15	30	2	4
Motivation to use seeds				
− Affordable price	31	62	0	0
− Seeds are easy to get	5	10	37	74
− Good seed quality	14	28	13	26

Source: Primary data analysis, 2023

Table 3
Resources Influencing the Use of Seeds of Crok Kuning and Thai Varieties

Description	Crok Kuning Variety Growers		Thai Variety Growers	
	Respondent (People)	Percentage (%)	Respondent (People)	Percentage (%)
Resources				
− Yourself	8	16	3	6
− Seed merchant	6	12	6	12
− Other farmers/farmer groups/families	36	72	41	82

Source: Primary data analysis, 2023

Alternative Evaluation

In this phase, farmers carefully consider meeting their needs by choosing criteria relevant to their wants and needs

when making seed purchasing decisions. The results showed that in Bantul Regency, shallot farmers have known several types of onion varieties. These varieties include Crok Kuning, Tiron, Srikayang, and Thai (Tajuk). Based on facts in the field and from related institutions, the two most dominant varieties among onion farmers in Bantul Regency are the crok kuning and Thai varieties. The most important information for farmers when choosing seeds of crok kuning varieties is mainly related to seed price (34%) and quality (24%). This is because the crok kuning variety has a lower price and superior aroma, taste, and color quality than the Thai variety. In Thai variety seeds, the highest priority is regarding productivity factors (42%) and seed availability (26%). This is essential information for farmers who use Thai varieties in their seed purchase decisions. That is due to the high productivity factor of Thai variety seeds and the ease of obtaining seeds compared to the seeds of the crok kuning variety.

Meanwhile, the factors that become considerations for farmers in deciding whether they will buy shallot seeds of crok kuning varieties or Thai varieties are mainly related to the factors of products selling well in the market; in addition, some farmers decide based on the habits they have done and based on following other farmers. Of the farmers who use crok kuning shallot seeds, 54% said they chose them because of their habits. Of the farmers who use Thai varieties of shallot seeds, 64% said they bought Thai variety seeds due to product factors that sold well in the market.

Purchase Decision

In this stage, the farmer makes decisions about which seeds to buy and which to use in his agricultural business. Based on the results of the study, farmers who use crok kuning variety onion seeds mostly make seed purchases based on the situation. In contrast, farmers who use Thai variety seeds make planned seed purchases, which means the decision to purchase seeds has been scheduled in advance.

Farmers who use crok kuning shallot seeds tend to purchase seeds based on the situation, which is 72% percent. This is because farmers still have remaining seed stock that will be used in the next planting period, so farmers will only repurchase seeds if the seed supply is running low. Of farmers who use Thai varieties of shallot seeds, 76% of farmers make planned seed purchases because, indeed, users of Thai varieties of seeds tend to rely on seeds from seed traders or seed farmers from the Nganjuk district.The surrounding environment greatly influences the decision of farmers to purchase onion seeds, but the final decision they make is ultimately based on their judgment. The results showed that for farmers who used crok kuning variety onion seeds, the most influential factor in the seed purchase process was themselves (74%), in contrast to farmers who use Thai varieties of shallot seeds, where the influential factors in the process of purchasing Thai variety seeds, between themselves and other farmers are almost equal percentages, namely 48% and 44%.In the process of purchasing, farmers need to determine the source from which they will acquire the desired product. Based on the results of research on farmers who use crok kuning variety seeds, farmers obtain seeds of these varieties from the results of making their own by 54%. The majority of farmers who use crok kuning seeds produce their seeds apart from purchase, namely by setting aside and storing part of their harvest for 3 to 4 months to be used as seeds in the next growing season. Of farmers who use Thai variety seeds, farmers get seeds of this variety from trusted seed traders/intermediaries by 76%, some directly buy from farmers in Nganjuk Regency (18%), and only 6% of farmers can make their types of shallots of this Thai variety.

Table 4
Evaluation of Alternative Farmers Using Seeds of Crok Kuning and Thai Varieties

Description	Crok Kuning Variety Growers		Thai Variety Growers	
	Respondent (People)	Percentage (%)	Respondent (People)	Percentage (%)
Information deemed important				
– Seed price	17	34	2	4
– Productivity	3	6	21	42
– Quality	12	24	8	16
– Shelf life of seeds	6	12	2	4
– Age of seed harvest	5	10	3	6
– Resistance to pests and diseases	3	6	1	2
– Availability of seeds on the market	4	8	13	26
Considerations in choosing seeds				
– Habits that have been done	27	54	5	10
– Follow other farmers	6	12	13	26
– Products needed in the market	17	34	32	64

Source: Primary data analysis, 2023

The distance between the place of purchase of seeds and the residence of farmers in Kretek and Sanden sub-districts is relatively close. In farmers who use onion seeds, the crok kuning variety by 78% has a seed purchase distance in the range of 1-10 km. This is because the majority of farmers who use seeds of the crok kuning variety only buy seeds if they lack seeds in their cultivation, and they get these seeds from other farmers around the area where they live. The same thing happened to farmers who used Thai variety shallot seeds, as many as 64% of farmers stated that they obtained Thai variety seeds from seed traders/intermediaries domiciled in Bantul Regency. At the same time, another 36% indicated that they obtained Thai variety seeds directly from farmers in Nganjuk Regency. This is dominated by farmers who have enough land for their onion cultivation business. Farmers who have more extensive land are willing to travel longer distances in the hope of directly seeing where to buy their seeds and negotiating prices to get lower seed prices.

Post-Purchase Evaluation

After farmers buy and use seeds, they experience changes in the assessment of their farm results based on experience in the field. All respondent farmers who bought shallot seeds of crok kuning and Thai varieties expressed satisfaction with the seeds they used. Farmers recognize that the seeds purchased are of good quality and provide production results in accordance with farmers' expectations. The more satisfied the farmer is with using a seed variety, the more likely the farmer is to continue using that seed variety. Farmers' positive attitudes towards seeds will influence their decisions to use these seeds in the future

(Theresia et al., 2016).

Product prices also influence consumer decisions when buying products. The results showed that if the cost of shallot seeds, both crok kuning and Thai varieties, increases, most farmers will still buy these seeds. The reason behind this decision is that the farmers have been confident in the quality of the seeds used. Of farmers who use crok kuning variety seeds, 86% of farmers said they would continue to buy crok kuning variety seeds even though prices rose. Similarly, for farmers who use Thai variety seeds, 94% of farmers said that they would still purchase Thai variety seeds if the price rose.

The purchase decision of a particular type of seed is also greatly influenced by the availability of that seed. The results showed that if the seeds that farmers usually use are not available on the market, most farmers who use crok kuning variety onion seeds (62%) will look elsewhere. In contrast, among Thai seed users, 40% of farmers will look elsewhere, and the remaining 60% will buy other seed varieties.

Table 5
Purchasing Decisions by Farmers Using Seeds of Crok Kuning and Thai Varieties

Description	Crok Kuning Variety Growers		Thai Variety Growers	
	Respondent (People)	Percentage (%)	Respondent (People)	Percentage (%)
How to purchase seeds				
− Planned	11	22	38	76
− Sudden	3	6	2	4
− Depending on conditions	36	72	10	20
Influential parties in the buying process				
− Yourself	37	74	24	48
− Other farmers/farmer groups/families	11	22	22	44
− Seed sellers/traders	2	4	4	8
Sources of obtaining seeds				
− Make your own	27	54	0	0
− Buy from other farmers in Bantul District	13	26	0	0
− Buy from other farmers outside the Bantul District	0	0	0	0
− Buy from other farmers in Nganjuk Regency	0	0	9	18
− Buy at farmers and make your own	8	16	3	6
− Buy from seed merchants	2	4	38	76
Distance from a place of purchase				
− 1 – 10 Km	39	78	32	64
− More than 10 Km	11	22	18	36

Source: Primary data analysis, 2023

Table 6
Post-Purchase Behavior by Farmers Using Seeds of Crok Kuning and Thai Varieties

Description	Crok Kuning Variety Growers		Thai Variety Growers	
	Respondent (People)	Percentage (%)	Respondent (People)	Percentage (%)
Satisfaction with purchasing seeds				
− Satisfied	45	90	48	96
− Not Satisfied	5	10	2	4
If the price of seeds rises				
− Keep buying seeds	43	86	47	94
− Not buying seeds	7	14	3	6
If seed varieties are not available on the market				
− Search elsewhere	31	62	20	40
− Buy other varieties	19	38	30	60

Source: Primary data analysis, 2023

This shows that farmers who use crok kuning seeds have a higher level of loyalty than farmers who use Thai variety seeds.

Factors Influencing Farmers' Decisions on the Use of Thai Shallot Seeds

Logistic regression analysis is used to study the factors that play a role in farmers' decision to choose to use onion seeds of crok kuning or Thai varieties. In this analysis, the response variable (Y) is categorical, where farmers who use crok kuning shallot seeds are given a value of 0, while farmers who use Thai onion seeds are given a value of 1. Based on previous research and consideration of conditions at the study site, ten independent variables are thought to influence farmers' decisions in using Thai onion seeds. The independent variables are age, education, land area, land ownership status, experience in shallot farming, seed prices, access to seeds, productivity, seed resistance to plant disease pests (HPT) and influences from other parties.

A goodness-of-fit test was performed using the Hosmer-Lemeshow (H-L) method to test the significance of the model in modeling the data. The test results show a p-value or significance of 0.998. Because the p-value is greater than the significance level set at 5%, it can be concluded that the logit model is suitable for use because, overall, it is able to explain or predict farmers' decisions in using Thai onion seeds. Meanwhile, to evaluate the suitability of the model, the Nagelkerke R square value was used, and from the results of the analysis, the Nagelkerke R square value was 0.746. This figure indicates that the ability of the independent variable to explain the dependent variable is 74.6%. In comparison, the remaining 25.4% is explained by other factors that are not included in the model.

The results of the logistic regression model analysis show that with a confidence level of 95% (α=5%), three variables significantly influence farmers' decisions to use Thai varieties of shallot seeds. The three variables are land area, productivity and the influence of other parties. While at a confidence level of 99% (α=1%), four variables significantly

influence farmers' decisions in using Thai varieties of shallot seeds. The four variables are education, seed prices, seed access and seed resistance to plant disease pests (HPT). Meanwhile, other variables, such as age, land ownership status and farming experience, did not have a significant influence. Table 7 presents the results of logit analysis using the STATA 16 application.

Table 7
Results of Logit Regression Analysis of Factors Affecting the Use of Thai Shallot Seeds

Log	Expect. Symbol	Coef.	Std. Err.	z	P>|z|		Odds Ratio
Age	-	-0.0140	0.0605	-0.23	0.817	n.s	0.986
Education	-	-0.7424	0.2666	-2.79	0.005	***	0.476
Land area	-	-21.2346	8.8018	-2.41	0.016	**	6.001
Land ownership status	-	-1.3376	1.1673	-1.15	0.252	n.s	0.263
Farming experience	-	-0.1173	0.1272	-0.92	0.357	n.s	0.889
Seed prices	+	0.0006	0.0002	3.16	0.002	***	1.001
Seed access	+	4.2178	1.5071	2.80	0.005	***	67.883
Productivity	+	4.9740	2.4236	2.05	0.040	**	144.601
Resistance to plant disease pests	+	6.0775	2.1337	2.85	0.004	***	435.919
Influence of other parties	+	3.6827	1.7824	2.07	0.039	**	39.755
_Cons		-27.1569	10.2981	-2.64	0.008		1.611

** Significant at the α 5% level
*** Significant at the α 1% level
n.s Not Significant

Source: Primary data analysis, 2023

From the results of the analysis, it was found that the variables of education and land area were significant, with significance values of 0.005 (α=1%) and 0.016 (α=5%). The coefficients of these two variables are negative, which indicates that there is a negative relationship between education level and land area and the tendency of farmers to use Thai onion seeds. That is, the lower the level of education of farmers, the lower the likelihood of farmers using Thai varieties of onion seeds. The odds ratio for the education variable is 0.476, which indicates that for every year of education, the farmer's chances of using

Thai onion seeds will also decrease by 0.476 times (cateris paribus). The results showed that most onion farmers who use Thai variety seeds have a relatively high level of formal education, namely high school graduates (SMA), so this has an impact on the quality of farmer resources. Farmers who have a higher level of education usually have a more open attitude towards innovations, are more efficient at work, and are wiser in decision-making in farming activities (Gusti et al., 2022).

As for the variable land area, the larger the land area owned by farmers, the less likely they are to use Thai varieties of onion seeds. The odds ratio for the variable land area is 6.001, which indicates that for every increase of one hectare of land area, the farmer's chances of using Thai onion seeds will decrease by 6,001 times (cateris paribus). The price of Thai shallot seeds is higher than that of crok kuning variety seeds, so if farmers own the wider land, they must also prepare large enough capital to cultivate using this type of Thai variety, and of course, this will affect farmers' decisions. Usually, farmers with small land have limited business capital (Theresia et al., 2016).

The variable seed price has a significance level of 0.002, indicating that this variable has a significant influence on the level of α=1% on farmers' purchasing decisions in choosing Thai varieties of shallot seeds. Seed prices have a positive coefficient, which indicates that there is a positive relationship between seed prices and the tendency of farmers to choose Thai variety onion seeds; in other words, the lower the seed price, the more likely farmers are to buy Thai variety onion seeds. The odds ratio value for variable seed prices is 1.001, meaning that every decrease in seed prices of Rp. 1 - will increase the chances of farmers choosing Thai variety shallot seeds by 1,001 times (cateris paribus). This finding is in accordance with the results of research by Nurzam et al., (2020), which states that the seed price coefficient has a positive and significant value in farmers' decisions to buy certified oil palm seeds in the Bengkulu area, the lower the price of certified seeds and supported by good seed quality, the decision of farmers in buying certified oil palm seeds will also increase. Based on the results of the study, the price of crok kuning shallot seeds has a price range between Rp. 45.000,- /Kg to Rp. 57.000,- /Kg, while the price of Thai variety shallot seeds ranges from Rp. 50.000,- /Kg to Rp. 68.000,- /Kg. The variability and price level of Thai shallot seeds is more diverse and high compared to the seeds of crok kuning varieties. The higher price of Thai variety shallot seeds makes it seem that it is not so much a problem for users of this type of seed because farmers who use Thai variety seeds look more at the overall characteristics possessed by the Thai variety seeds themselves. This is in accordance with the opinion of Liu et al. (2001) in (Li et al., 2010), who state that farmers are not sensitive to the price of good quality seeds. Still, they are interested in seed brands and state that most farmers rely on their own experience when buying seeds.

The seed access variable has a significance level of 0.005, indicating that this variable has a significant influence on the level of α=1% on farmers' purchasing decisions in choosing Thai varieties of shallot seeds. The seed access variable has a positive coefficient, which indicates that there is a positive relationship between the seed access variable and the tendency of farmers to choose Thai variety shallot seeds; in other words, the easier the seed access, the more likely farmers choose to buy Thai variety shallot seeds. The odds ratio for variable seed access is 67.883, meaning that the easier the

access to Thai variety seeds is, the more likely it is that farmers will choose Thai variety onion seeds by 67.883 times (caters paribus) compared to previous conditions. Based on research findings, farmers' decisions in choosing Thai varieties of shallot seeds are strongly influenced by the availability and ease of obtaining seeds when needed. Shallot farmers in Bantul Regency feel that the availability of Thai varieties of shallot seeds is quite abundant in the market, and it is easy to get them. The seeds of Thai varieties used by farmers in Bantul Regency come from seed traders in Nganjuk Regency. The development of communication technology in the current era makes it easier for farmers to communicate with other farmers/seed traders outside their regions. Mariyono et al., (2022) showed that the use of cellular phone technology allows farmers to obtain market information and better agronomic technology, in this case, of course, information on the selection of types of onion varieties that are high-yielding, resistant to pests and diseases, easy seed access, abundant seed availability, affordable prices and others. Rustanti (2015) in Epriliyanti & Aji, (2021) state that farmers will be satisfied if the products of a seed variety are easily accessible. Unlike the case with farmers who use crok kuning variety seeds, farmers obtain limited types of crok kuning variety seeds through trade between farmers in the Bantul Regency itself. Farmers who use crok kuning variety seeds themselves also admit the difficulty when they need this type of seed because the number of seeds is limited in the market. This is in accordance with the opinion of Kiloes et al., (2019); Rohmah et al., (2021), who stated that one of the inhibiting factors for farmers in using quality seeds is the problem of the availability of the seeds themselves in the market.

The productivity variable has a significance level of 0.040, indicating that this variable has a significant influence on the level of α=5% on farmers' purchasing decisions in choosing Thai varieties of shallot seeds. Productivity has a positive coefficient, which indicates that there is a positive relationship between productivity and the tendency of farmers to select Thai variety onion seeds; in other words, the higher the seed productivity, the more likely the farmer chooses to buy and use Thai variety onion seeds. The odds ratio value for the productivity variable is 144.601, meaning that every increase in seed productivity by 1 ton/ha will increase the chances of farmers choosing Thai onion seeds by 144,601 times (cateris paribus). At the time of the study, the average productivity of crok kuning variety shallot seeds ranged from 15 tons/hectare, while Thai variety shallot seeds could reach more than 18 tons/hectare. This is in accordance with the results of research conducted by Fauzan, (2014); Hariyono et al., (2021); Sari & Nugraha, (2021), which states that the productivity of Thai varieties (Tajuk) can reach 15 to 20 tons per hectare. It is this productivity factor that most encourage farmers to choose to use Thai varieties of onion seeds. The better the effect of seeds on increasing yields, the stronger the desire of farmers to switch to new varieties (Li et al., 2010; Siata, 2016).

The results of logistic regression testing showed that the variable of seed resistance to pests and plant diseases (HPT) had a significance level of 0.004, indicating that this variable had a significant influence on the level of α=1% on farmers' purchasing decisions in choosing Thai varieties of shallot seeds. The variable of seed resistance to HPT has a positive coefficient, which indicates that there is a positive relationship between the variable of seed resistance to HPT and the tendency of farmers to choose Thai variety shallot seeds; in other words, the more resistant

seeds to HPT, the more likely farmers choose to buy and use Thai variety shallot seeds. The odds ratio value for variable seed resistance to HPT is 435.919, meaning that the more resistant Thai variety seeds are to HPT, it will increase the chances of farmers choosing Thai variety onion seeds by 435.919 times (cateris paribus) compared to previous conditions. In general, farmers always prioritize the use of seeds that are resistant to pests and plant diseases in their agricultural activities. This is due to potential crop losses that can arise due to pest attacks and plant diseases and can even cause crop failure. Farmers consider Thai onion seeds to be quite resistant to pests and plant diseases (HPT) compared to crok kuning varieties, so many farmers choose to grow them. Adiyoga et al., (2004) in Triwidodo & Tanjung, (2020) stated that one of the obstacles in shallot production is the attack of pests (plant disturbing organisms), the potential for yield loss by pests in old and young plant stadia can reach 20-100% depending on the way of management of shallot cultivation itself.

The influence variable from other parties showed a significance value of 0.039, indicating that this variable had a significant influence at the level of α=5% on farmers' purchasing decisions in choosing Thai varieties of shallot seeds. This variable has a positive coefficient, which indicates that the possibility of farmers buying Thai onion seeds increases with the influence of other parties. The greater the influence exerted by the other party, the more likely the farmer chooses to buy and use Thai varieties of onion seeds. The odds ratio value for the variable influence of the other party is 39.755, indicating that the greater the influence of the other party, the greater the chance of farmers choosing Thai variety shallot seeds is 39.755 times (cateris paribus) greater than the previous condition. More than knowledge is needed to determine the type of seeds to be purchased and used in agricultural activities because it is also strongly influenced by information from other parties. The results showed that the most influential source of information for farmers using Thai varieties of shallot seeds was other farmers or farmer groups. In addition, there are also sources of information from yourself and traders. In general, farmers and farmer groups are the main reference for farmers, and the views they provide have a significant impact on purchasing decisions. Farmers and farmer groups are considered the most reliable sources of information because they can see firsthand the productivity of the seeds used. Although information from commercial sources, especially those from sellers, is often received by farmers, the most effective contact comes from personal sources of information. Personal information sources usually serve as attestation or evaluation, while commercial information sources play the role of providing information. This is in accordance with the research of Li et al., (2010), which states that the behavior of purchasing seeds by relatives and relatives is very influential on the selection of new varieties by farmers in Sichuan, China. Because farmers have a better understanding of relatives and companions, the selection of friends and relatives plays a role in publicity and advertising and usually provides the basis for their production decisions to adopt new varieties. Farmers more often make assessments or introductions to seeds by observing or studying seeds that have been planted by other farmers or based on information they obtain from the market. In addition, farmers get perfect information about several varieties through production practices. The less information farmers know, the weaker their desire to choose a new variety.

The results of logistic regression testing showed that other variables, such as age, experience in farming and land ownership status, had a significance level greater than 0.05. This indicates that these variables do not have a significant influence in determining the likelihood of farmers using Thai variety onion seeds. Based on field observations, changes in farmers' attitudes towards the use of Thai varieties of shallot seeds were not influenced by age, experience in farming and land ownership status, but rather influenced by evidence seen around them.

CONCLUSION

Farmers make decisions regarding the use of crok kuning or Thai shallot seeds through a series of stages, namely problem introduction, information search, alternative evaluation, purchase decision, and post-purchase evaluation. The difference in decision-making between farmers who use seeds of crok kuning varieties and Thai lies in the reasons and goals that farmers want to achieve. The reason farmers use crok kuning variety onion seeds is that the price of the seeds is cheaper, while the goal is to improve quality. The reason farmers use Thai varieties of shallot seeds is because of easy access to seeds, abundant availability of seeds in the market, and high productivity. The goal is to increase production yields. Some factors that significantly influence farmers' decisions to use Thai varieties of shallot seeds are education, land area, seed prices, seed access, productivity, seed resistance to plant disease pests (HPT), and the influence of other parties. Education and land area have a significant negative influence. In contrast, seed prices, seed access, productivity, seed resistance to plant disease pests (HPT) and other parties' influences have a significant positive influence on farmers' decisions to use Thai onion seeds..

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