Consumer Behavior and Knowledge on Organic Products in Thailand

Warunpun Kongsom, Chaiwat Kongsom

***Abstract*—**The objective of this study was to investigate the awareness, knowledge and consumer behavior towards organic products in Thailand. For this study, a purposive sampling technique was used to identify a sample group of 2,575 consumers over the age of 20 years who intended or made purchases from 1) green shops; 2) supermarkets with branches; and, 3) green markets. A questionnaire was used for data collection across the country. Descriptive statistics were used for data analysis. The results showed that more than 92% of consumers were aware of organic agriculture, but had less knowledge about it. More than 60% of consumers knew that organic agriculture production and processing did not allow the use of chemicals. And about 40% of consumers were confused between the food safety logo and the certified organic logo, and whether GMO was allowed in organic agriculture practice or not. In addition, most consumers perceived that organic agricultural products, good agricultural practice (GAP) products, agricultural chemicals free products, and hydroponic vegetable products had the same standard. In the view of organic consumers, the organic Thailand label was the most seen and reliable among various organic labels. Less than 3% of consumers thought that the International Federation of Organic Agriculture Movements (IFOAM) Global Organic Mark (GOM) was the most seen and reliable. For the behaviors of organic consumers, they purchased organic products mainly at the supermarket and green shop (55.4%), one to two times per month, and with a total expenditure of about 200 to 400 baht each time. The main reason for buying organic products was safety and free from agricultural chemicals. The considered factors in organic product selection were price (29.5%), convenience (22.4%), and a reliable certification system (21.3%). The demands for organic products were mainly rice, vegetables and fruits. Processed organic products were relatively small in quantity.

***Keywords*—**Consumer behavior, consumer knowledge, organic products, Thailand.

I. Introduction

NOWADAYS, food consumption patterns are rapidly changing. Consumers are concerned about issues related to the nutritional value of food and health. Raising awareness regarding the health implications of food is increasing for safe food consumption, which includes organic produce.

The consumption of organic food reflects the attitude of consumers towards individual health and perception in relation to environmental protection. Therefore, environmentally friendly products are gaining popularity among consumers, who are increasingly aware of their health and the environment [1].

Thai organic agriculture is still at an early stage. Production and marketing of organic products in Thailand started nearly 30 years ago. Encouraged by the government and many private initiatives, organic production in Thailand is growing steadily. Between 2001 and 2013, the average growth of organic production in Thailand reached 39.9% per year [1].

The two main ministries responsible for food safety control are the Ministry of Public Health (MOPH) and the Ministry of Agriculture and Cooperatives (MOAC). Moreover, the Ministry of Commerce of Thailand has a mission to promote organic produce, both in domestic and international markets by developing networks for producers, traders and partners; providing education to relevant entrepreneurs; implementing an operational database called, CIM (Commerce Intelligence of MOC); expanding domestic and global markets for organic products and produce; and developing a pilot model for the Organic Business Community [2].

With increasing awareness of the severity of domestic problem, as well as increasing pressure by international trading partners to comply with international standards, the Thai government has overhauled its approach to food safety [3].

In order to meet consumer demand and increase the level of food safety assurance provided by the market, the Thai government has tried to strengthen the regulations in the domestic market and introduce a voluntary standard for enhanced food safety assurance procedures and related food safety label in the market [3].

Thailand has multiple safe food labels. Currently, Q mark is the dominant food safety label for fresh produce in the Thai market [4]. In 2005, the Thai government introduced a food safety label (Q mark) to help consumers recognize the produce with a higher level of safety assurance [4]. The Q in the Q logo stands for quality. This quality and safety certification logo is given to agricultural commodities and food products that are in conformity with standards established under the National Bureau of Agricultural Commodity and Food Standards [4]. For organic standards and certification, the national government has issued only one label, “Organic Thailand”, by the Department of Agriculture (DOA), when the government established the standards for organic crop production in 2000 and developed a certification body for organic food products. The major certification body accredited by IFOAM is “Organic Agriculture Certification Thailand” [5].

F. W. Kongsom is with Applied Science Department, Dhurakij Pundit University, 110/1-4 Prachachuen Road, Laksi, Bangkok 10210, Thailand (e-mail warunpun.kon @dpu.ac.th).

S. C. Kongsom is with Organic Agriculture Development Center, Sukhothai Thammathirat Open University, Pakkret, Nonthaburi 12000, Thailand (e-mail agaskchatong@yahoo.com).

Consumers in Thailand are still limited in some specific groups [6]. This is because consumers lack knowledge and understanding about organic products; consumers know very little about the production process, as there is no identification with the product and its producer. This leads to low levels of confidence in organic production, which would indicate that there is not enough information on the consumers' side about organic production. These issues have an influence on purchasing decisions or behavior of consumers to buy organic products. Additionally, the studies concerning consumer demand for organic food products are still under-developed in Thailand. Therefore, if there are studies about the behaviors of consumers, especially in the groups of consumers who are buying and consuming organic products already, and factors that relate with the stated consumer groups, this will make us understand more about consumers' behaviors and related factors. Additionally, manufacturers and distributors of organic products can use such information to plan the production and distribution of organic products correctly, which meets consumers' demands more directly, leading to the development of organic farming in the country [6].

It is necessary to investigate the level of knowledge and awareness Thai consumers currently have of organic farming, and how they would like to be more informed. Therefore, this study focuses on perception, knowledge and consumer behavior towards organic products.

II. Methodology

The research methods employed in this study can be divided as follows.

A. Questionnaire Development and Instrument

The questionnaire was designed to analyze consumers' organic knowledge, perceptions, attitudes and purchase behavior. The structure of the questionnaire has six components. The first part of the questionnaire consisted of perception and knowledge of organic farming, organic products and safety certification label. The second part focused on the attitudes towards organic products. The third part consisted of questions relating to purchasing behavior of buying organic products. The fourth part was related to factors influencing purchasing behavior of organic products. The fifth part was related to consumption demand of consumers for organic products. While the sixth part of the questionnaire consisted of specific demographic information including age, gender, education level, occupation, and identification of family members with special health care needs.

B. Population and Sample

The target population is defined as follows: The population has been identified of buyers of organic products in the Bangkok metropolis and vicinity, and in other provinces in Thailand. The survey was conducted outside organic food outlets, department stores, and health food stores stocking organic foods, as well as a range of fruits and vegetables, and displaying the major 'safe food' label, were selected for the interviews.

The sample size: The purposive sampling technique was used to identify a sample group of 2,575 consumers aged 20 years or over, who intended to or purchased organic products.

C. Data Collection

This study conducted random interviews with two sets of consumers. The first set of consumers interviewed randomly represented 68 different provinces across the country, excluding the Bangkok metropolis and surrounding area, while the second set focused on Bangkok and its surrounding region. The survey was carried out in two parts. The first stage of interviews took place in 68 different provinces across the country was carried out between September 2015 and November 2015, and the second stage was conducted in Bangkok and its surrounds between August 2015 and September 2015. The face-to-face interview method was used for the data collection, using a structured questionnaire with closed-ended questions. The purposive sampling technique was used to approach consumers who were exiting the designated stores and willing to answer the questions.

D. Data Analysis

The data were analyzed using descriptive statistics; percentage, mean, and standard deviation. The statistical analysis was run with SPSS 17.0 package for Windows.

III. Results

A. Demographic Distribution

The sample comprised of 63.3% female and 36.7% male respondents, something that is expected since females are the main food purchasing decision makers in most households. Respondents varied in age from under 20 years to more than 70 years. About 60% were aged between 20 years and 40 years. More than half had a university education. About 26% of the respondents worked for private business, 15% worked for government, and about 9% were farmers. Most respondents lived with family members who had special health care needs.

TABLE I
Demographic Characteristics of Respondents (n = 2,575)

Gender	*Male*	36.7%
	Female	63.3%
Occupation	Farmer	8.7%
	Student	15.2%
	Government Officer	15.1%
	Private Business	26.0%
	Keeping House	13.7%
	Others	21.2%
Education	Lower than bachelor degree	38.9%
	Bachelor degree	51.9%
	Master degree or higher	9.3%
Age	Lower than20 years	4.5%
	20 - 30 years	29.4%
	31 - 40 years	29.9%
	41 – 50 years	20.2%
	More than50 years	16.0%
Family members with special health care needs	Yourself and your spouse	52.3%
	Descendants	18.4%
	Elderly person	23.0%
	No	5.2%

B. Knowledge and Perception of Organic Products

The respondents, who had some knowledge of organic, were presented with 10 statements and asked whether they thought these statements were true or false, or whether they did not know if the statement was true or false. The survey shows that more than 70% of respondents agreed with the statement that organic products do not carry pesticide residues, while 62.4% agreed to the statement that organic/sustainable agriculture/natural agriculture are the same, and 61.7% agreed with the statement that organic food processing products are produced without the use of chemical synthesis. However, some 40% of respondents were confused between the food safety logo and the certified organic logo, and whether GMO was allowed or not in organic agricultural practice. In addition, more than half of the respondents misunderstood that organic farming uses organic and chemical fertilizer together, but uses chemical fertilizer and synthetic pesticides, but less than other production methods.

TABLE II
ASSESSMENT OF STATEMENTS ABOUT ORGANIC FARMING BY RESPONDENTS WHO HAVE HEARD OF 'ORGANIC' IN PERCENT

Statement	Agree	Disagree	Don't know
Organic/ Sustainable Agriculture/ Natural Agriculture are the same	62.4%	18.4%	19.2%
Pesticide safety standards of organic products and hygienic products are the same	18.1%	68.2%	13.7%
Hydroponic plants are one type of organic product.	16.9%	63.7%	19.4%
There is no difference between new theory of agricultural and Agro-sufficiency	13.3%	60.8%	25.8%
Q logo is an organic label and/or organic certificate	15.7%	39.7%	44.6%
Organic farming uses organic and chemical fertilizer together, but uses chemical fertilizer less than other production methods	52.6%	21.9%	25.5%
Organic farming uses synthetic pesticides, but less than other production methods	59.5%	22.1%	18.4%
Organic products do not carry pesticide residues	73.0%	12.5%	14.5%
Organic food products never contain GMOs	46.9%	13.9%	39.2%
Organic food processing products are produced without using chemical synthesis	61.7%	14.6%	23.7%

The respondents were asked to answer 10 questions about organic farming. Only 40% of respondents responded with the correct answers to three to four questions. Less than 1% of respondents answered all the questions correctly. Considering respondents representing the nationwide set, it was found that only 22% were able to answer three questions correctly, while the respondents represent the city of Bangkok and surrounds scored only slightly higher. Some 3% of respondents in Bangkok and 6% in other provinces in Thailand were unable to answer any questions correctly.

Respondents were presented with 12 labels commonly found on vegetables and asked to identify the top three labels most recognized. The most recognized labels were identified as the "Organic Thailand" label (29.5%) the "Safe Quality Food" (Q logo) label under MOAC (25.5%). However, the label representing IFOAM was recognized by only 10% of respondents, and all other labels were not well known (less than 10%). Respondents were then asked to identify which label is considered the most reliable. Respondents identified three reliable labels as the "Organic Thailand" label (25.8%), the "Safe Quality Food" (Q logo) label under MOAC (22.8%) and IFOAM label (16.4%).

TABLE III
KNOWLEDGE ABOUT ORGANIC FARMING BY RESPONDENTS WHO HAVE HEARD OF 'ORGANIC' IN PERCENT

Number of correct answer	Respondents in other provinces in Thailand	Respondents in Bangkok
0	6.27%	2.4%
1	11.28%	5.4%
2	13.11%	10.8%
3	22.0%	18.9%
4	18.03%	21.9%
5	15.33%	20.0%
6	7.47%	9.7%
7	3.57%	5.5%
8	2.22%	2.6%
9	0.64%	1.9%
10	0.08%	0.9%

TABLE IV
MAJOR SAFE FOOD LABELS IN THAILAND RECOGNIZED BY RESPONDENTS WHO HAVE HEARD OF 'ORGANIC' IN PERCENT

Label	Percentage of recognized	Percentage of reliability	Label	Percentage of recognized	Percentage of reliability
	2.9	3.2	Organic Thailand	29.5	25.8
bioagricert	3.3	3.0	USDA ORGANIC	4.0	8.6
	8.1	5.0		25.5	22.8
IFOAM ACCREDITED	10.0	16.4	ECO CERT	1.6	1.3
	4.2	3.6	ORGANIC IFOAM	2.9	2.8
	3.2	3.2	GLOBALG.A.P.	4.8	4.3

C. Attitudes towards Organic Products

The majority of respondents demonstrate positive attitudes towards organic food. Respondents were asked: "What is the first thought when you think about organic?" Almost 76% of respondents thought about safety and healthiness while 11% of respondents thought about reliability. (Fig. 1)

In terms of consumers' opinion regarding food safety and health, 64% of respondents are of the opinion that organic products are the most safe/safest use of non-chemical agriculture. While 44.3% of respondents claimed that organic price is appropriate, and thus, respondents would rather buy organic products despite their higher price (37.8%). Therefore, more than half of all respondents claimed that all international organic products certification standard seals are reliable

(57.3%), while more than half responded saying that organic products have natural shapes and colors (60.7%).

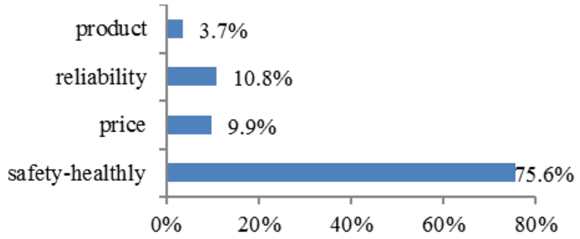

Fig. 1 “What is your first thought when you think about organic?” by respondents in percent

D. Consumer Behavior

Respondents were asked about their organic product/produce purchasing behavior. Consumers’ behaviors in consuming/buying organic products are detailed as follows:

1) Where: relates to the type of store the organic products are consumed/purchased. Some 35% of respondents purchased organic products at the supermarket, 21% at the green shop, while around 12% of respondents say they grew organic plants themselves (Table V). Moreover, respondents were asked the volume of organic products purchased at each store type identified. Most of respondents who purchased organic products from the supermarket said they purchased about 50% organic products. While those purchasing organic products from a green shop confirmed they purchased about 20% organic. Moreover, respondents who grew their own organic products said that they purchased about 10% organic.
2) How often: respondents were asked about the frequency of organic products purchases. Some 38% of respondents purchase organic products one to two times per month, while 23% of the consumers bought the organic products five to six times per year.
3) How much: respondents were asked about their level of expenditure on organic products/produce. Some 47% of respondents say they spend between 200 to 400 baht on each purchase, while 22% spend less than 200 baht on organic products on each occasion. When respondents were asked to compare the expenditure between this year and the previous year, 60% of respondents confirmed their expenditure was the same as previous year, with only 5% saying they had decreased expenditure compared to the previous year (Table VI).
4) Why: respondents were asked about the main reason for their decision to consume organic products. A total of 66% of respondents said that organic products were safe from agricultural chemicals (Table VII).

Therefore, when respondents were asked about factors that affected their decision to increase their purchase of organic products, 30% said they would buy more if the prices of organic products were lower, 22% said they would purchase products more frequently if the organic products were more readily available. Moreover, if these factors were true, respondents said they would purchase around 10% more rice, fresh fruits and vegetables produce. Therefore, they would purchase about 20% more fresh produce, around 20% more processed organic produce, and up to 50% more non-food products.

5) What: respondents were asked about organic product demand. The demand in consuming/buying organic products is as follows:

- Organic rice products – some 33% of respondents demanded Rice berry rice, with Jasmine rice and Brown rice recording demand of 25% and 15%, respectively.
- Organic vegetables products – some 16% of respondents demanded ready-to-eat salad, while 15% and 12% demanded kale and Iceberg lettuce, respectively.
- Organic fruits products – demand for organic fruits varied considerably, with respondents demanding grape (10%), mango (9.3%), watermelon (8.6%), and cantaloupe (8%).
- Organic processed food products – demand for this segment also widely varied, and included juices, pastes, processed meats and grain beverages.
- Organic non-food products – include body soap (20%), shampoo (17%), dishwashing liquid (7.6%), toothpaste, and cosmetics (5%).

TABLE V
THE PLACES OF THE ORGANIC PRODUCTS CONSUMING/ BUYING BY RESPONDENTS WHO HAVE HEARD OF ‘ORGANIC’ IN PERCENT

The places of the organic products consuming/ buying	percentage
Grow by themselves	12.3
Green market	9.1
Green shop (health shop)	20.7
Supermarket	34.7
Direct from the Manufacturer/distributor	11.0
Restaurant	8.0
Internet	3.0
Direct sales	1.4

TABLE VI
COMPARISON OF EXPENDITURE BETWEEN THIS YEAR AND PREVIOUS YEAR BY RESPONDENTS WHO HAVE HEARD OF ‘ORGANIC’ IN PERCENT

The comparison of expenditure between this year and previous year	percentage
Increase from the previous year	35.1%
Same	59.9%
Decrease from the previous year	5.1%

TABLE VII
THE REASONS FOR CONSUMING ORGANIC PRODUCTS BY THE RESPONDENTS WHO HAVE HEARD OF ‘ORGANIC’ IN PERCENT

Reasons for organic products consumption	percentage
Safe from agricultural chemicals.	66.0
Safe by not using hormones / antibiotics.	9.9
More nutritious	17.2
Environmental friendly	3.8
Support farmers	3.0
Other reasons	0.3

IV. DISCUSSION

The problem of perception and understanding of consumers towards Thai organic products needs to be measured and addressed. The results of the survey found that although most respondents have heard about organic farming (92% of the random all interviews conducted nationwide), most have an incorrect understanding of the concept of 'organic'. From the first set of results, which included consumers nationwide, with the exception of Bangkok metropolis and surrounding area, only 6.51% answered more than half of the questions correctly. While the second set of respondents representing the Bangkok metropolis and surrounding area, only 10.9% were able to correctly answer more than half of the questions. Some consumers could not distinguish between organic standard and other food safety's standards, including the logos. The study identified misconceptions among consumers that include the belief that hydroponic plants are organic, the Q logo is the same logo for certified organic products, and that organic products are allowed to use GMOs. Consumers in Bangkok metropolis and vicinity have confidence in the Q logo more than an organic logo.

The main obstacle to purchasing organic products of consumers is the lack of information about organic farming and organic standards. Another factor is the price of organic products. Organic produce tends to be more expensive than conventional products. In Thailand, organic products are priced approximately 50% higher than foods with a 'safe' label [3]. The study has shown that consumers are willing to purchase more organic products about 20% to 50% if the current price of products is reduced.

Consumers should have clear information about organic farming. Providing consumers with clear information about organic products and the difference between organic products and safe foods, may encourage consumers to purchase more organic products.

Reducing the number of 'safe food' labels would also allow organic labels to be more clearly positioned, while indicating more restrictive standards. By emphasizing that organic products are produced entirely without synthetic pesticides and are thus least likely to contain residues, producers and retailers would address the health aspect, which is the most important issue for consumers [3]. If consumers are better informed about this message, it would give organic products a unique and dominant position in the market and be recognized and distinguished as organic, 'safe' and 'hygienic' products. Consumers must be able to trust the control system based on clear standards for organic farming. The result of this survey found that consumers would prefer to purchase products certified by accredited agencies. Moreover, consumers would purchase more if they trusted in the rigorous inspections and the organic certification system.

In the view of Thai consumers, there are two main motivations for purchasing organic foods. The first important is the expected health and safety benefits, while the other is the perceived higher nutritional value of organic foods.

Consumers in the Bangkok metropolis and vicinity buy organic products from three marketing channels, which are, modern trade outlets (supermarket), green shops, or buying directly from the producer/market. While the marketing channels for nationwide consumers were identified as modern trade outlets (supermarket), buying directly from the producers/market, and homegrown produce. Supermarkets are the most frequented by consumers purchasing organic products because of their convenience and variety of products. Approximately 60% of consumers in the Bangkok metropolis and vicinity buy organic products at least once a month or more with a total expenditure average 200 baht to 400 baht per visit, while consumers across the country consume organic products in slightly higher proportions.

Providing comprehensive information about organic products would give consumers a better understanding and build a positive attitude towards organic products. Consequently, this will influence the decision of consumers to purchase organic products more frequently.

There are three factors that can increase Thai consumer's purchasing demand for organic products, which includes a price reduction of organic products, extension of sales channels for more convenience, as well as having rigorous inspections and organic certification system which conveys a sense of trust to consumers.

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