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Improving Sustainability Concept in Developing Countries

A study of consumers' attitudes and intention to buy organic foods for sustainability

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Abstract

In this research, we studied consumers' attitudes and intention to buy organic foods under the principle of sustainable development. We used questionnaires to collect the data with 316 respondents in Thailand. For reliability analysis of questionnaires, the Cronbach's Alpha reached at 0.964. The results of study showed that consumers' attitudes about organic foods are related to health at the 1st rank. Consequently, consumers' attitudes with local origin, environment, and food safety are at the 2nd, 3rd and 4th respectively. Animal welfare is the latest attribute that consumers recognized. The research applied the Pearson correlation to find the relationship among five attributes and intention to buy organic foods. The output revealed that local origin attribute is the most important to correlate positively with the intention to buy significantly. Then, animal welfare attribute and environment attribute correlate positively to purchase intention. Consequently, health and food safety are the last two aspects to correlate with the buying intention considerably.

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1. Introduction

Nowadays consumers tend to purchase high quality food for their life [1][2]. For quality foods, it consists of two important dimensions including food safety and sustainability. Due to interest in product response to food safety, human health concerns, animal welfare considerations and environmental concerns are growing progressively [3]

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Therefore, green food with less chemical residuals has become more popular across the world [4][5]. The proportion of people consuming green food including organic food has been found to rise with an increase in income [6] and tend to be more highly educated than non-organic consumers [7][8]. Growing demand of organic foods is the increasing number of consumer concerns about the conventional food production [9]. Mostly consumers are receiving more information and knowledge of risky from pesticide, insecticide, fungicide and herbicide used in food production [10]. Consequently, consumers now concern about health and safe according to their foods [11].

In Thailand, consumer now realizes the issues of environment and health rather than before. These concerns bring some Thai consumers looking for fine and nutritious food without or less chemical residuals. Therefore, the market of organic agriculture currently is expanding more and more in Thailand [12]. Ministry of Commerce reported that market value of organic agriculture in 2005 reached at \$23 million in which increased around 145% from \$9.4 million in 2002 [13]. Beside the problem of Thai people's health is another concern according to their foodstuff, behavior of some consumers is unsanitary. They have more cholesterol and less fiber without fruit and vegetables. In addition, Food and Agriculture Organization of the United Nations (FAO) reported that Thailand used insecticide in 4th rank of the world and imported agriculture chemical around 30,000 million THB per year that probably cause to farmers to the high rate of cancer than other occupations [14].

Thus, the aim of this paper is to study the relationship between Thai consumers' attitudes and intention to buy organic foods. Then, related institutes could develop a sustainable strategic to expand the organic market from increasing customer's demand as well as to increase production from producers furthermore.

2. Literature Reviews

2.1. *Green food and organic food*

Green foods refer to foods that are safe, fine quality, nutritious, healthy to consumers and they are concerned with animal welfare produced under the principle of sustainable development [15]. In addition, green product, which is the umbrella of green foods defined as products that are typically nontoxic, made from recycled material, or minimally packaged. Besides green food also refers to original grown, recycle or reusable, contain natural ingredient or recycle content, do not pollute environment and do not test on animals [16][17]. Green foods could be classified into two groups. The first group allows for the use of a certain limit of chemicals whereas the second group refers to organic foods [10]. Organic foods refer to food raised, grown and store and/or processed without the use of synthetically produced chemicals or fertilizers, herbicides, pesticides, fungicides, growth hormones and regulators or generic modification [18]. All green foods are not organic foods. Food that permitted to be sold with the green food logo is safe and nutritious whereas organic food is the most stringent certification [19]. While Rezai et al. [20] expressed green food is not only about being organic, but it also includes the concept of food safety, health issues, environmental hazard as well as animal welfare. For consumers who are conscious of and interested in environmental issues, they are defined as green consumers [21].

2.2. *Organic food in Thailand*

In Thailand, organic movement was initiated by farmers and local NGOs in the 1980s. In the year 2004 about 1,500 hectares of cropland with 2,800 farms were certified organically and then increased to 21,701 hectares by 2006, while market value increased by 3.4% between 2005 to 2006 [22]. Public sector has set up several projects to support organic farming and has developed national standards for organic production [23]. Standards and certification are provided by national and private organizations [23] as details follows:

- Standards and Certification by National Government: A certification body for organic products called "Organic Thailand" which is managed by the Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives.
- Standards and Certification by International Movement of Organic Agriculture Movements (IFOAM): A certification body for organic product called "Organic Agriculture Certification Thailand" which accredited by IFOAM since 2001.
- Standards and Certification by several foreign organizations: i.e., Soil Association, BioAgriCoop.

For organic consumption in Thailand, A survey by Nelson [24] presented a high awareness of pesticide residues and effect negatively among the consumers in Bangkok. Also, they were willing to pay for higher price for pesticide-free products. In 1996, the research by Thai Farmers Research Center revealed that the main obstacles in buying health food were: trust lacking in organic quality, difficulties to find this kind of product and the price. Zhu et al. [25] showed that environmental value can promote green food consumption. Organic farming is a growing sector in Thailand, which is supported by the government and many private initiatives. Therefore, production is expected to rise in order to meet the growing demand in the domestic market for organic foods [26]. Area of organic farming in Thailand is about 0.0336 million hectares in 2015 [27]. It produces organic products at 71,847 tonnages that reaches values of 1.915 million Baht [28]. Productivity of organic agriculture in Thailand mostly includes organic rice, organic vegetables, organic fruits, and processed organic vegetables which these products are for both export and local market [13].

2.3. Attitudes towards organic foods

Green or organic food with less chemical residuals has become more popular across the world [19]. In China, the government has adopted a comprehensive food certification system to enhance and ensure safety with three levels for food production including safe food, green food and organic food certification [29]. A high awareness of safe food refers to hazard free, green and organic food and willingness to pay more for safe food product [30]. McCarthy et al. [31] showed that the purchase of organic food in China is motivated by environment, animal welfare and health concerns.

In Malaysia, the study showed that consumers are more likely to have a positive attitudes toward green food when they are more concerned about the environmental issues and health consciousness [32][33]. The majority of Malaysians consider food safety and health issue for buying green food as main reasons [34]. Wee et al. [3] studied consumer's perception, purchase intentions and actual purchase behavior of organic food. It presented consumer's perception of safety, health, environmental factors and animal welfare influencing intention to purchase organic food significantly. Rezai et al. [35] also introduced concern about food safety and environmental friendliness significantly influence consumer willingness to pay for green food in Malaysia. While attitudes including health consciousness, environmental protection and green food origins have significant positive relationship to intentions to buy green food among students in eastern Croatia [36].

For Thailand, Sangkumchaliang and Huang [26] revealed main reasons of consumers for purchasing organic food in northern region are healthier and environmental friendliness expectation. In addition to those reasons, the study by Roitner-Schobesberger et al. [37] presented that main reasons to buy organic products are healthier that they are environmental friendliness. From literature reviews, we therefore could summarize factors of consumers' attitudes with five attributes including food safety, health, environment, local origin, and animal welfare [3][26][31][36][37] and factors of intention to buy organic foods [3][25][36] as shown in Table 1.

2.4. Research Model

The research model was designed as shown in Fig. 1. This is to find relationship between each attributes of consumers' attitudes (food safety, health, environment, local origin, animal welfare) and the intention to buy organic foods.

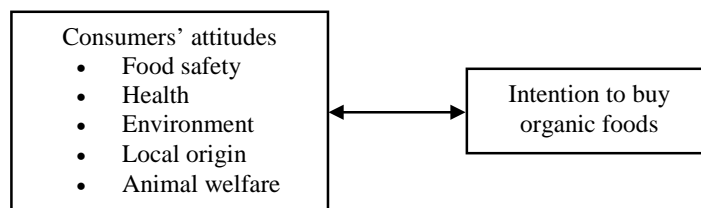


Fig. 1. Research model

Table 1. Factors of Consumers' attitudes toward organic foods and Intention to buy organic foods

		Factor
Consumers' attitudes toward organic foods	1. Food safety	1.1 Organic food are safer to eat.
		1.2 Organic food does not contain genetically modified ingredients.
		1.3 Organic food can reduce the food poisoning risk.
		1.4 Organic food are chemical free.
	2. Health	2.1 Organic food products are good to ensure our health.
		2.2 Organic foods are high quality and have high nutritional value.
		2.3 Organic food products contain no preservatives or artificial color.
	3. Environment	3.1 Organic farmings use less energy and produced packaged and transported environmental friendly.
		3.2 Organic farmings are good for the environment.
		3.3 Organic farming can prevent the contamination and pollution of soil, air, water and food supply.
	4. Animal Welfare	4.1 Organic farming treats animals humanely.
		4.2 Organic farming always considers the animal well-being.
		4.3 I am greatly concerned about the harm being done to plant and animal life by pollution.
	5. Local Origin	5.1 Organic foods help support local farmers.
		5.2 Organic foods are fresh.
		5.3 Organic food are certified by related institution.
		5.4 Production and processing of organic food is strictly controlled.
Intention to buy organic foods	6.1 I have intention to buy organic foods.	
	6.2 I will buy organic foods for my health.	
	6.3 I have a goal to consume organic foods as much as possible.	
	6.4 I would like to pay more for organic foods for better health.	
	6.5 I intend to buy organic foods to avoid illness.	
	6.6 I intend to buy organic foods to decrease environment problem.	
	6.7 I intend to buy organic foods because of animal welfare issues.	
	6.8 I intend to buy organic food as consumer who has responsibility.	

3. Research Methodologies

In this study, simple random sampling method was used and the survey was made by questionnaires in Thailand. This study developed the questionnaire with two parts. The first part is related to individual information and the second part factor of contains consumers' attitudes and intention to buy organic foods for respondents to give a

score with multiple rating scale at seven levels. For reliability analysis of this questionnaire, the Cronbach's Alpha reached at 0.964, which is acceptable. This should be concluded that the model for this study is fit to be conducted.

To analyze the data, researchers used descriptive statistics to explore the characteristics of sample size and find the average level both consumers' attitudes and intention to buy organic foods approximately. In addition, the research is applied a Pearson correlation to find relationships between each consumers' attitudes and intention to buy organic foods.

Table 2. Reliability Analysis

Cronbach's Alpha	Number of Items
.964	25

4. Results

For descriptive analysis, it was used to describe the population and the results of the demographic profile of the respondents of this study. There were female at 59% compared with male at 41%. The majority of the respondents had at least high school or Bachelor's degree (62%). Most respondents have ages during 31 to 40 years around 37%. Respondent's average income was between 15,001 and 30,000 Baht (36%). The majority of them were single (56%). In addition, demographic of the respondents is summarized in Table 3.

Table 3. Demographic of the Respondents (N=316)

Characteristic	%
Gender	
Male	41
Female	59
Age	
Less than 30	30
31 to 40	37
More than 40	31
N/A	2
Education	
Up to high school or Bachelor's degree	62
Master degree or more	37
N/A	1
Household Income Per Month	
Less than 15,000 baht	9.2
15,001 to 30,000 baht	36.1
30,001 to 45,000 baht	26.3
45,001 to 60,000 baht	13.3
More than 60,000 baht	13.0
N/A	2.1
Status	
Single	56.3
Marriage	43.4
N/A	.3

For Table 4, it shows the results of consumers' attitudes toward organic foods in each attributes. The results indicated that the highest mean was related to health with score of 5.13. This explains that most of the

consumers realized organic foods related to health. Local origin was recognized on organic foods from respondent at 2nd rank with score of 4.98. Consequently, it shows that consumers understand the environment related with organic foods of 4.9 at 3rd rank following by food safety with mean score of 4.86. The lowest mean was animal welfare attribute with mean of 4.69. Meanwhile, all attributes of organic foods are perceived by respondent at agreed level on organic foods. While intention to buy organic foods was calculated with score of 4.54 which reveals that respondents generally are at intention level to buy organic foods as shown in Table 5.

Table 4. Consumers' attitudes toward organic foods

	Mean	Standard Deviation
Health	5.13	1.15
Local origin	4.98	1.12
Environment	4.90	1.11
Food safety	4.86	1.15
Animal welfare	4.69	1.17

Table 5. Intention to buy organic foods

	Mean	Standard Deviation
Intention to buy	4.54	1.24

To find relationship between each attribute of consumers' attitudes and intention to buy organic foods, this study applied a Pearson correlation to analyze. For Table 6, the results of study showed that local origin aspect is high correlated positively to buying intention organic foods. ($r = .699$). Consequently, animal welfare ($r = .668$), environment ($r = .662$) and health attribute ($r = .649$) are also correlated to buying intention organic foods respectively. Finally, food safety is the last one ($r = .587$) which is correlated to intention to buy organic foods significantly at the 0.01 level.

Table 6. Correlation between consumers' attitudes and intention to buy organic foods

	Food Safety	Health	Environment	Animal Welfare	Local Origin	Intention to Buy
Food Safety	1					
Health	.833**	1				
Environment	.689**	.757**	1			
Animal Welfare	.640**	.670**	.717**	1		
Local Origin	.603**	.703**	.700**	.683**	1	
Intention to Buy	.587**	.649**	.662**	.668**	.699**	1

** Correlation is significant at the 0.01 level (2-tailed)

5. Conclusions

In Thailand, agriculture sectors still use chemical including insecticide, pesticide during production noticeably. They have imported a lot of agriculture chemical for marking productivity. It then causes to consumers and farmers to get risk of health problem from consuming chemical as well as to the problem of environment from using chemical. Even though organic market has been increasing from the past, consumers rather realize the contributions

from these products. But productivity and area of organic farming in Thailand are still limited compared with other countries such as Australia, China, and the USA. Therefore, supporting Thai people to consume more organic foods is really important in order to promote and expand the organic market in Thailand.

The purpose of this research is to study Thai consumers' attitudes toward organic foods in five attributes. Furthermore, this study also would like to understand the relationship between each consumer's attitudes and intention to buy organic foods. The finding of this study shows that Thai consumers realize health aspect on organic foods in 1st rank. Consequently, local origin, environment, food safety, and animal welfare are attitudes that consumers recognize toward organic foods respectively. All five attributes are scored by respondents at agreed level. In addition, Thai consumer has the intention to buy organic foods, but the level of purchase intention is still not high. The relationship between each attribute of consumers' attitudes and intention to buy organic foods was tested by a Pearson correlation. It presented that local origin, animal welfare and environment attribute have high correlated with intention to buy organic foods significantly following by health and food safety attribute respectively.

To encourage higher intention to buy more organic foods, related institution should promote and support consumers to know organic foods in local origin, animal welfare and environment attribute undoubtedly. For further studies, we suggest researchers to study more on buying behaviors of consumers on organic foods and to analyze the efficiency of changing conventional farming to organic farming in Thailand. This is to develop a sustainable strategic management to expand the organic market from increasing customer's demand, to increase productivity from producers as well as to decrease chemical using during production for better society, the environment and the economic.

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