

The Analysis of Affecting Factors of Consumer Complaints on the Distribution Channel Palm Seedlings: Case Study on the Marketing of PPKS Palm Seedlings to Large Palm Oil Plantations

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ABSTRACT

This study aims to identify the factors that influence the complaints of consumers / Palm Oil plantation who purchased Palm Oil seedlings at the Indonesian Palm Oil Research Institute, Medan. The data used in this study is secondary data which contains information about the number of seedlings at delivery, distance of delivery, duration of time on delivery and the type of transportation used during the distribution process of Palm Oil seedlings to 154 Palm Oil plantations that purchased directly to PPKS during the 2018 - 2019 period. The data in this study were further analyzed using logistic regression analysis techniques with the help of the STATA program to test the effect of the number oil seedlings, distance to distribute seedlings, duration of time and type of transportation used to distribute Palm Oil seedlings on consumer complaints due to dead seedlings, not growing or moldy seedlings after going through the distribution process. Based on the results of the analysis in this study, it was concluded that the count of Palm Oil seedlings, the distance of delivery and the type of transportation used to distribute the oil seedlings proved to have an effect on consumer complaints due to dead seedlings, not growing or moldy seedlings after going through the distribution process, while the distribution duration of time had no significant effect. Regarding the emergence of complaints, this study also provides suggestions for the distribution of Palm Oil seedlings so that the dead, not growing or moldy seedlings after going through the distribution process can be minimized and not caused many complaints.

Keywords: number of seedlings, distance, duration of time, type of transportation, logistic regression

BACKGROUND

As the area of Palm Oil plantations increases, the need for Palm Oil business players for the availability of seeds, directly or indirectly, will also increase. So that the need for Palm Oil seedlings will also be a major concern for Palm Oil industry players because the production and productivity of Palm Oil plants is largely determined by the seeding process carried out. Planting seeds with poor quality will have an impact on time, energy and cost losses. To support the prospects for Palm Oil development, agronomic technical efforts are needed. These efforts include the provision of good seeds, such as using Seedlings from official seed producers and breeders (holding a seedling business license / IUP). Both companies and independent smallholders order the Palm Oil Seedlings in large quantities. The delivery of the Seedlings takes a long time, not to mention the road taken to reach a plantation location in the middle of a forest, so it takes a long time from the Seedlings to be ready to be sent to the nursery location and the recipient of the Seedlings. Another problem that often occurs is that the nursery location is not ready and the difficulty of finding workers, most of whom are imported from outside

the island, requires careful preparation and planning.

Pusat Penelitian Kelapa Sawit (PPKS) or the Palm Oil Research Center is the producer with the greatest potential in terms of supplying and selling Palm Oil Seedlings. However, this condition does not guarantee the creation of a favorable condition for PPKS, which is known that there are many fake seeds using the name PPKS. According to Anwar (1995), the scattered location causes a competitive market to be unable to materialize (missing market).

The distribution of PPKS Seedlings is divided into three groups, namely Large Plantation, Smallholder Plantation and Internal PPKS. Large plantations are plantations that are commercially organized or managed by companies that are legally incorporated either private large plantations or state large plantations (PN). Smallholder plantations, namely individual planters and farmer groups that are not legally incorporated, consist of planters who come

directly to make purchases at PPKS or through the Prowitra program, shop-houses, breeders and franchises. While internal is to meet the needs of PPKS seeds in the Business Unit. The largest sales of Kecambah Kelapa Sawit (KKS) or palm oil seedlings in 2018 and 2019 were on smallholder plantations, followed by large plantations and internal PPKS. There was a decline in sales in 2019 both from smallholder plantations, large plantations and internal PPKS. This is due to several factors including the moratorium that was enforced since 3 years ago, environmental factors (dry season in 2019) and the decline in the price of fresh fruit bunches (FFB). This has led to a decline in new palm oil plantations in the last 4 years and a lack of interest from smallholders to buy palm oil Seedlings.

Although sales of PPKS palm oil Seedlings were the highest compared to other producers in 2019, this was also followed by complaints from large plantations and smallholder plantations.

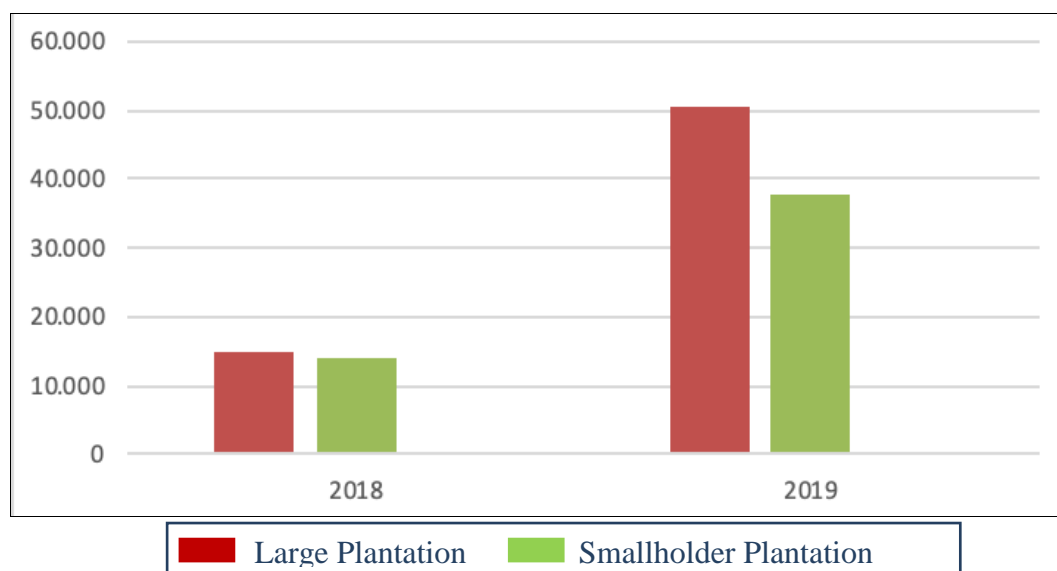


Figure 1. Graph of the number of consumer complaints 2018-2019.

Figure 3. shows that the highest number of Seedlings complained of in 2018 was large plantations, namely 15,079 Seedlings then smallholder plantations 13,874 points. In 2019, the highest number of Seedlings complained by large plantations, namely 50,352 seeds and

smallholder plantations with 37,619 seeds. This amount is the number of Seedlings replaced by the PPKS after being deducted by the (additional) fraction of 2.5-5% for each purchase of Seedlings depending on the distance of delivery.

The percentage is obtained from the total number of complained Seedlings divided by the total sales of Seedlings in one year for one type of consumer. The percentage of complaints from large plantations in 2018 and 2019 was obtained at 0.19% and 0.82%, while those for smallholder plantations were 0.11% and 0.39%. In the graph of the percentage of consumer complaints 2018-2019, it can be seen that in 2018 and 2019, the highest percentage of complaints was on large plantations.

Based on the data above, it shows that the sales of Seedlings in 2018-2019 decreased but there was an increase in complaints from consumers and the largest was large plantations. Typical complaints (98%) were Seedlings that died or did not grow, meaning that the Seedlings were damaged during distribution to the nursery. This is the author's concern for conducting research. Complaints / complaints are a way to improve the quality of service the company provides to customers. According to Tjiptono (2016) complaints are expressions of disappointment or dissatisfaction.

PPKS superior plant material

PPKS has produced superior Palm Oil planting materials with international standards in accordance with the "Quality Management System" (ISO 9001: 2015) so that its quality is guaranteed. The superior planting material in the form of Seedlings, clone seeds and ready-to-plant commercial Palm Oil seeds that have gone through continuous selection and testing from plant breeding programs for decades. Superior Palm Oil planting material is the main capital for high productivity. With superior planting material, the production of FFB and oil is guaranteed to be much higher than the use of seeds from original seeds.

Palm Oil Seedlings

Palm Oil Seedlings are grown shoots of prospective roots and stems of approximately 2 cm. Palm Oil seeds are

unique seeds because they have the thickest shell compared to other plantation commodities. What is meant by product quality, in this case Seedlings, is quality seed, both physical, physiological, genetic and biological / pathological quality. The physical quality of the seeds shows the shape and physical size of the seeds which are uniform, well-groomed and clean. The physiological quality of the seeds shows the viability and vigor of the seeds, which includes germination and growth strength of the seeds as well as the storage capacity of the seeds. The genetic quality of the seeds is the appearance of pure seeds of a certain variety which shows the genetic identity of the parent plant. Meanwhile, the biological / pathological quality of the seeds shows the health of the seeds which are free from seed borne diseases.

Distribution channel

Distribution channels are a series of interdependent organizations involved in the process of making a product or service ready for use or consumption (Saladin, Djaslim, 2006). Available for use or consumption (Kotler, Keller, 2007). The position of the distribution channel in the marketing channel that the distribution channel is part of a marketing channel that functions in helping producers channel their products to get into the hands of consumers where their duties include spreading promotion of transportation and so on, but distribution channels do not perform tasks that are like marketing channel functions, where the task of carrying out all the tasks carried out by the distribution channel is added as a facilitator, meaning people or institutions that facilitate the activities or operations of company activities, including repair services and so on so that it can be seen that the coverage of distribution channels is relatively smaller than the marketing channels.

Consumer Complaints

Dissatisfaction in the service business is a natural thing to happen, but it

will become a serious problem if it is not handled quickly. According to Mowen et al. (2002: 101) defines consumer complaint behavior is a term that includes all the different actions of consumers if they feel dissatisfied with a purchase of a product or service. Complaints cannot be avoided by companies, especially companies engaged in services because providing the best service is not easy. (Gonius, 2013). Dissatisfied consumers engage in several different complaint behaviors, such as negative WOM, complaining to the company, attracting third parties, or even not making repeat purchases as usual (Fernandes, 2007).

Foedjawati et al. (2007) said in their research knowledge of customer complaints would help company managers pay attention to and solve problems that arise. As research conducted by Winarni and Hardjanti (2007) dissatisfaction in the service business is a natural thing to happen, but it will become a serious problem if it is not handled quickly and appropriately. Complaint behavior is an effort that reflects consumer solidarity, because consumer complaints can prevent companies from making the same mistakes against other consumers (Fatma, 2012).

Customer Satisfaction

Engel (1990) states that customer satisfaction is an after-purchase evaluation where the chosen alternatives are at least equal to or exceed customer expectations while dissatisfaction arises when the results (outcomes) do not meet customer expectations. The concepts and several definitions of customer value above can be

developed comprehensively, that in general, customer value is a comparison between the benefits felt by the customer and what the customer exchanges (costs) to get or consume the product, so that customer value is a preference felt by customers and an evaluation of product attributes and the various consequences arising from using a product to achieve customer goals and objectives (Wooddruff in Balqis, 2009).

CONCEPTUAL FRAMEWORK

The production of PPKS Seedlings is ISO 9001: 2015 certified for quality management systems, so it requires quality assurance and has standard operational procedures so that the Seedlings sent to consumers are assumed to have uniformity. The types of complaints in general (98%) were Seedlings that died or did not grow, not in the advanced phase in the nursery, meaning that there was a problem with the distribution channel. Complaints / complaints are a way to improve the quality of service the company provides to customers. According to Tjiptono (2016: 446) complaints are an expression of disappointment or dissatisfaction.

Based on the description above, there are complaints about dead Seedlings caused by distribution channels. To find out the factors that caused these complaints, large companies that bought PPKS Seedlings in 2018-2019 were differentiated based on distribution channels, namely the number of Seedlings purchased, the location of planting (distance, delivery time) and the means of transportation used in sending the Seedlings.

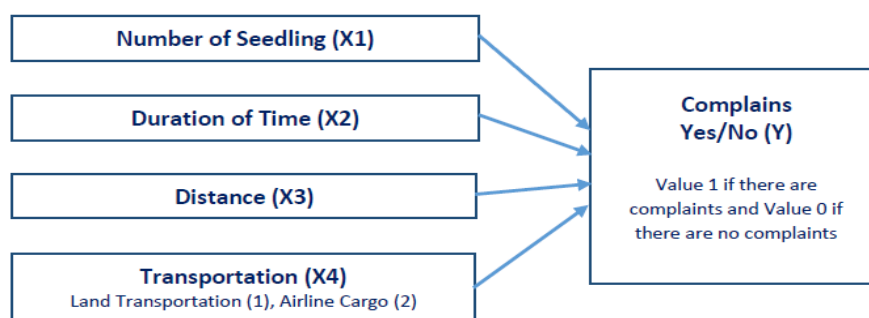


Figure 2. Research Model Framework

RESEARCH METHODS

The research was conducted using descriptive methods, namely case studies. Furthermore, it is carried out using a quantitative approach. The descriptive method analyzes the problems that the company is facing. Sampling is based on the accidental sampling method, namely large plantations that directly purchase PPKS palm oil seeds during the study period. Data on large companies that buy seedlings and the number of seedlings purchased are obtained from data on sales of seedlings to large companies in 2018-2019. From the company data, the company's plantation location is obtained and it can be seen the distance and time taken from sending the seedlings to the nursery location with measurements from toponavi and google maps. The mode of transportation used for the delivery of seedlings is obtained from seedlings sales data, namely through land vehicles and aircraft cargo. Each sale of PPKS seedlings is given an excess / reaction of 2% -5% of the total purchase. In the 2018-2019 period, a letter of complaint was submitted to PPKS regarding non-growing (dead) seedlings which were then entered in the TKP form. If the number of dead seedlings is above 2% -5%, then in implementing the ISO 9001: 2015 Quality Management System the complaint is followed up with verification to the planting location and ensuring that there are PPKS seedlings that do not grow / die in the field and seedlings are replaced by PPKS. The complaint data in this study is data that has been verified by the Quality Control Division and the PPKS has replaced the seedlings in the company.

In this study, a logistic regression analysis was conducted to examine the effect of the number of palm oil seedlings, distribution distance, distribution time and type of transportation used in the distribution of seedlings on the emergence of consumer complaints. The stages in logistic regression analysis include the regression model test stage which includes testing the accuracy of the model in

predicting, the feasibility of the model to predict the regression model and testing the effect of all independent variables on the dependent variable. The reason for choosing this method is that the data used in this study are non-metric in the dependent variable, while the independent variable is a mixture of continuous (metric data) and categorical (non-metric data) variables. Due to the mixed scale on the independent variable, the assumption of the multivariate normal distribution cannot be fulfilled. This causes a change in function to logistic and does not require assumptions for data normality on the independent variable. Logit analysis is used to analyse quantitative data that reflects two choices or what is commonly called binary logistic regression (Ghozali, 2011). Logistic regression aims to test whether the probability of the dependent variable occurring can be predicted with the independent variable (Ghozali, 2011). Logistic regression analysis was performed with the help of the STATA program.

RESULTS AND DISCUSSION

Description of Consumer Complaints

Most complaints about the distribution of palm oil using land transportation, of the 16 existing complaints, 9 of them were distribution by land route, while the remaining 7 complaints were distributed by air. This is probably due to the fact that by land route, shaking is more prevalent especially in areas with not very good road conditions, a lot of shocks can cause the seedlings to be damaged during the distribution process, in contrast to distribution by air, less shocks occur.

Description of the number of palm oil seedlings

Most of the complaints were related to the distribution of seedlings in large quantities, namely between 10,000 - 12,500 seedlings. This is probably due to the fact that handling larger amounts of seedlings has led to seedlings being broken, broken

seedlings and even mouldy seedlings after the distribution process.

Description of Distance Distribution of Palm oil Seedlings

The closest distance to the distribution of palm oil seedlings is 9.1 km, while the farthest distance from the distribution of palm oil is 3,455 km with an average of 1134,339 km and a standard deviation of 779,8205. At very close distances, complaints rarely arise, whereas at a distance that is far enough, the risk of dead seedlings is that the more complaints are given by the farmers. Complaints often occur at a distribution distance of 917 - 3320.38 km, while at closer distances (below 910 km), there were no complaints from farmers, and this indicates a relationship between distribution distance and farmers' complaints due to dead / broken and mouldy seedlings after the distribution process.

Description of Travel Time Distribution of Palm oil Seedlings

The time needed in distributing palm oil seedlings from PPKS to the plantation location takes the fastest 0.83 hours and the longest is 48 hours with an average travel time of 18.7 hours and a standard deviation

of 10.697, this depends on the distance between PPKS and the location of the garden and is also influenced by the chosen mode of transportation. The results of the analysis showed that the travel time that the farmers complained about was quite diverse and did not show a tendency for complaints to occur for a long time, this indicates that there is no relationship between travel time and the risk of dead, mouldy or broken seedlings, in the distribution which only takes 0.83 the hours of complaints arose as well as the 48 hours of distribution time of the farmers' complaints.

Description of Mode of Transportation Distribution of Palm Oil

The results of the analysis showed that of the 154 distributions of palm oil seedlings studied, 78 were distributed by land, while the remaining 76 were by air. Based on the results of the analysis in Figure 12, farmers' complaints occurred mostly in the distribution of palm oil seedlings by land route (11.54%), while the percentage of farmers' complaints on distribution by air was only 9.21%, this indicates a tendency for farmers to complain. in distributing palm oil seedlings by land route.

Assessing the Overall Model Fit

Table 1. Overall Model Test Results

LR statistic	Prob (LR statistic)	Conclusion
32,94	0,0000	Good Model, all the independent variables contained in the model together are factors that influence consumer complaints

Based on the results of the analysis in the table above, the LR value is 32.94 and the LR probability is 0.0000. Because the probability value of LR <0.05, it is concluded that the good model and all the independent variables contained in the model together are factors that influence consumer complaints.

Goodness of fit Test

Table 2. Goodness of fit Model Test Results

H-L Statistic	Prob. Chi-Sq(8)	Conclusion
13,96	0,0837	Model Fit

Table 2 shows the results of the Hosmer and Lemeshow's Test. Based on the table, it can be seen that the significance value is 0.0837. The significant value obtained is above 0.05, which means that the 0 (zero) hypothesis cannot be rejected (accepted). This means that the model can predict the value of the observation or the model is acceptable because it matches the observation data so that this model can be used for further analysis.

Model Accuracy in Predicting

The accuracy of the regression model in predicting the effect of independent variables on the dependent

variable is assessed from the Expectation-Prediction Evaluation for Binary Specification table.

Table 3. Model Accuracy in Predicting

Predictions		Observation		Percentage Correct
		Complaint		
		There are Complaints	No Complaints	
Complaint	There are Complaints	5	0	100%
	No Complaints	11	138	79,31
Overall Percentage				92,86%

Based on the results of the analysis in the table above, the results of the analysis show that the accuracy of the model in predicting is very good, amounting to 92.86%. Based on these results, it can be seen that of the 5 farmers who were predicted to complain, all farmers were proven to have complained and of the 149 observations that were predicted to give complaints, only 11 observations turned out to be non-complaining, this shows that the inaccuracy of the model prediction was quite small, 92,96% of farmers could be predicted well by this regression model and only 7.14% of observations were not predicted correctly by this model. Because the predictive power of the model is quite good, the logistic regression model in this

study is suitable for predicting the emergence of farmers' complaints based on the number of seedlings ordered, the distance travelled to distribute the seedlings, the time of distribution of the seedlings and the type of transportation used for the distribution of the seedlings.

Partial Influence Testing

In logistic regression analysis, partial effect testing is done by looking at the p-value of the Wald test. The hypothesis used in this test is as follows:

Ho: The independent variable does not have a significant effect on consumer complaints.

H1: The independent variable has a significant effect on consumer complaints.

Table 4 Wald Test Results

Complaints	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Number of Seedlings	4.72e-06	2.20e-06	2.15	0.032	4.12e-07	9.02e-06
Transportations	-2.886172	.9870049	-2.92	0.003	-4.820666	-.9516782
Distance	.0022489	.0006449	3.49	0.000	.0009851	.0035128
Duration of Time	.0092571	.0363256	0.25	0.799	-.0619397	.080454
_cons	-1.648189	1.058063	-1.56	0.119	-3.721955	.4255775

Complaints	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Number of Seedlings	1.000005	2.20e-06	2.15	0.032	1	1.000009
Transportations	.0557894	.0550644	-2.92	0.003	.0080614	.3860926
Distance	1.002251	.0006463	3.49	0.000	1.000986	1.003519
Duration of Time	1.0093	.0366634	0.25	0.799	.9399396	1.083779
_cons	.1923981	.2035694	-1.56	0.119	.0241866	1.530474

Based on the results of the analysis in the table above, the following results were obtained:

(1) Number of Seedlings → Complaints

The number has a positive and significant effect on the incidence of farmers' complaints, this is indicated by the p-value of the effect of the number of

seedlings distributed on consumer complaints of 0.032 with a regression coefficient that is positive at 0.00000472. This positive relationship means that the more seedlings distributed, the greater the likelihood of complaints from growers, the odds ratio is 1.000005, indicating that farmers ordering large amounts of seedlings have a risk of complaining about dead seedlings with planters ordering seedlings in small quantities.

(2) Mode of Transportation → Complaints

The type of transportation used to distribute the seedlings has a negative and significant effect on the incidence of farmers' complaints, this is indicated by the p-value of the effect of the mode of transportation of the distribution of seedlings on consumer complaints of 0.003 with a regression coefficient that is negative of -2.886172. The negative relationship between the mode of transportation and the emergence of this complaint means that the better the mode of transportation used for the distribution of seedlings for the distribution of seedlings, the less likely it is that farmer complaints will arise due to the large number of dead / mouldy / broken seedlings, the odds ratio is 0.0557894, indicating that distribution Seedlings by land have a risk of dead / mouldy / broken seedlings of 0.0557894 times higher than distribution of seedlings by air cargo.

(3) Distance → complaints

Distance has a positive and significant effect on the incidence of farmers' complaints, this is indicated by the p-value of the effect of distance travelled distribution of seedlings on consumer complaints of 0.000 with a regression coefficient that is positive in the amount of 0.0022489. This positive relationship means that the farther the distance from the distribution of seedlings, the more likely the farmer will complain about the number of dead seedlings, the odds ratio is 1.002251, indicating that the distribution of seedlings

over a long distance has a risk of dead / mouldy / broken seedlings as much as 1.002251 times higher than the distribution of seedlings at a closer distance.

(4) Time → complaint

The distribution time of seedlings did not affect the farmers' complaints due to dead / mouldy / broken seedlings, this is indicated by the p-value of the effect of travel time distribution of seedlings on consumer complaints of $0.799 > 0.05$. This insignificant relationship can be due to the fact that in idle conditions, the short storage time will not affect the death of the seedlings, the emergence of fungus in the seedlings or the breakage of the seedlings, especially the distribution of seedlings in PPKS only takes a maximum of 2 days (48 hours) so that it will not cause the seedlings to die, or break the herbs during the distribution process. In Imam Santoso (2017)'s research on the effect of delaying planting and how to save oil palm seedlings on seed growth in the pre-nursery, it was concluded that there was no interaction between storage time and the growth of oil palm seedlings.

Coefficient of Determination

Table 5. Pseudo R Square Value

Number of obs	=	154
LR chi2(4)	=	32.94
Prob > chi2	=	0.0000
Pseudo R2	=	0.3207

In logistic regression analysis, the coefficient of determination (Pseudo R2) shows the influence of all independent variables on the dependent variable. In this study, the Pseudo R2 value obtained was 0.3207, this indicates that the influence of the variable number, distance, time and type of transportation on the emergence of consumer complaints is 32.07%, while the remaining 67.93% of the incidence of complaints farmers because the seedlings die, have mould or breakage due to other factors outside of distribution distance,

choice of transportation mode, distribution time and number of seedlings distributed.

CONCLUSION

- (1). The number of oil seedlings distributed has a positive and significant effect on the incidence of smallholder complaints, this is indicated by the p-value of the effect of the number of seedlings distributed on consumer complaints of 0.032 with a regression coefficient that is positive in the amount of 0.00000472. This positive relationship means that the more seedlings distributed, the greater the likelihood of complaints from growers, the odds ratio is 1.000005, indicating that farmers ordering large amounts of seedlings have a risk of complaining about dead seedlings with planters ordering seedlings in small quantities.
- (2). The type of transportation used to distribute the sprouts has a negative and significant effect on the incidence of farmers' complaints, this is indicated by the p-value of the effect of the mode of transportation of the distribution of sprouts on consumer complaints of 0.003 with a regression coefficient that is negative of -2.886172. The negative relationship between the mode of transportation and the emergence of this complaint means that the better the mode of transportation used for the distribution of sprouts for the distribution of sprouts, the less likely it is that farmer complaints will arise due to the large number of dead / mouldy / broken sprouts, the odds ratio is 0.0557894, indicating that distribution Sprouts by land have a risk of dead / mouldy / broken sprouts of 0.0557894 times higher than distribution of sprouts by air cargo
- (3). Distance has a positive and significant effect on the incidence of farmers' complaints, this is indicated by the p-value of the effect of distance travelled distribution of sprouts on consumer complaints of 0.000 with a regression

coefficient that is positive in the amount of 0.0022489. This positive relationship means that the farther the distance from the distribution of the sprouts, the more likely the farmer will complain about the number of dead sprouts, the odds ratio is 1.002251, indicating that the distribution of sprouts over a longer distance has a risk of dead / mouldy / broken sprouts as much as 1.002251 times higher than the distribution of sprouts at a closer distance

- (4). The distribution time of sprouts did not affect the farmers' complaints due to dead / mouldy / broken sprouts, this is indicated by the p-value of the effect of travel time distribution of sprouts on consumer complaints of $0.799 > 0.05$. This insignificant relationship can be due to the fact that in idle conditions, the short storage time will not affect the death of the sprouts, the emergence of fungus in the sprouts or the breakage of the sprouts, especially the distribution of sprouts in PPKS only takes a maximum of 2 days (48 hours) so that it will not cause the sprouts to die, or break the herbs during the distribution process.

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