University of Alberta

Organic food consumers: Modeling the food choice process

by

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Abstract

The decision making process consumers engage in when choosing between organic foods and their conventional alternatives was modeled using grounded theory. The process was found to involve six main factors: price, availability, taste, health concerns, environmental concerns, and influence from outside sources (i.e. family, friends, and media). A questionnaire based on these six factors revealed that consumers who were "more committed" to organic food purchase ranked health and environment as their top two considerations when buying organic foods. Price was one of their lowest considerations, and they also agreed more often than "less committed" consumers about buying organic foods based on taste, health and environmental benefits. The questionnaire was part of a sensory panel which also assessed consumer orientations towards organic dark chocolate and raisins. Despite perceptions that the organic samples had more flavor, organic raisins were not significantly preferred, and organic dark chocolate was preferred significantly less than conventional.

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List of Abbreviations

TRA	Theory of Reasoned Action
GT	Grounded Theory
LC	Less committed
MC	More committed
LCC	Less committed consumers
MCC	More committed consumers

Chapter 1: Introduction and Literature Review

1.1 Introduction

Organic foods have been available to consumers since the 1970s, but in the last decade demand in Canada for organic food products has grown at a rate of 15-20% *per annum* and is predicted to continue at this rate for at least the next decade (Gnirss, 2006). This annual growth is consistent with that of the United States (Organic Trade Association, 2004). Consequently, there is incentive within the food industry to understand consumer behavior directed towards organic foods. Organic food buyers' values, beliefs, and attitudes have been common research foci, but less attention has been paid to how the decision to buy an organic food is ultimately made. How consumers decide which foods to buy organic and which to buy conventional is of great value to food producers and marketers, as many consumers do not buy organic food exclusively.

1.2 The Canadian Organic Market

The current Canadian National Standard regarding organic production forbids the use of all materials and products from synthetic pesticides, growth regulators, allopathic veterinary drugs, and processing ingredients. Genetic engineering, ionizing radiation and the use of equipment or packaging materials containing synthetic fungicides, preservatives or fumigants are also forbidden (Government of Canada, 2006). These principles for organic food production "aim to increase the quality and durability of the environment" as well as safeguard animals from any mistreatment (Government of Canada, 2006).

Recently, the Organic Agriculture Centre of Canada estimated total retail sales of certified organic food products in Canada to be worth about $1 billion (Macey, 2007), up from an estimated $650 million in 2001 (Cunningham, 2004).

Organic food products are now sold in major supermarkets, with many chains offering their own lines of organic products such as President's Choice PC Organics™ (Loblaw Inc., Brampton, ON), launched in 2000 (Hein, 2006), and Safeway's O Organics® (Canada Safeway Inc., Calgary, AB), launched in 2005 (Organic Consumers Association, 2006). Both of these lines offer over 300 products today. According to data from The Nielsen Company, sales of certified organic foods in Canadian supermarkets in 2006 were worth $412 million, up 28% from the previous year. Furthermore, supermarkets in Alberta exhibited a 44% increase in sales of certified organic foods – the largest growth of the Canadian provinces (Macey, 2007). In 2005, 77% of Canadians bought at least some organic foods, and the majority (47%) of consumers bought the bulk of their organic food in grocery stores, as opposed to smaller organic markets and farmers' markets (McAllister Opinion Research as cited in Cunningham, 2007).

1.3 The Canadian Organic Consumer

The Canadian organic consumer has been described as "secure, settled, in the prime of life" and as "probably" having children; however, he/she is also described as "not all that different from the mainstream Canadian consumer" (McAllister Opinion Research as cited in Cunningham, 2007). "Heavy" Canadian organic food buyers, those who bought organic foods regularly in the last year, are most likely to be female, university educated, with an income over $80,000 and have teenage or school age children. "Light" buyers, those who bought organic foods several times in the last year, are also likely to be female,

have an income in the $60-80,000 range, and children under the age of six (Cunningham, 2007).

Canadians have been surveyed regarding the reasons for buying organic food. Cunningham (2007) reported the top reason as health-related, due to their lack of chemicals, antibiotics, and hormones; and the second reason as environment-related. Similarly, The Nielsen Company (2007) reported the top three main reasons for buying organic foods in Canada as "healthier for me", "healthier for my family", and "better for the environment." These reasons were consistent with those of the global population.

1.4 Consumer behavior towards organic food

1.4.1 Values, beliefs, and attitudes and their relation to behavior

Fishbein and Ajzen (1975, p.15) present a conceptual framework wherein beliefs lead to attitudes, intention, then behavior. This framework was the basis for their 1975 Theory of Reasoned Action (TRA). According to Fishbein and Ajzen (1975), a person's attitude towards an object is the result of how it is evaluated, either positively or negatively, and is determined by beliefs – most simply, information one has about an object. "Subjective norms" are social implications one feels are associated with performing a particular behavior and are also determined by "normative" beliefs (Madden, Ellen, & Ajzen, 1992). It is both attitudes and subjective norms which contribute to the intention to perform a behavior directed towards an object. In 1985 Ajzen added a third contributor to behavioral intention, perceived behavioral control, expanding the original TRA to the Theory of Planned Behavior (Madden *et al.*, 1992).

According to Dreezens, Martijn, Tenbült, Kok, and de Vries (2005a), values would be the underlying pre-determinants of behavior, as values highlight a person's

salient beliefs. Figure 1.1 is a schematic of Fishbein and Ajzen's TRA. Values and beliefs are not present in their schematic; however it is evident that they consider beliefs to underscore both attitudes and subjective norms, and following the opinions of Dreezens *et al.* (2005a), values would underlie these beliefs. These behavioral elements will be further discussed in relation to organic food choice behavior.

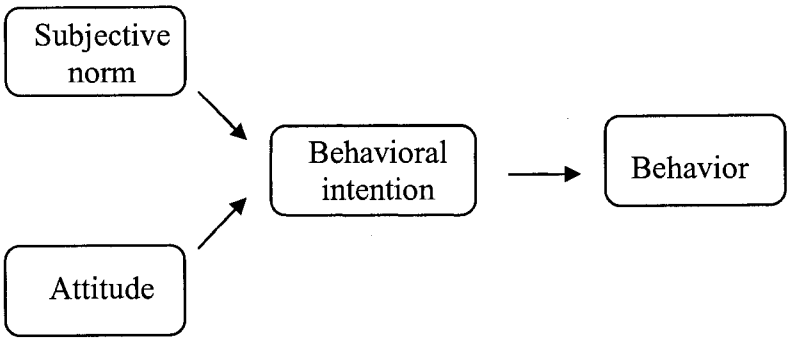

Figure 1.1: Fishbein & Ajzen (1975)'s Theory of Reasoned Action

1.4.2 Personal values that motivate organic food choice

Specific values have been identified as contributing to organic food attitudes. With the combined use of the Schwartz Value Survey and questionnaires, Dreezens *et al.* (2005b) determined that people who scored high on the value *universalism*, which included understanding, appreciating, and protecting people and nature, had positive attitudes towards organic food. Saher, Lindeman, and Koivisto-Hursti (2006) made use of an abbreviated version of the Schwartz Value Survey (developed by Lindeman & Verkasalo, 2005), and found a "rather weak" link between favourable attitudes towards organic foods and the value *self-transcendence,* which included high concern for the welfare of others and nature.

Values of organic consumers have also been studied using a qualitative method known as laddering, wherein product attributes are thought to help a person "achieve" his

or her values. Makatouni (2002) found values related to the health of one's self or family, the environment, and animal welfare to be responsible for choosing organic foods. Baker, Thompson, and Engelken (2004) also found that both German and UK organic food consumers valued "health, wellbeing and the enjoyment of life", but that the food attributes used to "achieve" this value were different. For the UK organic consumers, "healthiness" and "non-genetically modified" attributes were desired, whereas the Germans sought "taste" and "quality". Therefore, despite the same underlying value, the type of organic food selected to achieve it likely varied depending on which attributes that particular food offered.

Similar to laddering study results, health has often been reported as the main motivation to buy organic food, with concern for the environment as secondary motivation (Makatouni, 2002; Padel & Foster, 2005; Schifferstein & Oude Ophuis, 1998; Shepherd, Magnusson, & Sjödén, 2005). Other secondary motivations include animal welfare (Makatouni, 2002), and supporting local farming and taste (Padel & Foster, 2005). However, Schifferstein & Oude Ophuis (1998) found that health was the important motivator for buying organic food for "incidental" organic buyers in the Netherlands, whereas both health and environmental concerns were motivations for "heavy" buyers. This coincides with results of a Taylor Nelson Sofres survey (as cited in Padel & Foster, 2005) conducted in the UK in 2002 which found that as organic purchasing frequency increased so did the number of motivations for doing so.

1.4.3 Beliefs and perceptions about organic food

Yiridoe, Bonti-Ankomah, and Martin (2005) reviewed the literature from 1984 to 2002 on consumer perceptions about organic food. The general perception among

consumers was that organic foods were safer than conventional, especially in light of then recent health scares such as BSE and foot-and-mouth disease. Other common consumer perceptions included that organic food was healthier and more beneficial for the environment (Yiridoe *et al.,* 2005). Since the publication of this review, perceptions about organic foods remain the same; that they are healthy, benefit the environment, and taste good or better than conventional (Lea & Worsley, 2005; Padel & Foster, 2005; Zhao, Chambers, Matta, Loughin, & Carey, 2007; *inter alios*). Canadians also believe that organic foods are healthier, and better for the environment (The Nielsen Company, 2007). However, organic foods are also perceived as expensive (Finch, 2005; Padel & Foster, 2005; Shepherd *et al.*, 2005) – a common barrier to their purchase (Finch, 2005; Fotopoulos & Krystallis, 2002; Lea & Worsley, 2005; Padel & Foster, 2005).

1.4.4 Attitudes towards organic food

Attitudes towards organic food are generally positive (Arvola *et al.*, 2008; Ureña, Bernabéu, & Olmeda, 2008), which is to be expected given that positive beliefs should yield analogous attitudes. However, Shepherd *et al.* (2005) found a disparity between attitudes and behaviour – despite the majority of surveyed consumers holding positive attitudes towards organic food, only 4-10% reported an inclination to choose the organic option of a food next time.

Values, beliefs, and attitudes towards organic food impact behavior and are important to understand, however, there are other factors involved. Lockie, Lyons, Lawrence, and Grice (2004) found only a marginal significant difference between the values held by organic consumers and those who did not consume organic foods; Lea and Worsley (2005) found that despite favourable beliefs about organic food, 15% of their

sample never bought them; and Shepherd *et al.* (2005) found that positive attitudes about organic food do not necessarily translate into buying organic foods.

1.5 A conceptual model of food choice

Furst, Connors, Bisogni, Sobal, and Falk developed a model describing food choice as a process in 1996. Three main factors were identified; one's *life course, influences* and one's *personal system* linked together, each influencing or "shaping" the next, resulting in a single food choice. Food choice studies since the publication of this model confirm many of the concepts, for example the importance of the *life course* (Bisogni, Connors, Devine, & Sobal, 2002; Blake & Bisogni, 2003) and a *personal system* (Connors, Bisogni, Sobal, & Devine, 2001; Smart & Bisogni, 2001). This model will be briefly described and then used as a platform for discussing organic food choice.

In Furst *et al.*'s model, the *life course* included one's childhood and past experiences, the present, and hopes for the future. *Influences* on food choice were classified as *ideals*, which included expectations and beliefs; both mental and physical *personal factors*; *resources* such as money, knowledge and time; one's *social framework*, including relationships and family; and last but not least, *food context*, "the physical surroundings and social climate of the choice setting". A *personal system* developed over someone's life to aid in the food choice process; the two main components of which were *value negotiations* and *strategies*. Six major values were found – *sensory perceptions*, of which taste was the most important; *monetary considerations*, including the price or worth of the food; *managing relationships, quality, convenience,* and *health*. Values, for example taste and cost, were negotiated if in opposition when making a food choice.

Strategies developed over time and were essentially "rules...used to simplify or expedite the food choice process", as the same (types of) food choices tended to reoccur.

Many of the aspects described in Furst *et. al*'s food choice model are applicable to studying choice of organic foods. With respect to *influences*, beliefs about organic food have already been addressed in section 1.4.3. *Resources* are also considerations in organic food choice – high price has been identified as a major barrier to organic food consumption for both buyers and non-buyers of organic food (Finch, 2005; Fotopoulos & Krystallis, 2002; Lea & Worsley, 2005; *inter alios*). Convenience, in the sense the finding and preparing of food, has also been identified as a barrier to increased organic food consumption (Lockie *et al.*, 2004; Padel & Foster, 2005).

Grunert (2002) identified the store of purchase as an important "extrinsic quality cue" for food products. The store chosen for food shopping contributes to the *context* in which an organic food choice is made and has been discussed by Thompson and Kidwell (1998). US shoppers at a cooperative were more likely to buy organic produce than shoppers at a specialty food store. The authors did not speculate the reasons for such behaviour, only that the groups differed in educational level. Conversely, Padel and Foster (2005) found that consumers in the UK preferred to shop for organic foods in specialty stores as opposed to supermarkets, due to lack of trust and a belief that supermarkets did not correspond with organic farming principles.

In terms of a *social framework,* family is also important to organic food choice. Thompson & Kidwell (1998) found positive correlations between the number of children under the age of 18 in a household and organic food buying, and Finch (2005) found that both organic consumers and non-consumers reported they would be more likely to buy

organic food if a family member became pregnant. Similarly, concern for children's health has been identified as one of the key triggers for organic food purchases in Canada (Cunningham, 2002).

Sensory perceptions related to a food, such as texture, appearance, and most importantly taste, will impact food choice. In relation to organic food, Thompson and Kidwell (1998) found appearance (i.e. bruising) to negatively affect organic produce buying. Padel and Foster (2005) also comment on the importance of "visual product quality" to organic food selection. In a review by Yiridoe *et al.* (2005), sensory properties such as freshness, flavour/ taste, ripeness and appearance were important to preference for organic food but were less important than nutritional and economic value.

1.6 Sensory and consumer studies comparing organic and conventional foods

Sensory studies have been conducted to determine if organically produced foods are not only different, but superior to those that are conventionally produced, as is the common perception.

Bourn and Prescott (2002) reviewed the existing literature from 1926 to 2001 comparing organic versus conventionally produced foods in terms of food safety and nutritional value, but no clear conclusions or generalizations could be made because of variable research outcomes. The authors recommended more research in both of these areas. The authors' review of sensory quality studies (discrimination, descriptive and preference) is applicable to the current research, and is described further.

1.6.1 Discrimination tests and descriptive analysis techniques

Discrimination tests assess whether consumers can detect a difference between organic and conventional food samples when their identities are unknown. The majority

of the studies reviewed by Bourn and Prescott (2002) found either no difference, or differences were detected for certain produce items and not others, making it difficult to draw "definitive generic conclusions". Since Bourn and Prescott's review, Wszelaki *et al.* (2005) investigated whether a panel of consumers could taste a difference between organically and conventionally grown cooked potatoes. If the potatoes were peeled prior to cooking and consumption, no difference between samples was detected; however if the skin remained, the panellists found a difference.

Descriptive analysis studies use panels of trained participants to describe or quantify differences between samples. Those reviewed by Bourn and Prescott also provided inconsistent results, which is not surprising given that quantifying inconsistent differences would prove difficult. Annett, Spaner and Wismer (2007) compared the sensory attributes (color, texture, taste, and aroma) of 60% whole wheat organic and conventional bread, and found no significant difference between the samples for any of the chosen attributes (such as "wheaty" or "sweet" flavour), except that the organic bread was significantly more "dense".

1.6.2 Preference tests

Preference studies assess whether consumers prefer organic over conventional foods. Those reviewed by Bourn and Prescott (2002) were also inconsistent – sometimes there was no difference in liking, sometimes conventional was preferred over organic, or vice versa. Since the 2002 review, Zhao *et al.* (2007) compared several organic and conventionally grown produce items. Items were grown by the researchers to minimize possible confounding effects brought about by cultivar and/or environmental conditions. "Leafy greens" (including spinach, arugula, red lettuce and mustard greens) as well as

tomatoes, cucumbers and onions were evaluated by consumers for overall liking, flavour intensity and bitterness/ sweetness. Despite the well-controlled experimental design, no significant differences were found for any of these attributes.

In recent years some preference studies on organic processed foods have been conducted. Olivera and Salvadori (2006) asked panellists to evaluate the sensory characteristics of organic and conventional lasagna and found there to be no significant difference in overall acceptability. The two samples differed only in appearance, due to the whole wheat flour used in the organic formulation. Preference studies have also been conducted with meat, such as Brown, Nute, Baker, Hughes and Warriss (2008), who found a trend for chicken meat produced using an "organic system" to be least preferred by consumers, compared to samples produced using conventional, free-range fed, or maize fed systems. Annett, Muralidharan, Boxall, Cash and Wismer (2008) found 60% whole wheat organic bread to be liked significantly more than conventional, however the difference in liking was quite small (6.73 versus 6.37 on the 9-point hedonic scale). Overall, there have been few studies that have assessed consumer preference for organic foods aside from produce.

1.6.3 Effect of information studies

Based on the reviewed research, consumers find it difficult to differentiate between organic and conventional foods based on sensory cues alone. Furthermore, they exhibit no clear preference for organic foods over conventional based on the sensory properties alone. However, disclosing information about how a food is produced can impact consumer acceptance. Johansson *et al.* (1999) found tomato samples that were least liked improved their liking scores when identified as ecologically grown.

Conversely, overall liking for the most liked tomato sample, a conventional variety, significantly decreased when it was revealed as such, but did not change when falsely identified as "ecological". When no information was given to consumers, the two types of tomatoes were liked to the same degree, especially in terms of taste.

Di Monaco, Cavella, Torrieri, and Masi (2007) found that telling consumers a vegetable soup was "produced with organic ingredients" improved acceptability scores, regardless of the soup type. Kihlberg, Johansson, Langsrud, and Risvik (2005) found that information about the organic origin of flour used to make bread significantly increased liking compared to flour of conventional origin, and that the organic information had a greater impact on bread liking than health information. Gifford and Bernard (2006) also showed that "positive framing" (describing the environment, animal welfare, and health benefits of organic food) increased their participants' self-reported likelihood of buying organic food – over 40% of the respondents reported greater likelihood of purchasing organic as a result of the information provided.

1.7 A summary of factors involved in organic food choice

There are several factors involved in the choice of organic foods: place of purchase, values, beliefs that they are healthier or better for the environment, positive attitudes, and sensory characteristics of the food. Certain demographic characteristics, such as being female or young, may also contribute to a greater likelihood of buying organic food (Lockie *et al.*, 2004; Onyango, Hallman, & Bellows, 2007; *inter alios*). There are also de-motivators to buying organic food, mainly high price, and low availability (Fotopoulus & Krystallis, 2002; Lea & Worsley, 2005; Padel & Foster, 2005). It is some combination of these factors which contribute to the decision to buy an

organic food. For example, Padel and Foster (2005) acknowledge that the price of organic food is "...but only one factor in the complex decision-making process."

Organic food choice has been modelled quantitatively using a pre-existing framework, Ajzen's Theory of Planned Behavior (Arvola *et al.*, 2008; Chen, 2007; Shepherd *et al.*, 2005). However, such behaviour has yet to be modelled qualitatively, which could be achieved using a method known as grounded theory.

1.8 Grounded Theory

1.8.1 A description of the method

Grounded theory is a qualitative research method developed in 1967 by sociologists Barney Glaser and Anslem Strauss. This ensemble would later split due to differing research approaches resulting in the Glaserian and Straussian versions of grounded theory. Despite the ongoing debate, it was noted by Walker and Myrick (2006) that both versions still involve all the key aspects of grounded theory: interview questions, memos, coding, theoretical sampling, and constant comparison. The end result is a theory that is generated from or "grounded in" your data.

Interviewing sets the grounded theory process in motion. Semi-structured interviews are often favored in order to reduce interviewer (who is often also the researcher) bias and allow subjects to speak as much or as little as they prefer (Robins & Hetherington, 2005). Other logistics of the interview include probing for explanation or clarification of responses, tape recording and *verbatim* transcription, and follow-up interviews to confirm interpretation. Field notes, including observations, are recorded to later provide context for a given interview during analysis (Blake & Bisogni, 2003).

Central to grounded theory, analysis begins following the first interview and continues until theory is generated. During coding, interview text in sentence or paragraph form is literally highlighted and grouped with similar text from other interviews. The purpose of this exercise is to develop categories. Memos, also considered as data, are the researcher's notes and thoughts in relation to the data, or the "theorizing write-up of ideas about codes" (Glaser, 1978, p.83). All forms of data are constantly compared in order to identify similarities and patterns. Categories are borne out of such patterns, until a core category is identified. This core variable "processes" the problem which is causing the behaviour of interest the researcher wishes to explain (Glaser, 1978, p.93). The process one identifies is referred to by Glaser as the Basic Social Psychological Process or BSPP.

Saturation is reached and data collection ceases when no new categories can be created from additional interviews. Constant comparison refers to analysis coinciding with interviews, with each subsequent interview providing new information and direction to the study until no new information is obtained (categories are "saturated"). The point of data saturation can be mistaken for hearing or seeing things over and over in the data, but in fact it is achieved when the data yield a "detailed description" of the phenomenon under study (Morse, 1995). In the grounded theory studies described within this chapter, saturation was reached after the completion of ten to 17 interviews.

The underpinnings of grounded theory are that of symbolic interactionism, i.e., people are "products of social interaction, developed and refined through an on-going process of participation in society" (Jeon, 2004). As such, research questions focus on process and/or change over time as well as understanding "how reality is socially

constructed" (Morse & Richards, 2007). Also important to grounded theory is the concept of theoretical sensitivity. According to Glaser (1992 p.27), if a researcher does not possess theoretical sensitivity – "knowledge, understanding, and skill, which foster generation of categories and properties" – he or she will not develop a grounded theory.

A Glaserian approach to analysis (as opposed to Straussian) will be employed for the research study described in Chapter 2; an approach that begins by open, selective, then theoretical coding. In open coding the researcher analyzes data (transcripts, field notes, memos) line by line while always asking "what category does this incident indicate?" and "what is actually happening in the data?" (Glaser, 1978 p.57). Glaser asserts that these questions force the researcher to focus on patterns. Similar codes are placed into categories – new codes lead to new categories – and these categories as well as their properties are continuously developed as the researcher reviews (new and old) data and codes. While searching for patterns and placing codes into categories the researcher looks for a core variable that is "central to the other categories" and "represents the key issue in the participants' pattern of behaviour under investigation" (Jeon, 2004). Once this core category is determined, selective coding for it begins; future data collection and analysis is directed by this core variable (Glaser, 1992). Finally, theoretical coding connects the data, which were "fractured" during open coding, back into a story (Glaser, 1978 p.72). This is the point in the analysis process where, ideally, a theory is developed which provides a sensible link between the categories or core variables and their properties.

1.8.2 Grounded Theory and Food Choice

Grounded theory has been commonly applied in research areas such as health and business (Morse & Richards, 2002), but food choice as a process has been modelled using grounded theory as well. Grounded theory has been used to describe aspects of the food choice process in general (Bisogni *et al.*, 2002; Bisogni *et al.*, 2007; Furst *et al.*, 1996) as well as processes specific to athletes (Smart & Bisogni, 2001), adult couples (Paisley, Sheeshka, & Daly, 2001), low income women (Blake & Bisogni, 2003), cardiac patients (Jacobsson, Pihl, Mårtensson, & Fridlund, 2004), advanced cancer patients (Shragge, Wismer, Olson, & Baracos, 2007), and vegans (Larsson, Rönnlund, Johansson, & Dahlgren, 2003).

1.8.3 An exemplary grounded theory food choice model

Larsson, Rönnlund, Johansson, and Dahlgren (2003) used grounded theory to describe the process of becoming a vegan. Two major categories were identified by the researchers: "perceived reasons" and "perceived consequences" related to becoming a vegan. Reasons could be internal, such as concern for the treatment of animals, or a dislike for meat, and external, such as friends, family, and school-related. The consequences of becoming a vegan, for example reactions from friends and family members, could be positive or negative. Three vegan "types" were also identified, and were classified as the core categories of the model. Consequences were reported to vary according to vegan type. The overall process was comprised of the two major categories, reasons and consequences, and was depicted as circular; symbolizing a "continuous" process, which encompassed the type of vegan one could become (Larsson *et al.*, 2003).

1.9 Limitations of previous research

Surveys and questionnaires have traditionally been the chosen vehicles for obtaining information on organic consumers. However, survey data frequently lack detailed information; respondents have little opportunity to justify or explain the responses they select. For example, the portion of the survey developed by Finch (2005) designed to determine organic "consumption values" provided agree/disagree or yes/no response options for each statement. There was no option for "partially agree" or "maybe", which may be applicable to some individuals. Furthermore, Schifferstein and Oude Ophuis (1998) noted when surveys that do not differentiate between types of organic buyers (such as "incidental" versus "heavy" users) are used researchers are likely to make conclusions that are not applicable to all organic consumers.

Organic food choice has been identified as a complex process (Padel & Foster, 2005), with many contributing factors. Values, beliefs, and attitudes are among the consumer characteristics that have been researched in relation to this topic, but beliefs do not always predict attitudes, nor do attitudes always predict behaviour. Interviewing consumers about their food choices provides detailed information which can be synthesized into a model using grounded theory to describe the food choice process. Organic food choice has been modelled using a pre-existing quantitative model (Arvola *et al.*, 2008; Chen, 2007; Shepherd *et al.*, 2005), but has yet to be modelled qualitatively using grounded theory, a method that has proved successful at modelling food choice. The goal of the first research study will therefore be to use grounded theory to develop a model describing the decision making process that non-committed organic food consumers (those who buy both organic and non-organic food products) engage in.

According to McAllister Opinion Research, the majority of Canadian consumers buy both organic and conventional foods (Cunningham, 2007). This segment of "non-committed" organic consumers is believed to be further subdivided according to level of commitment to organic food purchase. For example, Canadian organic consumers were divided into "heavy" buyers, "light" buyers and "dabblers" (Cunningham, 2007). Thus, the goal of the second research study will be to better understand the organic food choice behaviors of consumers with different commitment levels to organic food. Information from the grounded theory model will be used to draft a questionnaire about organic food choice, which will then be administered to a random sample of consumers of varying levels of commitment to organic food buying.

The evidence that organic food is preferred over non-organic when sample identities are unknown is inconclusive and more research has been recommended in this area (Bourn & Prescott, 2002). Previous sensory studies have focused primarily on comparing produce items, whereas few have assessed preference for processed organic foods. There are many processed organic foods now available, including organic cereal products and convenience foods. Fifteen percent of certified organic foods sold in Canadian supermarkets in 2006 were packaged and prepared foods, the third largest sector after fruits and vegetables and beverages (The Nielsen Company as cited in Macey, 2007). A third research goal will be to assess preference for a processed organic food product, in particular how commitment to organic food purchase impacts preference.

The **objectives** of the proposed research are to:

1. Develop a model describing the food choice process undertaken by non-committed organic food buyers when selecting organic versus conventional food products (Chapter 2),
2. Compare organic food choice behaviors of consumers with different levels of commitment to organic food purchase (Chapter 3),
3. Further investigate whether there is preference for processed organic food products over their conventional counterparts, and the effect of certain factors, particularly commitment to organic food buying, on preference (Chapter 4).

2.0 References

Annett, L. E., Spaner, D., & Wismer, W. V. (2007). Sensory profiles of bread made from paired samples of organic and conventionally grown wheat grain. *Journal of Food Science, 72*(4), S254-S260.

Annett, L. E., Muralidharan, V., Boxall, P. C., Cash, S. B., & Wismer, W. V. (2008). Influence of health and environmental information on hedonic evaluation of organic and conventional bread. *Journal of Food Science, 73(4)*, 50-57.

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. *Appetite, 50*(2-3), 443-454.

Baker, S., Thompson, K. E., & Engelken, J. (2004). Mapping the values driving organic food choice: Germany vs the UK. *European Journal of Marketing, 38*(8), 995-1012.

Bisogni, C. A., Connors, M., Devine, C. M., & Sobal, J. (2002). Who we are and how we eat: A qualitative study of identities in food choice. *Journal of Nutrition Education & Behavior, 34*(3), 128-139.

Blake, C., & Bisogni, C. A. (2003). Personal and family food choice schemas of rural women in upstate New York. *Journal of Nutrition Education & Behavior, 35*(6), 282-293.

Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science & Nutrition, 42*(1), 1-34.

Brown, S. N., Nute, G. R., Baker, A., Hughes, S. I., & Warriss, P. D. (2008). Aspects of meat and eating quality of broiler chickens reared under standard, maize-fed, free-range or organic systems. *British Poultry Science, 49(2)*, 118-124.

Chen, M. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference, 18*(7), 1008-1021.

Connors, M., Bisogni, C. A., Sobal, J., & Devine, C. M. (2001). Managing values in personal food systems. *Appetite, 36*(3), 189-200.

Cunningham, R. (June 2007). *Farm to fork: Organics in Alberta*. Alberta, Canada: Alberta Agriculture, Food and Rural Development.

Cunningham, R. (February 2004). *Consumer food trends - defining opportunities for Alberta's agri-food industry: Organic food.* Alberta, Canada: Alberta Agriculture, Food and Rural Development.

Cunningham, R. (July 2002). *Canadian natural and organic retail markets.* Alberta, Canada: Alberta Agriculture, Food and Rural Development.

Di Monaco, R., Cavella, S., Torrieri, E., & Masi, P. (2007). Consumer acceptability of vegetable soups. *Journal of Sensory Studies, 22*, 81-98.

Dreezens, E., Martijn, C., Tenbült, P., Kok, G., & de Vries, N. K. (2005a). Food and values: An examination of values underlying attitudes toward genetically modified- and organically grown food products. *Appetite, 44*(1), 115-122.

Dreezens, E., Martijn, C., Tenbült, P., Kok, G., & de Vries, N. K. (2005b). Food and the relation between values and attitude characteristics. *Appetite, 45*(1), 40-46.

Finch, J. E. (2005). The impact of personal consumption values and beliefs on organic food purchase behavior. *Journal of Food Products Marketing, 11*(4), 63-76.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research.* CA: Addison-Wesley Publishing Company.

Fotopoulos, C., & Krystallis, A. (2002). Organic product avoidance: Reasons for rejection and potential buyers' identification in a countrywide survey. *British Food Journal, 104*(3/4/5), 233-260.

Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996). Food choice: A conceptual model of the process, *Appetite, 26*(3), 247-266.

Gifford, K., & Bernard, J. C. (2006). Influencing consumer purchase likelihood of organic food. *International Journal of Consumer Studies, 30*(2), 155-163.

Glaser, B. G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory.* Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992). *Basics of grounded theory analysis: Emergence vs. forcing.* Mill Valley, CA: Sociology Press.

Gnirss, G. (2006). Natural selection. *Food in Canada, 66*(8), 20.

Government of Canada. (September 2006). *Organic production systems general principle and management standards* (No. CAN/CGSB 32.310 2006). Quebec, Canada: Canadian General Standards Board.

Grunert, K. G. (2002). Current issues in the understanding of consumer food choice. *Trends in Food Science & Technology, 13*(8), 275-285.

Hein, T. (July/Aug 2006). A growing concern. *Food in Canada, 66*(6), 33-35.

Jacobsson, A., Pihl, E., Mårtensson, J., & Fridlund, B. (2004). Emotions, the meaning of food and heart failure: A grounded theory study. *Journal of Advanced Nursing, 46*(5), 514-522.

Jeon, Y. (2004). The application of grounded theory and symbolic interactionism. *Scand J Caring Sci, 18*, 249-256.

Johansson, L., Haglund, Å, Berglund, L., Lea, P., & Risvik, E. (1999). Preference for tomatoes, affected by sensory attributes and information about growth conditions. *Food Quality and Preference, 10*(4-5), 289-298.

Kihlberg, I., Johansson, L., Langsrud, Ø, & Risvik, E. (2005). Effects of information on liking of bread. *Food Quality and Preference, 16*(1), 25-35.

Larsson, C. L., Rönnlund, U., Johansson, G., & Dahlgren, L. (2003). Veganism as status passage: The process of becoming a vegan among youths in Sweden. *Appetite, 41*(1), 61-67.

Lea, E., & Worsley, A. (2005). Australian consumers' food-related environmental beliefs and behaviours. *Appetite, 50*(2-3), 207-214.

Lindeman, M., & Verkasalo, M. (2005). Measuring values with the short Schwartz's value survey. *Journal of Personality Assessment, 85*(2), 170–178.

Lockie, S., Lyons, K., Lawrence, G., & Grice, J. (2004). Choosing organics: A path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite, 43*(2), 135-146.

Macey, A. (May 2007). *Retail Sales of Certified Organic Food Products, in Canada, in 2006.* Nova Scotia, Canada: Organic Agriculture Centre of Canada (OACC).

Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and Social Psychology Bulletin, 18*(1), 3-9.

Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal, 104*(3/4/5), 345-352.

Morse, J. M., & Richards, L. (2002). *Read Me First for a User's Guide to Qualitative Methods*. Thousand Oaks, CA: Sage Publications, Inc.

Morse, J. M., & Richards, L. (2007). *Read Me First for a User's Guide to Qualitative Methods* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Morse, J. M. (1995). The significance of saturation. *Qualitative Health Research, 5*(2), 147-149.

Olivera, D. F., & Salvadori, V. O. (2006). Textural characterization of lasagna made from organic whole wheat. *International Journal of Food Science & Technology, 41*, 63-69.

Onyango, B. M., Hallman, W. K., & Bellows, A. C. (2007). Purchasing organic food in US food systems. *British Food Journal, 109*(5), 399-411.

Organic Consumers Association. (March 2006). *Safeway supermarket chain moves aggressively into organics*. Retrieved May 9, 2008, from http://www.organicconsumers.org/organic/safeway060323.cfm

Organic Trade Association. (2004). *The organic trade association 2004 manufacturer survey overview.* Massachusetts, USA: Organic Trade Association. Retrieved January 10, 2008 from http://www.ota.com/pics/documents/2004SurveyOverview.pdf

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal, 107*(8), 606-625.

Paisley, J., Sheeshka, J., & Daly, K. (2001). Qualitative investigation of the meanings of eating fruits and vegetables for adult couples. *Journal of Nutrition Education, 33*(4), 199-213.

Robins, A., & Hetherington, M. M. (2005). A comparison of pre-competition eating patterns in a group of non-elite triathletes. *International Journal of Sport Nutrition and Exercise Metabolism, 15*, 442-457.

Saher, M., Lindeman, M., & Koivisto-Hursti, U. K. (2006). Attitudes towards genetically modified and organic foods. *Appetite, 46*(3), 324-331.

Schifferstein, H. N. J., & Oude Ophuis, P. A. M. (1998). Health-related determinants of organic food consumption in The Netherlands. *Food Quality and Preference, 9*(3), 119-133.

Shepherd, R., Magnusson, M., & Sjödén, P. (2005). Determinants of consumer behavior related to organic foods. *Ambio, 34*(4/5), 352-359.

Shragge, J. E., Wismer, W. V., Olson, K. L., & Baracos, V. E. (2007). Shifting to conscious control: Psychosocial and dietary management of anorexia by patients with advanced cancer. *Palliative Medicine, 00*, 1-7.

Smart, L. R., & Bisogni, C. A. (2001/8). Personal food systems of male college hockey players. *Appetite, 37*(1), 57-70.

The Nielsen Company. (2007). *Organic foods: A Canadian perspective.* New York, USA: The Nielsen Company. Retrieved May 9, 2008, from http://ca.nielsen.com/site/documents/OrganicFoodsMay2007.pdf

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: cosmetic defects, prices, and consumer preferences. *Amer. J. Agr. Econ., 80*, 277-287.

Ureña, F., Bernabéu, R., & Olmeda, M. (2008). Women, men and organic food: differences in their attitudes and willingness to pay. A Spanish case study. *International Journal of Consumer Studies, 32*(1), 18-26.

Walker, D., & Myrick, F. (2006). Grounded Theory: An exploration of process and procedure. *Qualitative Health Research, 16*(4), 547-559.

Wszelaki, A. L., Delwiche, J. F., Walker, S. D., Liggett, R. E., Scheerens, J. C., & Kleinhenz, M. D. (2005). Sensory quality and mineral and glycoalkaloid concentrations in organically and conventionally grown redskin potatoes (Solanum tuberosum). *Journal of the Science of Food and Agriculture, 85*(5), 720-726.

Yiridoe, E. K., Bonti-Ankomah, S., & Martin, R. C. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems, 20*(4), 193-205.

Zhao, X., Chambers, E., Matta, Z., Loughin, T. M., & Carey, E. E. (2007). Consumer sensory analysis of organically and conventionally grown vegetables. *Journal of Food Science, 72*(2), S87-S91.

Chapter 2: Opting for organic foods: A model of organic food product choice

2.1 Introduction

Global sales of organic food and drink were $33 billion USD in 2005, and have increased by 43% since 2002 (Yussefi & Willer, 2007). The Canadian organic industry has been growing at an annual rate of 15 to 20 per cent for the past decade (Gnirss, 2006). The Organic Agriculture Centre of Canada estimated retail sales of organic food in Canada to be worth $1 billion in 2006 (Macey, 2007) and about half of Canadians surveyed bought the bulk of their organic food in grocery stores, as opposed to smaller organic markets and farmer's markets (McAllister Opinion Research as cited in Cunningham, 2007).

Most Canadians are now buying organic foods in some capacity; in 2005, 77% of Canadians bought at least some organic foods (McAllister Opinion Research as cited in Cunningham, 2007). This group of "non-committed" consumers of organic food products represents the largest consumer segment of the organic food product market, and has been further subdivided in terms of level of commitment. For example, Cunningham (2007) divided Canadian organic food consumers into "heavy" buyers, "light" buyers and "dabblers" and Molyneaux (2007) characterized four groups of organic consumers: devoteds™, temperates™, dabblers™ (the largest segment) and reluctants™.

Much of the research about the purchase choices of organic food consumers has focused on their values, perceptions and attitudes. In general, attitudes towards organic food are positive (Arvola *et al.*, 2008; Dreezens, Martijn, Tenbült, Kok, & de Vries, 2005; Shepherd, Magnusson, & Sjödén, 2005; Ureña, Bernabéu, & Olmeda, 2008). Values are related to human health and the environment (Baker, Thompson, & Engelken,

2004; Makatouni, 2002; Padel & Foster, 2005; Schifferstein & Oude Ophuis, 1998; Shepherd *et al.*, 2005). Organic foods are believed to be healthier and better tasting than their conventional counterparts and to offer environmental benefits (Lea & Worsley, 2005; Padel & Foster , 2005; Zhao, Chambers, Matta, Loughin & Carey, 2007; *inter alios*).

However, Lockie, Lyons, Lawrence, and Grice (2004) found that the values held by organic food consumers were only slightly different from consumers of conventional food products, and Shepherd, Magnusson, and Sjödén (2005) found that positive attitudes towards organic foods did not guarantee their selection. Factors such as price and availability, among others, have been observed to play a role in organic food selection (Finch, 2005; Fotopoulos & Krystallis, 2002; Lea & Worsley, 2005; Padel & Foster, 2005) which would explain why values and attitudes are not the sole determinants of organic food choice. Thus, it would be desirable to determine how multiple internal and external consumer factors interplay in the process of organic food choice.

Grounded theory is a qualitative research method used to model human basic social psychological processes (Glaser, 1978). Understanding the decision making process involved in organic food choice would be useful to food producers and marketers, but has received little attention. Organic food choice behavior has been modeled using Ajzen's Theory of Planned Behavior (Arvola *et al.*, 2008; Chen, 2007; Shepherd *et al.*, 2005); however this quantitative model contains fixed factors while a qualitative model would incorporate all factors revealed by the participants.

As the majority of consumers today do not buy organic foods exclusively, the main research objective was to develop a model describing the process involved in

choosing organic foods undertaken by non-committed organic food consumers (those who buy both organic and conventional foods).

2.2 Methods

2.2.1 Data Collection

The project was granted ethical approval from the Faculty of Agricultural, Life, and Environmental Sciences Research Ethics Board in July 2007, and interview questions/ topics were pre-tested on two non-committed organic food buyers in August 2007.

Participants were recruited from two grocery store locations in Edmonton that sold both organic and conventional food products. Participants were purposively selected; they were approached if observed to be shopping in the organic section of the grocery store or selecting an organic food product, and asked to participate if they claimed to purchase some (but not all) organic foods. Snowball sampling was also used as a recruitment method, wherein existing participants gave the researcher referrals for other potential interviewees. During theoretical sampling (Glaser, 1992), males and older-aged consumers were recruited exclusively to ensure the decision making process did not differ according to age or gender.

Seventeen primary interviews and six follow-up interviews were conducted and concurrently analyzed from August 2007 to January 2008. Data from two participants were omitted, as one proved to be a poor informant, and the other did not meet eligibility criteria (i.e. was a fully committed organic buyer), making a final interview population size of 15. Written informed consent was received prior to interviews. Interviews were semi-structured and began with participants being asked to describe their most recent

experience buying organic food (interview guide found in Appendix 1). Interview discussions focused on food product selections (both organic and conventional), and how these selections were made. Interviews typically lasted 30 to 45 minutes, and upon completion participants received a $25 gift card for grocery buying. Demographic information was also collected at the conclusion of interviews.

2.2.2 Data Analysis

Interviews were audio recorded and transcribed *verbatim*. Transcripts were coded, with categories developing over time via the constant comparative method originated by Glaser & Strauss in 1967. A Glaserian grounded theory approach to analysis was taken. First data, in the form of interview transcripts, field notes, and memos, were "open coded" wherein the researcher analyzed data line by line, while asking "what category does this incident indicate?" (Glaser, 1978 p.57). The goal of this exercise was to discover patterns in the data. Similar "incidents" or codes were placed into the same category, with new or dissimilar codes leading to the formation of new categories. The method of constant comparison was used, which saw categories continuously develop as new interview data became available and were compared with all existing data (Glaser & Strauss, 1967). Coding and categorizing was performed by the first author (JV); however several meetings were held between all researchers to discuss the findings and evolving theory and to minimize researcher bias. Over time, a core variable that explained much of the variation in the consumers' behavior was determined (Glaser, 1978). From there, a substantive theory describing organic food choice was developed.

2.3 Results

2.3.1 Context of the study

This study was conducted in Edmonton, a large Canadian city, at the end of 2007/ beginning of 2008, a time when organic food was readily available to consumers. Supermarket product lines available to Canadians such as the President's Choice PC Organics™ line (Loblaw Inc., Brampton, ON) and Safeway's O Organics® (Canada Safeway Inc., Calgary, AB) each boasted over 300 certified organic products. Edmonton also had several specialty organic food stores and weekend farmers' markets with organic food product vendors.

2.3.2 Description of interview population

The majority (73%) of the interview sample was female, and 40% of participants were between 30-39 years of age. The remainder of the sample was evenly distributed across the other three age categories (Table 2.1). Participants were also evenly distributed across the household income brackets, with the exception of the highest bracket, which contained 13% of participants.

Almost half of the interviewed consumers shopped for groceries "most often" at chain supermarkets or in the organic section of the supermarket (Table 2.1). Many (60%) also shopped for groceries at an organic food store (examples in Edmonton included Planet Organic and Organic Roots), or at the farmers' market "sometimes". The vast majority of the consumers interviewed described themselves as "frequent" buyers of organic food.

2.3.3 Theoretical findings

Core Categories

PRICE of organic food was the most widely identified and discussed deterrent to organic food buying among the interviewed consumers. If the organic product was considered too expensive, it would not be selected. For instance, "... organic cauliflower is, like, usually seven or eight dollars a head … So I don't buy it" [Participant 14]. However, price could also work in favor of buying; if the price of the organic option was "reasonable" or "similar" to the price of the non-organic: "...I guess the best way to express it is I buy organic when it's on sale or … the price is reasonable" [Participant 10]. The price of organic food was not a concern for the participants in the highest household income bracket, turning the focus to availability, the other most influential factor in organic food buying: "…The accessibility of organic food is … pretty crucial. I mean, I'd buy everything organic if I could just get it" [Participant 15].

AVAILABILITY was linked to the store the individual chose to visit, as it determined which food products were accessible. For example, "about half of my yogurt is organic, depending on...whether I'm at one store or, or a store that sells … the organic" [Participant 6]. In this study, all participants shopped for food at more than one store. Consumers had a regular shopping venue, the selection of which was largely based on convenience, but they also frequented other venues: "…I try to… go to places where I know I can get organic stuff … The farmers' market is a good place" [Participant 15].

There was a general consensus that organic foods were becoming increasingly available in stores, but some participants also believed that organic versions did not exist

for certain food products: "I've never seen organic canned fruit. So, if it was available, I would certainly take a second look" [Participant 7].

Availability of substitutes, in particular local and Canadian produced foods, also affected organic food buying for some consumers, as these were considered superior from an environmental standpoint. "...I would rather buy locally produced if that's possible, but sometimes at the supermarkets it's not. And so then I would choose organic after that" [Participant 1].

OUTSIDE INFLUENCE from family, friends, and/or the media was mentioned by all interview participants. Information could either be requested or unsolicited, related to organic food in general or to specific organic items. For example, a young man discussing his reasons behind buying organic tofu: "...I've heard some pretty negative things about ... soy and nut products in terms of being the most genetically modified and chemically grown plants..." [Participant 5], and another woman discussing influences on her organic food buying in general: "I mean, it's a combination. ... you hear stuff on the news ... doing a bit more reading... and, you know, they encourage you to eat organic..." [Participant 9].

In the unique case of family, influence could also manifest when catering to others' preferences. Several participants mentioned continued or discontinued buying of specific organic foods based on how they were evaluated by their family members. If family members disliked the organic option, the likelihood that it would be bought again was slim: "Well, we did buy some organic yogurt recently... but our daughter didn't like it. She just didn't like the taste of it ... she's the one that eats the most yogurt in our

house so, you know, if she doesn't like it, then we're not going to get it ..." [Participant 7].

Another property of this category was outside influence and the potential to change buying behavior: "... I've almost changed my ... banana buying patterns because of her (a friend) but I haven't quite yet ... But she reminds me of how the bananas are produced so, so there's potential for change" [Participant 2]".

TASTE or flavor of organic foods was by far the most discussed sensory attribute, with very little mention of other attributes like appearance or texture. A few participants referred to organic foods in general as tasting better than their conventional counterparts, and virtually all interviewees specified particular organic items that tasted better. More often than not, comments were in reference to produce items: "... I know that certain things taste a lot better, for sure, like strawberries is the most noticeable, like the taste is like night and day between an organic strawberry and non-organic" [Participant 8]. Another woman, while discussing whether organic foods taste better than non-organic mentioned: "...organic oranges compared to conventional oranges ...there's no, no contest ... yeah, generally I really notice it with fruit" [Participant 17].

It was evident from interview data that taste was a lower priority when compared to price for some participants; "I mean, the organic stuff tastes better, that is a sure fact ... but, I'm not so dead set for the taste when I think 'oh, I can get it cheaper', like my vegetables or my apples or whatever. You know, for a better a price, then I kind of do away with like the taste bit..." [Participant 3]. However, for some, the taste made organic food worth the extra cost: "Well, it certainly makes us more willing to pay more for an organic product if we know that it's going to taste better ... you know, if you really

couldn't taste the difference at all, I guess we would be less motivated to do that" [Participant 7].

To a much lesser extent the effect of appearance on organic food selection was mentioned, and was mainly in reference to produce: "... if I have a choice, I will buy the organic if it looks if it's in nice condition" [Participant 12].

CONCERN FOR HEALTH: There was a general perception that organic foods were healthier, but many participants attributed this to lower pesticide/ chemical levels, not that organic foods were necessarily more nutritious. A few participants linked the presence of chemical residues on or in non-organic foods with the possibility of increased cancer rates, for example: "...I worry about, like, getting cancer or getting sick from it, you know, over the long term with a chronic illness ... So I figure even though I'm only getting part of my food as organic at least I'm helping myself that much" [Participant 16].

A few participants associated organic food with containing fewer preservatives or as being more "natural" when it came to packaged products like peanut butter: "...I just like it because it has less stuff in it so it's not packed with sugar and other weird kind of chemicals to keep it uh preserved longer" [Participant 2]. *Outside influence* was also evident in this category: "... I think I read somewhere, I don't know if the information was correct, but there's like up to 20 different types of pesticides or something used in apples" [Participant 14].

CONCERN FOR ENVIRONMENT was also a motivator for buying organic foods, but to a lesser extent than health. Those who highly valued the environment were transitioning into buying more local foods, and environmental concerns over importing organic foods were fuelling such decisions: "...more and more we've ... been trying to

buy organic fruit, um, although lately all this discussion about, you know, the fact that it gets transported so far...we're also looking at the local thing" [Participant 7]. Food produced in Canada was considered comparable to local food and also preferable when compared to imported organics: "oh, I think that (buying local)'s very important... not just to support the economy but also to reduce the use of resources so we're not shipping things from, say Texas all the way up to here that could be purchased from B.C" [Participant 10]. Some consumers acknowledged that the local food they preferred was not necessarily certified organic, but that their ideal food would be both local and organic: "I guess the ideal would be if every locally produced product that I could buy was also organic as well" [Participant 1].

Aside from the six major categories, two other findings merit elaboration. Firstly, vegetarian or fair trade food items were often certified organic as well, but this was considered as secondary or an additional motivator by consumers whose primary reason for purchase was the vegetarian or fair trade certification. A vegetarian shopper described, "...when I get the pre-made kind of frozen dinner things with soy in them, those are often organic... but again, I'm not actively seeking out an organic meal...I'm seeking a quick, convenient, healthy vegetarian meal..." [Participant 2]. Whereas according to a socially conscious buyer, "...even chocolate now we try to buy fair trade chocolate...which is often organic as well... so, that's kind of double motivation" [Participant 8].

A second decision making process became evident early on in the analysis; the initial decision to begin buying organic foods. Consumers often alluded to becoming an organic consumer as a type of progression – starting small, buying a few organic items,

which grew to more products over time. The most noted precursor to the first organic purchase was some type of dietary change. Examples from interviews include becoming a vegetarian, doing cleanses or "juicing" diets, and adapting because of a young daughter's dietary requirements. Most people could remember the reason why they started buying organic foods, even if it was quite a few years ago. One woman explained, "[I started buying organic] produce for sure...and then slowly I started looking down like the organic food aisle and seeing things that, you know, like organic peanut butter, I buy organic peanut butter too [Participant 14]." Time did not permit further investigation of this second process.

The organic food choice process

Opting for organic foods describes the process non-committed organic consumers engaged in when deciding which organic foods to buy (Figure 2.1). This process was initiated when a consumer began considering the purchase of a particular organic food product. In stage I *outside influences* were typically responsible for heightening awareness about the organic food in question, as one could not consider buying a particular organic food without first being aware of it. *Exposure to outside influences,* such as reading an article in the newspaper, seeing an advertisement, or hearing something from a friend or colleague could introduce someone to the idea of buying an organic food. For example, "I think I must have read a book that said that pesticides are, are giving you cancer blah, blah, blah, eat organic...and I . . . was young and impressionable and I said, 'okay'" [Participant 17]. Many participants appeared to play a passive role, and did very little information seeking of their own. However, some did take

a more active role in learning about organic food: "I read an article that listed ...the amount of pesticide use per vegetable and fruit ... [Participant 5]".

Interest in specific organic foods also resulted from *outside influence*: "...I first heard it [about a certain company spraying pesticides while workers are in the field] and I thought 'oh'. So, yeah, bananas I always buy organic" [Participant 1]. The Oxford English Dictionary (2008) defines interest as "a feeling of concern for or curiosity about a person or thing." Following this definition, interest preceded *curiosity*; thus, sufficient interest in an organic food was necessary in order to be curious about buying it. *Curiosity* is defined as "a desire to know or learn" (Oxford English Dictionary, 2008). Learning, for the selected population under study, could be through doing one's own research, but more often was achieved by trying the product. For example, one woman bought organic feta cheese "just to see what a difference it is", and another bought organic frozen green beans "just to try them".

At this point in the decision making process, it was possible to vacillate between interest and curiosity without buying the product. For example, one man had become aware of high pesticide use on peaches and was considering switching to organic, but had not yet done so: "But then peaches, they're I guess the highest pesticide use on peaches so I should start thinking about that too" [Participant 5]. Thus, there needed to be intention in order to transition to the next stage of the process, where the decision to try the product could be made.

In stage II, *weighing options*, the anticipated *benefits* associated with an organic food product were weighed against the *trade-offs*. This was central to organic food buying and was by far the most discussed topic during interviews. Five of the six major

categories (*price, availability, taste, concern for health, concern for environment*) could be classified as either benefits or trade-offs associated with buying organic food. *Outside influence* could also impact how these came to be perceived as benefits and trade-offs. As such, this became the core variable of the GT, which explained "the problematic nature of the pattern of behavior to be accounted for" within the population of study (Glaser, 1978 p. 93). *Considering the trade-offs* served as a method consumers used to determine whether there was more to be gained than lost from choosing an organic food product.

Common benefits associated with buying organic foods included regular availability, a price that was "reasonable" or "similar" to that of the conventional option, the expectation of better taste, environmental benefits associated with organic production methods, and health benefits associated with not ingesting chemicals, pesticides, and/or antibiotics.

Common trade-offs associated with organic food buying included inconsistent or low availability, which could result in more effort to get the item; the expensive or sometimes "ridiculous" price, taste preference for the non-organic option, and environmental concern associated with importing organic foods.

Which benefits and trade-offs were taken into account depended on the individual. For example, the price of organic food was not a concern for two participants with the highest household income, and not all participants were concerned about the environmental impacts of conventional food production methods.

If the benefits were believed to outweigh the costs, the organic food was selected. If the costs were too high, the food was not selected: "...they had organic pasta and so we started looking at the amounts and prices and the first couple times we saw it we actually

didn't buy it and then, you know, one time we said, 'come on, let's give it a try'" [Participant 7]. If the decision was made not to try the product, the individual either reverted back to stage I (the interest/ curiosity cycle) or lost interest in buying the food all together.

Stage III, *evaluating the product,* involved not only the sensory experience, but also the importance of certain credence attributes and external factors.

Experiential attributes were sensory attributes such as taste and texture that were assessed upon trying the food product. Taste was by far the most discussed sensory attribute: "(organic) beans we just stumbled across ... and we bought a bag just to try them and they were just so fantastic..." [Participant 7]. A positive sensory experience would foster a participant's desire to continue buying the item.

C*redence attributes,* such as the perceived health and environmental benefits of organic foods could not be directly observed in-store or experienced when trying a product; one simply assumed they were present (Grunert, 2002). Some participants mentioned altruistic motives for organic food buying, but more tangible aspects of a product, such as taste, also served as motivation: "... we buy that particular coffee, because we, we were alerted to the brand because it seemed virtuous for some reason, whether it was organic or fair traded or both, but we continue with it because it's really good coffee" [Participant 15].

External forces were beyond the consumer's control, such as price and availability, and family members' experiences. For example, a woman discussing organic pasta: "my husband didn't like it so that's kind of when I change from buying organic stuff when he doesn't like it" [Participant 14]. Income was also a factor for some, for

example a student declared "at times of the month when I can't afford organic then I won't buy organic..." [Participant 1].

Price and availability were the most discussed external forces, and partly determined repeat purchasing. All interview participants had at least one item they claimed to always buy, and stated they would either go without or search somewhere else if that food was unavailable. For example, "we always try to buy organic milk. We've now... completely switched to organic milk. And the only time we don't buy it is when it's not available" [Participant 15]. The reason for commitment to a particular product was typically because it offered one or more of the aforementioned benefits: "I always get organic tomatoes and...strawberries...'cause I find the non-organic ones taste like nothing" [Participant 6].

Sometimes a product was tried more than once before deciding to (dis)continue buying. One woman mentioned trying a type of organic spaghetti "a couple times" before abandoning it because of displeasure with the texture: "... I did buy organic spaghetti a couple times but it wasn't very good ... it was really hard to cook and even when it was cooked it seemed al dente even if I cooked it and cooked it and cooked it ... So I stopped" [Participant 14]. When one woman's experience with organic feta cheese did not coincide with her expectation, it resulted in an indifferent attitude towards the product: "...I thought, 'oh let me just see what a difference it is', but I didn't taste any difference. I would buy it maybe again, not a preference though, it doesn't matter" [Participant 3].

The overall evaluation of the product was a factor in repeat purchases: "...we decided to try it and we liked it ("it tasted good") and so now we keep an eye out for it

and we pick it up whenever it is a reasonable price" [Participant 7 talking about organic pasta sauce].

2.4 Discussion

Many of the individual factors that contribute to organic food choice, such as price, availability, income, family member preferences, and beliefs about health and the environment have been previously explored. However, the current model expresses how these factors interplay and ultimately contribute to the choice of an organic food product.

The top two reasons for not buying organic food given by U.S consumers in a 2002 Demeritt survey (as cited in Yiridoe, Bonti-Ankomah, & Martin, 2005) were a "lack of knowledge or awareness" or that it had not even been considered. In the present study, awareness about an organic food initiated the food choice process and typically came from an outside source of information. Rozin (2006) mentions psychological influences, such as peers and the media, as affecting food preferences. In the present model, awareness could lead to interest and curiosity. Dember and Earl (1957) considered curiosity as a behavior that brings someone "into contact with certain portions of its environment rather than others." However, in the present study, curiosity did not always cause one to seek out the product, there needed to be intention to buy. Ajzen's popular Theory of Planned Behavior (1991) includes behavioral intention as a variable that precedes behavior.

Weighing options (stage II), was an integral part of the food choice process. In accordance with Fishbein's 1967 Expectancy Value Theory that one chooses an object based on the anticipation that it will yield the "most desirable outcome" (Conner & Armitage, 2006), an organic food was selected if the decision was deemed more

beneficial than costly. Previous food choice research has described concepts very similar to *weighing options*; Connors, Bisogni, Sobal, and Devine (2001) discuss the prioritization of conflicting values during food choice, and both Furst, Connors, Bisogni, Sobal, and Falk (1996) and Smart and Bisogni (2001) discuss value negotiations, for example trading taste for health or vice versa, when making a food choice. The current research supports that values are often ranked or weighed in terms of importance during a food choice, and would explain why they are not the sole predictors of food choice as speculated in the introduction.

The health, environment, and taste benefits associated with organic foods have been identified by others (Lea & Worsley, 2005; Padel & Foster, 2005; Zhao, Chambers, Matta, Loughin, & Carey, 2007; *inter alios*). Price and availability, the major trade-offs identified in this study have also been identified as barriers to organic food purchase (Finch, 2005; Fotopoulos & Krystallis, 2002; Lea & Worsley, 2005; Padel & Foster, 2005). In the current study, price was a significant consideration, but not the sole determinant of food choice. It was also determined to not only be an important consideration when initially deciding to try a food product (part of *weighing options*), but also was a factor in repeat purchases.

Dreezens *et al.* (2005) refer to "attitude ambivalence" as experienced when someone sees both the pros and the cons of an attitude-issue. Such ambivalence leads to an attitude that is less certain (Dreezens *et al.* 2005) and more prone to persuasion (Armitage & Conner, 2000). As such, the interviewed consumers likely felt some ambivalence towards the organic food in question during stage II of the choice process, as both benefits (pros) and trade-offs (cons) were being considered. That these attitudes

could be more easily swayed by persuasion at this stage in the model would explain the *outside influence* from information or family members.

Taste was a very important part of product evaluation; if a food did not taste good, its repeat selection became less likely, despite other potential benefits. Oude Ophius and Van Trijp (1995) deemed taste the "most important experience quality attribute", and Furst *et al.* (1996) deemed taste to be "less negotiable" relative to other values involved in food choice (such as health or convenience). According to Grunert (2003), the beliefs a person forms about the taste experience with a food will impact future buying. In addition to beliefs formed about taste, beliefs about a food's impact on health and the environment (credence attributes) were also found to be influential at this stage.

Credence attributes were considerations in stage III, just as they were in stage II if they were considered as benefits, and stage I if they served as outside influence. Indeed, Grunert, Beck-Larsen and Bredahl (2000) acknowledge the importance of communication when it comes to credence attributes, as these attributes cannot be experienced. In 2002, Grunert acknowledged that there was little research addressing "the determinants of repeat purchases of credence goods." Some of the current study participants, who purchased organic foods because of their credence attributes, indicated that these attributes were considered along with other beneficial attributes, such as taste.

External forces, which included price, availability, income, and family, played a role in repeat purchases as well. The roles of price and availability have already been discussed, and income has also been linked with organic buying (Cunningham, 2007; Fotopolous & Krystallis, 2002; Torjusen, Lieblein, Wandel, & Francis, 2001). Family

and children have also previously been identified as influencing organic food choice (Connors *et al.*, 2001; Finch, 2005; Furst *et al.*, 2005; Thompson & Kidwell, 1998).

Overall similarities were found among consumers, as the factors which comprised the core category (*weighing options*) were applicable to all participants. However, individuals could vary in the specific trade-offs and/ or benefits they considered in relation to a particular organic food, as well as the specific factors contributing to how a food product was evaluated and its future purchase.

As is evident from the process description, the authors believed this to be a conscious process. Dijksterhuis, van Baaren, and Wigboldus (2005) report that commitment is something that causes consumers to act unconsciously. The nature of the consumer population under study, a cohort which was not fully committed to buying organic foods, would explain the conscious weighing of benefits and costs before a new organic food's selection. However, we believe that commitment would develop over time as certain products became part of a buyers' routine. Similar to Furst *et al.*'s (1996) concept of food choice strategies which guide routine food choices, consumers would not continue to weigh the benefits and trade-offs associated with a particular organic food after they had purchased it several times, whereas external factors would still continue to play a role in repeat purchases.

An unexpected finding was that local and Canadian food products were viewed as substitutes for organic foods. As taste and environmental benefits were cited by participants as reasons to select organic food, it follows that local foods would be preferred if perceived as superior to organic food in these same respects. Roininen, Arvola, and Lähteenmäki (2006) also found that short transportation distance, freshness

and supporting the local economy were reasons given by consumers for preferring local food in their review of the existing literature.

This study describes the food choice process of a sample of consumers in a city with a population of over 1 million. To our knowledge, this is the only application of grounded theory to organic food choice. Given that the majority of the findings relating to organic food choice were consistent with previous research on organic food consumers, there is good reason to believe that the current model could be applicable to consumers in other major cities; however more interviews would be necessary to make definitive conclusions and generalizations.

2.5 Conclusion

This study contributes to our better understanding of consumers who purchase both organic and conventional grocery products. Grounded theory proved an exceptional technique for modeling the decision making process these consumers engage in when choosing to buy organic foods. The process included the importance of not only awareness, but sufficient levels of interest and curiosity. Weighing the benefits and trade-offs was crucial, as was the product experience. Influence from media, friends and family was prevalent throughout the entire process.

A second process, becoming an organic food consumer, became apparent during the current study and is highly recommended for future research.

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2.6 Tables

Table 2.1: Description of interview population (n=15)

		Number of participants
Gender	Male	4
	Female	11
Income	Less than $36,378	4
	$36,378 - $72,756	4
	$72,756 - $118,285	5
	More than $118,285	2
Education	Some High school	1
	Some/ complete university degree	5
	Some/ complete graduate degree	9
Age	18 – 29 years	3
	30 – 39 years	6
	40 – 49 years	3
	50 + years	3
Frequency of organic food purchase	Frequently	13
	Sometimes	2
Location of grocery purchase "most often" *	Supermarket	7
	Organic section of supermarket	6
	Organic grocery store	5
	Farmers' market	4
Location of grocery purchase "sometimes" *	Supermarket	5
	Organic section of supermarket	7
	Organic grocery store	9
	Farmers' market	6

* Totals may be greater than 15, as participants could select multiple categories

2.7 Figures

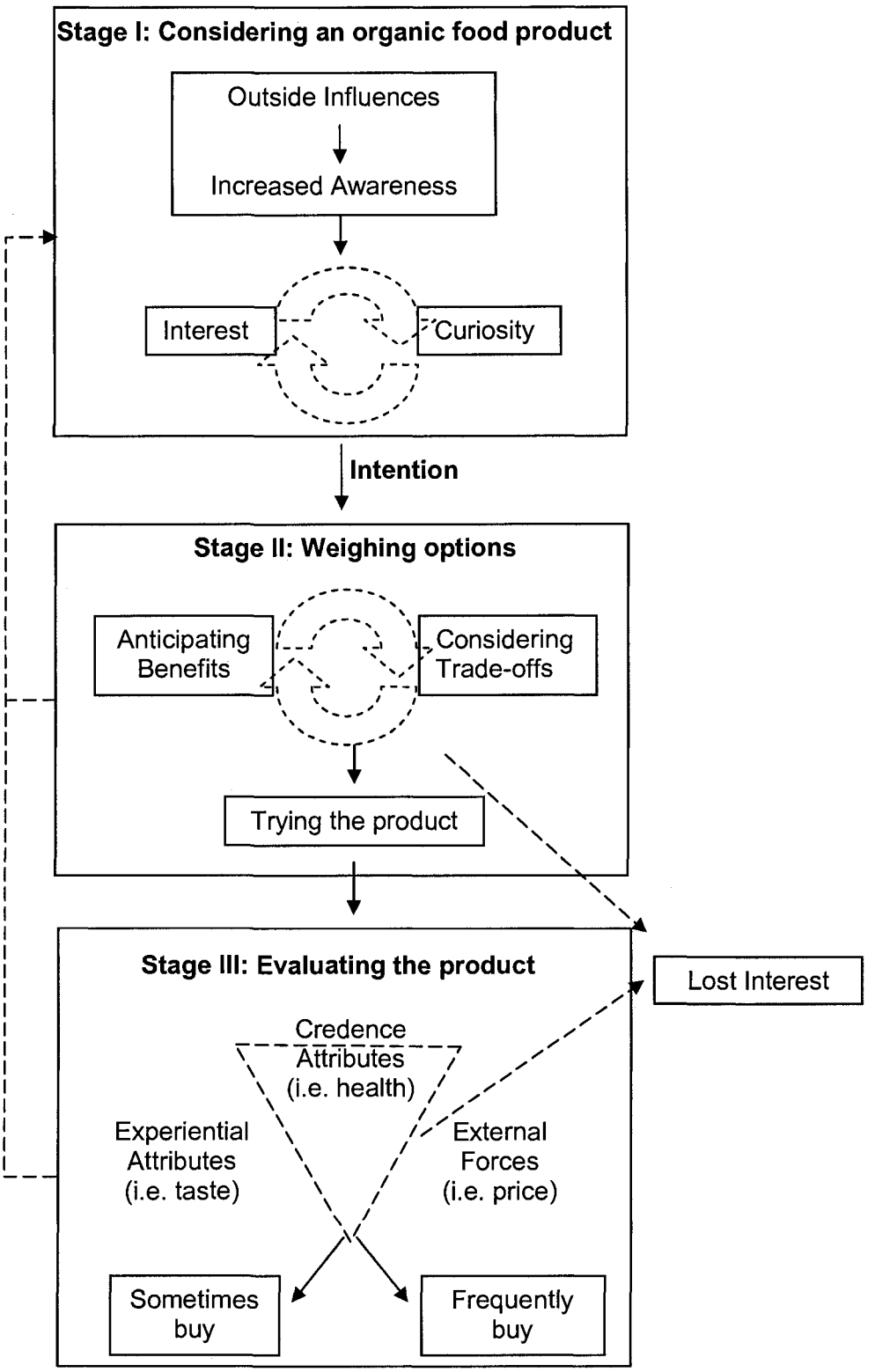


Figure 2.1: Opting for organic foods

2.8 References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin, 26*, 1421-1432.

Armitage, C. J., & Conner, M. (2006). Social psychological models of food choice. In R. Shepherd, & M. Raats (Eds.), *The Psychology of Food Choice* (pp. 41-57). Cambridge, MA, USA: CABI.

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. *Appetite, 50*(2-3), 443-454.

Baker, S., Thompson, K. E., & Engelken, J. (2004). Mapping the values driving organic food choice: Germany vs the UK. *European Journal of Marketing, 38*(8), 995-1012.

Chen, M. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference, 18*(7), 1008-1021.

Connors, M., Bisogni, C. A., Sobal, J., & Devine, C. M. (2001). Managing values in personal food systems. *Appetite, 36*(3), 189-200.

Cunningham, R. (June 2007). *Farm to Fork: Organics in Alberta*. Alberta, Canada: Alberta Agriculture Food, and Rural Development.

Curiosity. (n.d.) Oxford English dictionary online. Retrieved July 28, 2008, from http://dictionary.oed.com

Dember, W. N., & Earl, R. W. (1957). Analysis of exploratory, manipulatory and curiosity behaviors. *Psychological Review, 64*(2), 91-96.

Dijksterhuis, A., Smith, P. K., Van Baaren, R. B., & Wigboldus, D. H. J. (2005). The unconscious consumer: Effects of environment on consumer behavior. *Journal of Consumer Psychology, 15*(3), 193-202.

Dreezens, E., Martijn, C., Tenbült, P., Kok, G., & de Vries, N. K. (2005/8). Food and the relation between values and attitude characteristics. *Appetite, 45*(1), 40-46.

Finch, J. E. (2005). The impact of personal consumption values and beliefs on organic food purchase behavior. *Journal of Food Products Marketing, 11*(4), 63-76.

Fotopoulos, C., & Krystallis, A. (2002). Organic product avoidance: Reasons for rejection and potential buyers' identification in a countrywide survey. *British Food Journal, 104*(3/4/5), 233-260.

Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996/6). Food Choice: A Conceptual Model of the Process, *Appetite, 26*(3), 247-266.

Glaser, B. G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992). *Basics of grounded theory analysis: Emergence vs. forcing*. Mill Valley, CA: Sociology Press.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory analysis: Strategies for qualitative research*. Chicago, IL: Aldine.

Gnirss, G. (2006). Natural selection. *Food in Canada, 66*(8), 20.

Grunert, K. G., Bech-Larsen, T., & Bredahl, L. (2000). Three issues in consumer quality perception and acceptance of dairy products. *International Dairy Journal, 10*(8), 575-584.

Grunert, K. G. (2002). Current issues in the understanding of consumer food choice. *Trends in Food Science & Technology, 13*(8), 275-285.

Grunert, K. G. (2003). Purchase and consumption: The interdisciplinary nature of analysing food choice. *Food Quality and Preference, 14*(1), 39-40.

Interest. (n.d.) Oxford English dictionary online. Retrieved July 28, 2008, from http://dictionary.oed.com

Lea, E., & Worsley, A. (2005). Australian consumers' food-related environmental beliefs and behaviours. *Appetite, 50*(2-3), 207-214.

Lockie, S., Lyons, K., Lawrence, G., & Grice, J. (2004). Choosing organics: A path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite, 43*(2), 135-146.

Macey, A. (May 2007). *Retail Sales of Certified Organic Food Products, in Canada, in 2006*. Nova Scotia, Canada: Organic Agriculture Centre of Canada (OACC).

Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal, 104*(3/4/5), 345-352.

Molyneaux, M. (2007). The changing face of organic consumers. *Food Technology, 61*(11), 22-26.

Oude Ophuis, P. A. M., & Van Trijp, H. C. M. (1995). Perceived quality: A market driven and consumer oriented approach. *Food Quality and Preference, 6*(3), 177-183.

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal, 107*(8), 606-625.

Roininen, K., Arvola, A., & Lähteenmäki, L. (2006). Exploring consumers' perceptions of local food with two different qualitative techniques: Laddering and word association. *Food Quality and Preference, 17*(1-2), 20-30.

Rozin, P. (2006). The integration of biological, social, cultural and psychological influences on food choice. In R. Shepherd, & M. Raats (Eds.), *The Psychology of Food Choice* (pp. 19-39). Cambridge, MA, USA: CABI.

Schifferstein, H. N. J., & Oude Ophuis, P. A. M. (1998). Health-related determinants of organic food consumption in The Netherlands. *Food Quality and Preference, 9*(3), 119-133.

Shepherd, R., Magnusson, M., & Sjödén, P. (2005). Determinants of consumer behavior related to organic foods. *Ambio, 34*(4/5), 352-359.

Smart, L. R., & Bisogni, C. A. (2001). Personal food systems of male college hockey players. *Appetite, 37*(1), 57-70.

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *Amer. J. Agr. Econ., 80*, 277-287.

Torjusen, H., Lieblein, G., Wandel, M., & Francis, C. A. (2001). Food system orientation and quality perception among consumers and producers of organic food in Hedmark County, Norway. *Food Quality and Preference, 12*(3), 207-216.

Ureña, F., Bernabéu, R., & Olmeda, M. (2008). Women, men and organic food: Differences in their attitudes and willingness to pay. A Spanish case study. *International Journal of Consumer Studies, 32*(1), 18-26.

Yiridoe, E. K., Bonti-Ankomah, S., & Martin, R. C. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems, 20*(4), 193-205.

Yussefi, M. & Willer, H. (2007). *The world of organic agriculture statistics and emerging trends 2007.* Bonn, Germany: International Federation of Organic Agriculture Movements (IFOAM) & Frick, Switzerland: Research Institute of

Organic Agriculture (FiBL). Retrieved July 28, 2008, from http://orgprints.org/10506/01/willer-yussefi-2007-p1-44.pdf

Zhao, X., Chambers, E., Matta, Z., Loughin, T. M., & Carey, E. E. (2007). Consumer sensory analysis of organically and conventionally grown vegetables. *Journal of Food Science, 72*(2), S87-S91.

Chapter 3: A comparison of organic food consumers of different commitment levels

3.1 Introduction

The organic food choice grounded theory model described in Chapter 2, *opting for organic foods*, was developed based on interviews with non-committed organic food consumers. This model provided insight into the factors involved in organic food choice and how they interacted to result in the selection of an organic food product.

The major categories, or factors, identified were *price, taste, availability, concern for health, concern for environment,* and *outside influence*. Each played a role in multiple stages of the model, especially during the second stage of the organic food choice process, wherein the benefits associated with an organic food product were weighed against the trade-offs.

Non-committed organic food consumers are those who do not buy organic foods exclusively. The majority of grounded theory participants consumed organic foods "frequently" and were considered to have a high level of commitment to organic foods. It was of interest how consumer behavior towards organic foods would differ depending on commitment level, and the established food choice model was considered a well-suited tool for such an investigation. We hypothesize that more committed consumers associate more benefits with buying organic food (i.e. better taste, health and environmental benefits), buy more organic food products in general, and are less deterred by major barriers to organic food purchase, such as price and availability, compared to less committed consumers.

Other researchers have divided consumers in terms of organic food purchase frequency or dedication. Molyneaux (2007) characterized devoteds™ as organic

consumers who spent the most money on organic food, and exhibited the highest belief in a link between diet and health. Temperates™ were the organic consumers who spent less money on organic foods, had diverging motivations for their purchase, and a weaker belief system than devoted buyers. Padel and Foster (2005) classified "regular" organic food consumers as making more positive associations about organic food (i.e. better tasting, healthier, less contaminated), as opposed to negative associations (i.e. more expensive, elitist), which were more often made by "occasional" consumers. Both consumer groups acknowledged that organic foods were expensive, but regular buyers were "more reflective" about the issue and discussed the value of food, while occasional buyers "found it difficult to justify the price premium" (Padel & Foster, 2005). Fotopoulos and Krystallis (2002) also identified three types of organic food consumers within the Greek market: the "unaware", the "aware non-users" (73% of the population), and the "aware users". Their study focused on the "aware non-user" group and identifying reasons for not purchasing organic foods, however.

The main **research objective** of this project was to compare consumers in terms of their organic food choice behaviors. Consumers of two different levels of commitment to organic food buying were selected for comparison: those who buy organic foods "always" or "frequently", and those who buy organic foods "sometimes".

3.2 Methods

3.2.1 Questionnaire development

A questionnaire was developed based on the food choice model described in Chapter 2 (Appendix 4).

Sections I and II of the questionnaire contained behavioral frequency questions related to specific organic food products mentioned during qualitative interviews and to the six major categories of the grounded theory model (*price, availability, taste, personal health, concern for the environment, outside influence*). Participants were asked to state how often they performed the specified behaviors: almost never, sometimes, often, or almost always.

Section III was comprised of hypothetical questions related to price and availability: what would the participant do if organic food prices were closer to those of non-organic foods, if availability of organic foods were to increase, or if an organic food product he/she purchased on a regular basis was unavailable. It was also of interest if local or Canadian non-organic foods would be preferred over imported organic foods.

Section IV aimed to discern the relative importance of the six aforementioned factors to organic food purchase. Agreement with six statements was assessed using a Likert scale ranging from strongly disagree (1) to strongly agree (5). Participants were then asked to rank the six factors (from 1 to 6) in order of what was considered to be most important when buying organic foods. Lastly, participants were asked if there was anything aside from these six factors that they considered when buying organic foods.

The questionnaire was piloted in an undergraduate Rural Economy class at the University of Alberta in March 2008.

3.2.2 Data collection

The questionnaire (Appendix 4) was part of a larger sensory panel conducted with a fellow graduate student in Sensory and Consumer Science. The overall study consisted of the questionnaire described above, two other questionnaires (demographic and attitudinal surveys), and a paired preference test (Figure 3.1). Any consumer, regardless of frequency of organic food consumption, could take part in the panel, however only consumers who bought organic food at a frequency higher than "rarely" (i.e. "sometimes", "frequently", or "always") received the organic food choice questionnaire. Results pertaining to the attitudinal questionnaire and paired preference test are reported elsewhere (Chan, 2008; Chapter 4, respectively).

Ethical approval for the project was obtained from the Faculty of Agricultural, Life and Environmental Sciences Research Ethics Board in May 2008 and data collection commenced soon after. Data were collected at a variety of different locations to ensure a well-distributed sample in terms of demographic characteristics and organic food buying frequency. Locations included a local grocery store chain, a local farmers' market, a small organic food store, and two sites on the University of Alberta campus (all locations in Edmonton, Alberta). Written informed consent was received prior to participation in the study, and tables were set up with cardboard dividers to ensure privacy.

3.2.3 Statistical Analyses

All analyses served to compare responses from consumers of two different levels of commitment to organic food: those who purchased organic foods "always" or

"frequently", ("more committed", MC), and those who purchased organic foods "sometimes", ("less committed", LC). SAS for Windows (version 9.1, SAS Institute Inc., Cary, NC, USA) was used to conduct chi-squared analyses, comparing response distributions for behavioral frequency questions (sections I and II) and level of agreement with statements about organic food purchase (section IV). SPSS (version 15.0, SPSS Inc., Chicago, IL, USA) was used to perform regression analyses on the hypothetical question data (section III), as well as the Friedman Test for rank data (section IV). To determine which specific ranks were different, Statistical Chart 7 (Poste, Mackie, Butler, & Larmond, 1991) was consulted to calculate the least significant difference (LSD) value.

The linear probability model (LPM) was used for regression analyses, as the dependent variables of interest were binary. The LPM violates the homoskedasticity assumption of ordinary least squares, which is necessary to support the *t* and *F* statistics (Wooldridge, 2006). To account for this, confirmatory analyses were run using probit models. Missing data points were excluded (pair wise) from analyses.

The LPM equations were of the format:

$$Y = \beta_0 + \beta_1 \textit{commitment} + \gamma \text{ other factors} + \varepsilon$$

Where:

- β_0 and ε = intercept term and error term,
- β_1 = coefficient indicating probability of event *Y* occurring given *commitment*,
- *commitment* = level of commitment to organic food purchase(LC versus MC),
- γ = vector of estimated parameters representing other factors (age, gender, and income), and
- *Y* =

For LPM1

"Proactive" =0 if answered QIII.1 would buy the non-organic version of the product/ purchase another similar organic product
=1 if would wait to purchase the organic product another time/ go to another store to look for it

For LPM2
"Effect of availability"=0 if answered QIII.2 would not change what I do now
=1 if would by more organic food products than I do now/ as many organic foods as I could

For LPM3
"Effect of price" =0 if answered QIII.3 would not change what I do now
=1 if would by more organic food products than I do now/ as many organic foods as I could

For LPM4
"Prefer imported" =0 if answered QIII.4 prefer to buy local or Canadian non-organic foods
=1 if would prefer to buy imported certified organic foods

3.3 Results

3.3.1 Description of consumer sample population

A total of 134 people completed the questionnaire on organic food choice. This population was well distributed in terms of age, education and income (Table 3.1). There were slightly more people in the youngest age category (18-29 yrs), and the highest education category (post graduate degree). The majority of the sample (66%) shopped for food most often at grocery stores, and 70% had been buying organic foods for more than 2 years at the time of data collection. "More committed" buyers comprised 47% of the population, while 53% were "less committed" buyers.

3.3.2 Organic food purchase behavior (questionnaire sections I and II)

Response categories for behavioral frequency questions were collapsed combining 'almost never' and 'sometimes' together into "less often" and 'often' and 'almost always' into "more often". For questions where frequency counts were lower than 7, chi-squared probabilities were confirmed by Fisher's exact probabilities (not reported because same as chi-squared).

More committed consumers (MCC) would buy an organic food product based on taste, health and environmental benefits, curiosity, and someone else's preferences significantly more often ($p<0.02$) than less committed consumers (LCC) (Table 3.2). If a product was considered too expensive, LCC would decide not to buy it significantly more often than MCC ($p<0.005$).

From a list of eleven organic food products, MCC reported buying ten of these significantly more ($p<.0001$) often than LCC (Table 3.3). There was no significant difference ($p>0.10$) between MCC and LCC in how often they reported buying meat substitutes.

3.3.3 Hypothetical organic food behaviors (questionnaire section III)

Of the four linear probability models, only the model for "effect of availability" was significant ($p<0.05$) (Table 3.4). The coefficient for "more committed" was also significant ($p=0.05$), signifying that compared to LCC, being a MCC increased the probability of buying more organic food products than one currently does if the food products were to become more readily available by 12% (keeping age, gender, and income constant). Other significant coefficients in the model ($p\leq0.05$) included being 30-39 years old (compared to the base case of being 18-29 years old) and having a household income of $72,756 - $118,285 (compared to the base case of less than $36,378).

The model for "proactive" was not significant ($p>0.10$), but the coefficient for "more committed" was ($p<0.05$), meaning that compared to LCC, there was a trend for MCC to wait to purchase the product another time or go to another store to look for it when an organic food product one regularly consumed was unavailable (holding age, gender, and income constant). There was also a trend for consumers with the highest

household income, greater than $118,285, to engage in these "proactive" behaviors, compared to those in the lowest income bracket (holding commitment, gender, and age constant). There was also an effect of recruitment location on the "proactive" variable; those participants who were recruited from the small organic food store were 27% more likely to engage in "proactive" behaviors compared to those who were recruited on the University of Alberta campus.

The models for "effect of price" and "prefer imported" were also not significant ($p>0.10$). None of the coefficients in the "effect of price" model were significant ($p>0.10$), however commitment was significant ($p<0.005$) within the "prefer imported" model, signifying a trend for MCC to be more likely than LCC to prefer imported organic foods over non-organic local foods (keeping age, gender and income constant).

3.3.4 Agreement with statements about organic food buying (questionnaire section IV)

Like section 3.3.2, some frequency counts were lower than 7, thus chi-squared probabilities were confirmed by Fisher's exact probabilities (not reported).

MCC agreed significantly more often ($p<0.05$) than LCC that they bought organic foods because they taste better, because they are healthier and because they are better for the environment than non-organic foods (Table 3.5). There was no significant difference in opinion ($p>0.10$) between MCC and LCC in relation to organic food purchase based on hearing or reading something about their benefits, because of their price, or because of ready availability at one's grocery store of choice.

3.3.5 Ranking the six factors (questionnaire section IV)

There were fewer data for this analysis, as the responses of people who assigned the same rank to more than one factor were omitted (n=34 for MCC, and n=46 for LCC after omissions).

LCC ranked price, health and taste as their top three considerations when buying organic food (not significantly different, $p>0.05$) (Table 3.6). Next came environment (not different from taste, $p>0.05$), then availability (not different from environment, $p>0.05$). Outside influence was rated the least important consideration.

MCC rated health and environment as their top two considerations when buying organic food (not significantly different, $p>0.05$). Environment, taste, availability, and price were ranked next (in that order); these four factors were not significantly different ($p>0.05$), and were classified by the researchers as "second-level" considerations. Price and outside influence were ranked as the two least important factors when buying organic foods.

Production information (i.e. location), non-taste sensory attributes (such as appearance and freshness), and confusion about labelling and/or certification of organic food products were the most commonly mentioned factors taken into consideration when buying organic foods in addition to those listed in the questionnaire.

3.4 Discussion

The organic food choice questionnaire was based on six factors identified by the grounded theory study as being involved in organic food choice and was then used to compare consumer behaviors towards organic food products. As hypothesized, more committed organic consumers often differed from those who were classified as less committed. Findings related to each of the individual factors will be discussed.

Price

Both groups of consumers claimed they did not often buy organic foods because they were "on sale". This was not expected based on Chapter 2, as a sale price for an organic food was considered to be beneficial. However, the lower frequency of this behavior for both groups could be explained by the fact that this is not a common benefit associated with organic food purchase or perhaps that organic foods do not go on sale very often.

Both groups also disagreed that organic foods were purchased because their prices were comparable to non-organic, and as expected, less committed consumers were more affected by price. Compared to MCC, LCC would more frequently decide not to buy an organic food because it was too expensive. In Chapter 2, an expensive price was considered a trade-off, which could be outweighed by other benefits when making an organic food choice. The current data suggest that more committed consumers allow this specific trade-off to affect their choices less often. This finding also fits with Molyneaux's (2007) description of devoteds™ as the highest spenders of all organic consumers, and with previous research by Padel and Foster (2005) that both regular and occasional organic buyers acknowledge that organic foods are expensive, but that regular buyers are better able to accept spending the extra money.

Less committed consumers ranked price among their top considerations when buying organic foods, whereas more committed consumers rated it as a lower level consideration, which further indicates that price is more of a concern for less committed consumers.

Availability

Consumers were asked to consider a hypothetical situation wherein an organic food product they regularly purchased was unavailable, and were provided with four possible options. Two of these choices were classified by the researchers as "proactive" and included waiting to purchase the organic product another time, or going to another store to look for the product. The other options were to purchase another (similar) organic product, or the non-organic version of the product. Ceteris paribus, there was a trend for MCC to be more likely than LCC to choose one of the two proactive behaviors. These two behaviors represent a higher level of commitment to purchasing certain organic food products, which is to be expected of a more committed group of consumers.

All interview participants in Chapter 2 had at least one organic food they claimed to always buy, and stated they would either go without or search somewhere else if that food was unavailable. Thus, more committed organic food consumers, a grouping which encompassed those who always buy organic foods, likely have more organic products they are committed to buying than do less committed consumers. This theory is supported by the fact that MCC reported buying virtually all organic food products listed in Table 3.3 significantly more often than LCC.

Consumers were also asked if organic foods were to become more readily available, would the number of organic food products they purchased increase or would purchase habits remain the same. More committed consumers were 12% more likely to report they would increase their organic food purchasing, compared to less committed consumers (controlling for age, gender and income). This finding indicates that

availability is more of an issue for MCC, as they believe they would buy more organic food products if they were to become more readily available.

Availability was assigned an average rank of fourth by LCC, but was a third-level consideration when buying organic foods. MCC also ranked availability fourth on average, but for them it was a second-level consideration. These results further indicate that availability is a slightly higher priority for MCC.

Certain income and age effects were also observed in relation to availability, which may warrant further investigation.

Taste

More committed consumers reported buying organic food based on taste significantly more often than those who were less committed. MCC also tended to agree more often than LCC that they bought organic foods because they taste better than non-organic.

Taste was one of four secondary considerations for more committed consumers (along with environment, availability, and price), which is consistent with Padel and Foster (2005), who also found taste to be a secondary motivation for organic food choice. Taste was one of the top three considerations for less committed consumers, who did agree that organic foods tasted better than non-organic, just to a lesser extent than more committed consumers. Perhaps this can be explained by Molyneaux (2007), who determined that less committed organic consumers have "weaker belief systems" about organic foods than do more committed consumers.

Outside Influence

Organic food purchase based on outside influences (i.e. hearing something from friends, family members, media) occurred more often for MCC. However, when it came to buying organic foods because of "hearing or reading something about their benefits", both groups of consumers tended to agree with this statement. The incongruence of these results may be due to the usage of different wording or question formats or even the placement of these two questions within the questionnaire (one was at the beginning and one at the end). Overall, outside sources do appear to influence the purchasing behaviors of both groups of consumers.

Both groups of consumers claimed that not buying an organic food because of a family member's dislike did not happen very often. This behavior was discussed during grounded theory interviews; therefore an explanation could again be that all consumers are faced with this situation infrequently. Organic food purchase based on another's preference occurred significantly less often for LCC than for those who were MCC. Furst, Connors, Bisogni, Sobal, and Falk (1996) also described family's preferences being taken into account during food choice, and according to Molyneaux (2007), organic food consumers with the highest level of commitment tend to influence other people in their lives; so perhaps MCC are more encouraged to continue buying organic foods for others when preference has been expressed.

"What I've heard from family, friends, or the media" was ranked by both LCC and MCC as the lowest consideration when buying organic foods. A possible explanation that stems from these results is that this informational form of outside influence plays more of a role in awareness, which was determined in Chapter 2 to precede the actual

selection of a food. Yiridoe, Bonti-Ankomah, and Martin (2005) identify knowledge and awareness as impacting attitudes toward organic foods, but they do not discuss how and when this knowledge is obtained, or sources of information.

Health

The more committed consumers claimed to buy organic food based on health benefits more often than did the less committed. MCC also agreed more often than LCC that they bought organic foods because they are healthier than non-organic. Furthermore, personal health was one of the top two considerations for MCC, and was also ranked in the top three by LCC. Health is often the number one motivation for organic food buying (Baker, Thompson, and Engelken, 2004; Makatouni, 2002; Padel & Foster, 2005; Schifferstein & Oude Ophuis, 1998; Shepherd, Magnusson, & Sjödén, 2005). These results support that health in relation to organic foods is important to consumers of different commitment levels, but slightly more so for more committed consumers. This is also consistent with Molyneaux (2007) that more committed consumers have stronger belief systems in relation to organic foods.

Environmental concern

In terms of organic food buying based on environmental concerns, LCC did so less often. MCC also agreed more often about organic food buying because it was better for the environment. Environmental concern factored into organic food buying as one of the top two considerations along with health for MCC, and was ranked as a secondary consideration (tied with taste and availability) by LCC.

Much like the health factor, these results resonate with both the findings in Chapter 2 and the literature that environment is a motivator in organic food buying, but

often secondary to health (Makatouni, 2002; Padel & Foster, 2005; Schifferstein & Oude Ophuis, 1998; Shepherd, Magnusson, & Sjödén, 2005).

Other findings of note

Organic food buying based on curiosity occurred significantly less often for less committed organic consumers, which could explain why they don't buy as many organic food products as more committed buyers. Curiosity was determined to be part of stage I of the organic food choice process, a stage which lead to the actual trying of an organic food product.

There was a trend for more committed consumers to be more likely to prefer imported organic food over local non-organic food. Several participants indicated either verbally or on their questionnaire that this was a difficult question to answer. It was mentioned during grounded theory interviews that the ideal would be local organic food, however the survey question attempted to determine if local or organic origins of a food were more important to consumers. There are several possible explanations for the observed outcome. First of all, LCC may have less hesitation buying a non-organic food, as they buy fewer organic foods anyway. Conversely, in accordance with the findings in Chapter 2, MCC may be more hesitant to choose a non-organic food since the lack of pesticides on certified organic foods is related to health, their top consideration when buying organic foods.

Aside from the six factors we selected based on Chapter 2, information pertaining to location of production, non-taste sensory attributes (i.e. appearance and freshness), and confusion about labelling of organic food products were the most common other factors mentioned as taken into consideration when buying organic foods. Consequently, these

were all minor findings of the grounded theory study. Appearance (Padel & Foster, 2005; Thompson & Kidwell, 1998), and both appearance and freshness (Yiridoe *et al.*, 2005) have been discussed in relation to organic food choice. Padel and Foster (2005) also mention skepticism about organic food labelling as a barrier to organic food consumption, and Krystallis and Chryssohoidis (2005), and Onyango, Hallman, and Bellows (2007) mention importance of country of origin/ production location to organic food choice.

When interpreted another way Table 3.3 shows which products LCC and MCC purchase more often. For LCC, three produce items (carrots, bananas, and apples), meat substitutes and juices made up the top five most often purchased organic food products, compared to carrots, bananas, apples, and oranges and cereal for MCC. Interestingly, meat substitutes and juices are among the least frequently purchased for MCC and among the most frequently purchased for LCC. As these consumers differ in commitment level and behaviors directed towards organic foods, it is not surprising that they buy different types of organic products. Future research should further investigate specific organic product choices, as this would be of great value to marketing professionals.

Limitations

The results of this study were based on self-reported questionnaire responses. Observing real-life food choice behaviors would have been ideal, but considerably more difficult to monitor and measure, especially when the goal was to focus on specific factors affecting food choice. Hypothetical and behavioral frequency questions were used in an effort to obtain responses that were as close to real-life as possible.

Survey questions are closed ended and there is no opportunity for elaboration about responses given. This left room to speculate about the reasons behind certain behavioral frequencies (i.e. low frequency because situation does not happen very often). It was for this reason that qualitative interviews were thought the best option for the main study (Chapter 2).

The survey developed for this study was not psychometrically tested for reliability and validity since the purpose was not to validate a research tool, but to perform consumer insights research in a timely manner.

3.5 Conclusion

More committed consumers were less deterred by expensive prices, and also ranked price as one of their lowest considerations when buying organic foods. Health and environment were their top two considerations, and they tended to agree more often about buying organic foods based on taste, health and environmental benefits. These consumers were also more likely than less committed consumers to engage in "proactive" behaviors when an organic food they bought on a regular basis was unavailable.

Health, price and taste were the top considerations for less committed consumers when buying organic foods. These consumers bought significantly less organic food products, which may result from the fact that they do not often buy organic foods out of curiosity (a factor identified in Chapter 2 as preceding organic food choice).

This study both supports and adds to the literature on organic food consumers being a heterogeneous group. Depending on their commitment level to organic food, consumers will take different factors into consideration when making organic food purchase decisions. Future research should aim to identify ways to increase the

commitment levels of consumers who are currently at a lower level, much like the research by Fotopoulos and Krystallis (2002), who focused on a group of Greek "aware non-users" of organic foods, identifying potential organic consumers within this group.

The six factors chosen to be the foci of the questionnaire were based on the grounded theory study (Chapter 2) and adequately differentiated behaviors of two groups of organic food consumers. However, other factors, such as production information, and non-taste sensory attributes were mentioned as also taken into consideration when buying organic foods. Future research could further investigate their effect on organic food choice behaviors.

3.6 Tables

Table 3.1: Demographic description of organic food choice questionnaire population (n=134)

		Percentage of sample (%)*
Gender	Male	39
	Female	60
Age	18-29 yrs	36
	30-39 yrs	22
	40-49 yrs	13
	50-59 yrs	17
	60+ yrs	11
Education	Some high school	2
	High school graduate	12
	Some university or college	16
	College diploma/ degree	14
	University undergraduate degree	21
	Some post graduate university study	7
	Post graduate university degree (Master's or Ph.D)	29
Income	Less than $36,378	27
	$36,378 - $72,756	29
	$72,756 - $118,285	26
	More than $118,285	16
Location of most frequent grocery purchase		
	Supermarket	66
	Organic section of supermarket	21
	Organic grocery store	23
	Farmers' market	16
	Other	5
Frequency of organic food purchase**	Always	11
	Frequently	36
	Sometimes	53
When began purchasing organic food		
	This year	6
	1-2 yrs ago	24
	More than 2 but fewer than 5 years ago	36
	At least 5 but fewer than 10 years ago	16
	10 or more years ago	17

* Total percentages may not add up to 100% due to rounding and missing data points
** For data analysis, "sometimes" organic food consumers were classified as "less committed" (LC), and "frequently" and "always" consumers as "more committed" (MC)

Table 3.2: Response count frequencies and chi-squared analyses of organic food choice behaviors made by more committed (MC, n=63) and less committed (LC, n=71) organic food consumers

"In general how often do you..."	Commitment to organic food consumption	Response count for less often	Response count for more often	χ^2 Probability
buy an organic food product based on something you heard from a friend or family member or read in the media	MC	49	14	**0.0494**
	LC	64	7	
buy an organic food product because it was on sale	MC	47	16	0.3454
	LC	47	23	
not buy an organic food product because it was too expensive	MC	39	13	**0.0004**
	LC	13	34	
buy a non-organic food product because the organic version was not available	MC	40	23	0.1249
	LC	53	17	
buy an organic food product based on how it would taste	MC	23	39	**0.0025**
	LC	41	23	
not buy an organic food product because you or someone in your family/ household disliked it the last time you bought it	MC	54	7	0.6555
	LC	61	10	
buy an organic food product because you were thinking about the benefits to your health	MC	15	47	**0.0002**
	LC	40	31	
buy an organic food product because you were thinking about the benefits to the environment	MC	27	36	**0.0007**
	LC	51	20	
buy an organic food product for someone else because you knew they liked it	MC	33	29	**0.0165**
	LC	52	19	
buy a new kind of organic food product because you were curious about it	MC	28	34	**0.0018**
	LC	51	20	

Note: counts may not always add up to total n due to missing data points

Table 3.3: Response count frequencies and chi-squared analyses of purchase of specific organic food products by more committed (MC, n=63) and less committed (LC, n=71) organic food consumers

Organic Food Product	Commitment to organic food consumption	Response count for less often	Response count for more often	χ^2 probability
Meat	MC	36	23	**<.0001**
	LC	66	5	
Meat substitutes	MC	41	19	0.1704
	LC	56	15	
Juices	MC	31	27	**<.0001**
	LC	59	11	
Milk	MC	29	29	**<.0001**
	LC	62	8	
Yogurt	MC	29	28	**<.0001**
	LC	58	11	
Cereal	MC	23	37	**<.0001**
	LC	63	7	
Peanut butter	MC	31	28	**<.0001**
	LC	62	9	
Bananas	MC	24	36	**<.0001**
	LC	58	12	
Apples	MC	12	48	**<.0001**
	LC	56	12	
Carrots	MC	15	47	**<.0001**
	LC	52	18	
Oranges	MC	29	30	**<.0001**
	LC	62	6	

Table 3.4: Linear probability model regression analysis results for hypothetical organic food choice behaviors (n=134)

	LPM1 "Proactive"	LPM2 "Effect of availability"	LPM4 "Prefer imported"
Independent Variables	Coefficient (std error, p-value)	Coefficient (std error, p-value)	Coefficient (std error, p-value)
Commitment level (base case = less committed)			
More Committed	.228 (.089, **.012**)	.115 (.058, **.050**)	.274 (.091, **.003**)
Age (base case = 18-29 years)			
30-39 years	.146 (.122, .234)	.165 (.080, **.042**)	.117 (.127, .358)
40-49 years	.152 (.146, .298)	-.012 (.095, .897)	.111 (.149, .459)
50-59 years	.135 (.138, .332)	.044 (.088, .617)	.104 (.136, .449)
60+ years	.177 (.148, .234)	.102 (.097, .296)	.046 (.150, .761)
Household Income (base case = less than $36,378)			
$36,378 - $72,756	-.219 (.128, **.088**)	.120 (.077, .123)	-.100 (.121, .412)
$72,756 - $118,285	-.201 (.141, .157)	.174 (.083, **.037**)	-.162(.129, .213)
Greater than $118,285	.228 (.089, **.012**)	.032 (.091, .726)	-.172 (.143, .230)
Gender (base case = male)	-.086 (.091, .346)	-.060 (.060, .320)	-.023 (.094, .805)
Model constant	.332 (.102, **.001**)	.728 (.067, **.000**)	.316 (.105, **.003**)
Model F Statistic	1.414	2.058	1.512
(p- value)	(.190)	(**.039**)	(.152)

Note1: coefficients are unstandardized
Note2: LPM3 is omitted, as neither the model nor any coefficients of interest were significant (p>0.1)

Table 3.5: Chi-squared analyses of agreement with statements about organic food purchase by more committed (MC, n=63) and less committed (LC, n=71) organic food consumers

"I buy organic foods because..."	Commitment	Disagree	Neither agree nor disagree	Agree	χ^2 probability
They taste better than non-organic foods	MC	4	8	49	**0.0019**
	LC	13	21	35	
They are healthier than non-organic foods	MC	2	1	58	**0.0034**
	LC	3	14	52	
They are better for the environment	MC	1	5	54	**0.0463**
	LC	4	14	48	
I heard or read something about their benefits (for my health, for the environment)	MC	2	11	45	0.5941
	LC	3	18	48	
They are priced similar to non-organic foods	MC	39	14	6	0.4041
	LC	45	12	12	
They are readily available at the store where I buy groceries	MC	22	7	31	0.1004
	LC	24	18	27	

Note: counts may not always add up to total n due to missing data points

Table 3.6: Ranking of six factors involved in organic food choice by more committed (MC, n=34) and less committed (LC, n=46) organic food consumers

Factor	Availability	Price	Taste	Outside Influence	Environment	Health
Average ranks assigned by LC	4.2c	2.5a	2.8ab	5.4d	3.8bc	2.5a
Average ranks assigned by MC	3.8f	4fg	3.4f	5.2g	2.8ef	1.8e

Note: numbers followed by the same letter are not significantly different according to the Friedman Test for rank data

3.7 Figures

Format 1:	**Format 2:**
Any consumer, regardless of frequency of organic food purchase Demographic Questionnaire ↓ Attitudes towards food production questionnaire (Chan) ↓ Paired Preference (organic versus conventional tomatoes, carrots, chocolate or raisins)	Only consumers who buy organic food at a frequency higher than "rarely" (i.e. sometimes, frequently, or always) Demographic Questionnaire ↓ Attitudes towards food production questionnaire (Chan) ↓ Organic food choice questionnaire (Vanderkloet) ↓ Paired Preference (organic versus conventional tomatoes, carrots, chocolate or raisins)

Figure 3.1: Format for overall study (organic food sensory evaluation and questionnaires)

3.8 References

Baker, S., Thompson, K. E., & Engelken, J. (2004). Mapping the values driving organic food choice: Germany vs the UK. *European Journal of Marketing, 38*(8), 995-1012.

Chan, F. (2008). Values motivating the purchase of organic foods: A laddering analysis. Unpublished master's thesis, University of Alberta, Alberta, Canada.

Fotopoulos, C., & Krystallis, A. (2002). Organic product avoidance: Reasons for rejection and potential buyers' identification in a countrywide survey. *British Food Journal, 104*(3/4/5), 233-260.

Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996). Food choice: A conceptual model of the process. *Appetite, 26*(3), 247-266.

Krystallis, A., & Chryssohoidis, G. (2005). Consumers' willingness to pay for organic food. Factors that affect it and variation per product type. *British Food Journal, 107*(5), 320-343.

Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal, 104*(3/4/5), 345-352.

Molyneaux, M. (2007). The changing face of organic consumers. *Food Technology, 61*(11), 22-26.

Onyango, B. M., Hallman, W. K., & Bellows, A. C. (2007). Purchasing organic food in US food systems. *British Food Journal, 109*(5), 399-411.

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal, 107*(8), 606-625.

Poste, L. M., Mackie, D. A., Butler, G., & Larmond, E. (1991). *Lab methods for sensory analysis of food* (No. 1864/E). Ottawa, Ontario: Canadian Communication Group Publishing Center.

Schifferstein, H. N. J., & Oude Ophuis, P. A. M. (1998). Health-related determinants of organic food consumption in The Netherlands. *Food Quality and Preference, 9*(3), 119-133.

Shepherd, R., Magnusson, M., & Sjödén, P. (2005). Determinants of consumer behavior related to organic foods. *Ambio, 34*(4/5), 352-359.

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *Amer. J. Agr. Econ., 80*, 277-287.

Wooldridge, J. M. (2006). *Introductory econometrics: A modern approach* (3rd ed.). Mason, OH, USA: Thomson South-Western.

Yiridoe, E. K., Bonti-Ankomah, S., & Martin, R. C. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems, 20*(4), 193-205.

Chapter 4: Consumer sensory evaluation of organic and conventional raisins and dark chocolate: paired preference and perceptions

4.1 Introduction

Organic foods are often perceived as tasting better than conventional foods (Lea & Worsley, 2005; Padel & Foster, 2005; Zhao, Chambers, Matta, Loughin, & Carey, 2007; *inter alios*). However, when Bourn and Prescott (2002) reviewed the existing discrimination, descriptive, and preference sensory evaluation studies on organic food they could not generate conclusive results. When organic and conventional sample identities were unknown, consumers did not exhibit a clear preference for one over the other, nor could they clearly differentiate between the two. However, when information such as method of production or simply an "organic" label accompanies food samples, there is a tendency for preference for the organic sample to increase (Di Monaco, Cavella, Torrieri, & Masi, 2007; Johansson, Haglund, Berglund, Lea, & Risvik, 1999; Gifford & Bernard, 2006; *inter alios*). Thus the main difference between organic and conventional foods may simply be how they are perceived by the consumer. Furthermore, organic foods possess what are known as credence attributes; their presence is not overt or experienced, one simply believes or trusts these attributes are there (Grunert, 2002). Examples of such attributes include lack of pesticides and chemicals, increased healthfulness and environmental benefits.

The majority of sensory tests comparing organic versus conventional foods have evaluated produce items. For example, all organic sensory quality studies reviewed by Bourn and Prescott (2002) focused on fruits and vegetables. Since the 2002 review, Olivera and Salvadori (2006) found there to be no significant difference in overall consumer acceptance of organic and conventional lasagnas. While Annett, Muralidharan,

Boxall, Cash and Wismer (2008) found that 60% whole wheat organic bread was preferred significantly more than conventional, the difference was quite small (6.73 versus 6.37 on the 9-point hedonic scale). The sensory literature on organic processed food products is limited, and to our knowledge, there have been no sensory evaluations performed on either organic dark chocolate or raisins. Currently there is a demand for processed organic foods; according to a Nielsen Company survey fifteen percent of certified organic foods sold in Canadian supermarkets in 2006 were packaged and prepared foods, the third largest sector after fruits and vegetables (includes canned products) and beverages (Macey, 2007).

The main **research objective** of this project was to explore consumer preferences for and perceptions about two processed organic food items, raisins and dark chocolate.

4.2 Methods

4.2.1 Consumer panel sensory evaluation

The paired preference test was part of a larger consumer sensory panel of the following format: written informed consent, three questionnaires collecting information on demographics, consumer attitudes and organic food choice behaviors, respectively, followed by a paired preference sensory evaluation test that paired an organic and a conventional food item (Figure 3.1). Anyone over the age of 18 years old could take part in the consumer panel regardless of their level of organic food consumption, as a study objective was to assess organic food preference and perceptions held by consumers of different levels of commitment to organic food.

A paired preference test is a form of paired comparison test in which a panellist must choose which of two coded samples is preferred (Poste, Mackie, Butler & Larmond, 1991). As part of the paired preference test, participants were also asked why they preferred their chosen sample, and which of the two samples they thought was organic and why.

4.2.2 Food samples

Grape tomatoes, baby-cut carrots, dark chocolate pastilles and raisins were selected for the sensory evaluation; participants could choose one of these four food products to evaluate. These foods were selected because they provided a balance of produce and processed items, and were mentioned during qualitative interviews (Chapter 2). The data on tomatoes and carrots were analyzed by a fellow graduate student, and are reported elsewhere (Chan, 2008).

Raisins used for the sensory evaluation were purchased from a local grocery store chain. The conventional raisins were Golden Boy Thompson Seedless Raisins (Golden Boy Foods, Burnaby, BC); the organic raisins were 'Organic Thompson Seedless Raisins', obtained from the bulk section of a local grocery store.

Conventional dark chocolate pastilles, 'Foleys Dark Melting Wafers', were obtained from the bulk section of the same grocery store as where the raisins were purchased. The organic dark chocolate pastilles, 'Fair Trade Organic Dark Chocolate', were obtained from the bulk section of an organic food store.

4.2.3 Sample Preparation

Commercially available food products were used for the sensory evaluations, as these products represent what is typically available to consumers. Samples were

purchased the day before data collection began and prepared by placing the samples (two chocolate pastilles, or three raisins) in 1 oz. sample cups blinded with three-digit codes. The presentation order for each of the four foods was balanced, alternating between presentation of either the organic or the conventional sample first. Fifty paired sets of organic and conventional samples were prepared for each food.

4.2.4 Data collection

Complete details of data collection for this study are described in 3.2.2. The demographic and paired preference questionnaires used can be found in Appendices 3 and 5 respectively.

4.2.5 Statistical Analyses

Statistical chart 3 (Poste *et al.*, 1999) was consulted to test for significance of the paired preference test results. Open-ended comments related to the preferred samples and organic perceptions were tallied and counts compared.

Effects of commitment to organic food and length of time as an organic food consumer on sample preference and ability to correctly identify the organic sample were modeled using a Linear Probability Model in SPSS (version 15.0, SPSS Inc., Chicago, IL, USA). Missing data points were excluded (pair wise) from analyses. Confirmatory analyses of these models were performed using probit models.

Hypotheses tested using LPM:

$$Y = ß_0 + ß_1 X_1 + \text{other factors} + \varepsilon$$

1. Consumers who are more committed to organic foods will prefer the organic sample, when sample identity is unknown, compared to those who are less committed or non-consumers

Where:

- Y = preference for the conventional food sample
- β_0 = intercept term, and ε = error term
- β_1 = coefficient indicating probability of event Y occurring given X_1
- X_1 = commitment to organic food consumption
- other factors = consumption of food evaluated

2. Consumers who are more committed to organic foods will be better able to correctly identify the organic sample, compared to those who are less committed or who are non-consumers

Where:

- Y = ability to identify organic sample
- X_1 = commitment to organic food consumption

3. Consumers who have been buying organic foods for longer will be better able to identify the organic sample, compared to those who began buying organic foods more recently

Where:

- Y = ability to identify the organic food sample
- X_1 = length of time (in years) as an organic food consumer

Descriptions of independent variables:

Commitment	
"Non consumer"	=1 if buys organic food "rarely" or "never" (base case)
"Less committed"	=1 if "sometimes" buys organic food
"More committed"	=1 if "frequently" or "always" buys organic food
Began	
"Recently"	=1 if began buying organic food up to 2 years ago (base case)
"Experienced"	=1 if began more than 2 but fewer than 5 years ago
"Seasoned"	=1 if began 5 or more years ago
"Often consume"	=1 if consume food evaluated several times/ once per week, =0 if several times/ once per month

4.3 Results

4.3.1 Description of consumer panel population

Participants chose which of the four foods they wished to sample as part of the paired preference test. As a result, some participants selected foods that they never consumed and their data were excluded. The final sample populations were 41 for the

raisin evaluation and 47 for the dark chocolate (total $n = 88$). For both the dark chocolate and raisin evaluations, the majority of individuals were between the ages of 18-29 years old, and shopped for groceries most often at supermarkets (Table 4.1). Participants for both food samples were well distributed across all ranges for education and income. The majority of participants were self-reported "sometimes" organic food buyers (41% of raisin, and 47% of chocolate evaluators).

4.3.2 Consumer preference for organic chocolate and raisins

The organic raisins were not significantly ($p>.871$) preferred over the conventional raisins (Table 4.2). However, the conventional dark chocolate sample was preferred significantly more than the organic ($p<0.001$). These results were supported by the consumers' comments about their preferred sample when unaware of sample identity. Both the organic and conventional raisins had similar tallies of preferable attributes, such as "better flavor", "sweeter" and "juicier" (Figure 4.1). These comments were made slightly more often in reference to the organic raisins. The attributes classified as "other", made by 1 or 2 people, included "more natural flavor", "fresher" and "moist" for the organic raisins, and "more acidic", "less gritty" for the conventional. The conventional dark chocolate sample had many more positive attributes associated with it than the organic sample; it was considered to be "sweeter" and have "better flavor" and "more cocoa flavor", and in terms of texture, to be "creamier" and "smoother" compared to the organic sample (Figure 4.2).

4.3.3 Consumer perceptions about organic chocolate and raisins

The majority of consumers could correctly identify the organic sample, be it dark chocolate or raisins (Table 4.2). Attributes associated with the raisins perceived to be

organic included "more flavor", "less sweet", and a "softer" texture (Figure 4.3). Freshness, less processing, and visual cues such as color difference and smaller size were also mentioned. The organic dark chocolate was perceived as "less sweet", "better tasting", having "more chocolate flavor", and a "smoother" texture (Figure 4.4). There were also a few negative perceptions associated with the organic chocolate; that it tasted "off", "weird", and that it lacked taste. No negative comments were made in reference to the organic raisins.

4.3.4 Regression analyses

It was hypothesized that consumers who were more committed to organic food would prefer the organic sample even when its identity was unknown. Neither the model nor any of the coefficients were significant ($p>0.1$) for the organic raisin evaluation (model statistics and coefficients not reported). For the dark chocolate, the proposed model was significant ($p<.005$), as were the coefficients for the two organic food commitment levels, which were significant and negative ($p<0.05$) (Table 4.3). The coefficient representing how often one consumed dark chocolate was also significant ($p<0.05$).

The hypothesis that more committed organic food consumers would be better able to identify the organic raisins could not be confirmed ($p>0.1$). The model was significant ($p<0.05$) for the dark chocolate, and the coefficient for a "sometimes" level of commitment to organic food was significant and negative ($p<0.05$) (Table 4.3).

The third hypothesis was that consumers who had been buying organic food for longer would be better able to identify the organic sample. For raisins, neither the proposed model nor any of the coefficients were significant ($p>0.1$) (Table 4.3). For the

dark chocolate, the model was not significant ($p>0.1$), and being a "seasoned" organic consumer was not significant at the 0.05 level, but was significant at the 0.08 level ($p=0.083$), indicating a slight trend. Location of participant recruitment was found to have no impact on any regression analyses.

On closer inspection of the dark chocolate consumer population, certain demographic variables were found to be highly correlated (Table 4.4). Among the significant ($p<0.05$) correlations were age and commitment level: the youngest age group (18-29 years) was negatively and oldest age group (60+ years) was positively correlated with "more committed". Length of time as an organic food buyer was also significantly ($p<0.05$) correlated with commitment level: "recently" was negatively correlated, and "seasoned" positively correlated with "more committed". There were also significant correlations between locations of most frequent food purchase and both commitment level and length of time as an organic consumer (Table 4.4).

4.4 Discussion

The organic raisins were not preferred significantly over the conventional. The majority of consumers could identify the organic sample, which was perceived to be less sweet, better tasting, and more fresh and/or natural. There were also a few comments about the organic raisins being a different color or smaller in size. Consumers are known to assess the appearance of organic foods (Padel & Foster, 2005; Thompson & Kidwell, 1998; Yiridoe, Bonti-Ankomah, & Martin, 2005); however the perception of organic raisins as being smaller is an unexpected finding. Neither level of commitment to organic food nor length of time as an organic food consumer had any effect on preference for the

blinded organic raisin sample or ability to correctly identify the organic raisins, as hypothesized.

The conventional chocolate sample was preferred significantly more often than the organic. There were also a greater number of positive attributes associated with the conventional sample, including some that were not mentioned at all in relation to the organic; creamier, smoother texture and more chocolate flavor. The frequency with which someone consumed dark chocolate was included in the regression model investigating the effect of commitment to organic food purchasing on preference. A higher chocolate consumption level (weekly as opposed to monthly) turned out to significantly increase the probability of preferring the conventional chocolate by 31%, holding commitment to organic food constant. Perhaps this preference arises from the fact that most people consume and are therefore accustomed to the taste of conventional chocolate. To support this notion, there were several responses to the question "why did you think this sample was organic" related to the sample tasting (un)familiar, for example: "I don't think I've ever had organic chocolate before and the (conventional) sample tasted similar to chocolate I've had in the past". Onyango, Hallman, and Bellows (2007) found that the "food familiarity aspect", whether someone had consumed a food previously or preferred a familiar brand, was negatively associated with organic food purchasing.

Not only was the organic chocolate sample preferred significantly fewer times when its identity was unknown, but some consumers expressed negative perceptions about it being "lower quality", "not as tasty", and tasting "weird". However, for the most part, the attributes of the dark chocolate perceived as organic turned out to be the same

attributes associated with the preferred (conventional) sample, such as better taste, more chocolate flavor and smoother texture. That organic foods are perceived as tasting better fits with previous research (Lea & Worsley, 2005; Padel & Foster, 2005; Zhao, Chambers, Matta, Loughin, & Carey, 2007; *inter alios*).

Level of commitment to organic food was found to negatively affect preference for the conventional chocolate sample, as hypothesized. Compared to non-consumers of organic food, being a "less committed" consumer or a "more committed" consumer decreased the probability of preferring the conventional chocolate sample by 42% and 33%, respectively. Thus, regardless of frequency of chocolate consumption, participants who more regularly consume organic foods have a better appreciation for the way they taste.

Being a "sometimes" consumer of organic foods significantly decreased the probability of correctly identifying the organic chocolate sample by 38% compared to non-consumers of organic foods (controlling for chocolate consumption). This was not expected, as our hypothesis was that commitment to organic food would increase one's ability to identify the organic sample.

Length of time as an organic food consumer also had an impact on ability to correctly identify the organic sample; there was a slight trend for people who had been consuming organic foods for five or more years to be better able to do so, compared to those who had begun consuming organic foods recently (in the last two years). As frequency of chocolate consumption was controlled for, perhaps consumers who have more experience with buying organic food products are more familiar with their flavors/

textural characteristics, thus enhancing their ability to identify the organic chocolate sample.

Certain demographic variables were found to be highly correlated, such as level of commitment to organic food and location of most frequent grocery purchase, which was not surprising. Commitment level was also positively correlated with length of time as an organic food buyer. Furthermore, age was found to play a role in these relationships. Being 18-29 years of age was negatively correlated with a high commitment level to organic food, and conversely being 60 years or older was positively correlated with being both a "more committed" as well as a "seasoned" organic food buyer. Such correlations were not part of the original research objectives, and future research on these relationships is recommended.

The overall sample population for the sensory evaluation was 200, an adequate number for the survey analyses in Chapter 3. This population was further broken down according to food product to analyze the paired preference data (n=41 for the raisin, and n=47 for the dark chocolate evaluations), which provided adequate numbers for such analyses. However, further subdividing these populations to look for effects of commitment on preference yielded very small populations, thus future studies examining such effects in a larger consumer population are recommended.

4.5 Conclusion

This study adds to the limited sensory literature pertaining to processed organic food products. Both organic dark chocolate and raisins were perceived to have more flavor and other desirable taste and textural attributes than their conventional counterparts. However, organic raisins were not preferred over a conventional variety,

and organic dark chocolate was preferred significantly fewer times than conventional. Preference for the conventional chocolate was influenced by product familiarity, indicating that perhaps the average consumer is not familiar with organic chocolate and is thus less likely to prefer it. Commitment to organic food purchase significantly decreased preference for the conventional chocolate, as expected. There were also some negative perceptions related to the taste of organic dark chocolate, which were not expected.

Length of time as an organic food consumer had an effect on ability to correctly identify the organic dark chocolate, indicating that these consumers are likely more accustomed to the product characteristics of organic foods. However, these results were observed specific to organic dark chocolate and in a small sample of consumers (n<50), thus future research should explore relationships between commitment, preference and length of time as an organic food consumer in a larger sample population.

4.6 Tables

Table 4.1: Demographic description of raisin (n=41) and chocolate (n=47) paired preference sensory evaluation participants

		Raisins Percentage*	**Chocolate** Percentage*
Gender	Male	41	34
	Female	59	66
Age	18-29 yrs	34	49
	30-39 yrs	22	17
	40-49 yrs	7	11
	50-59 yrs	20	13
	60+ yrs	17	11
Education	Some high school	2	0
	High school graduate	5	15
	Some university or college	20	21
	College diploma/ degree	15	11
	University undergraduate degree	22	21
	Some post graduate university study	10	4
	Post graduate university degree (Master's or Ph.D)	27	28
Income	Less than $36,378	24	34
	$36,378 - $72,756	32	26
	$72,756 - $118,285	29	23
	More than $118,285	12	15
Location of most frequent grocery purchase			
	Supermarket	66	83
	Organic section of supermarket	27	15
	Organic grocery store	24	17
	Farmers' market	10	9
	Other	5	4
Frequency of organic food purchase**	Always	10	4
	Frequently	34	15
	Sometimes	41	47
	Rarely	15	26
	Never	0	9
When began purchasing organic food	This year	7	6
	1-2 yrs ago	20	32
	More than 2 but fewer than 5 years ago	34	38
	At least 5 but fewer than 10 years ago	22	2
	10 or more years ago	15	13
	n/a (never buy organic food)	0	9
Frequency of consumption of food evaluated			
	Several times/week	20	26
	Once/week	17	21
	Several times/month	41	21
	Once/month	22	32
	Never	22	6

* Total percentages may not add up to 100% due to rounding and missing data points
** For data analyses, "rarely" and "never" were combined as the "non-consumer" group, "sometimes" remained as "sometimes", and "frequently" and "always" were combined as the "more committed" group

Table 4.2: Consumer sensory evaluation paired preference results and sample identified as organic

	Chocolate (*n*=47)		**Raisins (*n*=41)**	
	Org*	**Conv***	**Org**	**Conv**
Sample preferred (*n*)	10 ($p<.001$)	37	21 ($p>.871$)	20
Sample identified as organic (*n*)	27	19	26	14

*org and conv represent organic and conventional, respectively

Table 4.3: Linear probability regression model results – effect of commitment and length of time as an organic food consumer on preference for organic dark chocolate and ability to correctly identify the organic dark chocolate sample (n=47)

	LPM1: preference for conventional sample	LPM2: ability to identify the organic sample	LPM3: ability to identify the organic sample
Independent variables	Coefficient (std error, p-value)	Coefficient (std error, p-value)	Coefficient (std error, p-value)
Commitment (base case = non-buyer of organic foods)			
Less committed	-.421 (.121, **.001**)	-.380 (.155, **.019**)	
More committed	-.330 (.156, **.040**)	-.012 (.206, .956)	
Began (base case = began buying organic foods recently)			
Experienced			.224 (.163, .179)
Seasoned			.403 (.226, **.083**)
Often consume (base case = consumes chocolate monthly)	.305 (.109, **.008**)	.237 (.141, **.101**)	.257 (.152, .099)
Model constant	.905 (.097, **.000**)	.488 (.124, **.000**)	.135 (.141, .345)
Model F statistic (p- value)	5.707 (**.002**)	3.216 (**.032**)	2.012 (.129)

Note1: coefficients are unstandardized

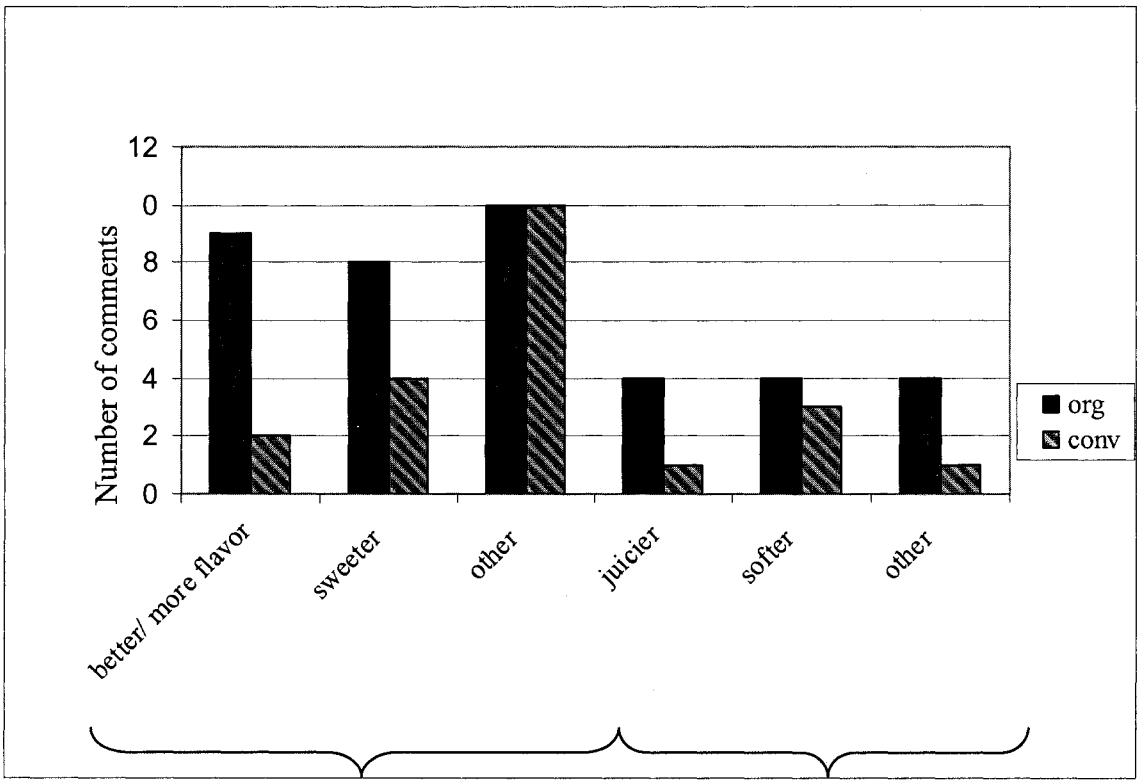
Table 4.4 Significant correlations between demographic variables for chocolate paired preference sensory evaluation participants (n=47)

	age "18-29"	age "60+"	"non-consumer"	"some-times"	"more committed"	"recently"	"exper-ienced"	"sea-soned"	OS. GS	OGS	FM
age "18-29"	1										
age "60+"	n/a	1									
"non-consumer"	.464(**)	-.248	1								
"sometimes"	-.151	-.047	n/a	1							
"more committed"	-.368(*)	.358(*)	n/a		1						
"recently"	.289	-.161	n/a	.263	-.321(*)	1					
"exper-ienced"	-.091	-.161	n/a	-.114	-.089	n/a	1				
"seasoned"	-.265	.430(**)	n/a	-.199	.547(**)	n/a	n/a	1			
OS. GS[1]	n/a	n/a	-.724(**)	.320(*)	.458(**)	-.198	.057	.191	1		
OGS[1]	n/a	n/a	-.592(**)	.047	.636(**)	-.418(**)	.166	.342(*)	n/a	1	
FM[1]	n/a	n/a	-.445(**)	.078	.427(**)	-.183	-.080	.345(*)	n/a	n/a	1

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

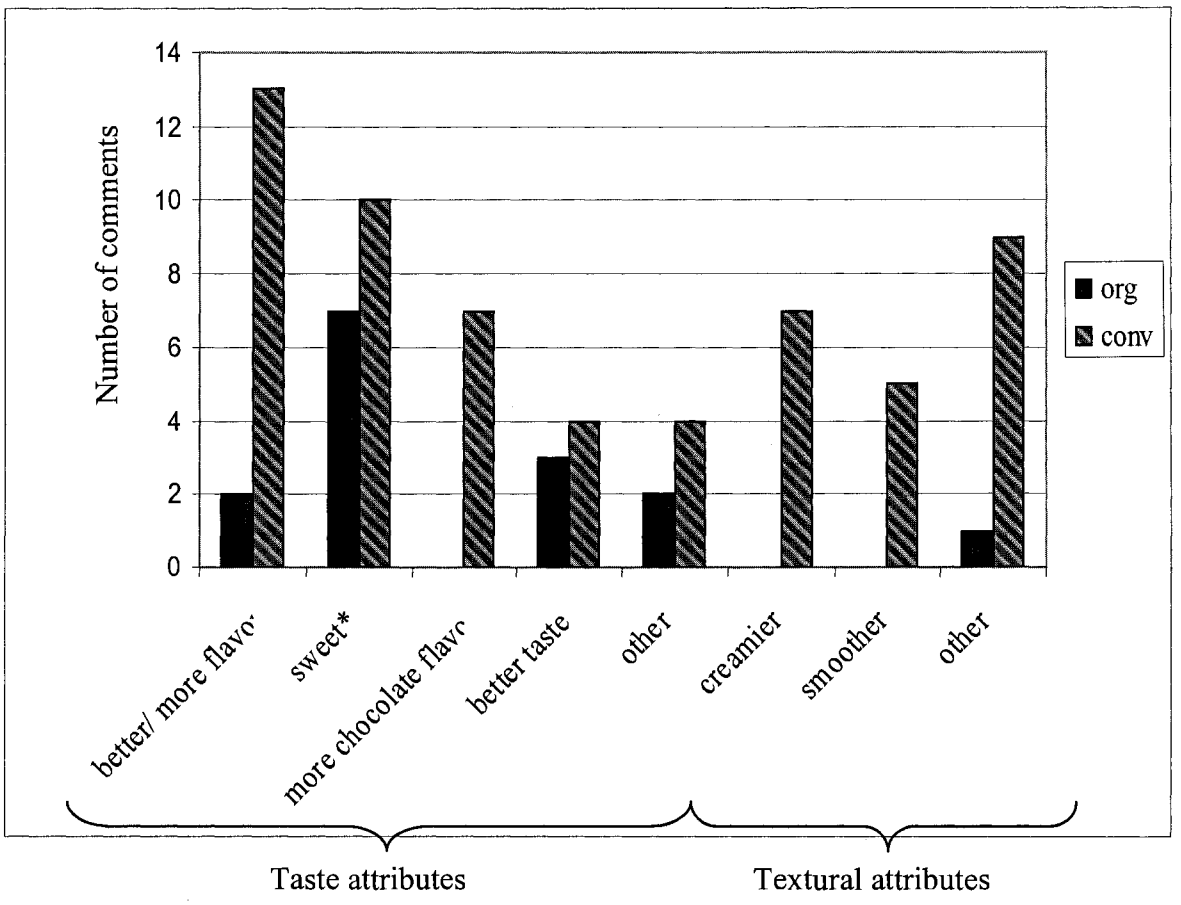
1. OS.GS, OGS, FM represent locations of most frequent grocery purchase (organic section of grocery store, organic grocery store and farmers' market, respectively)

4.7 Figures



org= organic, conv= conventional

Figure 4.1: Attributes of preferred raisin sample in a paired preference sensory evaluation with sample identity unknown ($n = 41$)



org= organic, conv= conventional
*sweet in relation to conv sample = sweeter, and org sample = less sweet

Figure 4.2: Attributes of preferred dark chocolate sample in a paired preference sensory evaluation with sample identity unknown ($n = 47$)

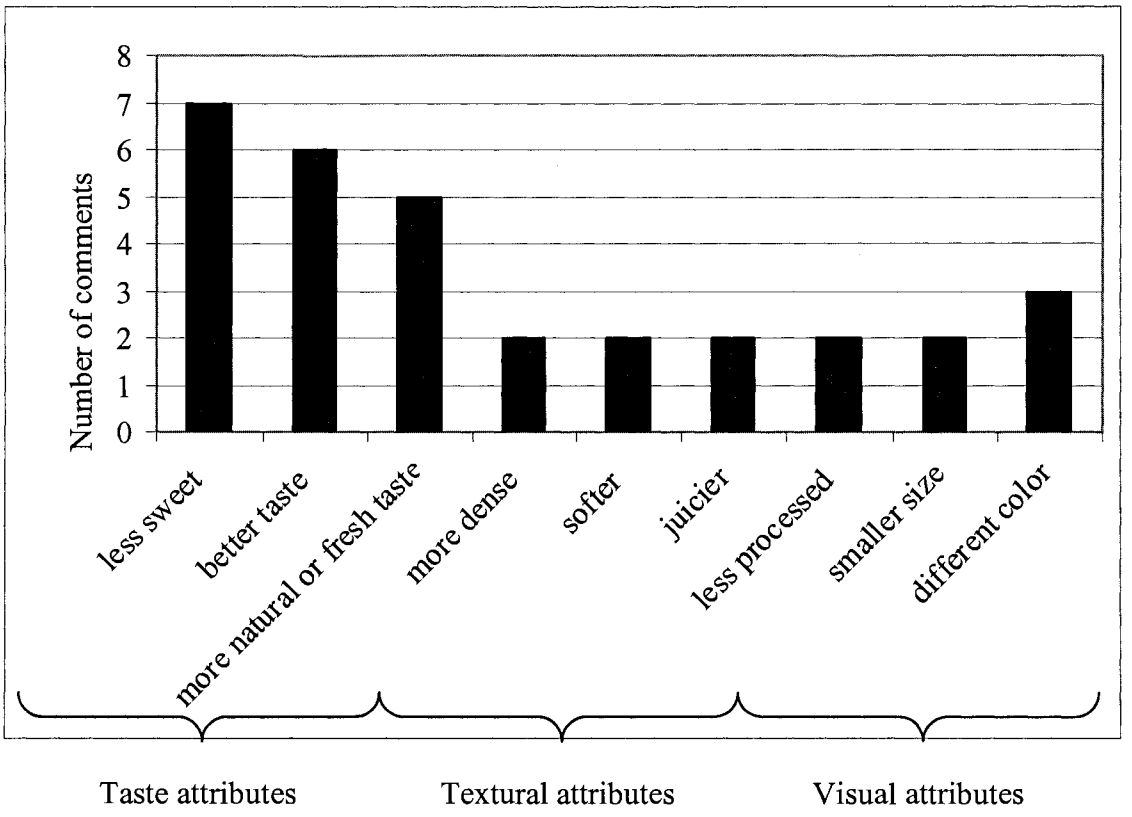


Figure 4.3: Most common perceptions about organic raisin attributes, regardless of ability to correctly identify the organic sample in a paired preference sensory evaluation

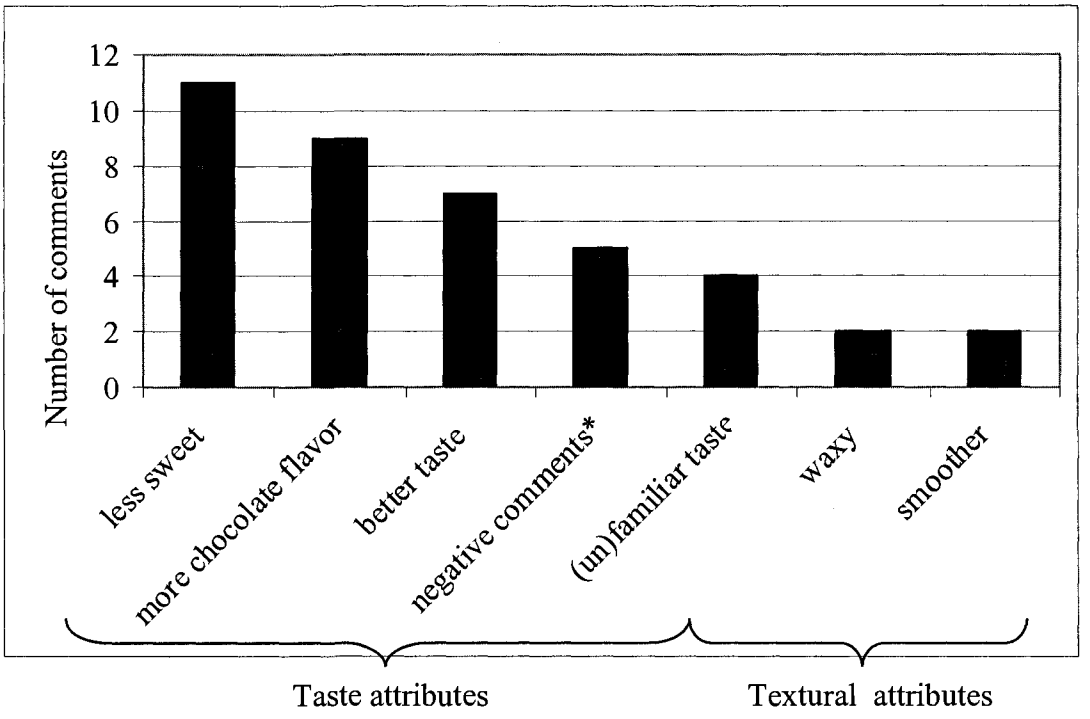


Figure 4.4: Most common perceptions about organic chocolate attributes, regardless of ability to correctly identify the organic sample in a paired preference sensory evaluation

4.8 References

Annett, L. E., Muralidharan, V., Boxall, P. C., Cash, S. B., & Wismer, W. V. (2008). Influence of health and environmental information on hedonic evaluation of organic and conventional bread. *Journal of Food Science, 73(4)*, H50-H57.

Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science and Nutrition, 42*(1), 1-34.

Chan, F. (2008). Values motivating the purchase of organic foods: A laddering analysis. Unpublished master's thesis, University of Alberta, Alberta, Canada.

Di Monaco, R., Cavella, S., Torrieri, E., & Masi, P. (2007). Consumer acceptability of vegetable soups. *Journal of Sensory Studies, 22*, 81-98.

Gifford, K., & Bernard, J. C. (2006). Influencing consumer purchase likelihood of organic food. *International Journal of Consumer Studies, 30*(2), 155-163.

Grunert, K. G. (2002). Current issues in the understanding of consumer food choice. *Trends in Food Science & Technology, 13*(8), 275-285.

Johansson, L., Haglund, Å, Berglund, L., Lea, P., & Risvik, E. (1999). Preference for tomatoes, affected by sensory attributes and information about growth conditions. *Food Quality and Preference, 10*(4-5), 289-298.

Lea, E., & Worsley, A. (2005). Australian consumers' food-related environmental beliefs and behaviours. *Appetite, 50*(2-3), 207-214.

Macey, A. (May 2007). *Retail sales of certified organic food products, in Canada, in 2006.* Nova Scotia, Canada: Organic Agriculture Centre of Canada (OACC).

Olivera, D. F., & Salvadori, V. O. (2006). Textural characterisation of lasagna made from organic whole wheat. *International Journal of Food Science & Technology, 41*, 63-69.

Onyango, B. M., Hallman, W. K., & Bellows, A. C. (2007). Purchasing organic food in US food systems. *British Food Journal, 109*(5), 399-411.

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal, 107*(8), 606-625.

Poste, L. M., Mackie, D. A., Butler, G., & Larmond, E. (1991). *Lab methods for sensory analysis of food* (No. 1864/E). Ottawa, Ontario: Canadian Communication Group Publishing Center.

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *Amer. J. Agr. Econ., 80*, 277-287.

Yiridoe, E. K., Bonti-Ankomah, S., & Martin, R. C. (2005). Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature. *Renewable Agriculture and Food Systems, 20*(4), 193-205.

Zhao, X., Chambers, E., Matta, Z., Loughin, T. M., & Carey, E. E. (2007). Consumer sensory analysis of organically and conventionally grown vegetables. *Journal of Food Science, 72*(2), S87-S91.

Chapter 5: Summaries, conclusions and future recommendations

5.1 Summaries

Sales of organic food in Canada are growing (Gnirss, 2006), and the majority of Canadian consumers currently purchase some organic food products (Cunningham, 2007). Most supermarkets now offer both conventional and organic products, leaving consumers to choose which organic food products to purchase. Health and environment values have been linked with organic food purchase by Makatouni (2004), Padel and Foster (2005), Shepherd, Magnusson, and Sjödén (2005), as have certain beliefs such as better taste and health and environmental benefits (Lea & Worsley, 2005; Padel & Foster, 2005; Zhao, Chambers, Matta, Loughin, & Carey, 2007; *inter alios*). Other factors are also known to be involved in organic food choice, such as sensory characteristics of the food, price and availability of the food, and certain consumer demographics (for example, Lea & Worsley, 2005; Padel & Foster, 2005; Thompson & Kidwell, 1998). Furthermore, different types of organic food consumers exist, depending on how committed they are to purchasing organic foods (Molyneaux, 2007; Padel & Foster, 2005).

The present research took a unique approach to investigating organic food consumers and their food choice behaviors. A qualitative technique was used to study the decision making process associated with choosing an organic food product, the elements of which were further used to differentiate between consumers of two different commitment levels to organic food. Preference and perceptions towards two organic processed food items were also assessed.

5.1.1 Chapter 2: Opting for organic foods: A model of organic food product choice

An organic food choice model was developed, based on the grounded theory analysis of interviews with non-committed organic food consumers (those who buy both organic and non-organic food products). The major categories, or factors, involved in food choice were identified as price, availability, taste, concern for health, concern for environment, and outside influence. The process began with a consumer considering the purchase of an organic food product. Awareness, interest and curiosity related to the product led to its intended purchase in stage I. Benefits and trade-offs associated with the food were weighed in stage II, wherein the major factors played a central role. If the benefits were considered to outweigh the trade-offs the decision was made to try the product. Future purchase of the organic food product was dependant on its sensory characteristics, salient credence attributes, and external factors such as price and availability. This study contributed to the literature on organic food consumers and more broadly to the food choice literature.

5.1.2 Chapter 3: A comparison of organic food consumers of different commitment levels

Six major factors implicated in the organic food choice process, as determined in Chapter 2, were used to compare the food choice behaviors of two groups of consumers with different levels of commitment to organic food. A questionnaire was developed and administered to a population of organic food consumers of varying levels of commitment. More committed consumers were less deterred by expensive prices, and also ranked price as one of their lowest considerations when buying organic foods. Health and environment were their top two considerations, and they tended to agree more about buying organic foods based on taste, health and environmental benefits. These consumers were also more

affected by availability of organic foods, and reported being more likely to buy more organic food products if availability were to increase. Health, price and taste were the top considerations for less committed consumers when buying organic foods. These consumers bought organic food products significantly less often, perhaps because price was a hindering factor or because they do not often buy organic foods out of curiosity. This study contributed to research like that of Molyneaux (2007) and Padel and Foster (2005) which describes groups of organic food consumers in terms of purchase regularity and associated consumer profiles.

5.1.3 Chapter 4: Consumer sensory evaluation of organic and conventional raisins and dark chocolate: paired preference and perceptions

Few sensory evaluations have focused on processed organic food products. Several of these types of products were mentioned during grounded theory interviews, including the two products that were selected for a paired preference test; dark chocolate and raisins. Both organic dark chocolate and raisins were perceived to have more flavor and other desirable taste and textural attributes than their conventional counterparts. However, organic raisins were not preferred over a conventional variety, and organic dark chocolate was preferred significantly fewer times than conventional. Commitment to organic food purchase significantly increased preference for the organic dark chocolate, however a "sometimes" level of commitment was found to significantly decrease ability to correctly identify the organic sample, which warrants further investigation. This study contributed to the literature on processed organic foods, and more broadly to the sensory literature comparing organic and conventional foods.

5.2 Conclusions and future recommendations

Future research with organic food consumers could focus on modeling the process of becoming an organic food consumer. This process was identified in Chapter 2, but set aside due to time constraints. Grounded theory proved a successful method for describing the organic food choice process and is recommended for future qualitative consumer research.

The six main factors identified in Chapter 2 adequately differentiated among two groups of organic food consumers, which was the main research goal in Chapter 3. However, these are not the only factors involved in organic food choice. Production information, non-taste sensory attributes, and confusion about organic food products were the most commonly mentioned factors taken into consideration when buying organic foods in addition to the six listed in the questionnaire. As these were also identified as minor findings in the grounded theory, more interviews are recommended to build on the food choice model. This is considered an acceptable practice, as a grounded theory is "destined to last despite its inevitable modification and reformulation" (Glaser & Strauss, 1967 p.4).

Another interesting finding arising from the studies described in Chapters 2 and 3 was the preference for local foods rather than organic foods. It was noted in the grounded theory study that consumers considered local and Canadian produced foods as substitutes for organic foods from an environmental standpoint. However, when consumers were asked on the questionnaire if a local non-organic food would be preferred over an imported organic food, there was a trend for more committed organic food consumers to prefer the imported organic food. This was an unexpected finding which warrants further

investigation, especially in light of current discussions in the media and scientific community about the cost of importing of organic foods in relation to carbon footprints and environmental impacts.

Researchers such as Bourn and Prescott (2002) have called for more studies comparing the sensory quality of organic versus conventional foods. The two products selected for the paired preference tests were based on their frequent mention during grounded theory interviews coupled with a desire to further investigate preference for processed organic food products. Future work could focus on other processed organic food items, as well as looking into the effects of commitment level on food preference in a larger population of consumers. Correlations between age, commitment level, and length of time as an organic food buyer were also observed, and warrant further investigation as well.

5.3 References

Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science & Nutrition, 42*(1), 1-34.

Cunningham, R. (June 2007). *Farm to fork: Organics in Alberta*. Alberta, Canada: Alberta Agriculture, Food and Rural Development.

Fotopoulos, C., & Krystallis, A. (2002). Organic product avoidance: Reasons for rejection and potential buyers' identification in a countrywide survey. *British Food Journal, 104*(3/4/5), 233-260.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory analysis: Strategies for qualitative research*. Chicago, IL: Aldine.

Gnirss, G. (2006). Natural selection. *Food in Canada, 66*(8), 20.

Lea, E., & Worsley, A. (2005). Australian consumers' food-related environmental beliefs and behaviours. *Appetite, 50*(2-3), 207-214.

Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal, 104*(3/4/5), 345-352.

Molyneaux, M. (2007). The changing face of organic consumers. *Food Technology, 61*(11), 22-26.

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour. *British Food Journal, 107*(8), 606-625.

Shepherd, R., Magnusson, M., & Sjödén, P. (2005). Determinants of consumer behavior related to organic foods. *Ambio, 34*(4/5), 352-359.

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *Amer. J. Agr. Econ., 80*, 277-287.

Zhao, X., Chambers, E., Matta, Z., Loughin, T. M., & Carey, E. E. (2007). Consumer sensory analysis of organically and conventionally grown vegetables. *Journal of Food Science, 72*(2), S87-S91.

Appendix 1: Semi-structured grounded theory interview guide

Main Question:

- Can you describe for me the last time you went to buy groceries, in particular what did you buy in terms of organic foods? (probe for product characteristics, store name and location)

Sub Questions:

- Did you purchase any non-organic foods? (probe for why they chose those vs. organic alternatives)
- Did you shop with a list or an idea of what you were looking for?
- Did you purchase anything organic that you didn't initially plan on?
- Did you visit the organic section near the beginning or near the end of your shopping trip?
- Was what you just described for me a typical food shopping experience? If no, what was different? What do you buy on a typical shopping trip?
- Can you remember approximately when you started purchasing organic foods?
- What would an "ideal" shopping experience include for you, in terms of organic products?

Please note that due to the nature of semi-structured interviews and of grounded theory, questions are subject to change. As interviews begin to reveal concepts during analysis, subsequent interview questions will be tailored to further investigate such concepts, on the road to developing theory.

Appendix 2: Grounded theory interview demographic questionnaire

Information about Yourself Participant # _____

1. Please indicate your gender:
   - ❒ Male
   - ❒ Female

2. Please indicate the age group that you belong to:
   - ❒ 18-29 years
   - ❒ 30-39 years
   - ❒ 40-49 years
   - ❒ 50-59 years
   - ❒ 60-69 years
   - ❒ 70 years plus

3. Where do you normally purchase your **grocery items**? (please circle the number that best represents your purchasing habits)

	Most Often	Sometimes	Rarely	Never
Supermarkets (ie, Save-On, Safeway, Superstore)	1	2	3	4
Organic section in Supermarket (ie, Save-On)	1	2	3	4
Organic Grocery Stores (ie, Planet Organic)	1	2	3	4
Farmers' Markets	1	2	3	4
Wholesalers (ie, Costco)	1	2	3	4
Other: (please specify)	1	2	3	4

4. How often do you purchase **organic foods**?
   - ❒ I only buy organic foods
   - ❒ I frequently buy organic foods
   - ❒ I sometimes buy organic foods
   - ❒ I rarely buy organic foods
   - ❒ I never buy organic foods

5. Please indicate the level of education that corresponds to what you have completed:
   - ❒ Some high school
   - ❒ High school graduate
   - ❒ Some university or college
   - ❒ College diploma/ degree
   - ❒ University undergraduate degree
   - ❒ Some post graduate university study
   - ❒ Post graduate university degree (Master's or Ph.D.)

6. Please indicate the range that represents your household income level in the year 2006, before taxes:
   - ❒ Less than $36,378
   - ❒ $36,378 - $72,756
   - ❒ $72,756 - $118,285
   - ❒ More than $118,285

Appendix 3: Consumer sensory evaluation demographic questionnaire

Participant # _____

Please take a few moments to answer some questions about yourself.

1. Please indicate your gender:
- ❒ Male
- ❒ Female

2. Please indicate the age group that you belong to:
- ❒ 18 – 29 years
- ❒ 30 – 39 yrs
- ❒ 40 – 49 yrs
- ❒ 50 – 59 yrs
- ❒ 60 – 69 + yrs

3. Where do you normally purchase your **grocery items**? (please circle the number that best represents your purchasing habits)

	Most Often	Sometimes	Rarely	Never
Supermarkets (ie, Save-On, Safeway, Superstore)	1	2	3	4
Organic section in Supermarket (ie, Save-On, Safeway, Superstore)	1	2	3	4
Organic Grocery Stores (ie, Planet Organic, Organic Roots)	1	2	3	4
Farmers' Markets	1	2	3	4
Other: (please specify)	1	2	3	4

4. How often do you purchase **organic foods**?
- ❒ I only buy organic foods
- ❒ I frequently buy organic foods
- ❒ I sometimes buy organic foods
- ❒ I rarely buy organic foods
- ❒ I never buy organic foods

5. When did you **first** start buying organic foods?
- ❒ This year
- ❒ 1 – 2 years ago
- ❒ More than 2 but fewer than 5 years ago
- ❒ At least 5 but fewer than 10 years ago
- ❒ 10 or more years ago

6. Please indicate the level of education that corresponds to what you have completed:

- ❒ Some high school
- ❒ High school graduate
- ❒ Some university or college
- ❒ College diploma/ degree
- ❒ University undergraduate degree
- ❒ Some post graduate university study
- ❒ Post graduate university degree (Master's or Ph.D.)

7. Please indicate the range that represents your household income level in the year 2007, before taxes:

- ❒ Less than $36,378
- ❒ $36,378 - $72,756
- ❒ $72,756 - $118,285
- ❒ More than $118,285

Appendix 4: Consumer organic food choice questionnaire

Participant # _____

I. In general, how often do you ...

	Almost never	Some-times	Often	Almost Always
buy an organic food product based on something you heard from a friend or family member or read in the media				
buy an organic food product because it was on sale				
not buy an organic food product because it was too expensive				
buy a non-organic food product because the organic version wasn't available				
buy an organic food product based on how it would taste				
not buy an organic food product because you or someone in your family/ household disliked it the last time you bought it				
buy an organic food product because you were thinking about the benefits to your health				
buy an organic food product because you were thinking about the benefits to the environment				
buy an organic food product for someone else because you knew they liked it				
buy a new kind of organic food product because you were curious about it				

II. In general, how often do you buy the following organic food products ...

	Almost never	Some-times	Often	Almost Always
Organic meat				
Organic meat substitutes (e.g. tofu)				
Organic juices				
Organic milk				
Organic yogurt				
Organic cereal				
Organic peanut butter				
Organic bananas				
Organic apples				
Organic carrots				
Organic oranges				

III. For the next 4 questions please select the ONE answer that best reflects what you would do in these situations

1. If an organic food that I normally buy **on a regular basis** was unavailable at my store of choice, I would…

□	Go to another store to look for it
□	Purchase another (similar) organic product
□	Purchase the non-organic version of the product
□	Wait to purchase the organic product another time

2. If organic food was **more readily available**, I …

□	Would buy as many organic food products as I could
□	Would buy more organic food products than I do now
□	Would not change what I do now

3. If organic food **prices** were similar to non-organic prices, I …

□	Would buy as many organic food products as I could
□	Would buy more organic food products than I do now
□	Would not change what I do now

4. Everything else being equal, I would prefer to buy…

□	Imported certified organic foods
□	Local or Canadian non-organic foods

IV. In the following section, please give your opinion about your organic food buying

5. I buy organic foods because …

		Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
a)	They taste better than non-organic foods	□	□	□	□	□
b)	They are healthier than non-organic foods	□	□	□	□	□
c)	They are better for the environment	□	□	□	□	□
d)	I heard or read something about their benefits (for my health, for the environment)	□	□	□	□	□
e)	They are priced similar to non-organic foods	□	□	□	□	□
f)	They are readily available at the store where I buy groceries	□	□	□	□	□

In the table below, please order the items **(when considering the purchase of organic foods)** from **1 for most important** to you to **6 for least important** to you.

What do you consider most important?	**Number (1- 6)**
How available it is	
How much it costs	
How it tastes	
What I've heard from family, friends, media	
The environment	
My health	

Is there anything else you consider when purchasing organic food that was not listed in the above table?

_____.

Thank you for completing this questionnaire!

Appendix 5: Consumer sensory evaluation forms

Participant # _____

Paired Preference: Consumer Panel Sensory Evaluation of Chocolate

1. How frequently do you consume dark chocolate?

   ❒ Several times per week
   ❒ Once per week
   ❒ Several times per month
   ❒ Once per month
   ❒ Never

2. Taste the product on the left first, and then the product on the right second.

   Now that you've tasted both products, which one do you prefer?

   Please check the box that corresponds to the sample:

   ❒ ❒

   _____ _____

3. Why did you prefer this sample?

   _____
   _____
   _____

4. One of the products you tasted was organic, which one do you think it was?

   Please write the sample number: _____

5. Why do you think this sample was organic?

   _____
   _____
   _____

Thank you!

Participant # _____

Paired Preference: Consumer Panel Sensory Evaluation of Raisins

6. How frequently do you consume raisins?

   ❒ Several times per week
   ❒ Once per week
   ❒ Several times per month
   ❒ Once per month
   ❒ Never

7. Taste the product on the left first, and then the product on the right second.

   Now that you've tasted both products, which one do you prefer?

   Please check the box that corresponds to the sample:

   ❒ _____ ❒ _____

8. Why did you prefer this sample?

   _____
   _____
   _____

9. One of the products you tasted was organic, which one do you think it was?

   Please write the sample number: _____

10. Why do you think this sample was organic?

    _____
    _____
    _____

Thank you!