Kasetsart J. (Nat. Sci.) 40 : 222 - 228 (2006)

Food Safety Situations in Thailand with Regard to their Thai's Food Safety Knowledge and Behaviors

Masami T. Takeuchi[1] and Kangsadan Boonprab[2]*

ABSTRACT

Interviews with representatives of organizations working on food safety in Thailand (n=15) revealed that all interviewees were confident that food safety situation in Thailand has remarkably improved in the last 5 years (2000-2005). However, minimal regulatory attention to domestic food safety compared to the enormous focus on exported food was a common concern. Whether food biotechnology should be used in Thailand was an intense topic within their organizations. Surveys of Thai consumers (n=251) revealed that most (77%) were generally concerned about safety of food, but their information sources were limited. More than 40% thought the government "seldom" or "never" provided adequate food safety information. The consumers mentioned that chemical contamination (78%), food vendor personal hygiene (46%), bacterial/viral contamination (33%), bird flu (10%) and GMO foods (3%) were problems. Prevention of foodborne illnesses, safety of GMO foods and chemical contamination of food were very or somewhat important to 92, 61 and 96% of participants, respectively. Among Thai, Japanese and American consumers, Thai consumers were less likely to follow recommended food handling behaviors. Concerning use of biotechnology in food, Thai consumers most frequently choose a neutral response; Japanese chose negative responses and Americans chose positive responses.

Key words: food safety, food safety survey, Thai consumer, Japanese consumer, American consumer

INTRODUCTION

Thailand is one of the leading agricultural producers in the world. With recent dynamic growth of agricultural industries and export of food, food safety has become an important topic in Thailand (Walker, 1996).

Microbial contaminated drinking water and food are the major cause of diarrheal diseases, a major public health problem, in Thailand. There are approximately a million cases of acute diarrhea reported annually, and the reported cases of food poisoning are more than 120,000 per year (Economic Research Service, 2004). Foodborne diseases are especially found among those living in poor environmental sanitation and those with poor personal hygiene. The report on disease incidence in children under five years of age is also high. Inappropriate consumption behaviors among people in some areas, who frequently consume raw or undercooked food, are one of the major causes of diarrheal diseases in Thailand (Economic Research Service, 2004).

A better understanding of the Thai food

[1] Food Quality and Standards Service, Food and Agriculture Organization of United Nations, Viale delle Terme di Caracalla, 00100 Rome.

[2] Department of Fishery Products, Faculty of Fisheries, Kasetsart University, Chatuchak, Bangkok, 10900 THAILAND

* Corresponding author, e-mail: ffisksb@ku.ac.th, bffisksb@yahoo.com

safety regulatory process and knowledge and behaviors of Thai consumers regarding food and water safety, hygienic practice and adequate cooking food are needed. This study had three major purposes: 1) to identify the current food safety regulatory system in Thailand (Interview Sessions), 2) to understand Thai consumers' knowledge, behavior and attitudes (Consumer Survey), and 3) to compare the findings from the study (Consumer Survey) with similar studies conducted in Japan and US (International Comparison). The findings from this study will be used to design a consumer food safety intervention program.

METHODS

1. Interview sessions:

Interview sessions were conducted with three Thai government officers, five university professors, one non-governmental organizations (NGO) member, two consumer group leaders, two United Nations (Food and Agriculture Organization) [UN (FAO)] officers, and two international organization officers (total n=15). At the beginning of the session, all interviewees agreed to participate in the study and recorded oral informed consents were obtained. Each interview session was recorded and lasted approximately one hour. All the interviewees first explained the major roles of their organization in the area of food safety, followed by answering five questions as follows.

1. What is the most prioritized issue about food safety in your organization?

2. From your personal or organization's viewpoint, do you see any particular food safety problems that must be fixed in Thailand?

3. What is your evaluation about Thai government with regard to improving food safety system in Thailand?

4. What is your evaluation on Thai consumers' awareness or knowledge about food safety?

5. Do you have any comments on food safety situation in Thailand?

Analysis content of the interview sessions was conducted and the results from the interviews were categorized into several groups for the comparison. The analysis results were sent to the original interviewees for a review and all the interviewees approved the contents.

2. Consumer survey:

A 25-item questionnaire that had been previously pilot-tested was administed as an oral survey to Thai consumers in both urban and suburban areas of central Thailand including various places in Bangkok (Siam Square, Kasetsart, Mo Chit, Bangrapi, and Onnut), and two areas outside Bangkok (Rangsit and Samutprakarn).

A total of 251 participants were recruited at grocery stores and local markets. A random sample was obtained by sampling people as they arrived or left, and by sampling various hours of the day. During the sampling times, every 5th person was sampled. Informed consent was obtained from each participant before administering the survey. Standard z-test was used to test for differences in responses among demographic categories. To analyze other categorical data, cross-tabulation chi-square test was applied.

3. International comparisons:

Two mail surveys, including similar questions asked in the present study in Thailand, had been conducted in Japan (n=309, in 2001) (Toyama, 2001) and in the U.S.A.(n=241, in 2000) (Heffernan, 2000). The results obtained in Thailand were compared with the results from Japan and the US using cross-tabulation chi-square test.

RESULTS AND DISCUSSION

1. Interview sessions:

Thai government proclaimed 2004 as the year of "Food Safety" in an effort to promote food production quality and safety. The project aimed for economic development by stimulating tourism and food exports. The government also has a national agenda to make Thailand "Kitchen of the World." Ministry of Agriculture and Cooperatives (MAC) and Ministry of Public Health (MPH) established the "From Farm to Table" program and set up the standards for food sold both domestically and internationally. For export of fresh food or food products, both MAC and MPH have specific roles. MAC mainly deals with vegetables, meat, tuna, shrimp, animal feeds, medicines for animals, pesticides and fertilizers. MAC handles processed foods excluding meat, tuna and shrimp, medicines for human, chemicals and ingredients for food manufacturing.

Thai government has realized that it is important to have a good communication among government officers, producers, processors, retailers, consumers, and all parts of food-related organizations to maintain the food safety system in Thailand. It is important to follow the CODEX for export and it is also important to have a single standard of food inspection to reduce the risk of having a "double-standard" with less scrutiny in domestic markets.

The major role of university professors in terms of food safety system in Thailand is educating to food safety educators and consultants. Most Thai university professors felt they should educate both a practical and philosophical standpoint. For example, students should learn the importance of establishing principles for quality assurance rather than problem-oriented quality maintenance.

Many NGOs are active in Thailand, however no NGO focuses primarily on food safety topics or food safety for consumer education. Several Thai NGOs focus on chemical contamination (pesticide residues) of domestic and exported food and promoting organic food. However, the NGO member that was interviewed expressed concern of a lack of definition of "organic" in Thailand.

Two consumer groups, with less than 100 members each, deal with healthcare problems, which could include food-related illness. Their major role is to file consumers' complaints for a lawsuit. Both interviewees said that they have not received any consumer complaints about food safety in the past 5 years. Both interviewees said their organizations are the place that consumers should report any complaints about food safety problems.

The Food and Agriculture Organization has a regional office in Bangkok and operates numerous food safety programs including inspections, trainings and educational material development, often cooperating with World Health Organization (WHO) or Thai government agencies.

Several countries, including North American countries, European countries, Australia and Japan, provide **international aid** to improve food safety in Thailand. Each organization has a range of 2 to 10-year projects that have specific objectives to improve food safety in Thailand. Some international organizations focus on preventing chemical contamination on both domestic and exported food while other international groups are interested in training Thai associates regarding risk-management system.

The results from analysis content of the five questions are shown in Table 1. All interviewees were confident that food safety situation in Thailand had remarkably improved in the last 5 years. However, minimal regulatory attention to domestic food safety compared to the enormous focus on exported food was a common concern. Whether food biotechnology particularly genetically modified organisms (GMOs) should be used in Thailand was an intense topic within their organizations.

Table 1 Content analysis of the interview session (n=15).

Interviewee	Q1. Prioritized issues	Q2. Food Safety Problems	Q3. Evaluation on Thai government	Q4. Evaluation on Thai consumers	Q5. Comments
Thai Government officers (n=3)	Promoting safe and high-quality images of Thai food for economic development Assuring Thai people's health by providing safe and healthy food.	Consumers' lack of willingness to pay more to have safer food Rapidly decreasing popularity and earnings of agriculture works in Thailand	Excellent. Food safety situation improved dramatically in the last 5 years and it will improve more.	Lack of knowledge, awareness and willingness to know about food safety.	In 10 years, the situation will be definitely much better, since the government planned numerous projects about food safety in next 10 years. Thai government says "NO" to GM Food.
University Professors (n=5)	Educating highly qualified food safety educators and consultants. Establishing principles about food safety.	Thai government's minimal regulatory attention to domestic food safety. Consumers' lack of interests in food safety.	Good. Food safety situation improved dramatically in the last 5 years and it will improve more. Development of Thai government's large GM field test plots conflicts with government's statement that says "no" to GM food.	Students are starting to realize the importance of food safety. General consumers need more information about food safety practices.	Currently food safety education is carried out by government agencies only. It would be great if universities can contribute to consumer educational programs.
NGO member (n=1)	Pesticide residue issue. Providing information about recent issues such as Avian Flu, Genetically modified food and BSE.	High concentration of chemicals left in fruits and vegetables in Thailand. Thai government's focuses too much attention on food for export.	Good. Food safety situation improved dramatically in the last 5 years. Thai government's way to deal with GMO is very difficult to understand. Need more research.	Consumers' lack of interests cause difficulty to solve the chemical problems.	Among many other South Asian countries, Thailand has the best food safety system, though it needs more improvement.

Table 1 (Continue).

Interviewee	Q1. Prioritized issues	Q2. Food Safety Problems	Q3. Evaluation on Thai government	Q4. Evaluation on Thai consumers	Q5. Comments
Consumer Group members (n=2)	Protecting consumers' rights about their health. Providing support for the loss of money or life.	No consumers complain, or report anything about food safety problems.	Good. Food safety situation improved dramatically in the last 5 years and it will improve more.	Thai people do not cook anymore, therefore the lack of cooking opportunity decreases the lack of interest in food safety.	We don't have much to say about food safety. Some consumers expressed a concern about GM food.
UN Officers (n=2)	Food safety global standard establishment. Food safety information dissemination. Development of food safety policy and regulation.	Thai government's minimal regulatory attention to domestic food safety compared to the enormous focus on exported food. Systematic limit of UN projects to conduct intervention in specific country.	Good. Food safety situation improved dramatically in the last 5 years and it will improve more. Room left to improve rural area's food safety. Some international regulations about GM food may be needed, since Thailand has large field plots for testing GM plants.	Most Thai people appreciate and are proud of the improvement of food safety situation in Thailand, but they need more knowledge about what they can do at home to prevent foodborne illnesses.	UN plans a project upon a request from a country Food safety situation in Thailand is not as serious compared w ith other South Asian countries, therefore unless Thai government asks for it, FAO cannot provide any aid.
International Aids officers (n=2)	Food inspection service. Safety assurance about food for export from Thailand.	Thai government's minimal regulatory attention to domestic food safety compared to the enormous focus on exported food. Excessively priced "safety certified" food in Thailand	Good. Food safety situation has improved dramatically in the last 5 years and it will improve more.	Consumers' lack of knowledge and interests about food safety is causing problems on domestic food.	Much focus on exported food may lead an improvement of domestic food safety, because the "bottom-up" effect may occur. GMO in Thailand is getting more attentions from European countries.

2. Consumer survey:

Most surveyed consumers (77%) reported they were "very much" or "somewhat" concerned about safety of food in Thailand. None of demographic data was correlated with level of concern. Information sources about food safety were limited, with television the number one source of information (45%) followed by newspapers (27%). Fewer than 10% answered that any other options such as discussion from friends/ relatives, radio, magazines, scientific journals, books, government's information materials, internet were sources of food safety information. More than 40% expressed that the government " seldom" or "never" provided adequate food safety information to consumers, restaurant owners and food vendors.

Almost all Thai consumers thought that there are some food safety problems in Thailand. Among the topics volunteered as food safety problems were chemical contamination (78% of participants), food vendor personal hygiene (46%), bacterial/viral contamination (33%), bird flu (10%), GMO foods (3%). For the selected three food safety topics; 1) Prevention of foodborne illnesses, 2)chemical contamination of food and 3) safety of GMO foods, consumer reported that they thought the topics were 'very' or 'somewhat important' by 92, 96 and 61%, respectively.

3. International comparisons:

In comparison with Japanese and American consumers, Thai consumers were less likely ($P<0.01$) to follow recommended food handling behaviors such as hand-washing, cooking food thoroughly and refrigeration of leftover foods. Thai consumers most frequently choose a neutral response concerning use of biotechnology in food while Japanese consumers most frequently chose negative responses and American consumers most frequently chose positive responses (Figure 1).

CONCLUSION

The present study enhances understanding of the food safety situation in Thailand and of Thai consumers' current food safety knowledge and behaviors. A gap was

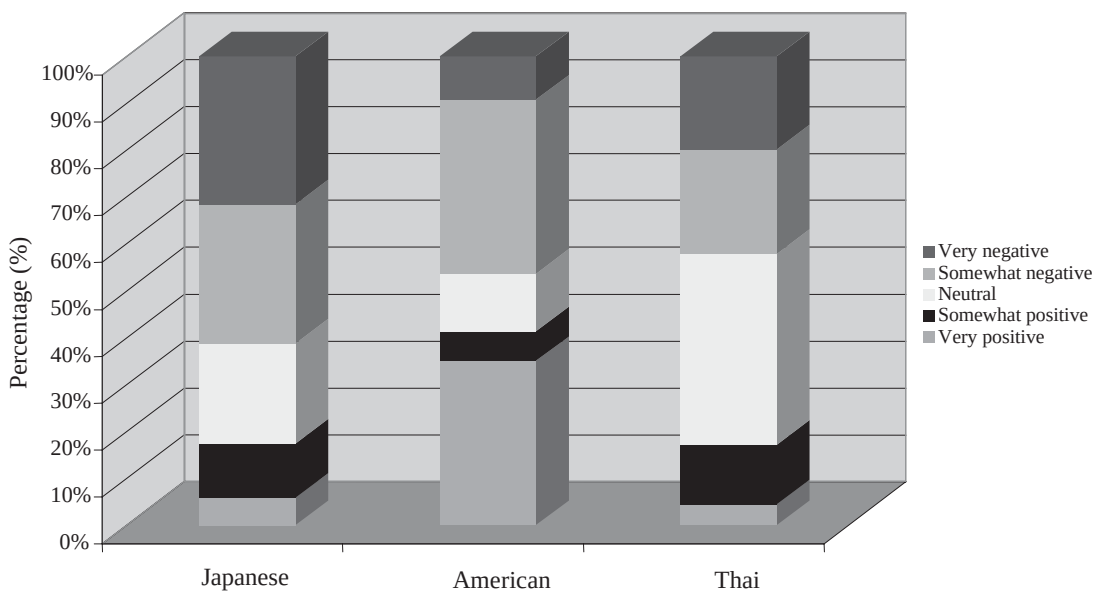


Figure 1 Food biotechnology acceptance by Japanese, US, and Thai consumers.

identified between consumers' perspectives and organizations' perspectives with regard to their concerns about food safety. While organizations are focusing their attention on GMO foods, this topic does not foster as much concern for Thai consumers as prevention of foodborne illnesses and pesticide residues on foods.

Consumer food safety education can help reduce the incidence of foodborne illnesses (Bell *et al*., 1999). The findings from this research indicate that food safety educational materials/ programs for Thai consumers should focus on hand washing, cooking food adequately and refrigeration of leftover foods since Thai consumers were frequently not following guidelines concerning these behaviors. The methods of this research can be applied to intervention programs not only in Thailand but also in other countries.

ACKNOWLEDGEMENT

This works was performed under the project titled " Foodborne illnesses and food safety consumer education in urban and rural areas in Thailand" which was funded by Japanese Ministry of Foreign Affairs through Foundation for Advanced Studies on International Development (FASID).

Thanks also due to Dr. Virginia Hillers (Extension food specialist, Washington State University, U.S.A.) for her kind review of the manuscript, to Miss Suphatra Luksameebukkol for the technical assistance of the project, and to the Faculty of Fisheries, Kasetsart University for hosting the project.

LITERATURE CITED

Bell, R.A., V.N. Hillers and T.A. Thomas. 1999. The Abuela Project: Safe cheese workshops to reduce the incidence of *Salmonella* Typhimurium from consumption of raw-milk fresh cheese. **Am. J. Public Health** 89:1421-1424.

Economic Research Service. 2004. Economics of foodborne diseases. United States Department of Agriculture. Available online at http://www.ers.usda.gov/briefing/Foodborne Disease/. Accessed on October 7, 2005.

Heffernan J.A. 2000. **Survey of food safety attitudes and behaviors of Washington consumers**. M.S. thesis, Washington State University, U.S.A.

Toyama, M.T. 2001. **A survey of food safety attitudes and behaviors of Japanese consumers**. M.S. thesis, Washington State University, U.S.A.

Walker, M. A. 1996. **Survey of Food Consumption in Thailand**. Centre for Asia-Pacific Initiatives.