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CONSUMERS' PURCHASE INTENTION TOWARDS GENETICALLY MODIFIED SOYBEAN PRODUCTS IN MALAYSIA

Kelly Wong Kai Seng[1*], Welson Chin Vui Son[1], Phuah Kit Teng[2], Juwaidah Sharifuddin[1], and Fazlin Ali[1]
[1]Department of Agribusiness and Bioresource Economics,
Faculty of Agriculture, Universiti Putra Malaysia, Selangor Darul Ehsan, Malaysia
[2]Faculty of Business, Communication and Law, INTI International University
Persiaran Perdana BBN, Putra Nilai, 71800 Nilai, Negeri Sembilan, Malaysia
* Corresponding author: kellywong@upm.edu.my

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ABSTRACT

In Malaysia, soybean products are a convenient and a popular daily food product, however, the main raw material used to produce these soybean products has been partly changed from the traditional soybean to the imported GM soybean. While the GM soybean products are commercially sold in the market, not all the consumers take notice or are aware of it. There is lack of information sharing between GM soybean products' producers and consumers and the argument about the safety of GM product is still a big issue among consumers. As the GMOs are relatively new to Malaysian consumers, the National Biotechnology Directorate is stepping up its efforts to implement public awareness programs on biotechnology. Thus, this study will attempt to conduct the consumer research to provide insights on how likely consumers are willing to purchase genetically modified soybean. The purpose of this study is to determine the factors affecting consumers' intention to purchase genetically modified soybean products in Malaysia. Multistage and convenient sampling was used in selecting 215 respondents who were surveyed using self-administered questionnaires. Descriptive analysis, reliability test, exploratory factor analysis and binary logistic regression analysis were used to accomplish the objective of this study. The binary logistic result shows that product attribute, consumer attitude, and gender influenced consumers' intention to purchase genetically modified soybean in Malaysia. Understanding the consumer's intention will help the food producer and manufacturer to identify the consumer preferences for GM food products and will help prevent losses in market share of soybean products.

Key words: Genetically modified product, consumer preference

INTRODUCTION

Genetically modified foods are foods that are derived from genetically modified organisms with specific changes introduced into the genetically modified organism's DNA through genetic engineering techniques. Consumer demand for quality foods is dramatically increasing; therefore, genetically modified foods had become an increasing feature of the Asian diet especially soy bean. In the western countries, there is a change in production practices and marketing activities for crops and livestock products due to the growth and development in agricultural biotechnology. A few factors stimulate the interest and investment in agricultural biotechnology by farmers, manufacturer, processors and consumers. First of all, the rapidly changing consumers' needs and want such as concern on food safety, food quality, labeling, nutrition and value-added enhanced qualities have created an

opportunities for farmers, food processors, and food manufacturers to produce and for the agricultural biotechnology firms to expand their market.

Genetically modify foods can give a great opportunity for profit maximization, increasing market share and control of the vertical integration system. This phenomenon has caused the food processors and manufacturer to invest heavily on agricultural biotechnology research and development. Many agribusinesses which include large food processors have developed and marketed field crops with better qualities and were able to satisfy consumer needs and wants. Asian Farmers quickly embraced genetically engineered products because they anticipated the benefits of reduced production costs, enhanced yields and increase profits. This resulted to the booming cultivation of genetically modified (GM) crops across the world in the 90s. By 1996, more than 80-fold of crops are GM (Fatima et al. 2011). After a few decades, almost 99% of all GM cultivars planted worldwide are composed primarily of soybean, cotton, and corn (James 2009).The first GM soybean was approved by the United States Department of Agriculture in 1994 and about 77% of the worldwide soybean planted area is GM soybean and only 23% is planted with non-GM (James 2009). This indicates the wide acceptance of GM soybean among soybean farmers and producers.

Soybean is a widely used commodity throughout the world owing mainly to its variety of usage which includes processed food products such as soy milk, soy vegetable oil, tofu, soy sauce, tempeh, and non-food products such as livestock feed and biomass fuel. In the recent decades, the top five producers of soybean are the United States, Brazil, Argentina, China, and India. Based on the United States Department of Agriculture, these top five countries were contributing about 89% of the international soybean production. In 2014, 34% of soybean production were from United States, 30% from Brazil, 18% from Argentina, 4% from China, and 3% from India, respectively (SoyStats 2015). Due to the higher international demand for soybean, the total internationally traded soybean in 2014 was recorded at about 117.4 million metric tonnes.

Soybean is also widely consumed among all different ethnics in Malaysia. Usage of soybean in this country includes food consumption as well as animal feed and other raw material. In 2014, there were 3.8 million tonnes of corn, 1.4 tonnes of soybean meal and almost 0.6 million tonnes of raw soybean imported by Malaysia of which only 90 thousand tonnes were identity-preserved non-GM soybeans (Malaysia agricultural biotechnology annual report, 2013).

According to Tosiah (2005), most soybean-based products contained GM traits and are sold commercially in the market. In 2010, the first imported GM soybean in Malaysia which was approved by the Ministry of Natural Resources and Environment Malaysia was Roundup Ready Soybean from Monsanto Company, United States. In 2017, Malaysia's imports increased to 11 types of different GM soybeans (Table 1). Though this is happening in the soybean market in Malaysia, consumers at large are unaware about this phenomenon because these facts are not disclosed on the soybean products' label.

To a large extent, the use of GMOs is still debated all over the world. Even though some researchers claimed that GM crops are one of the ideal method to ensure food production to support the current situation of increasing of world population, i.e. "feed the world" or "feed the hungry world". However, food is not just produced to eat but they must also be safe. The main focus of concern is the likelihood of the side effects of the genetic modifies foods. Some scientists say it is safe to use but some scientists fear that GMO is harmful to health, environment, increases the effects of allergy or cancer and other health problems that are difficult to identify. There are some scientific evidences that found the GM food is harmful to the human body system not safe to be consumed. For example, the GM food has a possibility cause to the human heavier uteri and higher rate of severe stomach inflammation (Carman, et al. 2013). Therefore, the argument about having to produce more GM products/crops to ensure food security has to be thought parallel with the issue of safety as well.

Table 1. Varieties of GM soybean imported by Malaysia

Variety	Date and Year of approval	Company
Roundup Ready soybean	25 May 2010	Monsanto Company
Herbicide Tolerant soybean	28 Mar. 2012	Bayer Co (Malaysia) Sdn Bhd.
Roundup Ready2 Yield soybean	27 Nov. 2012	Monsanto Company
Imidazolinone Tolerant CV127 soybean	23 Oct. 2013	BASF (Malaysia) Sdn Bhd.
Glufosinate Tolerant/LibertyLink® soybean	11 Feb. 2014	Bayer Co (Malaysia) Sdn Bhd.
Glyphosate and Isoxaflutole Tolerant FG72	19 Dec. 2014	Bayer Co (Malaysia) Sdn Bhd.
SYHT0H2 Soybean	23 June 2016	Syngenta Crop Protection Sdn. Bhd.
305423 Soybean	01 Aug. 2017	DuPont Malaysia Sdn. Bhd. Dow Agrosciences (Malaysia) Sdn. Bhd.
DAS-68418-4 Soybean DAS-44406-6 Soybean DAS-81419-2 Soybean	19 Oct. 2017	Dow Agrosciences (Malaysia) Sdn. Bhd.

Sources: Ministry of Natural Resources and Environment, Department of Biosafety[1]

The United States, which is one of the countries that accept GMO, claims that it is safe to be consume. United States are major producers of GMO world where 60 percent of total agricultural revenue is from the GMO. However, most European countries and a number of countries in Africa reject GMO because the safety level has not been proven. On the other hand, many countries have allocated special law to regulate and monitor GMO use either under controlled conditions or to be released to the environment or sale on the open market. They seek to avoid or eliminate the side effects of the GMOs. In Malaysia, the Ministry of Science, Technology and Environment has had a committee that gives guidance and advice about the use of GMOs.

Malaysian consumer are not well aware about the existence of GM products and may be as well not know about its possible negative effects (Bashir et al. 2013). About 33% of Malaysian consumers were not aware of GM products in Malaysia and out of that 67% who were somewhat aware about it were not able to differentiate between GM and non-GM products. Although the GM food and ingredient labeling regulation has taken effect on 8th July 2014 in Malaysia, it was not being properly implemented yet. There are also no official announcements from the Ministry of Health Malaysia about the labeling issues.

In a nutshell, the structure changed in Malaysia's soybean products processing channel and there are few companies that imported the GM soybean to produce food, feed and other processing purpose. The lack of information sharing to the consumer indicates that the transparency of food safety in Malaysia soybean product needs more attention. Increase in consumer awareness towards food quality can force the supplier to share the information and eventually protect the consumer rights by providing them clear options to decide on buying this product. Besides that, the consumer purchase intention towards GM soybean products should be identified. Hence, the motivation of this study is aimed to investigate the relationship between the factors influencing the decision of consumer to purchase genetically modified soy bean.

[1] http://www.biosafety.nre.gov.my/country_decision/app_ffp.shtml

ANALYTICAL FRAMEWORK

The Theory of Reasoned Action (TRA) is able to adequately explain the relationship between consumers' attitude towards the behavior. TRA postulates three conceptually independent determinants which are attitude, subjective norm and socio-demographic. Attitude is the psychological tendency within an individual that is expressed by evaluating a particular entity with some degree of favor or disfavor. Subjective norm assesses the social pressure on individuals to perform or not to perform certain behavior i.e. the motivation to comply with others' views. Furthermore, socio-demographic profiles have a great impact on consumer attitude and behavior. Therefore, socio-demographic profile such as gender, age and education level are used in this study.

Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980) is sufficient to adequately explain the relationship between consumers' demographic profile (age, educational level, gender), attitude, subjective norms, product attributes, and consumer knowledge and their intention to purchase GM soybean products. Literature reviews had shown that the TRA proposed by Azjen and Fishbein (1980) is a usual method applied in the previous studies to examine the consumer intention and consumer behavior on food consumption (Magnusson et al. 2001, Chung et al. 2010, Rezai et al. 2011, Wu and Chen 2014). Figure 1 shows the conceptual framework used to investigate the consumer's intention to purchase GM soybean-based products.

In this study, subjective norm such as those by the society and friends measure how social pressure on consumers can motivate them to purchase genetically modified soybean. Attribute refers to the characteristic of genetically modified soybean such as quality, safety, taste and many more. Consumer knowledge refer to the consumer awareness or familiarity of GM products and consumer attitude refer to their thinking or feeling about GM products. Once the consumers have gathered sufficient information and learning and understanding about GM food, consumers will form either a positive or a negative attitude towards the intent to purchase GM product. Intention is the idea or behavior the consumer will carry out such as purchase or not to purchase GM soybean.

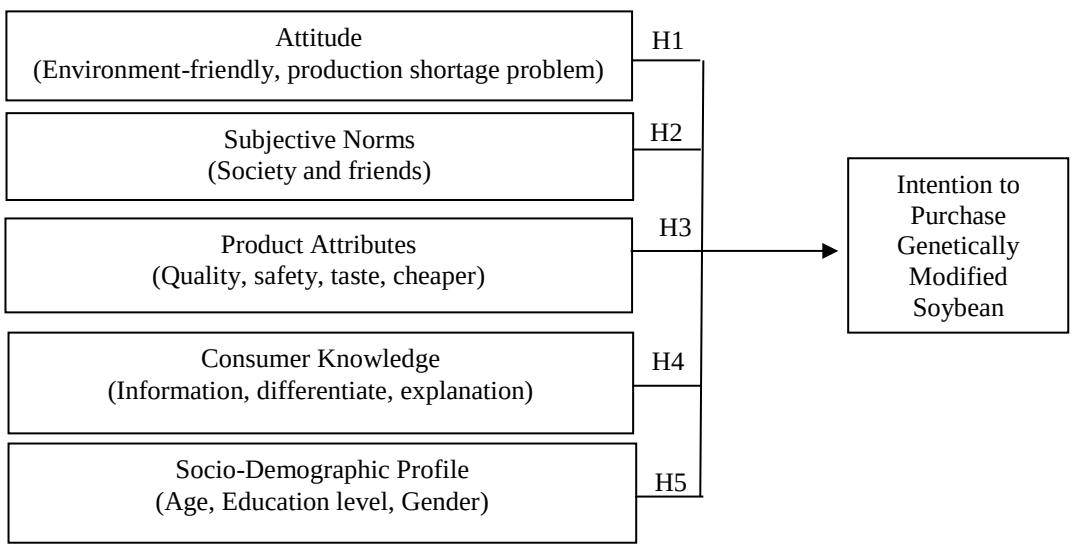

Fig. 1. Analytical framework of TRA applied towards intention to purchase genetic modified soybean in Malaysia.

MATERIALS AND METHODS

Research hypotheses

The focus of this study was to find the relationship between the factors influencing the decision of consumer to purchase genetically modified soy bean. The following hypotheses were formulated to identify the relationship between the subjective norm, attributes, knowledge, socio demographic factors and attitude in the different aspects.

Hypothesis 1:

H_0: There is no significant relationship between the consumer attitudes and their intention to purchase genetically modified soybean.

H_1: There is significant relationship between the consumer attitudes and their intention to purchase genetically modified soybean.

Hypothesis 2:

H_0: There is no significant relationship between the subjective norms with consumer intention to purchase genetic modified soybean.

H_1: There is significant relationship between the subjective norms with consumer intention to purchase genetic modified soybean.

Hypothesis 3:

H_0: There is no significant relationship between the product attributes with consumer intention to purchase genetic modified soybean.

H_1: There is significant relationship between the product attributes with consumer intention to purchase genetic modified soybean.

Hypothesis 4:

H_0: There is no significant relationship between the consumer knowledge with consumer intention to purchase genetic modified soybean.

H_1: There is significant relationship between the consumer knowledge with consumer intention to purchase genetic modified soybean.

Hypothesis 5:

H_0: There is no significant relationship between the socio-demographic factors such as gender, age and education level with consumer intention to purchase genetic modified soybean.

H_1: There is significant relationship between the socio-demographic factors such as gender, age and education level with consumer intention to purchase genetic modified soybean.

Data collection: sample size and sampling design

A quantitative method and a self-administrated questionnaire were used. Multistage sampling method was used and the survey was done in Klang Valley, Malaysia. To measure the consumers' intention, Klang Valley is chosen as the main cluster by using cluster sampling methods. Furthermore, Klang Valley was divided into nine sub clusters (based on cities in Klang Valley) i.e. Kuala Lumpur, Klang, Kajang, Subang Jaya, Petaling Jaya, Selayang, Shah Alam, Ampang Jaya, Putrajaya, and Sepang. After the nine sub-clusters has been clarified, convenient sampling method was then used in this study where consumers who walks into selected supermarkets in each sub-clusters are interviewed using self-administrated questionnaire. There were 215 consumers interviewed in this study. The supermarkets were chosen to cover consumers from various income levels.

Questionnaire Design

The questionnaire consisted of the statements that addressed and measured the components of TRA and was divided into six sections. Section A consist of dichotomous question which measure the consumers' intention to purchase GM soybean. A Likert scale of 1 to 5 (1 representing "strongly disagree" and 5 representing "strongly agree") was used in Section B, C, D and E to measures the consumers' knowledge, product attributes, attitude towards GM soybean, and subjective norm, respectively. Section F asked about the consumer' personal information such as gender, age, race, marital status, education level and occupation.

Method of analysis

Descriptive statistics, reliability test, exploratory factor analysis and multiple regression were used to achieve the objective of the study. Descriptive analysis was used to describe the sample in this study. Cronbach alpha was computed to assess the model for internal consistency.

Exploratory factor analysis was used to reduce the number of factors from a large number of measured variables. A large number of variables were grouped based on common factor or characteristic. Factor analysis involved three steps in correlation matrix and used to generate all the variables. A correlation matrix is rectangular array of the correlation coefficient of the variable. Next, it extracts a set of initial factors from correlation matrix that produce from first step. Each of the variables produce one component and is extracted from principal component analysis. Even though the analysis yields a lot of factors, the small factor loading that are less than 0.6 were dropped in order to come up with a set of factors that produce the best line combination of variables that will produce more the variance in the data as a whole.

Variable reduction purposes come from the basic form of model: $Y= b_1X_1+b_2X_2….+ b_nX_n$

Where: Y = Linear combination of principal component or principal factor (Attitude, Subjective Norms, Product attributes, consumer knowledge)

$b_1, b_2,…b_n$ = Coefficient

$X_1, X_2,…X_n$ = Variable that are highly correlated with each other (the survey questions under each factors)

Lastly, is to rotate the retained factors. The initial factors are hard to interpret. Thus, varimax rotation is used to rotate the initial factors to produce a solution that is more meaningful and easier to be interpreted.

Binary logistic regression was used to determine the extent to which selected socio-demographic characteristic, product attributes, consumer knowledge, attitudes and subjective norms influences consumers' intention to purchase genetic modified soy bean.

Dependent variable, CIMG is 'intention to purchase genetic modified soybean' have two categories such as 'consumers intent to purchase genetic modified soybean' coded as one and otherwise coded as zero. Based on the theoretical framework justified at the previous section, the consumer intention is determined by five independent variables, *i.e.* consumers' product attribute (CPAGM), consumers' attitude towards GM soybean product (CATGM), knowledge about GM soybean product (CKGM), subjective norms (SNGM), and the socio-demographic variables, which gender, age, and education level. Hence, the logistic regression is re-write as:

$$\text{Logit (CIGM)} = \beta_1 + \beta_2 \text{ CPAGM} + \beta_3 \text{ CATGM} + \beta_4 \text{ CKGM} + \beta_5 \text{ SNGM} + \beta_6 \text{ gender} + \beta_7 \text{ age} + \beta_8 \text{ education} + \varepsilon$$

Where: Logit (CIGM) = natural log (odds)

= $ln\ (\frac{P_i}{1-P_i})$ and the P_i represent the probability of intent

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = estimated coefficients for independent variables

ε = stochastic term

In this logistic regression, the consumers' product attribute, knowledge, and attitudes are the factor score obtained from the factor analysis based on the Bartlett method (or regression approach). Gender is a dummy variable which 1 represents female and 0 represents male. While the education level is an ordinal data which 1 = primary education, 2 = secondary education, 3 = tertiary education, 4 = higher tertiary education, and 5 = others. Furthermore, the age variable is an interval data.

RESULTS AND DISCUSSION

In this study, the Cronbach's Alpha was used to measure the reliability of 34 questions which were used to measure (in Likert scale) consumer's attitude, subjective norms, product attributes, consumer knowledge and intention. The Cronbach's Alpha value was 0.88 which means that the model is fit for this study.

Demographic profile of the respondents

Table 2 shows the consumer demographic profile. From a total of 215 respondents, the socio-demographic profiles of the respondents were analyzed. Majority of the respondents from the survey were female (55.3%). The ethnic ratio of the respondents were 41 % are Chinese and 39% are Malay, 10.2% from Dusun and Kadazan and Indians accounted for 9.8%. Majority of the respondents were single accounting for 69.8 % and about 30.2% were married. A higher proportion of the respondents were from the age group 20 to 25 years old (43.3%). In terms of educational background, about 36% of the respondents have higher tertiary , 59% have tertiary level, 2% of respondents are graduated from secondary school, 1% of respondents were have primary school education level, and the 1% that not going to any education.

Table 2. Socio-demographic profile of respondents (n=215)

Characteristic	Percentage	Characteristic	Percentage
Gender		**Education level**	
Male	45	Primary	0.5
Female	55	Secondary	2.2
Ethnic (Race)		Tertiary	59.5
Malay	39	Higher Tertiary	36.3
Chinese	41	Others	1.4
Indian	9.8	**Occupation**	
Others	10.2	Government sector	35.3
Marital Status		Private sector	38.6
Single	69.8	Self-employed	5.6
Married	30.2	Students	18.1
Age		Others	2.4
20-25	43.3		
26-30	23.3		
31-35	29.3		
36 and above	0.04		

Exploratory factor analysis

As mentioned earlier, exploratory factor analysis was used to uncover the latent factors underlying consumers' intention to purchase genetically modified soybean. Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and Barlett's test of Sphericity were first performed on all the statements to confirm the appropriateness of conducting factors analysis (Tabachnick and Fidell 2007).

Table 3 shows the results of the Kaiser-Meyer-Olkin and Bartlett's test of Sphericity. In this study, only items with component matrix of at least 0.5 and above are considered as significant items. Four factors were found significant and these were product attributes, consumer knowledge, attitude and subjective norm. The result of KMO test for all four factors was 0.897 which indicate that the distinct and reliable factors is produced in this collected sampling. Besides that, the Bartlett's Test showed that the estimated data is adequacy (p-value less than 0.05) and this Bartlett's test also confirm that the collected data sampling has patterned relationships amongst the variables.

Table 3. Kaiser-Meyer-Olkin and Bartlett's test of Sphericity

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.897
Barlett's Test of Sphericity (x^2)	2185.705
df	171
P-value	0.000

After the varimax rotation of the consumer's response of the 19 statements relating to their knowledge, product attribute, attitude and subjective norms, the factor loading from the principal component factor analysis was obtained. From the result of the rotated matrix, only items with a factor loading of at least 0.6 and above are considered significant items. Table 4 shows the summarized result from factor analysis. The results show that four latent factors which influence the consumers' purchase intention toward genetic modified soybean products. The factors were named based on the sub-variables that were found in each factors. Product attribute (F1), Attitude (F2), Knowledge (F3) and Subjective norms (F4) which accounted for 65.699% of the total variance. The factor loading for four factors is from 0.632 to 0.866.

Product attributes is the first factor that influenced consumers' intention to purchase GM soybean with highest total variance of 37.205%. The second factor that influence consumer purchase intention is consumer attitude. This factor explained 15.208% of the total variance. The consumer knowledge had 7.266 % total variance. This means that knowledge of GM is important to motivate consumer to purchase GM soybean products. The last factor is subjective norms. Subjective norms or social influence of consumer will affect their purchase intention toward GM soybean products. Consumers will intent to purchase the GM soybean product based on their friends' opinion. The variance of this factor is 6.019% which infer that about 6.019% of total variance in consumers' intention to purchase the GM soybean products is explained by the subjective norms.

Binary logistic analysis

Binary logistic model was used to examine the significant relationship between estimated factors with the consumer's intention to purchase the GM soybean products. The estimated result for the binary logistic regression is summarized in the Table 5. The dependent variable is the consumer intention to purchase the GM soybean product and it was recorded as dichotomous data. The consumer intention to purchase was proxied by a dummy variable with 1 referring to those who answered "yes" and intending to purchase genetic modified soybean products and 0 otherwise. The binary logistic result shows that product attributes, attitude and gender are statistically significant in determining the consumer's purchase intention towards GM soybean products. In order to assess how well the model

fits the data, Homer and Lemeshow test was developed. As shown in Table 5, the value for Homer and Lemeshow test was 0.484 which is not significant. This insignificant value indicate that the exogenous variables include in the model is fit to explain the consumers' intention to purchase GM soybean.

Table 5. Estimated logistic models for consumers' purchase intention toward genetic modified soybean products

Variables	Estimated Coefficient	SE	Significant level	Exp (b)
Product attribute	1.163***	0.226	0.000	3.202
Attitude	1.293***	0.237	0.000	3.642
Consumer Knowledge	-0.286	0.199	0.152	0.752
Subjective norms	0.163	0.185	0.378	1.177
Gender	-0.072**	0.357	0.049	0.496
Age	-0.187	0.184	0.308	0.826
Education level	-0.199	0.318	0.531	0.820
Constants	0.329**	0.138	0.017	1.389
Diagnostic Test				
-2log likelihood	206.366[a]			
Cox and Snell R square	.330			
Nagelkerke R square	.443			
Hosmer and Leme shows test	.484			

Notes: ***, and ** denotes as statically significant at 1% significance level and 5% significance level, respectively.[a] represent a maximum likelihood estimation.

The estimated logistic result shows that the product attribute is an important positive factor to determine the consumer intention to purchase GM soybean product. The estimated coefficient shows positive value of 1.163 and significant at 1% significance level. The estimated exponent coefficient for the purchase intention was 3.202 indicating that the respondent with positive perception towards GM soybean product has 3.202 times higher intention to buy GM soybean products than consumers who have negative perception about GM soybean.

Consumer attitude toward GM products was also an important factor that influences the consumer's intention to purchase GM soybean products. The estimated consumer attitude coefficient shows positive value of 1.293 and statistically significant at 1% significance level. This illustrated that there is enough evidence to reject the null hypothesis and conclude that the consumer who have positive attitude towards GM products will have higher intention to purchase GM soybean products. The estimated exponent coefficient for the consumer attitude is 3.642, indicating that the consumers who have positive attitude on the GM soybean products will show 3.642 times higher intention to purchase GM soybean products than the consumers' who are have negative attitude on GM soybean products.

Furthermore, the third important factor determining the consumer intention to purchase GM soybean food product is gender. In this logistic regression, the gender was proxied by a dummy variable. If the respondent is female then she was assigned a value of "1" and "0" represented the male. The estimated coefficient for gender is -0.072 and it is statistically significant at 5% significance level (Table 5). It means that female has less intent to purchase GM soybean products compared to male. These results are consistent with the findings from the other findings such as Hossain et. al. (2004), Moerbeek and Casimir (2005), and Worsley et. al. (2013). Female have less intention to purchase GM soybean because they are more concerned about the food consumption issues such as food safety, food health, the aspects of food technology and nutrition than male (Worseley et. al. 2013). Besides that, the result of exponential beta shows that the females have 0.504 times less intention to purchase GM soybean products than the male consumers.

Table 4. Summary of the factor analysis results.

Items	Factor Loading			
	F1	**F2**	**F3**	**F4**
Attribute				
I will purchase GM soybean product because its quality is better than the ordinary soybean product	0.812			
I am not worry about GM soybean product because it safe	0.780			
I would buy genetic modified food/soybean products if it taste better	0.758			
I will purchase GM soybean product because it can reduce the food shortage problem	0.719			
I will purchase GM soybean product because it is no different from the ordinary soybean product	0.718			
I would buy genetic modified food/soybean if it is grown in more environment friendly way than ordinary food	0.677			
I would buy genetic modified food/soybean if it cheaper than ordinary food	0.660			
Variance (% explained)	**37.205**			
Attitude				
I think GM product is acceptable in the era		0.843		
GM soybean product or other plant based GM is appropriate to be used to created food product		0.767		
I think GM soybean is safe to consume		0.763		
I think GM soybean products can solve soybean production shortage problem		0.673		
As a consumer, I have no comment on GM soybean as long as the food product is confirmed safety to consume		0.667		
I think GM soybean is the environmentally friendly crops.		0.632		
Variance (% explained)		**15.208**		
Consumer Knowledge				
I have explore a lot of information about the GM food			0.866	
I can explain to other person about what is GM food			0.845	
I understand what is genetic modified (GM) mean			0.833	

Items	Factor Loading			
	F1	F2	F3	F4
I know how to differentiate the nature food with genetic modified food			0.767	
Variance (% explained)			**7.266**	
Subjective norms				
Most of the people in Malaysia do not know about GM soybean				0.767
Most of my friends think that GM Soybean is safety to consume				0.699
Variance (% explained)				**6.019**
Total % of variance				**65.699**

CONCLUSION

In this study, the overall findings shows that the consumers' positive product attribute and attitude are the important factors to influence the consumers' intention to purchase the GM soybean products. However, the female have a reversed intention compared to the male. These findings suggest that the marketing have to play an important roles to explain the safety of the product in order to increase the consumers' intention to purchase the GM soybean products.

In general, the findings indicate the level of maturity among consumer in Malaysia. They are now concern with the issues such as food safety and nutritional values of the food products. Thus, facing this kind/group of informed consumers, it is important for food producer to ensure the safety of the products in securing sales. In the era of infoxication, marketers also face a great challenge in delivering up-to-date information to educate users and building trust among consumer to assist purchasing decision making.

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