

**AWARENESS OF RURAL AND URBAN RESPONDENTS
TOWARDS ORGANIC FRUITS AND VEGETABLES**

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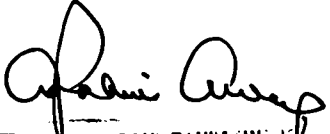


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Abstract

It is the study was carried out whether there is a difference between urban and rural consumers in term of knowledge and attitude towards organic fruits and vegetables. The study was carried out in two places, Mid Valley Mall, in Kuala Lumpur and Kampung Perepat in Klang, Selangor. The instrument of the study is by using distribution of Questionnaire randomly were distributed to the respondents. Eighty one of the respondents know about organic fruits and vegetables many of them did not. There was no significant difference between urban and rural respondents in terms of knowledge and attitude and attitude towards organic fruits and vegetables as it was by the Kruskal Wallis Test. It is suggested that organic fruits and vegetables should be promoted actively to increase the knowledge and improve attitude towards organic fruits and vegetables among Malaysians.



Abstrak

Kajian ini adalah untuk mengenal pasti sama ada terdapat perbezaan antara pengguna-pengguna bandar dan luar bandar dalam istilah pengetahuan dan sikap. Kajian telah berlaku dalam dua tempat yang mana dalam Mall Mid Valley, terletak di Kuala Lumpur dan Kampung Perepat di Klang, Selangor. Alat kajian ialah dengan menggunakan pengagihan soal selidik responden yang mana dipilih secara rawak. Jumlah responden dipilih ialah 81 orang responden datang dari pelbagai latar belakang serta jantina. Kajian membuktikan bahawa beberapa responden mempunyai pengetahuan mengenai buah-buahan organik dan sayur tetapi majoriti responden masih memerlukan banyak pendedahan mengenai buah-buahan organik dan sayur yang membawa ke tiada kepentingan didapati antara responden-responden bandar dan luar bandar bukan dalam ilmu pengetahuan mahupun dalam sikap kerana ia dibuktikan oleh Kruskal Wallis Test. Kesedaran berkaitan dengan buah-buahan organik dan sayur sepatutnya dibuat dengan meluas untuk meningkatkan pengetahuan dan sikap mereka ke arah buah-buahan organik dan sayur.



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LIST OF ABBREVIATION, UNIT AND SYMBOL

SPSS	Statistical Package for Social Science
IFOAM	International Federation of Organic Agriculture Movements
FAO	Food and Agriculture Organization
KMO	Kaiser-Meyer-Olkin
%	Percentage
UMS	University Malaysia Sabah



CHAPTER 1

INTRODUCTION

1.1 Background

Organic is a term that refers to the production of products without using any synthetic chemical from the very first step of production to the final product until to be consumed by consumers. The production of organic products based on organic farming where there is no usage of synthetic fertilizers and pesticides are being used and the awareness towards the agro-ecosystem health also high. Agro-ecosystem which is the basic unit of study in agro-ecology means the interaction between non-living and living components that operate in agricultural production system. The organic production will use any other alternatives in order to produce the organic product but still relate to the awareness of environment, health and security of the organic product as well as to the consumers. Organic product also has no usage of hormones, antibiotic and genetically modified organisms are strictly prohibited in the organic production.

Genetically modified foods are foods which genetic material has changed using techniques of genetic engineering in order to increase the yield by making them to tolerate to certain circumstances. Some factors that lead to GMO fruits and vegetables are to reduce poverty and hunger (Juma.C, 2011). Consumers also raise their doubt on the GM foods and synthetic additives in fruits and vegetables (Naspetti and Zanoli, 2006). According to a research which has published in 1999, where the rats that are fed with GM potatoes are experienced damage to gut mucosa (Lancet, 1999). This concern that makes people raise their awareness and select organic products as they believe the organic product able to ensure their health.



Malaysia Organic Scheme (SOM). These agencies are functioning to inspect the quality of the organic products, the security of the organic products and the preparation of the organic products in order to ensure the customers are able to get the best quality along with the reasonable price according to its quality. These agencies are appointed by the Department of Agriculture in order to help in the production of organic products. These agencies will inspect the farms that have applied the organic certification and carry out some analysis on the organic product. However, the organic certification including all the processes from the step of production, preparation, storage, labelling and transport which means the certification would be carried out in extensive terms instead of focusing on one way preparation of organic product. The world market for organic products in the year of 2012 has achieved at t \$23 billion (Yussefi, 2004) and this shows on how much people have the knowledge on organic foods. Besides, the demand of organic products has been growing annually at an average rate of 20 per cent (Squires et al., 2001).

Another reason that contributed to the consumption of organic food is the awareness of the consumers towards the environment due to conventional production. The conventional farming able to affect environment when the conventional products are rely heavily on synthetic chemical fertilizers and pesticide where this affect public health (Pimentel et al. 2005). Through the organic foods, the necessity towards agrochemical needs able to be reduced and pollution on the soil occur due to disruption of natural ecosystem works by applying the synthetic fertilizer. The excess of artificial nitrogen will lead to other pollution of ground water and rivers according to (Khan, 2006) where Sg. Padang Terap has been found high concentration of nitrate as well as in Sg. Muda due to the usage of artificial fertilizer. The consumers realized the environment can be saved by practising organic farming in order to produce to the foods for consumers.

However, the price of organic vegetable and fruit in Malaysia still at high price and holding the status of premium price because the status is raising the awareness towards community. The price can be brought down if the organic vegetable and fruit able to be more competitive in Malaysia as well as conventional vegetable and fruit. The people of Malaysia might have the knowledge regarding the benefits of organic fruit and vegetables but they might not willing to buy the organic vegetable and fruit because in Malaysia the conventional products offer more choices and the status of Malaysia as developing country might influenced the average finance per a household.

Even the trend of organic food consumption in Malaysia is increasing but the demand of organic food is still low (Hasnah, Wai Yee, Jean Ray, 2015)

1.2 Justification

The study was carried out in order to know and identify what level of awareness the people have. The study was carried out in a sub-urban location and in an urban location to figure out whether there was difference between the people in sub-urban and urban location. The spreading of awareness towards the benefits of organic products in sub-urban and urban places can be carried out at one time too through the outcome of the study. In addition, the term of organic product would help the people of Malaysia to understand and would eased the promotion of organic food as this will help the market of organic fruits and vegetables.

This study also was carried out in order to see the difference of awareness between the public in rural area and urban urea. There was no significant difference exists between the two types of areas, thus the spreading of awareness on the type of area would be done. Thus, this study would give a contribution to the agencies that related to organic products and also department of agriculture. This should bring the significance to farmers as well as the public in order to raise the awareness on the importance of organic food and there shall be improvement in order the production of organic food. However, this to identify the awareness of organic food among Malaysian is just the same in term of urban and rural areas. There was no significant difference in the awareness of organic food between the people of Malaysia in rural areas and urban areas should be done in both types places, urban and rural which lack of information and potential of organic food. By improving information in the place of lack information regarding organic food, the marketing of organic farming can be expanded and able to be sustained not only at certain period of time but continuously. By strengthening the organic food in domestic market, the organic food can be strengthening at the next level which is out of Malaysia. This will bring several benefits in a long term such as preparing a sustain agriculture with some stress on environment and ecosystem besides preparing job opportunities in Malaysia. Plus, at a long term, organic food would be one of the main contribution to Malaysia's economy.

The potential of organic food can be explored if the consumers emphasize the crucial of organic food and the valuation of organic food also can be increased. The consumers also able to receive a better perception towards on the organic food if the

information they received is accurate, clear and the information related to organic food is joined with some evidence. Thus, by doing the study, the potential of organic food can be explored by knowing the level of perception towards public in rural areas and in urban areas. Through some experiences, the consumers would decide on the importance, the relationship, and interest that lead to motivational state (Shroeder, 2003). By identifying the differences among the lifestyle in the rural areas and urban areas might lead to demographic variables. Generally, the regular customers of organic food come from the high class and they seem to be more well educated.

However, in this study the organic product was focusing on vegetables and fruits only which the meat production is excluded. The narrowing of the topic in order to identify the basic knowledge and awareness of organic product but the evaluation will be carried out with honesty. The improvement of organic food can be done by identifying what are the real factors that consumers demand in an organic product whether the cost, type of quality they demand and security in organic food. Thus, by knowing at how price can be reduced but still able to produce the organic food in high quality because the organic farming is a flexible system. Type of quality refers whether they want the organic product produced have no residual level, hygiene, no genetic modified, type of fertilizer and what kind of farming is being carried out such as intercropping or crop rotation. Meanwhile, the aspect of security is quite wide because the consumers find the security in term of their health and the environment that able to secure them even though there is still production occur in order to full fill the population in Malaysia that getting increased from day to day.

1.3 Objectives:

The objectives of the study are the following:

- To determine levels of knowledge for consumers on organic fruits and vegetables in urban areas.
- To determine levels of knowledge for consumers on organic fruits and vegetables in rural areas.
- To assess whether there is difference on between the level of knowledge organic fruits and vegetables in urban areas and rural areas.

1.5 Hypothesis

- I. What are the levels of knowledge of urban consumers on organic fruits and vegetables in urban area.
- II. What are the levels of knowledge of rural consumers on organic fruits and vegetables in rural area.
- III. Is there any significance difference between level of knowledge of consumers in urban area and rural area.

CHAPTER 2

LITERATURE REVIEW

2.1 Urban and rural areas in Malaysia

According to Department of Statistics Malaysia, the definition of urban areas in Malaysia is gazetted areas be next built up areas, which had a combined population of 10,000 or more at the time of Census 2010 or the special development area which could be identified, which at least had a population of 10,000 with the least 60% of population (range from 15 years and above) involved in non-agricultural sectors. The urbanization in Kuala Lumpur for example has led to many national issues and causing many other problems like housing problem and squatter problems.

However, for the first nationwide census in the year of 1970, the gazetted towns with a population of 10000 or more would be considered as urban areas. But, the term of urban areas in the year of 1991 and 2000 census was changed. The definition of urban areas defined as gazetted areas, along with next to build up areas with the combination of population of 10000 or more. The increase of urban population occurs in the year of 2000 due to both internal and international migration to urban areas which encourage the urbanization. The rapid rate of urbanization during the year of 1947-1957 produced an increase of urban population (Saw, 1972).

However, rural areas are vice versa with number population of an urban area but the government still prioritize the facilities as well as the roles in the economy contribution. The rural areas also upgraded in the aspect of facilities such as rural road coverage widened by 11.7% from 45, 905 kilometres in the year of 2009 to 51, 262 kilometres in 2014. In additional, the clean water supply to more rural households in

Sabah and Sarawak with a better service delivery where the establishment of Rural Transformation Centre (RTC) functioning as banking, training, business activities and licensing involving private sectors. The priority meant through the plan of Tenth Malaysia Plan, between the year of 2011 to 2015 the development occurred in the rural areas to promote the economic activities.

2.2 Organic Fruits and Vegetables

Organic product is a product from organic farming which the method of farming is strictly prohibited the usage of any synthetic fertilizer, pesticide, and even plant hormone. The organic farming produce organic product through the method of taking care the soil health, ecosystem, and even the planting material that being used should be free from any genetically modified plant. Everything should occur naturally and any disturbance from the usage of any artificial method or artificial chemical is prohibited because the quality and benefits from the organic production can be seen in a long period and they are not profitable at a short time only. According to the definition to the Food and Agriculture organization, FAO, 2007 it is a labelling term that denotes the production of organic product according to several standards and certification by some appointed authority. Certification is a procedure based on the official or appointed bodies and the standard written will be equivalent the assurance of the food requirement. Certification will be based on range of inspection activities as they are not focussing on one step but the whole of production from the very first of preparing the soil bed to the very final production of the product. Finally, there will be some auditing to ensure the level of the quality system and examination of finished products. Audit is a systematic and functionally independent inspection in order to determine whether the related results and activities followed the planned objectives.

There is some strong correlation found between levels of formal education and the consumption of organic food (Lockie et al, 2002). The consumers are more from the one that received formal education because they tend to be educated on what is organic product and conventional product. Some of the consumers who have received well education are the people that have seen directly the benefits of organic product and they have received the information better, more accurate and clear. Besides that, the awareness of knowledge and food hazards show higher among females and individuals who received high income as well as education (McIntosh et al, 1994). Generally, the busy lifestyle they have causing them to be more selective on their

consumption to stay healthy to lead the busy lifestyle. The higher premium around 15% a selection which is slightly higher but still the regular customers would pay, an average of 12/6% by women and 18% by men (Urena et al, 2008). The study also has identified three groups of organic food consumers which relates to the frequency of consumption namely regular, frequent and non-consumer. Regular customers referred to whom make purchases at least twice a week represented 12% of consumers, 42% were occasional consumers with 42% and the remaining 46% were non-consumers. But, among the non-consumers, 25% have the potential to buy organic food in the future. Thus, the gap between consumers' opinion and what they really need in the term of consumption should be taken into account. Women are more conscious regarding the health and act as innovators to change healthier diets and shaping up the important roles in a family diet (Fagerli and Wandel, 1999). Women also more committed on organic foods and the importance of environment as well as paying a premium in order for the benefits of environmental. A higher content of vitamin C was found in organic foods compared to conventional foods and this type of quality that consumers demand. Women also more aware with the side effects of chemical residues and any preservatives compared to men (Yiridoe et al, 2005).

Usually in conventional food, they have pesticide residue below the maximum limits allow. The organic vegetables and fruits will have more biochemical energy in order to synthesise secondary plant metabolites due to no disturbance of artificial fertilizer and pesticide. However, the organic agriculture cannot ensure the organic product being used is complete free from chemical residues but only to minimize the pollution that will be occur to soil, water and air. Organic food consists one third of pesticide that conventional food does (Baker et al, 2002). Through the organic production, a holistic production management which encourages and increase the agro-ecosystem health which means any other activities like biodiversity, biological cycle and soil activity which involves the microbiological ecosystem shall be involved. The organic product is still at its own the pathway which usually be managed separately from conventional agriculture and shall not be mixed.

2.3 Consumption of Organic Fruits and Vegetables in Malaysia

In Malaysia, the organic agriculture industry has expanded actively as the frequency of farmers involved in this industry increased from year to year. In 2014, the number of farms involved are 1700 hectares which categorized under organic fruits and vegetables where the number of farms accredited by myOrganic increases from time to time. Thus, the increasing of the organic farms due to increase in demand to full fill the market demand in the term of local and international aspects where the people are exposed to the organic fruits and vegetables are getting wider. In Malaysia, the organic fruits and vegetables can be consumed by all races and the increasing standard of life has causing the development in Malaysia occurs in rapid movement.

Recently, Malaysia has established market for organic fruits and vegetables due to health concerned by costumers where the price of organic fruits and vegetables in the market determined by the consumers. There are many approaches to attract consumers in consuming organic fruits and vegetables as the company of organic fruits and vegetables usually offers the product to the consumer's door step. However, due to high prices of organic fruits and vegetables also make it as one of the challenges to attract consumers on the organic consumption because in Malaysia, the organic fruits and vegetables will be sold at 50-300% higher compared to the conventional fruits and vegetables. To overcome the challenges, the association of organic fruits and vegetables have established to assist the selling of the organic fruits and vegetables. Nevertheless, the export of organic fruits and vegetables in Malaysia is not at the optimum level due to shortage of supply.

Besides that, the farmers in Malaysia has to confront the problems regarding to supply a fixed amount to every outlets for each month and this will affect the wholesalers as they will face difficulties in getting supply of certain organic fruits and vegetables for the whole year due to strict crop rotation. Due to this farmers could not able to supply certain amount of fruits and vegetables in advance while consumers need a continuous supply while the farmers not able to full fill the demand. Among of the factors that contribute the inconsistent is the farmers have to compete with other industries in term of land competition where the industries offer higher profits. The farmers not able to expand the size of their farms and the farmers need to move away from the urban which increases the cost of operations.

Apart from that, consumers in Malaysia have exposed to the organic fruits and vegetables as well as fresh organic products in the market which widens the selection for the consumers. But, the organic fruits and vegetables are not the option to the consumers as they just consume organic fruits and vegetables about once in a year because they thought that organic fruits and vegetables are not an essential option due to its benefits. The evidence regarding organic fruits and vegetables able to reduce chronic disease is still questionable and according to (Bradbury *et.al.*, 2014) there is no relationship found between consumption of organic fruits and vegetables able to reduce the risks of cancer. Thus, the consumers able to consume conventional fruits and vegetables at a lower price which has same nutrient values with the lower price compared to organic fruits and vegetables.

2.4 Factors of Organic Fruits and Vegetables Consumption

Malaysia is a halal hub country which refers to Malaysian especially Muslim emphasizes the halal production. To relate this, Muslim consumers demand products which are full filling the requirement of Shariaah (Al-Harran and Low, 2008). There was a study which showed that consumers attitude able to be influenced by religions as well as the purchasing decision and also eating habits (Mennel *et al.*, 1992).

In the meantime, health also is one of the factors for the consumers to consume organic fruits and vegetables. Some consumers do believe that strictly prohibited of synthetic chemical in the production of organic fruits and vegetables are one of the methods to lead a healthy lifestyle. Plus, the consumers do believe that organic fruits and vegetables do have more nutrient values compared to the conventional fruits and vegetables and this is also one of the factors that lead the consumers to the consumption of organic fruits and vegetables where the health awareness affecting them in purchasing of organic fruits and vegetables (Magnusson *et al.*, 2003). Even though the consumers realised that the price of organic fruits and vegetables are much higher compared to the conventional ones, they still chose to consume in organic fruits and vegetables as they do believe the nutrient values that organic fruits and vegetables have and willing to pay more due to that benefits.

The consumers also consume organic fruits and vegetables because they believe that organic fruits and vegetables are safer to be consumed compared to the conventional ones. The organic fruits and vegetables have gone through strict procedures to ensure and maintain the certification which needs the operational based

on the standard requirement by Sijil Organik Malaysia (SOM). The consumers are willing to pay more because they believe to invest more to avoid any risks regarding health. Thus, food safety is one of the attitudes which make them to purchase any organic fruits and vegetables.

2.5 The Importance of Organic Fruits and Vegetables

To produce the organic food, the organic farming will be used and this method is not using any synthetic fertilizer, pesticide as this step will produce non-toxic crops. Generally, organic farming is used extensively in organic food production because this method is using an approach of agro-ecological where they need to grow sufficient food for the market demand as the population getting increase from day to day (Azadi *et al.*, 2011). Thus, to produce more foods the importance of environment should not be neglected and using conventional agriculture more damaging the environment instead organic farming, it is less damaging effect to the environment but still able to full fill the market demand even though the demand getting increase from day to day. Using organic farming also, the negative effects of the Green Revolution on water, natural landscape, and humans will be able to be minimized.

In addition, organic farming able to be more flexible because the method can be applied in developed countries and also for developing countries and able to be one of the contributor to the socio-economic sustainability (Scherr *et al.*, 2008). The contribution can be done through some activities and creating more job opportunities thus, the local economies could be favoured and this is more favourable to the poorer countries (Hülsebusch, 2007). Another potential of the organic farming is they able to produce the same yield as the conventional agriculture (Badgley *et al.*, 2007).

Through production of organic food, greenhouse gases emission can be minimized through carbon sequestration. Carbon sequestration is an artificial process that will remove carbon gases by holding them back into the atmospheric. Agriculture is a major contributor to emissions of methane, nitrous oxide and carbon dioxide and 15% of all greenhouse gases are due to agriculture sector. One third of carbon dioxide emissions due to alternation of land used for forest clearing, shifting agriculture and intensification from agriculture. However, this can be reduced through organic farming along with the production of foods. The carbon sequestration is a process that able to displace or remove the carbon or by storing carbon in the soil.

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