UNIVERSITI PUTRA MALAYSIA

CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

SALEH NAJAFINEJAD

FP 2014 40

CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

By

SALEH NAJAFINEJAD

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science
December 2013

DEDICATIONS

To My Parents
Mohammad and Monireh,
I always appreciate your love, support and encouragement.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

By

SALEH NAJAFINEJAD

December 2013

Chairman: Professor Zainal Abidin Mohamed, PhD

Faculty: Agriculture

The increasing concern among Malaysian consumers on issues such as food safety, environmental protection and animal welfare indicate that nowadays, consumers are not only concerned about the health aspects of food products but they are also very careful on how the products are being produced. Eco is used as a prefix for words related to the environment or ecology. Thus, any product or trade named witheco usually means that the product is produced and processed in an environmentally friendly way. Eco-labeling, which is a voluntary, is an attempt to provide the consumers with relevant information about a product which qualified as having improved environmental performance and efficiency compared to similar products.

The objective of this study is to determine the level of Malaysian consumers' awareness, attitudes, and intention to purchase eco-labeled food products. The survey was conducted in Klang Valley. The Theory of Planned Behaviour (TPB) is applied in this study. The questionnaires, which contains closed ended statements using 7-point Likert scale, were distributed randomly to respondents. The target consumers for this research were consumers who purchase food products from supermarket. Sample size of this study is 1115. The structured questionnaire design consists of three main sections. Characteristics of the respondents are included in the first section. The second section measures the awareness and knowledge of consumers' towards eco-labeled food products. The third section is designed to measure the attitude, subjective norm and perceived behavioural control that influence the consumer's green behaviour. Descriptive statistics, chi-square, factor analysis and binary logistic regression were used to analyze the data.

The results show that majority of the respondents believe that eco-labelled food products are produced in a sustainable way to protect the environment. It also shows that there

are significant differences between the consumer's awareness towards eco-labeled food products and social demographic profile such as age, geographical area, educational level and income. The result of chi-square test indicates that selected socio-demographic variables such as gender, living area, marital status, educational level, income and age have a significant relationship with consumer awareness and knowledge towards eco-labeled food products in Malaysia. Exploratory factor analysis (EFA) was used to uncover underlying factors resulting in awareness of the existing of eco-labeled products. Four factors identify the consumer awareness towards eco-labeled food products, which are the attitude, society influence, product price and ability to perform, with 62.76 percent of total variance. In addition, the results of logistic regression model suggest that consumers who have higher income and educational level, and younger in age are more aware of eco-labeled food products and they are more likely to have a higher intention towards consuming the products. Thus food producers required to pay closer attention to the changes in consumer's needs and demands, and develop appropriate marketing strategies that addressed the changing trends.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

NIAT PENGGUNA UNTUK MEMBELI PRODUK MAKANAN ECO-LABEL DI LEMBAH KLANG, MALAYSIA

Oleh

SALEH NAJAFINEJAD

Disember 2013

Pengerusi: Professor Zainal Abidin Mohamed, PhD

Fakulti: Pertanian

Peningkatan pada tahap keprihatinan terhadap kepentingan lestari di kalangan pengguna Malaysia mengenai isu-isu seperti keselamatan makanan, perlindungan alam sekitar dan kebajikan haiwan menunjukkan bahawa pengguna di masa ini bukan sahaja mengambil berat tentang aspek kesihatan produk makanan tetapi mereka juga amat berhati-hati tentang cara penyediaan produk tersebut. Istilah eko digunakan sebagai awalan perkataan yang berkaitan dengan persekitaran atau ekologi. Oleh itu, mana-mana produk yang mempunyai awalan perkataan eko biasanya bermaksud bahawa produk tersebut dihasil dan diproses dalam keadaan mesra alam. Label eko, yang merupakan label yang digunakan secara sukarela, adalah satu usaha untuk memberitahu pengguna dengan informasi berkaitan kelayakan produk tersebut setelah mempunyai peningkatan prestasi dan kecekapan alam sekitar berbanding produk yang mempunyai persamaan dengannya.

Objektif kajian ini adalah untuk menentukan kesedaran, sikap, dan niat pengguna Malaysia untuk membeli produk makanan yang mempunyai label eko. Kajian ini telah dijalankan di Lembah Klang. Teori Kelakuan Terancang (TPB) digunakan dalam kajian ini. Soal selidik yang mengandungi kenyataan yang menggunakan skala Likert 7-mata telah diedarkan secara rawak kepada responden. Pengguna sasaran bagi kajian ini adalah mereka yang membeli produk makanan dari pasaraya. Bilangan responden kajian ini adalah 1115 orang. Soal selidik terdiri daripada tiga bahagian utama. Demografi sampel adalah termasuk dalam bahagian pertama. Bahagian kedua mengukur kesedaran dan pengetahuan pengguna terhadap produk makanan yang mempunyai label eko. Bahagian ketiga telah direka untuk mengukur sikap, norma subjektif dan kawalan tingkah laku yang mempengaruhi tingkah laku hijau pengguna. Statistik deskriptif, chi-square, analisis faktor dan regresi logistik binari telah digunakan

untuk menganalisis data.

Keputusan menunjukkan bahawa majoriti responden percaya bahawa produk makanan yang mempunyai label eko telah dihasilkan dalam cara yang mampan untuk melindungi alam sekitar. Ia juga menunjukkan bahawa terdapat perbezaan yang signifikan antara kesedaran pengguna terhadap produk makanan yang mempunyai label eko dan profil demografi sosial seperti umur, kawasan geografi, tahap pendidikan dan pendapatan. Keputusan ujian chi-square menunjukkan bahawa beberapa pembolehubah sosio-demografi seperti jantina, kawasan tempat tinggal, status perkahwinan, tahap pendidikan, pendapatan dan umur mempunyai hubungkait yang signifikan dengan kesedaran dan pengetahuan pengguna terhadap produk makanan yang mempunyai label eko di Malaysia . Analisis faktor eksploratori (EFA) telah digunakan untuk mengetahui faktor asas yang mempengaruhi kesedaran tentang wujudnya produk yang mempunyai label eko. Empat faktor telah dikenal pasti mempengaruhi kesedaran pengguna tentang produk makanan yang mempunyai label eko iaitu sikap, pengaruh masyarakat, harga produk dan keupayaan untuk melaksanakan, dengan jumlah perbezaan 62.76 peratus. Di samping itu, keputusan model regresi logistik menunjukkan bahawa pengguna muda yang mempunyai pendapatan and pendidikan yang tinggi mempunyai lebih kesedaran tentang produk makanan yang mempunyai label eko dan mereka lebih cenderung untuk mengunakan produk tersebut. Justeru, pengeluar makanan perlu memberi lebih perhatian kepada perubahan pada keperluan dan permintaan pengguna, dan membina strategi pemasaran yang dapat menangani perubahan tren tersebut.

ACKNOWLEDGEMENTS

It is evident that the success of any thesis depends largely on the encouragement and guidelines of many who oversee the researcher. I would like to take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this thesis. I want to give gratitude to the following people for their invaluable help and support.

I would like to show my greatest appreciation and deepest gratitude to Prof. Dr. Zainal Abidin Mohamed for the continuous support of my master study and research, for his patience, motivation, enthusiasm, and immense knowledge. Dear Prof. Zainal I will never be able to thank you enough for your tremendous support and help. I felt motivated and encouraged every time I entered your office. Without your encouragement and guidance this thesis would not have materialized. Your guidance has helped me at all times of the research and writing of this thesis. I could not have imagined having a better supervisor for my master's studies.

Besides my supervisor, I would like to thank my committee members, Dr. Juwaidah Sharifuddin and Dr. Nitty Hirawaty Kamarulzaman for their encouragement, insightful comments, and intriguing questions. I am grateful for their constant support and help.

My sincere thanks also go to everyone at the Department of Agribusiness and Information System. Every single one of you readily accepted me and immediately offered your assistance with whatever I was doing. To Dr. Rika Terano I don't think I could ask for a better person to have as a friend. You have been a great source of comfort, kindness and humour and you have really made my time here an enjoyable one. To all of my friends and course mates, my job was a lot easier because of you. I wish you all the best of luck in your programmes and life.

I would like to thank my parents for allowing me to realize my own potential. All the support they have provided me over the years is the greatest gift anyone can ever give me. I would like to especial thank my elder brother and sister for supporting me and encouraging me and showering me with their best wishes.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science.

The members of the Supervisory Committee were as follows:

Zainal Abidin Mohamed, PhD
Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Chairperson)

Juwaidah Sharifuddin, PhD
Senior Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

Nitty Hirawaty Kamarulzaman, PhD
Senior Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

BUJANG BIN KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

Declaration by graduate student
I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- the thesis has not been submitted previously or concurrently for any other degree at any institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia;
- written permission must be owned from supervisor and deputy vice chancellor (Research and innovation) before thesis is published in book form;
- there is no plagiarism or data falsification/fabrication in the thesis and scholarly integrity was upheld as according to Rule 59 in Rules 2003 (Revision 2012-2013). The thesis has undergone plagiarism detection software;

Signature: _____ Date: 20 December 2013

Name and Matric No: SALEH NAJAFINEJAD GS31829

Declaration by Members of Supervisory
This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as slated in Rule 41 in Rules 2003 (Revision 2012-2013) were adhered to;

Signature: _____ Signature: _____

Zainal Abidin Mohamed
(Chairman)

Juwaidah Sharifuddin
(Member)

Signature: _____

Nitty Hirawaty Kamarulzaman
(Member)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIM	*Amanah Ikhtiar* Malaysia
BAP	*B*est Aquaculture Practices
COO	*C*ountry Of Origin
DOA	*D*epartment of Agriculture
DVS	*D*epartment of Veterinary Services
EFA	*E*xplanatory Factor Analysis
ESPM	*E*nvironmental Protection Society Malaysia
FAC	*F*ood Advisory Committee
FAMA	*F*ederal Agricultural Marketing Authority
FAO	*F*ood and Agriculture Organization
FDA	*F*ood & Drug Administration
FDCA	*F*ood, Drug, and Cosmetic Act
FSANZ	*F*ood Standards Australia New Zealand
FSQD	*F*ood Safety and Quality Division
GAA	*G*lobal Aquaculture Alliance
GAP	*G*ood Agricultural Practices
GDA	*G*uideline Daily Amount
GDP	*G*ross Domestic Product
GEN	*G*lobal Eco-labeling Network
GMO	*G*enetic Modified Food
GMOs	*G*enetically Modified Organisms
GMP	*G*ood Manufacture Practice
HACCP	*H*azard analysis and critical control points
HBM	*H*ealth Belief Model
ISO	*I*nternational Standards Organization
KeTTHA	*K*ementerian Tenaga Teknologi Higau dan Air
KMO	*M*eyer-Olkin
MENGO	*M*alaysia Environment NGOs
MIDA	*M*alaysia Industry Development Authority
MOH	*M*inistry of Health
MSC	*M*arine Stewardship Council
NGO	*N*on-Government Organization
NLEA	*N*utrition Labeling and Education Act
PFV	*p*esticide free vegetables
PPMs	*p*rocess and production methods
RSPO	*R*oundtable on Sustainable Palm Oil
SALM	*S*kim Amalan Ladang Baik Malaysia
SIRIM QAS	*S*tandards and Industrial Research Institute of Malaysia Quality Assurance Services
SOM	*S*kim Organic Malaysia
TAM	*T*echnology Acceptance Model

TPB	*T*heory of Planned Behavior
TRA	*T*heory of Reasons Action
TRESS	*T*reat Every Environment Special Sdn. Bhd
USDA	*U*nited State Department of Agriculture
VIF	*V*ariance Inflation Factor
WHO	*W*orld Health Organization
WTP	*W*illingness to pay
CFP,	*C*arbon Footprint
GHG,	*G*reenhouse Gas

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Agricultural sector remains one of the important sectors in the economy of Malaysia. The main cash crops such as rubber and palm oil have dominated agricultural exports ever since, although the Malaysian share of the world's production of rubber has gradually declined over the last 20 years. In addition to them, Malaysian farmers produce a number of fruits and vegetables for the domestic market, including bananas, coconuts, durian, pineapples, rice, rambutan and others. The Malaysian tropical climate is preferred by the production of various exotic fruits and vegetables.

The agricultural sector also plays an important role in Malaysia's economic development providing rural employment, uplifting rural incomes and ensuring national food. The agricultural sector is slowly changing entrepreneurial farmers in diverse businesses from swiftlet nest ranching to large-scale paddy farming have been able to move in to Malaysia's top 20 percent income group (Economic Transformation Programme, 2010). Agriculture is the foundation of a country's economy. Malaysian government takes a serious view on this phenomenon where a total of RM3.8 billion is allocated for the agriculture sector in 2012 Budget. Although the services sector is now taking over the manufacturing sector as a contributor to economic growth, agriculture is still important because it can increase the income of farmers, fishermen, agro-based industries and ensure the nation's food supply remain sufficient (Department of Statistics, 2010). The contribution of agriculture to the Gross Domestic Product (GDP) has declined from 28.8 percent in 1970 to 7.5 percent in 2007. As shown in Table 1.1, GDP of agricultural sector has sustained the percentage of contribution to overall GDP at 7.9 percent in 2009, 7.6 percent in 2010 and 7.7 percent in 2011.

Figure 1.1 shows the commodity sectors which are the main contributor of GDP in agriculture. Accounting for more than 52.0 percent per year for the period of 2006-2010 (Department of statistics, 2010). Oil palm was one of the important commodities, followed by fisheries and logging sub-sector.

Table 1.2 shows production of major food commodities in Malaysia such as paddy, coconuts, pineapple, fruits, vegetables, livestock and fisheries. The amount of products has been increasing especially in livestock from 1,796 in 2006 to 2,236 in 2010, and from 1,584 in 2006 to 2,010 in 2010. Table 1.3 shows the balance of trade in major agriculture commodities in Malaysia in 2010 and 2011. Malaysia's total trade balance in 2010 is RM42,266,788, and in 2011 is RM56,067,430. It also shows that the total food products export is RM20,500,003 and total food products import is RM34,449,265 in 2011.

Urban populations in Peninsular Malaysia already represent 67 percent of the total

Table 1.1: GDP by types of Economic Activity at Constant 2005 Prices

Types of economic activities	2009		2010		2011	
	RM million	Percent	RM million	Percent	RM million	Percent
Agriculture	50,063	7.9	51,263	7.6	54,299	7.7
Mining and quarrying	66,386	10.5	66,122	9.8	62,334	8.8
Manufacturing	152,150	24.2	170,258	25.2	178,333	25.1
Construction	19,270	3.1	20,428	3.0	21,370	3.0
Services	335,027	53.2	359,215	53.2	384,272	54.2
Intermediate services	136,227	21.6	146,925	21.8	156,068	22.0
Transport, storage and communication	45,484	7.2	49,122	7.3	52,302	7.4
Finance, insurance, real estate and business services	90,744	14.4	97,803	14.5	103,766	14.6
Final Services	152,655	24.2	163,532	24.2	173,416	24.5
Utilities	16,246	2.6	17,386	2.6	17,922	2.5
Wholesale and retail trade, accommodation and restaurant	103,444	16.4	111,755	16.6	119,486	16.8
Other services	32,965	5.2	34,391	5.1	36,008	5.1
Government services	46,145	7.3	48,758	7.2	54,789	7.7
Plus : Import duties	6,989	1.1	7,660	1.1	8,653	1.2
GDP at purchasers' prices	629,885	100.0	674,946	100.0	709,261	100.0

(Source: Department of statistics, 2012)

Table 1.2: Production of major food commodities

Commodities ('000 Tonnes)	2006	2007	2008	2009	2010
Paddy	2,187	2,375	2,353	2,511	2,464
Coconuts	513	503	455	379	550
Pineapples	299	265	385	358	331
Fruits	1,429	1,434	1,598	1,602	1,641
Vegetables	573	457	491	624	870
Livestock	1,796	1,880	1,978	2,071	2,236
Fisheries	1,584	1,650	1,749	1,865	2,010

(Source: Ministry of Agriculture and agro-based industry, 2011)

population, with urban areas growing at a rate of 2.1 percent versus a rural growth rate of 1.4 percent over the same period. This trend is expected to continue as the nation develops. In Peninsular Malaysia alone, 94 percent of the population growth expected between 2000 and 2020 will be concentrated in the urban areas. As shown in Table 1.4, the majority of employed persons are concentrated in urban areas in 2011.

The accelerated phase of industrialization and urbanization in recent decades has inevitably brought about changes in the lifestyle of Malaysians. Although economic development has raised living standard, it brought with it more sedentary but stress-

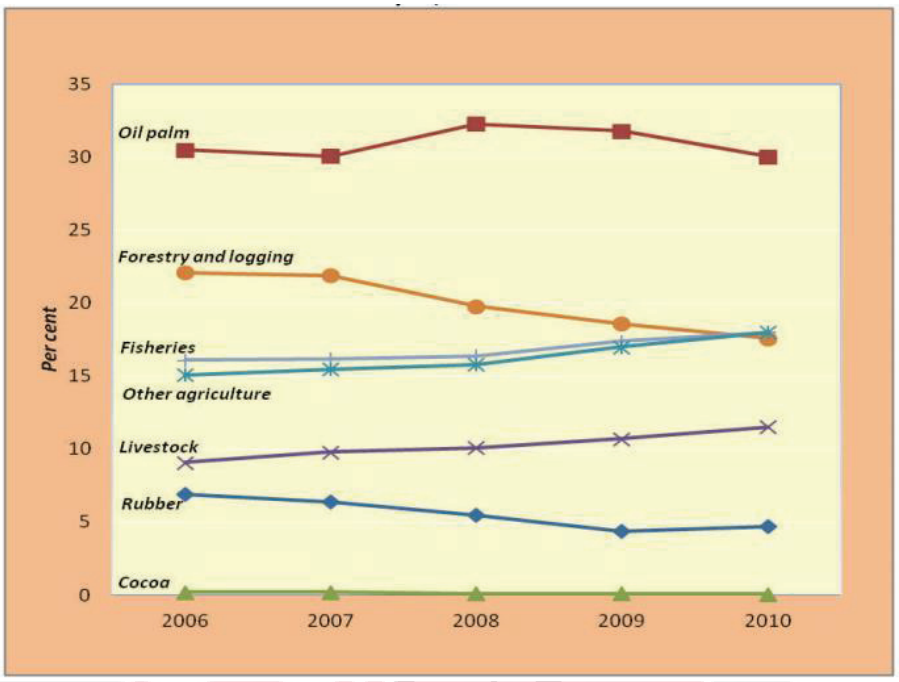

Figure 1.1: Percentage Share of GDP for Agriculture Sector, Malaysia, 2006-2010

(Source: Department of Statistics, 2011)

Table 1.3: Balance of Trade, 2010-2011

	2010			2011		
	Exported (RM '000)	**Import** (RM '000)	**Balance** (RM '000)	**Exported** (RM '000)	**Import** (RM '000)	**Balance** (RM '000)
Total in agriculture	106,864,234	64,597,445	42,266,788	133,636,292	77,568,862	56,067,430
Total food products	18,108,690	30,193,302	-12,084,611	20,500,003	34,449,265	-13,949,262
Selected Commodity						
Rice	1,241	1,609,304	-1,608,063	1,293	1,854,067	-1,852,774
Fruit	570,295	1,364,489	-794,194	576,653	1,539,128	-962,475
Vegetables	682,222	2,777,794	-2,095,572	750,788	2,734,600	-1,983,812
Coconut	19,274	24,681	-5,407	49,263	52,544	-3,281
Floriculture	345,754	17,054	328,700	354,004	20,106	333,898

(Source: Crop Statistic, 2013)

filled lifestyles, smoking and high fat and salt consumption. Changes in dietary habits and sedentary lifestyles are known to be associated with changes in health and increased prevalence of chronic diseases in the population (Noor, 2002). With the number of

Table 1.4: Number of employed persons in urban and rural areas

Labour force	Total	Male	Female
Employed persons	12,284	7,890	4,395
Urban	8,528	5,319	3,210
Rural	3,756	2,571	1,185

(Source: Department of statistics, 2012)

single person households and young people on the rise, the demand for food outside the home has intensified and Malaysian consumer tastes and trends are evolving (Berry, 2010). Fast-paced lifestyles have led to a growth in convenience foods, such as snack food, packaged food and take out.

Malaysia faces increasing incidences of lifestyle-related diseases and by 2020 will have reached an ageing nation status with 10 percent of the total population above the age of 60. Greater concerns over health, wellness and quality food have led to growing demand for health foods, organic and light products, and natural and minimally processed fresh foods. The importance of consumer education and participation in food control is gaining recognition and acceptance worldwide.

1.2 Food Industry in Malaysia

The current population of 28.55 million of Malaysia is supposed to increase regularly over the years. Food industry has been affected by the changes in socio-demographic and economic structures. These changes have directly or indirectly influenced the production of foods required by the increasing population. Likewise, the standard of living has improved by a paradigm shift in consumer lifestyle, taste and preferences, and the necessity for manufactured food, convenience food and health food has been raised by the wealthy society along with high purchasing power and technical progress in agriculture and marketing. Accordingly, the need for functional, organic, green and natural food has escalated by the increase in the consumer awareness of safety, quality, healthy and nutritious value of food. There are great chances for exponential increase in safe and natural food in Malaysia, considering all the variations in demand for all kinds of food industry.

In Malaysia, the food industry is variegated with many types of foods with Asian tastes. A crucial section of agro-based industry in Malaysia is the industry of processed foods and beverages. In 2010, the food processing industry contributed about 10 percent of the Malaysian manufacturing output and attracted a total value of RM1.972 billion (Market Watch, 2012). Nevertheless, small and medium scale enterprises constitute Malaysia's food industry. There are more than 9,000 food processing factories in Malaysia, of which 95 percent are classified as small-scale (Senik, 1999). The Malaysian food industry is dominated by small and medium scale companies. The major sub-sectors

are fish and fish products, livestock and livestock products, fruits, vegetables and cocoa (Fauzi, Senic, & Khairy, 2011). The sub sector of fisheries products is one of primary sections of exporting the processed foods under the processed food segment. Most of the processing establishments are small and mainly located along the coastal zone, close to fish landing points except for bigger establishments that process canned, frozen, surimi and surimi-based products. Traditional fish products processed in Malaysia can be broadly categorized into fish snacks, salted and dried, surimi and surimi-based, fermented and miscellaneous products (Biusing, 2001). Malaysia is the third largest manufacturer of poultry meat in the livestock sub sector in Asia Pacific area. Although Malaysia is largely self-sufficient in poultry, pork, and eggs (Market watch, 2012), it imports approximately 88 percent of its beef requirement from various countries in the form of fresh chilled and frozen meat and live animals to meet the local beef demand (Yasmin et al. 2003). In the vegetables and fruits sub-sector, interests in cultivation of dragon fruits are growing among farmers and most of the dragon fruits are for the domestic market consumption. Vegetables are small-scale cultivation products for fresh use and are chiefly exported to Singapore. Johor, Pahang, Kelantan and Perak are the main places for farming vegetables.

According to the Malaysian Industry Development Authority (MIDA), the global retail sales in food products are expected to grow at an annual rate of 4.8 percent to US $6.4 trillion by 2020. Table 1.5 shows the sales value of selected Malaysian processed foods and beverage products. The value has increased 24.5 percent from RM 18 billion in 2007 to RM 22.4 billion in 2008 due to the increase in the domestic consumption. The manufacturers of condensed, powdered and evaporated milk (RM 4.1 billion), cocoa products (RM 3.8 billion), sugar and flour mills (RM 2.1 billion) have the highest sales figures.

The food industry in Malaysia grows steadily; however, the country is still a great importer of food either for food manufacturing industry or for the end consumer. Consumption goods which constitute 7.3 percent of total imports, have increased to RM536.9 million (16.8 percent) from RM3.2 billion. The main components contributing to the rise are processed foods & beverages (Department of Statistics, 2012). Processed foods are exported to 80 countries, with an annual export value of more than USD2.6 billion. Food manufacturers operating in Malaysia include both Malaysian and multinational companies such as Nestle, Unilever, Cerebos, and Campbell Soup (Food Export Association, 2011). Malaysia is the largest supplier of processed foods to Singapore, with a share of 17 percent of the republic's total imports of processed foods from the world (The Star Online, 2012). Exports of agro-based products increased from RM60.9 billion in 2005 to RM80.4 billion in 2009. The total export value of frozen food to Australia and the Netherlands increased from RM39.7 million in 2005 to RM123.4 million in 2009. The total export value of processed foods to the People's Republic of China, Japan, the Netherlands and Saudi Arabia increased from RM1.5 billion in 2005 to RM2.3 billion in 2009 (10th Malaysia Plan , 2010).

Table 1.5: Sales of Selected Processed Food and Beverages Products in 2007 and 2008

Segment	2007 (RM '000)	Change (%)	2008 (RM '000)
Processed Food	**17,078,292**	**24.7**	**21,298,547**
Cocoa products	2,512,268	49.6	3,758,837
Preserved of fish and fish products	1,051,615	0.4 1,055,932	
Snack	422,433	38.6	585,595
Biscuits and Cookies	837,480	4.6	875,724
Chocolate products and Sugar confectionery	680,954	-16.3	569,701
Sugar	2,225,481	-6.4	2,082,004
Flour mills	1,440,5131	42.3	2,050,441
Rice	687,080	46.3	1,005,087
Condensed, powdered and evaporated milk	3,649,417	11.1	4,054,995
Sauces	465,023	8.2	502,923
Coconut Oil	65,987	-0.6	65,573
Pineapple canning	71,966	-20.8	56,980
Vegetable and Animal Oils and Fats	1,482,131	87.1	1,330,077
Beverages	**943,981**	**35,8**	**1,145,195**
Soft drinks	855,449	19.4	1,021,452
Mineral Waters	88,532	39.8	123,743
Total	**18,022,273**	**24.5**	**22,443,742**

(Source: Market Watch Malaysia, 2010)

1.3 History of Food Label

It is almost a century since food labelling was initiated in the USA. The USA also saw the first Food and Drugs Act in June 1906, partly as a result of the exposure of the deplorable state of sanitary conditions in meat-packing plants through the publication of 'The Jungle' written by Upton Sinclair. This was followed by the Food, Drug, and Cosmetic Act (FDCA) in 1938 which included standards for the food industry and the implementation of factory inspections and new remedies for violations which included court injunctions, as an addendum to the previous seizure and prosecution remedies. The US government's involvement in the issue of food labelling contributed to fair competition among producers as well as increased information access and reduced safety and health risks for consumers (Freeland et. al, 2002). Bruce Silverglade's major role in the passing of the Food Labelling and Education Act 1990 earned him the label of "Father of Food Labelling".

Food labelling, among many other aspects covering the broad spectrum of "from farm to fork," and is only one aspect of food law. The first Food and Drugs Act was passed in the USA in June 1906. This act was in part a reaction to Upton Sinclair's book, 'The Jungle', that disclosed unsanitary conditions in meat-packing plants. In 1938, the Food,

Drug, and Cosmetic Act (FDCA), preempted the Food and Drugs Act of 1906 in the USA. It created food standards, authorized inspections of factories, and provided for court injunctions as remedy for violations, in addition to the already existing seizure and prosecution remedies. The movement toward federal regulation of foodstuffs also entailed a movement toward disclosure of food contents. The 1938 FDCA required in part that the label of every processed and packaged food contain the name of the food, its net weight, and the name and address of the manufacturer or distributor. Thus the evolution of U.S. food law has been a response to some of the following concerns food safety problems, nutrition concerns, economic issues, environmental issues, agricultural protection, or food security threats. Since then several Acts and regulation have been introduced and implemented to ensure that consumers know what they eat and consume. Countries all over the world have followed suit in implementing the labelling and food act. New developments have occurred in the areas of country of origin (COO) labelling, nutrient content claims, trans fat labelling, organic food labelling, natural food labelling, food allergens, animal production claims, hormone labelling, irradiated food labelling, biotechnology labelling, eco-labelling and so on.

The passing of the US Food Labelling Act galvanized other nations to also embark on similar quests to provide consumers with nutritional information on their food products. What began initially as a voluntary measure soon became a legal requirement particularly with advances in food technology especially in the more developed countries. Canada passed a regulation making food labelling mandatory for processed food products in January 2003 while in the United Kingdom the Food Advisory Committee carried out and completed a review of the British food market and related health control measures in 1996, encompassing all food, beverages and supplements.

Nutrition labelling of food in Malaysia used to be optional for most food items other than special functional foods, similar to most Asian nations, the Ministry of Health announced its intention in 2000 to amend the situation and enforce mandatory nutrition labelling (Bagchi, 2008). The categories of foods requiring labels in Malaysia include the following: prepared cereal foods/bread/milk and powdered milk products/canned meat/canned fish/canned vegetables/canned fruit and fruit juices/soft drinks and botanical beverages.Product information provided in food product labels should provide consumers with adequate and reliable information about the product as related to its type, quality and components (Nordic Council of Minister, 2001).Many commonly consumed foods which contain poor nutritional constituents are now required by law to have labels. Such nationally popular food items are selected using the criteria of frequency and quantity of consumption and its importance to the community. This is further extended to include declaration of sugar content in sweets and beverages (WHO, 2004).

Increasing interests in the relationship between diet and health has led to a focus on nutritional aspects of the food supply. People were becoming increasingly health conscious and are demanding for more nutritious food as well as balanced diets in their daily food intake than any other time in history (Levy & Fein, 1998). Most customers

spend more money on food than other items. The renowned Roman physician, Galen, who lived in 2nd century AD, has already stated that moderation in dietary habits to achieve sound nutrition and good health is going to be trend in the future (Hutt, 1995). This statement is now becoming reality where consumers' today demand for high-quality products produced in environmentally friendly conditions. Such movement or shift in consumer preferences has causes changes in the functioning of the food production, processing and marketing sector. Although food companies are motivated by profitability derived from doing the agribusiness of supplying quality-differentiated products but at the same time designing food labelling is a policy to achieve a social objective like providing healthier, safe and environmentally friendly food to the population (Golan, 2001).

Food manufacturing industries produce a wide range of food items for consumers by various methods of refining and processing, which are standardized, quick, easy to prepare and attractive. One of the main issues in food manufacturing industry is how important food labelling is in providing sufficient information on nutrition content of the food to consumers. The concern about the relationship between sufficient nutrition content of food and health has existed.

The US was one of the first countries that formed just over two centuries ago. The first Food and Drugs Act was passed in USA in June 1906. This act was in part a reaction to Upton Sinclair's book, 'The Jungle', that disclosed unsanitary conditions in meat-packing plants. In 1938, the Food, Drug, and Cosmetic Act (FDCA), USA preempted the Food and Drugs Act of 1906. It created food standards, authorized inspections of factories, and provided for court injunctions as remedy for violations, in addition to the already existing seizure and prosecution remedies. In the US there are three main groups of legislators that cover food labelling and nutrition fact labelling for the purpose of protecting consumer interests: These group are; United State Department of Agriculture (USDA), Food & Drug Administration (FDA) and Food Labelling and Education Act 1990 (NLEA).

Under the provision of the Food Labelling and Education Act by May 1994 all of the food companies were required to use the new food and food label as a mandatory programme in USA. A key element of the new label was the "Nutrition Facts" panel that gives consumers significant information about the nutritional content of foods. The FDA designed nutrition facts were easy to read and easy to use by the average consumer without even using the calculator to figures out what consumers were getting in a product. It was also intended that the buyers did not need to understand grams and calories. The Percentage Daily Value column tells consumers in bold print whether the food is low or high in the key nutrients, fat, saturated fat, cholesterol, sodium and carbohydrates. In addition to "Nutrition Fact" panel, label claims like "lite" or "reduced fat" must meet standard definitions and must have reconfirmed in food labels (Neuhouser, Kristal, & Patterson, 1999).

The government intervention in food labelling in the US has served three main purposes,

that are; to ensure fair competition among producers, to increase consumer's access to information, and reduce risks to individual consumer safety and health (Freeland & Nitzke, 2007). Bruce Silverglade has been the director of legal affairs in the Centre for Science Public since 1981; He could well be called the "Father of Food Labelling" due to his leadership role in the passage of the landmark Food Labelling and Education Act 1990. Food labelling is a key factor in helping consumers to make healthy food choices.

After the US introduced the food-labelling act, other countries began to pursue programmers in nutrition information. At first it was introduced to the food producers as a voluntary programme, but with the growth of technology for example in more advanced countries like Canada under the new published regulation in January 2003, accommodating food labelling for most processed foods is mandatory.

In 1996 the Food Advisory Committee (FAC), of the United Kingdom completed its review of the British market for functional foods and the control of health claims. The scope of this was that they applied this to all food and drinks, including food supplements. Because of the integral relation between food, health and the capacity of food labelling to convey information to consumers, the Food Standards Australia New Zealand (FSANZ) has reviewed its food regulatory. FSANZ's primary objectives in developing food regulation are: the protection of public health and safety; the provision of adequate information relating to food to enable consumers to make informed choices; and the prevention of misleading or deceptive conduct (Lewis & Jefferson, 2000). Asian countries are likely to embrace higher labelling standards. For example additional labelling laws may require open dating (to describe product freshness), unit pricing (to state the product cost in standard measurement unit), and percentage labelling (to show the percentage of each important ingredient) (Kotler, 1999). In Hong Kong for example specifics require that manufactured food "shall be marked or labelled with a list of nutrient and listed in descending order of weight and volume. It requires these labels only on manufactured food (Yuen, 2003).

1.4 Food Label in Malaysia

During the last two decades, Malaysia has been experiencing a phenomenal economic growth. The growth include a major structural transformation i.e. moving from agriculture to manufacturing-based economy with remarkable social changes. The natural environment has been significantly affected by this quick development. Thus, sound programmes and policies are formulated to make sure that development continues together with appropriate management of the environment. Considering this, in 1974, the government introduced an enabling legislation called the Environmental Quality Act 1974. The Environmental Quality Act aimed to prevent, abate and control pollution, and also to improve the quality of the environment in this country. The Department of Environment has been committed to perform this legislation and ensure that Malaysia will go on with a healthy living environment as well as an industrial growth.

The Food Act 1983 (Act 281 of the Laws of Malaysia) and the Food Regulations 1985

of Malaysia govern the various aspects of food safety and quality control including food standards, food hygiene, food import and export, food advertisement and accreditation of laboratories. The enforcement of Food Act 1983 and the Food Regulations 1985 is targeted towards reducing food-born hazards and ensuring that food is safe for human consumption.

The Food Safety and Quality Division (FSQD) of the Ministry of Health (MOH) is charged with the implementation and enforcement of the law. FSQD implements an active food safety programme which includes routine compliance, sampling, food premises inspection, food import control activity and licensing of specified food substances required under Food Act 1983 and its Food Regulation 1985. It also conducts a food monitoring activity on specific food contaminants and additives. As a preventive approach, the FSQD have been implementing food handlers training programme, vetting of food labels, giving advice to the industry and consumers, and food safety certification scheme such as Health Certificate, HACCP certification and Free Sale Certificate.

The Food Act 1983 (Act 281 of the Laws of Malaysia) and the Food Regulations 1985 were aimed at ensuring reduction in food-borne hazards and food safe for human consumption. Implementation of these acts and regulations which regulate food safety and quality aspects which encompass food standards, food hygiene, food import and export, food advertisement and accreditation of laboratories is under the jurisdiction of the Food Safety and Quality Division (FSQD) of the Ministry of Health (MOH). To ensure food safety FSQD's routine activities include ensuring compliance, sampling, food premises inspection, food import control activity and licensing of specified food substances required by law in addition to monitoring of specific food contaminants and additives. Apart from its enforcement activities FSQD also plays a proactive role in developing awareness and education of food handlers through food handlers training programmes, vetting of food labels, giving advice to the industry and consumers, and food safety certification schemes such as the Health Certificate, HACCP certification and Free Sale Certificate.

The Malaysian government is strongly engaged in food safety promoting, environmental protection and animal welfare in food manufacturing industries and food production. As concerns about pathogens and food pollution have significantly increased, food safety has become a serious issue in the society; thus, the government is obliged to establish some sound agricultural practices. Take for example, GAPs (Good Agricultural Practices) which are an integrated farming system. The main objective of GAPs is to handle effectively all crop production resources in a sustainable and safe way. It is expected that the system will increase the productivity of farms with the production of good quality and safe food which as a result, the workers' welfare, safety and health and protection of the environment will be improved consistently (FAO, 2003).

In 1996, the Standards and Industrial Research Institute of Malaysia (SIRIM) was established which was the product certification programme. Since March 1997, the

activities of SIRIM's certification were assigned to the supplementary SIRIM Quality Assurance Services (SIRIM QAS), which is a wholly owned company of the Malaysian Government under the Ministry of Finance Incorporated. In fact, they try to discover and develop new technologies to promote competition among businesses through quality and innovation. SIRIM Berhad has enabled Malaysian products and services to be significantly recognized in quality and innovativeness worldwide. It is worth emphasizing that consumer awareness of the environment and preference for more environmentally benign products appears to be growing steadily in Malaysia. In this respect, the Malaysian government has responded very positively to this challenge.

Private label products, also commonly known as name brand, store brand, own label, retailer brand or generics, are brands which are retailer owned rather than by the producer or manufacturer (Market annual report, 2010). Tesco a hypermarket with its own private label has made efforts to improve its nutrition label design and display in Malaysia as follows;

Figure 1.2: Tesco Private Label

(Source: Tesco Homepage a sample of front-of-pack labels, 2012)

1.5 History of Eco-Label

Eco means environment, surroundings or habitat. Moreover, Eco is used as a prefix for words related to the environment or ecology. Thus, any product or trade named with "eco" usually means that the product is being produced and processed in friendly environment. Eco-labelling which has been popular in recent years, is known as an attempt to provide the consumers with the necessary information about a product which is qualified by improved "environmental performance and efficiency" compared to

similar products (Basu, 2003). This means that eco-label which is a voluntary label, provides the consumers with the information about the environmental implications related to all life components of a product such as its production, distribution, use and disposal (Adviser, 2002). Thus, eco-labelling plans will positively affect the amount of demand for environmentally preferred products. Consequently, the resource distribution will be changed in order to protect the environment. In fact, from a policy perspective, consumers are educated about the advantages of the environmental products, its manufacture process, use and disposal, which are the main purposes of eco-labels. This consumer awareness scheme will probably lead to a change in their purchasing behaviour and ultimately, reduce negative impacts. Further, the environmental objectives might be advanced by eco-labelling policies with no need for the control methods and production site commands which are inconsistent with the global environmental objectives and international trade agreements. As mentioned previously, Eco-labelling programmes are voluntary in essence. The labelled products should satisfy the environmental criteria in order to be similar to standards. However, there is a difference between Eco-labelling programmes and environmental standards i.e. whether the measure is voluntary or compulsory. The voluntary Eco- labelling programmes are measures that allow the firms to decide whether they attach eco-labels on their products or not. In the compulsory environmental standards the firms are not allowed to sell their products without meeting those standards.

International Organization for Standardization (ISO) has classified the existing environmental labels into three categories Type I, II and III according to specified preferential principles and procedures as follows. (UNOPS, 2009):

Type I Eco-labels (ISO 14024:1999) - ”eco-labels” are strictly independent and reliable labels that consider the life-cycle impact of products and services, even if this term is commonly used in a broad and not always correct way.

Type II Self-declared environmental claims (ISO 14021:1999) - the labels under this group are those developed by companies themselves and not awarded by an independent authority and thus do not have all the normal characteristics of environmental labels. It can be targeted at one of the company products in the form of a declaration, a logo, a commercial, etc.

Type III Environmental impact labels (ISO 14025:2006); Type III labels are those which include qualified product information based on life cycle impacts. The environmental information is compiled by the respective companies based on environmental parameters fixed by a qualified third party and is independently verified.

As of July 2004, international ISO standards have been developed and implemented for Type I and Type II labelling, while work continues on the development of a standard relating to Type III. Consequently, the ISO definition for Type III should be considered a ”draft working definition” that could be revised.

Eco-labels have emerged as a main tool for green marketing (Mansvelt, 2011), which means eco-labels are part of green marketing. Along with the increase in green marketing there has been an escalation in the development of eco-labels (Iannuzzi, 2011). Green marketing is a recent and emerging system of labeling and advertising for products and services that are promoted by claims of either a reduction or elimination of negative eco-logical impact. Eco-labelling is a voluntary initiative to enhance environmental performance during the production or consumption of products and services.

In the past decade, Germany introduced the first Eco label in the world called Blue Angel in 1978. Eco-labelling programmes have been widely popular around the world. The Blue Angel was created on the initiative of the Federal Minister of the Interior in 1978 and approved by the Ministers of the Environment of the federal government and the federal states. It was first introduced to guide consumers who wished to purchase the sound products which are environmentally produced and used. Overall, Blue Angel label specifies which one of the four different protection goals i.e. health, climate, water, and resources are focused in a product or service. Besides, the Blue Angel Eco-labelling scheme was formed in order to give the consumers reliable and easy to access information about the products which are environmentally preferable. In other words, the Blue Angel label evidences to what extent the production is eco-friendly and preserves resources. Considering the fact that the Blue Angel promotes the concerns of both consumer and environmental protection, it is granted to the services or products which are especially beneficial for the environment and also to those which met high standards of occupational health and safety and fitness for use. Nowadays, about 11,700 services and products in approximately 120 product categories carry the Blue Angel eco-label (Blue Angel, 2012). Blue Angel eco-label has been applied on the products of chain lubricants for motor saws, cardboard, copying paper, floor coverings, files and maps, printing devices, recycled paper, recycled board and sanitary paper.

Today, similar programmes have been introduced by more than 26 countries/regions, including developing countries such as India, Brazil, and Zimbabwe. A non-profit association of eco-labelling organizations called the Global Eco-labelling Network (GEN) was established in 1994 to promote eco-label labelling. Similarly, the aim of the association is to improve, promote, and develop the eco-labelling of products and services. This highlights the effectiveness of eco-labelling measure to protect the environment.

Consumers' interests in learning about the products environmental characteristics have increased. This need has been responded by assigning eco-labels on products to highlight the item's environmental attributes and also by introducing redesigned or new "green" products (Noblet et al., 2009). The increasing use of eco-labelled products indicates that eco-labelling tends to be known as an effective way of making change in consumer purchasing behaviour. Today, many products with eco-labels which are advanced by environmentally friendly process and production methods (PPMs) have come into the market.

Figure 1.3: Blue Angel logo

(Source: Blue Angel, 2012)

In the late 1980s, Fairtrade Labelling was founded in the Netherlands. Later, in 1988, the first Fairtrade consumer guarantee was labelled on coffee sourced from Mexico by the Max Havelaar Foundation (Fairtrade, 2011). Fairtrade eco-label is an ethical trade system that puts people first. Fairtrade offers farmers and workers in developing countries a better deal, and the opportunity to improve their lives and invest in their future. Fairtrade gives consumers the opportunity to help reduce poverty and instigate change through everyday shopping. It should be noted that Fairtrade which is based on a partnership between producers and consumers is known as an alternative approach for conventional trading. It is worth mentioning that Fairtrade standards cover food products ranging from tea and coffee to fresh fruits and nuts. Other standards are also available for non-food products such as flowers and plants, sports balls and seed cotton (refer to Figure 1.4).

”Dolphin safe tuna” labelling is another example of response to many concerns about tuna-fishing patterns in which fishermen surrounded dolphins by their nets, entrapping them and finally killing them. The notable decrease in dolphin population led to the Marine Mammal Protection Act of 1972 in US which imposed many limitations for dolphin hunting by local fishing boats (not foreign boats). However, dolphin killing still continued in the late 1980s which made some consumer’s boycott buying tuna. Later, in 1990, the rate of buying tuna canning from those fishermen who did not hunt dolphins, labelling “dolphin-safe” on their products has increased. To prevent any kind of fraud, the government set a legal definition for ”dolphin-safe”. Nevertheless, to protect dolphins, in 1992, the United States made an international environmental agreement for dolphin protection with Mexico and other countries. Based on the agreement, they must avoid killing dolphins, be compatible to a dolphin mortality quota, and accept international observers on their boats (refer to Figure 1.4).

”Green palm sustainability” is another example of positive movements to protect the

environment. Green Palm is a 'certificate-trading programme, which is designed to tackle the environmental and social problems created by the production of palm oil' (Green Palm, 2012). The Roundtable on Sustainable Palm Oil (RSPO) is assigned as the leader of the global attempt for the palm oil production in an environmentally friendly manner. The aim of RSPO is to encourage the growth of sustainable palm oil through having cooperation with the supply chain and collaborate with the stakeholder. The RSPO, first, was known as an informal organization cooperating with Aarhus United UK Ltd (a leading producer of vegetable oils for food, confectionery, cosmetics, and healthcare industries), Golden Hope Plantations Berhad (an estate and plantations company in Malaysia), Migros (largest supermarket chain and largest employer), the Malaysian Palm Oil Association, Sainsbury, Unilever and the World Wide Fund for Nature (WWF) (Green Palm, 2012). In August 2003, the first roundtable was held in Kuala Lumpur. Today, almost 40 percent of the world's palm oil producers are members of the RSPO. Further, NGOs, manufacturers, and retailers including Marks & Spencer, Asda, Tesco, The Rainforest Alliance and Wetlands International are also members of RSPO. Soon, RSPO had established its principles and criteria for Sustainable Palm Oil Production within two years. The protection of the rainforest was the main aim of RSPO foundation. It should be noted that if a palm oil grower or mill wished to be considered as producing RSPO-verified sustainable palm oil and to get the certificate, there are 39 criteria including the legality of operations; economic viability; best practice in operations and environmental and social responsibility to be met. Some of RSPO's principles and criteria such as the right to use the land can be demonstrated and is not legally contested by local communities with demonstrable rights (Green Palm, 2012). Since November 2005, new plantings have not replaced primary forest or any area, which contains one or more High Conservation Values, the status of rare, threatened, or endangered species. Thus, high conservation value habitats that exist in the plantation or that could be affected by plantation or mill management will be identified and their conservation should be considered in management plans and operations (refer to Figure 1.4).

In this respect, "UTZ CERTIFIED" is another sample to protect the environment, which is a 'worldwide certification programme that sets standards for responsible agricultural production and sourcing' (UTZ certified, 2010). In Mayan language, UTZ means "good" and the primary aim is to supply coffee, cocoa and tea production, which are expected by brands and consumers with the assurance of environmental and social quality. In this respect, coffee, cocoa and tea product which carry UTZ CERTIFIED have been certainly produced according to the criteria of UTZ CERTIFIED Code of Conduct (refer to Figure 1.4).

The Body Shop is the first environmental friendly shop that opened in 1996 in Brighton. It is an agro based beauty shop which sells body and hair care products. They sustain the natural materials and ingredients with the wise use of the planet's resources. The body shop has banned any animal testing in the cosmetic industry and they fund many campaigns to stop animal suffering. They ensure their products are not tested on animals by complying to the strict requirements of the Humane Cosmetic Standard which was

created by British Union of the Abolition of Vivisection. They produce products in a more environmental friendly way where they use natural resources such as strawberry, honey, grapefruits, tea tree oil, lemon tea tree and etc as their ingredients. Furthermore, to reduce the impact on the environment, the body shop introduced plastic bottles that were made from 100 percent recycled materials, replaced all the carrier or shopping bags with 100 percent recyclable paper bags and improved the energy efficiency by using new lighting system in the stores, warehouses and outlets to reduce the energy use. The Body Shop is currently in the process of converting car fleet to lower emission models and use the renewable energy to run offices, warehouses and stores around the world (refer to Figure 1.4).

1.6 The Role of Consumerism in Eco-Label in Malaysia

The increasing importance of sustainable concern such as food safety, environmental protection and animal welfare indicate that today's consumers are not only concerned about health aspect of food products but they are also very careful about safety, environmentally friendly and animal welfare of the food products that they consume (Brom, 2000).

Agricultural activities are one of the main sources of pollutions. Agriculture can cause pollution to the environment far greater than the industries and municipalities. The underground water aquifers and surface water are contaminated because of the use of the fertilizers and pesticides. Animal waste is one of the numerous sources of pollution that can add up to huge issues for water quality and may cause human health issues (Copeland, 2010). Agricultural chemicals, eroded sediment and animal waste have fouled over 173,000 miles of the United States waterways. Therefore, agricultural farming is responsible for 70 percent of current water pollution in the US (New York Times, 1998).

Malaysia is one of the environmentally rich countries in the world but still it exhibits most of the environmental problems that are typical of many developing economies (Corporate Environmental Responsibility, 2011). So, environmental pollution problems in Malaysia have a long history. Environmental concern can include the over-logging of primary forest resulting in the loss of wildlife habitats, soil erosion and the displacement of indigenous communities; air and water pollution from industry and urban transportation, especially in the main centers of economic activity (Kuala Lumpur and the Klang Valley, Penang and Johor) and the dumping of hazardous waste (Perry and Singh, 2001).

Every year millions of people suffer and die due to diarrhea, food or water borne diseases. In the Asia Pacific region, over 700,000 people have died of food and waterborne diseases caused by microorganism, discussed at the FAO/WHO International Conference on Nutrition in 1992 (WHO, 2000). There were almost 3 million children in the developing countries die each year due to diarrhea and food borne diseases. Consumers generally prefer food products that are safe and of high quality

(Grunert, 2005). In the United States, (Mead, 1999) it is estimated that foodborne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year. For example, from 1982 to 2002, a total of 350 E.coli-O157 outbreaks were reported in 49 states of the United States.

Despite regulatory efforts to improve the safety of the U.S. food supply, foodborne E. coli O157 outbreaks remain common (Range, 2005). The U.S spinach producers experienced a complete loss of sales when the Food and Drug Administration advised consumers to stop eating fresh and bagged spinach in the wake of an outbreak in fall 2006 due to E. coli contamination. According to a Harris Interactive poll of 2,563 US adults, surveyed online between April 10 and 16, 2007, consumers are concerned about the incidences of recalls among manufacturers and suppliers of food and pet food products. More than four in five (86 percent) mentioned at least some concern, with three in 10 (29 percent) indicating that these recalls are a serious concern for them.

Essentially, the consumers surveyed indicated that they would at least temporarily stop purchases of the brand involved or the product involved in the recall (Grier, 2009). Food quality and safety are important in influencing consumer perceptions and decisions regarding food product choices.

Food safety is important to the food industry operators as consumers look for safe, high quality and wholesome food products. Consumers are gaining more information and knowledge about the pesticide, insecticide, fungicide and herbicide that are being used in food production. They are becoming more concerned about the health and safety aspects of the food products (McCann-Hiltz, 2004). Food safety remains to be one of the major issues confronting the food service industry in Malaysia (Euro monitor International, 2004). In Malaysia the contributing factors which directly relate to food safety concerns include the inadequate access to clean and safe water, increasing use of pesticides and other chemicals in agriculture, excessive food additives in food processing and lack of consumer education. Recently Malaysian consumers are looking for wholesomeness, tastiness and healthier foods to adapt to a healthier diet and lifestyle. Consumer consumption and interest in organic food products are increasing in Malaysia (Salleh et.al, 2010). Intention of consumers to buy organic foods has become more vital when they get more awareness of organic attributes (Golnaz et.al, 2011).

According to a Europe Union survey, consumer concerns for animal welfare is more compared to their concern for food safety, nutrition and environment while making purchasing decisions (De Passille and Rushen, 2005). Also in another study by European Commission (2013), they found that, EU consumers are concerned about animal welfare when they buy food. Animal welfare defined as a token to cover both the animal's physical and mental well-being (FAWC, 2008). In 2008, an Austrian animal rights organization announced a boycott of Hungarian foie gras, arguing that force-feeding geese and ducks constitute animal cruelty (Gille, 2011). Animal welfare is important to humans for reasons of food security and nutrition (Good Practice Note, 2006). As studied by Verbeke and Viaenem (2000), meeting consumer concerns about

product safety and animal welfare are identied as key attention points. Consumer concerns are about the ethical issues of food safety as well as animal welfare. The place, process and the condition of animals being kept and slaughtered become very important to the consumers. Although health and food safety concerns are the main motives for organic food purchases, ethical concerns, specifically in relation to standards of animal welfare, play a significant and influential role in the decision to purchase organic food (Harper and Makatouni, 2002).

The SIRIM Eco-Labelling scheme was launched in 2004 to provide environmentally friendly Malaysian products with certification and a distinctive label to help promote them. Under the SIRIM Eco-Labelling scheme, a product is independently tested and verified against preset criteria such as Environmental Degradable, Non Toxic Plastic Packaging, Hazardous Metal Free Electrical and Electronic Equipment, Biodegradable Cleaning Agents and Recycled Paper (SIRIM Eco-labelling Scheme, 2009). Under SIRIM QAS International Eco-Labelling Scheme, a product will be independently tested and verified against preset criteria before the organization is allowed to use SIRIM QAS International's Eco-Labelling mark on its product, packaging and promotional materials. These criteria levels are designed to encourage the production and use of products and services that are significantly less damaging to the environment than other products. After successfully undergoing the certification process, the licensee will be awarded a SIRIM Eco-Labelling Certificate which remains valid for two years. During this period, SIRIM auditors will conduct a surveillance audit to ensure on-going compliance. In addition, the product must be manufactured in accordance with industry quality and performance standards, while also complying with legal requirements.

The government of Malaysia has made serious commitments to strengthen continuing development. Therefore, the existence of the Ministry of Energy, Green Technology and Water (KeTTHA) in Malaysia, where progressive economical growth depends on careful protection of the environment, can be conducive to develop Malaysians environmental performance. In April 2009, the Prime Minister of Malaysia, Dato' Sri MohdNajib bin Tun Abdul Razak established Ministry of Energy, Green Technology and Water (KeTTHA). The main objectives of KETTHA are specifying policies, establishing legal framework and efficient rules, setting orientation for the energy industry, utilizing green technologies and the water industry in line with national development goals, and developing an effective management system and a useful monitoring mechanism (Ministry of Energy, Green Technology and Water, 2009). To sustain the ongoing growth of the economy, technology and eco-friendly products and services are developed by this ministry. Moreover, promoting the public knowledge about 'going green' together with encouraging and motivating them to perform green behaviour by consuming the resources efficiently are other responsibilities of this Ministry. 'Green possession' policies for government agencies are also performed by the Ministry of Energy, Green Technology and Water. In addition, all newly settled infrastructures and buildings have to employ and apply green technological innovations; otherwise, they belong to local government units. These technological innovations include electronically powered lighting system, energy efficiency and water

walls powered by solar panels. One of the key drivers to enhance sustainable economic developments in Malaysia is developing green technology by the government.

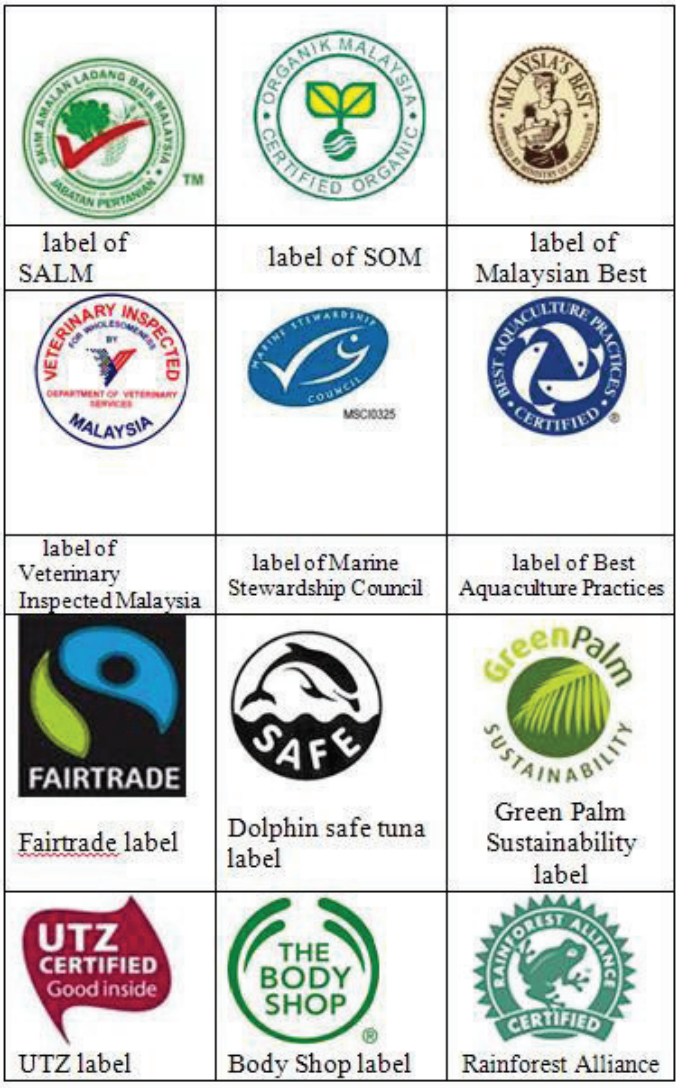

Figure 1.4: Eco-labels

(Source: Eco-label Index, 2013)

Malaysian farming's Good Agricultural Practice Scheme (SALM) was introduced in 2002 by the DOA. SALM is the Malaysian certification programme to "recognize farms that adopt Good Agricultural Practices (GAP), operate in a sustainable and an environmentally friendly way, considering workers health and safety and yield products

that are of quality and safe for consumption". SALM programme aimed at making farmers practice and adopt GAP as a work culture or as a model on their farms. Further, the priority in the local market has been granted to the farms who have registered under SALM since their products enjoy both a degree of differentiation and the preferred quality (refer to Figure 1.4).

Rainforest Alliance certification is built on the three pillars of sustainability, environmental protection, social equity and economic viability. The Rainforest Alliance uses the power of markets to arrest the major drivers of deforestation and environmental destruction: timber extraction, agricultural expansion, cattle ranching and tourism. To earn the Rainforest Alliance Certified seal, farmers must meet a comprehensive set of social, environmental and economic standards that include criteria for water conservation and quality. Certified farms treat wastewater, conserve streamside habitat and restrict the use of harmful agrochemicals that can leach into local waterways, which all promote healthier streams (Rainforest Alliance, 2013). One example of available Rainforest Alliance products is Lipton tea bag in the Malaysian market (refer to Figure 1.4).

Organic system of food production and organic labels are usually considered as eco-labels" (FAO, 2000). Thus in order to distinguish farms in which crops are cultivated organically is based on the criteria and requirements signified in the Malaysia Organic Scheme (SOM) introduced by the Malaysian government. The scheme provides guidelines to produce organic foods, which the production, processing, labelling and marketing of plant are all based on the Malaysia Standard MS 1529:2001 (Department of Agriculture, 2007). This scheme is basically aimed to protect the organic producers against the misrepresentation of other agricultural products as being organic, to protect the consumers against the fraud in the market place and unreliable product claims, and to ensure that all stages of production, preparation, storage, transport and marketing have followed this standard. In this respect, consumers can be completely assured that the organic products are free from undesirable chemical residues and are truly safe (refer to Figure 1.4).

Malaysian Best has been established by Federal Agricultural Marketing Authority (FAMA) for the agricultural products that follow the best quality and highest safety based on standards set by the Authority. Malaysia's Best is basically a "brand, which represents the seal of approval from the Ministry of Agriculture and Agro-Based-Industry for food safety and quality". Thus, the brand serves as a quality assurance for domestic and foreign consumers on Malaysia's agricultural products. Moreover, the image of the country's agricultural products and the demand in global market has been enhanced by the brand seal and name. Eventually, farmers who participate in Malaysia's Best programme should have the farm certificate scheme of Malaysia (SALM) (refer to Figure 1.4).

The Department of Veterinary Services (DVS) which was established to include services such as veterinary public health, the animal health, veterinary research, development

of the animal industry and genetic resources, human resource development and the enforcement of laws and regulations have introduced the veterinary. The objectives are to ensure that animal products for human consumption are healthy, clean, safe and suitable to be consumed, to facilitate the growth and development of the animal feed industry and to finally, ensure animals welfare and well-being (Department of Veterinary Services, 2011)(refer to Figure 1.4).

BAP (Best Aquaculture Practices) standard which is a voluntary certification programme for aquaculture facilities (which deals with environmental and social responsibility, animal welfare, food safety and traceability) has been developed by the Global Aquaculture Alliance (GAA). By BAP certification, aquaculture farms, hatcheries, processing plants and feed mills are able to assure consumers and everyone involved in the industry that their seafood is farmed and processed by the highest practices of the industry (Best Aquaculture Practices, 2012). The five basic elements of BAP certification audits are as follow: environment (sediment and water quality, fishmeal and fish oil conservation, control of escapes and use of Genetically Modified Organisms (GMOs), predator and wildlife interactions and storage and disposal of farm supplies) social responsibility (property rights and regulatory compliance, community relations, worker safety and employee relations) animal welfare (health and welfare and biosecurity and disease management) food safety (control of residues and contaminants, harvest and transport, Hazard Analysis Critical Control Points (HACCP)) and finally traceability (record-keeping requirement) (Best Aquaculture Practices, 2012) (refer to Figure 1.4).

There is another standard, which is called Marine Stewardship Council (MSC) standard (represented by a distinctive blue logo), suggesting that fish and fish products are prepared by well-managed and sustainable fisheries. The aim of fishery certification is to identify the fisheries in which high environmental and management standards are well met. Due to this standard, companies that catch, process, or buy the fish and other seafood will be able to achieve ”Corporate Social Responsibility” aims (Moody International Malaysia, 2010). It is worth mentioning that the detailed nature of the assessment process and extensive consultation with stakeholders suggests that the process takes approximately 12 months; moreover, certification will remain valid for five years. Eventually, fishing associations, governments, fish processors/ wholesalers or environmental organizations may all be clients for Seafood Industry Certification (refer to Figure 1.4).

Green campaign has been one of the most popular subjects among Malaysian in recent years. The primary aim of green campaign is to increase people’s awareness to protect the environment. Green campaign is popular not only in Malaysia, but also in many other countries. In this respect, there are many organizations that coordinate with green campaign, such as Environmental Protection Society Malaysia (EPSM), Malaysia Environment NGOs (MENGO) and Treat Every Environment Special Sdn. Bhd. (TRESS). Moreover, some other business companies such as Panasonic, TESCO, and Nippon Weather Paint Company support green campaign activities.

Beside other organizations, TESCO hypermarket had also designed an eco-friendly recycled bag to encourage consumers to use the recycled bag instead of the plastic bag. To do so, those consumers who use the recycle bags when shopping have received extra points for their member card. Overall, Tesco is known as the most environmentally friendly supermarket in many countries. Moreover, Tesco had been awarded for being the best big company that has incorporated environmental strategies through investing approximately 115m in energy-saving technology for its stores in the past two years. Still, Tesco is putting a step further and by working hard to produce zero carbon supermarket in the future (Angel, 2010).

The green campaign has also been supported by the Malaysia government. On 28 March 2009, in an encouraging movement, the government asked all Malaysians to switch off their lights from 8.00pm until 9.00pm. KL tower and 8TV were the companies that supported this programme.

Later, in 2011, the 'No Plastic Bag Day' campaign has begun on Saturdays in major grocery retailers. All the hypermarkets, supermarkets and petrol stations are to promote 'No Plastic Bag Day' and if consumers ask for the plastic bag they have to pay 20 cents for each plastic shopping bag.

1.7 Problem Statement

The government encourages people to go green through green campaign and environmental education mainly conducted by the Ministry of Energy, Green Technology and Water. They have attracted some of the companies in the food industry and marketer to produce more environmentally friendly or eco-labelled food products. Manufactures are intending to produce their products in an environmentally friendly way. Eco label food products are suitable for both environmental protection and consumer protection. Therefore such products and services are particularly beneficial for the environment while fulfilling high standards of health, safety and fitness for the users.

For Malaysian consumers, the availability of Eco labels on products in the market has become a subject of acute interest. This has resulted in their growing awareness of the role they play for the environmental protection through their purchasing of products. Since Malaysian people are concerned about the environment, animal welfare and food safety, their awareness regarding Eco labels has been steadily rising over the years. However, consumers often get confused with the new concept but this is mainly because it is only the beginning of eco-labelled food products in the market and there is still a lot more to familiarise with.

On the other hand because Eco-label is a new phenomenon in Malaysia, perhaps some people do not have any awareness about the Eco-label. There is still a lack of research in the areas of purchasing intention of Malaysian consumers when it comes to Eco-labelled food products. Therefore, it is still uncertain whether the Eco labelling is an effective

way of giving information regarding the food making process, or how influential this label is on the consumer's purchasing choice. Awareness of Eco-labelling plays a vital role in purchasing decision of consumers. In addition, the question arises whether only those who are conscious about the altruistic (saving the environment) or more egoistic (personal health) reasons are interested in this label. There are also problems like misbranding and false claims in food market which have become the important challenges to consumers.

The main perception of Eco labelling is founded on consumers concern for the environment that shows their willingness to pay higher prices for food products which are produced in an environmentally friendly way. As a rough rule of thumb about the production process which has an impact on the environment, consumers can ultimately decide to buy costly Eco label products or continue buying unlabelled products. It is important to find out the level of awareness, attitude and intention to purchase eco-labelled food products among consumers. Therefore in this situation efforts must be made to understand the extent people are aware and know about eco-label products and discover factors influencing consumer attitude to purchase eco-labelled food products.

Since Malaysia is taking steps towards going green and promotes green behaviour, purchasing eco-labelled food products might be an alternative way to perform green behaviour. Therefore, this study aims to explore factors influencing Malaysian consumers to purchase eco-labelled products. It is important to find out the level of awareness, attitude and intention to purchased eco-labeled food products among consumers and also find out to what extent people are aware and know about eco-label products. These factors can be social influence, such as family, friends, society or the availability of eco-labelled food products which give consumers awareness and intention to purchase them.

1.8 Objective of the Study

The main objective of the study is to investigate the awareness, and intention to purchase Eco labelled food products.
The specific objectives of the study are:

1. To determine the level of awareness toward the existence of Eco-labelled products.
2. To investigate the relationship between socio-demographic factors and consumer intention towards eco-labelled food products.
3. To determine the factors that influence consumer-purchasing intention based on eco-labelling.
4. To examine the extent of which socio-demographic and attitudinal characteristics will influence respondents intention to purchase food products with eco-label.

1.9 Significance of the Study

This research paper will concentrate on the purchasing intention of Malaysian consumers towards eco-labelled food products. It will benefit consumers, manufacturers and policy makers as shown in the following:

Consumers: consumer appeal is increased when label information extends beyond conventional information to consumer's basic needs and responds to consumer lifestyle and philosophy. Eco-labelling should be better planned to have a positive impact on consumers and thereby supporting sales. The other side of the coin shows environment conscious consumers of Malaysia in a better position to uptake green products, by recognizing the eco-labelling and its importance. In this respect, knowing about the details on the labels of food products can help consumers with purchasing and there is evidence that, some consumers can be misled by label, as they have no knowledge about labels.

Manufacturers: this might encourage them to produce innovative products that are truly healthier and friendlier to the environment. The results of this study would benefit the companies in deciding their launching strategies for green products.

Policy makers: Malaysian government is always encouraging consumers and companies to go green through their various initiatives and campaigns. The legislator has to protect consumers from misleading or false claims and also take constructive steps if there is a need to improve public awareness and formulate policies and standards to measure the effectiveness of the eco-label on food products. The results of this study will help the Malaysian government and NGOs in implementing policies which are better focused on eco-labelling and improve and strengthen develop and promote eco-labelled foods towards going green.

REFERENCES

2Malaysia. (2005). Retrieved from http://www.2malaysia.com/info.htm

A Guide to Environmental Labels - for *Procurement Practitioners of the United Nations System*. (2009). 1–38.

Aaker, J. L., & Williams, P. (1998). Empathy versus pride: The influence of emotional appeals across cultures. *Journal of Consumer Research*, 241-261.

Abdul Rahim H (2009). Consumers‟ intention and factors affecting green food consumption, Master Dissertation, University Putra Malaysia.

Adeoye, O. A. (2009). Gender, Age and Religion as Determinants of Eating Habit of Youth in Ikenne Local Government of Ogun State, Nigeria. *Counseling, (2):* 110–118.

Adviser, C. (2002). Sustainable Development. *Organization for Economic Cooperation and Development, (December)*, 1–18.

Ajzen, I. (1987). Attitudes, Traits, and Actions: Dispositional Prediction of Behavior in Personality and Social Psychology. *Advances in Experimental Social Psychology, (20)*: 1-63.

Ajzen, I. (1988). Attitudes, personality, and behavior. Chicago: *Dorsey Press*.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50(2):* 179-211.

Ajzen, I. (2001). Attitudes Annual Review of Psychology, (*52)*: 27-58.

Ajzen, I. (2011). The theory of planned behavior: Reaction and Reflections. *Psychology and Health, 26(9)*: 1133-1127.

Ajzen, I., & Fishbein, M. (1977). Attitude.behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, (84)*: 888-918.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, *NJ: Prentice.Hall*.

Ali, N.S. (2002). Prediction of coronary heart disease preventive behaviors in women: A test of the Health Belief Model. *Women & Health, 35(1)*: 83–96.

Angel, C. (2010). Green Campaign - Its Role in Creating Awareness Among Malaysian to Protect the Environment. *Ezine articles*.

Annual Report (2010). London: Moody's Corporation.

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology, (40):* 471–499. http://dx.doi.org/10.1348/014466601164939

Armstrong, G. & Kotler, P. (2005). Marketing: An Introduction. *New Jersey: Pearson Education, Inc.*

Arsenault, J. E. (2010). Can nutrition labeling affect obesity? *Choices Magazine, 25(3)*: 27-30.

Assael, H. (1995). Consumer behavior & marketing action (5th ed.). London: *PWS-Kent Publishing Company*.

Bagchi, D. (2008). Nutraceutical and Functional Food Regulations in the United States and Around the World. *Academic Press*, 462.

Bal, H. S. G., & Gulse, S. (2013). Consumer characteristics influencing organic milk consumption preference in Tokat, Turkey. *Journal of Food, Agriculture & Environment, 11*(1), 159-164.

Baltas, G. (2001). Nutrition labeling: issues and policies. *European Journal of Marketing, 35(5)*: 708-21.

Bandura. A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 7(2):* 122-147.

Basu, A.K. & Chau, N.H. & Grote, U. (2003). Eco-labeling and stages of development. *Review of Development Economics, 7 (2)*: 228-247

Baum, C. F. (2006). An Introduction to Modern Econometrics Using Stata, 1–341.

Bayaah, S. N., & Juhdi, N. (2010). Organic Food: A Study on Demographic Characteristics and Factors Influencing Purchase Intentions among Consumers. *Business and Management, 2(2)*: 105–118.

BBC News Health (2012). *Why food "traffic-light" labels did not happen*. Retrieved from http://www.bbc.co.uk/news/health-18767425

Berry, B. (2010). *Agri-Food Past, Present&Future Report:Malaysia* . Canada: Agriculture and Agri-Food Canada.

Best Aquaculture Practices. (2012). *Production/Product-and-Packaging/Best-Aquaculture-Practice.aspx*. Retrieved from http://www.sgs.com/en/Sustainability/Facilitiesand

Biusing, R. (2001). Assessment of Coastal Fisheries in the Malaysian-Sabah portion of the Sulu-Sulawesi. *Marine Eco region (SSME)*, (pp. 1–719). Retrieved from http://www.fishdept.sabah.gov.my/download/biusing2001.pdf

Blackwell, R., Miniard, P. and Engel (2001). Consumer behavior. Ohio: South-Western, *The Dryden press*.

Blue Angel. (2012). Retrieved from http://www.blauerengel.de/en/blauer_engel/index.php

Bonanno and Goetz. (2012). Food Store Density, Nutrition Education, Eating Habits and Obesity. Volume 15, Issue 4, 2012. *International Food and Agribusiness Management Review*.

Booklet Statistik Tanaman Sub Sector Tanaman Makanan. (2013). Malaysia: JabatanPertanian Semenanjung Malaysia.

Borgmeier, I., & Westenhoefer, J. (2009). Impact of different food label formats on healthiness evaluation and food choice of consumers: a randomized-controlled study. *BMC Public Health, 9(1)*: 184.

Bozowsky, E., & Mizuno, H. (2004). Introduction to Ecolabelling. *Global Ecolabelling Network (GEN)*, (pp. 1–17).

Brain, S. (2011). *Why Dummy Variables make You Smart, and How to Do it Smart*. Retrieved from http://www.sas.com/offices/NA/canada/downloads/presentations/VancouverMay11/Variable.pdf

Brenner, J. B., & Cunningham, J. G. (1992). Gender Differences in Eating Attitudes, Body Concept, And Self-esteem Among Models. *Sex Roles, 27*(7-8): 413-437.

Brom, F. W. A. (2000). Food, Consumer Concerns, and Trust: Food Ethics for a Globalizing Market. *Agriculture and Environmental Ethics, (12)*: 127–139.

Carter, C. A., & Gruère, G. P. (2003). Mandatory Labeling of Genetically Modified Foods: Does it Really Provide Consumer Choice? *Agro biotechnology Management and Economics*, 6(1-2).

Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products. *American Journal of Agricultural Economics, 78(5)*: 1248-1253.

Centers for Disease Control and Prevention. (2004). *Program Operations Guidelines for STD Prevention: Community and Individual Behavior Change Interventions*. Retrieved September 29, 2004, from http://www.cdc.gov/std/program/community/9-PGcommunity.htm.

Chan, D.C.N., Browing, W.D., Pohjola, P., Hackman, S., & Myers, M.L. (2006). Predictors of non-carious loss of cervical tooth tissues. *Operative Dentistry, 31(1)*: 84-88.

Charter, M. and Polonsky, M.J. (1999). Green Marketing: A Global Perspective on Green Marketing Practices, *Greenleaf Publications, Sheffield*.

Charter, M., & Tischner, U. (2001). Sustainable solutions: developing products and services for the future, Sheffield, UK: *Greenleaf Publishing Limited*.

Chase, D., Emunu, J. P., Nilsson, T., & Mccann-hiltz, D. (2009). Canadian Consumers' Purchasing Behavior of Omega-3 Products. *Food Distribution Research, 40(2)*: 12–25.

Consumer Food service in Malaysia. Global Market Information Database. (2004). London: Euromonitor International.

Copeland, C. (2010). Animal waste and water quality: EPA's response to the Water keeper Alliance court decision on regulation of CAFOs. *Congressional Research Service*, RL33656, Washington, DC. Craig, R. K.

Corder, G. W., & Foreman, D. I. (2009). Nonparametric Statistics for Non-Statisticians: *A Step-by-Step Approach*, 1–245.

Cutler, D. M., Glaeser, E. L., Shapiro, J. M., & Cutler, D. (2003). Why Have Americans Become More Obese? *National Bureau of Economic Research*. Retrieved from http://www.nber.org/papers/w9446 , 1–61.

Darren, H. (2007). Economic analysis of expanded gambling in Kentucky. *Journal of Applied Economics and Policy, 26(1)*: 1-14.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly 13(3)*: 319-340.

Department of Agriculture (2007). *Standard Malaysia organic Scheme (SOM)*. Retrieved from http://www.doa.gov.my/c/document/library/get

Department of statistic (2012). Retrieved from http://www.statistics.gov.my/portal/images/stories/files/LatestReleases/ppi/2012/OCT/Press_Release_PPI_October_2012_BI.pdf

Department of veterinary services (2011). Available at: http://www.dvs.gov.my/web/guest/visi_misi_dan_objektif.

Diamantopoulos, A., B.B. Schlegelmilch, R.R. Sinkovics, and G.M. Bohlen. (2003). Can sociodemographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research: (56)*: 465–80.

Dobson A. (2007). Environmental citizenship: towards sustainable development. *Sustainable Development, (15)*: 276–285.

Eco-label index. (2013). *http://www.ecolabelindex.com/* .

Eco-labels. (2013). *Department of Toxic Substances Control*. Retrieved August 21, 2013, from http://www.dtsc.ca.gov/

Economic Transformation Programme a roadmap for Malaysia. (2010). Kuala Lumpur: Performance Management and Delivery Unit (PEMANDU), *Prime Minister's Dept*.

Edwards-Jones, G., i Canals, L. M., Hounsome, N., Truninger, M., Koerber, G.,

Hounsome, B., … Jones, D. L. (2008). Testing the assertion that "local food is best": the challenges of an evidence-based approach. *Trends in Food Science & Technology*, *19*(5): 265–274.

Environmental procurement: practice guide. (2008). New York: UNDP, *Procurement Services Office*.

Fair trade, (2011). Retrieved from http://www.fairtrade.org.uk/what_is_fairtrade/fairtrade_certification_and_the_fairtrade_mark/the _fairtrade_mark.aspx

Fatimah, K. (2008). *Eco-Labeling of Environment Friendly Products and Markets Based regulation: An empirical analysis based on discrete choice modeling*. n.a.: Universiti Malaya.

Fatimah, S. jr, Nik, I., & Tee, E. (2010). Consumer understanding and preferences for different nutrition information panel formats, *16(2)*: 2010.

Fauzi, M., Senic, Z., & Khairy, A. (2011). Assessing Barriers of Growth of Food Processing SMIs in Malaysia : A Factor Analysis. *International Business Research, 4(1)*: 1–8.

FAWC (2008). Five Freedoms, FAWC, London. (W-p: http://www.fawc.org.uk/freedoms.htm

FernÃ¡ndez-Ballesteros, R., Paul, C., Abarca, D., Garcia, L. F., Patricia, S., Orosa, T., et al. (2010). The Concept of ageing Well in Ten Latin American and European Countries. *Ageing and Society*, *30*(01): 41.

Field, A. (2005). Discovering statistics using SPSS: and sex and drugs and rock 'n' roll (2nd ed). London: *Sage Publication*.

Field, A. (2013). Discovering Statistics Using IBM SPSS Statistics (4th ed) 1–952.

Fishbein, M., & Manfredo, M. J. (1992). A theory of behavior change. *Influencing human behavior: theory and applications in recreation, tourism, and natural resources management* (pp. 29-50). Champaign, Ill.: Sagamore Pub. Inc.

Food and Agriculture Organization (2000). Food safety and quality as affected by organic farming. *Paper (ERC/00/7) for the Twenty Second FAO Regional Conferences for Europe in Porto*, Portugal, 24-28 July 2000.

Food and Agriculture Organization of the United Nation (2003). *Good Agriculture Practice*. Retrieved from www.fao.org/prods/GAP/index_en.htm

Food and Agriculture Organization. (2003). *Good agriculture practice*. Retrieved from http://www.fao.org/prods/GAP/index_en.htm

Food and Agriculture Organization. (2007). *CODEX Alimentarius: Orginacally Produce foods*. Retrieved from: ftp://ftp.fao.org/docrep/fao/005/Y2772E/Y2772e.pdf

Food control and consumer affairs in developing countries. (n.d.). *FAO Cooperate Document Repository*. Retrieved August 21, 2013, from www.fao.org/docrep/v2890t/v2890t0b/htm.barriers/to/consumer/participation

Food Export Association. (2011). Retrieved from http://www.foodexport.org/Resources/CountryProfileDetail.cfm?ItemNumber=1029

Food Labeling Chaos (2010). Center for Science in the Public Interest. (*pp. 1*–122).

Fotopoulos, C. and Krystallis, A. (2002). Purchasing motives and profile of the Greek organic consumer: a countrywide survey", *British Food Journal, 104(9)*: 730-65.

Freeland, J., & Nitzke, S. (2002).Position of the American Dietetic Association: Total Diet Approach to Communicating Food and Nutrition Information. *Journal of the American Dietetic Association, 102(2)*: 100-108.

Freeland, J., & Nitzke, S. (2007). Position of the American Dietetic Association: Total Diet Approach to Communicating Food and Nutrition Information. *Journal of the American Dietetic Association, 107(7)*: 1–9.

Front of Pack (FOP) Nutrition Labelling. (2010). United Kingdam: *Food Standard Agency.*

Galarraga Gallastegui, I. (2002). The use of eco-labels: a review of the literature. *European Environment, 12*, pp. 316–331.

Garavaglia, S., & Sharma, A. (1998). *A Smaty Guide to Dummy Variables: Four Applications and A macro*. New Jersey : Proceedings of the Northeast SAS Users Group, 1998.

Gille, Z. (2010). The Hungarian Foie Gras Boycott: Struggles for Moral Sovereignty in Postsocialist Europe. *East European Politics & Societies, 25(1)*: 114–128.

Glanz,K., Rimer, B.K., & lewis, F.M. (2002). Health Behavior and Health Education (3rd ed.). San Francisco: *Jossey-Bass*.

Gliner, J. A., & Morgan, G. A. (2000). Research Methods in Applied Settings: *An Integrated Approach to Design and Analysis* (pp. 1–484).

Global Ecolabelling Network (2004). Retrieved from http://www.globalecolabelling.net/docs/documents/intro_to_ecolabelling.pdf

Global Private Label Trends. (2010). Retrieved from http://www.gov.mb.ca/agriculture/statistics/food/global_private_label_trends_en.pdf, 1–15.

Golan, E. (2001). Economics of Food Labeling. *The American journal of tropical medicine and hygiene* (Vol. 89, pp. 1–49).

Golnaz, R., Zainalabidin, M., Mad Nasir, S., & Eddie Chiew, F. C. (2010). Non-Muslims' awareness of Halal principles and related food products in Malaysia. *International Food Research Journal, 17,* 667-674.

González and Calatrava. (2008). Food Labeling Use and Differentiated Consumers Behavior: *A Survey Analysis in Spanish Food Mark In proceeding of 12th Congress of the European Association of Agricultural Economists* – EAAE 2008.

Good Practice Note: *Animal Welfare in Livestock Operations*. (2006). Retrieved from http://www.ifc.org/wps/wcm/connect/7ce6d2804885589a80bcd26a6515bb18/Animal Welfare_GPN.pdf (pp. 1–24).

Gorden, W. (1980). Consumer Behaviour a Practical Guide. (1st ed). London: *Croom Helm Ltd.*

Gorsuch, R. L. (1983). Factor analysis (2nd ed.). *Hillsdale, NJ*: Lawrence Erlbaum.

Graham, M.E. (2002). Health beliefs and self-breast examination in black women. *Journal of Cultural Diversity, 9(2):* 49–54.

Green Palm Sustainabilty. (2012). Retrieved from http://www.greenpalm.org/en/what-isgreenpalm/overview

Griden, E. R., & Kabacoff, R. (2011). Evaluating Research Articles from Start to Finish (3rd ed) 1–393. SAGE.

Grier, K., & Schmidt, C. (2009). E. *coli O157 Risk Reduction : Economic Benefit to Canada* Retrieved from http://www.fightecoli.com/docs/GMC_Economic_Benefit_Report_October_2009.pdf (pp. 1–40).

Gruère, G.P, & Rao, S.R. (2007). A review of international labeling policies of genetically modified food to evaluate India's proposed rule. *Ag Bio Forum, 10(1)*: 51-64. Available on the World Wide Web: http://www.agbioforum.org

Grunert and Wills (2007). A review of European research on consumer response to nutrition information on food labels. *Journal of Public Health (2007), (15)*: 385–399

Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics, 32(3):* 369-91.

Hagger, M., chatzisarantis, N.L.D., & Biddle, S.J.H. (2002). A Meta analytic review of the theories of reasoned action and planned behavior in physical activity: predictive validity and the contribution of additional variables. *Journal of Sport and Exercise Psychology, (24)*: 1-12.

Hailpern, S. M., & Visintainer, P. F. (2003). Odds ratios and logistic regression : *further examples of their use and interpretation. Stata, (3)*: 213–225.

Handfield, R., Sroufe, R. and Walton, S. (2005). Integrating environmental management and supply chain strategies", *Business Strategy and the Environment, 14(1)*: 1-19.

Harper, G.C., & Makatouni, A. (2002). Consumer perception of organic food productions and farm animal welfare. *British Food Journal, (14)*: 287-299.

Harrison, E. B. (1993). *Going green: how to communicate your company's environmental commitment*. Homewood, IL: Business One Irwin.

Hartas, D. (Ed.). (2010). Educational Research and Inquiry: *Qualitative and Quantitative Approaches* (pp. 1–453).

Hasler, C., & Laurian, U. (2000). Health Claims And Labeling Regulation: How Will Consumers Learn About Functional Foods? *Agro biotechnology Management and Economics, (3)*: 1–5.

Hawkes, C. (2004). *Nutrition labels and health claims : the global regulatory environment* (pp. 1–88). Retrieved from http://whqlibdoc.who.int/publications/2004/9241591714.pdf

Health and Consumers. (n.d.). *European Comission*. Retrieved August 23, 2013, from http//ec.europa.eu/consumers/index_en.htm

Hee, S.P. (2000). Relationships among attitudes and subjective norm: testing the theory of reasoned action across cultures. *Communication Studies, 51(2)*: 162-175.

Henson, S., & Harper, G. (2001). *Consumer Concerns about Animal Welfare and the Impact on Food Choice,* Retrieved from http://ec.europa.eu/food/animal/welfare/eu_fair_project_en.pdf (pp. 1–38).

Hinton, P. R. (2004). *SPSS explained*. London: Routledge.

Hochbaum, G.M. (1958). Public Participation in Medical Screening Programs: *A Socio psychological Study*. Publication No. 572. Washington, DC: U.S. Public Health Services.

Huffman, et.al. (2003). Consumer Willingness to Pay for Genetically Modified Food Labels in a Market with Diverse Information: Evidence from Experimental Auctions, *Journal of Agricultural and Resource Economics, 28(3):* 48 1-502.

Hutt, P. B. (1995). A brief history of FDA regulation relating to the nutrient content of food. *In Nutrition labeling Hand book, ed R. Shapiro*, (pp 1-27). New York: Marcel Dekker Inc.

Iannuzzi, A. 2011. Greener Products: The Making and Marketing of Sustainable Brands. CRC Press. 222 p.

Irawan, R., & Darmayanti, D. (2012). The Influence Factors of Green Purchasing Behavior : *A Study of University Students in Jakarta, (6)*: 0–11.

Janz, N.K., & Becker, M.H. (1984). The Health Belief Model: A decade later. *Health Education Quarterly, 11(1):* 1–47.

Javadzadeh, S.H.(2006). Knowledge, attitude and practice of women about blood donation. *SJIBTO, (3)*: 213-219.

Javadzadeh, S.H., yavari, M.T., Attar, M., & Ahmadieh, M.H. (2006). Knowledge, attitude and practice study about donation in the urban population of Yazd, Iran. *Transfusion Medicine, (16):* 403-409.

Johri, L.M. and Sahasakmontri, K. (1998). Green marketing of cosmetics and toiletries in Thailand, *The Journal of Consumer Marketing, 15(3)*: 265-281.

Jose, f., & Ladislao, L. (2012). Factors affecting consumers' belief about aquaculture. *Aquaculture Economics and Management, 16(1)*: 22-39.

K.T. Phuah, G. Rezai, M. Zainalabidin, and M.N. Shamsudin, (2011). Consumers' Awareness and Consumption Intention towards Green Foods, in Proc. *International Conference on Management*, 917-926.

Kaiser, J. F. (1974). Using the Window Function. IEEE Transactions on Circuits and Systems--I: Fundamental Theory and Applications, April 22-25:20-23. *Reprinted in Digital Signal Processing Committee 1979b*, 123-126.

Kalafatis, S., Pollard, M., East, R., Tsogas, M. (1999). Green Marketing and Ajzen's Theory of Planned Behaviour: A Cross-market Examination. *Journal of Consumer Marketing, 16(5):* 441-460.

Khor, G., Cobiac, L., & Skrzypiec, G. (2002). Gender Differences in Eating Behavior and Social Self Concept among Malaysian University Students. *Malaysian Journal of Nutrition*, *8*(1): 75-98.

Kinnear, G.C., & Gray, C.D. (2011). IBM SPSS statistics made simple. Great Britain: *Psychology Press*.

Kline, P. (1994). An Easy Guide to Factor Analysis, 1–190.

Kotler P., Armstrong G., Saunders J. & Wong V. (2001). Principal of Marketing, (3rd ed.) *Harlow Pearson Education Limited*.

Kotler, P., 1999. Kotler on marketing: how to create, win and dominate markets. London: *The Free Press*.

Kotler, P., Armstrong, G., Saunders, J., & Wong, V. (2005). Principles of Marketing (4th European ed.). *Upper Saddle River, NJ*: Pearson Education.

Krarup, S. and Russell, C. (2005). Environment, Information and Consumer Behavior, *Edward Elgar Publishing Limited*, Glasgow.

Kumar, P. D. (2010). Green Marketing: A Start to Environmental Safety. *Advances in Management, 4(12)*: 59-61.

Kumar, R. (1999). Research methodology: *A step-by step guide to beginners*. London: sage Publications.

Lazaridis, I., & Tryfonidis, D. (2006). The relationship between working capital management and profitability of listed companies in the Athens Stock Exchange. *Financial Management and Analysis, (19)*: 1–12.

Lea, E. and Worsley, T. (2005). Australians' organic food beliefs, demographics and values, *British Food Journal*, 107(11): 855-69.

Lee, K. (2008). Opportunities for Green Marketing: Young Consumers Market', Intelligence & Planning, *Marketing Intelligence & Planning, 26(6)*: 573-586.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*, 191-204.

Levy, A., & Fein, S. (1998). Consumers' Ability to Perform Tasks Using Nutrition Labels. *Nutrition Education, (30)*: 1–8.

Lewis, J. and Jefferson, S. (2000). The use of dietary guidelines and recommended dietary intake in the development of food regulations. *Australian Journal of Nutrition and Dietetics 57(3):* 136-144.

Li, J.J. and Su, C. (2007). How face influences consumption: a comparative study of American and Chinese consumers, *International Journal of Market Research, 49(2):* 237-56.

Llisa, B. G. B., & Connie, T. J. (2012). Food and Drug Administration, 1–50.

Luthans, F. (1998). Organisational behavior (8th ed). Boston: *McGraw-Hill*.

Lynne, G. D. (1995). Modifying the neo-classical approach to technology adoption with behavioural sciences models. *Journal of Agricultural and Applied Economics*, (*27):* 67-80.

Mahmoud, E.G., Ridha, M.A., & Lulwa, E.E. (2005). An assessment of the relationships of awareness, attitude, satisfaction and organization support associated with E-learning and organization and individual performance. *Journal of Economic and administrative Sciences, 21(2)*: 68-86. Retrieved from http://Jeas.cbe.uaeu.ac.ae/jeas2005_Dec/1.pdf

Mansori, S., & Zhen, S. (2012). Young Female Motivations for Purchase of Organic Food in Malaysia. *International Journal of Contemporary Business Studies*, 61–72.

Mansvelt, J. 2011. Green Consumerism: An A-to-Z Guide . SAGE. 525 p.

Market analysis report.(2010). International Markets Bureau. Global Private Label Trends.

Market Watch Malaysia. (2010). Retrieved from http://malaysia.ahk.de/fileadmin/ahk_malaysia/Dokumente/Sektorreports/Market_Watch_2010/Food_2010__ENG_.pdf (pp. 1–11).

Market Watch. (2012). Retrieved from http://www.malaysia.ahk.de/fileadmin/ahk_malaysia/Market_reports/The_Malaysian_Food_Industry.pdf (pp. 1–17).

Martinsons, M.G., So, S.K.K., Tin, C. and Wong, D. (1997). Hong Kong and China: emerging markets for environmental products and technologies, *Long Range Planning, 30(2):* 277-90.

Maya, W.P., Gina, K>M>A., & Robert, S.M.A. (2013). *Understanding the organic food labels, benefits and claims.* Retrieved 16, May, 2012 from http://www.helpguide.org/life/organic_foods_pesticides_gmo.htm

McCann-Hiltz, D. (2004). Consumer Food Trends. *Consumer trends in food safety* (pp. 1-8). Alberta, Canada: Strategic Information Services Unit, Economics & Competitiveness, Alberta Agriculture, Food and Rural Development.

McCormick-Brown, K. (1999). *Health Belief Model*. Retrieved September 27, 2005, from http://hsc.usf.edu/~kmbrown/Health_Belief_Model_Overview.htm

McKemey, K., & Saky-Dawson, O. (2000). *Rice Crop Protection Technology Uptake Blockages Amongst Rice Farmers in Ghana: with Particular Reference to Variety Adoption and the Reduction of Pesticide Use*. Ghana: Legon, Ghana, University of Legon, Ghana.

Mead, P. S., Slutsker, L., Dietz, V., Mccaig, L. F., Bresee, J. S., Shapiro, C., Tauxe, R. V. (1999). Food-Related Illness and Death in the United States, 5.

Menard, S. (2002). Applied logistic regression analysis (2nd ed.). Thousand Oaks, CA: *Sage Publications.*

Ministry of Energy, Green Technology and Water (2009). *About the ministry*. Retrieved 22, August, 2011 from http://www.Kettha.gov.my/en/content/about-ministry

Ministry of Health, Labour and Welfare: Food with Health Claims, Food for Special Dietary Uses, and Nutrition Labeling. (n.d.). *Food Safety Information*. Retrieved August 21, 2013, from http://www.mhlw.go.jp/english/topics/foodsafety/fhc/

Mohamed, Z., Rezai, G., Shamsudin, M. N., & Eddie Chiew, F. C. (2008). Halal Logo and Consumers' Confidence: What are the Important Factors. *Economic and Technology Management Review, 3*, 37-45.

Musdiana Mohamad, S., Siti Meriam, A., Etty Harniza, H., Muna Abdul, J., & Mohd Rizaimy, S. (2010). Consumer's Perception and Purchase Intentions towards Organic Food Products: *Exploring Attitude among Academician*. Canadian Social Science, 6.

Musdiana, M. S., Siti, M. A., Etty, H. H., Muna, A. J., & Mohd, R. S. (2010). Consumers Perception and Purchase Intentions Towards Organic Food Products: Exploring Attitude Among Academician. *Canadian Social Science*, *6*(6): 119-129.

Nesbitt, S. W., D. J. Gochis, and T. J. Lang, (2008). The diurnal cycle of clouds and precipitation along the Sierra Madre Occidental during the North American Monsoon Experiment: *Implications for precipitation estimation in complex terrain*. Hydromet, (9): 728-743.

Neuhouser, M., Kristal, A., & Patterson, R. (1999). Use of food nutrition labels is associated with lower fat intake (*pp*. 45–53).

New economic model for Malaysia. (2009, 2010). Putrajaya: National Economic Advisory Council.

New York Times. (1998). National news briefs; Farms are polluters of nation as waterways. *New York Times, pp*.A19.

Nielsen, S. (2010). Food Analysis Laboratory Manual (pp. 1–171).

Noor, M. I. (2002). The Nutrition And Health Transition In Malaysia. *Public Health Nutrition, 5*(1a), 191-195.

Norazmir, M. N., Norazlanshah, H., Naqieyah, N., & Anuar, M. I. K. (2012). Understanding and Use of Food Package Nutrition Label among Educated Young Adults. *Nutrition, 11(10):* 836–842.

Nordic Council of Ministers, (2001). Evaluation of the Environmental Effects of the Swan Eco-Label—Final Analysis. Copenhagen: *Nordic Council of Ministers*.

Nutrition and Health Claim (1997). *Guidelines for use of nutrition and health claims*. Retrieved from: http://www.fao.org/ag/humannutrition/324440a666a3084165f9f74be8cbae3fe55088.pdf

Nutritional Labeling. (2013). *Tesco Store (Malaysia)*. Retrieved August 24, 2013, from www.tesco.com.my/html/our_brands/details.aspx?ID=188&PID=190

Ollberding, N. J., Wolf, R. L., & Contento, I. (2010). Food Label Use and Its Relation to Dietary Intake among US Adults. *Journal of the American Dietetic Association, 110(8):* 1233-1237.

Padel, S. & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal*, 107(8): 606-25.

Passillé, A.M. and Rushen, J. (2005). Food safety and environmental issues in animal Welfare. *Rev. sci. tech. Off. int. Epiz, 2005, 24 (2):* 757-766.

Peattie, K. (1995). Environmental Marketing Management: Meeting the Green Challenge, *Pitman Publishing*, London.

Peattie, K. (2001). Golden goose or wild goose? The hunt for the green consumer, *Business Strategy and the Environment, 10(4)*: 187-99.

Peattie, Ken and Crane, Andrew (2005). Green Marketing: Legend, Myth, Farce or Prophest. *Cardiff University.*

Perry, M., & Singh, S. (2001). Corporate Environmental Responsibility in Singapore and Malaysia The Potential and Limits of Voluntary Initiatives. *Research Institute for Social Development, (3).*

Petrecca, L., & Howard, T. (2007). *Eco-marketing a hot topic for advertisers in Cannes. USA Today*. Retrieved from http://www.usatoday.com/money/advertising/2007-06-22-cannes-green-usat_N.htm

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). Making Sense of Factor Analysis: *The Use of Factor Analysis for Instrument Development in Health Care Research (pp*. 1–384). SAGE.

Pichta, S. B., & Garzon, L. S. (2009). Statistics for Nursing and Allied Health, 1–420.

Polonsky, M. (1994). An Introduction to Green Marketing. *Electronic Green Journal, 1(2).*

Polonsky, Michael (2007). An introduction to green marketing, *electronic green journal, 1(2).*

Quinn, G. P., & Keough, M. J. (2002). Experimental Design and Data Analysis for Biologist 1–527.

Radam, A., Cher, L., Shamsudin, M.N, Mohamed, Z and Selamat, J (2007). Consumers Perception and Attitude towards Food Safety: the case of Meat Consumption. *The ICFAJ Journal of Consumer Behaviour, 2(2)*: 26-38.

Rahbar, E., & abdul wahid, N. (2010). Ethno-Cultural Differences and Consumer Understanding of Eco-Labels : An Empirical Study in Malaysia. *Sustainable Development, 3(3):* 255–262.

Rangel JM, Sparling PH, Crowe C, Griffin PM, Swerdlow DL. (2005). *Epidemiology of Escherichia coli O157:H7 Outbreaks, United States,* 1982–2002, 11.

Rashid, N. A. (2009). Awareness of eco-label in Malaysia's green marketing initiative. *International Journal of Business and Management, 4(8),* 10.

Rehman, T., McKemey, K., Garforth, C., Huggins, R., Yates, C., Cook, R., et al. (2003). *Theory of Reasoned Action and its integration with economic reasoning in linking farmers' attitudes and adoption behaviour - an illustration from the analysis of the uptake of livestock technologies in the South-West of England*. UK: International Farm Management Congress.

Rezai, G., Mohamed, Z., Shamsudin, M. N., & Kit Teng, P. (2013). Convenient or Trendy: Factors Influencing Consumption at Malaysian Home-Grown Full-Service

Restaurants. *Journal of International Food & Agribusiness Marketing*,*25*(sup1), 19-34.

Rezai, G., Zainalabidin, M., & Mad nasir, S. (2011). Malaysian Consumer's Perceptive Towards Purchasing Organically Produce Vegetable. *In 2nd International Conference on Business and Economic Research*, 1774–1783.

Rust, J., & Golombok, S. (1999). Modern Psychometrics: *The Science of Psychological Assessment* 1–240.

Saba, A. & Messina, F. (2003). Attitudes towards organic food and risk/benefit perception associated with pesticides. *Food Quality and Preference, (14):* 637-45.

Saleki, Z., Saleki, M., & Rahimi, R. (2012). Organic Food Purchasing Behaviour in Iran. *Business and Social Science, 3(13):* 278–285.

Salkind, N. J. (2011). Statistics for People Who (Think They) *Hate Statistic* (4th ed) 1–427.

Salleh, M., Ali, S. M., Harun, E. H., Jalil, M. A., & Shahraudin, M. rizaimy. (2010). Consumer's Perception and Purchase Intentions Towards Organic Food Products : *Exploring Attitude Among Academician. Canadian Social Science, 6(6)*: 119–129.

Sangkumchaliang, P., & Huang, W. (2012). Consumers' Perceptions and Attitudes of *Organic Food Products in Northern Thailand, 15(1)*: 87–102.

Sarkar, A. (2012). Green Marketing and Sustainable Development- Challenges and Opportunities. Marketing, Financial Services & Management Research, 1(9): 1–15.

Schrum, L.J., McCarty, J.A. and Lowrey, T.M. (1995). Buyer characteristics of the green consumer and their implications for advertising strategy, *Journal of Advertising, 24(2):* 71-82.

Schuyler W, H. (2009). Statistical Misconceptions. *Taylor and Francis Group*.

Selected Indicators for Agriculture, Crops and Live Stock, Malaysia. (2006). *Malaysia: Department of Statistics.*

Senik, G. (1995). *Small-Scale Food Processing Enterprises in Malaysia (pp*. 1–9). Retrieved from http://www.agnet.org/htmlarea_file/library/20110716000322/eb409.pdf

Senik, G. (1999). *Small-scale food processing enterprises in Malaysia*. Taipei: Food and Fertilizer Technology Center.

Sevil, Z. (2011).A Theoretical Approach to Concept of Green Marketing. *Interdisciplinary Journal of Contemporary Research in Business, 3(2)*: 1808-1804.

Sheeran, P., Trafimow, D., & Armitage, C. J. (2003). Predicting behaviour from perceived behavioural control: Tests of the accuracy assumption of the theory of planned behaviour. *British Journal of Social Psychology, (42):* 393–410.

Silverglade, B., & Heller, I. R. (2010). *Food Labeling Chaos*, Retrieved from http://www.cspinet.org/new/pdf/food_labeling_chaos_report.pdf ,1–122.

Sinnappan, P., & Rahman, A. A. (2011). Antecedents of green purchasing behavior among Malaysian consumers. *International Business Management, 5(3):* 129-139. http://dx.doi.org/10.3923/ibm.2011.129.139

SIRIM Eco-labeling Scheme. (2009). Retrieved from http://www.sirim-qas.com.my/attachments/article/62/DownloadBrochure.pdf (pp. 1–2).

Soonthonsmai, V., (2007). Environmental or green marketing as global competitive edge: concept, synthesis, and implication. *EABR (Business) and ETLC (Teaching) Conference Proceeding*, Venice, Italy.

Statistical Handbook Malaysia. (2012). Malaysia: Department of Statistics.

Stretcher, V., & Rosenstock, I.M. (1997). The Health Belief Model. In K. Glanz, F.M. Lewis, & B.K. Rimer (Eds.), *Health Behavior and Health Education*: Theory, Research and Practice (2nd ed.). San Francisco: Jossey- Bass.

Tabachnick, B. & Fidell, L. (2001). Using multivariate statistics, 4th ed. New York: *Harper Collins College Publishers*.

Tam, C. M. (2007). Decision Making and Operations Research Techniques for *Construction Management*, 1–299.

Tan, B., & Yeap, P. (2011). Relationships among the Antecedents of Behaviour Intention towards Environmentally Friendly Restaurants : A Causal Model. *In International Conference on Environment and Industrial Innovation, (12):* 1–7.

Tehrani, N (2004). Workplace Trauma: *Concepts, Assessment, and Interventions*: How can organizations defend their employees against psychological trauma? Psychology Press, 277.

Teisl, M. F., Noblet, C. L., & Rubin, J. (2009). The Psychology of Eco-Consumption. *Journal of Agricultural & Food Industrial Organization*, 1–29.

Temple, J. L., Johnson, K., Recupero, K., & Suders, H. (2010). Nutrition Labels Decrease Energy Intake In Adults Consuming Lunch In The Laboratory. *Journal of the American Dietetic Association*, *110*(7): 1094-1097.

Teng, P. K., Rezai, G., Mohamed, Z., & Shamsudin, M. N. (2011). Consumers ' Intention to Purchase Green Foods in Malaysia. In International Conference on Innovation, *Management and Service, (14):* 1–7.

Teng, P. K., Rezai, G., Mohamed, Z., & Shamsudin, M. N. (2012). MALAYSIAN CONSUMERS'WILLINGNESS-TO-PAY FOR FUNCTIONAL FOOD.

Tenth Malaysia plan, 2011-2015. (2010). Putrajaya: Economic Planning Unit, Prime Minister's Dept.

The Star Online. (2012). Star. Retrieved from http://www.thestar.com.my/story.aspx?sec=b&file=%2F2012%2F4%2F20%2Fbusiness%2F11137879

Thøgersen, J. (2006). Consumer Decision-*Making with Regard to Organic Food Products*, 1–20.

Thurstone, L.L. (1931). Multiple factor analysis. *Psychological Review, (38):* 406-427.

Trafimow, D., & Finaly, K. A. (2002). The prediction of attitudes from beliefs and evaluations: the logic of double negative. . *British Journal of Social Psychology*, (*41):* 77-86.

Triggle, N. (n.d.). BBC News - Food labelling: Consistent system to be rolled out. *BBC - Homepage*. Retrieved August 21, 2013, from http://www.bbc.co.uk/news/health/22959239

United Kingdom: Home Office, *Country of Origin Information Key Documents*: Malaysia, 15 November 2006, available at: http://www.refworld.org/docid/471338fa0.html

UTZ CERTIFIED Good Inside Certification Protocol. (2010). 1–42.

Vallerand, R.J., Pelletier, L.G., Deshaies, P., Currier, J-P. and Mongeau, C. (1992). Ajzen and Fishbein theory of reasoned action as applied to moral behaviour: a confirmatory analysis, *Journal of Personality and Social Psychology, 62(1):* 98-109.

Verbeke, W. A. ., & Viaene, J. (2000). Ethical Challenges for Livestock Production : Meeting Consumer Concerns about Meat Safety and Animal Welfare. *Journal of Agricultural and Environmental Ethics*, 12(2).

Vinning, J., & Elbreo, a. (1990). What makes a recycler? A comparison of recyclers and non-recyclers. *Environment and Behavior, (22):* 55-73.

von Alvensleben, R. (1998). Ecological aspects of food demand: the case of organic food in Germany, AIR-CAT 4th Plenary Meeting: *Health, Ecological and Safety Aspects in Food Choice, 4(1):* 68-79.

Wandel, M. and Bugge, A. (1997). Environmental concern in consumer evaluation of foodquality, *Food Quality and Preference, 8(1):* 19-26.

Wansink, B., Cheney, M., & Chan, N. (2003). Exploring Comfort Food Preferences Across Age And Gender1. *Physiology & Behavior*, *79*(4-5): 739-747.

Wayne, J.C. (2007). Standard for Educational and Psychological Testing: *Influence in Assessment Development and Use*. Retrieved 25, October, 2011 from http://teststandards.org/files/standards%20-%20influence%202007.pdf

Welford R (2000). Hijacking environmentalism. London: Earthscan.

Wier, M., Hansen, L. G., Andersen, L. M. and Millock, K. (2003). Consumer preferences for organic foods, in: OECD (ed.), *Organic agriculture – sustainability, markets and policies, CABI Publishing, pp.* 257–272.

Wong, V., Turner, W. and Stoneman, P. (1996). Marketing strategies and market prospects for environmentally-friendly consumer products, *British Journal of Management, 7(30):* 263-81.

World Health Organization (2000). Food-borne disease: A focus for Health Education. Geneva.

World Health Organization (2004). Global Strategy on Diet, Physical Activity, and Health

Yamane, T. (1973). Statistics: an introductory analysis. New York, NY: *Harper & Row*.

Yao and Wang. (2012). Consumer Purchase Intention towards Genetically Modified Food: Beneficial, Price, Socio-Demographic and Label Determinants International, *Journal of Trade, Economics and Finance, 3(3):*176-182.

Yap, sheau fen, & Noor, A. S. (2008). An Extended Model of Theory of Planned Behavior in Predicting Exercise Intention. *International Business Research, 1(4):* 108–122.

Yasmin, F., Mohamed, Z., Samsudin, M., & Jemak, M. (2003). *Consumer investment Cost Analysis for Beef Importation in Malaysia (pp.* 1–4). Retrieved from http://www.aseanfood.info/Articles/13005821.pdf

Yin, S., Wu, L., Du, L., & Chen, M. (2010). Consumers' purchase intention of organic food in China. *Journal of the Science of Food and Agriculture, 90(8),* 1361-1367.

Yuen, Caroline (2003). Hong Kong Market Development Reports Nutrition Labeling Proposed in Hong Kong. *USDA.2003. Report NO. #HK3009*.

Yuen, Caroline (2012). Hong Kong: Food and Agricultural Import Regulations and Standards-Narrative, FAIRS Country Report. n.a.: *USDA Foreign Agricultural Service, Global Agricultural Information Network.*

Zou, N. H., & Hobbs, J. E. (2010). The Role Of Labeling In Consumers' Functional Food Choices. *In European Association of Agricultural Economists* , 1–30. Retrieved from http://ageconsearch.umn.edu/bitstream/116421/2/5C-2_Zou_Hobbs.pdf