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**PERCEPTION OF HALAL PRODUCTS ON ANIMAL FEED  
AMONG FISH FARMERS IN PAHANG**

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**A thesis submitted in fulfilments of the requirements for the  
degree of Bachelor of Applied Science (Food Security) with  
Honours**

**Faculty of Agro Based Industry**

**Universiti Malaysia Kelantan**

**2022**

## DECLARATION

I hereby declare that the work embodied in this report is the result of the original research except the excerpts and summaries that I have made clear of the sources.

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## ACKNOWLEDGEMENT

Assalamualaikum, thanks to Allah S.W.T for his mercy and guidance for giving me full of strength to complete this proposal defense. The completion of this proposal is due to the collaborative effort and guidance of many people. First and foremost, my utmost thanks and greatest gratitude to my supervisor, Dr. Zul Ariff Bin Abdul Latiff for his support and valuable suggestions in helping me to complete my thesis report. Special appreciation to University Malaysia Kelantan (UMK) for giving me opportunity to continue my study. Next, big thanks me to my friends for helping and encouraging me in completing this study. I am feeling obliged intaking opportunity to sincerely thanks to all respondents for giving their cooperation in terms of time and information during my survey. Lastly, I am highly indebted to my parents and my family for their financing support and motivation. I have no valuable words to express my thanks for those who supported me in completing this final year project.

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## Perception of Halal Products On Animal Feed Among Fish Farmers In Pahang

### ABSTRACT

Perception fish farmers towards animal halal feed products are useful assets for the economic development of a country. In addition, some fish farmers are more accepting and open-minded compared to another fish farmer. The perception of fish farmers in halal food products nowadays is influence by the government incentives that provide various options for fish farmers to create interest in entrepreneurship such as providing initial capital and program. The main problem arises fish farmers are lack of knowledge, awareness and understanding of procurement, processing, marketing and economics to enter the animal feed halal product. Besides, there are a less than number of fish farmers using the halal logo in product packaging. A less than number of fish farmers have difficulty applying halal certificates from the Department of Islamic Development Malaysia (JAKIM) and lack of networking with industry experts. The sample size are 50 respondents of fish farmers and was conducted in Pahang area. This study carried out based on three objectives, to determine the level perception of fish farmers in animal feed halal products in Pahang, to investigate the relationship of attitude, subjective norms and perceived behaviour control towards fish farmers perception in halal food products in Pahang and to identify the most influential factor of fish farmers perception in halal food products in Pahang Next, this study used a purposive sampling method through questionnaire that has been distributed among fish farmers in Pahang by applying the Theory of Planned Behaviour (TPB). The findings for this study are perception of Halal products on animal feed among fish farmers in Pahang. There is a significant relationship of attitude, subjective norms and perceived behaviour control towards fish farmer's perception in animal feed halal products in Pahang. In addition, perceived behaviours control is the most influential factor of fish farmers in animal feed halal products in Pahang. Lastly, the confirmatory factor analysis showed that it has an acceptable model of fit.

Keywords: Perception Fish Farmers, Halal products Animal Feed, JAKIM, Theory of Planned Behaviours.

## **Persepsi produk halal mengenai makanan haiwan di kalangan petani ikan di Pahang**

### **Abstrak**

Persepsi penternak ikan ke arah produk makanan halal haiwan adalah aset yang berguna untuk pembangunan ekonomi sesebuah negara. Di samping itu, sesetengah penternak ikan lebih diterima dan berfikiran terbuka berbanding dengan penternak ikan yang lain. Penyertaan penternak ikan dalam produk makanan halal pada masa kini mempengaruhi insentif kerajaan yang menyediakan pelbagai pilihan untuk penternak ikan untuk mewujudkan minat dalam bidang keusahawanan seperti menyediakan modal awal dan program. Masalah utama timbul penternak ikan kurang pengetahuan, kesedaran dan pemahaman tentang perolehan, pemprosesan, pemasaran dan ekonomi untuk memasuki produk Halal makanan haiwan. Selain itu, terdapat kurang daripada bilangan penternak ikan menggunakan logo halal dalam pembungkusan produk. Kurang daripada bilangan penternak ikan mempunyai kesukaran memohon sijil halal dari Jabatan Pembangunan Islam Malaysia (JAKIM) dan kekurangan rangkaian dengan pakar industri. Saiz sampel adalah 50 responden penternak ikan dan dijalankan di kawasan Pahang. Kajian ini dijalankan berdasarkan tiga objektif, untuk menentukan tahap persepsi penternak ikan dalam produk Halal makanan haiwan di Pahang, untuk menyiasat hubungan sikap, norma subjektif dan kawalan tingkah laku yang dirasakan terhadap persepsi petani ikan dalam produk makanan halal di Pahang dan Kenal pasti faktor yang paling berpengaruh terhadap persepsi penternak ikan dalam produk makanan halal di Pahang. Seterusnya, kajian ini menggunakan kaedah pensampelan yang sengaja melalui soal selidik yang telah diagihkan di kalangan penternak ikan di Pahang dengan menggunakan teori tingkah laku yang dirancang (TPB). Penemuan kajian ini adalah persepsi tentang produk halal mengenai makanan haiwan di kalangan penternak ikan di Pahang dan terdapat hubungan yang signifikan tentang sikap, norma subjektif dan kawalan tingkah laku yang dirasakan terhadap persepsi penternak ikan dalam produk Halal makanan haiwan di Pahang. Di samping itu, kawalan tingkah laku yang dirasakan adalah faktor paling berpengaruh para penternak ikan dalam produk halal makanan haiwan di Pahang. Akhir sekali, analisis faktor pengesahan menunjukkan bahawa ia mempunyai model yang sesuai.

Kata kunci: persepsi penternak ikan, produk halal, JAKIM, makanan haiwan, teori tingkah laku yang dirancang.

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## CHAPTER 1

### INTRODUCTION

#### **Pahang State fish farmer on Halal feed product**

Hundreds of millions of people worldwide depends on fisheries and aquaculture for food, nutrition, income , and livelihood. According to the United Nations Food and Agriculture Organization, global fish production in 2018 was anticipated to be over 179 million tonnes. Hence, not only that another 156 million tonnes of food ended up on our plates. In addition the longest river in Peninsular Malaysia was the Sungai Pahang in Pahang. The river originates from the Titiwangsa mountains' Sungai Jelai and Sungai Tembeling confluence and flows into the South China Sea. This river, which flows through Pahang and is famed for its China sea, is 459 kilometres long. This river serves as an essential environment for the protection and breeding of various commercially significant fish species, and aquaculture. (Haslawati, 2018). Nevertheless Fish is one of the most traded food commodities globally, with developing countries accounting for more than half of all fish exports by value. Recent reports by high-level experts, international organisations, industry, and civil society representatives all highlight the oceans and inland waters tremendous potential to contribute significantly to food security

and adequate nutrition for a global population expected to reach 9.7 billion by 2050 more so in the future. (Ababouch, 2018)

## **1.0 Introduction**

In this study, chapter 1 consists of background research, problem statement, hypothesis, research question, objective, scope of study, significance of study and organization of study. This study focuses on the background on the perception of halal products on animal feed among fish farmers in Pahang

### **1.1 Background Research**

#### **1.1.1 Products animal feed**

Nowadays, fish farmer tend to focus more on finding halal products on animal feed based on a source that comes from halal, trusted and safe to be given on animal to feed like fish. This is because a good animal feed gives a long life to the animal to live and possibly to avoid any kind of dangerous disease on the animal can be minimize. Fish play a role as an important source of food rich in nutrients. Without a good well care of fish, its impossible to get nutrients benefit human consumption. The nutrients that rich in fish are Vitamin A, Zinc, Calcium, Omega-3 polyunsaturated fatty acids, Vitamin D and many more. Beside that most fish farmers are comes from Muslims religious. Surely the sources of animal feeds that need to be given to animals such as fish must be halal to

ensure the credibility of the preserved fish. In country like Malaysia, there is some book that call guidelines known such as Malaysia Standard Requirement animal feed (MS1500:2009). (Daud1, 2011)

Futhermore, the whole world started to discuss and want to know the importance of halal product especially animal feed that really focused on aquaculture systems. Nevertheless, the aquaculture sector also give people who worked fully time as fish farmer generate income and sell to the market. As people's lifestyles become more cultured and modern, consumptions of more imported food and beverages from another countries. (Mokhtar, 2017)

### **1.1.2 Perception fish farmers**

The perception of fish farmer always has different impression, to know how animal feeds, and how fish are obtained. Feed animal of the fish originated from what source. Nevertheless, in the market, there are many types of animal feed of fish food that can be found in the market. As an example, recycle food waste, Pellet, Stick Equate, Silk Worms and so on. (Wong, 2016)

Likewise, fish meal has been one of the major ingredients in fish and livestock feed due to its high quality, highly digestible protein, optimal essential and non-essential amino acids, fatty acids, and micronutrient composition. The aquaculture sector has grown rapidly in recent decades and is expected to grow further due to sustained demand, particularly in developing countries. Population growth, increased purchasing power, and urbanisation have all been major drivers of the sector's expansion. With increasing

aquaculture sector, demand for animal feed stuff will rise, putting additional strain on natural resources. (Cashion1, 2016)

### **1.1.3 Concept of Halal**

Malaysia is known as the leader in halal food benchmarking due to large Muslim population and supported by the constitution that made Islam, has the official religion in Malaysia (Asa & Azmi, 2018). Muslim are very cautious of belief especially food that been consume. Halal products are known as good and services that are allowed to be eaten according to the Quran and Sunnah. Consumers need to know whether the food is permissible in Islam or not, as Muslim require to imitate the concept of halal and haram. In addition, the concept of halal is not only important for food but also in various sectors like cosmetics products, tourism and entertainment (Demirel & Yasarsoy, 2017).

According to Yusof al-Qardawi, the term “Halal” means permitted or allowed from perspective of Islamic law (Zawawi, Ramli, & Zaki, 2017). Halal food is hygiene and safe to eat for Muslim and also for Non-Muslim. Therefore, halal food has many benefits such as health and nutrition. Halal food free from alcohol and impurities that will help people grow well and obtain a healthy mind. The opposite of Halal is Haram which is used to describe things prohibited in Islam and all the matter of daily life. Example of prohibition food and drink are alcohol, pork, carrion and animal were slaughtered by non-halal slaughtering. Consumers nowadays need to be aware about food that been consume and ensure that food is free from contamination since Halal assurance system (HAS) covered all system such as Good Hygiene Practice (GHP) and Hazard Analysis Critical Control Point (HACCP).

#### 1.1.4 Halal in Malaysia

Malaysia is one of the countries known as a world leader in halal economy (Hearsey, 2018). This is because halal in Malaysia is important and becoming well known among the population, especially the Muslim population. Thus, Malaysia is one of the places for other countries to expand halal products due to a high number of Muslim populations. In Malaysia, Department of Islamic Development Malaysia (JAKIM) is the agency responsible for Islamic cases including halal certification. Besides that, JAKIM monitors the halal status of products including raw materials. Generally, the use of halal logo and certificate is seen to attract Muslim consumers to purchase the product without hesitation. JAKIM introduced the Malaysian Halal standard logo to avoid the use of fake logo and misconceptions about halal certification. Figure 1.2 shows the halal logo that has been approved by JAKIM and trusted by customer. The halal logo is the only logo that all Halal products have used in Malaysia. Therefore, with Halal logo it is easier for customers to recognize the halal products and avoid the confusion of others halal logo. Besides, the halal logo can also be a good marketing tool for a certain company that wants to establish halal products globally.



Figure 1.2 Malaysia Halal Logo (JAKIM)

However, JAKIM must ensure that product entering Malaysia has halal certification and complies with Malaysian procedures and guidelines (Izhar, 2015) defined that existing issues of halal in Malaysia is the difficulty of obtaining halal certificate. This is because the governance hides the certification process and makes it difficult for entrepreneurs to establish halal status. Therefore, JAKIM and Halal Industries Development Corporation (HDC) should monitor in order to ensure that halal standards comply with Islamic compliance. (Islam, 2015)

### **1.1.5 Halal Products animal feed**

Malaysia is one of the countries known as world leader in halal economy (Hearsey, 2018). This is because halal in Malaysia is important and becoming well known among the population, especially Muslim population. Thus, Malaysia is one of the places for other countries to expand their halal products due to high number of Muslim populations. In Malaysia, Department of Islamic Development Malaysia (JAKIM) is the agency responsible for Islamic cases including halal certification. Besides that, JAKIM monitors the halal status of products including raw materials. Generally, the use of halal



logo and certification is seen to attract Muslim consumers to purchase the product without hesitation. JAKIM introduced the Malaysian Halal standard logo to avoid the use of fake logo and misconceptions about halal certification. In Malaysia, the guideline that JAKIM use to monitoring any kind of animal known as Malaysia Standard Requirement animal feed (MS1500:2009). (Majid M. A., 2015)

## 1.2 Problem Statements

Fish farmers have many issues and challenges into animal feed halal products. According to fish farmer, some fish farmers feed their animal without thinking and find out wisely what ingredients either its allowed or prohibited. The perception among fish breeders is still in a state of minimal. This is because of fish farmers do not take seriously of animal feed, what they think is that the animals are always awake and are not in hunger to preserve the fish fishery ecosystem. As an example due to research that has been found, in the state of Ipoh Perak, the fish farmers feed their Patin fish with pig skulls and bones of pig. This issue led to dissatisfaction among Muslim community. This is because pork are HARAM either to touch or use them as a food source. Imagine giving feed to the animal in aquaculture system, generally that fish also prohibited due to feed that have been given in their animal stomach. (Rosli and Ahmad 2014)

However, another issued that related to animal feed of fish product, company that sell in market manufacture that create animal feed does not literally applied Halal on product. (Fischer, 2015) Maybe applying a certificate is expensive and form requires many procedures. Hence to save time and gain more money farmer use raw material to



feed animal. There are many types of feed animal product in Malaysia market that has commercialised. Then, consumers like fish farmers tend to choose and did not fully known the importance of halal products animal feeds that bring safe and nutritious to animal and human consumption. Moreover raw material that contaminated and fully dangerous that have been create it can be cause reduce quality life of animal. (Musa, 2019)

This study focuses on the perception that fish farmers contribute to increasing awareness of Halal animal feed product and to identify the way the the perception that fish farmers contribute to increasing awareness of Halal animal feed product and indentifying how to know the raw material in animal feed product in Pahang. Perception can be defined as organizing or interpreting based on individual senses the individual gives meaning to the elements around farmers. This means that each individual like fish farmer will see the same thing physically and individual differing opinions on the matter. For example, perceptions understanding of the issues that individuals have gone through is one temporary factor interiors of historical effects, the role of society and the fabric. (Nurul Izzah Ahmad, 2016)

### 1.3 Hypothesis of the Study

H<sub>0</sub>: There is no significant value between the relationship of attitude, subjective norms and perceived behaviour control towards perception of halal products animal feed among fish farmers in Pahang.

H<sub>1</sub>: There is a significant relationship between attitude, subjective norms and perceived behaviour control towards perception of halal products animal feed among fish farmers in Pahang.

### 1.4 Research Question

1. What is the level of a perception of Halal products on animal feed among fish farmers in Pahang?
2. What are the significant relationships of attitudes, subjective norm and perceived behaviour control towards perception of Halal products on animal feed among fish farmers in Pahang?
3. What is the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang?

### **1.5 Objective of study**

1. To determine the level of perception of Halal products on animal feed among fish farmers in Pahang.
2. To investigate the relationship of attitude, subjective norm and perceived behaviour control towards perception of Halal products on animal feed among fish farmers in Pahang.
3. To identify the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang.

### **1.6 Scope of study**

This study focuses on Halal products perception of animal feed among fish farmers in Pahang by using purposive sampling methods. The survey questionnaire was distributed to fish farmers in Pahang aged between 23 years old to 60 years old. Next, the Theory of Planned Behaviour (TPB) was used for independent variables and dependent variables. The independent variables for this study are attitude, subjective norm and perceived behaviour control while perception of halal products on animal feed among fish farmers in Pahang as dependent variables.

### **1.7 Significance of study**

The significance of this research is to know perception towards fish farmers according to animal feed product. Furthermore, this significance definitely to learn the type of nutrition found in animals like fish toward focusing halal product animal feed in Malaysia. All this data based on knowledge of fish farmers before they give feed for their animal and to know what side effect and causes when they give either allowed or prohibited animal feed. This is because, some animal feed products sell into outlets or markets that probably do not have the halal logo of the Malaysia Islamic development department (JAKIM) or the recognized organization. This problem will causes confusion among the fish farmers and customers about the status of animal feed products available in Malaysia. Therefore, the perception and knowledge of the halal product animal feed at market is more important.

## 1.8 Organization of study

Chapter 1: This chapter introduces research background of the study, problem statements, research question, objectives, hypothesis, scope of study and significance of study.

Chapter 2: This chapter presents the literature review from the previous study regarding on perception of Halal products on animal feed among fish farmers in Pahang. Besides, this chapter provides related information based on understanding of this study.

Chapter 3: This chapter explains about the method used of theoretical framework and methodology that covers sampling techniques, research design and data analysis.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.0 Introduction

In this study, there are three objectives have been identified namely the level of perception of Halal products on animal feed among fish farmers in Pahang, the relationship of attitude, subjective norm and perceived behaviour control towards the perception of fish farmers in Halal products animal feed and the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang. Besides, the review previous study helps to analyse and interpret the research topic, question and hypothesis. The Theory of Planned Behaviour was used in this study to determine factors dealing with individual behaviours, attitude, subjective norm and perceived behaviour control.

## **2.1 Theoretical Framework on perception of halal products on animal feed among fish farmers in Pahang**

Theoretical framework was one of the important elements of the research process that involved the theories expressed to analyse the data and interpret the results (Kivunja, 2018). Besides, the theory was a concept that presents a systematic view by determining the relationship between variables which resulted in the explanation and prediction of phenomena. Theoretical framework was the structure that helps or support the theory of research study. It is important for topic selection, forming of research questions, focus of literature review, design approach and analysis design for research study (Grant & Osanloo, 2014). In this study, the theoretical framework that have been used was theory of planned behaviour. It is because to identify the influential factors of young entrepreneurs' perception in halal food products based on attitude, subjective norm and perceived behaviour control.

### **2.1.1 Theory of Planned Behaviour on perception of halal products on animal feed among fish farmers in Pahang**

Theory of Planned Behaviour (TPB) by Ajzen in 1991 was continuous of the Theory of Reasoned Action that influences individuals to perform behaviour such in making the decision. (Steinmetz, Knappstein, Ajzen, Schmidt, & Kabst, 2016) stated that Theory of Planned Behaviours (TPB) was the crucial framework for predating and

explaining behaviour in variety of domain. Theoretically, individual behavioural intentions are determined by attitude, subjective norm and perceived behaviour control (Abu-Hussain, Johari, Hehsan, & Nawawi, 2017). Besides, individual behaviour related with intention and perceived behavioural. Attitudes directly relate to the intentional behaviour while subjective norms also play a major role in dealing with perceived behavioural control.

The attitude was the first element of Theory of Planned Behaviour. It described as a positive and negative assessment of an individual's performance (Paul, Modi, & Patel, 2016). In addition, attitude was the judgement of behavioural belief of individual and the outcome evaluation (OE). Outcome evaluation refers to the corresponding positive or negative judgement about the individual's behaviour. As the example, the attitude of individual perception in animal feed Halal products will enhance the level of fish farmer perception in halal food product thus promoting and attracting the intention of consumer to purchase halal animal feed products without any doubt. According to (Latif, Harris, & Ab Rahman, 2019), most Muslim consumers buy products based on halal logo in order to prevent them from buying products that do not comply with Islamic guidelines. This indicates that such an attitude will affect the perception of consumers to buy the food products.

Subjective norm was the individual's perception of how influential people think in particular behaviour such as making decision or starting a business. It means that society can be a big influence to individual (Paul, Modi, & Patel, 2016). The study from (Yusof, Shukor, & Bustamam, 2016), Muslim consumer had influenced the food manufacturer to produce more halal food products. This is because the demand for halal food products was increasing in Muslim countries and in other countries. Besides, the



products that have halal certification and logo can capture better market while promoting halal food product in this country.

Perceived behaviour control has affected by the attitude and subjective norms. It is more likely where the person not only feeling of being capable but also perception of performing the particular behaviours (Yadav & Pathak, 2017). Based on this study, individual behaviours towards animal feed halal products influenced by attitude, subjective norm and perceived behaviour control.

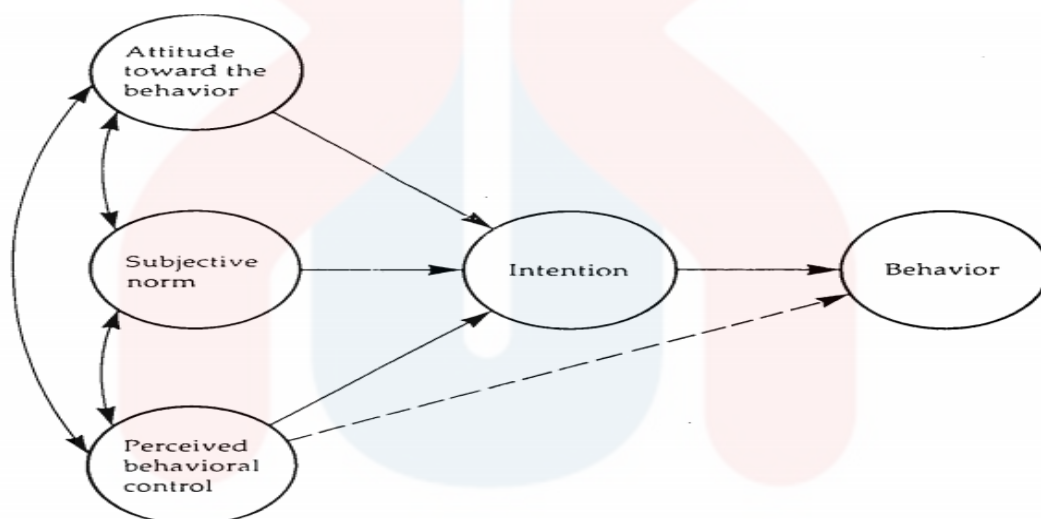


Figure 2.1 shows the Theory of Planned Behaviour by Ajzen, 1991 with attitude, subjective norm and perceived behaviour control that influence intention and behaviour of the individual.

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## **2.2 Level perception of Fish farmers in Halal product animal feed**

The level perception fish farmers the sector are in the middle aquaculture systems with Halal certificate attracted all Muslims in this world. In aquaculture sector, most fish farmers in Malaysia face problem related to lack of knowledge, the type and source of food to give animal eat ,the way how looks like a logo halal (Manan, 2014). Beside that ,fish farmers also do not know what is actually important Halal Logo in product animal feed.This is because the purpose of logo Halal on the bottom of packaging animal feed product nothing else to show consumer that's products definitely safe to use on any kind of animal aquaculture (Saidin, 2016).In addition, Since Muslim consumers are now demanding halal food products thus fish farmers should make sure animal products feed are applied by follow what consumer needs and wants such as the halal logo approved by JAKIM in the packaging label. Any kind of information ingredient how animal feed products can be added so fish farmers know that animal feed products are safe to use to give animal.

## **2.3 The relationship of Attitude, Subjective Norm And Perceived Behaviour Control towards Fish farmers perception in Halal Product animal feed.**

The attitude was the first component are being seen for the Theory Of Planned Behaviour. Attitudes can be define a relatively enduring organization of beliefs, feelings, and behaviour tendencies towards socially significant objects, groups, events or symbols (Vaughan, 2005). Based on the attitude model, the information role refers to our desire for a predictable and stable word. This gives us a sense of control by allowing us to

anticipate what is likely to happen. Attitudes will aid in the organisation and arrangement of our experiences. The connection between behaviour and attitude has the result of a belief such as the negative and positive outcomes of human behaviour and attitudes toward the largely desirable and undesirable consequences. As an example on research study, perception of Halal products on animal feed among fish farmers in aquaculture production nevertheless to introduce and show them how important Halal logo in animal feed product and without any doubt can change their perception and add on knowledge about the benefits and positive feedback using Halal logo on animal feed product.

Subjective norm are the belief that a significant person or group of people will approve and support a specific behaviour. In other words its can be determined by an individual's perceived social pressure from others to behave in a certain way, as well as their motivation to conform to those people's views (Ham, 09 Oct 2015). Besides that ,fish farmer intention to be involved in Halal animal feed products is usually made up from subjective norms that an individual perception or friends individual to support decision through animal feed product .According to research those questions have an injunctive quality that corresponds to the definition of the subjective norm, but the answers themselves often have low variability for a simple reason: Important some are seen as endorsing positive behaviours and disapproving of unacceptable ones (Ajzen A. , 2002).

Perceived behaviour control absolutely affected the attitude and subjective norms. Meaning of perceived behaviour there are two rationales for the proposed relationship between perceived behavioural regulation and behaviour. First while keeping goal stable, greater perceived behavioural regulation increases the probability of a behaviour being carried out. Second, to the degree that perceived control represents real control, perceived behavioural control can influence behaviour directly (Ajzen, 1999).The factor of control in perceived behaviour has to divide factor that can be external or internal. As an example

,based on study fish farmers behaviours towards aquaculture production have been influenced by attitudes, subjective norms and perceived behaviour control.

#### **2.4 The Most influential Factor Of Fish Farmers perception in Halal product animal feed.**

Eastern Asian populations ate fish every day with cooked rice, as part of rice dishes, or as a side dish. Malaysians, in particular, ate fish at least once a day, in quantities of one and a half medium fish. In reality, Malaysians consumed the second most fish per capita in Asia, after Japan, and ranked fifth in the world (Daud, 2016). Although fish consumption is an essential component of a healthy and well-balanced diet. Fish consumption may provide health benefits due to the presence of protein, unsaturated essential fatty acids, minerals, and vitamins. Polyunsaturated fatty acids (PUFAs), particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), may provide additional health benefits from fish or fish oil consumption (DHA). Fish contains omega-3 fatty acids, which may lower cholesterol levels and the occurrence of heart disease, stroke, and preterm birth. It also acts as a mood stabiliser, particularly in women.

#### **2.5 Chapter Summary**

This chapter discussed by the previous researcher about of Halal Products perception On Animal Feed Among Fish Farmers in Pahang. The first section in this chapter shows the theoretical framework where it helps to analyse the result for this study.

The second section was told about TPB model used in this thesis which attitude, subjective norm and perceived behaviours control as factors that influence fish farmers perception in animal feed Halal products. Third section was the studies from the previous research about the level of perception fish farmers perception in animal feed Halal products. Next section was indicated the relationship of attitude, subjective norm and perceived behaviour control towards perception of Halal Products on Animal Feed Among fish farmers in Pahang. The last section shows the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang.

## CHAPTER 3

### METHODOLOGY

#### 3.0 Introduction

This chapter explained the methodology used to achieve the objectives of this study. There are three sections in this chapter where the first section, described the conceptual framework used for this study. Then, the second section will be explained about the data and questionnaires used to distributed Perception Of Halal Products on Animal Feed Among Fish Farmers In Pahang. Next, the third section explained the analysis used to achieve the objectives of descriptive analysis, reliability test, normality test, Spearman correlation analysis, factor analysis and partial least squares structural equation modelling.

#### 3.1 Conceptual Framework

The TPB theory used in this research to evaluate the significant factors and relationship between Perception of Halal Products on Animal Feed among Fish Farmer

in Pahang. The TPB model was related and suitable to the objectives of this study which were investigate the relationship of attitude, subjective norm and perceived behaviour control towards young fish farmers perception in halal food products, to determine the level awareness perception of fish farmers in animal feed product and to identify the most influential factor of fish farmers perception in animal feed products in Pahang. In modified TPB model, the conceptual independent variable of perception of Halal products on animal feed among fish farmers in Pahang were attitude, subjective norm and perceived behaviour control (as given in Figure 3.1).

Attitude was the independent variable that Perception of Halal Products on Animal Feed among Fish Farmers in Pahang. The attitude was the behavioural belief that can predict and evaluate the individual's attitude. Besides, there were some other factor that influencing the behavioural beliefs which are experience, age, knowledge , skills and information.

Subjective norm was the subjective pressure on fish farmers in making decision to perception in halal animal feed product. The subjective norms were controlled by normative beliefs in which it controls individual perceptive behaviour either they should perform or not. Next, community and culture can control the fish farmer's behaviour like family, friends, government and subjective media. Besides, subjective norms were one factor that influenced the perception of fish farmerd in halal food products. Government agencies like *Malaysian Fisheries Development Authority (MFDA)* program was the major role in fish farmers development to help improving fish farmers employment rate and increases the economic value of low-income young generation. Besides, it also helps by providing the funded and cooperating with entrepreneurial organization.

Perceived behaviour control has affected by the attitude and subjective norms. Its like the fish farmers are in under control to perform the behaviour. The perceived



behaviour control of fish farmers in Pahang influence by attitude behaviour like fish farmers experiences and skills. In TPB conceptual framework of this study, attitude, subjective norm and perceived behaviours control were factors in determining the perception of fish farmers in halal food product as independent variable while participation of fish farmers in halal food product as dependent variable (as given in Figure 3.1).

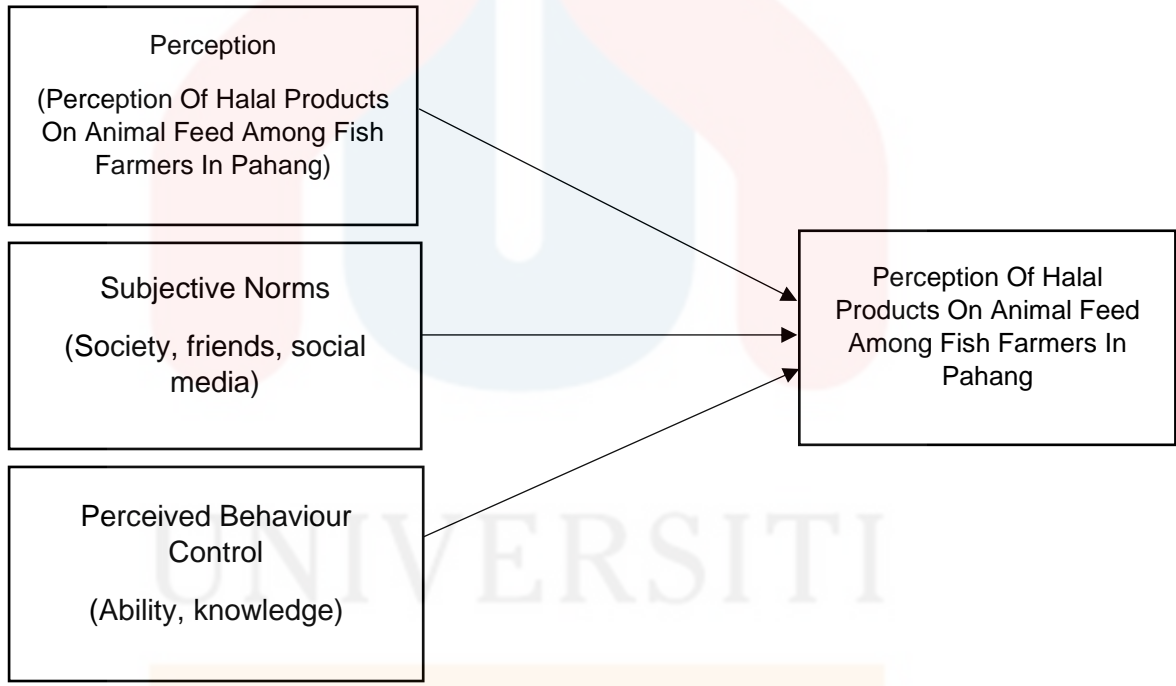


Figure 3.1: Conceptual framework of Theory Planned Behaviour model (Source: Adapted model from Ajzen, 1991)



## **3.2 Data Collection**

Data collection was a process for collecting and measuring information on relevant source that stated the research question, hypothesis testing and evaluation of the outcome. This research was conducted in Pahang area. The sample size for this study was 50 respondents where the question distributed to determine the level participation of fish farmers in the halal food product, the relationship between attitude, subjective norm and perceived behaviour control toward halal food product animal feed and the most influential factor of fish farmers perception in the halal food product animal feed.

### **3.2.1 Sampling Methods**

This research was designed to see perception fish farmers in Pahang in the halal food product animal feed. This study targeted fish farmers who perception in the halal food products animal feed and identified the level perception of fish farmers in halal food products animal feed. This survey method used the purposive sampling technique which known as nonprobability sampling techniques that used to select the sample of subjects from the population (Etikan, Musa, & Alkassim, 2016). The sampling also affordable, easy and the subjects is available. Besides, this technique has limitation in choosing the sample when the population is very large but it useful if has limited resources, time and workforce. Therefore, the questionnaire was distributed to fish farmers in Pahang. This survey also used the interview method by social media like Whatsapp, Messaging through telephone for data collection.

### 3.2.2 Sample Size

The sample size for this study was 50 respondents of fish farmers in Pahang. According to (Allen Jr, 2011), the sample size was determined by using the rule of thumb. This rule was to select a sample size larger than 30 respondents and not more than 500 respondents (Sabir, Safdar, Khurshid, & Hafeez, 2014). Moreover, good quality results can also be obtained if N is below 50 but also not very good if the sample size is too small (de Winter, Dodou, & Wieringa, 2009). This is because the data analysed are less accurate. However, (Littler, 2015) stated that the larger the sample size, the more information will be gathered as it can help reduce sampling errors.

### 3.2.3 Source of Data

There were two sources of data namely primary data and secondary data. The primary data was collected from the respondents by using several methods such as Whatsapp and Messaging through telephone. The questionnaire encompasses pre-defined factor that obtains from the previous research that have been discussed in the literature review.

Next, secondary data was gathered from the different sources of information like journal, book, website and newspaper that research has analysed. Apart from that, the statistical data was collected from the government departments' portal or relevant information related to this research.

### 3.2.4 Instrument Method

This survey question was prepared to fish farmers who awareness about perception in animal feed halal food products in Pahang. The questionnaire was designed according to previous research that related or similar to this study. The questionnaire constructed based on problem statements and literature review involving socio-demographic characteristics of fish farmers. Besides, the aspects that influence animal feed halal products were attitude, subjective norm and perceived behaviour control. These aspects were important to evaluate the level perception of fish farmers in animal feed halal product. In this research, the questionnaire was comprised into:

In this section, the question divided into three parts which were attitude, subjective norm and perceived behaviour control:

- a) Demographic information: All about detail fish farmers including gender, age, marital status, education level, courses during, estimate of annual income ,area state in Pahang.
- b) Section A: The attitude questions have 9 questions about attitude fish farmers in halal product animal feed in Pahang.
- c) Section B: Subjective norms consists of 8 questions of fish farmers that influence the perception of fish farmers in halal products animal feed.

- d) Section C: Includes 7 questions on perceived behaviour control of ability fish farmers towards halal products animal feed.
- e) Section D: Includes 7 questions on perception fish farmers in halal products animal feed in Pahang.

The question for perception, attitudes, subjective norms and perceived behaviour control of fish farmers is designed based on five-point Likert scale, Strongly Disagree – Disagree – Average – Agree – Strongly Agree.

### **3.2.5 Pilot Study**

A pilot research was performed in this study to ensure that the questionnaire was correct, appropriate, and simple for respondents to complete. A sample size of respondents will be used to determine the survey questionnaire's overall feasibility. Nonetheless, the data in this study was analysed using the Statistical Package for Social Science (SPSS). The results of the pilot study and the Cronbach's Alpha of reliability statistic will be presented.

The Cronbach's Alpha value for the variables of perceived usefulness of IoT in the aquaculture sector in Pahang and perceived ease of use Perception of Halal products on animal feed among fish farmers in Pahang must be greater than 0.5.

Finally, as a result all of the variables in this study are satisfactory. Cronbach's Alpha values of less than 0.5 are considered weak, those of less than 0.7 are considered satisfactory, and those of more than 0.8 are considered excellent (Mohtar et al., 2014).

## **3.3 Data Analysis**

Data analysis was the process to interpret or evaluate the data by using analytical and statistical tools to analyse and prove the accuracy of the data. The data cleaning can be done by examining the frequency and descriptive statistics as well as encoding and entering data. By using SPSS program, descriptive statistics like measurement of mean, minimum, maximum, frequency, percentage, and standard deviation can be used to

analyse data. In this study, inferential statistical analysis used was reliability test, normality test, Spearman correlation analysis and factor analysis.

### **3.3.1 Descriptive Analysis**

In this study, descriptive analysis was used to describe basic feature of the data. It is providing the simple summarize data that easy to interpret and understand. The descriptive data was needed to measure the mean of the nominal data collected from this investigation. It is used to determine the frequency and percentage of demographic background of fish farmers. The data was analysed based on perception of fish farmers, attitude, subjective norm and perceived behaviour control towards halal product animal feed.

### **3.3.2 Reliability test**

The dependability or consistency with which a test measures a characteristic is referred to as its reliability. Will a person get a similar test score or a significantly different score if he or she retakes the test. Beside that a test is said to measure a characteristic reliably if it produces similar results for a person who repeats the test. The temporary psychological or physical state of the test taker. A person's psychological or physical state at the time of testing can have an impact on test performance. Different levels of anxiety, fatigue, or motivation, for example, may have an impact on the applicant's test results. The reliability coefficient indicates a test's dependability. It is represented by the letter

"r," and it is expressed as a number ranging from 0 to 1.00, with  $r = 0$  indicating no reliability and  $r = 1.00$  indicating perfect reliability. Don't expect to find a test that is completely reliable. In general, the reliability of a test is expressed as a decimal, such as  $r = .80$  or  $r = .93$

Reliability coefficient value	Interpretation
90 and up	excellent
80-89	good
70-79	adequate
Below 70	May have limited applicability

(Source: Survey, 2022)

**3.3.3 Normality test**

If a variable fails a normality test, it is critical to examine the histogram and the normal probability plot to determine whether the non-normality was caused by an outlier or a small subset of outliers. If there are no outliers, you could try a transformation (like the log or square root) to normalise the data. Nonparametric methods that do not require a transformation can be used if a transformation is not a viable option normality may be used. A common misconception is that a histogram is always a reliable graphical tool for determining normalcy. Because there are many subjective choices to be made when creating a histogram, and because histograms generally require large sample sizes to display an accurate picture of normalcy, other graphical displays such as the box plot and the density trace should be preferred and the normal probability plot. Normality tests

generally have small statistical power (probability of detecting non-normal data) unless the sample sizes are at least over 100 (Das, 2016)

### **3.3.4 Spearman Correlation Analysis**

Spearman correlation coefficient ( $r_s$ ) was statistical measures of the strength and direction of monotonic relationship between two variables (Schober, 2018). Monotonic was one that either or never increase or decrease as its independent variables increases. In this study, Spearman correlation analysis was used to measure the monotonic relationship between variables that influence the perception of Halal products on animal feed among fish farmers in Pahang. This relationship was between independent variables and dependent variables. The closer the Spearman coefficient ( $r_s$ ), the stronger the relationship between the two variables. It will be +1 or -1 depending on positive or negative monotonic relationship between the two variables. The strength of the relationship between two variables was determined using the Spearman correlation coefficient (Weir, 2016).

### **3.3.5 Factor Analysis**

Factor analysis was the process of identifying correlations between the variables to find underlying factors that drive data values for a large group of variables. This technique will help to reduce a large number of variables to a few numbers of factor that explain the variability of factor associated with this study. In this study, the factor analysis



used to determine the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were used in this study to identify the sampling adequacy and correlation between all variables before analysing the factor analysis. The KMO test was used to measure the proportion of variance between variables that may be due to underlying factors while Bartlett's test of Sphericity was used to determine the strength of the relationship between variables. If the KMO value  $> 0.6$  and Bartlett's Test of Sphericity was  $.000 < 0.05$ , this indicates that factor analysis was rational for this study (Hadi & Abdullah, 2016). Next, factor loading was the correlation coefficient for the variable and the factor by which it represents the variance explained by the factor variable. If the factor loading lower than 0.3 and 0.4, it should be suppressed as they have a low contribution to the factor variance while the factor loading higher than 0.4 indicates a closer relationship with the factors (Kalendar, Marshman, & Schunn, 2019)

### **3.3.6 Partial Least Squares Structural Equation Modelling (PLS-SEM)**

The validity of the calculated variables describing the constructed model was determined using Confirmatory Factor Analysis (CFA) in this research. This tool helps to identify whether the structure model fits with the new data set. In this analysis, the Model fits is to interpret the variables used to fit the model for PLS-SEM (Gelman, Goodrich, Gabry, & Vehtari, 2019). This is important to determine the relationship between the variables in order to get an accurate outcome. The loading indicator should be above than 0.6 to be accepted for the PLS model (Sukor & Faisal, 2020). The model fit evaluated

based on Standardized Root Mean Square Residual (SRMR) and chi-square value. If the value of  $SRMR < 0.08$  this shows that the models was good and fits with the variables (Olutende, Wamukoya, & Wanzala, 2019). The chi-square used to determine the significance values of the results and identify whether the distribution values match the theoretical distribution (Statistics Solution, n.d.).



## CHAPTER 4

### RESULT AND DISCUSSION

#### 4.1 Introduction

In this chapter, the findings obtained from the analysis based on research questionnaire were explained well. In this part, the results were generated from the questionnaire distributed to the respondents. The data were analyzed by *Statistical Package For The Social Sciences (SPSS), Version 23 For Windows*. The analysis is about the level of perception of Halal products on animal feed among fish farmers in Pahang and to know the relationship of attitude, subjective norm and perceived behavior control towards perception of Halal products on animal feed among fish farmers in Pahang. Besides that, this study also to determine the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang.

#### 4.2 Reliability Test

Table 4.1 showed the result of the reliability test for 50 respondents. Regarding to the result, the Cronbach's Alpha value for attitude are 0.913, subjective norms are 0.941, perceived behavioral control are 0.910 and perception are 0.921 indicating that the data are reliable since the value falls between 0.7 to 1.0. The similar finding reported by Chung et al., (2018) as the value of Cronbach's Alpha more than 0.7 classified as reliable.

Table 4.1: Result of Reliability Test

Variables	Cronbach Alpha	No of items
Attitude	0.913	9
Subjective Norms	0.941	8
Perceived Behavioral Control	0.910	7
Perception	0.921	7

(Source: Survey, 2022)

### 4.3 Descriptive Statistics

In this part, descriptive statistics are used to explore the data collected and to summarize the data in terms of frequency, percentage, mean and standard deviation. The reasons why descriptive statistics is useful; it is used to make common observations based on the data gained.

### 4.3.1 Demographic Respondents

Respondent chosen among the fish farmers in Pahang to analyzed demographic distribution of the respondents such as gender, age, marital status, educational level, courses, estimation of annual income of company, state in Pahang and perception of halal products of animal feed made up of 50 respondents.

Referring to Table 4.2, it figured out the frequency and percentage (%) of the respondents based on demographic. Regarding to the gender showed the male respondents involved are 27 people correspond to 54% and 23 people or 46% of them are females. Hence, it showed that number of male is highest compared by female respondents.

Next the number of respondents according to their age showed 3 people or 6% of them are less than 20 years. This was followed by 34 people or 68% had 20 to 29 years and 3 people or 6% had 30 to 39 years. Besides that, there have 7 people or 14% had 40 to 49 years and followed by 3 people or 6% had more than 50 years. Hence, it obviously showed that majority of the respondents in range 20 to 29 years and the lowest are below 20 years, range 30 to 39 years and more than 50 years.

Then, it shows the frequency and percentage (%) of the respondents based on the marital status. 14 people or 28% of the respondents are married followed by widowed with 3 people or 6% and followed by 33 people which equal to 66% of them are single. This represented that the highest number of respondents are single and the lowest are widowed.

According to the educational level, showed 6 people or 12% of the respondents are SPM, 16 people or 32% are STPM/A-level/Diploma, 1 people or 2% are Matriculation, 23 people or 46% are undergraduate and 4 people or 8% are postgraduate.

This represented the highest number of respondents are undergraduate and the lowest are matriculation.

Based on the courses, 9 people or 18% of the respondents are literature followed by 13 people which equal to 26% of them are science, 4 people or 8% are vocational, 5 people or 10% are agriculture science, 6 people or 12% are entrepreneurs and 13 people or 26% are other course. This represented the highest number of respondents are science courses and others course and the lowest are vocational.

Besides that, the annual income showed 26 people or 52% of them are less than RM 250,000 followed by 13 people or 26% had RM 260,000 to RM 1,000,000, 3 people or 6% had RM 1,000,000 to RM 3,000,000, 2 people or 4% had RM 3,000,000 to RM 5,000,000 and 6 people or 12% had more than RM 5,000,000. Hence, it obviously showed that majority of the respondents get annual income less than RM 250,000 and the lowest are between RM 3,000,000 to RM 5,000,000.

Lastly for the area in Pahang shows 2 people or 4% of the respondents are in Bera followed by 6 people which equal to 12% of them are Cameron Highlands, 1 people or 2% are Jerantut, Lipis and Rompin, 26 people or 52% are Kuantan, 3 people or 6% are Pekan and Raub and 7 people or 14% are Temerloh. This represented the highest number of respondents are Kuantan and the lowest are Jerantut, Lipis and Rompin.



Table 4.2: Demographic Respondents

Demographic	Frequency	Percentage
<b>Gender</b>		
Male	27	54.0
Female	23	46.0
<b>Age</b>		
<20 years	3	6.0
20-29 years	34	68.0
30-39 years	3	6.0
40-49 years	7	14.0
More than 50 years	3	6.0
<b>Marital Status</b>		
Married	14	28.0
Widowed	3	6.0
Single	33	66.0
<b>Educational Level</b>		
SPM	6	12.0
STPM/A-Level/Diploma	16	32.0
Matriculation	1	2.0
Undergraduate (Bachelor's Degree)	23	46.0
Postgraduate (Master Degree/PhD)	4	8.0
<b>Courses</b>		
Literature	9	18.0
Science	13	26.0
Vocational	4	8.0
Agriculture Science	5	10.0
Entrepreneurs	6	12.0
Others	13	26.0
<b>Annual Income</b>		
<250,000	26	52.0
260,000-1,000,000	13	26.0
1,000,000-3,000,000	3	6.0
3,000,000-5,000,000	2	4.0
>5,000,000	6	12.0
<b>Area in Pahang</b>		
Bera	2	4.0
Cameron Highlands	6	12.0
Jerantut	1	2.0
Kuantan	26	52.0
Lipis	1	2.0
Pekan	3	6.0
Raub	3	6.0
Rompin	1	2.0

#### **4.3.2 Objective 1: To determine the level of perception of Halal products on animal feed among fish farmers in Pahang.**

Table 4.3 represents the level of perceptions of Halal products on animal feed. There have 7 items to be discusses in detail. The findings showed, majority of the respondents chooses strongly agree about “*I think my perception in applying technology can improve customer’s buying interest towards Halal label*” (70%) followed by “*I will put all my effort to get Halal label food certification for my product*” (66%). Respondents also strongly agree about “*Acceptance and awareness of halal products other than Muslim people prompted me to produce Halal label*” (64%) and “*I think perception on Halal label products on animal feed can improve customers’ trusts*” (62%). Based on the findings, the respondents showed various perceptions of Halal products on animal feed. Next, all the statement reported that there have high level of perception of Halal products. Next, based on the mean, respondent agreed that “*I think my perception in applying technology can improve customers buying interest towards Halal label*” are the highest mean (Mean=4.64, SD=0.597). Meanwhile the lowest mean showed the respondents also agree about “*I think that my perception on Halal label products on animal feed can increase my sales domestically and internationally*” (M=4.4, SD=0.832). Hence, the overall mean of the level perceptions of Halal products on animal feed are 4.508 and standard deviation is 0.589. These shown the respondents agree and high level perceptions of Halal products on animal feed. Based on the finding reported, Ramli et al., (2020) stated that technology adopted to improve customer’s buying interest towards



Halal label. It acts as the indicator to determine the halal products for animal feed. It is important as accordance with Syariah guideline.

Table 4.3: Level of perceptions of Halal products on animal feed

Statement	Strongly Disagree	Disagree	Average	Agree	Strongly Agree	Mean	Standard Deviation	Level
I think that my perception on Halal label products on animal feed can increase my sales domestically and internationally.	1 (2%)	0 (0%)	5 (10%)	16 (32%)	28 (56%)	4.4	0.832	High
My perception on Halal label products on animal feed can educate and increase consumer awareness on halal food product.	0 (0%)	0 (0%)	4 (8%)	18 (36%)	28 (56%)	4.48	0.646	High
I think perception in Halal label products on animal feed can improve customers' trusts.	0 (0%)	1 (2%)	3 (6%)	15 (30%)	31 (62%)	4.52	0.706	High
I will put all my effort to get Halal label food certification for my product.	0 (0%)	1 (2%)	4 (8%)	12 (24%)	33 (66%)	4.54	0.734	High
Increasing of population of Muslim motivate me to produce Halal label product on animal feed.	0 (0%)	1 (2%)	5 (10%)	15 (30%)	29 (58%)	4.44	0.76	High
Acceptance and awareness of halal products other than Muslim people prompted me to produce Halal	0 (0%)	1 (2%)	3 (6%)	14 (28%)	32 (64%)	4.54	0.705	High

label products in animal feed.									
I think my perception in applying technology can improve customer's buying interest towards Halal label products on animal feed.	0 (0%)	0 (0%)	3 (6%)	12 (24%)	35 (70%)	4.64	0.597	High	
	Overall					4.508	0.589	High	

(Source : Survey , 2022)

Table 4.4 represents the attitude of Pahang fish farmer perception in halal products on animal. There have 9 items to be discusses in detail. The findings showed, majority of the respondents chooses strongly agree about *“I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority”* (64%) followed by *“The recent purchasing trend among consumers lead me to realize the importance of Halal label products on animal feed”* (62%). Respondents also strongly agree about *“Honestly is important for me in producing Halal label food products on animal feed”* (56%) and *“Halal label is very important to me as Pahang fish farmers”* (52%). Based on the findings, the respondents showed various about the attitude of Pahang fish farmer perceptions in halal product on animal. Next, all the statement reported that there have high level of attitude of Pahang fish farmer perception in halal products. Next, based on the mean, showed respondents agree about *“I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority”* are highest mean (Mean=4.54, SD=0.761). Meanwhile the lowest mean showed the respondents also agree about *“I am looking suitable method and technique to be success in Halal label*

*food on animal feed*” (M=4.22, SD=1.035). Hence, the overall mean the attitude of Pahang fish farmer perceptions in halal products on animal are 4.346 and standard deviation is 0.703. These shown the respondents agree and have a high level attitude of Pahang fish farmer perceptions of Halal products on animals. As claimed by Ali et al., (2018), attitude is one of the aspects stated in theory of planned behaviour which contributes to the intention among Muslims consumer to make purchase intention. Based on the attitude portrayed, it showed that the respondents highly concern about Halal label food products. It can be seen clearly as the respondents look for Halal label which lead them to make purchasing intention.

Table 4.4: Attitude of Pahang fish farmer perception in halal products on animal

Statement	Strongly Disagree	Disagree	Average	Agree	Strongly Agree	Mean	Standard Deviation	Level
Halal label is very important to me as Pahang fish farmer	1 (2%)	1 (2%)	2 (4%)	20 (40%)	26 (52%)	4.38	0.83	High
I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority .	1 (2%)	0 (0%)	2 (4%)	15 (30%)	32 (64%)	4.54	0.761	High
Honestly is important for me in producing Halal label food products on animal feed.	3 (6%)	0 (0%)	3 (6%)	16 (32%)	28 (56%)	4.32	1.038	High
The recent purchasing trend among consumers lead me to realize the importance of Halal label product on animal feed.	2 (4%)	0 (0%)	2 (4%)	15 (30%)	31 (62%)	4.46	0.908	High
I am not afraid of acting as a leader in Halal label	2 (4%)	0 (0%)	3 (6%)	22 (44%)	23 (46%)	4.28	0.904	High

food products on animal feed.								
I am looking suitable method and technique to be success in Halal label food on animal feed.	3 (6%)	0 (0%)	4 (8%)	19 (38%)	24 (48%)	4.22	1.035	High
Halal labels are necessary for me before marketing the food product on animal feed.	2 (4%)	0 (0%)	3 (6%)	21 (42%)	24 (48%)	4.28	0.926	High
I will take the challenge on any issues pertaining Halal label food products on animal feed.	2 (4%)	0 (0%)	3 (6%)	21 (42%)	24 (48%)	4.3	0.909	High
I am willing to adapt technology in areas related to Halal label food products on animal feed .	2 (4%)	0 (0%)	2 (4%)	21 (42%)	25 (50%)	4.34	0.894	High
	Overall					4.346	0.703	High

(Source: Survey, 2022)

Table 4.5 represents the subjective norms of Pahang fish farmer perception in halal products on animal. There have 8 items to be discusses in detail. The findings showed, majority of the respondents chooses strongly agree about “Media information attract interest me to sell animal feed product with Halal label at market” (52%) followed by “Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products” (48%) and “Expert in animal feed product industries motivate me and entertain me how to manage animal feed product with halal labels” (46%). Respondents also agree about “My partner fish farmers encourage me to possess Halal feed label in animal feed products”, “Government advertisement and promotion influence me to sell animal feed products with Halal label” and “Through technology

*adoption in animal feed Halal label products will enable me*” (44%). Based on the findings, the respondents showed various about the subjective norms of Pahang fish farmer perceptions in halal product on animal. Next, all the statement reported that there have high level of subjective norms of Pahang fish farmer perception in halal products. Next, based on the mean, showed respondents agree about *“Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products”* are highest mean (Mean=4.28, SD=0.926). Meanwhile the lowest mean showed the respondents also agree about *“My friends would not approve my decision to sell animal feed products in market without Halal label”* (M=3.92, SD=1.209). Hence, the overall mean the subjective norms of Pahang fish farmer perceptions in halal products on animal are 4.16 and standard deviation is 0.829. These shown the respondents agree and high level subjective norms of Pahang fish farmer perceptions in halal products on animal. As stated by Rachbini (2018), subjective norms are one of the aspect which lead to halal food purchasing behavior among consumer in Jakarta. The consumers in Jakarta highly influence by advertisement which published in television as well as social media on halal food products.

Table 4.5: Subjective norms of Pahang fish farmer perception in halal products on animal

Statement	Strongly Disagree	Disagree	Average	Agree	Strongly Agree	Mean	Standard Deviation	Level
My partner fish farmers encourage me to possess Halal feed label in animal feed products.	2 (4%)	1 (2%)	4 (8%)	22 (44%)	21 (42%)	4.18	0.962	High
My society influence me in marketing food products for animal feed with Halal label.	2 (4%)	0 (0%)	8 (16%)	19 (38%)	21 (42%)	4.14	0.969	High

My friends would not approve my decision to sell animal feed products in market without Halal label.	4 (8%)	3 (6%)	5 (10%)	19 (38%)	19 (38%)	3.92	1.209	High
Government advertisement and promotion influence me to sell animal feed products with Halal label	2 (4%)	1 (2%)	5 (10%)	22 (44%)	20 (40%)	4.14	0.969	High
Media information attract interest me to sell animal feed products with Halal label at market.	2 (4%)	1 (2%)	5 (10%)	16 (32%)	26 (52%)	4.26	1.006	High
Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products.	2 (4%)	0 (0%)	4 (8%)	20 (40%)	24 (48%)	4.28	0.926	High
Expert in animal feed product industries motivate me and entertain me how to manage animal feed product with halal labels.	2 (4%)	0 (0%)	7 (14%)	18 (36%)	23 (46%)	4.2	0.968	High
Through technology adoption in animal feed Halal label products will enable me to obtain external loans.	1 (2%)	0 (0%)	8 (16%)	22 (44%)	19 (38%)	4.16	0.841	High
Overall						4.16	0.829	High

(Source: Survey, 2022)

Table 4.6 represents the perceived behavioral control of Pahang fish farmer perception in halal products on animal. There have 7 items to be discusses in detail. The findings showed, majority of the respondents chooses strongly agree about “*In addition to Halal label shows on the fish feed, nutrition information becomes a interesting factor to the farmers*” (58%) followed by “*I know that Halal label fish feed can be purchased with affordable prices*” (56%). Respondents also strongly agree about “*If I want, I can obtain*



*the fish feed with Halal label*”, *“Halal labels on the fish feed products can ensure farmer trust upon the quality and safety of products towards to their fish farmer”* and *“Using technology in processing can improve the farmer perception of halal label fish feed”* (54%). Based on the findings, the respondents showed various about the perceived behavioral control of Pahang fish farmer perceptions in halal product on animal. Next, all the statement reported that there have high level of perceived behavioural control of Pahang fish farmer perception in halal products. Next, based on the mean, respondents agreed that *“ in addition to Halal label shows on the fish feed,nutrition information becomes an interesting factor to the farmers”* are the highest mean (Mean=4.52, SD=0.614). Meanwhile the lowest mean showed the respondents also agree about *“Use Halal label fish feed shows a sign of support towards to the government policies”* (M=4.32, SD=0.712). Hence, the overall mean the perceived behavioural control of Pahang fish farmer perceptions in halal products on animal are 4.442 and standard deviation is 0.534. These shown the respondents agree and high level perceived behavioral control of Pahang fish farmer perceptions in halal products on animal. It is in agreement with the finding reported by Hasan & Suciarto (2020), as perceived behavioural control contributes to food purchase intention among the consumers. The information stated in the nutrition facts becomes an interesting factor which leads to purchase intention among the consumers.

Table 4.6: Perceived behavioural control of Pahang fish farmer perception in halal products on animal

Statement	Strongly Disagree	Disagree	Average	Agree	Strongly Agree	Mean	Standard Deviation	Level
If I want, I can obtain the fish feed with Halal label.	0 (0%)	0 (0%)	5 (10%)	18 (36%)	27 (54%)	4.44	0.674	High
Fish feed Halal labels have a useful and interesting information and easy to understand.	0 (0%)	0 (0%)	3 (6%)	21 (42%)	26 (52%)	4.46	0.613	High
Halal labels on the fish feed products can ensure farmer trust upon the quality and safety of products towards to their fish farmer.	0 (0%)	0 (0%)	3 (6%)	20 (40%)	27 (54%)	4.48	0.614	High
I know that Halal label fish feed can be purchased with affordable prices.	0 (0%)	1 (2%)	5 (10%)	16 (32%)	28 (56%)	4.42	0.758	High
Use Halal label fish feed shows a sign of support towards to the government policies.	0 (0%)	0 (0%)	7 (14%)	20 (40%)	23 (46%)	4.32	0.712	High
In addition to Halal label shows on the fish feed, nutrition information becomes a interesting factor to the farmers.	0 (0%)	0 (0%)	3 (6%)	18 (36%)	29 (58%)	4.52	0.614	High
Using technology in processing can improve the farmer perception of Halal label fish feed.	0 (0%)	0 (0%)	4 (8%)	19 (38%)	27 (54%)	4.46	0.645	High
Overall						4.442	0.534	High

(Source: Survey, 2022)



**4.4 To investigate the relationship of attitude, subjective norm and perceived behaviour control towards perception of Halal products on animal feed among fish farmers in Pahang.**

**H<sub>0</sub>: There is no significant value between the relationship of attitude, subjective norms and perceived behaviour control towards perception of halal products animal feed among fish farmers in Pahang.**

**H<sub>1</sub>: There is a significant value between the relationship of attitude, subjective norms and perceived behaviour control towards perception of halal products animal feed among fish farmers in Pahang.**

In this study, the correlation coefficient is related the Spearman rho correlation to determine the strength of the relationship between variables. Regarding Table 4.7, the findings of the correlation between perception of halal product animal feed and attitude displayed ( $r=0.710$ ,  $p<0.05$ ) indicates is a strongly significant positive relationship between them. Hence the increase of the attitude then the perception of halal product animal feed also increases.

Next, the findings of the correlation between perception of halal product animal feed and subjective norms displayed ( $r=0.796$ ,  $p<0.05$ ) indicates that there is strongly significant positive relationship between them. Hence the increase of the subjective norms then the perception of halal product animal feed also increases.

Lastly, correlation between perception of Halal product animal feed and perceived behavioural control displayed ( $r=0.876$ ,  $p <0.05$ ) indicate that there is a strongly significant positive relationship between them. Hence the increase of the perceived

behavioural control then the perception of halal product animal feed also increases. The similar finding reported by Hasan & Suciarto (2020) as the perceived behavioural control has significant relationship towards purchase intention. Based on the situation, it can be claimed that perceived behavioural control correlated with purchase intention.

Table 4.7: The relationship of attitude, subjective norm and perceived behavior control towards perception of Halal products on animal feed among fish farmers in Pahang.

		Perception	Attitude	Subjective Norms	Perceived Behavioural Control	
Spearman's rho	Perception	Correlation Coefficient	1.000	.710**	.796**	.876**
		Sig. (2-tailed)		.000	.000	.000
		N	50	50	50	50
	Attitude	Correlation Coefficient	.710**	1.000	.783**	.634**
		Sig. (2-tailed)	.000		.000	.000
		N	50	50	50	50
	Subjective Norms	Correlation Coefficient	.796**	.783**	1.000	.829**
		Sig. (2-tailed)	.000	.000		.000
		N	50	50	50	50
	Perceived Behavioral Control	Correlation Coefficient	.876**	.634**	.829**	1.000
		Sig. (2-tailed)	.000	.000	.000	
		N	50	50	50	50

(Source: Survey, 2022)

**4.5 To identify the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang.**

Table 4.8 showed the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) for attitude are 0.878, subjective norms are 0.895 and perceived behaviour control are 0.851, where the values is 0.6 or above. Thus all the variables can be considered as significant and correlated between the items. Regarding to the result of Barlett’s test of Sphericity is highly significant at  $p < 0.05$  for the attitude, subjective norms and perceived behaviour control when  $p = 0.000$ . Pratiwi (2012) reported a similar finding as purchase intention towards halal products influenced by attitude, subjective norms and perceived behaviour control. All those factors are significant towards consumers’ perception towards Halal products.

Table 4.8: KMO and Bartlett’s Test

		Attitude	Subjective Norm	Perceived Behaviour Control
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.878	0.895	0.851
Bartlett’s Test of Sphericity	Approx. Chi-Square	381.868	353.092	201.468
	Df	36	28	21
	Sig.	.000	.000	.000

**4.4.1 Attitude towards perception in halal products on animal.**

Table 4.9 showed the factors loading of attitude towards perception in halal products on animal. Regarding to the result, item 1 and item 2 which is “*Halal label is very important*”

*to me as Pahang fish farmer” and “I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority”* showed the loading  $< 0.4$  indicates that they are not representative of the factor. Meanwhile other items such as *“Honestly is important for me in producing Halal label food products on animal feed”* (0.795), *“The recent purchasing trend among consumers lead me to realize the importance of Halal label product on animal feed”* (0.901), *“I am not afraid of acting as a leader in Halal label food products on animal feed”* (0.902), *“I am looking suitable method and technique to be success in Halal label food on animal feed”* (0.810) *“Halal labels are necessary for me before marketing the food product on animal feed”* (0.921), *“I will take the challenge on any issues pertaining Halal label food products on animal feed”* (0.923) and *“I am willing to adapt technology in areas related to Halal label food products on animal feed”* (0.944) showed the loading  $> 0.4$  indicates that they are representative of the factor. For attitude factors, the percentage of variance explained were 63.28%. Based on the finding reported, it can be seen that the respondents highly concern on halal label. It influenced their attitude towards halal products on animal. It is supported by Simbolon (2019) as halal label leads to purchase decision among customers to purchase Bakso Wagyu. Looking at the Halal label on the products, positively contributes to their purchasing intention.

Table 4.9: Factor analysis of attitude towards perception in halal products on animal

Statement	Factor Loading
Halal label is very important to me as Pahang fish farmer .	0.355
I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority .	0.176
Honestly is important for me in producing Halal label food products on animal feed.	0.795
The recent purchasing trend among consumers lead me to realize the importance of Halal label product on animal feed.	0.901
I am not afraid of acting as a leader in Halal label food products on animal feed.	0.920
I am looking suitable method and technique to be success in Halal label food on animal feed.	0.810
Halal labels are necessary for me before marketing the food product on animal feed.	0.921
I will take the challenge on any issues pertaining Halal label food products on animal feed.	0.923
I am willing to adapt technology in areas related to Halal label food products on animal feed .	0.944
Variance	63.28%

(Source, Survey 2022)

#### 4.4.2 Subjective norms towards perception in halal products on animal.

Table 4.10 showed the factors loading of subjective norms towards perception in halal products on animal. Regarding to the result, “*My partner fish farmers encourage me to possess Halal feed label in animal feed products*” (0.856), “*My society influence me in marketing food products for animal feed with Halal label*” (0.893), “*My friends would not approve my decision to sell animal feed products in market without Halal label*” (0.680), “*Government advertisement and promotion influence me to sell animal feed products with Halal label*” (0.925), “*Media information attract interest me to sell*

*animal feed products with Halal label at market” (0.887), “Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products” (0.918), “Expert in animal feed product industries motivate me and entertain me how to manage animal feed product with halal labels” and “Through technology adoption in animal feed Halal label products will enable me to obtain external loans” (0.757)”* showed the loading > 0.4 indicates that they are representative of the factor. For subjective norms factors, the percentage of variance explained were 72.57%. Similarly, Rachbini (2018) stated that subjective norms are one aspect that lead to Halal food purchasing behaviour among consumers in Jakarta. The consumers in Jakarta highly influence by advertisement which published in television as well as social media on halal food products.

Table 4.10: Factor analysis of subjective norms towards perception in halal products on animal

Statement	Factor Loading
My partner fish farmers encourage me to possess Halal feed label in animal feed products.	0.856
My society influence me in marketing food products for animal feed with Halal label.	0.893
My friends would not approve my decision to sell animal feed products in market without Halal label.	0.680
Government advertisement and promotion influence me to sell animal feed products with Halal label	0.925
Media information attract interest me to sell animal feed products with Halal label at market.	0.887
Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products.	0.918
Expert in animal feed product industries motivate me and entertain me how to manage animal feed product with halal labels.	0.869
Through technology adoption in animal feed Halal label products will enable me to obtain external loans.	0.757
Variance	72.57%

(Source: Survey, 2022)



#### 4.4.3 Perceived Behavioural Control towards perception in halal products on animal.

Table 4.11 showed the factors loading of perceived behavioral control towards perception in halal products on animal. Regarding to the result, *“If I want, I can obtain the fish feed with Halal label”* (0.814), *“Fish feed Halal labels have a useful and interesting information and easy to understand”* (0.755), *“Halal labels on the fish feed products can ensure farmer trust upon the quality and safety of products towards to their fish farmer”* (0.792), *“I know that Halal label fish feed can be purchased with affordable prices”* (0.848), *“Use Halal label fish feed shows a sign of support towards to the government policies”* (0.790), *“In addition to Halal label shows on the fish feed, nutrition information becomes a interesting factor to the farmers”* (0.789), *“Using technology in processing can improve the farmer perception of Halal label fish feed”* (0.856)” showed the loading > 0.4 indicates that they are representative of the factor. For perceived behavioral control factors, the percentage of variance explained were 65.13%. It is in agreement with the finding reported by Hasan & Suciarto (2020), as perceived behavioral control contributes to food purchase intention among the consumers. The information stated in the nutrition facts becomes an interesting factor which leads to purchase intention among the consumers.

Table 4.11: Factor analysis of perceived behavioural control towards perception in halal products on animal

	Factor Loading
If I want, I can obtain the fish feed with Halal label.	0.814
Fish feed Halal labels have a useful and interesting information and easy to understand.	0.755
Halal labels on the fish feed products can ensure farmer trust upon the quality and safety of products towards to their fish farmer.	0.792
I know that Halal label fish feed can be purchased with affordable prices.	0.848
Use Halal label fish feed shows a sign of support towards to the government policies.	0.790
In addition to Halal label shows on the fish feed, nutrition information becomes a interesting factor to the farmers.	0.789
Using technology in processing can improve the farmer perception of Halal label fish feed.	0.856
Variance	65.13%

(Source, Survey 2022)

#### 4.4.4 Variance Explained

This study used the percentage of variance explained to measure the total variance explained by factor. (Statistics Solution, 2018) stated that if the variance explained was greater than 30% was considered the minimum consideration level, if greater than 40% was the most important level and if greater than 50% was considered as practically significant. Hence, Table 4.8 indicates all the factors considered as practically significant factors for this study where the total variance for attitude factor was 63.28%, subjective norms are 72.57% for the subjective norm and the perceived behaviour control factors with 65.13%. Regarding to the total variance explained the highest significant are subjective norms with 72.57%. The finding reported that subjective norms is the influential factor towards purchase intention among the respondents. The similar finding



reported by Bashir et al., (2019) as the consumers in South Africa also claimed that subjective norm is the most influential factor affecting the consumer’s intention to purchase Halal Food.

Table 4.8: Result of variance explained

Factors	Variance
The Attitude towards perception in halal products on animal.	63.28%
The Subjective Norm towards perception in halal products on animal.	72.57%
The Perceived Behaviour Control towards perception in halal products on animal.	65.13%

(Source : Survey 2022)

**4.4.5 Confirmatory Factor Analysis**

The confirmatory Factor Analysis (CFA) used to identify the model fits of this study. The model explained the factors that perception of Halal Product on animal feed among fish farmers were attitude, subjective norm and perceived behaviour control. Figure 4.1 shows the model used in this study where the constructed variables were measured using a five-point likert scales and recorded above 0.6

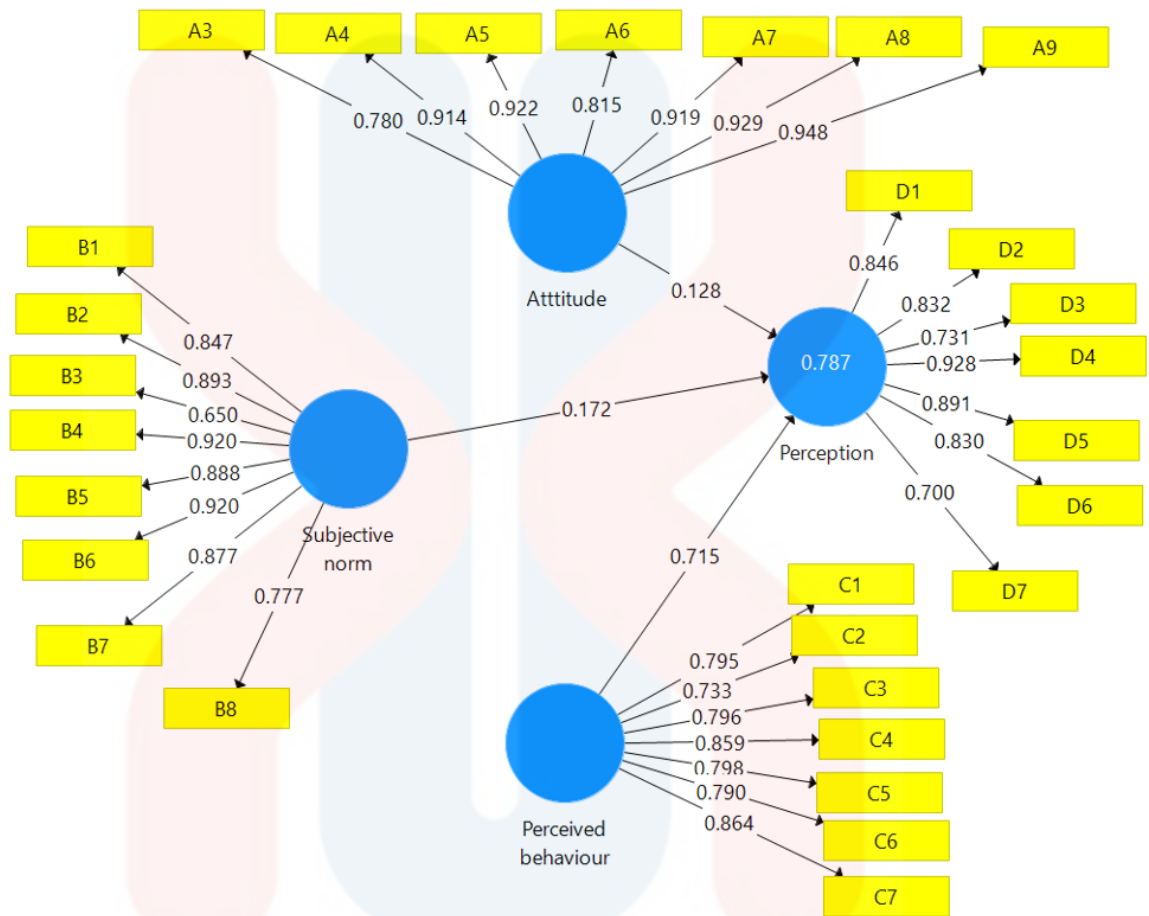


Figure 4.1: The model fits of Theory Planned Behaviour Model

Based on Table 4.9 shows the SRMR values for this study was 0.083. Hence this indicates that the value of SRMR as an acceptable model fits study. The standardized Root Means Square Residual (SRMR) value in the range of 0.08-.010 indicates an acceptable fit. Then the value of chi-square was

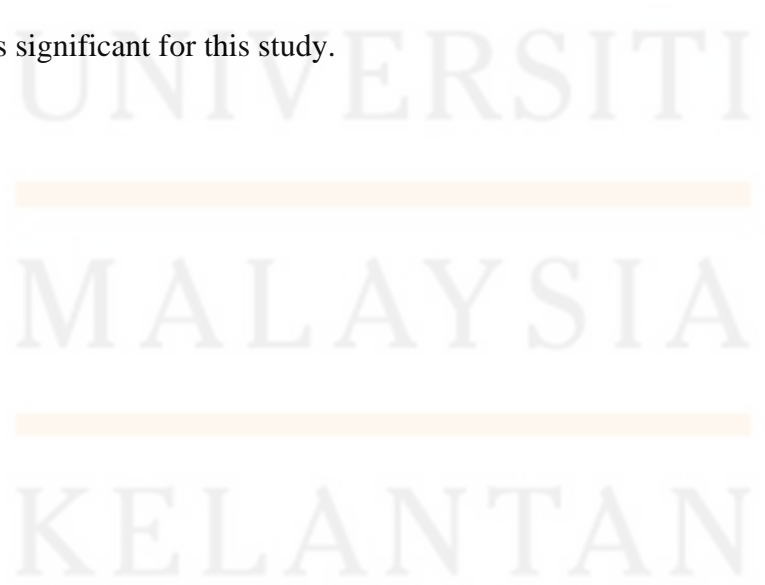
Table 4.9: Results of confirmatory factor analysis

	Saturated model	Estimated Model
SRMR	0.083	0.083
d ULS	2.998	2.998
d G	6.081	6.081
Chi-Square	901.785	901.785
NFI	0.595	0.595

(Source: Survey 2022)

### 4.5 Chapter Summary

In this chapter, the results of this study are determined by using the Theory of Planned Behaviour of the perception of Halal Product on animal feed among fish farmers in Pahang where attitude , subjective norms and perceived behaviours control as independent variables. The results shows that the perceived behaviour control is the most influential factor influencing perception of Halal Product on animal feed among fish farmers in Pahang where the percentage of variance is 65.13% while the most of the factor loading was significant for this study.



## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Conclusion

Based on the study conducted, there are three objectives identified to determine whether the study conducted can achieve the objectives. The objectives of the study are to determine the level of perception of Halal products on animal feed among fish farmers in Pahang, to investigate the relationship of attitude, subjective norm and perceived behavior control towards perception of Halal products on animal feed among fish farmers in Pahang and to identify the most influential factor of perception of Halal products on animal feed among fish farmers in Pahang. Referring to the finding obtained, it can be seen that all objectives are achievable.

The first objective is evaluating the level of perceptions among the respondents towards Halal products on animal feed. Based on the finding obtained, it can be seen that the level of perceptions among the respondents are high with overall mean 4.508. Majority of the respondents stated that applying technology can improve customer's buying interest towards Halal label. Halal label stated at the products gained positive perception among the respondents towards Halal products on animal feed. The

perceptions among the respondents evaluated in terms of attitude, subjective norms and perceived behavioural control. The respondents attitude makes sure the food products they choose have Halal label authorized by halal authority. In terms of subjective norm, the respondents stated that seminars/workshop and intellectual discourse open their minds to the importance of Halal label in animal feed products. The program conducted give the respondents exposure to the importance of Halal label. For perceived behavioural control, the respondents stated that nutritional information provided at the food products become an interesting factor to the farmers.

The second objective is about the investigation on the relationship of attitude, subjective norm and perceived behaviour control towards perception of Halal products on animal feed among fish farmers in Pahang. The finding reported that there is a significant relationship between attitude, subjective norm and perceived behaviour control towards perception of Halal products on animal feed among fish farmers. Null hypothesis ( $H_0$ ) was rejected as all the variables studied have significant relationship towards perception of Halal products on animal feed among fish farmers. The correlation between the variables evaluated using Spearman's rho.

The third objective for this present study is identifying the most influential factor of perception of Halal products on animal feed among fish farmers. Regarding to the result of Barlett's test of Sphericity is highly significant at  $p < 0.05$  for the attitude, subjective norms and perceived behavior control when  $p = 0.000$ . All the variables can be considered as significant and correlated between the items.

Overall, it can be seen that halal products become the main interest among the respondents which made up of fish farmers in Pahang. They focused on halal products for their animal feed. It is important as halal products obeys shariah rules and regulations. This present study could gain awareness among the respondents who are fish farmers on

the importance of Halal products on animals. At the same time, this present study provides information on the factors that influence respondents perception of halal products. The finding reported that all attitude, subjective norms and perceived behavioural control, influence respondents perception of halal products.

## **5.2 Limitation of study**

In conducting the research smoothly, the respondents faced several limitations. One of them is difficulty in collecting the respondents information regarding their perception of Halal products on animal feed among fish farmers. It is because, the particular study only focused on fish farmers in Pahang. At the same time, the evaluation on the respondents perception only focuses on attitude, subjective norms and perceived behavioural control. Besides that, due to COVID-19 outbreak, the respondents also had difficulty in collecting the data from the fish farmers. This situation happened when most of the respondents cannot attend to work due to the government's enforcement of Standard of Procedure (SOP) . Due to that, it become the constraint for them to gather the information.

### 5.3 Recommendations

In order to ensure the finding obtained more significant and has improved, there are several recommendations that be adopted that can become the reference for future researcher in conducting the research with a similar scope of the research. In line with that, it is recommended to involve the bigger scope of the respondents by not only focusing on fish farmers only. The research location can be expanded by not only restricting in Pahang. As a result, the sample size involved in the present study can be increased. In addition, it is suggested the research evaluate the other factors that influence which influence their perceptions towards halal products on animal feed. As the result, the finding obtained may be varied.



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MALAYSIA

KELANTAN

## APPENDICES

### APPENDIX A



Dear respondent,

I am doing an academic research entitled:

#### **Perception Of Halal Products On Animal Feed Among Fish Farmers In Pahang**

Congratulations, you have been selected as a respondent for this research. Your sincere cooperation is crucial in determining the success of this study. In this study, I would like to assess your perception concerning certain factors of your perception of Halal product on animal feed. Please read carefully all the instructions pertaining to every section and answer every question sincerely. There is no right or wrong answer.

All responses provided will be treated with strict confidential and will be used for this academic research only.

Thank you very much for your cooperation.

Sincerely,

.....  
Muhammad Ammar Thaqif Bin Rosli

Faculty of Agro Based Industry,

Universiti Malaysia Kelantan,

17600 Jeli, Kelantan

email: [ammar1ppum@gmail.com](mailto:ammar1ppum@gmail.com)

**SECTION A: ATTITUDE**

Each statement below represents attitude of Pahang fish farmer perception in halal products on animal.

In my opinion:		1	2	3	4	5
1	Halal label is very important to me as Pahang fish farmer . <i>Label Halal sangat penting bagi saya sebagai penternak ikan Pahang.</i>					
2	I make sure that my food products on animal feed use Halal label raw material that are admittedly by halal authority . <i>Saya memastikan bahawa produk makanan saya pada makanan haiwan menggunakan bahan mentah label Halal yang diakui oleh pihak berkuasa Halal.</i>					
3	Honestly is important for me in producing Halal label food products on animal feed. <i>Sejujurnya penting bagi saya dalam menghasilkan produk makanan label Halal pada makanan haiwan.</i>					
4	The recent purchasing trend among consumers lead me to realize the importance of Halal label product on animal feed. <i>Trend pembelian pengguna baru baru ini mendorong saya menyedari betapa pentingnya produk label Halal pada Makanan haiwan.</i>					
5	I am not afraid of acting as a leader in Halal label food products on animal feed. <i>Saya tidak takut bertindak sebagai peneraju produk makanan label Halal pada makanan haiwan.</i>					
6	I am looking suitable method and technique to be success in Halal label food on animal feed. <i>Saya mencari kaedah dan teknik yang sesuai untuk berjaya dalam Makanan label Halal pada makanan haiwan.</i>					
7	Halal labels are necessary for me before marketing the food product on animal feed. <i>Label Halal diperlukan untuk saya sebelum memasarkan produk makanan pada makanan haiwan.</i>					
8	I will take the challenge on any issues pertaining Halal label food products on animal feed. <i>Saya akan menyahut segala isu yang berkaitan dengan produk makanan label Halal pada makanan haiwan.</i>					
9	I am willing to adapt technology in areas related to Halal label food products on animal feed . <i>Saya bersedia menyesuaikan teknologi dalam bidang yang berkaitan dengan produk makanan label Halal pada makanan haiwan.</i>					



**SECTION B: SUBJECTIVE NORMS**

Each statement below represents subjective norms which Perception Of Halal product on animal feed among fish farmers in Pahang.

In my opinion:		1	2	3	4	5
1	My partner fish farmers encourage me to possess Halal feed label in animal feed products. <i>Rakan kongsi penternak ikan saya mendorong saya untuk memiliki label makanan Halal dalam produk makanan haiwan.</i>					
2	My society influence me in marketing food products for animal feed with Halal label. <i>Masyarakat saya mempengaruhi saya dalam memasarkan produk makanan untuk makanan haiwan dengan label Halal.</i>					
3	My friends would not approve my decision to sell animal feed products in market without Halal label <i>Rakan saya tidak akan bersetuju keputusan saya untuk menjual produk makanan haiwan di pasaran tanpa label Halal.</i>					
4	Government advertisement and promotion influence me to sell animal feed products with Halal label. <i>Iklan dan promosi kerajaan mempengaruhi saya untuk menjual produk makanan haiwan dengan label Halal.</i>					
5	Media information attract interest me to sell animal feed products with Halal label at market. <i>Maklumat media menarik minat saya untuk menjual produk makanan haiwan dengan label Halal di pasaran.</i>					
6	Seminars/workshop and intellectual discourse open my mind how important Halal label in animal feed products. <i>Seminar/bengkel dan wacana intelektual membuka minda saya betapa pentingnya label Halal dalam produk makanan haiwan.</i>					
7	Expert in animal feed product industries motivate me and entertain me how to manage animal feed product with halal labels. <i>Pakar dalam industri produk makanan haiwan memotivasi saya dan menghiburkan saya bagaimana menguruskan produk makanan haiwan dengan label Halal.</i>					
8	Through technology adoption in animal feed Halal label products will enable me to obtain external loans. <i>Melalui penggunaan teknologi dalam produk label Halal makanan haiwan akan membolehkan saya mendapatkan pinjaman luar.</i>					



## SECTION C: PERCEIVED BEHAVIOURAL CONTROL

Each statement below represents the ability of Pahang fish farmer in halal fish feed.

Setiap pernyataan di bawah mewakili keupayaan Petani ikan dalam produk makanan halal.

In my opinion:	1	2	3	4	5
1 If I want, I can obtain the fish feed with Halal label. <i>Jika saya mahu, saya boleh mendapatkan makanan ikan dengan label Halal.</i>					
2 Fish feed Halal labels have a useful and interesting information and easy to understand. <i>Label Halal makanan ikan mempunyai maklumat yang berguna dan menarik serta senang difahami.</i>					
3 Halal labels on the fish feed products can ensure farmer trust upon the quality and safety of products towards to their fish farmer. <i>Label Halal pada produk makanan ikan dapat memastikan kepercayaan petani terhadap kualiti dan keselamatan produk penternak ikan mereka</i>					
4 I know that Halal label fish feed can be purchased with affordable prices. <i>Saya tahu bahawa makanan ikan label Halal boleh dibeli dengan harga yang berpatutan.</i>					
5 Use Halal label fish feed shows a sign of support towards to the government policies. <i>Menggunakan makanan ikan label Halal menunjukkan tanda sokongan terhadap dasar kerajaan.</i>					
6 In addition to Halal label shows on the fish feed, nutrition information becomes a interesting factor to the farmers. <i>Selain penambahan label Halal pada makanan ikan, maklumat pemakanan menjadi factor menarik kepada petani.</i>					
7 Using technology in processing can improve the farmer perception of Halal label fish feed. <i>Menggunakan teknologi dalam pemrosesan dapat meningkatkan persepsi petani terhadap makanan label Halal ikan.</i>					



**SECTION D: PERCEPTION**

Each statement below represents Pahang fish farmers’ participation in Halal products on animal feed.

*Setiap pernyataan di bawah menunjukkan persepsi petani ikan Pahang dalam produk Halal pada makanan haiwan.*

In my opinion/ <i>Pada pandangan saya:</i>	1	2	3	4	5
1. I think that my perception on Halal label products on animal feed can increase my sales domestically and internationally.  <i>Saya berpendapat bahawa persepsi saya terhadap produk label Halal pada makanan haiwan dapat meningkatkan penjualan saya di dalam dan luar negara.</i>					
2. My perception on Halal label products on animal feed can educate and increase consumer awareness on halal food product. <i>Persepsi saya didalam produk label Halal pada makanan haiwan dapat mendidik dan meningkatkan kesedaran pengguna mengenai produk makanan halal.</i>					
3. I think perception in Halal label products on animal feed can improve customers’ trusts. <i>Saya rasa mengambil persepsi dalam produk label Halal pada makanan haiwan dapat meningkatkan kepercayaan pelanggan.</i>					
4. I will put all my effort to get Halal label food certification for my product. <i>Saya akan berusaha sedaya-upaya untuk mendapatkan sijil makanan label Halal untuk produk saya.</i>					
5. Increasing of population of Muslim motivate me to produce Halal label product on animal feed. <i>Peningkatan populasi Muslim mendorong saya untuk menghasilkan produk label Halal pada makanan haiwan.</i>					
6. Acceptance and awareness of halal products other than Muslim people prompted me to produce Halal label products in animal feed. <i>Penerimaan dan kesedaran mengenai produk halal selain daripada orang Muslim mendorong saya untuk menghasilkan produk label Halal dalam makanan haiwan.</i>					
7. I think my perception in applying technology can improve customer’s buying interest towards Halal label products on animal feed. <i>Saya rasa persepsi saya dalam mengaplikasikan teknologi dapat meningkatkan minat membeli pelanggan terhadap produk label Halal pada makanan haiwan.</i>					

**SECTION E: DEMOGRAPHIC INFORMATION OF FISH FARMERS IN PAHANG**

Please tick (/) in the appropriated box to indicate your answer.

1.	Gender/ <i>Jantina</i>	<input type="checkbox"/> Male/ <i>Lelaki</i> <input type="checkbox"/> Female/ <i>Perempuan</i>
2.	Age/ <i>Umur</i>	_____ years old/ <i>tahun</i>
3.	Marital Status/ <i>Status Perkahwinan</i>	<input type="checkbox"/> Married/ <i>Sudah berkahwin</i> <input type="checkbox"/> Widowed/ <i>Bercerai</i> <input type="checkbox"/> Single/ <i>Bujang</i>
4.	Education Level/ <i>Tahap Pelajaran</i>	<input type="checkbox"/> Not going to school/ <i>Tidak bersekolah</i> <input type="checkbox"/> UPSR <input type="checkbox"/> SRP/PMR <input type="checkbox"/> SPM <input type="checkbox"/> Kem Skill or Technical Certificate/ <i>Kem Kemahiran atau Sijil Teknikal</i> <input type="checkbox"/> STPM/STAM <input type="checkbox"/> Diploma <input type="checkbox"/> Degree/Master/PhD
5.	Courses/ <i>Kursus</i> (SPM/Sijil/Diploma/Degree)	<input type="checkbox"/> Literature/ <i>Sastera</i> <input type="checkbox"/> Science/ <i>Sains</i> <input type="checkbox"/> Vocational/ <i>Vokasional</i>

		<input type="checkbox"/> Agriculture Science/ <i>Sains Pertanian</i> <input type="checkbox"/> Entrepreneurs/ <i>Keusahawanan</i> <input type="checkbox"/> Others, please state/ <i>Lain-lain, sila nyatakan:_____</i>
6.	Estimation of annual income of company/ <i>Anggaran pendapatan tahunan syarikat</i>	<input type="checkbox"/> < 250,000 <input type="checkbox"/> 260,000 – 1,000,000 <input type="checkbox"/> 1,000,000 – 3,000,000 <input type="checkbox"/> 3,000,000 – 5,000,000 <input type="checkbox"/> > 5,000,000
7.	Area/state in Pahang <i>Daerah di Pahang</i>	<input type="checkbox"/> Rompin <input type="checkbox"/> Pekan <input type="checkbox"/> Bera <input type="checkbox"/> Maran <input type="checkbox"/> Kuantan <input type="checkbox"/> Temerloh <input type="checkbox"/> Bentong <input type="checkbox"/> Raub <input type="checkbox"/> Jerantut <input type="checkbox"/> Lipis <input type="checkbox"/> Cameron Highlands
8.	Perception of halal products on animal feed/ <i>Persepsi produk halal terhadap makanan haiwan</i>	<input type="checkbox"/> Necessary/ <i>Perlu</i> <input type="checkbox"/> Unnecessary/ <i>Tidak perlu</i>

Instruction: For statement on SECTION A, B, C, D and E please read for each item and indicate your answer between one (1) to five (5). Your score (1) would indicate you strongly disagree with the statement and score (5) would indicate you strongly agree with respective statement.

Strongly disagree	Disagree	Average	Agree	Strongly agree
1	2	3	4	5