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Perceptions and Attitudes Towards Farm Animal Welfare and Willingness to Pay for Welfare Friendly Meat Products among Students in Universiti Malaysia Kelantan

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F15A0086

A report submitted in fulfilment of the requirements for the degree of Bachelor Applied Science (Agrotechnology) with Honour

Faculty of Agro Based Industry

Universiti Malaysia Kelantan

2019

DECLARATION

I declare this work is my own work except the excerpt and summary each of which I have explained the source.

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Matric No.   :

Date   :

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Supervisor's signature

Supervisor's name   :

Cop   :

Date   :

ACKNOWLEDGEMENT

All praises to Allah, without His will this project never will be possible to finish in time. By His will also, I have met godsend individuals, lighten my journey and making this project possible. I am forever thankful to my colleagues for their unconditional support to me in finishing this project.

I give my warmest gratitude to my parents, Mohd Rosdi bin Halim and Norazleena binti Jusoh, and not forget my siblings for their moral and financial support to me in finishing this project.

For the final special individual, willing to spend most of his priceless time and effort for me, I owe my highest gratitude to Mr. Mohd bin Mahmud @ Mansor, my supervisor for this project. Without his enthusiasm, encouragement, support and continuous optimism, it will be a pipe of dream for me to finish this project.

Perceptions and Attitudes Towards Farm Animal

Welfare and Willingness to Pay for Welfare Friendly Meat Products

ABSTRACT

Malaysians consumed 46.5 kg poultry, 6 kg pork, 4.8 kg beef and 1 kg sheep with per capita in 2017. As the standard of living and education level of consumers increased, so does the concerns and awareness about farm animal welfare which have led to an increase in the availability of welfare friendly meat products (WFP) in the market, but little is known about how much more they are willing to pay (WTP) for WFP or about their buying trends specifically in Malaysia. The objectives of this study are to identify the perceptions and attitudes of consumers in Universiti Malaysia Kelantan towards farm animal welfare as well as to compare consumers' attitude towards farm animal welfare between different types of gender, faculty and religion. This study also focused on level of knowledge of consumers towards welfare friendly product (WFP) and consumers' willingness to pay (WTP) more for animal friendly products. Purposive sampling has been used in this survey with 60 students were chosen as respondents, but only 57 questionnaires accepted for this study as the other 3 were considered unusable, thus rejected. This research found that consumers in Malaysia have an overwhelmingly (86%) positive attitude towards WFP, even outdone other European countries such as Latvia and Spain, even though they have relatively low knowledge about the real situation of farm animal welfare in the country. In regard to WTP, 10.5% of the consumers are ready to chip more than 10% of original price to purchase WFP. The respondents also show very positive empathy not only on animal welfare but also farmers who are willing to invest more in ensuring animal welfare on their establishment. Since the number of respondents are quite small, it is suggested that future research should widen the sampling frame to cover more Malaysian in heterogeneous demographic.

Keywords: Animal welfare, Willingness to pay, Welfare friendly product, Student

Persepsi dan Sikap terhadap Kebajikan Haiwan Ladang dan Kesediaan untuk Membiayai Produk Daging Mesra Kebajikan

ABSTRAK

Rakyat Malaysia mengambil 46.5 kg daging ayam, 6 kg daging khinzir, 4.8 kg daging lembu dan 1 kg biri- biri kapita pada tahun 2017. Selaras dengan peningkatan taraf hidup dan tahap pendidikan pengguna, perhatian dan kesedaran terhadap kebajikan haiwan ternakan turut meningkat. Ini seterusnya menyebabkan pertambahan produk daging mesra kebajikan (WFP) di pasaran, tetapi tidak banyak yang diketahui tentang kesediaan untuk membiayai (WTP) para pengguna terhadap produk WFP atau mengenai trend pembelian mereka khususnya di Malaysia. Objektif kajian ini adalah untuk mengenal pasti persepsi dan sikap pengguna di Universiti Malaysia Kelantan terhadap kebajikan haiwan ladang serta membandingkan sikap pengguna terhadap kebajikan haiwan ladang di antara jenis jantina, fakulti dan agama. Kajian ini juga memberi tumpuan kepada tahap pengetahuan pengguna terhadap produk mesra kebajikan (WFP) dan kesediaan untuk membiayai (WTP) lebih banyak untuk produk mesra haiwan. Pensampelan purposif telah digunakan dalam kajian ini dengan 60 pelajar dipilih sebagai responden, tetapi hanya 57 soal selidik yang diterima untuk kajian ini kerana 3 yang lain dianggap tidak dapat digunakan, sehingga ditolak. Kajian ini mendapati bahawa pengguna di Malaysia mempunyai sikap yang sangat positif (86%) terhadap WFP, malah melebihi negara-negara Eropah lain seperti Latvia dan Sepanyol, meskipun mereka mempunyai pengetahuan yang agak rendah mengenai keadaan sebenar kebajikan haiwan ladang di Malaysia. Berkenaan WTP pula, 10.5% pengguna bersedia untuk membayar lebih 10% daripada harga asal untuk mendapatkan WFP. Para responden juga menunjukkan empati positif yang tinggi bukan sahaja terhadap kebajikan haiwan tetapi juga terhadap pengusana yang sanggup melabur lebih untuk menjaga kebajikan haiwan di ladang mereka. Memandangkan jumlah respondens kajian ini agak kecil, maka dicadangkan agar penyelidikan yang akan datang untuk meluaskan lagi kerangka persampelan agar merangkumi latar belakang demografik yang lebih heterogen.

Kata kunci: Kebajikan haiwan, Kesediaan untuk membiayai, Produk mesra kebajikan, Pelajar

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LIST OF ABBREVIATION AND SYMBOLS

#	**Number**
%	**Percent**
ANOVA	**Analysis of variance**
EU	**European Union**
MEVA	**Malaysia Equine Veterinary Malaysia**
MNAWF	**Malaysian National Animal Welfare Foundation**
NGO	**Non-Governmental Organization**
PAWS	**PAWS Animal Welfare Society**
SAPAM	**Small Animal Practitioners Association**
SPAC	**Society for the Prevention of Animal Cruelty**
SPSS	**Statistical Package for the Social Sciences**
VAM	**Veterinary Association Malaysia**
WFP	**Welfare-Friendly Product**
WTP	**Willingness to Pay**

CHAPTER 1

INTRODUCTION

1.1 Research Background

Since human evolution possible, human-animal relationships also undergoes some kind of evolution too as we already live with them, made use of the since ancient time (Phillips, 2009). Human dependency on animals has encourage the evolution of human–animal relationship (Phillips & Kluss, 2018).

Since animal production become more intense, our public concern on animal welfare too has and the message has been delivered vehemently since decades ago, with public awareness on this matter have been magnify by times, by eras. Promotions for public awareness on how the animals also have their own rights, portrays on how humans gain more on them (Francione, 2008).

Animal welfare can be defined as an physical and spiritual state of animal in which it lives and dies as it involves animals maintained in good condition, while proper animal welfare involves animal health and disease prevention measure, adequate shelter, proper management, suitable nutrition, human treatment as well as compassionate address if it will be killed for food (OIE, 2018a). Products which produced from this kind of animal which have been given proper treatment and welfare were called as welfare-friendly

products (WFP) (Miranda-de la Lama et al., 2017). Miranda-de la Lama et al., (2017) further explains that normally price for WFP can be slightly expensive, between one to two and a half times more expensive compared to regular products and were marketed for welfare-conscious consumers which believe they pay more for animal welfare improvement and promote awareness on society.

The human–animal relationship once again evolved, in a good way, from being exploited to become friends and, in more recent times, more rights will be promoted for them, indicates further evolution of our relationship with them, really worth to look forward in the future (Phillips & Kluss, 2018).

Consumer purchasing decision is not a simple process. They involve several psychological steps, such as the understanding of needs, the assortment of information to respond to the needs before developing strategies to serve the needs, and the decision to buy and even exhibit post-buy behaviour (Basha, Mason, Shamsudin, Hussain, & Salem, 2015). However, the attitude of consumers towards food products is relatively stable and may not change much, as human beings are forever creatures of habit. (Gómez-Corona, Escalona-Buendía, García, Chollet, & Valentin, 2016) but that does not means it will never change (Grewal, Mehta, & Kardes, 2000). Habit can die, attitude can change over time, new preference can arise, in this case toward WFP.

To explore these changes among consumer, it is crucial to understand it from academic point of view. Research about consumers perception and attitude toward WFP and their WTP has been conducted in major economic countries, but the same cannot be said about emerging economies, Malaysia for example. The objectives of this study are i) to identify the perceptions and attitudes of consumers towards farm animal welfare, ii) to compare consumers' attitude towards farm animal welfare between different types of gender, faculty and religion, iii) to describe level of knowledge of consumers on welfare friendly product (WFP) and iv) to assess whether consumers are willing to pay (WTP) more for animal friendly products to improve animal welfare. These objectives have been achieved by conducting research survey on consumers in selected location, Universiti Malaysia Kelantan (Jeli Campus) with 60 respondents

1.2 Problem Statement

Public concern on animal welfare has contributed to the increase demand on welfare-friendly-products (WFP), but not much known about consumers' willingness to pay (WTP) for WFP or about their shopping habit specifically on growing economic countries (Miranda-de la Lama et al., 2017). A lot of survey-based research on consumer perceptions and attitudes to farm animal welfare have been carried out for the past several years but only limited to United States (Wolf, Tonsor, McKendree, Thomson, & Swanson, 2016), or in Canada (Bejaei, Wiseman, & Cheng, 2011) and also Europe (Frewer, Kole, van de Kroon, & de Lauwere, 2005). For WTP survey, there are already existed researches conducted in Malaysia but on other topic such as green food (Rezai, Kit Teng, Mohamed, & Shamsudin, 2013), not on animal welfare.

1.3 Research Objectives

This study is conducted:

1) to identify the perceptions and attitudes of consumers towards farm animal welfare.

2) to compare consumers' attitude towards farm animal welfare between different types of gender, faculty and religion.

3) to describe level of knowledge of consumers on welfare friendly product (WFP)

4) to assess whether consumers are willing to pay (WTP) more for animal friendly products to improve animal welfare.

1.4 Research Questions

1) What are the perceptions and attitudes of consumers towards farm animal welfare?

2) Are there any significant different of consumers' attitude towards farm animal welfare between different type of genders, faculties and religions?

3) What is the level of knowledge of consumers on welfare friendly product (WFP)?

4) Are consumers willing to pay more for animal friendly products?

1.5 Scope of Study

The scope of this study is restricted to Malaysian context. Most of the respondents are students. This study does not limit or specified type of animal but perceived in general.

1.6 Significance of Study

The importance of this study stems from many factors. First, animal husbandry and aquaculture industry in Malaysia is big. For example, the country produced beef worth of RM 169 million in 2017. Second, the living standard increasing, the number of consumers preferring meat is also increasing. Thirdly, most of Malaysians are becoming more concerns about what they consume as education level is increasing. Therefore, more data is needed on this field of animal welfare among consumers in Malaysia. WFP manufacturer may also benefit as this study provided the WTP level data of selected consumers (students) in Malaysia which they can use those data to plan their marketing strategy.

1.7 Limitation of Study

This study cannot be conducted on larger scale of population, due to lack of time, manpower and other resources. Hence, conclusion made from this this study are not representative to Malaysia. It is recommended for this study to be conducted with a larger sample to avoid homogeneity of data collected.

CHAPTER 2

LITERATURE REVIEW

2.1 Animal Welfare

The term "welfare" is derived from an Old Norse word, *velferth*, meaning good travel. (Phillips, 2009). Researchers have discussed whether animal welfare pertains to the capability of an animal to survive in the environment. (Broom, 1986) or more specific which about its emotions (Fraser, Weary, Pajor, & Milligan, 1997; Mason & Veasey, 2010). Blokhuis, Keeling, Gavinelli, & Serratosa (2008) stated that the animal welfare is acknowledged as an integral element for the quality assurance of meat-lovers consumers. Another conflicting value with respect to animal products shows that people are likely to demote quality aspects of animal welfare even want to promote on legislation, while capitalizing on cost and experience, with they believed the quality are the looks and flavour of the meat (Schröder & McEachern, 2004). Davidson, Schröder, & Bower (2003) stated that animal welfare can be criteria for choosing quality meat, which rates based on looks and price. People who consume animal products have their own dilemma, the guilt but some consumers can deal with it (Schröder & McEachern, 2004).

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2.2 Animal Welfare in Malaysia

The issue of animal welfare and, in particular, animal mistreatment or abuse is often spotlighted in Malaysia and draws press coverage and lot of organization, such as government agencies, Nongovernmental organizations and colleges across the country, to handle animal welfare activities. (OIE, 2018b). Cruelty and abuse of animal deeds will be punished through Animals Act 1953 (Act 647) and for legal hunting, will be handled by Wildlife Conservation Act 2010 (Act 716). As an effort to achieved developed nation status, Malaysia, like other developed country engaged in the National Animal Welfare Strategic Plan, wants to cultivate a culture of compassion and sympathy for animal among citizens, whose the main vision is to have Malaysia as a developed country with a tolerant society involved animal welfare (OIE, 2018b). Law enforcement on animal abuse acts will increase the citizens' awareness on this issues and how serious the government want to tackle this wrongdoing.(Expat Focus Website, 2018) reported Malaysia embraces and cherishes animals where dogs and cats are the most common pets in Malaysia and almost all Malaysians love cats. The animals have been routinely examined by licensed veterinary physicians throughout the country, and under the Animal Act of 1953, Disease monitoring for homeless animals has been conducted intensively in Malaysia, thus national veterinary association with registered name Veterinary Association Malaysia (VAM) has been founded for this cause.

Animal welfare was initially promoted by Non- governmental animal welfare organizations, namely the Society for the Prevention of Animal Cruelty (SPAC) and the PAWS Animal Welfare Society (PAWS), which focused solely on helping homeless animals and tackling animal cruelty publicly.

2.3 Meat Consumption in Malaysia

Malaysian consumed 46.5 kg, 6 kg pork, 4.8 kg beef with 1.15 kg per capita in 2017 (OECD, 2018). One unique characteristic about Malaysians' diet is they are consuming more meats than staple and grain foods (Personal, Archive, & Sciences, 2007). Meat consumption became more and more vital in Malaysians' diet which primarily contributed from government subsidies and ceiling price control that have decreased the price of poultry (Personal et al., 2007) as well as other meat product which included welfare friendly product as an option.

2.4 Effect of Transport Towards Animal Welfare and Meat Quality

Livestock transport in North America has drawn interest from society, animal welfare agencies, politicians and policymakers mainly due to its known negative influence on living animals and meat quality (Blokhuis et al., 2008). The World Organization for Animal Health (OIE) has acknowledged the importance of promoting good animal welfare during transport and that transport is one of the most influential factors for meat quality and should not make lightly of it. (Broom, 2005).

Based on study by Warriss, Brown, Edwards, & Knowles (1998) which stated that short transport pigs (15 minutes) showed a more intense stress response and poorer quality of meat than moderately long transport pigs (3 hours) when butchered upon arrival in the slaughterhouse, which can be concluded as the long transport may have allowed animals to adapt to the environments of transport and would then act like a rest

and adaption time This shows transport can affect animal welfare and meat quality even though the animal can adapt to the situation at certain point.

2.5 Religion Perspective on Animal Welfare

Slaughtering refers to the killing and bleeding out of animals purposely for food (Agbeniga & Webb, 2012). Farouk (2013) stated religious slaughter defined as methods applied to obtain the meat that considered appropriate before meat is deemed consumable by the followers of the respective faiths. Muslims and Jews have their own religious slaughtering practice which are halal and kosher practices respectively that actually possessed a lot of similarities in term of principles and practice between and one of the similarities is to avoid unnecessary pain to animals before, during and after slaughtering (Pozzi, Geraisy, Barakeh, & Azaran, 2015). In the European Union nations, religious slaughtering is legally conducted in certified abattoirs by approved slaughterers of Islamic and Abrahamic religions, where animals must be stunned to trigger immediate reduction of consciousness until death is done by bleeding, and it has been reported that animals can be freely and openly slaughtered by using the designated techniques laid down in EU legislation, even if this is the case, there are proper controls made for the purpose of slaughtering animals for food on religious purposes ("Directive 93/119/EC on the protection of animals at the time of slaughter or killing," 1993). Source from "Directive 93/119/EC on the protection of animals at the time of slaughter or killing,"(1993) also mentioned that stunning, even legalized needs to be performed specifically when it comes to religions, which for jew people, Jewish method must be used, needs to be conducted by a Jew who must be licensed by the authority and duly licensed by the Rabbinical Commission, and for Muslim people, needs to obey Muslim method, the slaughterer must

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be Muslim, licensed by an appropriate, recognized, religious and halal food authorities. Religious slaughter are prohibited from stunning, in some European union countries. Velarde et al., 2014; Velde, Aarts, & Woerkum (2002) has discovered in their study of religious slaughter, which is necessary for Jewish and Muslim communities, animals that will be consumed as food must be alive and then religious slaughtering will be performed which Islamic authorities have approved stunning method, as long as it does not wrongly kill animals based on their faith.

2.6 Consumers' Perception

In psychology, perception can be defined as the acknowledgement and observation of visual and non- visual information, which includes a person reaction to the information, how he or she takes those information from his or her surrounding and uses it to interact with said surrounding (Williams, 2018). Whereas in business context, consumers' perception comprises of opinion, acknowledgement and understanding of a brand or company or its product lines that are affected by articles, social networks, marketing, media relations, personal beliefs and many other outlets (BusinessDictionary.com, 2018b). In term of animal welfare, Velde, Aarts, & Woerkum (2002) stated that consumers' perception varied from differences in habitat, cultural backgrounds, amount and nature of encounters with farming, especially in the clarity of the account that people give of the way animals in intensive animal husbandry are treated. Public perceptions of animal health are an essential element of an animal welfare, serving as a crucial catalyst of European consumers' consumption behaviours (European Commission, 2007). Consumers had a negative view of the lives of meat animals which

farmed animals embodied a momentary and miserable life, deficient space, sunlight and freedom and adhered to the views alluded around by farmers (Velde et al., 2002).

More specific standards have been discussed for specific farm animals, for example, pigs should be able to root and chickens should be able to grub and the vagueness of the standards developed by consumers can be attributed to a lack of concrete knowledge of the real situations on how those animal should live (Velde et al., 2002). Some studies also discovered that for consumers, animal welfare consumers considered animal welfare not important more than other aspect animal feeding, origin (Olaizola, Corcoran, & Bernue, 2003), appearance and price (Davidson et al., 2003)

2.7 Consumers' Attitude

In psychology, the attitude defined as a urge to assess situation and object or subject in specific manner (Cherry, 2018). In business context, attitude means an inclination to respond positively or negatively to some idea, object, person or situation (BusinessDictionary.com, 2018a). The attitudes of consumers involved the realization of their desire to buy, to meet these desires and find ways to meet them, deduce and analyse information, intent to buy and devise an action, render spending decisions and demonstrate post- buy actions (Basha et al., 2015). Eating habits will hardly to change, as consumers are creatures of habit. (Gómez-Corona et al., 2016). Furthermore, food purchasing habit can evolve as there is new trend started such as animal welfare-friendly products (Miranda-de la Lama, Sepulveda, Villarroel, & Maria, 2013). McCarthy, De Boer, O'Reilly, & Cotter (2003) stated that animal welfare alone would not affect attitude towards meat and its production in Ireland. It is suggested by Connors, Bisogni, Sobal, &

Devine (2001) consumers' attitude towards some specific issue is possible to changed and manipulated. In animal research laboratories, the attitude and behaviour of people towards animals can be greatly affected by the environment in which they work (Arluke, 1988).

2.8 Willingness to Pay

The willingness to pay (WTP) is an person's measure of the value of products or services (Hanley, Wright, MacMillan, & Philip, 2001) and also defined as the how much consumers is willing to give up their money for some desired object or subject or to avoid unwanted features (Breidert, Hahsler, & Reutterer, 2006; Hanley et al., 2001). WTP surveys have attempted to measure genuine concerns about the welfare of farmed animals (Lagerkvist & Hess, 2011) some are conducted for business purposes (European Commission, 2007). In Scotland, (Schröder & McEachern, 2004) also concluded that consumers refuse to buy meat products manufactured in rigorous systems so if the quality of meat is harmed by those mistreatment toward farmed animal, but only a small proportion of customers willing to pay so much for meats even they have been categorized as animal welfare product.

2.9 Animal Welfare Education

Education is an experience of learning which leads to an inherent and long-lasting change in term of thinking and ability of a person to do things which different people have a different concept of education, some perceived it for qualification and achievement.(ACS Distance Education Website, 2018) while animal welfare education involved experience and knowledge, understanding, skills, values and attitudes related to proper human involvement in animal life which includes the human responsibilities toward them (worldanimal.net, 2017). Mench (2008) stated that animal welfare education can give positive changes in the treatment of animals at the hands of humans but never brings permanent on human attitudes if the educational process is carried out in a haphazard way. In United State, there have been many undergraduate studies involving animal welfare (Mench, 2008).

Not just the public needed to be educate on Animal welfare, the professionals, veterinary physician or vets also need to be exposed with animal welfare education. In Malaysia, a national veterinary association also called Veterinary Association Malaysia (VAM) along with Malaysian Equine Veterinary Association (MEVA) and also Small Animal Practitioners Association of Malaysia (SAPAM) to provide education for veterinarians (Sivagurunathan, 2003).

CHAPTER 3

METHODOLOGY

3.1 Research Design

This study aims to assess the perceptions and attitudes of consumers towards farm animal welfare products (WFP) and discern whether consumers are willing to pay (WTP) more for products to improve animal welfare have been distributed, specifically among students in Universiti Malaysia Kelantan (Jeli Campus) as targeted respondents. Questionnaires have been distributed and data will be collected, then inserted and ran with using SPSS software.

3.2 Population and Sample

The population of students in Universiti Malaysia Kelantan for Jeli Campus, is estimated around 1372 individuals based on first intake of freshman-year students for 2017/2018 session (Universiti Malaysia Kelantan, 2017), 343 students multiply with 4 (there are 4 batches of student comprise of freshman-year student until senior-year student). Based on Rule of Thumb proposed by Wilson Van Voorhis & Morgan (2007), the appropriate sampling which is statistical analysis with less than ten samples is not

recommended and should be between 30 to 500 respondents. Purposive sampling has been used in this survey with 60 students were chosen as respondents, but only 57 questionnaires accepted for this study as the other 3 were considered unusable, thus rejected. Purposive sampling represents a group of different non- probability sampling techniques based on the researcher's judgment when selecting the units (people, cases / organizations, events, data pieces) to be studied (Laerd Dissertation, 2012). Normally, the sample being investigated is quite small, compared to probability sampling techniques and the main objective of purposive sampling is to focus on certain characteristics of a population of interest, which will best enable researchers to answer their research questions (Laerd Dissertation, 2012).

3.3 Instrumentation

The questionnaire is adopted from Miranda-de la Lama et al (2017) study with minor modification to match our demographic. Based on Miranda-de la Lama et al., (2017) study, the questionnaire has good internal reliability, with a Cronbach's alpha value of 0.66. There are two sections in the questionnaire.

The first section, Section A, includes questions involving socio-demographic of respondent which are age, gender, religion and faculty they are from, drawn based on suitability for targeted consumers, the students.

For section B, the questionnaire was drawn up following a Likert-type scale animal welfare attitude assessment model (Mazas, Fernández Manzanal, Zarza, & María, 2013). This section separated for six parts which are Part B-1, Part B-2, Part B-3, Part B-4, Part B-5 and Part B-6. Part B-1 asked about attitudes towards the importance of farmed

animal welfare (using a 10-point scale; 0 -not important- to 10 -very important). In that part, respondents were also asked about their perceptions regarding 1) whether children should be educated about animal welfare in schools, and 2) whether new animal welfare laws are needed to prevent abuse in the treatment of farm animals. This was done using the statement "*Do you think that...*" and measured based on an ordinal scale with five points, where, '1 = Surely not', '2 = Probably not', '3 = It does not matter to me', '4 = Probably yes', and '5 = Definitely yes'. This five Likert-scale is labelled as *S1* for the rest of this thesis.

In part B-2, the consumers were asked about their thoughts on their level of knowledge about farm animal welfare. They were presented with the statement '*What is your level of knowledge about the living conditions of farm animals?*', on a five-point scale, with response categories '1 = None', '2 = Low', '3 = Medium, '4 = High', and '5 = Very High'. In the same part, the participants were asked about their perception about five aspects relative to animal welfare, based on a literature review about pain, emotions and fear (Mazas et al., 2013). The five sections questioned, "*Do you think that livestock…*": i) "*should be well fed, sheltered and healthy?*" ii) "*should be able to express behaviours that are natural for their species*", iii) "*should be free of fear and stress*", iv) "*feel pain?*" v) "*are able to feel emotions?*". As in the first section, five points ordinal scale, *S1* has been used.

Part B-3 focused on the need for information about farm animal welfare, using the statement '*Do you think that...*' and measured on a five-points ordinal scale (*S1*) as described above. Part B-4 regarded general perception about current animal welfare conditions in Malaysia. The participants were presented with the statement "*Do you think, in general, that the living conditions of farm animals has improved in Malaysia in the last 10 years?*" and asked to indicate the level of improvement on a five-point scale, with

response categories '1 = Have gotten much worse', '2 = Have gotten somewhat worse', '3 = Not changed, '4=Have improved somewhat,', and '5= Have improved very much'. In part B-5, the respondents were asked about how animal welfare perceptions influence their buying behaviour and about their attitudes towards compensations for farmers and retailers. This was done using the statement on (*S1*). Respondents were asked about their willingness to pay more for Welfare Friendly Products (WFP), answering Yes or No. If yes, they were asked how much more, based on a percentage increase ranging from '1 = 1–3%', '2 = 4–5%', '3 = 6–8%', '4 = 9–10%', and '5 = more than 10%'. For part B-6, the respondent asked about main reasons to buy WFP which consists of 10 statements: 'They are from brand I am familiar with', 'The packaging looks good', 'They are good value for money', 'They taste better', 'They are healthier', 'They come from happier animals', 'They are better quality products', 'They help farmers that treat their animals better', 'They are better for the environment' and 'They are better for society' which need to be ranked by respondents from 1-3 (Rank top 3 only) based on how much the reasons influence them to buy WFP.

3.4 Data Analysis

As claimed by Micceri (1989), and widely accepted, most data in social science studies failed to meet assumptions of parametric test. Hence, this study used non-parametric tests over parametric due to several considerations. The first reason is because data obtained from this study were not transformed. Secondly, non-parametric tests do not depend on normality and distribution shape of a population. Thirdly, non-parametric tests is more suitable to be used on small sample and lastly non-parametric statistics can be used with data that are ordinal, or ranked, as well as with interval-and ratio-scale data.

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3.4.1 Descriptive Analysis

Descriptive analysis has been used to summarize and describe data. In this study we used mean obtained from analysis to discuss attitude and perception toward farm animal welfare. The level of knowledge on welfare friendly product, also has been described with the help of this analysis based on data percentages.

3.4.2 Mann-Whitney U and Kruskal Wallis Analysis

A Mann-Whitney U test and Kruskal Wallis analysis were used to compare consumers' attitude towards farm animal welfare between different types of gender, faculty and religion. A Mann-Whitney U was used specifically when there are not more than 2 variables (genders: male, female) while Kruskal Wallis Analysis were employed to data which had more than 2 variables (faculty: FIAT, FSB, FBKT; religion: Islam, Christian, Buddha). The reason why we use Mann Whitney and Kruskal Wallis test instead of correlation test because the data for this study is not normally distributed. Azmi (2012) stated that one of the criteria to apply Mann Whitney and Kruskas Wallis test is the data must be not normally distributed. Correlation test requires normality of variables (Statistics Solutions, 2018) thus the data obtained cannot be used for this test.

3.4.3 Analysis of Variance (ANOVA)

One of the assumptions on Kruskal-Wallis is the mean of the data must be homogeneous, so prior to running Kruskal-Wallis, the data was tested with one-way ANOVA to test their homogeneity. The one-way ANOVA applied to identify whether there are any statistically significant differences between the means of three or more independent groups (Laerd Statistics, 2018). If the p-value is greater than the significance level, 0.05, population means are all equal which concluded the homogeneity of the data collected.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

This section presented and discussed the data obtained based on methods explain earlier in Chapter 3. Results were elaborated to give perspective on the implication of the findings and were compared with other studies in a similar field.

4.2 Attitude Towards Farm Animal Welfare

Based on the descriptive analysis, respondents scored 8.12 (Table 1) on the overall attitude when was asked about the importance of farmed animal welfare. On a global scale, this is considered high, even higher than result from a survey done on EU-25 consumers with a score of 7.8 while Latvia and Spain have a score of 6.9 (EFSA, 2008).

Table 1 Mean score on the importance of farmed animal welfare towards respondents

	N	Mean	Std.Deviation
On what scale farmed animal important to you?	57	8.12	1.823
Valid N (listwise)	57		

However, further analysis using the Mann-Whitney U Test to test between gender shows no significant difference (Table 2).

Table 2 Result of Mann-Whitney U Test between gender

	On what scale farmed animal important to you?
Mann-Whitney U	387.500
Wilcoxon W	822.500
Z	-0.304
Asymp. Sig. (2-tailed)	0.761

a. Grouping Variable: Gender

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From the analysis, male and female both consider animal welfare as important (mean 8.12) since the result was not significant (P = 0.761). So, there is no difference between the two groups. The result is in contrast to other findings reported by other studies (Cembalo et al., 2016; Herzog, 2007; Miranda-de la Lama et al., 2013; Vargas-Bello-Pérez, Riveros, Köbrich, Álvarez-Melo, & Lensink, 2017).

The argument that can be deduced is probably due to the level of education among the respondents of this study. All the respondents are equally educated, pursuing their degree. The access and exposure to more information and environment about animal and ecology might affect the level of sympathy towards animal and their ecological concerns. This argument shared the same view as studies conducted by Boogard, Oosting and Bock (2006). Moreover, it may as well influenced by exposure on animal welfare issues by social media (Dowling, 2015).

On the other hand, Kruskal-Wallis which a generalization of Mann Whitney U Test was used to compare more than two groups in independent variables; religion and faculty towards the importance of animal welfare. One of the assumptions on Kruskal-Wallis is the mean of the data must be homogeneous, so prior to running Kruskal-Wallis, the data was tested with ANOVA. The result of ANOVA was as shown in Table 3. Since the P = 0.611, so the data was indeed homogeneous.

Table 3 Result of ANOVA to test for homogeneity between means prior to Kruskal-Wallis analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	218.153	2	109.077	0.498	0.611
Within Groups	11836.277	54	219.190		
Total	12054.431	56			

Table 4 Result of analysis using Kruskal Wallis to test significance different between faculties

	On what scale farmed animal important to you?
Kruskal-Wallis H	0.897
df	2
Asymp. Sig.	0.639

a. Kruskal Wallis Test

b. Grouping Variable: Faculty

Table 5 Result of analysis using Kruskal Wallis to test significance different between religions

	On what scale farmed animal important to you?
Kruskal-WallisH	0.746
df	2
Asymp. Sig.	0.689

a. Kruskal Wallis Test

b. Grouping Variable: Religion

Both results in Table 4 and Table 5 shows no significance between faculties and religions (P > 0.05) respectively. Respondents from a different background (field of study or faculty and religion) perceived animal welfare importance as equal.

4.3 Level of Knowledge on Welfare Friendly Products

The analysis also shows that more than half (61.4%) of the respondents indicate that they have a medium level of knowledge about the living conditions of farm animal in Malaysia as shown in Table 6. Whereas, the second largest group (21.1%) belong to a group of having a low level of knowledge. 14% and 3.5% of the respondents stated that they have high and very high knowledge, respectively towards the living condition of the farmed animal in Malaysia.

Table 6 Respondents' level of knowledge about the living condition of farmed animals in Malaysia.

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	12	21.1	21.1	21.1
	Medium	35	61.4	61.4	82.5
Valid	High	8	14.0	14.0	96.5
	Very high	2	3.5	3.5	100.0
	Total	57	100.0	100.0	

4.4 Perception on Animal Welfare Friendly Products

A mean score was summarized and presented in Table 7. The table shows 13 questions related to the perception of animal welfare which was asked to the respondents. From the same table, it is clearly showing that respondents agreed that farmed animals are sentient because they believe that those animals do feel pain, and positive and negative emotions. According to Phillips and Kluss (2018), welfare only considered to sentients animals or one with conscious awareness. Young (1994) proposes four levels of awareness; phenomenal awareness, access awareness, monitoring, and executive awareness depends on their "sensory, perspective and cognitive awareness" (Phillips & Kluss, 2018). Besides, the respondents also believe that the animal deserves to be well fed, securely sheltered and be kept healthy. This stand and believes are in line with Five Freedoms as proposed by Brambell Report (1965) and modified by Webster (2005). It stresses nutrition, environment, health and behaviour, and mental state.

Table 7 Mean score for perception on animal welfare friendly products

#	Do you believe that:	Mean
1	livestock should be well fed, sheltered and healthy?	4.491
2	livestock should be able to express behaviours that are natural for their species?	4.333
3	livestock should be free of fear and stress?	4.509
4	livestock fell pain?	4.158
5	livestock are able to feel emotions?	4.246
6	new animal welfare laws are needed to prevent abuse in the treatment of farm animals?	4.561
7	children should be educated about animal welfare in schools?	4.439
8	imported foods should be respectful of animal welfare?	4.088

9	stress during animal production and transport could affect the quality of meat, milk, eggs and sub-products?	4.439
10	you change your retail store in order to acquire products respectful of animal welfare?	4.140
11	farmers should be economically compensated by the costs' increments as result of improvements in animal welfare?	4.175
12	actual labels on the products of animal origin allow the identification of animal raising conditions and animal welfare?	3.509
13	there is enough information about animal welfare on the farms in Malaysia?	2.982

Besides, respondents also expressed the importance of new law specifically to cater to animal welfare. Malaysia already enacted a few versions of the animal act. The first one was approved by the parliament in 1973, called Animal Act 1973. The act did not mention anything about the Five Freedom other than "any person should not cause any unnecessary pain or suffering to any animal" as written on section 44(b) of the same act. The second act is called Animal Welfare Act 2015 which only came into effect two years later (2017) expands on the aspect of animal welfare in greater scope. The act explicitly mentions about the duties of owner or licensee, section 24(1)(a) which states:

"*24 (1) The owner or a licensee shall have the duty to (a) take reasonable steps to ensure that the needs of an animal are fulfilled, which includes; (i) its need for a suitable environment; (ii) its need for a suitable diet; (iii) the need for it to be able to exhibit its normal behavior patterns; (iv) the need for it to be housed with or apart from other animals; and (v) the need for it to be protected from pain, suffering, injury and disease".*
(Animal Welfare Act, 2015)

The subsection is in line with the concept of Five Freedom from Brambell Report (Brambell Report, 1965) and Webster (Webster, 2005). Since the act is very recently enacted, there is a possibility that respondents were not aware of its existence. To be fair, the study did not ask either respondent know about Malaysian Animal Welfare Act 2015. Besides, majority of respondents (63%) also believe that farmers should be compensated for any effort to improve animal welfare at their farm. This indicates that respondents have high empathy with farmers and aware of the cost associated with improving farmed animal welfare. Usually, the majority of expenses on a dairy farm will go for feeding which constitutes 35% of the total production cost in Malaysia (Talvela & Bas, 2018).

Respondents also indicated their willingness to change their grocery store if they can get an animal welfare friendly product. However, in Malaysia information about animal welfare on local farms are scarce, and most of the respondents agree to this where 43% answered "probably yes", 20% choose "probably not" and there are 20% who does not care about the labelling at all. Moreover, Malaysian consumers prefer to buy fresh animal-based products at a wet market compared to a more established supermarket (Abdul Hadi, Shamsudin, Radam, & Selamat, 2013). Fresh animal-based products like beef, mutton and poultry sold in the wet market usually are without a label, in contrast to a well-established supermarket. Even the product does display a label, respondents were sceptical about the usefulness of the label concerning getting useful information about the state of animal welfare of the supplier. This can be seen from **Error! Reference source not found.** which indicates mean value of 3.501. However, a study by Rashidah et al., (2018) found that half of the Malaysian adults never read labels on food packaging and for those who read, only 10% understand the food label nutrition.

Finally, respondents also believe that the education about animal welfare should be taught in school to children. Some of the countries such as Canada, Mexico and Malawi already integrate animal welfare education in the curriculum (Aguirre & Orihuela, 2010). However, for the rest of the world, any effort about animal welfare was catered by NGOs or voluntary community by universities and higher education institutions (De Boo & Knight, 2005). In Malaysia, one of the active NGOs were Malaysian National Animal Welfare Foundation (MNAWF) who had a collaboration with the Ministry of Education in 2002 for schools (Malaysian National Animal Welfare Foundation, 1999).

Regarding buying behaviour, respondents were asked about the reason that influences them to purchase WFP. Most of the respondents chose better quality (23.7%) as the first reason, followed by health concerns (22%) and lastly because they would like to support farmers who are concern about their livestock welfare. This result was also found in studies by Miranda-de la Lama et al. (Miranda-de la Lama et al., 2017), Viegas, Vieira, Stilwell, Lima Santos, & Aguiar Fontes (2011) and (EFSA, 2007) here all concluded better quality meat was the main reason to buy WFP. The condition of the animals was reared is indeed influence the quality of meat consumer received at the end of the supply chain. The intrinsic characteristics of meat will be getting better if the animals were kept in a stress-free environment (Blokhuis et al., 2008; Fernandez, Monin, Culioli, Legrand, & Quilichini, 1996; Grunert, Bredahl, & Brunsø, 2004). After all, a high level of stress during animal handling might result in lower glycogen in meat after slaughter. The level of glycogen is responsible for determining the pH level which in return influencing the intrinsic quality of the meat, e.g. colour and tenderness (Webb, 2013). Besides, consuming "green" food or sustainably resourced food has become a new trend among Malaysians as they are getting more concern about their health and food safety issue (Khan, Chamhuri, & Farah, 2015).

4.5 Willingness to pay for Welfare-Friendly Products

The results for willingness to pay (WTP) for welfare-friendly products (WFP) is presented in Figure 4.1. An overwhelming majority (86%) of the respondents indicated their willingness to for WFP and only eight respondents (14%) said otherwise. This finding is higher compared to other studies conducted for a specific WFP such as meat; where 73% of respondents are willing to pay more (Schnettler, Vidal, Silva, Vallejos, & Sepúlveda, 2009) and 68% respondents are willing to pay more for a dairy product which came from welfare friendly company (Vargas-Bello-Pérez et al., 2017).
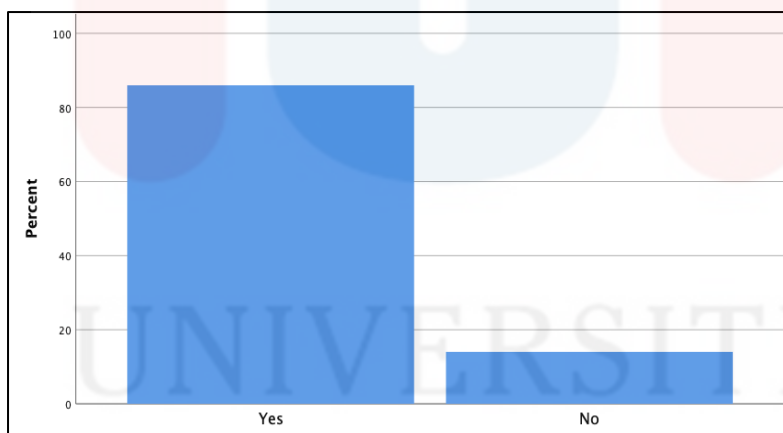

Figure 4.1 The willingness to pay more for welfare friendly products among consumer in Universiti Malaysia Kelantan

For those who are willing to pay, 10.5% ready to pocket out more than 10% extra than a similar product without WFP (Figure 4.2). The majority (24%) of them, however, are willing to pay between 4-5% more while 21.1% agreed to pay between 1-3% more than the regular price.
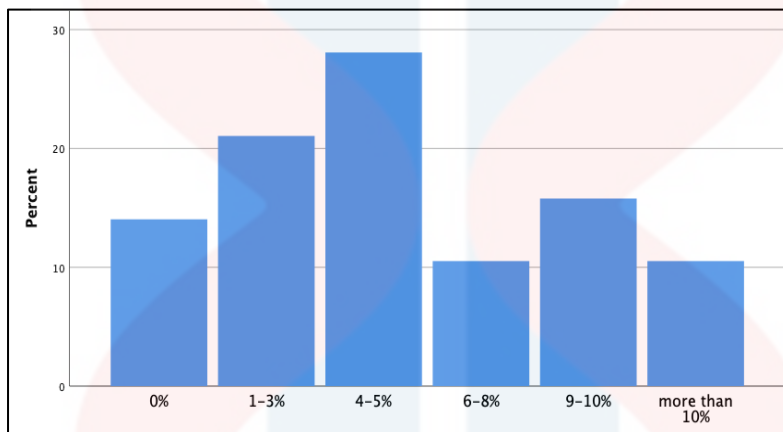

Figure 4.2 Percentage of maximum price increase for WFP

This result is lower compared to respondents in Spain which indicated that 16% are willing to pay more than 10% of the regular price (María, 2006). On the other hand, Miranda-de la Lama et al. (Miranda-de la Lama et al., 2017) found Mexicans are slightly less (10.4%) willing to pay more than 10% than the original price for WFP.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This research found that consumers in Malaysia have an overwhelmingly positive attitude towards WFP, even outdone other European countries such as Latvia and Spain. This is even though they have relatively low knowledge about the real situation of farm animal welfare. Besides, several bivariant statistical tests (Kruskal Wallis analysis and Mann-Whitney U test) conclude that this positive attitude and concerns do not relate with the demographic factors, i.e. field of study, religion, and gender. The results may be due to the homogeneity of the educational background of respondents.

Consumers were also hoping to see more laws regarding animal welfare to be legislated in the country. This indicates that consumers are not aware of the existence of two animal acts in Malaysia, i.e. Animal Act 1973 and Animal Welfare Act 2015.

Moreover, respondents also show very positive empathy not only on animal welfare but also farmers who are willing to invest more in ensuring animal welfare on their establishment.

86% of respondents are willing to pay for WFP where 10.5% of that do not mind if they have to pay extra 10% compared to regular products. The result is slightly higher than respondents in Mexico but much lower than Spaniards (16%).

6.2 Recommendation

This study and methods used were proven to be adequate to give a perspective on consumers' perception and attitudes towards farm animal welfare and their willingness to pay for welfare friendly products. However, future research should try on larger sample frame, or if possible nationwide. Data obtained from this study are too homogenous to be used as a representative for Malaysia as a whole.

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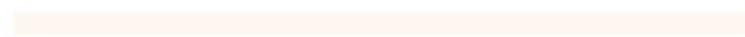
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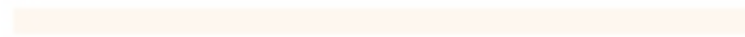
APPENDIX A

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CONSUMERS' PERCEPTIONS AND ATTITUDES TOWARDS FARM ANIMAL WELFARE AND WILLINGNESS TO PAY FOR WELFARE FRIENDLY MEAT PRODUCTS

Increasing concerns about farm animal welfare have led to an increase in the availability of welfare-friendly-products (WFP), but little is known about how much more consumers are willing-to-pay (WTP) for WFP or about their buying trends.

This study is conducted to:

1. to identify the perceptions and attitudes of consumers towards farm animal welfare.
2. to compare consumers' attitude towards farm animal welfare between different types of gender, faculty and religion.
3. to describe level of knowledge of consumers on welfare friendly product (WFP)
4. to assess whether consumers are willing to pay (WTP) more for animal friendly products to improve animal welfare.

Should you have any question, please do not hesitate to contact me at +60 19 911 8982 or my supervisor, Mr. Mohd b. Mahmud @ Mansor at +60 12 900 8041.Your cooperation answering this survey is highly appreciated.

Thank you.

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SECTION A: SOCIO-DEMOGRAPHIC

1. Age:

☐   20 – 24

☐   25 – 30

☐   30 – 35

☐   Others (please specify): _____

2. Gender:

☐   Male

☐   Female

3. Religion:

☐   Islam

☐   Christian

☐   Hindu

☐   Buddha

☐   Others (please specify): _____

4. Faculty:

☐   FIAT

☐   FSB

☐   FBKT

SECTION B

PART B-1

A) Attitude

Instruction: Please answer question 5 based on following scale.

No	Statement	Scale												
		Not important											Very important
5	On what scale farmed animal welfare important to you?	0	1	2	3	4	5	6	7	8	9		10

B) Perception

Instruction: Please answer question 6 – 7 based on following scale:

No	Statement	Scale				
		Surely not	Probably not	It does not matter to me	Probably yes	Definitely yes
6	Do you think that children should be educated about animal welfare in schools?	1	2	3	4	5
7	Do you think that new animal welfare laws are needed to prevent abuse in the treatment of farm animals?	1	2	3	4	5

PART B-2

A) Level of Knowledge

Instruction: Please answer question 8 based on following scale.

No	Statement	Scale				
		None	Low	Medium	High	Very High
8	What is your level of knowledge about the living conditions of farm animals in Malaysia?	1	2	3	4	5

B) Perception

Instruction: Please answer question 9-13 based on following scale:

No	Statement	Scale				
		Surely not	Probably not	It does not matter to me	Probably yes	Definitely yes
9	Do you think that livestock should be well fed, sheltered and healthy?	1	2	3	4	5
10	Do you think that livestock should be able to express behaviors that are natural for their species?	1	2	3	4	5
11	Do you think that livestock should be free of fear and stress?	1	2	3	4	5
12	Do you think that livestock fell pain?	1	2	3	4	5
13	Do you think that livestock are able to feel emotions?	1	2	3	4	5

PART B-3

A) Need for Information

Instruction: Please answer question 14-17 based on following scale.

No	Statement	Scale				
		Surely not	Probably not	It does not matter to me	Probably yes	Definitely yes
14	Do you think that there is enough information about animal welfare on the farms in Malaysia?	1	2	3	4	5
15	Do you think that actual labels on the products of animal origin allow the identification of animal raising conditions and animal welfare?	1	2	3	4	5

B) Perception

No	Statement	Scale				
		Surely not	Probably not	It does not matter to me	Probably yes	Definitely yes
16	Do you think that imported foods should be respectful of animal welfare?	1	2	3	4	5
17	Do you think that the stress during animal production and transport could affect the quality of meat, milk, eggs and sub-products?	1	2	3	4	5

PART B-4

A) Perception

Instruction: Please answer question 18 based on following scale.

No	Statement	Scale				
		Have gotten much worse	Have gotten somewhat worse	Not changed	Have improved somewhat	Have improved very much
18	Do you think, in general, that the living conditions of farm animals has improved in Malaysia for the last 10 years?	1	2	3	4	5

PART B-5

A) Buying Behavior

Instruction: Please answer question 19-20 based on following scale.

No	Statement	Scale				
		Surely not	Probably not	It does not matter to me	Probably yes	Definitely yes
19	Will you change your retail store in order to acquire products respectful of animal welfare?	1	2	3	4	5
20	Do you think that farmers should be economically compensated by the costs' increments as result of improvements in animal welfare?	1	2	3	4	5

B) Willingness to Pay More for Welfare Friendly Products

21. Do you willing to pay more for Welfare Friendly Products??

☐ Yes

☐ No

If you say yes, please answer Question 22. If you choose No, skip to Part B-6.

22. How much more in percent, will you pay for Welfare Friendly Products?

☐ 1–3%

☐ 4–5%

☐ 6–8%

☐ 9–10%

☐ more than 10%

B) Buying Behaviour

23   Please rank the TOP THREE (1 – 3) factors for you to buy WFP.

Factor	Ranking (rank only top 3)
What are the three main reasons for you to buy WFP?	
They are from brand I am familiar with.	3
The packaging looks good.	
They are good value for money.	2
They taste better.	
They are healthier.	1
They come from happier animals.	
They are better quality products.	
They help farmers that treat their animals better.	
They are better for the environment.	
They are better for society.	

END OF QUESTION

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APPENDIX B

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
On what scale farmed animal important to you?	Male	28	29.66	830.50
	Female	29	28.36	822.50
	Total	57		

Kruskal-Wallis Test

Ranks

	Faculty	N	Mean Rank
On what scale farmed animal important to you?	FIAT	24	30.98
	FSB	12	25.63
	FBKT	21	28.67
	Total	57	

Ranks

	Religion	N	Mean Rank
On what scale farmed animal important to you?	Islam	51	29.06
	Christian	2	36.50
	Buddha	4	24.50
	Total	57	