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The Intention of Agro Farmers towards the Application of Kitosanplus in Kelantan

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Abstract. The Kitosanplus is an active molecule that finds many possible applications in agriculture to reduce or replace more environmentally damaging chemical pesticides. Thus, Kitosanplus could represent an innovative eco-friendly strategy for managing plant diseases and replacing copper. The effectiveness of Kitosanplus in protecting plants from biotic stresses by direct or indirect actions, but Kitosanplus interaction with pathogens and plants are still not fully understood. This study is to determine the agro farmer intention towards the application of Kitosanplus and the relationship between age and perceived behaviour of agro farmers towards the application of Kitosanplus. The location selected is in Kampung Bukit Jawa, Selising, Pasir Puteh. Most popular agriculture activities in this area are paddy plantation. The descriptive analysis and Pearson correlation analysis were used to analyze the data. The respondents indicated that Kitosanplus is an excellent organic fertilizer, and their application of chemical pesticides do not harm the crop. Instead, the attitude, perceived behaviour and social norm of agro farmers show they have a weak intention towards using Kitosanplus in their plantation.

1. Introduction

The economy is found as the most popular issue among farmers. Deprivation in the resources can affect agriculture directly as growth stunting. The primary factor is due to the lack of nutrient intake from the plant as the soil nutrients decrease according to the environmental impact and human activities. This will affect the growth of the plant, and pest attacked the crops. Thus, Kitosanplus is a kind of supplement for the plant to gain sufficient nutrients and to avoid stunting. Kitosanplus will improve the growth rate of plant and is usually consume by farmers who have a big plantation and possess knowledge and awareness towards using Kitosanplus. However, the situation in the countryside area differs from commodity land. Mostly, farmers preferred to use the traditional way of plantation in agricultures. Among the agricultural activity includes land preparation for planting, cultivating crops, crop management practices, and harvesting.

Kitosanplus is a natural and low toxic compound that is biodegradable and environmentally friendly with various applications in agriculture [1]. Kitosanplus is made from the chitin shells of shrimp and other crustaceans with an alkaline substance, like sodium hydroxide. Agro farmer uses Kitosanplus, neither a pesticide nor a fertilizer but instead being a plant booster to enhance the soil fertility to increase crops yield in agriculture. Instead of using pesticides to avoid pest attacked, which affect the plant and gives a negative impact on human consumptions. Poison from pesticides will cause retardation of crops due to the reduction of nutrients intake. Base on the previous study, the uses of pesticides will reduce



the pH value of the soil [2]. Here, we are going to study the application of Kitosanplus among the agro farmers by investigating the agro farmer's intention as well as the perceived behaviour control and influential factors toward the application of Kitosanplus in their crops.

The Kitosanplus is an active molecule that finds many possible applications in agriculture to reduce or replace more environmentally damaging chemical pesticides. Although it is a good alternative even in conventional farming, Kitosanplus applications would find attractive opportunities, particularly in organic farming, disadvantaged by the lack of useful tools for managing biotic diseases [3]. The plant disease control in organic agriculture, especially those caused by a fungal and bacterial pathogen, is currently based on copper treatments. However, the research of an ecological alternative is mandatory because of the environmental impact problems related to the use of this heavy metal. Thus, Kitosanplus could represent an innovative eco-friendly strategy for managing plant diseases and replacing copper or reducing its use, thanks to its several properties such as those previously described. Several studies have demonstrated the effectiveness of Kitosanplus in protecting plants from biotic stresses by direct and indirect actions. However, its interaction with pathogens and plants are still not fully understood. Kitosanplus application in the field, including formulation aspects, is one of the least studied issues, and it needs further testing and validation.

Agro farmers intention to apply organic fertilizer, mainly KitosanPlus product is depending on agro farmers knowledge, attitude and perception control. Most of the agro farmers are lack of experience, and there was considerable evidence that more detailed and exposure towards benefits of using Kitosanplus will be referred to by some segment of Kitosanplus and can be resulted in purchases of more beneficial organic fertilizer and eco environmentally. Consumers are more concerned about organic farming [4]. The application of chemical pesticides gives harmful effects to humans and the environment too.

Majority of agro farmers have a hard time interpreting the benefits of the application of Kitosanplus. This led to a lack of exposure and information about Kitosanplus. Certain agro farmers were comfortable with the traditional techniques in agriculture. Thus, agro farmers are not ready for any change maker in agriculture activities. Somehow, the price of Kitosanplus influenced agro farmers to not apply Kitosanplus in plantation according to high cost. The positive effects of Kitosanplus, along with its environment, the friendly property allows agro farmers to use for the crops [5].

The idea of organic fertilizer which eco environmentally makes much more sense than it does in real life. Pesticides are from chemical substances which can harm human and also the soil. The application of chemical pesticides is giving harmful effects to humans and the environment too. The crops will absorb the nutrients and chemical substances from the ground and finally will be accumulated in the fruits or vegetables which harvested. Indirectly, human going to receive chemical substances in their body by consumes the foods. The application of chemical pesticides is giving harmful effects to humans and the environment too.

This study was conducted to determine the attitude level of agro farmers towards the application of Kitosanplus. Besides that, this study also wants to investigate the relationship between age and perceived behaviour control of agro farmers towards the application of Kitosanplus. Therefore, a survey had been conducted to study the intention of agro farmers towards the application of Kitosanplus by distributing the questionnaires to the agro farmers.

2. Methodology

The data had been collected from 52 respondents who were agro farmers who applied Kitosanplus to their paddy plantations at area Kampung Bukit Jawa, Selising, Pasir Puteh, Kelantan. The data collected through a research survey based on a set of questionnaires which covered the component of intention towards the application of Kitosanplus. The data that has been gathered will be proceeded to analyses by using SPSS version 21 to determine the objectives of this research. The descriptive analysis was applied to analyses the demographic information. The mean score analysis applied to determine the intention level of agro farmers towards the application of Kitosanplus. The mean score range was categorized into three categories, such as low (1.00-2.33) followed by moderate (2.34-3.66) and lastly

high range is (3.67-5.00). The relationship between age and perceived behaviour control of agro farmers towards the application of Kitosanplus was analysed using Pearson correlation analysis.

3. Results and discussion

3.1 Demographic Information of Respondents

Based on Table 1, the majority of the respondent is male which are 48 persons and female are four persons. The percentage is 92.3% and 7.7% respectively. For age 21-30 years old, 31-40 years old, 41-50 years old and 50 years old and above, the respondents are 8, 16, 14 and 14, respectively. The percentage are 15.4%, 30.8%, 26.9% and 26.9% respectively. For races, the majority of the respondents are Malay which is 92.3% (48 persons), and the least is Indian and Dusun, which both are 1.9% (1 person). For occupation, the majority of them are self-employed, and the minority is students, which are 27 persons and two people respectively. From the survey, the income of the respondents is below RM1000 are ten persons between RM1000 and RM2500 are 16 persons, between RM2500 and RM5000 are 16 persons and above RM5000 is ten persons. The percentage of the data is 19. %, 30.8%, 30.8% and 19.2% respectively. Majority of the respondents, which is 92.3%, has been exposed to Kitosanplus application and for 7.7% have not been exposed to the Kitosanplus application. There are 27 persons of the respondents have been using Kitosanplus in their crops for one year, 12 persons for two years and nine persons for three years. The percentage are 51.9%, 23.1% and 17.3% respectively. For the type of crops that they have been working now is durian, paddy, chilli and others, there are 13.5%, 40.4%, 23.1%, and 15.4% respectively.

Table 1. Demographic profile of respondents

Characteristics	Frequency	Percentage (%)
Age		
<20 years old	-	-
21-30 years old	8	15.4
31-40 years old	16	30.8
41-50 years old	14	26.9
>50 years old	14	26.9
Gender		
Male	48	92.3
Female	4	7.7
Race		
Malay	48	92.3
Indian	1	1.9
Chinese	-	-
Bajau	1	1.9
Dusun	2	3.8
Occupation		
Employed	19	36.5
Unemployed	4	7.7
Self-employed	27	51.9
Students	2	3.8

Monthly income		
< RM 1000	10	19.2
RM 1000 – RM 2500	16	30.8
RM 2500 – RM 5000	16	30.8
>RM 5000	10	19.2
Marital status		
Single	11	21.2
Married	41	78.8
Are you have been exposed to the application of Kitosanplus?		
Yes	48	92.3
No	4	7.7
How long you've been applied Kitosanplus in your crops?		
One year	27	51.9
Two years	12	23.1
Three years	9	17.3
What type of crops that you've been working now?		
Durian	7	13.5
Paddy	21	40.4
Chilli	12	23.1
Others	8	15.4

(Source: Survey, 2018)

3.2 The Attitude Level of Agro Farmers towards the Application of Kitosanplus

Table 2 shows the mean score of the study. The mean score was categorized into three low categories (1.00-2.33), medium (2.34-3.66) and high (3.67-5.00). The factor of the attitude of agro farmers towards the application of Kitosanplus is at the medium level, which the mean is 2.9231. In other words, they are using Kitosanplus because they know about the product itself, and their benefits are at a medium rate. For subjective norm, it scores 2.4231. The mean score is also at a moderate level. For subjective norm section, we want to know does the society and media influence the application of Kitosanplus among agro farmers. So, from the survey, we could say that Kitosanplus application in society is not that high. For perceived behaviour control, it scores 2.7500. The mean score is at a medium level. In this part, from the questions provided in the questionnaire, we want to know whether the application of Kitosanplus among the agro farmers are influenced by the perceived behaviour control of the agro farmers to purchase the product. In conclusion, all of the variables at the moderate mean score. The Kitosanplus is still new in the market. Which is being published about three years ago. So, not much information about Kitosanplus known by the agro farmers or society.

Table 2. The mean score of the agro farmers towards the application of Kitosanplus

Factors	Variables	Frequency	Mean
Attitude	Low	0	2.9231
	Medium	4	
	High	48	

Subjective Norm		2.4231
	Low	1
	Medium	28
	High	23
Perceived Behaviour Control		2.7500
	Low	0
	Medium	13
	High	39

(Source: Survey, 2018)

3.3 The Relationship between Age and Perceived Behaviour Control of Agro Farmers towards the Application of Kitosanplus

The result for the relationship between age and perceived behaviour control of agro farmers towards the application of Kitosanplus was showed in Table 3. The age had a significant relationship with the perceived behaviour control of agro farmers towards the application of Kitosanplus at 0.407.

Table 3. Mean of age and perceive behaviour among agro farmers towards Kitosanplus

		Age	Perceived Behavior Control
Age	Pearson correlation	1	0.407
	Sig. (2-tailed)		0.003
Perceived Behavior Control	Pearson correlation	0.407	1
	Sig. (2-tailed)	0.003	

(Source: Survey, 2018)

4. Conclusion

Through this research, the finding concludes that the application of Kitosanplus should be applied in the plantation. Even though the intention level showed moderate level, this scenario indicates that the agro farmers are already aware and willing to use the Kitosanplus. Besides that, the relationship between age and perceived behaviour control of Kitosanplus application was significant. Therefore, the government need to provide and expose about the benefit and advantage of using Kitosanplus.

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