IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)
e-ISSN: 2319-2380, p-ISSN: 2319-2372. Volume 15, Issue 3 Ser. II (March 2022), PP 37-40
www.iosrjournals.org

The Involvement Level of Budders in Jackfruit's Grafting in Malaysia

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Abstract:
Background*: Previous research found that many factors affect the success of Jackfruit's seedling production. Among the main factors involved in successful of jackfruit's grafting are temperature and relative humidity. However, no previous study has investigated the relationship between budder's skill, discipline and performance on jackfruit's production. Until recently, there is no reliable evidence to show that grafting skill and discipline of budders influence the successful rate of jackfruit's grafting. Therefore, this study aimed to measure the involvement level and work performance of jackfruit's budders in assuring successful in jackfruit's grafting.* ***Materials and Methods****: The six-point Likert scale questionnaire was reviewed and pre-tested for its validity and reliability. In this research, sample of all population of 21 respondents identified and data obtained from this survey were analysed and presented with significant statistical and test statistics.* ***Results****: According to the study results, the level of softwood grafting skill, wedge grafting skill, budder's discipline, and budder's performance are same between all budders.* ***Conclusion:*** *All budders having high level of softwood grafting skill, wedge grafting skill, discipline and performance.*
Key Word*: budders, skill, discipline, grafting.*

Date of Submission: 08-03-2022 Date of Acceptance: 24-03-2022

I. Introduction

Jackfruit is one of the varieties of fruits that have been identified under the Third National Agriculture Policy (1992 - 2010) which has the potential to be developed to meet local demand, exports, and import substitutions. The main states of jackfruit production are Johor, Kelantan, Pahang, Negeri Sembilan, and Perak. The ability of the jackfruit to bear fruit throughout the year has triggered many investors to invest in the agriculture sector. Jackfruit is one of three fruit highlighted has big opportunities export to china (BH, 2018). It also one of the main fruits focused on the National Agro-Food Policy. About 80 % increase in fruit production in the Strategic Plan Department of Agriculture 2016-2020. In line with increasing demand in jackfruit, there also increasing in jackfruit's planting material production. In 2015, planting material production increasing from 9500 to 24,315 plants. From 2017 there is decreasing in production. Even decrease, the amount still more and DOA needs to supply even more to farmers (Department of Agriculture).

In Malaysia, Jackfruit's production focused more in Pahang State with 2135 Ha of planted area followed by Negeri Sembilan and Johor with 626 Ha and 493 Ha of planted area respectively (DOA, 2019). Jackfruit's seedling becomes most important plant to produce. 'Taman Kekal Pengeluaran Makanan' (TKPM) is one of the following strategies Third Nasional Agricultural Policy (DPN3) to encourage the implementation of the project Large-scale, commercial and high-tech farming by entrepreneurs and private sectors. Development of TKPM involve cooperation between the government federation, State Government and Employers (DOA). TKPM focusing on food production and specifically on fruits and vegetables. Jackfruit one of fruit listed under this scheme. In 2013, MOA recorded roughly 4903 hectares of Jackfruit did grow and expanded the amount to just 5097 hectares in 2017 with an annual production of 28042 metric tons (Perangkaan Agromakanan, 2018).

In Malaysia, production on Jackfruit's seedling was 12,874 in 2018 (Horticulture Division, DOA). In line with Government, Jackfruit is one of the target fruit for China exportation. (MOA, 2010). Grafting of jackfruit is different from other fruits grafting. For example, in Cempedak grafting, even they come from the same family, Cempedak quite sticky compared to Jackfruits. Sometimes, the percentage of success rate for Cempedak higher than Jackfruit. Also, the way Jackfruit grafted was different from durian which durian need to wrap all the softwood (much easier).

Considering that budders are different in terms of capability, expertise, and crafts, so a more in-depth study needs to be undertaken to address this issue in which the research will be conducted at the grassroots level where the budders will be questioned on how planting material grafted. The major objective of this study was to

investigate the grafting procedure applied and budders attitude in assuring successful in jackfruit's grafting.

II. Material And Methods

The sample for this study was chosen from the study population. Sampling is the process of choosing a sample group from a target population and analyzing information from that sample in order to know more about the population overall (Lance & Hattori, 2016). In this study, census sampling would be utilized in which all budders would have to participate in this study. The data for this collected through a survey of jackfruit's budders in Malaysia. This study was conducted in 4 states area which are Selangor, Perak, Johor and Pahang. The benefit of the analysis on census is the precision of the collected data.

A structure questionnaire has been designed to identify the recent status of government and private (budder) workers; the questionnaire contains of close and open-ended constructs. All structures were made by Bahasa Malaysia to help the budders in terms of explaining and to minimize misunderstanding. The questionnaire was designed according to demographic profiles, followed by independent variables (softwood grafting ability, wedge grafting ability and the discipline of budder) and dependent variables (budder performance). The questionnaire was designed to gather adequate data and information to achieve the objectives of the study. The questionnaire form is divided into five sections. Data obtained from this survey were analyzed and presented with significant statistical and test statistics Statistical Package for the Social Science version 25.0.

III. Result

In this study, the statistical used to analyze the data was descriptive analysis. This analysis was done to see the involvement level of softwood grafting skill, wedge grafting skill and budder's discipline. There were three components in involvement level of jackfruit's budders in assuring jackfruit's grafting which are softwood grafting skill, wedge grafting skill and budder's discipline.

Softwood Grafting Skill

Table 1a shows involvement level of softwood grafting skill in assuring successful of jackfruit's grafting based on budder's perception. The level of respondents' softwood grafting skill is high with mean of 4.84 and the standard deviation is 0.86. Based on the data collection, 76% (16 frequency) respondents are in high level of softwood grafting skill, 24% (5 frequency) moderate level and no respondents in low level of softwood grafting skill.

Table 1a: Involvement Level in Softwood Grafting Skill

Variables	Frequency	Percentage	Mean	SD
Softwood Grafting Skill				
Low (1.0-2.67)			4.84	0.86
Moderate (2.68-4.35)	5	24.0		
High (4.36-6.0)	16	76.0		

Wedge Grafting Skill

Table 1b shows involvement level of wedge grafting skill in assuring successful of jackfruit's grafting based on budder's perception. The result shows a large number of them acquired a high level of skill (mean=4.66; SD=0.93). Based on this table, it showed that the budders were rated at high skill in wedge grafting which is 71.2% (15 frequency) followed by 24% (5 frequency) for moderate skill and 4.8% (1 frequency) for low skill.

Table 1b: Involvement Level in Wedge Grafting Skill

Variables	Frequency	Percentage	Mean	SD
Wedge Grafting Skill				
Low (1.0-2.67)	1	4.8	4.66	0.93
Moderate (2.68-4.35)	5	24.0		
High (4.36-6.0)	15	71.2		

Budder's Discipline

Table 1c shows involvement level of wedge grafting skill in assuring successful of jackfruit's grafting based on budder's perception. Most respondents agreed that discipline is important in increasing jackfruit's seedling production with mean 4.99 and the standard deviation is 0.88. Based on this table, it showed that the budders were rated at high level in budder's discipline which is 71.2% (15 frequency) followed by 28.8% (6 frequency) for moderate discipline.

Table 1c: Involvement Level in Wedge Grafting Skill

Variables	Frequency	Percentage	Mean	SD
Budder's Discipline				
Low (1.0-2.67)			4.99	0.88
Moderate (2.68-4.35)	6	28.8		
High (4.36-6.0)	15	71.2		

Budder's Performance

Table 2a shows the level of work performance of jackfruits budders in assuring successful of jackfruit's grafting based on budder's perception. Respondents' performance represents the successful rate of jackfruit's grafting with mean score 4.88 and the standard deviation is 0.95. Based on this table, it showed that the budders were rated at high level in budder's performance which is 71.2% (15 frequency) followed by 28.8% (6 frequency) for moderate performance.

Table 2a: Work Performance Level

Variables	Frequency	Percentage	Mean	SD
Budder's Performance				
Low (1.0-2.67)			4.88	0.95
Moderate (2.68-4.35)	6	28.8		
High (4.36-6.0)	15	71.2		

Summary of Mean, Standard Deviation, Level and Rank between Independent Variable and Dependent Variable

Table 2b below shows the mean, standard deviation, level and rank between the independent variable and dependent variable. The highest mean between independent variables is Budder's Discipline (M=4.99) and (SD=0.88) respectively. Followed by Softwood Grafting Skill (M=4.84) and (S=0.86). The mean score for Wedge Grafting Skill is (M= 4.66) and (S=0.93).

Table 2a: Summary of Mean, Standard Deviation, Level and Rank

	Mean	Standard Deviation	Level	Rank
Independent Variables				
Softwood Grafting Skill	4.84	0.86	High	3
Wedge Grafting Skill	4.66	0.93	High	4
Budder's Discipline	4.99	0.88	High	1
Dependent Variable				
Work Performance	4.88	0.95	High	2

IV. Conclusion

The study was carried out to determine the level of softwood grafting skill, wedge grafting skill, budder's discipline, and budder's performance among nurseries on Jackfruit's budder's perception in Malaysia. The budder's perception on the level of work performance of softwood grafting skill, wedge grafting skill and budder's discipline was sought through a structure's questionnaire. Mean level analysis used in order to summarize the importance of each constructs. According to reported result, softwood grafting skill, wedge grafting skill and budder's performance show high level. It showed that the respondents had a strong agreement with statement for softwood grafting skill, wedge grafting skill and budder's discipline important in successful

of jackfruit's grafting. In assuring increasing in production of Jackfruit's seedlings, budders have to increase their discipline level as it contributes most (1st rank) to the performance. By focusing on grafting for hours direct and doing grafting within 1 minutes and below, the percentage of successful rate will increase. Also, it is important to budders to increase their discipline level in choosing the best condition of rootstock and mother plant and doing grafting in suitable time and weather.

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Roziah Binti Rosli, et. al. "The Involvement Level of Budders in Jackfruit's Grafting in Malaysia." *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)*, 15(03), 2022, pp. 37-40.