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Consumers' Perceptions and Attitudes of Organic Food Products in Northern Thailand

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Abstract

The adoption of organic production and processing is highly determined by market demand. Therefore, this is reflected in consumers' perceptions and attitudes towards organic food products. This research draws on a survey of 390 respondents. Results indicated that the main reasons for purchasing organic food products are an expectation of a healthier and environmentally friendly means of production. Organic buyers tend to be older and higher educated than those who do not buy them. In addition, consumers' trust in the authenticity of the goods and price are also issues. However, the main barrier to increase the market share of organic food products is consumer information.

Keywords: organic food, consumer behavior, food labels, consumer awareness

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Introduction

Food consumption patterns are changing as a result of health and environmental issues. Interest in organically produced food is increasing throughout the world. Global demand for organic products remains robust, with sales increasing by over five billion US dollars a year (Willer, Youssefi-Menzler, and Sorensen 2009). In Thailand, rapid socio-economic development has been accompanied by modernization and industrialization of agricultural food production. In the past, subsistence agriculture in Chiang Mai province, which has the second capital city and the largest city in Northern Thailand, was part of a traditional system in which farmers produced foods mainly for family consumption and exchanged the surplus with neighbors. Since the implementation of the National Economic and Social Development Plan in 1961, the Thai government has promoted an industrial and export-oriented agriculture. In order to maximize yields, farmers started to use chemical fertilizers, insecticides and pesticides in large quantities (UNDP 2007). Pesticide imports to Thailand have increased rapidly over the past decade; total tonnage has more than doubled between 1987 and 1996 (Thapinta and Hudak 2000). This has led to increasing problems related to economics, health hazards, and environmental issues. Investigations have shown that dangerous levels of pesticides are used in food production in Northern Thailand (IPMDANIDA 2004). Based on this information, government agencies and NGOs in Chiang Mai province have focused their attention on organic agriculture. In 1997, the Ministry committed to provide funds to conduct the Pilot Project on Sustainable Agriculture Development for small farmers, which by 1999 was administrated by local organizations in 34 provinces, including Chiang Mai province (Pattanapant and Shivakoti 2009). Organic agriculture is one of the sustainable agriculture approaches that are being promoted and practiced extensively in the province. Thai organic agriculture is still at an early stage, the organic production area being less than 0.02% of total agricultural land. In the 1998 about 1,005 hectares of cropland was farmed organically and this increased to 21,701 hectares by 2006, while market value increased by 3.4% between 2005 to 2006 (Panyakul 2008; Willer, Youssefi-Menzler, and Sorensen 2009; Eischen, Prasertsri, and Sirikeratikul 2006). Even though organic production increased between 1998 and 2006 it declined in 2007 due mainly to higher prices and production levels for conventionally produced products. An additional factor was that farmers were not convinced that there was a secure market channel for organic products.

Certification informs the consumer of the undesirable and unobserved pesticides that may or may not have been used in the production of food. Thailand has multiple forms of organic regulations and certifying bodies. A standard and certification by the national government has issued only one label, called "Organic Thailand", by the Department of Agriculture (DOA), when the government set up standards for organic crop production in 2000 and developed a certification body for organic food products. The major certification body accredited by IFOAM is called "Organic Agriculture Certification Thailand" or ACT. This private organization was founded in 1995 and the members are NGOs, producer groups and other private organizations. The leading producer of organic food is Green Net Cooperatives. Both ACT and Green Net are supported by the Earth Net Foundation, which is playing a leading role in promoting organic farming in Thailand. There were about 4,000 hectares of certified organic production in Thailand in 2003 (IPMDANIDA 2003; Roitner-Schobesberger et al. 2008). In the Northern region, the Northern Organic Standards Association (NOSA) certifies all of the product markets through the Institute of Sustainable Agricultural Cooperatives (ISAC) and its affiliates. NOSA regulations were established by a coa-

lition of farmers, consumer advocates, and NGOs (Wyatt 2009). “NOSA” is a locally registered body, and the products it certifies are sold mainly in Chiang Mai province and other provinces in the northern region of Thailand. In 2007, the data show that about 726 hectares of organic farm land or 0.34% of total farm land, in Chiang Mai province were used for certified crops (Pattana-pant and Shivakoti 2009).

However, a specific feature of local Thai food markets is the coexistence of different environmentally friendly, healthy or hygienic labels. Therefore governmental institutions started different certification systems for different safe food products (Eischen, Prasertsri, and Sirikeratikul 2006). Safe Food labels were therefore introduced by the Thai Government. They are based on standards that have been agreed upon by both The Ministry of Public Health and The Ministry of Agriculture and Cooperatives. The standards for safe food are not as strict as for organic food; farmers are allowed to use chemical fertilizers and pesticides, but tests are carried out to make sure that residues do not exceed a maximum level. Certificates are issued to the farmers and food suppliers whose products pass the tests (IPMDANIDA 2003). The first safe food label is “Hygienic Fresh Fruit and Vegetable”. With this label the use of agro-chemicals is regulated and controlled and the residues on the products have to be below a specific level that is safe for consumers. The second label is “Pesticide-Safe Vegetable” which is assigned to retailers of agricultural products who conduct tests for toxic substances before selling the products. These products are from production systems using agro-chemicals, but the residues have to be within the defined levels. The third label is “Food Safety”, the products are tested for residues and if they are below the maximum residue level farmers and producers can use this certificate (Wyatt 2009).

Organic farming is a growing sector in Thailand, which is encouraged by the government and many private initiatives. Therefore, production is expected to rise to meet the growing demand in the domestic market for organic foods. The increased range of healthy foods and the establishment of certificates for pesticide controlled vegetables indicate that there is a potential market. Consumers everywhere know very little about the production process, as there is no identification with the product and its producer. This might be true for Thailand as well, and therefore 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. So it has to be explored how much knowledge of organic farming consumers already have, and how they would like to be more informed. Studies concerning consumer demand for organic food products are still under-developed in the Northern Thai region. Therefore, the present paper aims to understand the perceptions and attitudes towards organic food products in this region, to collect detailed information of the demographic characteristics and to identify the reasons affecting consumers’ behavior towards organic food products.

Literature Review

It is a worldwide phenomenon that people have become more and more separated from the origins of their food. Worried about their health, consumers seek out certified products to protect themselves from toxins and carcinogens. With an increasing awareness of the domestic problems regarding pesticide poisoning and diseases from fresh food products, the Thai government overhauled its approach to food safety (Srithamma, Vithayarungruangsrri, and Posayanonda 2005). The increasing consumer demand for higher quality produce and food safety makes organic food

an interesting option. There have been a considerable number of studies on organic consumers in many countries, especially in Europe and other western countries (Onyango, Hallman, and Bellows 2007; Gracia and Magistris 2007; Gracia and Magistris 2008; Magistris and Gracia 2008; Makatouni 2002; Squires, Juric, and Cornwell 2001; Briz and Ward 2009; Essoussi and Zahaf 2008; Storstad and Bjorkhaug 2003; Shepherd, Magnusson, and Sjoden 2005; Batte et al. 2007). Many studies have found a variety of factors that can potentially influence organic food consumption. Concern for health, environmental protection, concern for the chemical residues in conventional food products, pesticides, nutritional concern, as well as improved taste and flavour in organic food products are some of the factors identified (Storstad and Bjorkhaug 2003; Voon, Ngui, and Agrawal 2011; Sangkumchaliang and Huang 2010). According to Tsakiridou et al. (2008) a study of Greek consumers seems to show that they are informed about environmental and health issues. Consumers' attitudes, in particular towards the health attributes and towards the environment, are the most important factors that explain consumers' decision-making processes for organic food products (Tsakiridou et al. 2008; Lea and Worsley 2005; Roitner-Schobesberger et al. 2008; Magistris and Gracia 2008). Moreover, it has been found that more information about the organic food market, which increases consumers' organic food knowledge, is important because it positively influences consumers' attitudes towards organic food products (Briz and Ward 2009; Gil and Soler 2006).

In any case, the importance of individual factors appears to be country specific and/or time specific. Even in cases where similar attitudes between different countries were depicted, cultural differences lead consumers to seek different values when making purchasing decisions on organic food products. Consumer behavior involves a complex and sophisticated pattern that requires marketing research in order to understand the process. The basic idea behind consumer research is the questioning of consumers about their reasons for buying, however researchers have to go deeper and also ask people how and in which circumstances they purchase and consume. Consumer behavior consists of ideas, feelings, experiences and actions, along with additional environmental factors like advertisements and price (Krystallis and Chryssohoidis 2005; Tsakiridou et al. 2008; Fotopoulos and Krystallis 2002). The premium price accruing to organic food products directly impacts the consumption levels (Aryal et al. 2009). Instead the demand for organic products must be seen in relative proportion of income that is usually spent on food consumption (Tsakiridou et al. 2008). Furthermore, consumer behavior is a dynamic process because of continuous changes in ideas, perceptions and activities of the consumers. Attitude is shaped selectively to compromise consumers needs. Learning is gained by experience and it affects consumers' behavior. Scientific evidence suggests that almost all behaviors are learnt. Learning differentiates between stimuli and a response, and consumer behaviors translated as learnt attitude, along with how it is learnt and experienced, is very important for marketers (Padel and Foster 2005).

Additionally, demography is especially of interest to marketers as it is important to see how population is changing in number and distribution of gender, age and other demographic characteristics and variables. Family structure, marriage and divorce rates of individual counties also have effects on consumption habits; for example, couples with children have many more health concerns when buying food than singles. The presence of children in the household has been regarded as a significant factor, which positively influences consumers' organic food attitudes as well as buying behavior (Essoussi and Zahaf 2008). Moreover, children have effects on changing the buying decisions of the parents when they are shopping in a supermarket. Children's age can be

considered as a key factor, meaning that the higher the age of children in the household, the lower the propensity to buy organic food (Roitner-Schobesberger et al. 2008; Lea and Worsley 2005). Education has also been reported as a significant factor affecting consumer attitudes towards organic food products. People with higher education are more likely to express positive attitudes towards organic products (Gracia and Magistris 2007). Higher income households are also more likely to form positive attitudes and to purchase more organic food (Aryal et al. 2009; Haghiri, Hobbs, and McNamara 2009).

In general, the intention to purchase organic decreases with a limitation of knowledge and awareness towards those products, with many factors effecting consumers' perceptions and attitudes. In consumer behavior theory, consumers make their own decisions based on an individual's intention to perform a behavior, which is influenced by attitudes (Ajzen 1991). In this research the simple framework was developed from Aryal et al. (2009) and used to analyze consumers' perceptions and attitudes towards organic foods. Consumers decide whether to buy or not based on three main aspects: knowledge, attitude, and intention (Aryal et al. 2009). Consumers' knowledge is a construct that effects how and what consumers decide to buy. People's knowledge is affected by the type and quality of information made available to consumers. Advertisements, processing, awareness of certifications and labels, all play a pivotal role in knowledge enrichment. Thus, knowledge and awareness are critical in the consumers' behavior. In addition, demographic characteristics are also important factors for purchasing behavior, which can explain the purchase of organic products. Individual socio-demographics include economic characteristics (i.e. personal or household income) and are commonly included as determinants of choice. If an individual cannot clearly differentiate between organic food and conventional food products, a price premium on the organic food product can confuse and affect the individual's purchasing decision. Consumers' age, education, family size, marital status, and children in household, along with product attributes, affects their attitude and preference to buy the products.

Methodology

The survey was undertaken in two stages. First, a face-to-face survey was made in December 2009 with visitors to "the 6th Northern Agricultural Fair" held at the Faculty of Agriculture at Chiang Mai University. Collaborative organizations came from both governmental and private sectors. The cooperation from all sectors involved included, in part, the Institutions in Agricultural, which has played an important part in the role of knowledge and innovation in agriculture. The survey was performed with a systematic sampling of fair visitors. No claims can be made that the sample group represents the general populations. However, the fact that the fair visitors are interested in family farm products, and possibly in organic foods, suggests that survey respondents provide an interesting study group for this issue.

The second part of the survey was carried out during December 2009 and January 2010 at three different markets: the community market of The Multiple Cropping Centre (MCC market), the Royal Project shop (Doi Kum) and Tops supermarkets. The Multiple Cropping Center (MCC) was established in 1969 with an aim to promote and increase the productivity of irrigated rice-based cropping systems in northern Thailand through multi-disciplinary research activities. They have community market projects to let the farmers and consumers meet each other directly. Every

Wednesday and Saturday, they have a community market, called MCC market, for pesticide safe products certified with the “Food Safety” label. Also, 1969 marked the establishment of the Royal Project in the North of Thailand as originated from His Majesty the King's private study. This Royal Project has pursued its mission in collaboration with the Royal Thai government, foreign governments, universities, public and private agencies and volunteers. This project has a health food shop called “Doi Kum”. Finally, Tops supermarket is a grocery chain in Thailand. Tops supermarket offers a wide assortment of food, products and vegetables. Tops supermarket sells safety, GAP, and organic products. Consumers were approached during their food shopping in outlets at three different areas. Three markets and one trade fair, which carry organic food or a range of fruits and vegetables displaying the major safe food labels, were selected for the interviews. Finally, six Thai students were trained to administer the questionnaire personally; we collected 390 respondents from four different areas.

The questionnaire was designed to analyze consumers’ organic knowledge, attitudes and purchase behavior. Respondents were questioned on three different aspects. The first section was related to their organic food knowledge, i.e. organic food labels and organically produced food. The second section of the questionnaire was comprised of questions related to organic food consumption (frequency of purchase and perceived quality). Finally, several questions on the reasons of purchase, or not, were included. The questionnaire also contained questions on socio-demographic characteristics (i.e. gender, age, household size, education, personal income, and marital status). The first phase of the questionnaire was drafted in English. The issues raised were based on results from the literature research. These findings were discussed to see whether the questionnaire was relevant for the Thai situation. Before finalizing the questionnaire, the Thai version was translated back into English to ensure that the questionnaire retained its original meaning.

The data was summarized using descriptive statistics (frequency and cross tabulation). To analyze differences between consumer types, the respondents were divided into three groups: those who had never heard of organic produce (39 respondents, 10%); those who had heard of organic produce, but never purchased any (organic non-buyers: 82 respondents, 21%); those who had heard of and bought organic produce (the organic buyers: 269 respondents, i.e. 69%). The significant differences between groups were established using cross-tabulation tables and a Chi-square test (at a 5% level of significance). The statistical analysis was run with SPSS 17.0 package for Windows.

Results

The sample comprised of 63% female and 37% male, something that is expected since females are the main food purchase decision-makers in households. The age of the respondents varied from 18 to 70 years. More than half of them had a university education (53%), about 27% had finished high school and 19% of the respondents had completed only primary school. About 51% of the respondents received a monthly income less than 10,000 Baht, and 19% were above 20,000 Baht. More than half of the respondents (55%) lived in families with more than four members, more than a quarter (38%) had two-three family members, about 5% lived alone, and 39% of the respondents, were married.

In the demographic variables, three of five variables indicated significant differences between the three groups (Table 1). Consumers with a lower income (74%) and a lower level of education (40%) were least likely to have heard of organic agriculture. Conversely, those who had a higher income and held academic degrees seemed more likely to have bought organic foods in the past.

Table 1. Demographic Characteristics of respondents

Variable	Number of interviewees	Unaware of organic term	Organic non-buyers	Organic buyers	Statistical p-value
Average age (in year)	390	36.0	30.20	36.10	0.001*
Gender					0.157 ^{ns}
Female	246	8.5%	19.1%	72.4%	
Male	144	12.5%	24.3%	63.2%	
Children in the household ^a					0.038*
Yes	164	6.1%	18.9%	75.0%	
No	225	12.9%	22.7%	64.4%	
Highest education level ^a					0.001*
Primary school	75	20.0%	9.3%	70.7%	
High school	107	11.2%	23.4%	65.4%	
Bachelor	181	5.5%	26.5%	68.0%	
Master or above	24	4.2%	8.3%	87.5%	
Family income per month ^{a,b}					0.067
< 10,000	199	14.1%	23.1%	62.8%	
10,001-20,000	114	5.3%	21.9%	72.8%	
20,001-30,000	56	5.4%	16.1%	78.6%	
>30,000	17	5.9%	11.8%	82.4%	

^a Some information was missing on some questionnaire, thus not all categories add up to 390 respondents.

^b The National Statistical Office of Thailand reports that the average monthly income per household in Thailand was approximately 21,135 Thai Baht (35 Baht \approx 1\$US).

*Statistically: $p < 0.05$ (Chi-square test); Significance of the difference between groups.

Although the organic buyers were more likely to have higher income, the relationship was not significant. Of the organic buyers 22% had a higher income (more than 20,000 Baht per month), compared to 13% of non-buyers and 11% of the unaware group. Truly, most of the organic buyers group (54%) held a Bachelor or higher academic degree. Organic buyers tended to be older, compared with the non-buyers group. Regarding organic buyers, about 49% were over 35 years of age and only 28% were under 25 years old. Organic buyers were more likely to be female: 66% of female respondents said that they had purchased organic foods in the past; compared with 34% of males. There was no statistical difference in the personal income level ($\chi^2 = 3.369, p = 0.338$) and education level ($\chi^2 = 4.377, p = 0.227$) between the interviewed females and males. The organic buyers were more likely to have children living in their household, that relationship was significant ($\chi^2 = 6.536, p = 0.038$). Of the organic buyer group, 46% reported having a child or children (72% were less than 18 years old) living in their household. The significant effect of children in the household variable shows that children had an effect on changing the buying decisions of the parents when they were shopping in a market.

The respondents were presented with seven labels found on food products. More than 30% of the respondents recognized the “Food Safety”, “Hygienic Fresh Fruit and Vegetable”, and “Organic

Thailand (DOA)” labels, respectively. All other labels were not well known, with about 19% knowledgeable of the “pesticide-safe” label and less than 10% recognizing the two organic labels (ACT and NOSA). Of those respondents who stated that they knew one of the seven labels, more than 70% were organic buyers (Table 2). It thus seems that organic buyers are more aware of food labels than the other two groups. When asked to distinguish between organic food labels and other food labels, some respondents were still confused between organic labels and safe food labels.

Table 2. Level of safe food labels knowledge by type of organic food consumers (n=390)

Label	Number of respondents (n)	Percentage of the respondents knowing the label by group		
		Never heard	Non-buyers	Buyers
Food safety	145	4.8	15.9	79.3
Hygienic fresh fruit and vegetable	127	2.4	16.5	81.1
Organic Thailand (DOA)	122	4.1	9.0	86.9
Pesticide-safe vegetable	74	4.1	4.1	91.9
IFOAM	39	2.6	5.1	92.3
Organic Agriculture Certification Thailand (ACT)	35	.0	11.4	88.6
The Northern Organic Standards Association (NOSA)	25	.0	4.0	96.0

The result shows 44% of respondents stating that they know the NOSA label, but that this label was not for organic food, and almost half of the respondents who had awareness of labels stated that safe food labels are the same as organic food labels. Thus, even if the respondents state that they know, it does not necessarily mean that they have correct the information regarding the label. This might explain why 13% of respondents said that they knew the “organic Thailand” label, although they had never heard of the term organic. This lack of discernment might be related to the fact that although most markets have distinct sections for organic food, safety food and hygienic food, they tend not to distinguish between them. The respondents themselves were aware of their limited knowledge regarding organic agriculture. The results show that 71% of those who had heard of the term organic said they had little knowledge about it, and 20% were not sure what it meant. Even among those who purchase organic foods, about 74% of organic buyers said they only know a little about the meaning of organic, while 12% said they know a lot. Nonetheless, the organic buyers feel better informed than the organic non-buyers. Of the 246 respondents who said that they know just a little about the meaning of organic, 79% were organic buyers and 21% were organic non-buyers. Of the 33 respondents who said they know a lot about organic, 97% were organic buyers.

The respondents, who had heard of the term organic, were presented with 7 statements and asked whether they agreed or disagreed or whether they did not know (Table 3). The survey shows that respondents are convinced that organic farming is good for the environment and that organic foods do not carry pesticide residues. Although 62% and 61% of respondents agreed with the statement regarding the production and processing of organic food, that it is strictly controlled and all products coming from organic agriculture are certified, respectively, 41% agreed with the

Table 3. Assessment of statements about organic farming by the respondents who have bought of organic in percent (n=269)

Statement	Agree	Disagree	Don't know
Organic farming is good for the environment	93.7%	2.0%	4.3%
Organic food products do not carry pesticide residues	80.3%	12.3%	7.4%
Organic farming does not use chemical pesticides or chemical fertilizer	74.9%	14.2%	10.8%
Production and processing of organic food is strictly controlled	62.1%	14.8%	23.1%
Products coming from organic agriculture are certified	61.3%	16.5%	22.2%
Organic is just a marketing promotion	41.3%	38.2%	20.5%
Difference between organic products and safety products	26.8%	49.8%	23.4%

statement that organic is just a marketing promotion. Asked directly about the difference between organic products and safety products, 27% said there was no difference. Those respondents who had purchased organic food in the past (269 respondents) were asked about their motives. The most important motive was the expected positive health effects (a reason for 97% of the organic buyers). These expected positive health effects may be related to their being pesticide-free, as 90% of organic buyers said that they purchase organic food because they do not contain pesticide residues and 88% mentioned that organic foods have a high safety level of guarantee and control. About 94% of organic buyers purchased organic food because they are environmentally-friendly and support local farmers. Further reasons to purchase organic food were because they are fresher (64%) and have better taste (50%) when compared with conventional ones, or they think organic foods are fashionable (30%). Regarding the information available, 91% of consumers said they need more information about organic foods from the media. The respondents who have purchased organic foods were asked about the availability of organic foods and how often they purchase organic foods. The majority (88%) of organic buyers were satisfied with the range of organic foods available at markets. However 72% said they would like to buy more organic foods if they had more income. Regarding their purchasing habits, 31% of the organic buyers stated that they purchase organic foods weekly, 23% said once per month and 47% said they are purchase organic foods less than monthly.

According to the price tag in supermarkets in April 2010, the price difference between organic and conventional vegetables in Chiang Mai province varied between 50% for French beans and 414% for red oak and green oak, with most organic vegetables (e.g. baby carrots, shake eggplant, Chinese celery, spring onions, carrots, green lettuce, and pointed cabbage) having a price premium of 60-227% above conventional products. Despite the price difference, about 56% of organic buyers said that the price of organic foods was not a problem. Over 50% of organic buyers distrust the authenticity of organic food products in that they are not sure that they are genuinely organic. This pinpoints the level of trust they have towards who is deciding whether a product can be considered as organic or not, and following what procedure. Trusting the certification process is important for consumers as they note the rapid growth of big distribution channels in the organic foods market. Therefore, without the supporting demand for organically grown products, the potential for this sector of agriculture clearly has limitations. The organic non-buyers,

those who have not previously bought organic foods (82 respondents, i.e. 23% of those who had heard the organic term) were asked why they do not purchase organic foods. The main reason was that they think hygienic and safety food products are enough (76%) and that organic foods are difficult to get in the market (76%). Further reasons were that they do not trust the organic label (31%) and some stated that organic foods have nothing special (29%).

The data reveals that the respondents in the agriculture fair and three markets had the same proportions of the sample. Each location of Agricultural fair and three markets was comprised of 195 respondents. In the comparison of respondents' perceptions and attitudes of organic food between the Agricultural Fair and Health Food Markets, Chi-square analysis showed that there were differences in consumer buying behavior with respect to different locations. We found that respondents in the markets tended more to purchase organic foods than respondents who visited the agriculture fair ($\chi^2 = 6.763, p = 0.034$). The findings regarding awareness of food labels shows that respondents in agriculture fairs are more likely to be aware of organic food labels than respondents in markets, with statistically significant differences on the three organic food labels: 74% of respondents in the agriculture fair said that they had seen an ACT label ($\chi^2 = 9.071, p = 0.002$), 76% had seen NOSA ($\chi^2 = 7.223, p = 0.006$), and 64% had seen IFOAM ($\chi^2 = 3.447, p = 0.045$), respectively. It could be assumed that visitors to the "6th Northern Agricultural Fair" are more interested in labels than consumers in markets since it was announced in the media that organic products would be presented at the fair. Regarding the 7 statements and asked whether they agreed or disagreed or whether they did not know, and their reasons to buy or not buy organic foods. The comparison shows that even though the respondents had visited different places, they had similar attitudes about organic foods and had no significant difference, i.e. 49% of respondents in the fair and 51% of respondents in markets were convinced that organic farming is good for the environment and that organic foods do not carry pesticide residues. For those who do not buy organic foods, the main reason they gave was that hygienic and safety food products were enough (50% for fair and 40% for market).

Discussion

The consumers of organic foods products in Chiang Mai province tend to be older (average age of organic buyers about 36 years old) and hold academic degrees than those not purchasing organic foods. Older consumers (over 35 years old) seem to be more willing to purchase organic food products despite their premium price. Young consumers (less than 25 years old) are not willing to pay for organic food products usually as result of their lower-financial status. This profile is similar to results in other counties (Engel 2008; Radman 2005; Tsakiridou et al. 2008). A study in Bangkok found that typical organic buyers also held an academic degree and had higher income. Although Chiang Mai organic consumers' age tended to be older than non-buyers, they were younger than consumers in Bangkok (average age of organic buyers being about 42 years old) (Roitner-Schobesberger et al., 2008). Similarly to reports in the literature (Aguirre 2007; Lea and Worsley 2005), females in Chiang Mai seem to be more likely to purchase organic food than males, though this is contrary with the study in Bangkok (Roitner-Schobesberger et al. 2008). Many of the organic buyers have children less than 18 years old living in the household. As a result, children have a large effect on the buying and decisions-making of their parents when they are buying food. This study is therefore similar to the literature (Lea and Worsley

2005; Roitner-Schobesberger et al. 2008). This could be identified as a link to increased levels of concern about food safety and health issues identified in these consumer groups.

There are several main motives for purchasing organic foods in Chiang Mai province: the expected health and environmental benefits, the support of local or small farmers, the attraction of fashionable products, and the search for fresher and tastier products. Health and environmental benefits have been reported as a main motive for purchasing organic foods by most studies (Ahmad and Juhdi 2010; Magistris and Gracia 2008; Tsakiridou et al. 2008). In Thailand, as this study and the study in Bangkok (Roitner-Schobesberger et al. 2008) confirm, the health and environmental aspect is associated with the pesticides used in agriculture. Even though organic foods do not completely lack pesticide residue because of the pollution in the air and environment, they are safer than conventional foods that get pesticides directly (Dangour et al. 2009). The second important motive to purchase organic foods is that the consumers were considering that purchasing organic food products can support local and small farmers. Local and small farmers are important for organic farming in Northern Thailand, and although there is large scale farming for export, we expected small and local farmers to take up organic farming in Chiang Mai province, and as expected, most of this kind of farming is done by local and family farms. The third motive to purchase organic food is the consumers' search for new trends of healthy food products. The fourth motive is related to organic attributes including fresher and tastier food (i.e. vegetables). This is similar to other studies (Ghorbani and Hamraz 2009; Krystallis and Chryssohoidis 2005).

The share of respondents, in Chiang Mai province, who report having purchased organic foods in the past (69%) is higher, almost double, with 39% of respondents in Bangkok who state that they had purchased organic foods in the past (Roitner-Schobesberger et al. 2008). The market for organic food is thus potentially large. However, to be able to tap this potential customer base, it may be necessary to clearly difference between organic and conventional foods price. Indeed the perception of price is important for consumers to purchasing organic foods, which the result shows that more than half of organic buyers said the price of organic foods was not a problem and their purchasing proportion is higher compared with Bangkok. In Chiang Mai province, organic food labels do not have a clear profile for consumers. The main barrier to purchasing organic foods is that the information consumers have between organic, safety and hygienic foods is not clear. From the results it is observed that there is a lack of advertising of organic foods, 90 % of the consumers have confirmed a need to improve organic food advertising in Chiang Mai. Government and NGOs have attempted to enforce organic food promotion; however, the information is isolated to specific small groups. However, to be able to tap this potential consumer base, it may be necessary to clearly state the position that organic food as distinct from others. This lack of awareness of the organic standard includes organic agricultural methods, and it is not only in Thailand (Ndungu 2006; Batte, Beaverson, and Hooker 2003) that the organic labels are not really recognized by consumers. However, awareness of food labels can increase the probability that consumers would purchase organic food, even if it costs more than conventional food (Ndungu 2006; Krystallis and Chryssohoidis 2005). Another factor mentioned that limits the market share of organic food is price, especially the price difference between organic and conventional food products (Aryal et al. 2009; Batte et al. 2007). The current price premium for organic vegetables in Chiang Mai province is approximately 50% above the price of conventional vegetables. This is higher than the usual premium of 5-50% that consumers are prepared to

pay for organic food (Aryal et al. 2009). However in Northern Thailand as elsewhere, it is unclear to what extent price is really a key factor in the choice between organic and conventional products. The study has shown that of the organic buyers, 44% see price as a limiting factor, and 51% of organic non-buyers mention it as a reason for not buying organic food products. Thus, the price of organic foods in Chiang Mai province is likely to be a key issue limiting sales. This study shows that more than 50% of consumers do not purchase organic food products regularly, even though organic foods are healthy and do not contain pesticide residue. However, the awareness of organic labels and price still becomes an obstacle for consumers when making their decision for buying. Because consumers are still confused with many safe food labels, some consumers do not understand the price premium of organic food products.

The survey of potential and actual organic food consumption in Chiang Mai province provides some evidence for recommendations at the policy and industry level for improving strategies in order to increase the market share of organic foods. At the government policy level it would seem advisable to promote and make advertisements to reduce consumer confusion between the multitudes of safe food labels. Regulate of safe food labels also mean that it would allow organic labels to be more clearly positioned and indicate more restrictive standards. Organic could be communicated as indicating that due to production methods, residues are not allowed, it offers additional health benefits, particularly the environmental impact and small or local farmer benefit. These approaches could help the private sector to increase the market share of organic foods, such as increasing the purchasing frequency of organic buyers and encouraging the organic non-buyers to try organic food products.

Conclusions

Organic food consumption is increasing because of concerns over environmental and health issues associated with food production. The increase in consumers' interest in organic food products has been attributed among other issues to the growing demand for food free from pesticides and chemical residues. With the present study an attempt is made to describe the existing situation regarding Northern Thai consumers' perceptions about organic foods. The main motives to purchase organic food products are health and environmental benefits, plus support for local or small farmers. In addition, an important factor that was revealed as a barrier to the development of organic foods is consumer information. Increased consumer awareness of organic labeling and their trust in organic labels as well as increasing the availability and range of organic food products, may be the most effective way of increasing their market share. The organic buyers in Chiang Mai province tend to be older, higher educated and more likely to have children in their household than those not purchasing organic food products. The study found that the groups of buyers and non-buyers have significant differences in demographic characteristics. However, age, household size, children in household, and education level seemed to have an effect on the perceptions of consumers. The main barrier of organic foods market share is the information available and consumer awareness. Results from this paper are of great importance because they provide valuable information on consumers in Chiang Mai province that can be used by policy makers in organic farming at the national and regional level.

References

- Aguirre, Juan A. 2007. The farmer's market organic consumer of Costa Rica. *British Food Journal* 109 (2):145-154.
- Ahmad, S., N. Bayaah, and N. Juhdi. 2010. Organic food: A study on demographic characteristics and factors influencing purchase intentions among consumers in Klang Valley, Malaysia. *International Journal of Business and Management* 5 (2):105-118.
- Ajzen, I. 1991. Theory of planned behavior *Organizational Behavior and Human Decision Processes* 50:179-211.
- Aryal, Kamal P, P. Chaudhary, S. Pandit, and G. Sharma. 2009. Consumers' Willingness to Pay for Organic Products: A Case from Kathmandu Valley *The Journal of Agriculture and Environment* 10:12-22.
- Batte, Marvin T, J. Beaverson, and N. Hooker. 2003. Organic food labels: A customer intercept survey of central Ohio food shoppers. *OSU AED Economics* 38:1-10.
- Batte, Marvin T, N. Hooker, T. C. Haab, and J. Beaverson. 2007. Putting their money where their mouths are: consumer willingness to pay for multi-ingredient, processed organic food products. *Food Policy* 32:145-159.
- Briz, T, and R.W. Ward. 2009. Consumer awareness of organic products in Spain: An application of multinomial logit models. *Food Policy* 34:295-304.
- Dangour, Alan, A. Aikenhead, A. Hayter, E. Allen, K. Lock, and R. Uauy. 2009. Comparison of putative health effects of organically and conventionally produced foodstuffs: a systematic review. London: Nutrition and Public Health Intervention research Unit, London School of Hygiene & Tropical Medicine.
- Eischen, Emily, P. Prasertsri, and S. Sirikeratikul. 2006. Thailand organic products Thailand's organic outlook. In *Global Agriculture Information Network*, edited by R. Nicely. Bangkok: USDA Foreign Agricultural Service.
- Engel, WE. 2008. Determinants of consumer willingness to pay for organic food in South Africa, AInstAgrar dissertation, University of Pretoria, Pretoria.
- Essoussi, Leila Hamzaoui, and Mehdi Zahaf. 2008. Decision making process of community organic food consumers: an exploratory study. *Journal of Consumer Marketing* 25 (2):95-104.
- Fotopoulos, Christos, and A. Krystallis. 2002. Purchasing motives and profile of the Greek organic consumer: a countrywide survey. *British Food Journal* 104 (9):730-765.
- Ghorbani, M, and S Hamraz. 2009. A survey on factors affective on consumer's potential willingness to pay for organic products in Iran. *Trends in Agriculture Economics* 2 (1):10-16.

- Gil, J.M, and F Soler. 2006. Knowledge and willingness to pay for organic food in Spain: Evidence from experimental auctions. *Food Economics* 3:109-124.
- Gracia, A, and T Magistris. 2007. Organic food product purchase behaviour: a pilot study for urban consumers in the South of Italy. *Spanish Journal of Agricultural Research* 5 (4):439-451.
- Gracia, Azucena , and Tiziana Magistris. 2008. The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy* 33:386-396.
- Haghiri, Morteza, Jill E Hobbs, and Meaghan L McNamara. 2009. Assessing Consumer Preferences for Organically Grown Fresh Fruit and Vegetables in Eastern New Brunswick. *International Food and Agribusiness Management Review* 12 (4):81-100.
- IPMDANIDA. 2003. Did you take your Poison today? Bangkok, Thailand: Ministry of Agricultural and Cooperation.
- IPMDANIDA. 2004. Pesticide-Health survey: Data of farmers in Mae Wang Chaing Mai, Thailand. Chaing Mai, Thailand Ministry of Agricultural and Cooperation.
- Krystallis, A., and G. Chrysosoidis. 2005. Consumers' willingness to pay for organic food: Factors that affect it and variation per organic product type *British Food Journal* 107 (5):320-343.
- Lea, Emma, and T. Worsley. 2005. Australians' organic food beliefs, demographics and values. *British Food Journal* 107 (11):855-869.
- Magistris, T., and A. Gracia. 2008. The decision to buy organic food products in Southern Italy. *British Food Journal* 110 (9):929-947.
- Makatouni, A. 2002. What motives consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal* 104 (3):345-352.
- Ndungu, Samuel K. 2006. The development of a consumer awareness and education concept based on a consumer survey of attitudes and preferences towards organic foods and on the review of existing PR materials in East Africa. International Federation of Organic Agriculture Movements (IFOAM).
- Onyango, Benjamin M, W.K Hallman, and A.C Bellows. 2007. Purchasing organic food in US food systems: A study of attitudes and practice. *British Food Journal* 109 (5):399-411.
- Padel, Susanne and Carolyn Foster. 2005. Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British Food Journal* 107 (8):606-625.
- Panyakul, V. 2008. Overview of organic agriculture in Thailand 2008 *Greenet Foundation*:2-10.

- Pattanapant, A., and G.P Shivakoti. 2009. Opportunities and constraints of organic agriculture in Chiang Mai province, Thailand. *Asia-Pacific Development Journal* 16 (1):115-147.
- Radman, Marija 2005. Consumer consumption and perception of organic products in Croatia. *British Food Journal* 107 (4):263-273.
- Roitner-Schobesberger, B., I. Darnhofer, S. Somsook, and C.R Vogl. 2008. Consumer perceptions of organic food in Bangkok, Thailand. *Food Policy* 33:112-121.
- Sangkumchaliang, P, and WC. Huang. 2010. Consumers' Perception and Behavior of Organic Food in Chiang Mai, Thailand. Department of Topical Agricultural and International Cooperation, National Pingtung University of Science and Technology, Pingtung: 81.
- Shepherd, Richard, M. Magnusson, and Per-Olow Sjoden. 2005. Determinants of consumer behavior related to organic foods. *Ambio* 34 (4):353-359.
- Squires, Lisa, B. Juric, and T B. Cornwell. 2001. Level of market development and intensity of organic food consumption: cross-cultural study of Danish and New Zealand consumers. *The Journal of Consumer Marketing* 18 (4):392-409.
- Srithamma, S, J Vithayarungruangsrri, and T Posayanonda. 2005. *Food safety programme: A key component for health promotion*. (Accessed January 21, 2010) <<http://www.fda.moph.go.th/project/foodsafety/HealthPromotion2.pdf>>.
- Storstad, O., and H. Bjorkhaug. 2003. Foundations of production and consumption of organic food in Norway: Common attitudes among farmers and consumer? *Agriculture and Human Values* 20:151-163.
- Thapinta, Anat, and Paul F Hudak. 2000. Pesticide use and residual occurrence in Thailand. *Environmental Monitoring and Assessment* 60:103-114.
- Tsakiridou, Efthimia , C. Boutsouki, Y. Zotos, and K. Mattas. 2008. Attitudes and behaviour towards organic products: an exploratory study. *International Journal of Retail & Distribution Management* 36 (2):158-175.
- UNDP. 2007. Thailand Human Development Report 2007-Sufficiency and Economy and Human Development. Bangkok: United Nations Development Programme.
- Voon, P. Jan, Sing Kwang Ngui, and Anand Agrawal. 2011. Determinants of Willingness to purchase organic food: an exploratory study using structural equation modeling. *International Food and Agribusiness Management Review* 14:103-120.
- Willer, H., M. Youssefi-Menzler, and N. Sorensen. 2009. The World of Organic Agriculture: Statistics and Emerging Trends 2008. IFOAM and Research Institute of Organic Agriculture (FiBL).

Wyatt, B. 2009. Marketing strategies and community culture: Certified vegetable farming and consumer markets in Chiang Mai, Northern Thailand. *The Challenges of The Agrarian Transition in Southeast Asia Working Papers*:2-24.