

Risk Identification and Risk Assessment of Banana Plantation in Jeli, Kelantan

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DECLARATION

I hereby declare that the work embodied in this report is the result of my research except for article and summaries I took from other researchers which the sources I have stated and included with citation and references.

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LIST OF ABBREVIATION AND SYMBOLS

DOA	Department Of Agriculture
FAO	Food and Agriculture Organization
IRGC	International Risk Governance Council
USDA	United State Department of Agriculture

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ABSTRAK

Pertanian merupakan satu pekerjaan yang berisiko kerana para petani akan sentiasa berhadapan dengan perubahan lanskap yang melibatkan harga, hasil tanaman dan kebajikan berbanding yang lain. Risiko ialah satu situasi ketidak pastian di masa depan mengenai sisihan nilai daripada jangkaan pendapatan atau jangkaan hasil. Risiko yang tidak terkawal akan menyebabkan kerugian dari sudut kewangan dan bukan kewangan. Tambahan pula, aktiviti pertanian adalah sangat berkait dengan banyak pihak yang berkepentingan dalam setiap bekalan rantaian. Oleh itu, kepentingan strategi pengurusan risko adalah langkah yang terbaik. Dalam kajian ini, risiko pertanian yang dikaji adalah tanaman pisang. Pisang merupakan buahan yang kedua yang ditanam paling meluas di Malaysia. Tanaman pisang juga merupakan tanaman keempat terbesar untuk eskport berdasarkan rajah perdagangan. Oleh itu, kaji selidik ini telah dijalankan dimana telah melibatkan 56 respondent penanam pisang di Jeli Kelantan telah terlibat dalam mengenal pasti dan menilai tahap kebarangkalian dan kesan jika sesuatu risiko itu terjadi. Analisis deskriptif dan uji riabilitas di lakukan menggunakan software Statistical Program for Social Science (SPSS) 21. Matriks analisis risko juga digunakan bagi menilai frekuensi dan keparahan sekiranya sesuatu risiko itu terjadi. Dapatan diperolehi menunjukkan risiko pegeluaran dimana serangan peyakit dan haiwan perosak merupkan risko yang paling tinggi. Selain itu, antara strategi yang digunakan oleh petani dalam mengahdapi risiko adalah degan menggunakan anak pokok atau sulur yang terawat. Oleh itu, segala dapatan yang diperoleh membolehkan para petanian untung merancang bagi mengurangkan risiko yag dihadapi.

Kata Kunci : Risiko, Penilaian Risiko, Matrik Analisa Risko, Tanaman Pisang

ABSTRACT

Farming is a risky occupation as farmers were confronted with a continuously changing landscape of prices, yield and welfare, among many others. Risk can be viewed as any future uncertainty which caused deviation from expected earnings or expected outcome. Risks went unmanaged will caused both monetary and non-monetary losses. Moreover, farm activities are highly interconnected with other stakeholders in a supply chain. As a result, the importance of risk management strategies is becoming more relevant than ever. By focusing on banana plantations, this study attempted to identify and assess risk faced by the farmers involved. Banana is the second most widely cultivated fruit crop in Malaysia. Based on the balanced of trade figures, banana also had become the fourth in export revenue, worth USD5 million. Thus, a survey to 56 farmers was conducted to identify and assess the likelihood of risk occurrence and the severity of the risk in banana plantation in Jeli, Kelantan. Data from the survey was analyzed with descriptive analysis, and Risk Assessment Matrix (RAM) to assess the risk ranking. The finding found that to farmers, production risk which pest and disease attack were ranked as the highest risk. Thus, one of the most risk management strategies taken by the farmers was by making sure to sure treated corm and suckers. Results from this study are valuable especially to agencies responsible for agricultural extension services to hone their model of delivery. Besides, it is also useful for the farmer to plan in order to mitigate the risk and plan their risk management.

Keywords: Risk, Risk Management, Risk Assessment Matrix (RAM), Banana plantation

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Risk assessment is a mature discipline, widely applied in practice for the design and operation of safe systems. The assessment involves a structured analysis of the system of interest to qualitatively and quantitatively describe risk, based on the available knowledge. Risk is an uncertainty that will affect the objective or goals in any business. Banana is the fourth most vital staple food within the world and is basic for nourishment security in numerous tropical nations. However, total global banana production difficult to determine the exact values as the production are also cultivated by smallholder and informal trader where usually cannot be trace completely. Based on the statistical data from Food and Agriculture Organization (FAO), world banana productions were increasing annually at rate 3.7% from year 2000 to 2015. In 2015, the banana productions have reached 117.9 million tons compared to year 2000 which was 68.2 million tons (FAO, 2017). By identifying the risk in banana plantation, the production of the banana can be increase in order to secure the food security for the years coming. Agricultural risks embody production, price and market, institutional, human or personal and financial risks which being identified can be used the authorities in planning to mitigate the risk which can negatively affect the banana growers. Risk management strategies took by the farmers also will determine how their strategies can help to reduce the risk.

1.2 Problem Statement

Farming could be a risky occupation. Farmers are confronted with a continuously ever changing landscape of attainable value, yield and different outcomes that have an effect on their financial returns and overall welfare. In mathematical terms, risk is define by the chance distribution operate of outcome variability. Agricultural risks embody production, value and market, institutional, human or personal, business and money risks (Akcaoz, Ozcatalbas & Kizilay, 2009). Risk management involves the choice of ways for with every type of risks so as to fulfill the choice maker's goal whereas conjointly taking their risk angle under consideration. Bananas are among the most produced and consumed foods globally. Because of the large production scale and the oftentimes harsh production methods employed to control irrigation and plant diseases. The impacts of banana production on the environment such as soil, water, air, animals, humans, biodiversity and resource uses are of great concern. Another huge issue in banana production continues to be rising production prices. Combined with high levels of competition among international traders and leading retail chains, that are exerting sturdy downward influence on costs, pressure on workers' wages and already impoverished granger farmers continues to persist. Low costs are a serious obstacle for producers in dealing with alternative challenges within the sector as they greatly hinder the payment of good wages and investments in property production strategies (Akcaoz, Ozcatalbas & Kizilay, 2009).

There are various similar studies in the literature aiming to determine risk sources affecting agricultural production and risk management strategies (Akcaoz, Ozkan & Kizilay, 2006). Yet, a similar study could not be found directly related with risk sources and risk management strategies in banana production (Akcaoz, Ozcatalbas & Kizilay, 2009)

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1.3 Objectives

- 1. To identify and assess risk faced by farmers in banana plantation around Kelantan.
- 2. To identify the risk management strategies of the farmers.

1.4 Research Question

- 1. What are the risks that farmers in banana plantation faced?
- 2. What are the most farmers' risk management strategies?

1.5 Scope of Study

This survey was conducted to identify the risk and assess risks that occur in the banana plantation. The banana growers in the district Jeli, Kelantan were selected in this survey in order to provide information about risk that disturbs their farms or plantation.

1.6 Significant of Study

The main significant of the study is to identify and assess the risks that occur in the banana plantation which can help the banana grower increasing their banana production. Risk can be finalize can later planned in order to mitigate them. Thus, as the demand of the banana based product also are increase every year, the farmer need to plan their risk management to avoid any disturbance in the supply chain which can affect the manufacturer or end customers.

1.7 Limitation of Study

The limitation of this study was the total respondent obtained when research was done. The sample size was limited to less than 60 that are very less when compared to the entire population of the farmers that involve in banana planting in Jeli, Kelantan. The data collected was limited only one districted only in Kelantan due to limited time and resources and also cause by limited access information to approach the farmers.

CHAPTER 2

LITERATURE REVIEW

2.1 Risk Assessment

Risk assessment has been developed within the past 40 years to assist understanding and dominant the chance of accident events. This enables the rational management of venturous industrial activities, through their general understanding. The accident events that the assessment is created are usually extreme however additionally most unlikely. The rarity of those events is specified there's usually little or no 'statistical' data associated to their prevalence. The challenge is, then, to get down all the data on the market concerning these rare however doubtless black accident events, usually coming back from professional judgment supported by indirect physical observations and model predictions (Zio, 2018).

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The basic plan of risk assessment is to structure, by systematic modeling, data and knowledge obtainable at the elaborated component or the basic event level to assess the accident risk at system level. As information on these events and on the system responses to them is proscribed, the outcomes of the assessment are unsure. The common framework accustomed describe the uncertainties within the assessment stands on applied math, and significantly on the subjectivist (Bayesian) theory of chance, because the adequate framework at intervals that professional opinions are often combined with applied math information to supply quantitative measures of risk (Kelly, Smith & theorem, 2009;2011). Indeed, the common term used is Probabilistic Risk Assessment (PRA), though Probabilistic Safety Assessment (PSA) and Quantitative Risk Assessment (QRA) also are wide used (Zio, 2018).

From a general purpose of read, the thought of risk is introduced to handle the likelihood that an occurrence or state of affairs with undesirable consequences for a few subjects might occur. The results are typically seen in relevancy some reference values (planned values and objectives) and therefore the focus is typically on negative consequences. Correspondingly, the International Risk Governance Council (IRGC) defines risk as associate degree unsure consequence of an occurrence or activity with relation to one thing that citizenry worth (IRCG, 2012).

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Sources: AS/NZS 4360(2004)



Risk management process that shown in Figure 2.1 were used as it were the mostly adopted by the countries such as Australia and the procedure also been standardize and effectively guarantee. Three aspect of risk assessment starting from the identify risk, analyse risk, and evaluate risk were focuses.

First step of identify risk needs comprehensive identification using a wellstructured systematic process is critical because a risk not identified at this stage may be excluded from further analysis and risk identification is a continuous processes. Then, for the analyze risk, It provides an input to decisions on whether risks need to be treated and the most appropriate and cost effective risk treatment strategies. Sources of risk, their positive or negative consequences and the likelihood that those consequences may occur also included. Risk is analyzed by combining consequences and their likelihood. In most circumstances existing controls are taken into account. Lastly, in evaluating risk the identification the existing processes, devices or practices that act to minimize negative risks or enhance positive risks and assess their strengths and weaknesses may involve. Controls may arise as outcomes of previous risk treatment activities.

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2.2 Banana Production in Malaysia

Banana natural product, the generation of which is limited in a few districts in both the world and in Malaysia, could be most requested item because it is delightful, extraordinary and nutritious. The production, utilization and exchange of banana is in high volumes within the world, it is being sent out from tropical and subtropical districts to the created nations and it can effortlessly find market for deal in these nations. According the data of fruit crop statistic from Department of Agriculture Malaysia in 2017, banana is the on the second largest fruit crop production with 350492 metric tons (mt) after durian (DOA, 2017). It shows increasing trend as in 2016 and 2015, the production of banana in Malaysia were 309508 mt and 315500 mt respectively.

About 50% of the banana growing space is cultivated with *Pisang Berangan* and chemist sort whereas the remaining fashionable cultivars are *Pisang Raja, Pisang Nangka, Pisang Tanduk, Pisang Rastali, Pisang Mas, Pisang Abu and Pisang Awak.* Currently, most of bananas that are cultivated are for native consumption and solely regarding 50% of the full production is exported. However, banana production has reduced because of the threatening problems with diseases, high labour price and promoting problems. (Kayat, Mohammad, Idris, Ibrahim, Soon, Ahmad, Wong & Zulariff, 2016).

2.3 Sources of Risk in Banana Plantation

Agricultural households in developing countries are characterized by high impoverishment levels, large proportion of their production is unbroken for subsistence desires and marketing surplus to the market to fulfill households' basic desires. Production, consumption and copy choices are integrated. Not all product and factors of production are tradable thanks to high group action prices, shallow markets and risks and uncertainty of climatic conditions that drive purchase costs up and marketing costs low. Restricted access to credit may be a frequent explanation for market failure, because the household cannot satisfy associate degree annual money financial gain constraint, with expenditure on top of revenue at sure periods of the year. The household faces a value band, wherever the acquisition value is on top of the damage (Bagamba, Ruben, Kuyvenhoven, Kalyebara, Rufino, Kikulwe & Tushemereirwe, 2004).

2.4 Type of Agricultural Risk

Five general types of agriculture risk are described here: production risk, price or market risk, financial risk, institutional risk, and human or personal risk.

2.4.1 Production Risk

This type of risks derives from the unsure natural growth processes of crops and stock. Weather, disease, pests, and alternative factors have an effect on each the number and quality of commodities created. When farmers plant seeds and fertilize their land they do not know for certain how much rain will fall, or whether there will be a hail storm. They do not know if there will be a problem with pests or diseases. (United State Department of Agriculture executive department, 2016). Another source of production risk is equipment. A farmer's tractor may break down during the production season resulting in an inability to harvest in time, thus affecting yields.

2.4.2 Price or Market Risk

This refers to uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs. The nature of price risk varies significantly from commodity to commodity. The rule or power of supply and demand determines a lot in market contribution in any companies (USDA, 2016). Changes in prices are beyond the control of any individual farmer. The price of farm products is affected by the supply of a product, demand for the product, and the cost of production. Although price movements can be predicted, however, supply or demand will change unexpectedly and, in turn, affect the market price (Kahan, 2013).

2.4.3 Financial risk

Financial risk occurs when money is borrowed to finance the farm business. Financial risk related to totally different ways of finance the farm business that relates with credit availableness, interest, exchange rates, taxes, insurance, cash flow, retirement and invoice. Small farmers are bankrupt because the results of an excessive amount of debt once the farm business borrows cash which creates an obligation to repay debt. Aspects of economic risk are raising interest rates, the prospect of loans being referred as by lenders, and restricted credit availableness (USDA, 2016).

2.4.4 Institutional risk

Institutional risk results from uncertainties encompassing Government actions. Tax laws, laws for chemical use, rules for animal waste disposal, and also the level of value or financial gain support payments are samples of government choices which will have a significant impact on the farm business (USDA, 2016). Institutional risk refers also to unpredictable changes in the provision of services from institutions that support farming. Such institutions can be both formal and informal and include banks, cooperatives, marketing organizations, input dealers and government extension services. Part of institutional risk is the uncertainty of government policy affecting farming, such as price support and subsidies.

2.4.5 Human or Personal Risk

This risk refers to factors like issues with human health or personal relationships which will have an effect on the farm business. Accidents, illness, death, and divorce are samples of personal crises which will threaten a farm business (USDA, 2016). In many countries labor migration away from rural areas is a common occurrence. Migration can cause labor shortages for the farm. Political and social unrest can also limit labor availability (Kahan, 2013)

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2.5 Decision Making

Decision making involving risk is additionally necessary in agricultural production. The steps of higher cognitive process including risk in agricultural production are determination of potential risk sources, determination of probable cases and outcomes which will occur like worth variations and environmental condition amendment, deciding upon implementation of different methods, determination of probable outcomes of every strategy, interpretation of the connection between risk and financial gain (Kay & Edwards, 1994). The farms typically take into account exclusively their own conditions whereas they're creating selections in our country. The ways of higher cognitive process beneath risk can't be utilized in farms thanks to low level of education of farmers, irregular record keeping and others. Consequently, the effective persons instead of ways are surveyed in terms of agricultural higher cognitive process.

Trusted knowledge is a vital info to form correct and smart risk management ways. Reliable info additionally facilitates a farmer to form rational risk management selections. There are various factors that effects farmers deciding that can't be anticipate accurately like weather changes, decrease of costs throughout harvest season, machinery and insufficient equipment once required and government policy that may amendment long that unpredictable.

2.6 Attitudes toward Risk

Attitudes are sometimes outlined as 'general and enduring favorable or unfavorable feelings regarding, appraising categorizations of, and action predispositions toward stimuli' (Kahan, 2013). Clearly, attitudes don't seem to be in and of itself synonymous with behavior, although a meta-analysis by Kraus (1995) confirms that attitudes considerably and considerably predict future behavior (Carl, 2005).

Attitudes toward risk are act of farmers in handling the risk appeared. Every farmer confronts risk in several ways that depends on their ability wherever some farmers are willing to just accept a lot of and vice-versa. Normally, attitudes towards risk frequently connected to the flexibility of farmers in financial to simply accept tiny gain or loss. Farmers' attitudes may be categorized as risk-averse (those who attempt to avoid taking risks), risk-takers (those who are receptive a lot of risky business options), and risk neutral (farmers who lie between the risk-averse and risk-taking position) (Kahan, 2013).

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CHAPTER 3

METHODOLOGY

3.1 Theoretical Framework



Sources: AS/NZS 4360(2004)

Figure 3.1: Risk Management Process

In this study, the risk management process that shown in Figure 3.1 were adopted in conducting the risk assessment which involve the identification, analyzing and evaluate the risk among banana grower of banana plantation in Jeli district.

3.1.1 Study Design

In this survey, cross sectional analysis technique were used. Cross sectional studies are primarily meant for knowing the magnitude of an issue and in cross sectional studies we are able to estimate the prevalence rather than longitudinal studies wherever we are able to estimate the incidence of a happening.

3.2 Data Collection

3.2.1 Study area

In this study, Kelantan has been chosen as site selection for this survey on banana plantation supply chain towards farmer. This site has been choosing because there is no many research have been done in this area to identify and assess the risk of the banana plantation in Jeli, Kelantan.



3.2.2 Sample Size

Usually, the sample size may be crucial by the population size but there are another technique in crucial the sample size. Roscoe (1975) said that the quantity of sample size between 30 and 500 is reliable. He also stated that larger samples than 30 are to confirm the researcher the importance of central limit theorem. A sample size of 500 is to convince that the sample error won't exceed 10% of standard deviation, regarding 98% most of the time (Hill, 1998). In this study, sample size that collected was 56 respondents.

3.2.3 **Sampling** Technique

This study were targeted the respondents from farmers that have banana plantation. The data were derived from direct distribution of questionnaires to 56 respondents in Jeli, Kelantan using non-probability sampling simple which purposive or selective sampling. Purposive sampling is selected based on the characteristic of a population and the objective of the study. This sampling is selected as it is very useful in situation where a target sample need be reach quickly (Ashley, 2018)

3.2.4 Structured Questionnaire

For this study, the questionnaires are going to be conducting. The whole form is well to be understood by the farmer later by likert scale style. So as to avoid agreement bias, completely and negatively worded statements were enclosed interchangeably. A Likert scale with 5 response choices was designated because the measurement format. The initial testing of the form enclosed six response choices and a neutral midpoint as suggested by DeVillis (1991, p.68) however focus cluster members role player attention to issues in identifying between the response choices 'moderately disagree (agree)' and 'mildly disagree (agree)'. The chosen approach with 5 response choices coincides with the response choices employed by Bard and Barry (2000). Moreover, every heading within the form enclosed a ranking of the response choices to make sure the respondents differentiate meaningfully to the quantity of response choices. The subsequent rank was used: (1) totally disagree, (2) disagree, (3) neither agree nor disagree/ neutral, (4) agree, and (5) totally agree. For section B, the 5 ranking used were (1) rare (2) unlikely (3) possible, (4) likely, and (5) almost certain while for section C for the impact of risk, the rank used were (1) insignificant (2) minor (3)moderate, (4) major, and (5) catastrophic. The form are divided into four sections as below:

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Table 3.1 : Structured Questionnaire

Division of questionnaire	Surveyed aspect
Section A	Demographic factor
Section B	Probability of risks
Section C	Impact of risk
Section D	Risk management by the farmer

As the targeted respondents are Malaysian which may have difficulties to understand the item in each section, the questionnaires were translated into Malay language. The Malay version of the questionnaire were distributed and face to face interviewed were done in order to get information for the data.



Pilot study is the implementation of study in small scale before further with the actual ones. Other than that, pilot study also used to identify level of understanding the

respondent towards major component that were stated in questionnaire. This method also determined whether the instrument that chosen success or fail. For this study, total of 30 respondents were used for the pilot test. The results from pilot test were tested with Cronbach's Alpha to ensure the validity and reliability of the questions whether the items in the questionnaire are relatable as a group of items. According to Isaac and Michael (1995); Hill (1998), they suggested that respondent between10 to 30 are acceptable in survey research for pilot study. Besides, the reliability test in this research studies used to utilize the internal consistency to examine the inter-correlation between various items. The reliability test was run at each independent variable.

3.3 Data Analysis

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The data have been analyzed using SPSS version 21 for reliability analysis and descriptive analysis. Risk matrix assessment and Pareto analysis were used to determine the level of risk severity and prioritize the most influenced risk respectively.



3.3.1 Descriptive analysis

It is used to describing the population study involved some measurement such as mean, mode, median, standard deviation and normal distribution. Descriptive analysis was conducted to determine the basic measurement and information based on the data obtained from the survey. Then the summary about the respondent answers and scale was present together with graphical analysis. In these cases, descriptive analysis also used to determine frequency from the demographic background of the respondent which the researcher can obtain information about the characteristic mostly of their respondent where the data later can be used to relate with the other factors needed for the objectives. The data from questionnaire from part impact and probability of the risk occurrence also tabulated using the descriptive analysis using the software SPSS.

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3.3.2 Risk Assessment Matrix

Risk assessment matrix is a tool used to manage the subjective risk assessment to run different process hazard analysis (PHA), including the layer of protection analysis (LOPA). The bases for risk matrix are the definition of risk as a combination of severity of consequences occurring in a certain scenario and its frequency. (Markowski & Mannan, 2008). Table 3.4 shows the risk ranking based on connection between likehood and impact of the risk occurrence.

Risk matrix is used in risk assessment method. Risk matrix involved two component which the probability or likehood and second component is the consequences or impact. By comparing these likehood of risk occurrence the severity of its occurrence, level of risk can be determined. Most of the researches that involving risk identification and assessment will used this analysis to determine any risk in their company have been done. Consequence is described using the Table 3.2 and the rating for likehood is shown in Table 3.3 below.

Rating	Criteria		
Insignificant	Few consequences		
Minor	Minor incident		
Moderate	• Any notifiable incident that does not lead to injury which		
	does not require medical or paramedical treatment.		
Major	• Medium term disruption to core activities (weeks)		
Catastrophic	• Long term extensive environmental damage		
Sources : ICAO,	2018		
Table 3.3 Li	kehood Rating		
Rating	Criteria		
Rare	May only occur in exceptional circumstances		
Unlikely	The risk event could occur at sometimes (during a specific period)		
	but it is unlikely		
Possible	Might happen at some time where occurrence would not be		
Likely	Will probably occur in most circumstances		
Almost certain	Is expected to occur in most circumstances		

Table 3.2	Consequence of risk
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Sources : ICAO, 2018

Likehood or probability is obtained from uncertainty of the risk might happened. The impact is the severity of the likehood risk may occur. Potential event of loss designating risk (R) is translated in mathematical terms as a result from product of the impact (I) and probability of (P).

$$\mathbf{R} = \mathbf{I} \times \mathbf{P} \tag{3.1}$$

Table 3.4 : Risk ranking

			Impact			
		Insignificant	Minor	Moderate	Major	Catastrophic
	Almost certain	Medium	High	Hig	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
Probability	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Medium	High

Sources : CAA UK's CAP 795

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3.3.3 Pareto Analysis

Pareto analysis is a simple technique for prioritizing possible changes by identifying problems that will be resolved by making these changes. This analysis also helps prioritize decision so leaders know which factors have the greatest influence on their goals and which one will have the least amount of impact. Pareto analysis did not provided solutions to issues, but only helps business to identify the few significant causes of their majority problems. Pareto analysis uses the Pareto Principle which also known as the "80/20 Rule". It is said that 80 percent of situation's problems can be traced by 20 percent of the causes which also mean that 20 percent of the problems once attended to, can improve business outcomes by 80 percent (Will, 2017).

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CHAPTER 4

RESULTS AND DISCUSSION

4.0 Introduction

In this section, the result of the study were analyzed and presented.

4.1 Reliability Test

Table 4.1: Results of Reliability Test.

Sections	Cronbach's Alpha	No. of Items
Probability of the risk	0.681	15
Impact torward risk	0.772	15
Attitude toward Risk management	0.633	8
	1 / 1 / 1	

Reliability implies the degree to which it is possible to repeat or validate the measurements. The most popular testing method for internal consistency in behavioral science is the alpha's coefficient. This constant is employed to estimate the dependability for the item-specific variance in an exceedingly one-dimensional check (Cortina, 1993). The satisfactory level of dependability directly influence by however a live is being employed. The quality associated with this measure is taken from Nunnally (1978). Nunnally recommend that the predictor tests or hypothesized measures of a construct, if the reliabilities are or higher 0.70 are enough. However, we will settle for values close to of .60 (Hair, et al., 2006), particularly if the issue have solely few things. The decision are according the following range which unacceptable if less than 0.60, poor when 0.60-0.69 but acceptable 0.70- 0.79, good if 0.80-0.89 and excellent if more than 0.89 (Hair, et al., 2006).

It determines the internal uniformity and the level to which a set of relevant items in the questionnaire is related. It is also said that the rules of thumb of Cronbach's alpha coefficient, alpha value that is more that 0.9 is excellent, 0.8 is good, 0.7 is acceptable, 0.6 is questionable, 0.5 is poor, and less than 0.5 is unacceptable (George & Mallery, 2003).

Table 4.6 shows the reliability test analysis results that have been used in this study. Cronbach's Alpha that been applied in this research used to decide the reliability that related to the objective of the study. As for the first section for the question which is

the probability of the risk, the Cronbach's alpha is 0.0.681 with 15 items. The second which is the impact of risk the value obtained is 0.772 with 15 items. The last part is attitudes toward risk management with 8 items with value of 0.633. Since all the four values are greater than 0.6, all the values are accepted although the reliability is poor.

4.2. Demographic Profile of Respondents

On this part, there were 56 respondents were answered the questionnaire prepared. Descriptive analysis was used in order to show and discuss the results of the demographic profile. Demographic profile of the respondents are include gender, age, race, level of education, experience in farming, size of farm, type of banana planted, estimated income and sources of agriculture information. Table 4.1 shows the characteristics for demographic profile of the respondents.



Characteristics		Frequency (N)	Percentage (%)
Gender	Male	56	100
	Female	0	0
Age	< 30 years	10	17.9
	31-40 years	5	8.9
	41-50 years	11	19.6
	51-60 years	14	25.0
	61-70 years	14	25.0
	> 70 years	2	3.6
Race	Malay	100	100
	Chinese	0	0
	Indian	0	0
Level of Education	Primary School/Secondary School	25	44.6
	Diploma/STPM	5	8.9
	Degree	17	30.4
	Postgraduate/PhD	3	5.4
	Others	6	10.6
Experience in agriculture	<1year	4	7.1

Table 4.2: Descriptive analysis for demographic profile of respondents.

		2-5 years	24	42.9
		6-10 years	9	16.1
		11-15 years	17	30.4
		16-20 years	2	3.6
Size of farm		Less than 5 acre	6	10.7
		5-10 acre	34	60.7
		11-15 acre	13	23.2
		16-20 acre	3	5.4
Type of banar	a planted	Pisang berangan	33	58.9
		Pisang tanduk	3	5.4
		Pisang nangka	8	14.3
		Others	12	21.4
Estimated sale	es	Less than RM 1000	6	10.7
(month)		RM 1001-3000	21	37.5
		More than 3000	29	51.8
Sources of		A minutere descutes and	0	14.2
information	agriculture	Agriculture department	8	14.3
		Family	3	5.4
		Colleague	22	39.3
		Own experiences	23	41.1

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Based on the table above, the demographic information obtain from the data were 100% of them are male and Malay. 50 % of the respondents are between ages 51 to 70 years old. Other than that, mostly the levels of education of my respondents are 44.6% were graduated from secondary school. Besides that, 42.9% from the respondents had experienced in agriculture for 2 to 5 years. The sizes of farm owned by the farmers were highly range 5 to 10 acre. Mostly 41% of the farmers manage their plantation using their own experience and followed by colleague as their sources of information in cultivation with 39.3%.

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4.3 Likehood/ Probability of the Risk Occurrences in Banana Plantation

Tible 4.3: Mean and Frequency of the Likehood of Risk Occur in Banara Plantation O. ITEM Rare unlikely Possible likely certain MEAN (1) (2) (3) (4) (5) A. PRICE AND MARKET RISK Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Colspan="4">Colspan="4">Image: Colspan="4">Image: Colspan="4" Image: Colspan="4"	hana Plantation ikely certain (4) (5) 14 0	Occur in Ban Possible li (3)	od of Risk (unlikely	Likehoo Rare	Frequency of the 1	ble 4.3: Mean and Fre	Tal
NO.ITEMRareunlikelyPossiblelikelycertainMEAN(1)(2)(3)(4)(5)A.PRICE AND MARKET RISKA1.Governmentpoliciesand011311403.05agricultural policies025161322.86A3.Price competition with import25177252.02suppliersB. HUMAN AND PERSONNEL RISKB4.Insufficient labor241410712.0585.Work accidents93311002.03	ikely certain (4) (5) 14 0	Possible li (3)	unlikely	Rare			
(1)(2)(3)(4)(5)A. PRICE AND MARKET RISKA1.Government policies and 011311403.05agricultural policies025161322.86A2.Effect from supply and demand025161322.86A3.Price competition with import25177252.02suppliers </td <td>(4) (5)</td> <td>(3)</td> <td></td> <td></td> <td></td> <td>ITEM</td> <td>10.</td>	(4) (5)	(3)				ITEM	10.
A. PRICE AND MARKET RISK A1. Government policies and 0 0 11 31 14 0 3.05 agricultural policies agricultural policies 0 25 16 13 2 2.86 A3. Price competition with import 25 17 7 2 5 2.02 suppliers B. HUMAN AND PERSONNEL RISK 10 7 1 2.05 84. Insufficient labor 24 14 10 7 1 2.05 85. Work accidents 9 33 11 0 0 2.03	14 0		(2)	(1)			
A1.Government agricultural policiespoliciesand011311403.05A2.Effect from supply and demand025161322.86A3.Price competition with import25177252.02suppliers B. HUMAN AND PERSONNEL RISK 44.Insufficient labor241410712.055.Work accidents93311002.03	14 0			K	MARKET RIS	A. PRICE AND N	
agricultural policiesA2.Effect from supply and demand025161322.86A3.Price competition with import25177252.02suppliers B. HUMAN AND PERSONNEL NISK B4.Insufficient labor241410712.0535.Work accidents93311002.03		31	11	0	policies and	Government po	x 1.
A2. Effect from supply and demand 0 25 16 13 2 2.86 A3. Price competition with import suppliers 25 17 7 2 5 2.02 B. HUMAN AND PERSONNEL RISK 64. Insufficient labor 24 14 10 7 1 2.05 45. Work accidents 9 33 11 0 0 2.03					28	agricultural policies	
A3. Price competition with import 25 17 7 2 5 2.02 suppliers B. HUMAN AND PERSONNEL RISK B4. Insufficient labor 24 14 10 7 1 2.05 B5. Work accidents 9 33 11 0 0 2.03	13 2	16	25	0	and demand	Effect from supply a	<u>.</u>
suppliersB. HUMAN AND PERSONNEL RISK34.Insufficient labor241410712.0535.Work accidents93311002.03	2 5	7	17	25	n with import	Price competition	x 3.
B. HUMAN AND PERSONNEL RISK 34. Insufficient labor 24 14 10 7 1 2.05 35. Work accidents 9 33 11 0 0 2.03						suppliers	
84. Insufficient labor241410712.0585. Work accidents93311002.03			RISK	ONNEL	AN AND PERSO	B. HUMAN	
B5. Work accidents 9 33 11 0 0 2.03	7 1	10	14	24		Insufficient labor	34.
	0 0	11	33	9		Work accidents	\$5.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 0	3	9	40	blem	Human health proble	6.
C. PRODUCTION RISK				SK	DDUCTION RIS	C. PROI	
C7. Disease and pest attack 0 1 13 32 10 3.91	32 10	13		0	ttack	Disease and pest atta	27.
C8. No proper schedule for 0 19 20 12 3 3.12	12 3	20	19	0	nedule for	No proper sche	28.
fertilizing and pesticides					pesticides	fertilizing and	

	controls for farm records.							<u> </u>
C9.	Sucker or corm used were not	13	28	15	0	0	2.04	
	treated							
								눈
	D. FINANCIAL RISK							
D10.	.Government policies in	25	17	14	0	0	1.8	
	changes rate for worker							
	salaries							
D11.	Farmer's loans and debt.	9	27	12	7	1	2.36	
D12.	Banana <mark>prices af</mark> fect the	0	0	11	37	8	3.95	
	consumer purchasing							
	E. ENVIRONMENTAL RISK							
E13	Location of the farm were expose	4	39	2	11	0	2.36	
	to the natural disaster such as	Ŀŀ						
	flood							
E14	Climate condition	0	9	6	36	5	3 66	
E14	Thieving	Ă	2	36	12	1	3.00	
Е13	Theving	3	Ĺ	30	12	1	3.04	

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Highest mean from the data indicates problem with banana prices affect the consumer purchasing which lies under risk factor of financial risk the most frequent risk that majority of the farmer's faced with 66% of the respondent answer the risk were likely occurred. Then, second is followed by disease and pest attack which the risk lies under production risk occur likely to happened with percentage of 57% (Table 4.3). The risk that rarely happened is human or personnel risk which is the human health. However compared to research found by Akcaoz, Ozcatalbas & Kizilay (2009), the most important risk factor found was the variation in banana price and the least important was landslide. These factors were influenced by the size of the farm.

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4.4 Impact of the Risk Sources Occur in Banana Plantation

4.4	Impact of the Risk Sources Occu	ır in B	anana Pla	ntation						
Ta	ble 4.4: Mean and Frequency of the Imp	oact of	Risk Oc <mark>cu</mark>	r in Bana	ana Planta	ation	БYР			
NO.	ITEM insigni	ficant	minor m	oderate	major ca	tastrophic	MEAN			
	(1)	(2)	(3)	(4)	(5)				
	A. PRICE AND MARKET RISK									
A1.	Government policies and	13	10	13	12	6	2.82			
	agricultural policies									
A2.	Effect from supply and demand	0	2	9	31	14	4.02			
A3.	Price competition with import	18	13	10	6	9	2.55			
	suppliers									
B. HUMAN AND PERSONNEL RISK										
B4.	Insufficient labor	24	21	6	5	0	1.86			
B5.	Work accidents	9	27	15	5	0	2.29			
B6.	Human health problem	37	16	2	1	0	1.41			
	C. PRODUCTION RISK									
C7.	Disease and pest attack	0	0	10	9	37	4.48			
C8.	No proper schedule for fertilizing and	0	1	15	13	27	4.18			
	pesticides controls for farm records.									

Table 4.4: Mean and Frequency of the Impact of Risk Occur in Banana Plantation

С9.	Sucker or corm used were not treated	3	10	32	9	2	2.95
	D. FINA <mark>NCIAL RIS</mark> K						
D10	Government policies in changes rate	25	14	6	8	3	2.11
	for worker salaries						
D11	Farmer's loans and debt.	3	33	11	2	7	2.59
D12	Banana prices affect the consumer	3	0	22	26	5	3.51
	purchasing						
	E. ENVIRONMENTAL RISK						
E13	Location of the farm were expose to	5	C17	17	24	9	3.55
	the natural disaster such as flood						
E14	Climate condition	0	0	3	38	15	4.21
E15	Thieving	3	2	9	32	10	3.79

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From the result data in table 4.3, High mean indicates higher severity level among all those risks that stated. From the table, the highest severity impact of risk was often pest and disease attack as high impact, 40% classified it as moderately impact and only 10% of farmers classified it as low impact. Their classification of severity level shows different perception towards the risks in the farm among farmer. The second highest mean is 4.21 which show 67.9% of the respondent said that climate condition really cause major effect to their productions. Climate changes cannot be predicted either in long term or short term because of the world climates changes. It can actually cause huge flood or drought that retarded the banana growth.

Risk with least mean of severity level is dependence of foreign worker. Most of the farmers that had been interviewed said that foreign worker did not cause any risk happen in their crop plantation area but sometimes it happen but did not impact most of the farmers. The farmers mostly did not hire foreign worker instead they manage their plantation on their own and business partner as not many worker needed to manage their farms.

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4.5 Risk Management by the Farmers in Banana Plantation

 Table 4.5: Mean and Frequency of the Risk Management by the Farmers in Banana

 Plantation

3.52
3.52
3.52
3.79
4.12
4.32
3.77
4.00

decision which can cause me either huge loss or huge profits 0 5 13 7. arrange 35 3 Ι and plan 3.64 activity planting according to climate. 8. I know risk can effects 0 24 0 6 26 4.36 my banana production if

Attitude of farmers toward risk in banana plantation was measured by a five point Likert scale. From the table 4.4, it can conclude that highest mean indicates the highest awareness of the farmers. The highest mean in the result shows farmers 'I know risk can effects my banana production if not managed' having highest mean with value 4.36 compared to the others. This indicates farmers have high awareness about the importance of risk management to make sure their farm's risk reduced.

not managed.

The least mean value of variable of awareness of risk management was 'I have a proper record keeping' which the value of mean is 3.52. However, this risk should be taken seriously as record keeping in any institution or business is importance to mitigate risk especially for controlling pest and disease.

4.6 Risk Assessment Matrix

Table 4.6: Mean of probability and impact toward each items and value of risk

	Risk			Value of
	Factor	Prob ability	Impact	Risk
Label		(Mean)	(Mean)	(I x p)
A1	Government policies and agricultural policies	3.05	2.82	8.6
A2	Effect from supply and demand	2.86	4.02	11.49
A3	Price competition with import suppliers	2.02	2.55	5.15
B1	Insufficient labor	2.05	1.86	3.81
B2	Work accidents	2.03	2.29	4.65
B3	Human health problem	1.48	1.41	2.09
C1	Dis <mark>ease and pe</mark> st attack	3.91	4.48	17.51
	No proper schedule for fertilizing and			
C2	pesticides controls for farm records	3.12	4.18	13.04
C3	Sucker or corm used were not treated	2.04	2.95	6.01
D1	Changes in rate for worker salaries	1.8	2.11	3.8
D2	Farmer's loans and debt.	2.36	2.59	6.11
D3	Banana prices affect the consumer purchasing	3.95	3.51	13.86
	Location of the farm were expose to the			
E1	natural disaster such as flood or drought	2.36	3.55	9.23
E2	Climate condition	3.66	4.21	15.07
E3	Thieving	3.04	3.79	11.52

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Table 4.7: Impact Analysis

	Rating Bands							
	(Probabilty × Impact)							
LOW RISK	MEDIUM RISK	HIGH/EXTREMELY HIGH						
(1-4)	(5-11)	RISK						
		(11-25)						
There are risks with low	There are risks that low	They are biggest risks with high						
probability of occurrence	probability of occurrence but	probability of occurrence and						
and low impact. Can be	high impact and risks that	high impact that farmers should						
neglected.	high probability of	pay attention						
	occurrence but low impact.							

Sources: CAA UK's CAP 795, 2018

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Graph 4.1: Risk value

Table 4.8: Risk Index

Index	Label	Value	Risk Factors
	B3	2.09	Human health problem
LOW	D1	3.80	Government policies in changes rate for worker salaries
	B1	3.81	Insufficient labor
	B2	4.65	Work accidents
	A3	5.15	Price competition with import suppliers
	C3	6.01	Sucker or corm used were not treated
	D2	6.11	Farmer's loans and debt.

MEDIUM	A1	8.6	Government policies and agricultural policies
	E1	9.23	Location of the farm were expose to the natural
			disaster such as flood or drought
	A2	11.49	Effect from supply and demand
	E3	11.52	Thieving
	C2	13.04	No proper schedule for fertilizing and pesticides
			controls for farm records.
HIGH	D3	13.86	Banana prices affect the consumer purchasing
	E2	15.07	Climate condition
	C1	17.51	Disease and pest attack

Based on the risk index in tabulated data and graph shown in Table 4.6, Table 4.7, Table 4.8, and Graph 4.1, the result can be summarized that there are three levels to integrate the value of risk occurrence and impact. The high risks that need to be considered by the farmers and plan to mitigate them are banana prices, climate condition and disease or pest attack. These high rank risks are high probability of occurrence and high impact that farmers should pay attention.

Next, the lowest rank risks are 2.09, 3.80, 3.81, and 4.65 which human health problem, government policies, insufficient labour and work accidents respectively. This risk does not need high maintenance or longer time in order to mitigate it. According to a study case for risk banana plantation from Turkey, the most important risk factor for

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banana famers was the variation in banana prices. The least important factors are thieving for small-scaled and landslide for medium- and large- scaled farms (Akcaoz, Ozcatalbas & Kizilay, 2009)

4.7 Pareto Analysis



Graph 4.2: Pareto Analysis

Label	Mean value	Risk factors
D3	13.86	Banana prices affect the consumer purchasing
E2	15.07	Climate condition
C1	17.51	Disease and pest attack

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Based on the figure 4.2, Pareto analysis resulted is classifies a simple technique for prioritizing possible changes by identifying problems that will be resolved by making these changes. This analysis also helps prioritize decision so leaders know which factors have the greatest influence which in this case, banana prices affect the consumer purchasing, climate condition and the highest risk, pest and disease attack can affect their production. Pareto analysis did not provided solutions to issues, but only helps business or leaders to identify the few significant causes of their majority problems and plan to solve them.



CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.0 Conclusion

In this survey, 56 respondents were interviewed via structured questionnaire to determine probability of risk occurrence, risk severity and risk management by the banana grower . In general, majority of the farmers are married. Most of the respondent were male, aged between 51 to 70 years old and had their highest education on secondary level.

The main objectives of this study were to identify and assess risk faced by farmer's banana plantation. In general the finding in this survey found out that there were two types of risks had been identified in study area which are production risk, price and market risk.

For the first objectives, which to assess risk in the banana plantation, the results shows that high risks that need to be considered by the farmers and plan to mitigate them are banana prices, climate condition and disease or pest attack. These high rank risks are high probability of occurrence and high impact that farmers should pay attention.

Lastly, the most important risk management strategy implemented by farmers towards risk sources affecting banana production in the surveyed farms in the investigated region is found to be by making sure to use treated corm and sucker among all farm groups.

5.2 Recommendation

Based on the findings in this study, few recommendations are amended for few parties in order to increase the sample size of the case study. Further research can be done to assess the risk in farming by using other analysis. Then, the findings in risk mitigation strategies can be continued. The sample size of the respondent should be increase to the other part of the Kelantan or at other states in order to avoid any bias in the study. Other than that, the method by integrate fuzzy into risk assessment can be applied.



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APPENDIX A



PENGURUSAN R<mark>ISIKO DALAM</mark> KALANGAN PENANAM PISANG DI JELI, KELANTAN

Pisang adalah antara buah tropika utama yang banyak ditanam di Asia, Amerika Latin dan Afrika. Pekebun kecil adalah kumpulan pertama yang terlibat secara langsung dalam penanaman pisang. Di Malaysia, pisang berada di kedudukan kedua eksport pendapatan.

Memandangkan penanaman dan penghasilan pis<mark>ang ini penting</mark> kepada negara, maka pihak Universiti sedang melakukan satu kajian untuk mengenalpasti dan menilai risiko.

Risiko merupakan sesuatu yang berlaku mengakibatkan kerugian, manakala pengurusan risiko pula adalah proses bagi menilai keberkesanan dan mengelakkan kerugian. Oleh itu, pengurusan risiko yang baik adalah amat penting bagi menjamin kestabilan dan perkembangan sesuatu organisasi.

Objektif kajian ini adalah untuk:

- 1) Mengenal pasti dan menilai risiko-risiko dalam penanaman pisang di Jeli, Kelantan.
- 2) Mengenal pasti strategi pengurusan risiko oleh penanam pisang.

Maklumat Penyelidik:

Y)

BAHAGIAN A: MAKLUMAT DEMOGRAFI

Sila jawab semua soalan dan tandakan pada jawapan yang sesuai.

Ala	amat/ Lokasi ladang :			
1.	Jantina: Lelaki		Perempuan	
2.	Umur (Nyatakan):	tahur	1	
3.	Bangsa: Melayu India		Cina Lain–lain:	
4.	Pendidikan: Ijazah Sarjana Ijazah Diploma/ STPM Sekolah Menengah		Sekolah Rendah Tiada pendidikan rasmi Lain-lain:	
5.	Tempoh berkhidmat dengan s	syarikat ini:		
	Kurang daripada 1 tahun 2 hingga 5 tahun 6 hingga 10 tahun		11 hingga 15 tahun 16 hingga 20 tahun Lebih 20 tahun	
6.	Keluasan ladang :	AL.	ekar/hektar	
7.	Jenis pisang yang ditanam :			
	Plsang berangan Pisang tanduk Pisang Batu Lain-lain (sila nyatakan) :		Pisang Kelat Lego Pisang Nangka Pisang	

8. Anggaran pendapatan hasil pertanian :

	Kurang RM 1000 RM 1001-3000 Lebih RM 3001 Lain-lain (sila nyatakan) :
9.	Sumber mendapat penerangan pertanian :
	Pegawai pertanian Rakan petani Rakan petan

BAHAGIAN B: RISIKO DALAM PENANAMAN DAN PENGHASILAN PISANG

Untuk soalan **BAHAGIAN B**, anda diminta untuk memilih **KEMUNGKINAN/KEBARANGKALIAN** setiap risiko yang dinyatakan untuk berlaku. Sila baca setiap item dan **beri jawapan anda dengan menandakan pada pilihan jawapan yang bersesuaian** mengikut skala 1 (tidak pernah berlaku) hingga skala 5 (sangat sering berlaku)

1	2	3	4	5
Tidak pernah berlaku	Jarang berlaku	Kadang – kadang berlaku	Seri <mark>ng</mark> berlaku	Sangat sering berlaku

	A. Risiko Harga dan Pasaran	Tidak pernah belaku	Jarang berlaku	Kadang – kadang berlaku	Sering berlaku	Sangat sering berlaku			
A1.	Dasar- dasar pertanian	1	2	3	4	5			
A2.	Keperluan dan permintaan pasaran tidak menentu	1	2	3	4	5			
A3.	Persaingan harga antara pisang import dan tempatan	1	2	3	4	5			
	B. Ris <mark>iko pekerja</mark> dan tenaga kerja	Tidak pernah belaku	Jarang berlaku	Kadang – kadang berlaku	Sering berlaku	Sangat sering berlaku			
B4.	Kekurangan pekerja	1	2	3	4	5			
B5.	Pekerja mengalami kemalangan di tempat kerja	1	2	3	4	5			
B6.	Masalah kesihatan	1	2	3	4	5			
C. Risiko Pengeluaran									
C7.	Serangan penyakit dan haiwan perosak	_1	2	3	4	5			
C8.	Tiada sistem jadual pembajaan dan racun perosak yang betul	1	2	3	4	5			
C9.	Biji benih atau anak pokok yang digunakan tidak dirawat	1	2	3	4	5			

	D. Risiko Kewangan	Tidak pernah belaku	Jarang berlaku	Kadang – kadang berlaku	Sering berlaku	Sangat sering berlaku	A
D10.	Kadar gaji <mark>sering be</mark> rubah untuk pekerja.	1	2	3	4	5	
D11.	Pinjaman dari peladang membeban <mark>kan </mark>	1	2	3	4	5	X
D12.	Turun naik harga pasaran pisang memainkan peranan terhadap kadar pembelian pengguna	1	2	3	4	5	
	E. Risiko Persekitaran	Tidak pernah belaku	Jarang berlaku	Kadang – kadang berlaku	Sering berlaku	Sangat sering berlaku	
E13.	Lokasi ladang yang mudah terdedah kepada bencana alam seperti banjir	1	2	3	4	5	
E14.	Cuaca tida <mark>k menentu.</mark>	1	2	3	4	5	
E15.	Kecurian.	1	2	3	4	5	

Sila	nyatakan risiko dan skala yang diha	dapi selair	n daripada	yang dinyata	kan di atas	(jika ada)
No.	Risiko	Tidak pernah belaku	Jarang berlaku	Kadang – kadang berlaku	Sering berlaku	Sangat sering berlaku
	MAL.	1	2	3	4	5
		1	2	3	4	5
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BAHAGIAN C: IMPAK RISIKO DALAM PENANAMAN DAN PENGHASILAN PISANG

Untuk soalan **BAHAGIAN C**, anda diminta untuk memilih tahap **KESAN/AKIBAT** sekiranya risiko yang dinyatakan di **Bahagian B berlaku**.

Sila baca setiap item dan **beri ja**wapan anda dengan menandakan pada pilihan jawapan yang bersesuaian mengikut skala 1 (tidak terkesan) hingga skala 5 (sangat terkesan)

1	2	3	4	5
Tidak terkesan	Sed <mark>ikit terkesan</mark>	Agak terkesan	Terkesan	Sangat terkesan

	A. Risiko Harga dan Pasaran	Tidak terkesan	Sedikit terkesan	Agak terkesan	Terkesan	Sangat terkesan
A1.	Dasar- dasar pe <mark>rtanian</mark>	1	2	3	4	5
A2.	Keperluan dan permintaan pasaran tid <mark>ak menentu</mark>	1	2	3	4	5
A3.	Persaingan harga antara pisang import dan <mark>tempatan</mark>	1	2	3	4	5
	B. Risi <mark>ko pek</mark> erja dan tenaga kerja					
B4.	Kekurangan pekerja	1	2	3	4	5
B5.	Pekerja mengalami kemalangan di tempat kerja	1	2	3	4	5
B6.	Masalah kesihatan	1	2	3	4	5
	C. Risiko Pengeluaran	A	(S	IA		
C7.	Serangan penyakit dan haiwan perosak	1	2	3	4	5
C8.	Tiada sistem jadual pembajaan dan racun perosak yang betul	$\frac{1}{N}$	2	3	4	5
C9.	Biji benih atau anak pokok yang digunakan tidak dirawat	1	2	3	4	5

	D. Risiko Kewangan	Tidak terkesan	Sedikit terkesan	Agak terkesan	Terkesan	Sangat terkesan			
D10.	Kadar gaji <mark>sering ber</mark> ubah untuk pekerja.	1	2	3	4	5			
D11.	Pinjaman dari peladang membebankan	1	2	3	4	5			
D12.	Turun naik harg <mark>a pasaran pisang</mark> memainkan peranan terhadap kadar pembelian pengguna	1	2	3	4	5			
E. Risiko Persekitaran									
E13.	Lokasi ladang yang mudah terdedah kepada bencana alam seperti banjir	1	2	3	4	5			
E14.	Cuaca tidak menentu.	1	2	3	4	5			
E15.	Kecurian.	1	2	3	4	5			

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BAHAGIAN D: PENGURUSAN RISIKO DALAM PENANAMAN DAN PENGHASILAN PISANG

Untuk soalan **BAHAGIAN D**, anda diminta untuk memilih sejauh mana anda bersetuju dengan penyataan yang diberikan.

Sila baca setiap item dan **beri jawapan anda dengan menandakan p</mark>ada pilihan jawapan yang bersesuaian** mengikut skala 1 (sangat tidak bersetuju) hingga skala 5 (sangat setuju)

1	2	3	4	5
Sangat tidak setuju	Tidak setuju	Neutral	Setuju	Sangat setuju

BAHAGIAN D: PENILAIAN SIKAP TERHADAP RISIKO DALAM PENANAMAN DAN PENGHASILAN PISANG

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	Penilaian Sikap Terhadap Risiko	Sangat tidak setuju	Tidak setuju	Neutral	Setuju	Sangat setuju
1.	Saya memp <mark>unyai rekod</mark> simpanan dan data yang teratur.	1	2	3	4	5
2.	Saya mew <mark>ujudkan j</mark> adual pembajaan dengan betul	1	2	3	4	5
3.	Saya sentiasa membuat persediaan untuk mengurangkan risiko persekitaran yang disebabkan oleh bencana alam seperti banjir.	1	2	3	4	5
4.	Saya menggunakan biji penih atau anak pokok yang digunakan adalah berkualiti	R	2	3	4	5
5.	Saya menutup buah untuk mengelak serangan ma <mark>khluk perosak</mark>	1	2	3	4	5
6	Saya mengelak dari membuat keputusan yang mempunyai kebarangkalian untuk rugi besar atau untung besar	1	2	3	4	5
7.	Saya merancang aktivti penanam pisang dengan baik bersesuaian cuaca tahunan.	1	2	3	4	5
8.	Saya sedar bahawa proses penghasilan pisang akan terjejas sekiranya risiko tidak dikawal	1	2	3	4	5

SOAL SELIDIK TAMAT