



Consumer perceptions towards organic food

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Abstract

Food safety, human health and environmental concern along with sensory attributes such as nutritive value, taste, freshness and appearance influence organic food consumer preferences. Demographic variables may define organic consumers but the correlation is not very significant. Consumers also associate organic food with natural process, care for the environment and animal welfare and the non-use of pesticides and fertilisers. Premium price continues to suppress organic food consumption. Understanding the grounds of increasing level of organic food consumption such as motivation are most critical in understanding the potential of the organic food to become a genuinely mainstream market.

Organic food is defined as a product from a farming system which avoids the use of synthetic fertilizers and pesticides. The principles used in the farming system apply the benefit of modern scientific understanding and technologies to offer a more sustainable food production (Institute of Food Science and Technology, 2005). Genetically-modified organisms and antibiotics are prohibited in organic standards for animal husbandry while only 30 additives are permitted in certain conditions (Soil Association, 2000). Therefore, purchase of organic foods can be seen as an action motivated by beliefs about healthiness and possibly good taste of these products as well as by beliefs about the positive impact on the environment and welfare of production animals.

This review aims to provide an evaluation of the literatures on the consumer attitude towards organic food. It is important to know how consumers relate to food quality and food system issues in order to explore the potentials of organic agriculture. Knowledge and public understanding influence the consumer valuation of food. Thus, consumers need clear, accurate and reliable information about organic food. Consumers believe they are more informed if information on organic food is provided and the information affects their perceptions.

Keywords: organic food, consumer perceptions, consumer's willingness, quality

Introduction

Review on consumer perceptions towards organic food

Sustainable products are always seen as the expensive option (Market & Opinion Research International Limited (MORI), 2003). Being environmentally friendly is expressed to be accessible only to the middle classes. The consumers want to have a choice among the sustainable products rather than choosing products that are sustainable and those that are not. Consumers combine information about product attributes and consequences to evaluate a product and make their choices. They rely on their felt involvement which is influenced by their experience. The importance placed on each parameter is based on the consumers' priorities and values. Experience develops personal relevance, importance, interest which together derives the motivational state (Shroeder, 2003).

Demographic variables as well as lifestyle and environmental attitudes define the organic consumer profile. Regular consumers of organic food tend to be educated, affluent and of higher social class (Padel and Foster, 2005; Stobelaar *et al.*, 2006). Awareness of food hazards and knowledge of food hazards were higher among females and individuals with more education and income (McIntosh *et al.*, 1994; Torjusen *et al.*, 2001; Stobelaar *et al.*, 2006). Lockie *et al.* (2002) also found strong correlation between increasing consumption of organic food and levels of formal education. Organic consumers are

willing to pay approximately 10% premium for organic food with an average of 9.5% by women and 11.4% by men (Urena *et al.*, 2008). Regular consumers would pay a slightly higher premium around 15%, an average of 12/6% by women and 18% by men (Urena *et al.*, 2008). This Spanish study also identified three groups of organic food consumers in relation to frequency of consumption namely regular, occasional and non-consumer. Regular consumers were defined as those who make purchases at least twice a week represented 12% of consumers, 42% were occasional consumers with 42% and the remaining 46% were non-consumers. Among the non-consumers, 25% were potential consumers with intention to buy organic food in the future. The gap between consumers' opinion and their actual consumption needs to be taken into account.

Generally, organic foods do not use pesticides or synthetic fertilisers. Presumably organic food contains fewer chemical residues and veterinary drugs compared to conventional food. Environmental contaminants however are likely to be found in food of both productions. Organic food contains only one-third of pesticides that conventional food does (Baker *et al.*, 2002)^[4]. It can be said that lower exposure translates into lower risk. In conventional food, almost all produce will have pesticide residue below the statutory maximum limits. Consumers express anxiety on agrochemicals, hormones and

medicine in animal production and GMO and artificial additives in fruits and vegetables (Naspetti and Zanolli, 2006). With respect to absence of pesticides and fertilisers in organic production, organic fruits and vegetables have more biochemical energy to synthesise beneficial secondary plant metabolites such as polyphenolic antioxidants as well as naturally occurring toxins (Winter and Davis, 2006). Nutritional content is a quality aspect that consumers link to personal health. High content of vitamins, more nourishing meals and a healthy diet were reported as reasons for purchasing organic food by 4%-7% of regular organic food consumers (Naspetti and Zanolli, 2006).

Consumers who are concerned about natural foods, the sensory and emotional appeal of food and more likely to engage in green consumption practices are more likely to have greater consumption of organic food (Lockie *et al.*, 2004). Women were identified to have higher health consciousness and were seen as innovators for change towards healthier diets with their important roles in shaping a family diet (Fagerli and Wandel, 1999)^[10]. They are also more health-conscious about the implications of chemical residues and preservatives (Yiridoe *et al.*, 2005). Women are more committed to natural foods and environmental values and the fairness of paying a premium for environmental good. Higher vitamin C content was found in organic food compared to conventional food (Soil Association, 2000). Inconsistent findings were recorded on the comparison of sensory qualities of organic food to conventional food (Bourn and Prescott, 2002)^[2]. Consumers described that organic orange juice tasted better than conventional orange juice and no difference was described between organic and conventional milk (Fillion and Arazi, 2002)^[11].

In recent years, organic food has been attaining a growing consumer demand. A number of reasons have driven this organic food market trend. The British consumers perceived organic food as a means of achieving individual and social values for themselves and their families. The most significant motive for choosing organic food is the health factor followed by the environmental and animal welfare factors. Some consumers buy organic food as they perceive a difference in food quality. Few specific parameters expressed are sensory parameters, followed by safety and nutrients (Bordeleau *et al.*, 2002)^[6]. Animals' biological function and performance improve slightly when they are fed with organically produced feed (Magkos *et al.*, 2003). The interpretation of this finding must be made with caution and any extrapolation to human should consider metabolic and physiological difference between animals and humans.

Opposing attitude and value towards GM food implies a positive view on the organic, especially when they are mentioned together. GM food is seen as manipulative and altering the nature while organic food is seen to preserve the 'naturalness' of the environment (Dreezen *et al.*, 2005)^[9]. Composting food wastes and consumption of locally produced food are among the most commonly food-related environmental behaviour specified by consumers compared to consumption of organic food. Awareness on the organic food consumption needs to be raised and the barriers need to be overcome. The link between health and environmental benefits should be strengthened to increase interest among

consumers (Magnusson *et al.*, 2003).

Methodology

It is a review of published journal articles on organic food consumers and sustainable agriculture from the year 2000 to 2008. This paper investigates the consumers' concerns (globally) about food safety based on health risk, agricultural and environmental changes associated with modern food production including genetic modification and the improper use of pesticides. This review also includes the diverse consumer attitudes towards organic food, particularly the willingness to pay for organic food and its quality and helps prevent environmental health risk with recommendations.

Consumers' willingness to pay for organic food

Price premium is the additional percentage charged on organic food when compared with the price of conventional food. Numerous claims are made about the goodness of organic food, in order to justify the premium price that consumers have to pay (Fillion and Arazi, 2002)^[11]. According to Hamm *et al.* (2002), of sales arguments used to justify the price premium for organic foods; the most important was food safety, followed by nature conservation and taste. Some consumers simply assume that they cannot afford organic food and some feel that the market often charges more for healthier food (Whitehead and Nicholson, 2001).

Awareness and information on organic labelling is unmistakably one way of increasing the probability that a consumer would be willing to pay a premium for organic food (Batte *et al.*, 2007). A consumer survey on the consumer willingness to pay for organic product conducted in Spain found the need to adjust the organic food prices. Consumers are willing to pay prices similar to those prevailing at present (Sanjuan *et al.*, 2003). The willingness to pay is higher in the "likely" and "organic" consumer segments. Similar values were shown, around 22-24% for vegetables and fruit, 17% and 15% respectively for potatoes. For the "unlikely consumers" segment, the willingness to pay is slightly lower for vegetables (20-22%) while significantly lower for potatoes (8-10%). It seems that organic products are identified more readily in perishable products such as fruit and vegetables and as a result, higher premiums are offered. In the UK, organic fruit and vegetables are generally associated with a healthier diet although this stands in contrast to the low level of UK-grown organic fruit and vegetables (Gil *et al.*, 2000). Price remains a barrier for consumers in purchasing organic food. The existing gap between conventional and organic food prices should be reduced to increase consumption (Gil *et al.*, 2000).

Considerable price premium difference even between neighbouring countries reflects that organic market transparency is particularly poor (Hamm *et al.*, 2002). When the farm-gate price is low for a particular conventional food product, for example cereal, the organic price premium for cereal is also low. In countries where general food suppliers like major supermarkets are actively marketing organic food, the price premium is usually lower. One possible factor is lower distribution cost because organic food can be transported together with conventional food. The growing organic market need to be identified based on market data

from over several years to project market development and finding a solution to reduce the price gap of organic food and conventional food.

The consumers of organic food tend to be older, come from tertiary-educated household and have higher income than those not purchasing organic food (Padel and Foster, 2005; Roitner-Schobesberger *et al.*, 2008). Therefore, it was suggested that willingness to pay for organic food increases with age and income. Lockie *et al.* (2004) on the contrary found that age and income have very little influence over the level of organic consumption. Gil *et al.* (2000), too found that consumer socioeconomic characteristics are not very relevant compared to lifestyles and attitudes towards environmental issues. A Norwegian consumer study also found no significant effect of income or occupation on the interest of consuming organic food (Wandel and Bugge, 1996). Canadian consumers on average are willing to pay a price premium of at least 24% (Yiridoe *et al.*, 2005). A Spanish consumer study revealed that consumers were willing to pay a higher premium for meat, fruits and vegetables suggesting that they found perishable products more important organic attributes. In the case of meat, the rational reason could be partially because of the food and health issues (BSE, E.coli 0157 contamination) taken place in Europe (Gil *et al.*, 2001). In Roitner-Schobesberger *et al.* (2008), 60% of the organic consumer did not see price as limiting factor and only 29% of the non-consumers mentioned it as a reason not purchasing organic food.

A study in the Netherlands investigated health-related determinants of organic food consumption and found that frequency of purchase influenced the health and environmental reasons for purchasing. "Incidental" buyers indicated health as a major reason for purchasing while "heavy" buyers took environmental concern into consideration (Schifferstein and Oude Ouphuis, 1997). The "heavy" buyers are seen to have more concern on the environment by being willing to pay extra more frequently. Therefore, it was suggested that when organic consumer studies are carried out, the frequency of purchase should be classified.

Consumers of organic food recognise their role in their local environment when they are involved in the organic food system (Pirog and Larson, 2007). The consumer recognition evolves from the concept of organic food and also originates from the apprehension of the conventional food that is seen to become distant from the 'green' consumerism. In addition, consumers sometimes relate feelings of good conscience and responsibility for the well-being of family with organic food purchase decisions (Arvola *et al.*, 2008). Arvola *et al.* (2008) examined the role of affective and moral attitudes as motivators of organic food in the context of the "Theory of Planned Behaviour". It was found that affective and moral measures have a considerable role in predicting intentions to purchase organic food. Self-rewarding and the feeling of doing something good for the environment seem to be appropriate to understand the intentions of buying organic food. Therefore, a moral dimension provides another justification in increasing the marketing of organic food.

Satisfaction of consumers with their current purchase may also become a barrier to purchasing organic food (Roddy *et al.*, 1994). The consumers do not think that organic food is any better, so why bother paying more for food that they can

obtain at a cheaper price. The integration of environmental concern in EC agricultural policy, production and marketing of high quality food is increasing. Organic food will continue to be produced but still most food will be produced as natural as possible, with less pesticide but not strictly organic. The food may be easier to produce and less expensive providing a major threat to organic food. Consumers who already buy organic food, on the other hand can be encouraged to increase their frequency of purchasing by improving the availability and sensitivity to food quality and market preferences (Torjusen *et al.*, 2001).

Consumer perception of organic food quality

It is apparent that most consumers emphasised traditional quality aspects such as freshness and taste in their food choice (Torjusen *et al.*, 2001; Dimara *et al.*, 2003). In fruits and vegetables, for example, freshness is generally the important criterion to look for. Consumers in Thailand were more likely to buy organic fruits and vegetables if they meet the criterion (Roitner-Schobesberger *et al.*, 2008). Quality, however is not a well-defined attribute but comprises many other properties such as sensory attributes (appearance, texture, taste and aroma), nutritive values, safety determinants, chemical constituents, mechanical properties, functional properties and defects (Abbott, 1999; Mizrach, 2007). Sensory analysis becomes primary for consumers in determining their choice followed by their awareness of invisible qualities such as microbial and toxicological safety and nutritional value (Thierman, 2000). Taste will continue to become a prime consideration in consumer food choice especially after the experience of consuming the food (Fillion and Arazi, 2002)^[11]. Although sensory evaluations on whether organic food tastes better than conventional food have yielded inconsistent results (McEahern and McClean, 2002), many buyers believe that organic food tastes better (Roitner-Schobesberger *et al.*, 2008). It was suggested that it is necessary to treat each product type separately rather than putting a broad claim on certain product.

Woese *et al.* (1997) examined more than 150 comparative studies on foods including cereals, potatoes, vegetables, fruit, wine, beer, bread, milk, eggs as well as food products made from them. The studies investigated the concentrations of pesticides residues and environmental contaminants as well as sensory tests and feeding experiments in animals. It was found that conventional food which are fertilised with minerals seems to have higher nitrate content that organically fertilised vegetables and potatoes. In relation to pesticides, lower residue level was found in vegetables and fruit from organic production.

Apart from the quality attributes that can be judged through experience, health and process related quality is a question of credible information. The health benefits of organic food are required to be communicated through a way which consumers regard as credible. For instance, a study on dry matter concentration was carried out on leafy vegetables from organic and conventional food. It was suggested that excessive fertilisation to the conventional vegetables has stimulated rapid growth that increases the crop yield by increasing the water content (Soil Association, 2000). This kind of information should be more appropriately reported and

compared on a fresh weight basis to avoid misleading of information and confusion to the consumers.

A six-European countries consumer attitude survey on the GM food revealed that one-third of the six-country population (France, Germany, Great Britain, Italy, Poland and Portugal) would not choose any form of GM foods (Almeida *et al.*, 2006) ^[2]. They pointed out that they are willing to accept GM foods only if these food provided 'health benefits' and if there were food production benefits. Other reasons to accept GM foods were also related to cost, taste, labelling and nutritional improvements. It can be said that GM food acceptance will be greater if they provide either health or other welfare benefits. The study also reported that 86% of the population consumed functional food at least once a week. The functional food includes fruits and vegetable, high-fibre product, probiotic yogurt drinks, food enriched in vitamins/minerals and cholesterol-lowering spreads/drinks. This data corresponded with their view that increasing fruit and vegetable consumption and cutting down on fatty foods and sugar as ways to reduce personal risk of diet related diseases such as type 2 diabetes or coronary heart disease.

When GM food and organic food are compared, studies have found that consumers have very positive attitude towards organic food (Magnusson 2004, Arvola *et al.*, 2008) while they are quite negative to GM foods (Dreezens *et al.*, 2005) ^[9]. Consumers in Spain described GM food with attributes such as no benefit, tampering with nature and high risk while organic foods with attributes such as serving good purpose, necessary and healthy (Koivisto-Hursti and Magnusson, 2003). Many other European consumers' studies also established negative attitudes towards genetic modification in food products (Frewer *et al.*, 1995; Grunert *et al.*, 2000; Gifford and Bernard, 2005) ^[15]. However, public attitudes are likely to change dramatically when the application is associated to a specific goal (Heijs *et al.*, 1993) ^[17D]. Negative framing on certain type of production (i.e. conventional farming) increases influence on the alternative technology (i.e. organic farming) but positive framing was found to be more effective (Gifford and Bernard, 2005) ^[13]. Therefore, a message about the benefits of organic farming may have more meaning to consumers. Consumers tend to accept a somewhat risky technology if the application is seen to be useful to mankind and the environment. The same perception applies to organic food. Considerations about health and about the way the product is produced with regard to animal welfare and environmental care characterise the consumer perceptions on the health and safety aspect which could be another aspect of food quality.

Conclusion

Demographic variables such as age, income and education may define organic consumers but the correlation is not very significant. Premium price continues to hold back organic food consumption. It is complicated to justify the premium because health benefits asserted to organic food are often difficult to quantify. Therefore, more transparency in the organic food production and farm-gate price can be advantageous to the society. Securing the domestic supply of organic food may be the key to reduce the price gap.

Understanding specifically the determinants of increasing levels of organic food consumption such as motivation, behaviour, beliefs and demographic variables are most critical in understanding the potential of the organic market to keep up the increasing growth and become genuinely a mainstream market.

A growing interest in organic food has prompted many studies comparing aspects of organic against conventional food because human health, food safety and environmental concern along with other sensory attributes such as nutritive value, taste, freshness and appearance. Consumer perceptions about organic food are highly subjective. It is also worth noting that such perceptions may or may not be their actual behaviour in purchasing. Furthermore, good quality of organic food at reasonable price may not only attract more potential buyer but also do justice to our environment as the pesticide application is minimal. Thus, concerted effort from all parties especially the government in promoting the advantages of consuming organic food may help shift consumers' behaviour.

Therefore, future studies should go for consumer-based approach which is important not only for consumers, but also in terms of responses to changes in market dynamics.

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