Eurasian Journal of Analytical Chemistry
ISSN: 1306-3057 OPEN ACCESS 2018 13 (4): 181-188

CUSTOMERS' AWARENESS AND WILLINGNESS TO PAY

REGARDING ORGANIC FRUITS AND VEGETABLES

Trung Quang Vo
Department of Economic and Administrative Pharmacy (EAP), Faculty of Pharmacy, Pham Ngoc Thach University of Medicine, Ho Chi Minh City 700000, Vietnam.
Address: 01 Duong Quang Trung Street, Ward 12, District 10, Ho Chi Minh City 700000, Vietnam.
Phone: +84.2838.668.019; Fax: +84.28.38.650.025; Mobile: +84.89.644.7677, +84.988.422.654
Email: trungvq@pnt.edu.vn, voquangtrungdk@gmail.com

Received 19 March 2018 ▪ Revised 09 April 2018 ▪ Accepted 22May 2018

ABSTRACT: *An increase in consumption of organic products has led to positive consumer attitudes towards organically produced food. Competitive prices and increased availability are demanded for this type of food. This study assesses consumers' awareness and marketing prospects with regard to organic fruits and vegetables as well as determining the marketing prospects of these organic foods in Vietnam. The result of the study showed that customers had a positive insight regarding organic fruits and vegetables with respect to their advantages, standard, cost and environmental risks in comparison with traditionally cultivated fruits and vegetables. Hygiene, the absence of insect harm and colour were the features that customers were most concerned about when buying organic fruits and vegetables, whereas size and hardness were the least considered features.*

Keywords: *Organic farming, organic fruits and vegetables, health benefits, market potential, consumer attitude and perception, willing to pay.*

INTRODUCTION

Although the current food system may produce remarkable volumes of food, it has many limitations-for example, starving people are unable to benefit from this food production, and it has high environmental costs. There have been reductions in water supply and fruitful land. Trade provisions for commodity producers are consistently decreasing, and the power of multinational retailers and seed or chemical organisations continues to increase. There is a significant number of small-scale farmers in developing nations that are unable to face these forces [1]. There is pressure on farmers in smaller regions to undertake intense cultivation, which promotes environmental deprivation and, in turn, results in families becoming laden with debt. Poor producers in remote regions, who are usually neglected by rural development schemes, may have been impacted most by this because it is not possible for them to reap the benefits of market prospects, and they cannot even produce sufficient food for their families. Although recent biotechnology schemes may lead to growth in yield in a few regions, the capacity of farmers to control what and how they grow can be negatively impacted.

The model has its roots in the La Via Campesina international peasant movement of the early 1990s and reinforces the universal power of the people to insist on the right to control production and food marketing as they decide in the ecological and different manner [2]. Most farmers, along with several joint organisations, such as UNESCAP (2002), have to say that organic agriculture might provide most general feedback for the maintenance issues experienced by agriculture, rural areas and the food production system. The ability of organic culture to bring about rural development is discussed even now. There have been a few studies [3] that indicate that the restrictions of this methodology in the situations in which context is not studied fully and the organisational hurdles like governmental schemes or social hurdles put a stop to the producers from reaping the advantages of organic status. Some studies have stated that original small an attractive code of the organic systems, which has not been seen, as organic markets are now increasingly common, and this has reduced the power that farmers had attained [4].

Organic farming can be described as a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects, and it does not use modern farm inputs, such as chemical fertilisers and synthetic pesticides [5]. Organic farming techniques generate organic food stuffs that are presented without the use of chemical food extracts, industrial diluents or preservation [6]. Soil and pest management production factors are the major areas of difference between organic and traditional production functions [7]. Organic farming systems rely on environmentally recognised practices that involve biological pest management and compositing without the use of antibiotics or artificial chemicals and hormones in crop production [8]. A significant benefit of organic farming is that it plays no role in water pollution through chemical pesticides, and customers do not need to be concerned by pesticide residues on fresh fruits and vegetables [9].

As of late, organic foods in numerous developing nations have come into the limelight due to the fact that they combine tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. There has been a growth in global sales of organic foods, which has totalled over US$ 5 billion each year, and they appear to have future potential. Asia, in particular, is a considerable producer and exporter due to the rapid growth of population and economy [10]. Growth in the organic foods market is not only backed by its customers, marketers and governments but is also strengthened by the awareness and insights of customers regarding organic foods [11]. There has been considerable scientific and social research on the subject of organic foods and organic food customers in various nations [12].

There have been a number of studies regarding current and future customers' opinions of organic foods in Asian nations [13]. Hoai et al. (2011) stated that further academic studies were needed to understand Asian food customers [14]. The objectives of the current article are to understand the motivations of potential Vietnamese customers (PVC) for buying organic foods, study their demographic outlines, and understand their perspectives regarding their purchase purposes. The results not only contribute to knowledge regarding organic foods in Vietnam but also offer suggestions to producers and retailers of Vietnamese organic foods who may target PVCs for the expansion of existing organic food markets.

There has been a constant increase in food safety and environmental quality problems across the globe, and, thus, from their initial years in the 1980s, organic foods have rapidly become a considerable food industry in the United States and other nations [15]. Agriculture provides employment to a considerable proportion of the population—approximately two thirds—and is thus the most significant part of the economy, responsible for approximately 50% of the nation's gross domestic product and its export earnings [16]. Carrot, tomato, green beans, spring onions, lettuce, green pepper, and cabbage are the most frequently cultivated organic vegetables, and they are usually used in rich diets and consumed raw. Watermelon, pineapple, orange, pear, pawpaw, and mango are the most frequently cultivated organic fruits [17]. The cultivation of fruits and vegetables in urban, peri-urban and rural areas plays a significant role in socioeconomic development, as it produces raw materials for local industries, ensures food safety, and provides jobs, foreign exchange and income for a particular part of the population [18]. Organic farming is considered to be an efficient means of improving food security and environmental standards [19], and the implementation of organic farming in the majority of the sub-Saharan nations is driven by the knowledge and demand of customers regarding organic food [20]. Non-governmental organisations (NGOs) are the main investors in the development of organic products-for example, trade associations operating widely with companies such as the Henry Doubleday Research Association (HDRA), the International Trade Centre (ITC), the Department for International Development UK (DFID) and the Pesticide Action Network UK (PAN-UK) [21].

When customers consume organic foods, they receive its benefits without any noticeable difference from traditionally produced fruits and vegetables. Fruits and vegetables are primary sources of antioxidants, which can prevent chronic diseases and various kinds of tumour. They also provide fibre, which is helpful in controlling cholesterol levels, and they contain vitamins, such as folic acid, which are helpful in preventing birth defects. Fruits and vegetables are also quite helpful for salt balance, particularly with respect to hypertension [22].

Growth in public concern regarding food safety measures related to the use of growth hormones, fertilisers, naturally altered organisms and pesticide residues and a growth in awareness of environmental quality issues have resulted in an increased demand for ecologically safe production [23]. Due to this, governments promote rich diets so that the residents of the country can be healthy, safe and confident [24]. Movement in the nourishment towards unhealthy diets is going at the faster rate in the developing nations in comparison to the developed nations [25]. A diet that contains a considerable quantity of fruits and

vegetables secures the body from various diseases, such as coronary heart disease, stroke and several types of cancer [26]. The Ministry of Health backs an increased consumption of fruits and vegetables [27], although there are numerous issues regarding the production techniques used by the producers, along with the risks associated with several fruits and vegetables when chemicals and inorganic fertilisers are not applied properly [28]. Organic farming is considered to be an efficient method of improvement in food safety and environmental standards [29], although its use in the majority of sub-Saharan nations is determined by the knowledge and demand of customers regarding organic food production [30]. Although organic systems are more beneficial than other systems, while having the same volume of production and being ecologically sustainable [31], the majority of the farmers are hesitant to implement organic farming because of the limited availability of statistics on market volume and marketing prospects [32]. Therefore, marketing production is among the many issues experienced by producers of fruits and vegetables [33].

Study Objectives

The aim of this research was to study the knowledge and readiness of customers regarding the payment of a premium for organic food in the case of fruits and vegetables, and to study the marketing prospects of organic foods. There were particular aims of the research such as:

1. An evaluation of the knowledge of customers about organic fruits and vegetables.
2. An evaluation of the readiness of customers to pay a premium for those fruits and vegetables.
3. An exploration of the aspects that impact the readiness of customers to pay a premium for organic fruits and vegetables.

LITERATURE REVIEW

Organic Farming

Organic farming production systems can be described as systems that sustain the health of soils, ecosystems and people. Such systems rely on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs that have adverse effects, and they do not use modern farm inputs, such as chemical fertilisers and synthetic pesticides [5]. Organic farming techniques help in the production of organic food stuffs, and no chemical food flavourings, industrial diluents or radiation is involved in the preservation of those food stuffs [35]. Organic farming approaches are controlled and implemented by numerous countries, and such approaches are mostly in accordance with the standards set by the International Federation of Organic Agriculture Movements (IFOAM), which is the universal parent organisation for organic farming companies [36]. There is major difference in soil and pest management between organic and traditional production practices [37].

Organic farming approaches comprise of a scientific awareness of new technologies and the environment, whereas conventional farming approaches are established according to biological procedures that arise naturally [38]. Biological pest control and reflex farming, green fertilisers and dung, crop rotation and excluding the use of synthetic chemicals, hormones and antibiotics are the primary approaches of organic farming [39]. Organic farming approaches use the natural environment to enhance agricultural production—the accumulation of leguminous crops in helping the nitrogen obsession, promotion of biological insect predators, crop rotation for restoring soil fertility and the addition of natural materials are a few examples of this [40].

The History of Organic Farming

Forest cultivation is a conventional food production system that finds its origin in ancient times, and it is considered to be the most ancient and adaptable agroecosystem [41]. Conventional farming is an agricultural technique that has been used for many years [42]. Artificial fertilisers appeared in the eighteenth century, first with superphosphates and later with ammonia-based fertilisers, and chemical pesticides were developed in the 1940s [43]. The use of artificial fertilisers and chemical pesticides can be beneficial for a while, but they have enduring destructive side-effects, such as soil corrosion and soil infertility as well as the health risks associated with chemical residues on foods [44]. Two well-known expert botanists, Sir Albert Howard and his wife Gabrielle, developed organic agriculture in the late 1930s and early 1940s. Both were encouraged by the conventional farming methods in our country along with a formal science education [45]. Sir Albert Howard was an English botanist, an organic farming pioneer and a principal figure in the early organic movement. He is considered by many in the English-speaking world to have been one of the key founders of modern organic agriculture [46]. The majority of farmers in developing nations farm according to conventional methods. These are similar to organic farming, although they are unverified and may or may not comprise of recent scientific developments in organic agriculture [47]. The recent increase in environmental awareness among the public has helped to transform the

organic movement from being supply driven to being demand driven. Higher prices and fewer subsidies from the government attracted farmers to organic farming [48].

Fruits and Vegetables

Diets with ample fruits and vegetables can decrease blood pressure and the incidence of heart disease. Such diets can avert various kinds of cancer, enhance the vision, decrease digestion issues and decrease blood sugar levels [49]. Cabbage, carrot, garden eggs, spring onions, lettuce, green pepper, tomato and green beans are examples of the most frequently cultivated organic vegetables, whereas commonly cultivated organic fruits comprise of pawpaw, pear, watermelon, pineapple and mango [50].

HEALTH BENEFITS OF FRUITS AND VEGETABLES

Prevention of Cardiovascular Diseases and Blood Pressure

Many studies have demonstrated that diets with ample fruits and vegetables can decrease heart disease and stroke risks. According to a study by Reisch, Eberle and Lorek (2013), an increased consumption of fruits and vegetables reduced the incidence of cardiovascular disease compared to people whose diets included only small quantities of fruits or vegetables (approximately 1.5 servings per day) [37]. It is likely that most fruits and vegetables decrease the risk of cardiovascular disease, although green leafy vegetables, such as cabbage, lettuce, cauliflower and spinach, play a particularly strong role, as well as citrus fruits, such as grapefruit, limes and lemons.

Prevention of Tumours

According to an article published by the World Cancer Research Fund, non-starchy vegetables, such as lettuce, and leafy green vegetables, such as cabbage, along with onions, garlic and fruits may protect the body from various cancers, such as mouth cancer, voice box cancer, throat cancer, stomach cancer, and lung cancer [40].

Specific ingredients in a number of fruits and vegetables can protect against the growth of some cancers. For example, tomatoes are helpful in protecting males against prostate cancer, particularly devastating types of tumour [25]. Increasing the consumption of tomatoes, particularly cooked tomatoes, along with foods comprising lycopene, may lead to a reduction in the development of prostate cancer [15]. Lycopene is among a number of carotenoids that arise in vibrantly coloured fruits and vegetables. Research suggests that foods that contain carotenoids may protect the body from throat tumours, mouth cancer, and throat cancer [20].

Promotion of Gastrointestinal Health and Vision

Fruits and vegetables contain complex fibres that help with the absorption of water. These fibres are also enlarged while moving through the digestive system and can thereby avert indications of prickly bowel, while also decreasing constipation due to constant bowel movements [10]. The enlarging and contracting process of insoluble fibres can decrease force within intestinal tract and is helpful in averting diverticulosis [38]. Fruits and vegetables also keep our eyes healthy and may help to avoid diseases associated with ageing, such as macular degeneration and cataracts, which result in eye complications for millions of Americans above the age of 65 years [50]. Lutein and zeaxanthin in fruits and vegetables help to protect against cataracts.

Market Potential and Marketing Prospects

Market potential is the maximum sales that can be achieved under certain conditions and a certain time period [8]. A literature survey shows that organic fruits and vegetables can offer farmers a market potential equivalent to that of fruits and vegetables grown using traditional methods; this is particularly true for small farmers with limited resources. Market potential and prospects should and must be properly investigated and understood to reap the benefits of this type of production. Magnusson et al. (2003) conducted research on the potential for the organic food market in Europe and found that it was possible that organic foods could be sold in supermarkets [28]. Yadav and Pathak (2016) conducted a study on the market potential of organic apples and milk in Vermont in the United States. They observed that there was a substantial niche market for organic apples and milk, and most customers, particularly those that have previously bought organic food items, were ready to pay more for organic apples and milk [49]. Research on the status of coffee production and the capability of organic Arabic coffee observed that a high capability can be found on plateaus. Accordingly, marketing organic coffee and its production approaches would be beneficial for farmers, the plateau ecosystem and customers [15]. Anh (2015) conducted a study regarding the development of cherry apple and hard cider markets. The study considered the ability of these markets to support growth in both demand and value for Michigan fruit growers' products. It also asked which

factors affect the development of the hard cider and cherry apple markets in Michigan [2]. The research showed that the value of the Michigan hard cider market is comparatively less, although considerable, with a predicted annual value of between US$ 580,000 and US$ 2,900,000. The study shows that there is a high potential for hard cider that mixes cherries and other fruits with apple. Dao (2016) conducted a study on the marketing prospects of the Jamaican grapefruit industry. The primary valuation of market potential for Jamaican exports of grapefruit to the European Union (EU) stated that the prospects were fruitful, as some believed that the grapefruit industry in Florida had a poor outlook; it was recommended that these changes would most probably lead to grapefruit prices being comparatively high in the EU market for a long time [10]. Thus, Jamaica has some advantages over the United States and is appropriate for large-scale citrus production.

Estimation of Market Potential

To evaluate the viability of a particular item, it is necessary to estimate its market potential. With the help of this, it would also be possible to estimate the maximum potential sales for a particular market [12]. Once the estimation of the market potential for a particular item is compete, it will be easy to ascertain whether the market is appropriate for production and can support an extra producer [22].

Consumer Attitude and Perception

Customer attitude can be described as the willingness or intent of the customer to react in a positive or negative way towards a particular product [35]. A relationship between attitude and perception can be found, and therefore the attitude of customers towards a particular product relies considerably on customers' opinions [37]. A number of studies have considered what customers are prepared to pay on the basis of customer attitudes and perceptions regarding organic food and its characteristics. In a few studies, it can be seen that WTP for organic items has a relation with the perception that it is environmentally friendly and helpful for small-scale farming and rural areas [45]. Dao (2016) conducted a study that considered customer reference for organic labels and apples regarding sociodemographic features. It was observed that a concern with increasing food safety problems, as well as concerns related to the atmosphere, increased the likelihood that a customer would prefer an organic item [10]. Due to this, customers with an awareness of environmental and food safety problems tend to prefer organic apples, whereas customers who do not have such awareness prefer normal apples. Kearney (2010) conducted an 11-year study from 1992 to 2002 on the food risk issues of German customers. The study comprised of the risk concerns of customers along with particular perspectives of food safety risks [21]. Variables associated with environmental, lifestyle and food hazards defined the risk attitude. Food safety issues were categorised according to the use of biotechnology, remains, unsanitary eating and natural pollutants. According to the outcomes of the research, the risk perspectives and knowledge regarding food safety risks held by study population were significant.

Naspetti and Zanoli (2006) conducted a study across Europe to assess organic food standards and safety issues. They observed that quality problems and considerations were among the most important factors in all food purchases, including organic food. The average organic customer would often relate quality with health rather than safety and tends not to have a different organic food quality perception. It was also observed that little knowledge regarding the way that organic items are nurtured and treated could be found, while these characteristics are essential for customers who are concerned with safety and quality. The perceptions and attitudes of customers regarding food safety were the subject matter of research undertaken in Portugal by Ventura-Lucas (2004). The outcomes showed that, except the place of customers, lifestyle, food safety and consumption experience were primary features for Portuguese customers. Customers considered the influence of food production on the environment, and they had considerable worry about this. They complied that the usual production system is more harmful to the environment that the organic system.

THE CONSUMER BUYING BEHAVIOUR OF ORGANIC FRUITS AND VEGETABLES

The purchasing behaviour of customers is comprised of the actions associated with buying and consuming goods or services for individual and family use. The buying behaviours of customers are impacted by factors such as psychological (perspective, motivations and attitude), lifestyle, demographic and economic variables. Padberg et al. (2002) mentioned that the purchasing behaviours of customers are complicated and multi-sided, and this view is supported by various social sciences, such as sociology, anthropology, nutritional sciences, medicinal sciences, economics, psychology and geography.

Willingness to Pay

Dimitri and Greene (2002) defined willingness to pay (WTP) as the maximum price that a consumer will definitely pay for one unit of a product. Customers wanted niche items, such as organic apples. Customers gave significance to organic foods, as they consider them to be nutritious and environmentally friendly. This significance may be converted to WTP for organic products. Several studies examined the requirements of customers for WTP for organic and pesticide-free items.

CONCLUSION

In summary, the majority of customers have adequate knowledge about organic foods in the market and acquire this knowledge from the radio, school or books. Health is a primary factor that influences customers' decisions to purchase organic foods, and they usually favour organic fruits and vegetables from farmers or market retailers. Customers suggested that organic fruits and vegetables should only be sold in assigned organic markets. The majority of customers stated that they did know about the health hazards associated with chemically developed fruits and vegetables, although there were erroneous perceptions among customers regarding the types of health hazard, such as increased blood pressure, heart disease, diabetes and typhoid. The customers had proper knowledge about the impact of artificial chemicals on the environment. Customers had a positive insight regarding the advantages, standards, costs and environmental risks of organic fruits and vegetables in comparison with traditionally cultivated fruits and vegetables. Hygiene, an absence of insect damage and colour were the features that concerned customers the most when buying organic fruits and vegetables, whereas size and hardness were the least considered features.

CONFLICTS OF INTERESTS

The authors have no conflicts of interests to declare.

FUNDING

None.

REFERENCES

[1] Alba JW and Hutchinson JW (2010) Dimensions of consumer expertise. The Journal of Consumer Research 13(4): 411-454.

[2] Anh PH (2015) Food safety in Vietnam and opportunities for food testing technology. Switzerland Global Enterprise. http://www.s-ge.com/schweiz/export/de/node/ 220626. Access on Dec 23, 2017

[3] Aung MM and Chang YS (2014) Traceability in a food supply chain: Safety and quality perspectives. Food Control 39: 172-184.

[4] Batte MT, Hooker NH, Haab TC and Beaverson J (2007) Putting their money where their mouths are: Consumer willingness to pay for multi-ingredient, processed organic food products. Food Policy 32(2): 145-159.

[5] Berg H and Tam NT (2012) Use of pesticides and attitude to pest management strategies among rice and rice-fish farmers in the Mekong Delta, Vietnam. International Journal of Pest Management 58(2): 153-164.

[6] Berg H, Soderholm AE and Tam NT (2017) Recognizing wetland ecosystem services for sustainable rice farming in the Mekong Delta, Vietnam. Sustainability Science 12(1): 137–154.

[7] Buu P (2015) Pesticide overuses a top food safety concern. Vietnam news e The National English Language Daily http://vietnamnews.vn/environment/276348/pesticide-overuse-a-top-food-safetyconcern.html#7YZT8272gpIFWMgQ.97. Access on Nov 12, 2017

[8] Chau HLQ, Thong HT, Chao NV, Hung PHS, Hai VV, An LV et al. (2014) Microbial and parasitic contamination on fresh vegetables sold in traditional markets in Hue city, Vietnam. Journal of Food and Nutrition Research 2(12): 959-964.

[9] Dang HL, Li E, Nuberg I and Bruwer J (2014) Understanding farmers' adaptation intention to climate change: A structural equation modelling study in the Mekong Delta, Vietnam. Environmental Science and Policy 41: 11-22.

[10] Dao T (2016) Vietnam suspends rice exports to US after pesticide violations. Vnex-press International. http://e.vnexpress.net/news/business/vietnam-suspends-rice-exports-to-us-after-pesticide-violations-3476874.html. Access on Dec 20, 2017

[11] Frewer LJ, Fischer ARH, Brennan M, Banati D, Lion R, Meertens RM et al. (2016) Risk/benefit communication about food e a systematic review of the literature. Critical Reviews in Food Science and Nutrition 56: 1728-1745.
[12] Grunert KG, Loose SM, Zhou Y and Tinggaard S (2015) Extrinsic and intrinsic quality cues in Chinese consumers' purchase of pork ribs. Food Quality and Preference 42: 37-47.
[13] Ha NT, Kitajima M, Hang NV, Matsubara K, Takizawa S, Katayama H et al. (2008). Bacterial contamination of raw vegetables, vegetable-related water and river water in Ho Chi Minh city, Vietnam. Water Science and Technology 58(12): 2403-2411.
[14] Hoai PM, Sebesvari Z, Minh TB, Viet PH and Renaud FG (2011) Pesticide pollution in agricultural areas of northern Vietnam: Case study in Hoang Liet and Minh Dai communes. Environmental Pollution 159: 3344-3350.
[15] Hoi PV, Mol A and Oosterveer P (2013) State governance of pesticide use and trade in Vietnam. NJAS e Wageningen Journal of Life Sciences 67: 19-26.
[16] Hong A (2016) Chinese chemicals flood Vietnam's agricultural sector. Vnexpress International. http://e.vnexpress.net/news/news/chinese-chemicals-flood-vietnam-s-agricultural-sector-3472977.html. Access on Dec 20, 2017
[17] Hsu S-Y, Chang C-C and Lin TT (2016) An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modelling. British Food Journal 118(1): 200-216.
[18] Huong BTM, Tuyen LD, Do TT, Madsen H, Brimer L and Dalsgaard A (2016) Aflatoxins and fumonisins in rice and maize staple cereals in Northern Vietnam and dietary exposure in different ethnic groups. Food Control 70: 191-200.
[19] Jacoby J, Troutman T, Kuss A and Mazursky D (2010) Experience and expertise in complex decision making. Advances in Consumer Research 13(1): 469-472.
[20] Jia C and Jukes D (2013) The national food safety control system of India a systematic review. Food Control 32(1): 236-245.
[21] Kearney J (2010) Review: Food consumption trends and drivers. Philosophical Transactions of the Royal Society B: Biological Sciences 365(1554): 2793-2807.
[22] Kirezieva K, Luning PA, Jacxsens L, Allende A, Johannessen GS, Tondo EC et al. (2015). Factors affecting the status of food safety management systems in the global fresh produce chain. Food Control 52: 85-97.
[23] Laillou A, Berger J, Le BM, Pham VT, Le TH, Nguyen CK et al. (2012) Improvement of the Vietnamese diet for women of reproductive age by micronutrient fortification of stapes foods and condiments. Plos One 7(11).
[24] Le THH, Nguyen TQH, Tran CS, Vu TT, Nguyen TL, Cao VH et al. (2017) Screening determination of food additives using capillary electrophoresis coupled with contactless conductivity detection: A case study in Vietnam. Food Control 77: 281-289.
[25] Lee H-J and Hwang J (2016) The driving role of consumers' perceived credence attributes in organic food purchase decisions: A comparison of two groups of consumers. Food Quality and Preference 54: 141-151.
[26] Lehtinen U (2017) Sustainable supply chain management in agri-food chains: a competitive factor for food exporters. In R Bhat (Ed.), Sustainability challenges in the argon food sector. John Wiley and Sons Ltd: Chichester, UK.
[27] Liu RD, Pieniak Z and Verbeke W (2013) Consumers' attitudes and behaviour towards safe food in India: A review. Food Control 33: 93-104.
[28] Magnusson MK, Arvola A, Hursti U-KK, Åberg L and Sjodeen PO (2003) Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behaviour. Appetite 40(2): 109-117.
[29] Mergenthaler M, Weinberger K and Qaim M (2009) Consumer valuation of food quality and food safety attributes in Vietnam. Review of Agricultural Economics 31(2): 266-283.
[30] Michaelidou N and Hassan LM (2008) The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. International Journal of Consumer Studies 32(2): 163-170.
[31] Moser R and Raffaelli R (2012) Consumer preferences for sustainable production methods in apple purchasing behaviour: A non-hypothetical choice experiment. International Journal of Consumer Studies 36(2): 141-148.
[32] Nhien T (2014) Vietnamese farmers' overuse of pesticide harms fertile soil. Viet-NamNet Bridge. http://english.vietnamnet.vn/fms/environment/119375/ vietnamese-farmerseoveruse-of-pesticide-harms-fertile-soil.html. Access on Dec 20, 2017

[33] Nougadere A, Merlo M, Heraud F, Rety J, Truchot E, Vial G et al. (2014) How dietary risk assessment can guide risk management and food monitoring programmes: The approach and results of the French observatory on pesticide residues (ANSES/ORP). Food Control 41(1): 32-48.
[34] Olsen SO, Scholderer J, Brunso K and Verbeke W (2007) Exploring the relationship between convenience and fish consumption: A cross-cultural study. Appetite 49(1): 84-91.
[35] Pieniak Z, Aertsens J and Verbeke W (2010) Subjective and objective knowledge as determinants of organic vegetables consumption. Food Quality and Preference 21(6): 581-588.
[36] Pieniak Z, Verbeke W, Scholderer J, Brunso K and Olsen SO (2008) Impact of consumers' health beliefs, health involvement and risk perception on fish consumption: A study in five European countries. British Food Journal 110(9): 898-915.
[37] Reisch L, Eberle U and Lorek S (2013) Sustainable food consumption: An overview of contemporary issues and policies. Sustainability: Science, Practice, and Policy 9(2): 7-25.
[38] Shrestha S, Deb P and Bui TTT (2016) Adaptation strategies for rice cultivation under climate change in Central Vietnam. Mitigation and Adaptation Strategies for Global Change 21(1): 15-37.
[39] Thogersen J, Zhou Y and Huang G (2016) How stable is the value basis for organic food consumption in China? Journal of Cleaner Production 134: 214-224.
[40] Van Loo EJ, Hoefkens C and Verbeke W (2017) Healthy, sustainable and plant-based eating: Perceived (mis)match and involvement-based consumer segments as targets for future policy. Food Policy 69: 46-57.
[41] Van Loo EJ, Nguyen HDM, Pieniak Z and Verbeke W (2013) Consumer attitudes, knowledge, and consumption of organic yogurt. Journal of Dairy Science 96(4): 2118-2129.
[42] Verbeke W (2005) Agriculture and the food industry in the information age. European Review of Agricultural Economics 32(3): 347-368.
[43] Verbeke W (2015) Profiling consumers who are ready to adopt insects as a meat substitute in a Western society. Food Quality and Preference 39: 14e155.
[44] Voon JP, Ngui KS and Agrawal A (2011) Determinants of willingness to purchase organic food: An exploratory study using structural equation modelling. International Food and Agribusiness Management Review 14(2): 103-120.
[45] Wang H, Moustier P and Loc NTT (2014) Economic impact of direct marketing and contracts: The case of safe vegetable chains in northern Vietnam. Food Policy 47: 13-23.
[46] Wertheim-Heck SCO and Spaargaren G (2016) Shifting configurations of shop-ping practices and food safety dynamics in Hanoi, Vietnam: A historical analysis. Agriculture and Human Values 33: 655-671.
[47] Wertheim-Heck SCO, Vellema S and Spaargaren G (2015) Food safety and urban food markets in Vietnam: The need for flexible and customized retail modernization policies. Food Policy 54: 95–106.
[48] Wongprawmas R and Canavari M (2017) Consumers' willingness-to-pay for food safety labels in an emerging market: The case of fresh produce in Thailand. Food Policy 69: 25-34.
[49] Yadav R and Pathak GS (2016) Intention to purchase organic food among young consumers: Evidences from a developing nation. Appetite 96: 122-128.
[50] Zander K, Padel S and Zanoli R (2015) EU organic logo and its perception by consumers. British Food Journal 117(5): 1506-1526.