RURAL ECONOMY

**Consumer Awareness of and Preferences for
Bio-active Lipid Enhanced Beef**

Sean B. Cash, JoAnn Kingston-Riechers, Yanning Peng,
Diane McCann-Hiltz, Yulian Ding, and Wendy Beaunom

Project Report 07-05

Project Report

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Acknowledgements

Abstract

This study investigates consumer attitudes toward functional foods in the context of CLA-enhanced beef products. The objectives of this study were to identify the following issues: 1) consumer awareness and attitudes towards nutrition, functional foods, and other emerging factors; 2) consumers´ major health concerns; 3) consumers´ beef consumption patterns; 4) the importance of health information and food labeling in affecting consumer purchasing decisions; 5) consumer attitudes, acceptance, and willingness to pay for CLA-enriched beef products; 6) and consumers´ demographic information.

"Choice experiment" survey design methodology was used to collect the data. Choice experiments have become an important and recognized tool in marketing and non-market valuation research, and have several advantages over other research designs. The main advantage of choice experimentation is that it allows the analyst to separately identify the value of an individual attribute of a good. In this study, we utilized several small touch-screen computers that allowed us to bring our computer-based choice experiment study to eight supermarkets in four cities across Canada. 800 self-identified beef consumers participated in the survey.

Key results include the following: i) Consumers think that food choices are important for preventing chronic disease and they are least concerned about the use of functional foods for disease prevention or health promotion; ii) The awareness of CLA is relatively low compared to Omega-3 and other nutrients and fats in foods; iii) In relation to meat with regular CLA content, respondents would pay \$2.51/kg more and \$2.74/kg more for meat with a CLA enhanced label and a CLA enriched label, respectively; iv) In comparison to all other respondents, respondents in Quebec appear to be willing to pay a higher a premium for meat with CLA enhanced or enriched labels; v) The consumer target segment for CLA enriched beef products can be characterized as health conscious consumers who are already familiar with CLA.

JEL Codes: D12, I12, Q11

Key words: Consumer behavior, demand for novel food, functional foods

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Objectives

The purpose of this research is to identify consumer nutritional needs, attitudes towards and acceptance of beef products enriched with bio-active lipids. To achieve this, the specific objectives are to investigate: (1) consumer awareness and attitudes towards nutrition, functional foods and other emerging factors; (2) the importance of health knowledge, health claims and food labeling in affecting consumer purchasing decisions; (3) consumers' major health concerns; (4) beef consumption patterns; (5) consumer attitudes, acceptance and willingness to pay (WTP) for conjugated linoleic acid (CLA) enriched beef and meat products; and (6) consumers' demographic profiles.

Introduction

CLA is an important health promoting component of both dairy and beef products. In order to successfully develop and commercialize beef products enriched with CLA, it is necessary to identify consumer needs, attitudes towards and acceptance of the new products. The development of value-added, function-oriented meat products is both important and strategic for Alberta and Canada's livestock industry in order to sustain, grow, and compete in the global market. The information from this report will be useful in determining the future direction of the private and public investments in the development, promotion, and use of functional beef products. It will be also useful to develop educational and promotional strategies to support the functional beef industry in Alberta. Given the recent BSE crisis, Canada needs both to absorb more beef domestically and to expand its global market. This requires a greater understanding of consumer acceptance towards functional beef products, such as CLA enriched beef. This research is funded by Alberta Livestock Industry Development Fund, Alberta

Agricultural Research Institute, Alberta Agriculture and Food, and the Beef Information Centre.

The Survey Design

The survey questions for this research were designed by Sean Cash, Yulian Ding, and Wendy Beaunom (University of Alberta), in consultation with Yanning Peng (Alberta Agriculture and Food) and Lisa Mina and Cynthia Cousins (Beef Information Center). After the survey questions were designed, three focus groups were conducted on the University of Alberta Campus in August 2005. The main purpose of the focus groups was to inform and validate the design of the consumer survey to be administered in 2006. Once the questions were refined, the survey was pre-tested with shoppers at three supermarkets in Edmonton. Thereafter, some revisions were made to the survey and it was administered in supermarkets in Calgary, Vancouver, Toronto, and Québec[1].

Focus Group Results

Three focus groups were held on the University of Alberta campus. The first two focus groups (held on August 10, 2005 and August 17, 2005) were comprised solely of students. The final focus group (held on August 24, 2005) was comprised of members of a community consumer group recruited through Alberta Agriculture and Food. In total, 32 people participated in the focus groups.

The main purpose of the focus groups was to inform and validate the design of the consumer acceptance study to be administered in 2006. In addition to feedback that was

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[1] Vancouver includes supermarkets in White Rock and Burnaby and Toronto includes supermarkets in Toronto and Markham.

specific to survey design, many other points of general interest arose. Three of the comments are outlined below.

First, the majority of participants were not familiar with CLA. Even participants who had heard of CLA were not able to describe its function before being presented with that information. In particular, there is an obvious lack of knowledge as to the nature of CLA, the source of CLA enrichment, and how CLA is incorporated into the meat.

Second, focus group participants expressed relatively high levels of confidence in government information sources.   With regards to health claims on novel food products, the participants seemed to put the most trust in government and non-profit organizations and families and friends, while universities enjoyed less trust. Private organizations were the least trusted (not trusted).

Finally, focus group participants generally favoured stringent regulation of food health claims. Most participants expressed the belief that these regulations should remain stringent for their protection since food safety is a priority for them. Rigidity of the regulatory system is required in order to maintain the credibility of these health claims. From a marketing point of view, these comments imply that a product that receives Health Canada approval will have a competitive edge as an enhanced product.

Pre-Tests

The survey was pre-tested in spring 2006 at Save On Foods in St. Albert and Edmonton (34th Avenue) and Sunterra (Lendrum) in Edmonton. The surveys were completed by 115 respondents. The purpose of the pre-test was to determine respondents understanding of the questions, the appropriate number of questions, the length of time to complete the survey, and the appropriate compensation for participants. As a result of the pre-tests, it was determined that the survey was too long and consequently some questions were eliminated. Questions that were omitted included those that queried respondents about their level of concern about getting enough specific fats (i.e. omega-3 fatty acid, saturated fat, etc) and their preference for getting calcium, omega-3 fatty acid or CLA from food or supplements. Questions about preference for various ground beef attributes, such as color and fat content, were also omitted. During the preliminary tests, $5 gift certificates were offered to participants to compensate them for their time. However, the researchers found that $5 was generally not adequate to encourage

participation from a representative group of shoppers. Therefore, the value of the certificates was increased to $10 each.

Data Collection Methodology

The final English language survey was completed in August 2006 in Calgary, Alberta; White Rock and Burnaby, British Columbia; and Toronto and Markham, Ontario. The French language survey was completed in November 2006 in Ste-Foy and Québec City, Québec. In each province, data was collected at two types of stores - specialty stores (Sunterra in Calgary, Choices Market in White Rock, Reither's Fine Foods in Toronto and Les Aliments de Santé Laurier in Ste-Foy) and chain stores (Calgary Co-op in Calgary, IGA in Burnaby and Markham, and Métro GP Plus in Québec).

Numerous supermarkets in each jurisdiction were invited to participate in the research. The contacts with the local stores managers or head offices were made through cold calls and work related contacts. If some interest was expressed, the manager/head office was provided with an overview of the research and information about the data collection process. The benefits to the store included: i) $10 gift certificate purchased from the store were given to each volunteer who completed a survey, ii) refreshments purchased from the store were offered to participants while they completed the survey, and iii) a summary of the survey responses from that particular store will be sent to the store. Permission to administer the survey was granted by either the local store manager or the head office before the survey was administered.

Two enumerators recruited participants via intercept survey in supermarkets. The enumerators recruited and administered the survey for about eight hours in each store. Posters advertising the survey were hung at the store. In addition, store personnel made customers aware of the research as they entered the store. An enumerator would then ask

the customer if they were over the age of 18 and, if they were, if they would like to participate in the survey with the following verbal script[2]:

Hello, we are from the University of Alberta and Alberta Agriculture and we are conducting a survey about consumer feelings towards beef. It takes about 20 minutes to complete the survey and you will receive a $10 gift certificate for your grocery purchases. Would you like to participate?

If the customer responded negatively, they were thanked for their time and the interview was terminated. Customers who were interested, but did not have time to complete the survey in-store, were given the address of the web-based survey and were invited to complete it at their leisure. These respondents received $10 gift certificates for that particular store.[3] The enumerators did not pressure customers to complete the survey.

If the customer responded positively, the interviewer sat the individual at an available "clamshell" computer (described below) and asked that they read the information sheet before beginning the survey. Participants were encouraged to take the information sheet with them. The enumerator showed them how to use the clamshells, and offered them refreshments to enjoy while completing the survey. The enumerator also offered to answer any questions the participants had about the survey or the clamshells.

Six clamshells were available for respondents to use at each supermarket. A picture of a clamshell computer can be found in Figure 1 below.

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[2] In Quebec, a French translation of this script was read.

[3] On-line respondents were mailed a $10 gift certificate if they provided an appropriate address.

Figure 1: Clamshell Laptop

These are small touch-screen computing devices that are highly portable and easy to use. Completing the surveys on the clamshells is an innovative data collection method in consumer research. To our knowledge, no other research has employed this technique to record survey data. Clamshells have many advantages over regular sized laptops and paper surveys. They are easy to transport and, because they are touch screen, most respondents are able to use them immediately without trouble. Furthermore, they completely eliminate the need for researchers to enter data, which is the case for paper surveys. While computer-based surveys are common, the use of the clamshell computers allows for such surveys to easily be brought to almost any location, as the equipment can be transported by a single person and no special facilities are needed at the interview site. The clamshells were purchased with a grant received by Vic Adamowicz (Department of Rural Economy, University of Alberta) from the Canada Foundation for Innovation.

Respondents completed the surveys at their own pace. Most participants finished within 20 minutes. Most respondents found the touch screen laptops fun and easy to use. If a respondent had any problems using the laptop, an enumerator provided assistance. Once their survey was completed, the enumerators thanked the respondents for their time and gave them a $10 gift certificate.

Many of the respondents made positive comments about the survey design and wanted to learn more about CLA. If they wanted more information about conjugated linoleic acid, they were given a CLA Network brochure.

Survey Format

Respondents were queried on the topics of general food consumption (i.e. importance of price, taste, etc), health concerns (level of concern about being diagnosed with specific diseases, etc), beef purchases (i.e. frequency of beef purchases, etc), sources of information, and labelling. Socio-economic data on gender; age; if applicable, age of children in the household; level of education; employment status and, if applicable, area of employment; and household income also were collected.[4]

Respondents were also given some general information about conjugated linoleic acid including sources and possible health benefits. For example, some respondents were told that "Conjugated linoleic acid (CLA) is formed naturally in ruminant animals, such as cattle. Some studies indicate that CLA may aid weight loss and alter body composition (i.e. change the muscle to fat ratio) as well as fight cancer and improve the immune system."

Respondents were presented with a series of eight purchase options or choice experiments for ground beef. Prior to the purchase options, or choice experiments, respondents were provided with information about these types of questions. They were asked to indicate what they would do if these products were available in the store, at the described prices. They were encouraged to respond to each question as if they actually had to pay for the described products. It was also stated in the information that some of

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[4] The complete survey can be found in Appendix 1

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the options may seem counter-intuitive.[5] Respondents were assured this was not an error, but part of the survey design.

Choice experimentation is a technique that can be used to estimate the values that people place on individual attributes. Choice experiments attempt to identify the utility that individuals derive from commodity attributes. This is done by examining the trade-offs individuals weigh when making choice decisions. The particular attributes or features of ground beef that were being examined in the choice experiments were price, fat content, colour and CLA content. In each choice experiment, respondents could choose between two ground beef options (A and B) or alternative C "buy none of these". For an example of one of the choice experiments, see Table 1. Respondents could choose only one option in each of the eight scenarios.

Table 1: Example of a Choice Experiment Scenario

FEATURES	*Option A*	*Option B*	*Option C*
Fat Level	Regular	Lean	
CLA Content	No Label (regular content)	CLA Enhanced	Buy none of these
Price ($/kg)	10.37	4.39	
Colour	Bright Red	Dark Red	

Data Analysis

The final sample consists of responses from 800 individuals. The sample includes 249 responses from Calgary, 237 responses from Burnaby and White Rock, 145 responses from Toronto and Markham and 166 responses from Québec City. Included in the sample are 23 on-line responses. Due to non-responses, the sample size sometimes varies from 800. The adjusted sample size is noted when applicable.

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[5] For example, one of the options might have a lower price but a preferred combination of features.

Most of the results are presented as percentage scores. Results are shown by city where there are statistically significant differences (p = 0.05); otherwise they are presented as aggregate data. Some of the attitudinal questions are analyzed by demographics and socio-economic characteristics of the respondents. Again, if there is a significant statistical difference between demographic categories, the responses from each demographic category are presented. For example, if there is a significant difference in responses between age groups, the responses by age group will be presented.

Where appropriate, a comparison between the results of the current research and those of the 2004 CLA Fortified Milk Concept Study[6] is made.

The rest of this paper is composed of eight sections. The first six sections present the data and highlight any significant differences by socio-economic status and/or by survey location. The seventh section presents multivariate analyses of the choices made by the respondents. The last section concludes. Specifically, the seven sections are as follows: 1) Respondent Profile; 2) Food Consumption; 3) Health Concerns; 4) Beef Consumption; 5) Consumer awareness and attitudes toward CLA; 6) Sources of Information; and 7) Labelling. We will then discuss respondent decision making; and finally, implications and conclusions.

1. Respondent Profile

In this section, we present a demographic breakdown of the respondents and their households. More detailed information by location can be found in Appendix 2. The total sample includes the three online responses that did not identify in which city they live; therefore, the total sample size for the respondent profile is 800. The sample size for some of the results reported below may not sum to exactly 800 due to non-response to

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[6] CLA Fortified Milk Concept Study: A Report for Alberta Agriculture, Food and Rural Development Prepared by CIS Research Center April 2004

individual questions; where relevant, the effective sample size is specified for each question. Chi square tests were performed on each demographic variable for each city (n=800). A significant difference in the respondent's age (p-value = 0.00), level of education (p-value = 0.000), and household income (p= 0.011) was found between the cities.

Household Income

Respondents were asked for their total household income before taxes. The median household income for the total sample is between $50,000 and $59,999 (n=795). Figure 2 shows the distribution of income by city.
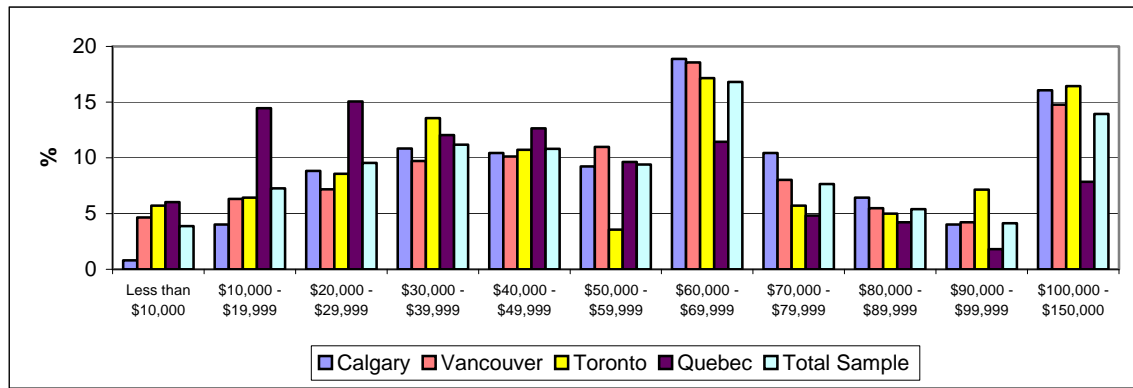
Figure 2: Total Household Income before Taxes

Age

The median age of the respondents was 45-54 years. A significant difference in the respondent's age across cities (p-value = 0.00) was found.

Figure 3 shows the distribution of respondent's age by city. Compared to the other cities, a larger percentage of the respondents were between 45-54 years old and over the age of 65 in Vancouver and Toronto, respectively.
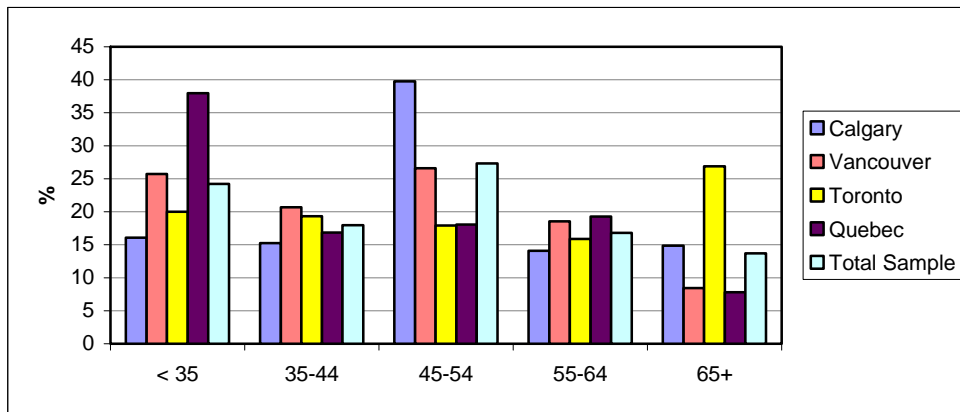
Figure 3: Age of Respondents

Gender

Males composed 39 % of the total sample; females, 61%.
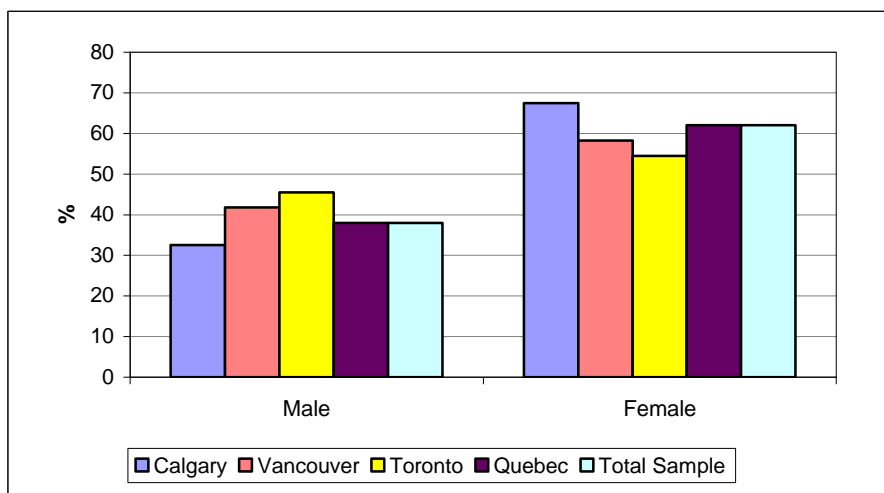
Figure 4: Gender of Respondents by City

Education

Respondents were asked to identify the highest level of education they had completed. The majority of respondents were high school graduates. There was a significant difference in the respondent's level of education (p-value = 0.000) among the cities. Figure 5 shows the distribution of the respondents' education level by city.
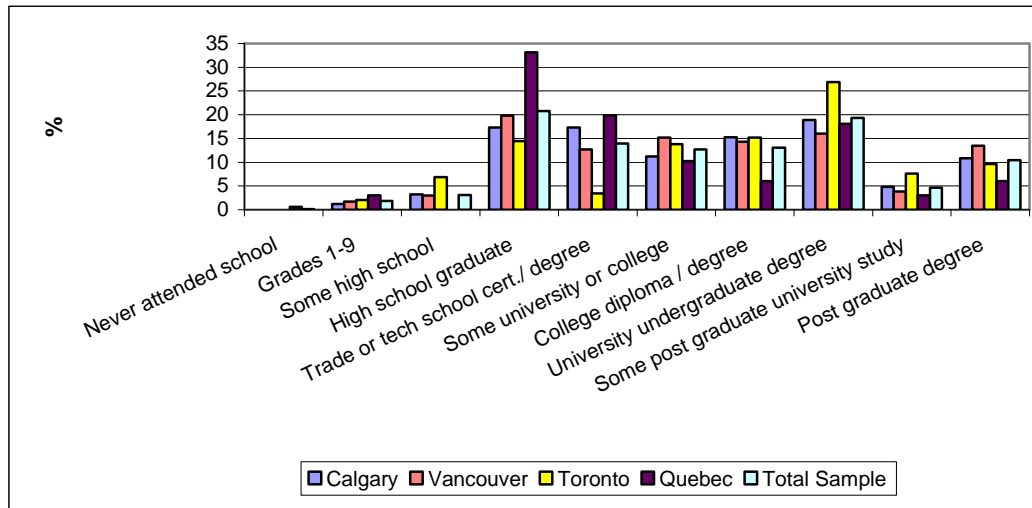
Figure 5: Education Attainment by City

More respondents in Calgary and Vancouver have trade or technology school certificates/degrees while more respondents in Toronto have a university degree.

Children in the household

Respondents were asked if they had any children in their household. About one third of the respondents indicated that they did. These respondents were asked the number of children they had between the ages of one and four, five and eleven and twelve and seventeen. About 52 % of these respondents had children in the oldest age group

while about 34% and about 23% have children between five and eleven years old and one and four years old, respectively.[7]

2. Food Consumption

This section presents results regarding respondents' general attitude about food consumption. Respondents were queried on a number of topics including the role of food choices in preventing chronic lifelong illness, importance of food attributes, and their awareness of calcium, soy protein and fats found in some foods.

Respondents were queried about how important they felt food choices are in preventing chronic lifelong illness. The majority of respondents indicated food choices were either "extremely important" (39%) or "very important" (45%).

We find a significant difference across the cities in the believed importance of food choices in the prevention of chronic lifelong illnesses. For ease of comparison, the responses were converted to index scores according to the level of importance given by respondents.[8] On a five-point rating scale, "extremely important" was assigned an index of 5, "very important" an index of 4, "somewhat important" an index of 3, "not very important" an index of 2 and "not important at all" an index of 1. The "don't know/not sure" responses were not assigned an index score. For each of the five responses, the index score for that response was multiplied by the percentage of times that response was selected.[9] An index score for the question was calculated by summing across all five products.[10] The index scores are presented in

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[7] Throughout this paper, percentages may not sum to 100 due to rounding.

[8] Alternatively stated, a weighted score was calculated for each question.

[9] Taking into consideration that the "don't know/ not sure" responses had no weight.

[10] Index scores, referred to in the remainder of this report, are calculated by this same method.

Figure 6. In comparison to those in Quebec, a higher percentage of Toronto and Vancouver respondents indicated that food choices play an important role in preventing chronic lifelong illness.
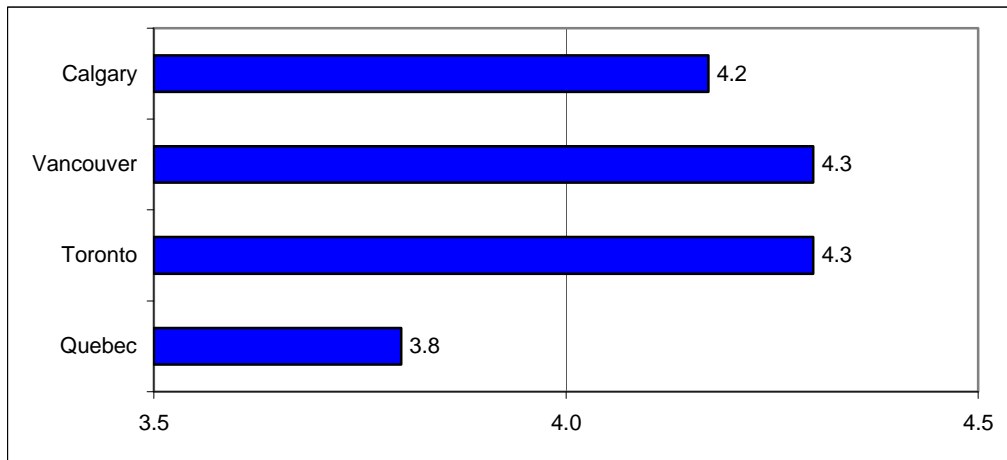
Figure 6: Importance of Food Choices Index

Figure7 presents the responses to this question as compared to those from the 2004 study. In the 2004 research, about 33% of respondents indicated that choices are "extremely important" in preventing lifelong chronic illnesses. In the 2006 survey, the percentage was 39%.
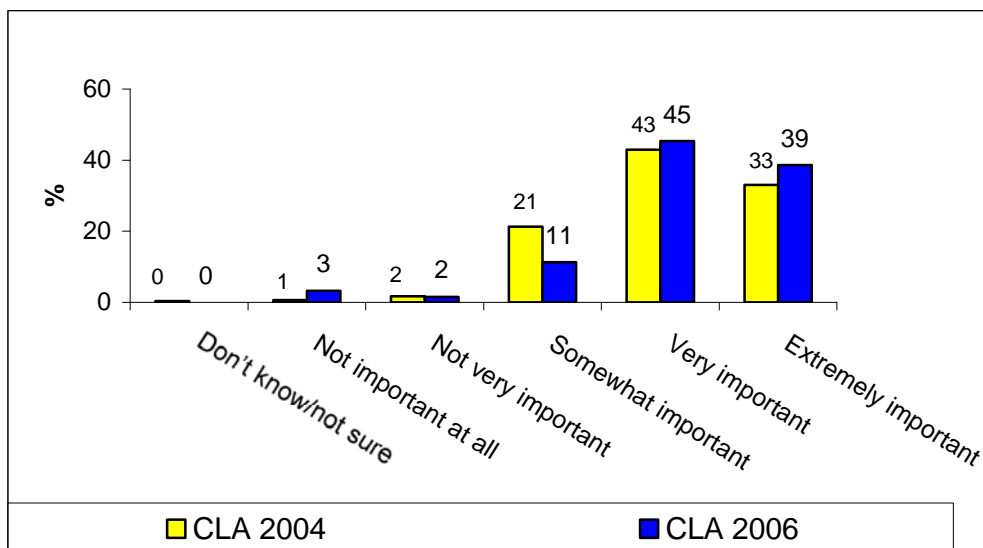
Figure 7: Role of Food Choices in Preventing Chronic Lifelong Illnesses

Demographic differences

The level of importance of food choices in preventing chronic lifelong illnesses was analyzed by socioeconomic status. The responses were significantly different in terms of gender (p-value = 0.003), age (p-value = 0.000) and education (0.005).

Table 2 shows the distribution of responses by gender. More men than women indicated that food choices are "somewhat important" and "very important' in preventing lifelong illnesses. More women than men indicated food choices are "extremely important" in preventing lifelong illnesses.

The index score presented at the bottom of Table 2 suggests that females are more likely than males to report that food choices are important in preventing chronic lifelong illnesses.

Table 2: Importance of Food Choices in Preventing Chronic Lifelong Illnesses by Gender (n=800)

	Male	*Female*
	Percentage	
1=Not important at all	4.6	2.3
2=Not very important	2.3	1.1
3=Somewhat important	13.9	9.6
4=Very important	48.2	43.5
5=Extremely important	31.0	43.5
Subgroup Index Score	*4.0*	*4.2*

The percentage of respondents by age group and the respective index scores are shown in Table 3. This index score suggests that respondents who are between 45 and 54 years of age place a slightly higher importance on food choices preventing chronic lifelong illness than any other age category.

Table 3: Level of Importance of Food Choices in Preventing Chronic Lifelong Illnesses by Age

	Less than 35	35 - 44	45-54	55-64	65 and older
	Percentage				
1=Not important at all	2.0	4.3	2.8	3.2	5.0
2=Not very important	2.6	0.7	0.9	2.4	1.0
3=Somewhat important	18.9	14.2	8.1	5.6	6.0
4=Very important	48.5	40.4	40.8	55.6	43.0
5=Extremely important	28.1	40.4	47.4	33.3	45.0
Subgroup Index Score	4.0	4.1	4.3	4.1	4.2

The percentage of respondents by education level and the respective index scores are shown in Table 4. Respondents with a college diploma/degree and post graduate degree appear to place a slightly higher importance on food choices preventing chronic lifelong illness than the other education categories.

Table 4: Importance of Food Choices in Preventing Chronic Lifelong Illnesses by Education

	Never attended school	Grade school	Some high school	High school graduate	Trade/ tech certificate	Some university/ college	College diploma/d egree	Undergrad Degree	Some post graduate	Post graduate degree
	Percentage									
1=Not important at all	50.0	6.7	7.7	10.8	6.3	5.0	2.9	5.2	7.9	4.8
2=Not very important	0.0	0.0	0.0	3.6	3.6	1.0	0.0	0.0	0.0	1.2
3=Somewhat important	0.0	20.0	30.8	10.8	14.4	14.9	10.6	7.8	2.6	3.6
4=Very important	0.0	53.3	46.2	44.6	42.3	38.6	37.5	51.3	44.7	42.9
5=Extremely important	50.0	20.0	15.4	30.1	33.3	40.6	49.0	35.7	44.7	47.6
Subgroup Index Score	3.0	3.8	3.6	3.8	3.9	4.1	4.3	4.1	4.2	4.3

Respondents were asked a series of questions about health consciousness, food safety and food attributes (taste, price and nutrition). The frequency of these responses is presented in Table 5. The majority of consumers 'strongly agree' with the statements that "nutrition is important to me" (80.5%) and "I am conscious of food safety" (75.4%). The

index scores in the last column of the table suggest that respondents tend to agree more with the statements about food safety and nutrition than with price, taste, and health consciousness.

Table 5: Food Attitude Index

	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
I am conscious about food safety	3.6	2.9	17.3	75.4	0.9	**3.7**
Nutrition is very important to me	3.5	1.0	14.0	80.5	1.0	**3.7**
Price is very important to me	3.5	3.1	23.6	68.9	0.9	**3.6**
Taste is very important to me	3.5	3.5	30.1	62.5	0.4	**3.5**
I consider myself to be very health conscious	3.4	7.8	37.3	51.3	0.4	**3.4**

There is a significant difference, by city, in the responses to the statements "I consider myself to be very health conscious" (p=0.000), "I am conscious about food safety" (p=0.000) "taste is important to me" (p=0.000) and "nutrition is very important in my food decisions" (p=0.031).[11] According to the index scores shown, Quebec consumers consider themselves to be more health conscious and more conscious about food safety than respondents from other cities. Respondents from Calgary and Quebec are more likely to agree with the statement "taste is important to me" than are respondents from other cities. Respondents from Calgary are also more likely to agree with the statements that "nutrition is very important to me" and "price is very important to me" than respondents from other cities.

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[11] For a detailed presentation of the responses, please see Appendix 3.

Figure 8 shows the percentage of respondents who said they are aware of various items found in foods. The scores range from a high of 98% for calcium to a low of 24% for CLA. With the notable exception of CLA, at least 84% of respondents were aware of the other items.

Figure 8 also shows a comparison between the results of the 2004 study and the current research. Respondents in the latter appear to have greater awareness of Omega-3 fatty acid, CLA and trans-fatty acids, but less awareness of soy protein, hydrogenated fat, and calcium than those in the 2004 study.
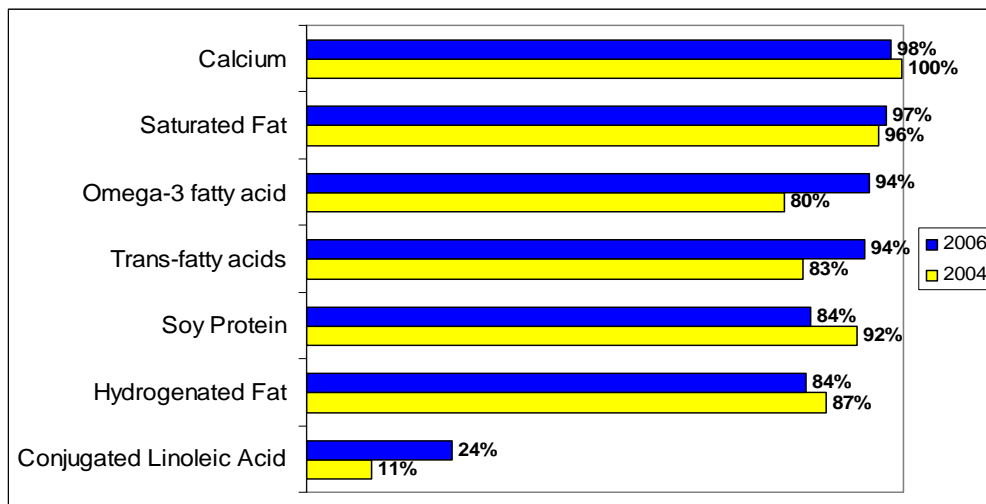
Figure 8: Comparison between Awareness in 2004 and 2006

As Figure 9 depicts, there is a significant difference, by city, in awareness of CLA (p=0.004) and soy protein (p=0.006). Awareness of CLA is higher in Vancouver and Quebec compared to Calgary and Toronto.
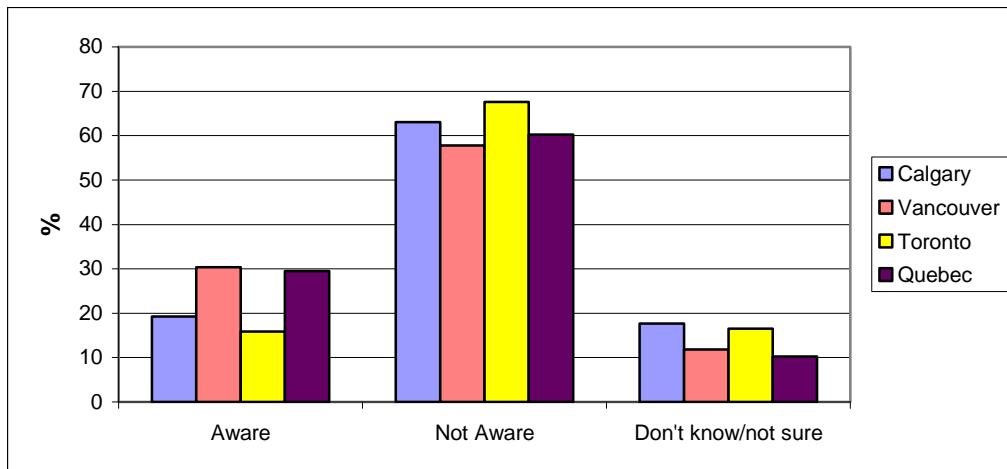
Figure 9: Awareness of CLA by City

Figure 10 shows that awareness of soy protein is higher in Vancouver and Quebec than Calgary or Toronto.
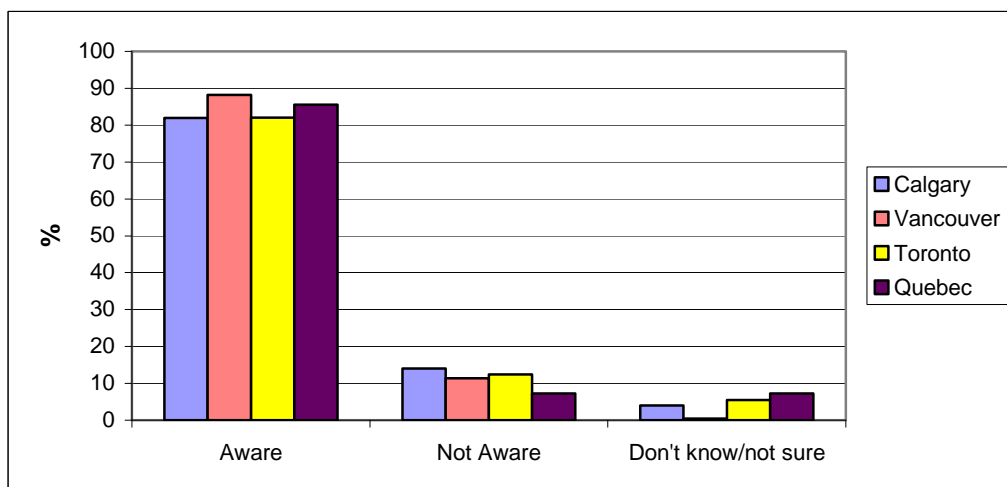
Figure 10: Awareness of Soy Protein by City

3. Health Concerns

Respondents were asked a series of questions about their health concerns. Respondents, specifically, were asked if they were currently, or at any time within the last 6 months, had been on a diet that restricts either calories or types of food. About 43% of

the respondents indicated that they had. Those that indicated they were or had been on a diet were asked to specify the type of diet and they were allowed to select more than one type. Approximately 15 % of respondents indicated they had been on a calorie reduced diet, 16 % a low fat diet, 12 % a low carbohydrate diet and 6% a low salt diet. Respondents were then asked if anyone in their immediate family (including all household members, children, parents, grandparents, aunts or uncles) had ever been diagnosed with the following: cancer, heart disease or diabetes.

In the current study, in each city, a greater percentage of respondents reported family members had been diagnosed with cancer than with heart disease or diabetes. The responses to the question about heart disease (p=0.003) varied significantly by city. The rate of diagnosis of heart disease appears to be less frequent in Vancouver than the other three cities.
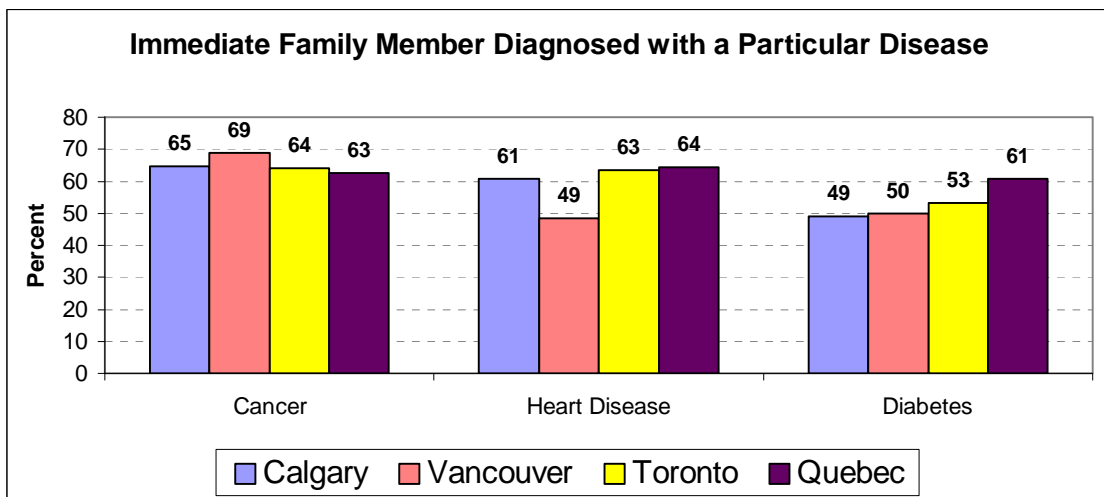
Figure 11: Immediate family member diagnosed with a particular disease

Respondents were asked to what extent they were concerned that an immediate family member might be diagnosed with cancer, heart disease, and diabetes. Responses varied significantly by city to the concern about cancer (p=0.001), heart disease (p=0.001) and diabetes (0.000). The frequencies of responses are presented in Figure 12, Figure 13, and Figure 14. The majority of the respondents in Vancouver indicated they were either "very concerned" or "extremely concerned" about diagnoses of cancer, heart

disease or diabetes. Respondents from Quebec appear to be the least concerned about
such diagnoses.
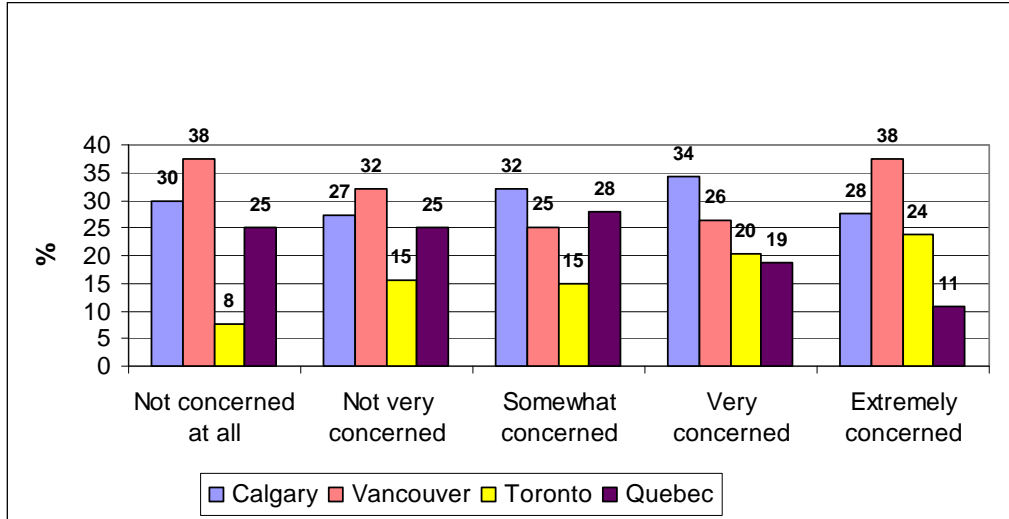
Figure 12: Concern you or immediate family member will be diagnosed with cancer
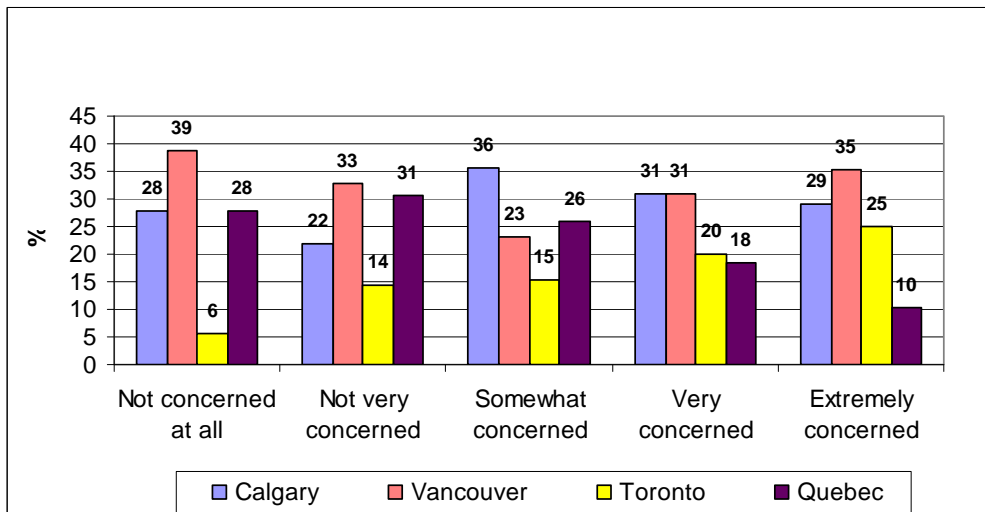
Figure 13: Concern that you or immediate family member will be diagnosed with heart disease
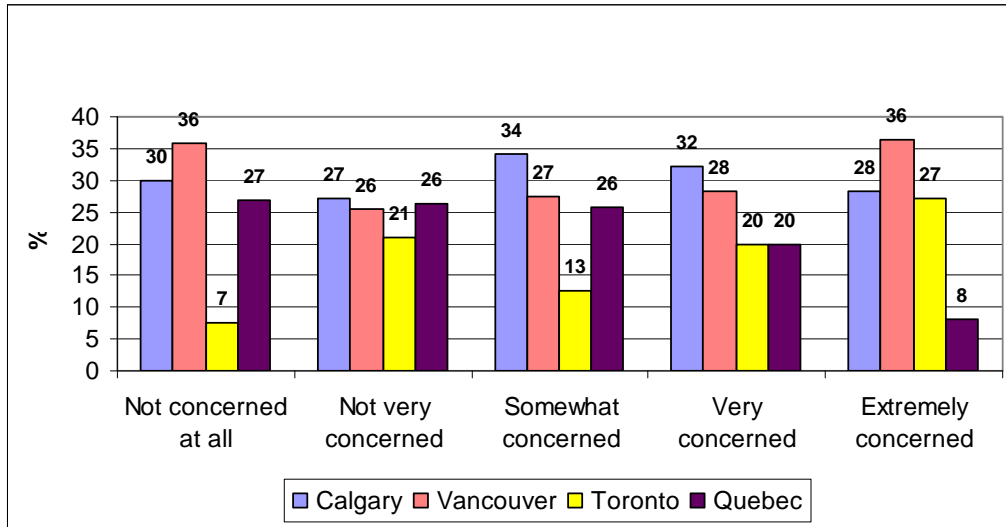
Figure 14: Concern you or immediate family member will be diagnosed with diabetes

Respondents in CLA Fortified Milk Concept Study completed in 2004 were also asked if an immediate family member had been diagnosed with cancer, heart disease, or diabetes. The percentage of respondents indicating that an immediate family had been so diagnosed was much higher in the current survey than in the 2004 survey. In 2004, roughly 53% of Alberta respondents and 54% of British Columbia respondents indicated an immediate family member had been diagnosed with cancer while, in 2006, about 65% of respondents indicated a family member had been diagnosed with cancer. In 2004, about 44% of respondents in Alberta and about 42 % in British Columbia indicated an immediate family member had been diagnosed with heart disease; in 2006, approximately 58% of respondents indicated this was true. In 2004, about 45% for Alberta respondents and about 42% of British Columbia respondents indicated an immediate family member had been diagnosed with diabetes; in 2006; approximately 53% of respondents did so.

A comparison of responses between 2004 and 2006 is presented in Appendix 4. Respondents in the current survey reported more concerns about a disease diagnosis of an immediate family member than those in the 2004 survey.

Food Safety Concern

Table 6 presents the frequencies of responses to the extent of concern regarding food safety issues. Most respondents indicated that they had a "high concern" about bacterial contamination of food, the use of antibiotics in food production, and the use of hormones in food production.

Table 6: Concern Regarding Food Safety

	Almost no concern = 1	Slight concern =2	Moderate concern =3	High concern =4	Don't know/not sure
			Percent		
Bacterial contamination of food	4.5	11.0	22.6	61.4	0.5
Use of hormones in food production	4.6	9.9	24.9	58.5	2.1
Use of antibiotics in food production	4.8	8.6	23.9	60.6	2.1
Fat and cholesterol content	2.8	6.9	36.3	53.6	0.5
Use of genetic modification in food production	6.9	11.9	24.0	55.0	2.3
Use of functional food (such as omega-3 enriched milk) for disease prevention or health promotion	16.1	13.8	30.1	33.8	6.3

The index scores below in Figure 15 suggest that consumers are equally concerned about the use of antibiotics, bacterial contamination, fat and cholesterol content and use of hormones in food production. They are least concerned about the use of functional food for disease prevention or health promotion.
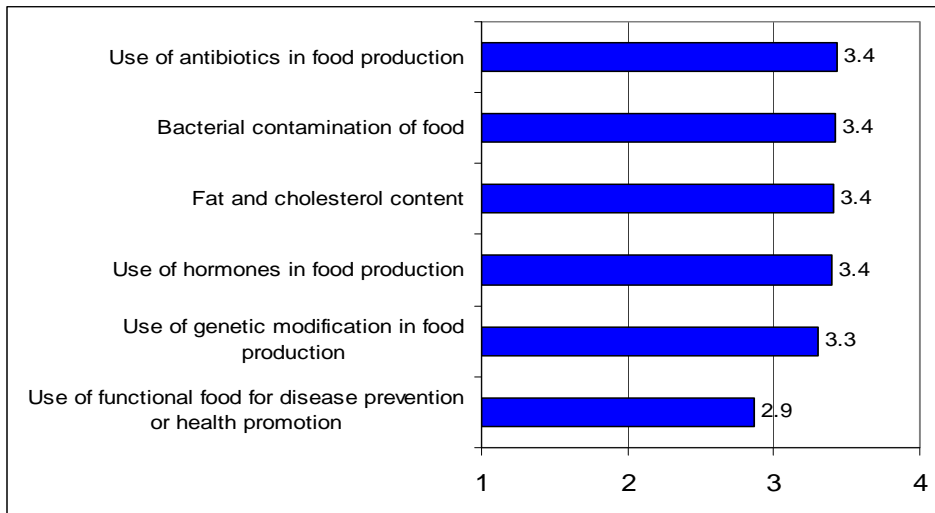
Figure 15: Concern about food safety

4. Beef Consumption

There was a significant difference, by city, in the average number of times some form of beef was consumed per week (p=0.000). As shown in Figure 16, respondents in Vancouver were more likely than all other respondents to report never purchasing beef. In contrast, respondents in Calgary appear to eat beef more frequently than the other respondents.
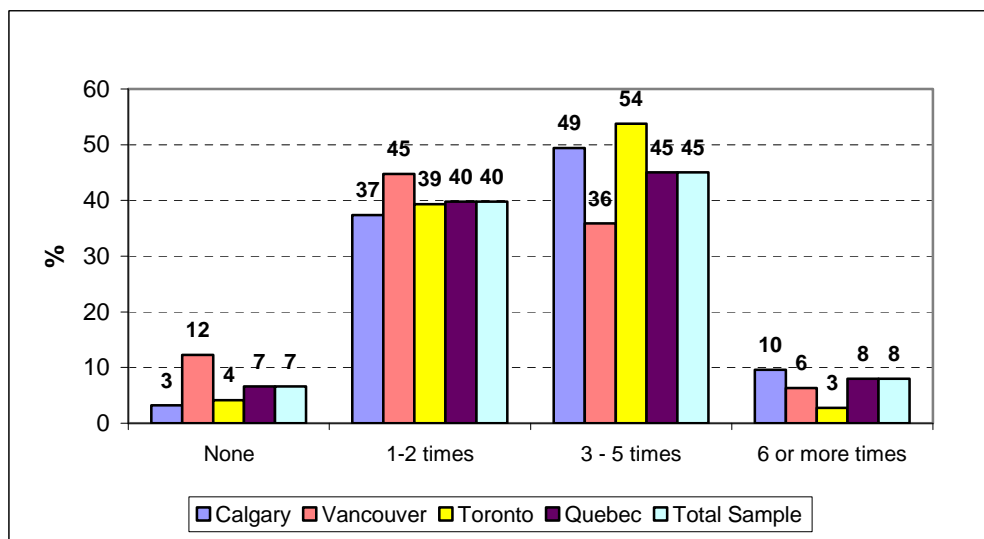
Figure 16: Number of Times Consumes Beef per Week

The average size of package of ground beef that shoppers prefer to purchase appears to vary by city (p=0.002). Figure 17 shows that most respondents prefer to purchase a package of ground beef between 0.26 kg and 1.00 kg.
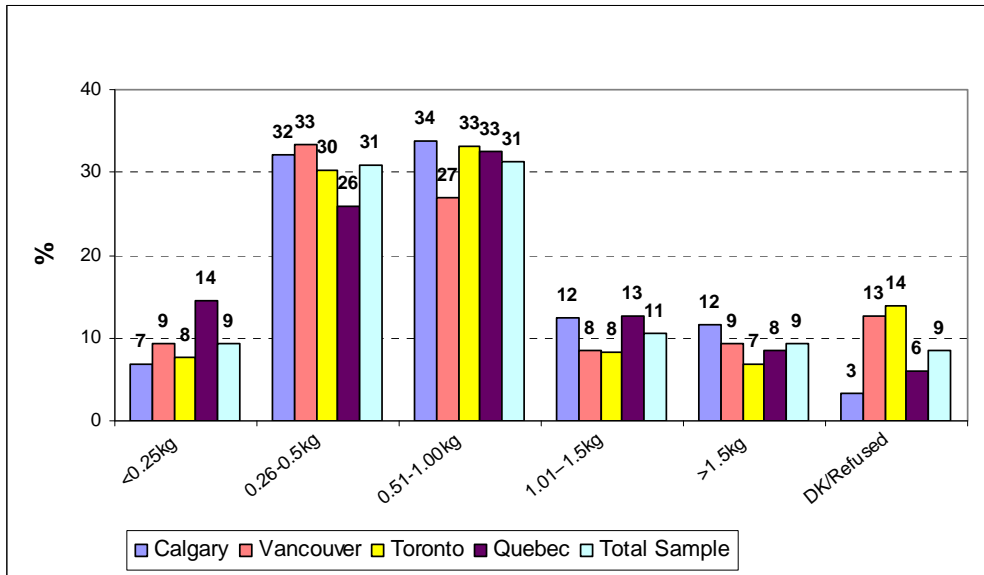
Figure 17: Preferred Package Size for Ground Beef

Respondents were asked to indicate their favourite cut of meat. According to their responses, the three most favourite beef cuts were ground beef, sirloin and T-Bone steak which were chosen by 21%, 19% and 15% of respondents, respectively, as shown in Figure 18.
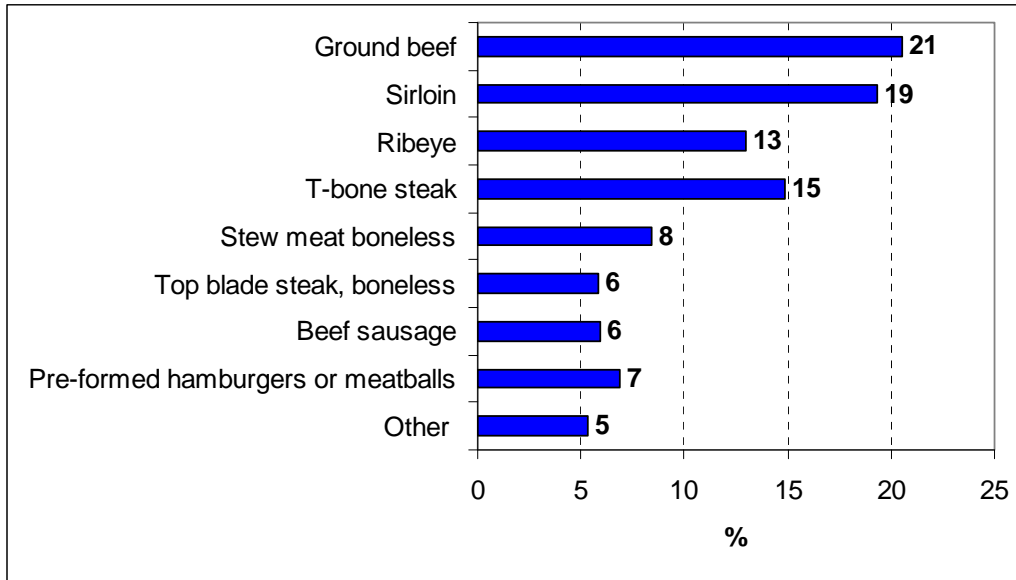
Figure 18: Favourite Cuts of Beef

5. Consumer Awareness and Attitudes toward CLA

Respondents report more familiarity with omega-3 and omega-3 enriched products than with CLA or CLA-enriched products. Figure 19 shows these distributions. Roughly 93 % of respondents indicated that they were "very familiar", "moderately familiar" or "slightly familiar" with Omega-3 while only 35% of respondents indicated any level of familiarity with CLA.
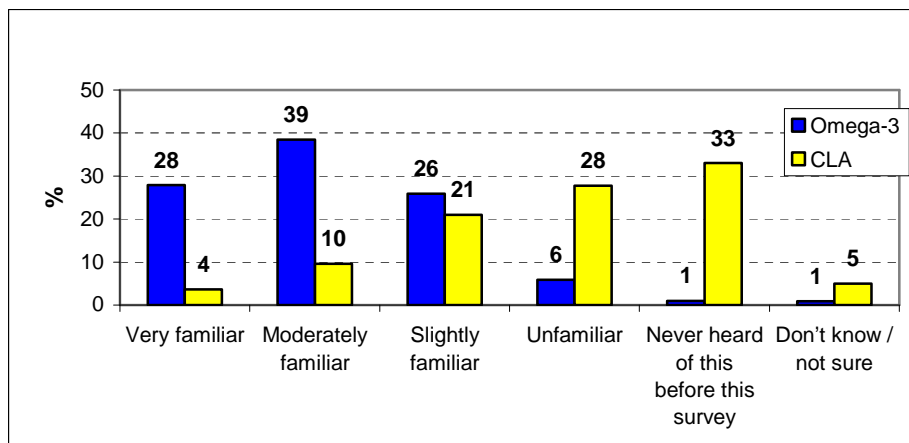
Figure 19: Familiarity with CLA or Omega-3 Products

As shown in Figure 20, CLA is not a well-known entity. Around 30% of respondents in each city claimed some familiarity with CLA. About 34% of respondents in Calgary, 32% in Vancouver, 30% in Toronto and 39% in Quebec City indicated that they were at least "familiar" with CLA or CLA-enriched products.
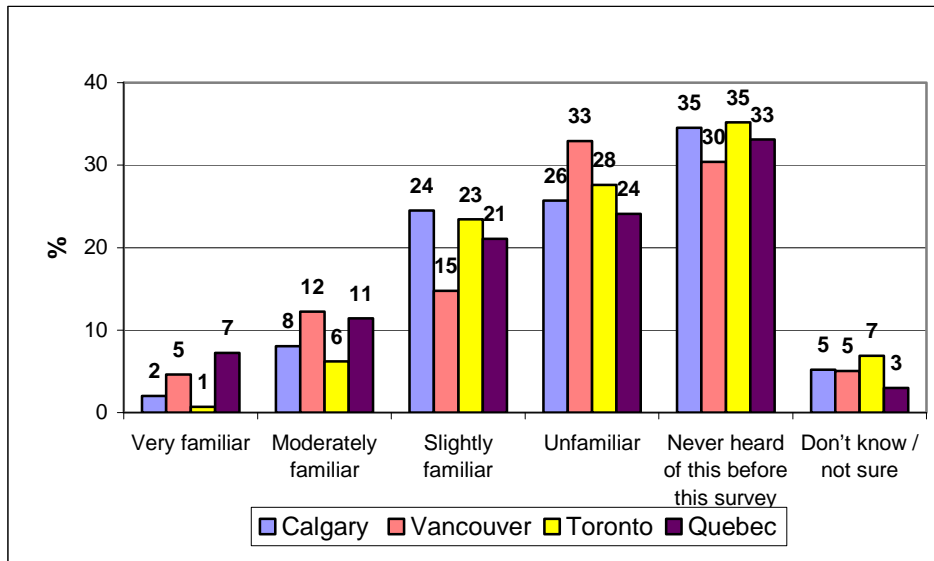
Figure 20: Familiarity with CLA Products

There is a significant statistical response by city in respondents' familiarity with CLA or CLA enriched products (p=0.014) and Omega-3 or Omega-3 enriched products (p=0.000).

As shown in Figure 21, there appears to be a high degree of awareness of Omega-3 products. At least 88 % of respondents in each city had at least some familiarity with Omega-3 or Omega-3 enriched products. Quebec respondents were the most familiar. In that city, about 98% of those respondents indicated that they were familiar with Omega-3. In comparison, 95% of respondents in Vancouver, 91% in Toronto, and 88% in Calgary indicated that they had at least some familiarity with Omega-3 or Omega-3 enriched products.
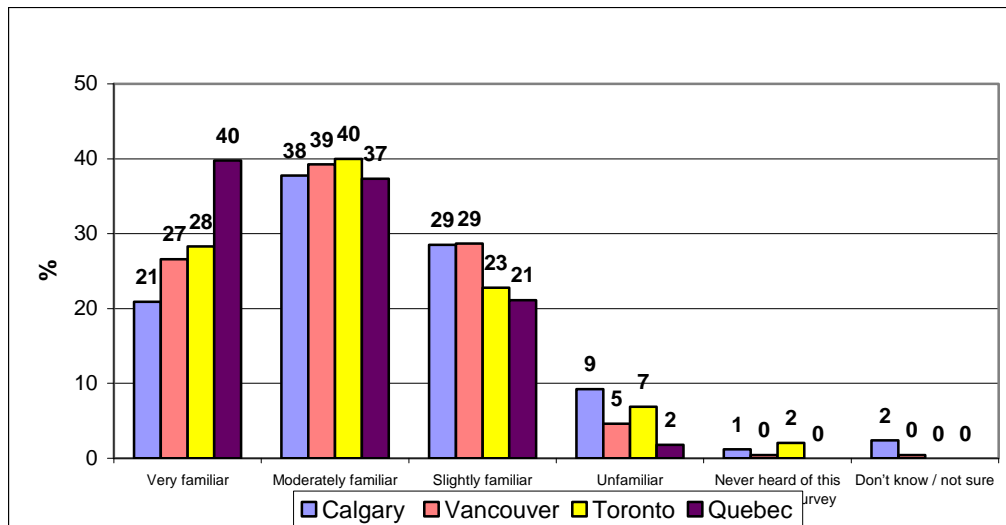
Figure 21: Familiarity with Omega-3 Products

6. Sources of Information

When queried about where they would seek information about CLA, if they were interested in CLA-enriched and/or Omega-3 enriched beef products, the most frequently cited sources of information were the internet, newspapers and magazines, and friends and family. The frequencies of responses are presented in Figure 22.
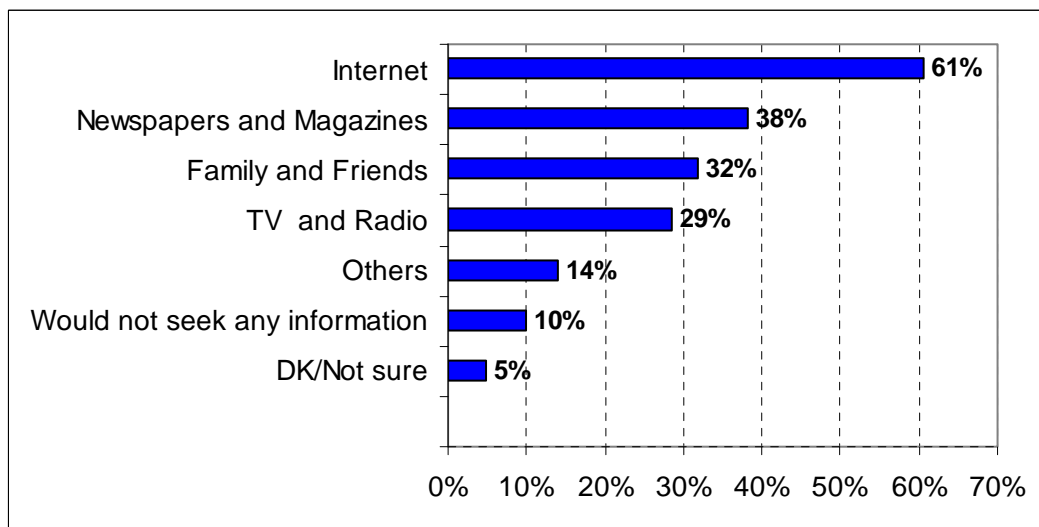
Figure 22: Sources of Information

If they were to buy CLA-enriched and/or Omega-3 enriched beef products, 77% of respondents indicated that they would be "most influenced" or "strongly influenced" by information provided by health professionals (see Figure 23). The frequencies of

responses are presented in Table 7. The index scores presented in the table suggest that respondents are most influenced by health professionals and least influenced by promotional flyers.

Table 7: Influence of Various Information Sources

	Not influenced at all	Least influenced	Somewhat influenced	Strongly influenced	Most Influenced	Don't know/not sure
	Percent					
Health professionals	3.3	2.6	16.4	41.3	35.7	0.8
Family and Friends	7.3	11.5	41.4	26.7	11.8	1.4
Internet	12.0	9.5	37.3	29.7	9.8	1.8
Label on package	7.1	13.3	41.2	26.3	11.1	1.0
Newspapers and Magazines	9.3	12.3	44.9	27.7	5.1	0.8
In-store communication	10.1	19.1	43.2	18.9	7.6	1.0
TV and Radio	13.1	15.0	47.4	19.0	4.6	0.8
Promotional flyers	20.0	27.5	35.2	11.9	4.4	1.0
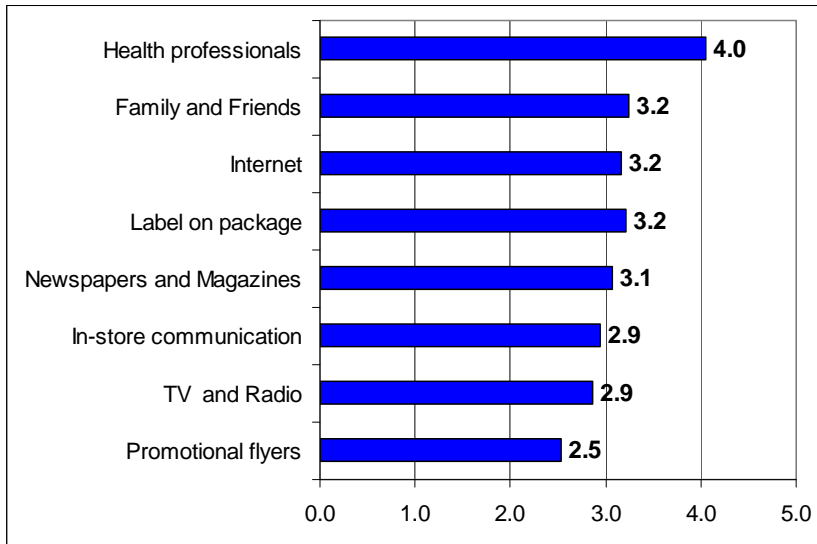
Figure 23: Influence Index

7. Labelling

Approximately 41% of respondents indicated that, before buying beef products, they always read the product labels. Roughly, 32% of respondents indicated that they read the label "most of the time". The frequencies of responses are presented in Figure 24.
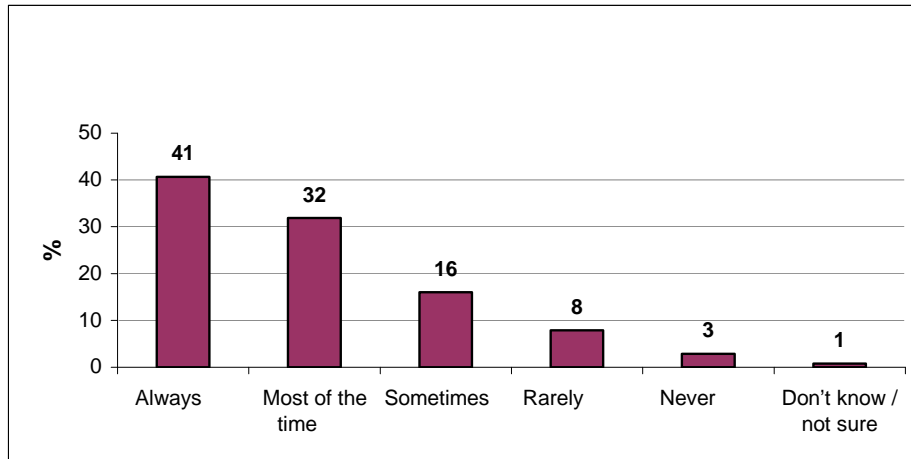
Figure 24: Frequency of Label Reading when Shopping

A higher percentage of respondents reported that they "always read nutritional labels" in the 2006 survey than in 2004 survey. Figure 25 compares these responses. When considering purchasing a food product that they have not bought before, about 51% of respondents in 2006 indicated they always read the nutritional label; in 2004, about 34% of respondents indicated that they did.
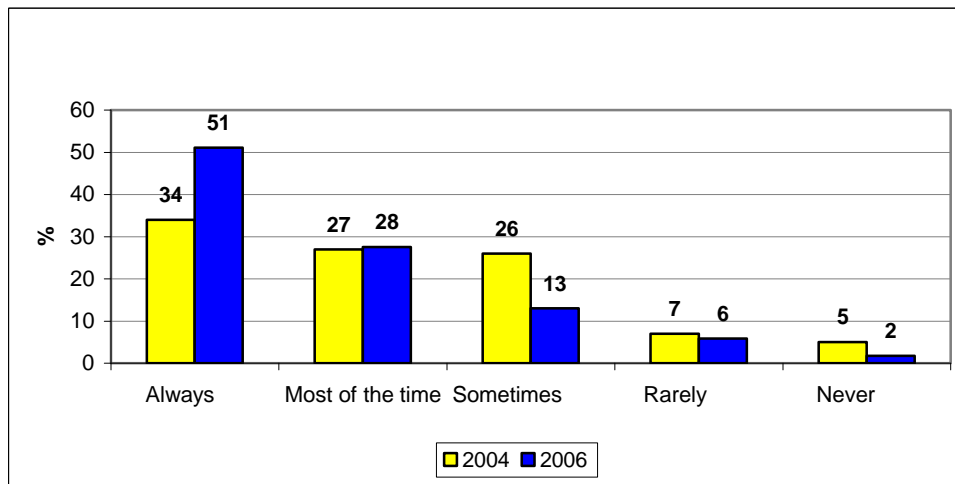
Figure 25: Reading of Nutritional Labels in 2004 and 2006

Food companies sometimes make claims on their labels that link that with the prevention of certain illnesses or conditions. For example, a label may read "A diet low in saturated fat may reduce the risk of heart disease". In 2004 and 2006, respondents were

asked, in general, how believable were health claims on food product labels. As shown in Figure 26, over half of the respondents in 2006 indicated that health claims on food product labels are "somewhat believable" while only 17% indicated they are "very believable". In the 2004 survey, about 65% of respondents found product labels were "somewhat believable" while about 20% of respondents found them to be "very believable".
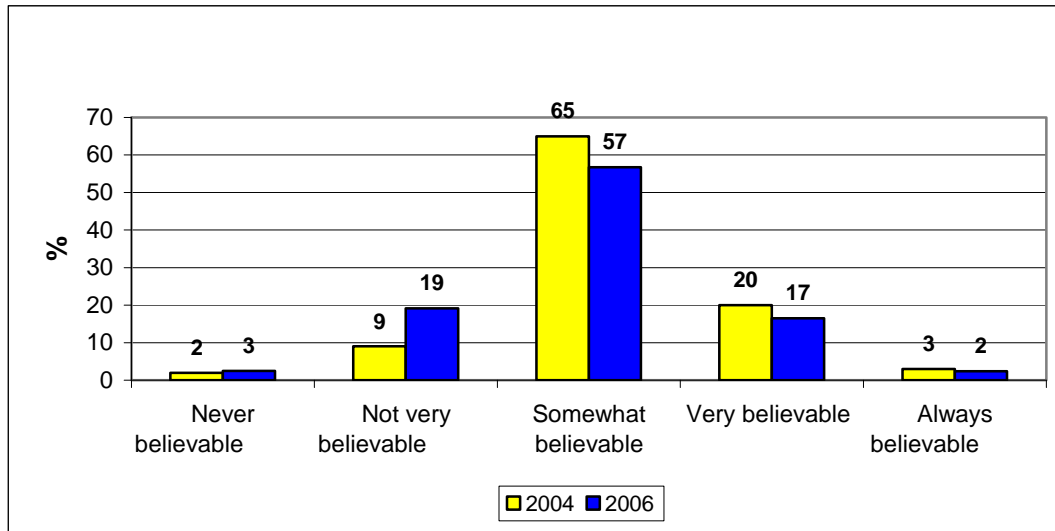
Figure 26: Credibility of Health Claims in 2004 and 2006

Respondents were asked whether or not the food industry should be allowed to provide information on its products even if the information is not approved by government. About 57% of respondents indicated that the food industry should be allowed and roughly 29% indicated that the food industry should not be allowed to provide this information.

Respondents were asked to imagine that there existed a product that could provide health benefits. They were also told that, under the current regulatory system in Canada, the manufacturers of that product would not be allowed to provide any information on those benefits. Respondents were asked if they thought the manufacturers should be granted more freedom to provide such information or if they thought the company should follow government regulations strictly. Roughly 55% of respondents indicated that manufacturers should have more freedom to provide such information. Roughly 26% of

respondents indicated that government should have total control of information on food products (n=740).

Respondents were asked if they would like to have access to more information (regardless of whether the information is approved by the government or not), so that they could make their own judgments when purchasing related food products. Roughly 85% of respondents indicated that they would like to have access to more information. About 7% of respondents indicated that they would not like to have access to more information (n= 740).

Respondent Decision Making

Respondents were asked if they would like to purchase a beef product that had been labelled as "a good source of CLA". About 55% of respondents indicated that they would while about 6% said no and about 39% were undecided (n=797). This finding is similar to that of 2004. In that survey, almost half of the respondents indicated that they would "definitely" or "probably" purchase CLA enriched milk.

In the rest of this section, we perform multi-variable analyses to investigate relationship of choice with other variables such as socio-economic status. First, the model that will be used to estimate these relationships will be presented. Second, we will use this model to explore the choice of purchasing CLA products. We will investigate the relationship, if any, that choice has with socio-economic status and attitudinal variables. Third, we will present the model to be used to explore the relationship between the options selected in the choice experiments and the socio-economic status of the respondents and the attributes of the options presented.

Multinomial Logit Model

A random utility model can be employed to assess the relative importance of each respondent characteristic and each meat attribute in the respondent's decision to purchase CLA products. In the random utility model, the respondent's utility from an alternative is specified as the sum of an indirect utility function plus an error term. Suppose that there are three alternatives 1, 2, and 3 that can be described as follows:

$$U_{i1} = V_{i1} + \varepsilon_{i1}$$

$$U_{i2} = V_{i2} + \varepsilon_{i2}$$

$$U_{i3} = V_{i3} + \varepsilon_{i3}$$

The elements U_{i1}, U_{i2}, and U_{i3} denote the utility derived by respondent i from alternatives 1, 2, and 3, respectively. Elements V_{i1}, V_{i2}, and V_{i3} denote the indirect utility respondent i derives from alternatives 1, 2, and 3, respectively. The terms ε_{i1}, ε_{i2}, and ε_{i3} denote the stochastic elements of choice. They capture the unknown motivations (logical or emotional) that are not controlled for in the model.

The indirect utility is a linear function of the known socio-economic characteristics of the respondent and the attributes of the alternative:

$$V_{ij} = \alpha_j + \delta_{jq} Z_{jq} + \beta_{ijm} X_{ijm}$$

where α_j is a constant term for alternative i. If α_j takes on unique values for one or more alternatives, it is called an alternative specific constant (ASC) for those alternative(s). An ASC cannot be specified for all the alternatives. If this were to occur, collinearity would result in no parameters being identified. We can, at most, specify a specific constant for two of the three alternatives.

Z_{jq} represents the level of attribute q for option j. For example, it may represent the fat content in alternative j. δ_{jq} is the coefficient, or weight, associated with attribute q for alternative j. X_{ijm} is the level of characteristic m for respondent i for alternative j. One should note that we allow here for characteristics to be interacted with attributes,

however, a solid reason for the inclusion of the interaction term must be given. If there are no such interaction terms, $B_{ijm} X_{ijm}$ collapses to $\beta_{im} X_{im}$.

A characteristic of a respondent, or any other element that does not vary across alternatives, cannot be included as a separate variable in each of the utility equations.[12] Doing so would, again, lead to collinearity and the inability to identify any coefficients. For example, since a person's gender does not vary by choice of CLA content, it cannot be included in all three equations. The same is true for all other characteristics.

The choice model is based on the probability that a respondent will choose one option over another. The probability that a certain respondent will choose a certain alternative is given by the probability that the respondent derives greater utility from that alternative than she would from any of the other alternatives. The respondent selects the alternative that maximizes her utility. The probability that respondent i will choose alternative j is defined by the following equation:

$$\text{Prob}[u_{ij} > u_{ik}] = \text{Prob}[(V_{ij} - V_{ik}) > (\varepsilon_{ij} - \varepsilon_{ik})] \qquad \text{for all } j \neq k$$

The assumed distribution of the error term dictates which estimation technique is used to estimate the decision making weights (i.e. the coefficients). In this study, we assume that the errors are independently and identically distributed (IID). This means that the errors follow a Type I Extreme Value Distribution (also known as a Weibull distribution); therefore, a multinomial logit model is the appropriate model to estimate the choice process.

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[12] As noted, a characteristic must be interactive with an attribute in order to enter into each equation.

The closed form multinomial logit for three alternatives is specified by the following equation:

$$\text{Prob } (Y=j) = P_{ij} = \exp(V_{ij}) / [1 + (\exp(V_1 + V_2 + V_3))] \quad \text{for } j = 1, 2, 3$$

If we order the respondents based on the choices made and assume that there are N respondents, the probability of each respondent in the data choosing as they did is equal to the following likelihood function:

$$L = \pi^{n1}_{i=1} P_{i1} * \pi^{n2}_{i=n1} P_{i2} * \pi^{N}_{i=n2} P_{i3}$$

The first n1 individual chose alternative 1, the next (n2-n1) respondent chose alternative 2, while the last (N-n2) respondents chose alternative 3. This equation may be simplified by the addition of an alternative indicator, a_{ij}. If the indicator, a_{ij}, takes on a value of one if alternative j is selected by respondent i and zero otherwise, we can write the likelihood function as follows:

$$L = \pi^{3}_{j=1} * \pi^{N}_{i=1} P_{ij}^{aij}$$

Taking the log operator through the above equation transforms the equation into the following log likelihood function:

$$L = \Sigma^{3}_{j=1} \Sigma^{N}_{i} a_{ij} \ln P_{ij}$$

This log likelihood function can be easily and quickly estimated by a maximum likelihood estimator.

Prior to the estimation of the choice model, we adjusted the income data. These data were reported in categories. We replace those categories with the midpoint values of each category. For instance, if a respondent reported that her household income was between $40,000 and $49,999 per year, a household income of $45,000 was assigned to her instead.

In order to estimate a multinomial model to inform us with regard to respondent choices, we needed to select the best set of explanatory variables. Our data are rich in socio-economic variables from which to choose; however, many of these variables are correlated. We needed to be judicious in our selection of variables so as to limit the potential for multi-collinearity. Therefore, we began the derivation of the model by including attributes, all characteristics and an exhaustive list of all the interactions between the attributes and characteristics. Variables were eliminated in an iterative process. On each iteration, the regressor with the highest p-value was dropped from the model. The process continued until all remaining elements were significant in the model at the 10% level.[13] At that point the model was considered finalized. To ensure that we did not mistakenly drop an important variable,[14] we added each dropped variable, one at a time, back into the model and tested for its significance. In each case, we found the dropped variable to be insignificant. We also performed an exclusion test on the dropped variables and found the p-value of the joint test to be insignificant. The results of these tests are found in the appropriate sections below.

A list of the variables and their definitions used in our models can be found in

Table 8. Table 9 provides a statistical summary of these variables.

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[13] In the final model, in a test for the exclusion of each remaining variable, the p-value of the test was 10% or lower. The p-value of a variable's coefficients could both be greater than, but must be jointly less than, 10% in the final model.

[14] This might occur if the variable was highly correlated with another variable that was later dropped.

Table 8: Variable Description

Variable	Indicates the Respondent:
Male	male
Age	age in years
High school graduate only	respondent has a high school diploma, but no further schooling
University graduate	has university degree
Under 30 years of age	18 to 29 years of age
Over the age of 45	more than 45 years of age
Household income	household income divided by 1000
Household income is greater than $69.999	household income is over $69,999
Number of children	number of children in the household
Child	one or more children in the household
Toronto survey location	surveyed in Toronto
Vancouver survey location	surveyed in Vancouver
Specialty store	surveyed at a specialty store
Version One	provided with version one of the CLA information
Health conscious	At least somewhat agrees that they are very health conscious
Price conscious	At least somewhat agrees that price are very important
Aware of soy protein	knew that soy protein can be found in foods
Diet	have been on a diet in the past six months
Cancer concern	at least moderately concerned an immediate family member might be diagnosed with cancer
Heart disease concern	at least moderately concerned an immediate family member might be diagnosed with heart disease
Fat and cholesterol concern	at least moderately concerned about fat and cholesterol content
Aware of sat. fats	knew that saturated fats can be found in foods
GMO concern	at least moderately concerned about genetically modified foods
Functional food concern	at least moderately concerned about the use of functional foods for prevention of disease or health promotion
Regularly eats beef	eats beef at least once a week

Read product labels	almost always reads beef product labels before purchase
Believe in product claims	finds health claims on food product labels at least somewhat believable
Nutrition important	at least somewhat agrees that nutrition is important in their food choices
Food safety important	at least somewhat agrees that food safety is important to them
Aware of CLA	knew that CLA can be found in foods
	Indicates the Meat:
Lean fat content	is lean
Enhanced CLA content	is CLA enhanced
Enriched CLA content	is CLA enriched
CLA	is either CLA enhanced or enriched
Meat is bright red	is bright red
Price	has a price

Table 9: Descriptive Statistics

	Mean	Standard Deviation	Minimum	Maximum
Purchase Intention (n=780):				
Yes, would buy CLA beef	0.5487	0.4979	0	1
No, would not buy CLA beef	0.0628	0.2428	0	1
Undecided	0.3885	0.4877	0	1
Meat Attributes (n = 12592):				
Lean fat content	0.5052	0.5000	0	1
Enhanced CLA content	0.2449	0.4301	0	1
Enriched CLA content	0.2710	0.4445	0	1
Price	7.0213	2.1312	$4.39	$10.37
Meat is bright red	0.5119	0.4999	0	1
Respondent Characteristics:				
Male	0.3901	0.4878	0	1
Age	47.6498	15.3882	18	86
Under 30 years of age	0.1705	0.3760	0	1
Over 45 years of age	0.5366	0.4987	0	1
Has university degree	0.3434	0.4749	0	1
Household income ($'000's)	60.1768	34.3486	5	125
High school graduate only	0.1406	0.3476	0	1
HH income is greater than $69,999	0.3131	0.4638	0	1
Number of children	0.5795	1.3018	0	17
Child	0.2949	0.4563	0	1
Specialty store	0.3609	0.4803	0	1
Toronto survey location	0.1768	0.3815	0	1
Vancouver survey location	0.2992	0.4579	0	1
Quebec survey location	0.2096	0.4070	0	1
Version One	0.5013	0.5000	0	1

Regularly eats beef	0.9327	0.2506	0	1
Believe in product claims	0.7586	0.4280	0	1
Aware of CLA	0.2402	0.4272	0	1
Aware of sat. fats	0.9809	0.1367	0	1
Health conscious	0.3342	0.4717	0	1
Price conscious	0.4473	0.4972	0	1
Aware of soy protein	0.8386	0.3679	0	1
Diet	0.6785	0.4671	0	1
Cancer concern	0.5044	0.5000	0	1
Heart disease concern	0.4994	0.5000	0	1
Read product labels	0.7255	0.4463	0	1
Nutrition important	0.2656	0.4416	0	1
GMO concern	0.6073	0.4883	0	1

CLA purchase intention

The multinomial logit model was used to explore the CLA purchase intention. It was estimated using STATA 9.2.

The final model is composed of 11 explanatory variables. We performed an exclusion test on the 16 variables that were dropped from the estimation. The p-value on their joint exclusion was 0.7610. We also performed exclusion tests on each individual variable. Of all the dropped variables, the binary variable for awareness of hydrogenated fat had the highest p-value which was 0.1415. Therefore, we are confident that we dropped no variables of consequence.

The final model is presented in Table 10. In the multinomial logit model postulated, the CLA purchase intention is assumed to be dependent on a set of socio-economic variables (age and education) and attitudinal variables. The CLA purchase intention was grouped into (1) "No, they would not purchase" a beef product that has been labelled as a good source of CLA, (2) "Yes, they would purchase" a beef product that has been labelled as a good source of CLA, (3) "Don't know/not sure" about purchasing such a beef product.

The estimated coefficients, after normalizing the "Yes, I would purchase" option, measure the effect of the explanatory variables in the indirect utility function on the likelihood of choosing "No" or "Do not know/not sure" CLA purchase intentions relative to the "Yes" option. Estimates from the final model are reported for "No, I would not purchase" and "do not know/not sure" options in Table 10 while the "Yes" option is not

shown since it was normalized to zero. Statistically significant coefficients / estimates with a negative sign imply the preference for the "Yes, I would purchase" option while estimates with a positive sign imply the preference for a respective CLA purchase intention (i.e. "No" option and "Do not know/not sure" option, respectively).

The impacts of each independent variable on each of the two outcomes are included in Table 10. The impacts measures the change in the probability of selecting an outcome based on a change in the dependent variable. The impact of a variable is calculated with all other variables set to their mean values. For binary variables, the effect is based on a discrete change in the variable from zero to one. For age, the only non-binary variable in the model, the effect is based on a change in age from the mean value to the mean plus ten years.

Although not shown in Table 10, the impact on the "Yes" outcome is noted below when it is significant. When the coefficient for "Don't Know" and "No" outcome are both significant, the sum of their percentage changes is equal to the percentage change for the "Yes" outcome. However, if the sum of the changes is quite small, the effect on being interested can be insignificant.

As shown in Table 10, people who consumed beef regularly were 11.4% less likely to be uninterested and 18.3% less likely to be undecided about purchasing CLA beef products than those who consume beef less often. Thus, these respondents would be about 29.7% more likely to be interested in purchasing CLA beef than those who eat beef less often.

Respondents who almost always or always read product labels on meat would be about 3.9% less likely to be uninterested in and 8.5% less likely to be undecided about purchasing CLA beef products than those who read such labels less often. This means that these respondents would be about 12.4% more likely to be interested in these products than those who read these labels less often.

Those that find product labels at least somewhat believable would be about 2.6% less likely to be uninterested in and 18.2% less likely to be undecided about CLA products than respondents who are less convinced. Therefore, these respondents would be roughly 20.7% more likely to be interested in CLA beef products.

Respondents who believe that nutrition is at least somewhat important in food choices would be about 3.5% more likely than others to be uninterested in and 7.9% more likely to be undecided about CLA beef products. Consequently, respondents who believe that nutrition is at least somewhat important in food choices would be about 11.4% less likely to be interested in CLA products than those who believe nutrition to be less important.

Respondents who believe that food safety is at least somewhat important would be about 3.4% less likely than others to be uninterested in CLA products. These respondents would be about 10.4 percent more likely to be interested in CLA beef products than those who believe food safety to be less important.[15]

Being aware of CLA prior to the survey is associated with roughly a 13.4% reduction in the probability of being undecided about purchasing CLA products. These respondents would be about 11.8% more likely to be interested in CLA beef products than those who are less familiar with CLA.

Respondents who are moderately to highly concerned about genetically modified foods would be about 8.6% less likely to reject and 11.0% less likely to be undecided about CLA enhanced beef. So, these respondents are about 19.6% more likely to be interested than those who are less concerned about genetically modified foods.

Being moderately to highly concerned about the use of functional foods is associated with about a 3.5% increase in the probability of rejecting and 6.0% less likely to be undecided about CLA products. This variable has no significant effect on being interested in CLA products.

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[15] When the coefficient for "don't know" or "No" outcome is insignificant, the sum of their percentage changes is not equal to the percentage change for the "yes" outcome. If the sum of the changes is small, the effect on being interested will be ambiguous and, therefore, insignificant.

The age of the respondent is found to be significantly related to the probability that she would be undecided regarding the purchase of CLA beef products. At the mean, being ten years is associated with a decrease of about 2.6% in the probability of being undecided. Age has no significant effect on being interested in CLA beef products.

Having a high school diploma and no further education is associated with roughly a 3.5% decrease and 6.7% increase in the probability of rejecting and being undecided, respectively, about CLA purchases. Having a high school diploma has no significant effect on being interested in CLA beef products.

The model also includes an indicator for being aware of saturated fats in foods. This variable is not significantly related to either being uninterested or being undecided about CLA beef products. This variable is significant in the overall decision making process. It has a p-value in the model of about 7.8% and, therefore, must be included in the model.

Table 10: Multinomial Regression Results

CLA Purchase Decision					
N = 780	$\rho^2 = 0.0860$		LR chi2(22) = 116.82		
Log likelihood = -620.57565			Prob [chi2 > value] = 0.0000		
	Coefficient	Standard Error	T-Ratio	P-value	Impacts*
No, would not buy CLA					
Regularly eats beef	-2.0849	0.4747	-4.3900	0.0000	-0.1137
Read product labels	-0.9937	0.3359	-2.9600	0.0030	-0.0394
Believe in product claims	-0.9447	0.3448	-2.7400	0.0060	-0.0260
Nutrition important	0.8984	0.3743	2.4000	0.0160	0.0350
Food safety important	-1.1894	0.4803	-2.4800	0.0130	-0.0335
Aware of CLA	0.1184	0.3590	0.3300	0.7410	0.0149
Aware of sat. fats	-1.2251	0.8054	-1.5200	0.1280	-0.1162
GMO concern	-1.5902	0.5243	-3.0300	0.0020	-0.0863
Functional food concern	0.8464	0.4007	2.1100	0.0350	0.0349
Age	-0.0126	0.0107	-1.1800	0.2380	-0.0069
High school graduate only	-0.7564	0.3429	-2.2100	0.0270	-0.0350
Constant	3.8369	1.1515	3.3300	0.0010	n/a
Undecided					
Regularly eats beef	-1.1087	0.3412	-3.2500	0.0010	-0.1834
Read product labels	-0.4398	0.1818	-2.4200	0.0160	-0.0847
Believe in product claims	-0.8322	0.1850	-4.5000	0.0000	-0.1817

Nutrition important	0.4066	0.1935	2.1000	0.0360	0.0791
Food safety important	-0.3593	0.2149	-1.6700	0.0950	-0.0690
Aware of CLA	-0.5759	0.2005	-2.8700	0.0040	-0.1338
Aware of sat. fats	0.6800	0.7124	0.9500	0.3400	0.1751
GMO concern	-0.6669	0.2997	-2.2300	0.0260	-0.1100
Functional food concern	-0.1943	0.1734	-1.1200	0.2620	-0.0599
Age	0.0099	0.0052	1.9000	0.0580	0.0259
High school graduate only	0.2257	0.1592	1.4200	0.1560	0.0667
Constant	1.2226	0.8596	1.4200	0.1550	n/a

*The impact of a variable is the change in probability of choosing an outcome based on a change in that variable. For binary variables, it is the change based on a discrete change of the variable from 0 to 1. For age, it is the changed based on ten unit change of that variable.

With regard to the goodness of fit, Louviere et al (2000) suggest that a model be judged based on a comparison with a model with constants only. The log likelihood of that model can be calculated as follows:

$$L^*(0) = \Sigma^3_{j=1} \Sigma^N_i \, a_{ij} \, \ln Q_j$$

$L^*(0)$ indicates that the constants only model is maximized. The element a_{ij} is, again, equal to 1 if respondent i selects alternative j and is equal to zero otherwise. The element Q_j is the actual percentage of times alternative j was selected in the data. Therefore, Q_1, Q_2, and Q_3 are equal to 56.9%, 6.3% and 38.9%, respectively.

A likelihood ratio test with the constants only model gauges the relative strength of Model One over assuming all attributes are irrelevant. The test statistic is estimated as follows:

$$\rho^2 = 1 - L^*(\text{Model One}) / L^*(0)$$

Louviere et al (2000) note that a value of between 0.2 and 0.4 is considered "extremely good". Our model provides a ρ^2 of 0.086 which is outside of this range of excellence. Louviere et al (2000) caution one not to expect the size of R^2's generated in linear estimations.

Choice between three options

In this section, we investigate the relationship between meat attributes and respondent characteristics with the choice between the three alternatives presented: two meat (A and B) options and a "no meat" (C) option. We also investigate the willingness to pay for CLA content.

Multinomial logit is very useful for addressing policy issues such as the willingness to pay. The ratio between two parameters estimates the marginal rate of transformation between the two elements. The coefficient on price provides the marginal utility of money for that respondent. Since paying more for one product reduces the money that can be used on the consumption of other goods, the coefficient on price should be negative. That is, the more one must pay for a good the lower one's utility. Therefore, if we divide the coefficient on a non-monetary attribute by the negative of the price coefficient, we obtain the willingness to pay for that non-monetary element.

$$\text{Willingness to pay for attribute } a = \frac{\beta_a}{\beta_p}$$

a denotes a non-monetary attribute, while p denotes the price of the alternative.

Models

In this section, we estimate and compare two models. Model One explains the three choices on the basis of meat attributes and alternatives alone. It does not consider the characteristics of the respondents.

As mentioned above, we can have but two ASC. In both Model One and Two, we have an ASC on meat option A and another on the "no meat" option. The indirect utility equations for the alternatives in Model One are as follows:

$$V_A = \beta \text{ (fat content, CLA content, Color, price)}$$
$$V_B = ASC_B + \beta \text{ (fat content, CLA content, Color, price)}$$
$$V_C = ASC_C$$

Model Two is a mixed indirect utility model. It allows for decisions to be made on the basis of the attributes, the characteristics, and attitudes, as well as interactions between the attributes and the characteristics. The indirect utility equations for the alternatives are as follows:

$$V_A = \beta \text{ (fat content, CLA content, colour, and price)} + \delta \text{ (socio-economic}$$
characteristics and attitudes of the respondent, and interactions between attributes and characteristics**)**

$$V_B = ASC_B + \beta \text{ (fat content, CLA content, colour, and price)} + \delta \text{ (socio-}$$
economic characteristics and attitudes of the respondent, interactions between attributes and characteristics**)**

$$V_C = ASC_C$$

The ASCs estimate the mean distribution of the systematic but unobservable information about why respondents chose those options. The two meat options, A and B, vary in their level of fat, CLA, colour, and price. Each attribute varies independently of all others. Sometimes option A is generally more attractive than option B; sometimes, it is less attractive. Therefore, if all the attributes are controlled, no systematic choosing of option A over option B, or vice versa, should occur. If, however, there is some unobservable and systematic motive to choose one option over another, the ASC will be significant.

Results

The results of the estimation of Models One and Two follow. We also compare the models and discuss implication regarding WTP. Parameter estimates were obtained using the computer program LIMDEP Version 8.0 (Greene, 2002) and STATA 9.2. The "no meat" option was used as a basis for comparison of the other options.

Model one is presented in Table 11 below. The variable coefficients reveal the relative importance that the respondents place on each of the attributes when making a choice. In this model the coefficients were constrained to be equivalent across the alternatives.[16]

Table 11: Conditional Multinomial Logit Model One - the Choice Between Three Options

n = 6296	ρ^2 =0.11037	Chi-squared[5] = 1462.21818			
Log likelihood function	-5863.861	Prob [chi squared > value] = .00000			
		Coefficient	Standard Error	T-Ratio	P-value
Alternative specific constant of Meat Option A		-0.0966	0.0309	-3.1285	0.0018
Lean fat content		1.1725	0.0424	27.6339	0.0000
Enhanced CLA content		0.5213	0.0490	10.6459	0.0000
Enriched CLA content		0.7301	0.0468	15.6015	0.0000
Price		-0.1841	0.0097	-18.9235	0.0000
Meat is bright red		0.2097	0.0392	5.3530	0.0000
Alternative specific constant of the no meat option		-1.0583	0.0809	-13.0751	0.0000

The estimated coefficients on the attributes have the expected sign. There is an inverse relationship between the price and utility. The utility derived from the alternative declines as the price of the alternative rises. As expected, lean meat is preferred to meat that has a regular fat content. In Table 12 we estimate, at the mean, a respondent willingness to pay for CLA enhanced and enriched meat.

Table 12: Model One Willingness to Pay based on Meat Attributes

Meat attribute:	Willingness to pay for meat
Enhanced CLA	$2.83
Enriched CLA	$3.97

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[16] A test for the equivalency of the coefficients was not rejected.

It is interesting to note that respondents value labels that read "CLA enriched" significantly more than labels that read "CLA enhanced" even though no distinction was made between these terms.[17] This implies that respondents would be willing to pay more for meat if the label read "CLA enriched" than if the label read "CLA enhanced" even if the actual content were the same. We estimate that, at the mean, a respondent would be willing to pay \$2.83/kg more for meat with the "enhanced" label and \$3.97/kg more for meat with the "enriched" label than they would for meat with no such labels.

With regard to the fit of the model, we must estimate the log likelihood for the constants only model.

$$L^*(0) = \Sigma^3_{j=1} \Sigma^N_i a_{ij} \ln Q_j$$

In this case, Q_1, Q_2, and Q_3 are equal to 40.5%, 41.5% and 18.0%, respectively. We estimate the test statistic, again, using the formula as follows:

$$\rho^2 = 1 - L^*(\text{Model One}) / L^*(0)$$

For Model One, ρ^2 is equal to 0.1112. Model One delivers a fit outside the range of excellence (0.2 to 0.4). We now consider a more complex model.

The final version of Model Two is presented in Table 13 below. From that table, we see that price once again is of the expected sign. Lean meat is, again, preferred to dark

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[17] The difference between 'enriched' and 'enhanced' was never discussed or mentioned to the respondents.

red meat and meat that is bright red is preferred to meat that is dark red. Before

discussing the model, we assess whether or not it is an improvement over Model one.

Table 13: Conditional Multinomial Logit Model Two - Choice Between Three Options

n = 6296	ρ2 = 0.15350	Chi-squared (36) = 2044.81525			
Log likelihood function = -5525.482		Prob (chi squared > value) = .00000			
			Standard		
		Coefficient	Error	T-Ratio	P-value
Lean fat content		1.4585	0.0615	23.7112	0.0000
Lean fat content * Male		-0.2609	0.0858	-3.0396	0.0024
Lean fat content * Under 30 years of age		-0.4207	0.0977	-4.3046	0.0000
Lean fat content * Quebec survey location		-0.3304	0.0921	-3.5874	0.0003
Enhanced CLA content		0.1996	0.0789	2.5300	0.0114
Enhanced CLA content * Quebec survey location		0.3681	0.1147	3.2087	0.0013
Enriched CLA content * Quebec survey location		0.4075	0.1059	3.8488	0.0001
Enriched CLA content * Specialty store		0.3815	0.0905	4.2176	0.0000
Enriched CLA content * child		0.3147	0.0929	3.3888	0.0007
Enriched CLA content * Read product labels		0.2418	0.0798	3.0321	0.0024
CLA * Nutrition important		-0.3003	0.0761	-3.9435	0.0001
CLA * Believe in product claims		0.2704	0.0783	3.4524	0.0006
CLA * Heart disease concern		0.2698	0.0765	3.5286	0.0004
Price		-0.1905	0.0099	-19.1517	0.0000
Meat is bright red		0.2156	0.0400	5.3861	0.0000
Toronto survey location		-0.4422	0.0998	-4.4305	0.0000
Vancouver survey location		-0.2896	0.0876	-3.3071	0.0009
Version One		0.3223	0.0713	4.5196	0.0000
Male		0.4316	0.0910	4.7415	0.0000
Over the age of 45		-0.3331	0.0768	-4.3363	0.0000
University graduate		-0.3944	0.0818	-4.8190	0.0000
Household income		0.0083	0.0018	4.5194	0.0000
Household income is greater than $69,999		-0.3131	0.1316	-2.3790	0.0174
Number of children		-0.0927	0.0250	-3.7108	0.0002
Specialty store		-0.2092	0.0793	-2.6389	0.0083
High school graduate only		-0.2619	0.0958	-2.7331	0.0063
Regularly eats beef		1.4724	0.1155	12.7461	0.0000
Believe in product claims		0.2474	0.0910	2.7195	0.0065
Aware of CLA		-0.1654	0.0821	-2.0151	0.0439
Aware of sat. fats		0.6380	0.25297	2.5223	0.0117
Health conscious		0.3323	0.0836	3.9749	0.0001
Price conscious		-0.1366	0.0734	-1.8619	0.0626
Aware of soy protein		-0.4109	0.1139	-3.6065	0.0003
Diet		-0.2019	0.0783	-2.5785	0.0099
Cancer concern		0.3565	0.0951	3.7483	0.0002
Heart disease concern		-0.5600	0.1051	-5.3279	0.0000
Alternative specific constant of Meat Option B		0.0877	0.0314	2.7981	0.0051
Alternative specific constant of the no meat option		0.5762	0.3073	1.8754	0.0607

In comparison to the fit of the constants only model, Model Ttwo has a ρ^2 of 0.1535. It is an improvement on Model One, albeit still not in the "extremely good" range. Since Model One is nested within Model Two, the two models can be directly compared in a chi-squared test. The resulting chi-square statistic, with 31 degrees of freedom, is about 1165.2, which has a p-value of 0.0000. Clearly Model Two is a superior model.

Table 14 presents the estimated impacts on respondent choices based on changes to the attributes and characteristics based on Model Two. These impacts are, again, estimated based at the means. The impacts of the meat attributes are calculated based on the attributes of one meat option changing while that of the other meat option is held constant. For example, when estimating the impact of an "enhanced CLA" label, we calculate the probability of selecting that option if the option had a "regular CLA" label and if it had an "enhanced CLA" label. The difference between the two probabilities is the impact of the "enhanced CLA" label. The calculations are made with the other meat option having a "regular CLA" label and all other variables set at their mean values.

Table 14: Estimated Impact on Consumer Choice

Change attributes of one meat option:	Impact on that Meat Option
Enhanced CLA content	0.1364
Enriched CLA content	0.2300
Colour bright red instead of dark red	0.0505
Price change from $6.27/kg to:	
i. $4.39/kg	0.0878
ii. $7.35/kg	-0.0478
Lean fat content	0.2128
Change in characteristics of mean consumer:	Impact on both Meat Options
Age	-0.0242
Male	0.0216
Vancouver survey location	-0.0270
Toronto survey location	-0.0426
Quebec survey location	0.0118
has a university degree instead of none	-0.0363
High school graduate only	-0.0242
Household income	-0.0460
having children	-0.0028
specialty store	-0.0108
Version One	0.0238

Regularly eats beef	0.1599
Believe in product claims	0.0039
Aware of CLA	-0.0151
Aware of sat. fats	0.0626
Health conscious	0.0290
Price conscious	-0.0123
Aware of soy protein	-0.0344
Diet	-0.0178
Cancer concern	0.0310
Heart disease concern	-0.0418

CLA labels appear to have a significant and strong affect on the respondents' choices. A change in the meat label from "Regular CLA" to "Enhanced CLA" label is associated with that option being selected about 13.6% more frequently. The meat option with an "Enriched CLA" label instead of a "Regular CLA" label would, at the mean, be selected about 23.0% more often.

The fat content and the colour of the meat appear to have mattered to the respondents. An option that is lean would be selected about 21.3% more frequently than an option that has regular fat content. An option that is bright red instead of dark red would be selected about 5.1% more frequently.

The price of meat is, as expected, negatively related to the probability that it is selected. If the price of an option were to decrease from $6.27/kg to $4.39/kg, there will be about an 8.8% increase in the number of times that option would be selected. If the price of a meat option were to increase from $6.27/kg to $7.35/kg, the option would be selected roughly 4.8% less often.

Respondent characteristics appear to have a significant impact on choice. If the respondent eats beef at least once a week instead of less frequently, the meat options would be selected about 16.0% more frequently and the no meat option would be selected correspondingly less frequently . Being aware of saturated fats appears to be positively related to choosing the meat options. A respondent that is aware of saturated fats would be about 6.3% more likely to select a meat option than the no meat option. At the mean, having an increase in household income of $10,000 is associated with a 4.6% decrease in the probability that a meat option will be selected. The other characteristics listed in Table 14 have smaller, but significant impacts on choice.

Table 15 presents the willingness to pay (WTP) for non-monetary attributes based on Model Two. It also demonstrates how WTP varies by the respondents' characteristics. As in Model One, we find that respondents value both CLA enhanced and enriched labels. Respondents in Quebec appear to value meat with such labels more than other respondents. In Quebec, the WTP for meat with "CLA enhanced" and "CLA enriched" labels are $1.93/kg and $2.14/kg, respectively. Respondents that shop in specialty shops, as opposed to chain stores, are willing to pay $2.00/kg more for "CLA enriched" labels, but no more for "CLA enhanced" labels. Respondents with children are willing to pay a bit more for meat with the "CLA enriched" label, about $1.65/kg, than are respondents without children. Respondents who read beef product labels regularly are willing to pay about $1.27/kg more for "CLA enriched" labels than those who read such labels less often. Respondents who believe that nutrition is important in food choices would like to receive a discount on meat with "CLA enriched" and "CLA enhanced" labels. They would like to pay about $1.58/kg less for meat with these labels than those who believe that nutrition is not as important. In comparison to other respondents, those that believe in product claims and those that are concerned that a family member may be diagnosed with heart disease are willing to pay about $1.42/kg more for "CLA enriched" and "CLA enhanced" labels.

There appears to be an additional effect on WTP for "CLA enhanced" labels that are common to all respondents. An average respondent would be willing to pay about $1.05/kg more for meat with a "CLA enhanced" label than for those with labels that specify regular CLA content.

We obtain a weighted average WTP for "CLA enriched" and "CLA enhanced" labels by taking the WTP by each characteristic, as mentioned above, and multiplying it by the percentage of respondents that possess that characteristic. We sum these products to estimate the weighted average. We find that the estimated WTP is about $2.96/kg more for meat with "CLA Enhanced" labels and $3.29/kg more for meat with "CLA Enriched" labels.

Table 15: Willingness To Pay For Meat Attributes

	CLA Content	
	Enhanced	Enriched
WTP components:		
Quebec survey location	$1.93	$2.14
Specialty Store	0.00	2.00
Child	0.00	1.65
Read product labels	0.00	1.27
Nutrition important	-1.58	-1.58
Believe in product claims	1.42	1.42
Heart disease concern	1.42	1.42
Other factors	1.05	0.00
Weighted Average WTP for CLA labelled meat	$2.96	$3.29

Implications and Conclusions

This research has assessed consumers' awareness and attitudes towards nutrition, functional foods and other emerging factors and assessed the importance of health knowledge, health claims and food labelling in affecting consumer purchase decisions. The research also assessed beef consumption patterns, and consumer acceptance and willingness to pay (WTP) for CLA enriched beef and meat products. The results from this research have some interesting findings about consumers' awareness of attitudes towards nutrition and awareness of CLA in beef and consequently some strong implications for future research on and marketing strategies for this product.

Consumers think that food choices are important for preventing chronic lifelong illnesses and they express a high level of concern that they themselves or someone in their family may be diagnosed with cancer, diabetes, or heart disease. When presented with a number of worrisome issues about food products, consumers are least concerned about the use of functional foods for disease prevention or health promotion. Not surprisingly, consumers' awareness of Omega – 3 and CLA has increased in the past two years. However, awareness of CLA is still relatively low compared to Omega-3 and other nutrients and fats in foods.

Most consumers indicated that they frequently eat beef (3-5 times/week). Their favourite beef cuts are ground beef, sirloin and T-Bone. Consumers read beef product labels and nutritional labels and are somewhat influenced by the information they read on labels. However, they are most influenced by information provided by health professionals. Most consumers also indicated that they would like access to more information about their food products, and that the information sources they most trust are the internet, newspapers and magazines and family and friends.

A somewhat positive result of the research suggests that about half of the consumers indicated they would be willing to purchase a beef product that has been labelled as a good source of CLA while some 40% were unsure about purchasing such a product. We find that respondents value the "CLA enhanced" and "CLA enriched" labels with the latter being more valued. We estimated that weighted WTP is about $2.96/kg for meat with "CLA Enhanced" labels and about $3.29/kg for meat with "CLA Enriched" labels above meat with no such label.

The consumer target segment for CLA enriched beef products can be characterized as health conscious consumers who regularly eat beef and who are already familiar with CLA. The consumers who indicated they would purchase CLA beef products are those consumers that tend to read product labels.

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Acknowledgements

Appendix 1: The survey

Information Sheet
Consumer Awareness of and Preferences for Bio-active lipid Enhanced Beef

Purpose: The purpose of this research is to identify consumer needs, attitudes towards and acceptance of beef products enriched with bio-active lipids.

Methods: We are going to ask you a series of questions about your meat consumption. As a purchaser of beef for your household, you are asked to choose among different beef products.

Confidentiality: The information that you provide will be kept confidential. Survey data will be stored in a database in a form that will not identify individuals. These data will be anonymous. Written reports will not identify individual details, and only summary statistics will be reported in research reports, students' dissertations, academic journals, and other publicly available venues. Upon completion of the research, any records that could identify individuals will be destroyed.

Benefits: The results of this study may not have any instant and direct benefits for you, although you will receive a $10 gift certificate for a local supermarket as compensation for your time today. The study will provide valuable information for producers and policy makers to make investment decisions, which may result in offering you more choices for beef products in the near future.

Risks: There are no risks to you in the survey. Since all data will be confidential and information will be summarized without any reference to individual names, there are no risks of disclosure to the public.

Withdrawal: You can withdraw your participation in this survey before answering any questions, or while you are responding to the questionnaire. After you answer the survey, there is a time limit of 24 hrs to request that your answers and your registry of participation be destroyed. Please note that even if you do withdraw we may modify our original questionnaire according to our recollection of your comments on specific questions, but this will not involve retention or use of your personal information. After the time limit of 24 hrs, it will not be possible to resolve any request of withdrawal from participation in the survey. We kindly ask you to understand that this process guarantees the confidentiality of the participants and their answers.

Use of information: The information that you provide will help to analyze the demand and preferences for beef products enriched with bio-active lipids. Only people in the research team, led by Dr. Sean Cash, have access to the information you provide today. The results of this project may be reported in research reports, students' dissertations, presentations, published articles, or other similar venues.

For further information regarding this study please contact: Sean B. Cash, Ph.D., Assistant Professor, at the contact information listed above.

If you have any that you do not feel comfortable discussing with the researchers, you may contact Georgie Jarvis, Administrative Support to the AFHE Research Ethics Board, 2-14 Ag/For Centre, University of Alberta, Edmonton AB T6G 2P5, Ph. (780) 492-8126, Fax (780) 492-0097.

Thank you for your participation

Introduction

Welcome and thank you for agreeing to take part in this research!

This is part of a study conducted at the University of Alberta in Edmonton, Alberta. The study is funded by grants from various non-profit organizations, including the Alberta Livestock Industry Development Fund Ltd, the Alberta Agriculture Research Institute, the Agriculture and Food Council, the Beef Information Centre, and Alberta Agriculture, Food, and Rural Development. In this survey, we are interested in knowing your interest in, attitudes towards and acceptance of health promoting fats.

We ask that you complete all parts of the survey. If you have any questions, please feel free to contact us. Our contact information is given on your consent sheet.

Thank you again for participating!

Questionnaire

[General Attitudinal Questions on food consumption]

Q1. How important do you feel that food choices are in preventing chronic lifelong illness?

1. Not important at all
2. Not very important
3. Somewhat important
4. Very important
5. Extremely important
6 or 0. Don't know / not sure

Q2. Please read each statement carefully and indicate the extent of your agreement or disagreement.

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree	Don't know / not sure
I consider myself to be very health conscious.	1	2	3	4	5
I am conscious about food safety.	1	2	3	4	5
Taste is very important to me.	1	2	3	4	5
Price is very important to me.	1	2	3	4	5
Nutrition is very important in my food decisions.	1	2	3	4	5

Q3. The following is a list of different things that are found in some foods. Please indicate which of them you have heard of before. Check all that apply:

	Aware	Not Aware	Don't know / Not sure
CLA (Conjugated linoleic Acid)	1	2	3
Omega-3 fatty acid	1	2	3
Calcium	1	2	3
Saturated fat	1	2	3
Trans-fatty acids	1	2	3
Hydrogenated fat	1	2	3
Soy protein	1	2	3

[Health Concerns]

Q7. Are you currently on a diet, or have you at any time within the last 6 months been on a diet that restricts either the amount of calories you consume and /or the type of food you eat?

    1. Yes   2. No

If yes, which, if any, of the following types of diets are you either currently on or have you been on in the past six months? Check all that apply:

1. Calorie reduced diet
2. Low fat diet
3. Low carbohydrate diet
4. Low salt diet
! Others, please specify

Q8. Has anyone in your immediate family (including all household members, children, parents, grandparents, aunts or uncles) ever been diagnosed with the following diseases:

	Yes	No	Don't know
Cancer	1	2	3
Heart Disease	1	2	3
Diabetes	1	2	3

Q9. To what extent are you concerned that you or someone in your immediate family (including all household members, children, parents, grandparents, aunts or uncles) might be diagnosed with the following diseases:

	Not concerned at all	Not very concerned	Somewhat concerned	Very concerned	Extremely concerned	Don't know
Cancer	1	2	3	4	5	6
Heart Disease	1	2	3	4	5	6
Diabetes	1	2	3	4	5	6

Q10. Below is a list of possible worrisome issues about food products. For each, please indicate how much of a health concern you feel it is:

	Almost no concern	Slight concern	Moderate concern	High concern	Don't know / not sure
Bacterial contamination of food	1	2	3	4	5
Use of hormones in food production	1	2	3	4	5
Use of antibiotics in food production	1	2	3	4	5
Fat and cholesterol content	1	2	3	4	5
Use of genetic modification in food production	1	2	3	4	5
Use of functional foods (such as omega-3 enriched milk) for disease prevention or health promotion	1	2	3	4	5

[Your Typical Beef Purchase]

Q11. In a typical seven day week, how many times do you eat some form of beef? Be sure to include all meals with beef such as steaks and roasts, spaghetti with meat sauce, hamburgers etc:

1. None
2. 1 to 2 times
3. 3 to 5 times
4. 6 or more times
5. Don't know/refused

Q13. When buying ground beef, which size of package do you prefer?

1. less than 0.25 kg   (approximately 0.5 lb or less)
2. 0.26 to 0.5 kg (approximately 0.5-1 lb)
3. 0.51 to 1.00 kg (approximately 1-2 lb)
4. 1.01 – 1.5 kg   (approximately 2-3 lb)
5. more than 1.5 kg   (approximately more than 3 lb)
6. Don't know / not sure

Q14. When buying beef products, which are your favorite cuts? CHECK ALL THAT APPLY:

1. Top blade steak, boneless
2. Ribeye
3. T-bone steak
4. Ground beef
5. Stew meat boneless
6. Pre-formed hamburgers or meatballs
7. Beef sausage
8. Sirloin
9. Other (specify): _____

[Purchase Simulation]

In this section you will be presented with a series of purchase options for beef. Each option will include a description of different possible features. For each purchase simulation, you will be asked to indicate your preferred choice. Please choose **ONLY ONE OPTION** for each scenario.

We are asking you to indicate what you would do if these products were available in a store, at the described prices. Previous research has shown that when people are asked hypothetical questions like this they often say that they would choose certain goods even though they may be expensive. If they actually had to choose to spend the money they may make different choices. Please respond to the question as if you actually had to pay for the described products.

You may encounter a few options that seem counter-intuitive (e.g., a lower price but a preferred combination of features). Please be assured that this is not an error but part of the design of the survey. Simply choose the one option that you prefer most.

[Note: Each choice set has **three options**, A, B and C. You may choose any of the three.]
[Participants will receive one of the following three information treatments]

INFO SCENARIO 1:

Please read the following brief introduction to CLA.
Conjugated linoleic acid (CLA) is formed naturally in ruminant animals, such as cattle, and is important to human health. Although CLA is classified as a "trans fat", it does not share the harmful properties of industrial processed trans fat. Rather, research suggests that CLA may aid weight loss and alter body composition (i.e., change the muscle to fat ratio), fight cancer and improve the immune system.

Normally we would get CLA in our diets by eating beef and dairy foods. However, changes during the past 30 years in how cattle are raised (grain fed vs. grass fed), coupled with the trend toward low-fat dairy products and leaner meats, have drastically reduced the amount of CLA humans acquire through diet. If cows are fed a diet fortified with sunflower seeds or flax seeds, it is possible to significantly increase the CLA content of milk and beef. According to the livestock industry, CLA-enhanced beef will soon be available to Canadian consumers.

INFO SCENARIO 2:

Please read the following brief introduction to CLA.
Conjugated linoleic acid (CLA) is formed naturally in ruminant animals, such as cattle. Some studies indicate that CLA may aid weight loss and alter body composition (i.e., change the muscle to fat ratio), as well as fighting cancer and improving the immune system. However, these studies have primarily been based on animal trials. Research on the health benefits of CLA is still in the early stages.

Normally we would recieve CLA in our diets by eating beef and dairy foods. However, changes during the past 30 years in how cattle are raised (grain fed vs. grass fed), coupled with the trend toward low-fat dairy products and leaner meats, have drastically reduced the amount of CLA humans acquire through diet. If cows are fed a diet fortified with sunflower seeds or flax seeds, it is possible to significantly increase the CLA content of milk and beef. According to the livestock industry, CLA-enhanced beef will soon be available to Canadian consumers.

INFO SCENARIO 3:   [no information treatment]

Suppose you are shopping for ground beef.

Please examine each choice below, keeping in mind that, in a real-life situation, you would be paying for the product that you choose.

FEATURES	Option A	Option B	Option C
Fat Level	Regular	Lean	Buy none of these
CLA Content	No Label (regular content)	CLA Enhanced	
Price ($/kg)	10.37	4.39	
Colour	Bright red	Dark red	

Q16. Please choose ONE of the available options. Please make the choice that most closely reflects what your decision would be in an actual shopping situation:

1. Option A
2. Option B
3. Option C

[Repeated with different attribute levels from Q16 to Q23]

[Source of Information on Beef Consumption]

Q24. What is your level of familiarity with CLA or CLA-enriched products?

1. Very familiar
2. Moderately familiar
3. Slightly familiar
4. Unfamiliar
5. Never heard of this before this survey
6. Don't know / not sure

Q25. What is your level of familiarity with Omega-3 or Omega-3 enriched products?

    1. Very familiar
    2. Moderately familiar
    3. Slightly familiar
    4. Unfamiliar
    5. Never heard of this before this survey
    6. Don't know / not sure

Q26. If you were to buy CLA-enriched and / or Omega-3 enriched beef products, where would you seek information on CLA? CHECK ALL THAT APPLY:

    1. Friends and family
    2. Newspapers and magazines
    3. Radio and TV
    4. The internet
    5. Other (specify) _____
    6. I would not seek any information
    7. Don't know / not sure

Q27. If you were to buy CLA-enriched and / or Omega-3 enriched beef products, to what extent would you be influenced by information provided by the following sources?:

	Not influenced at all	Least influenced	somewhat influenced	Strongly influenced	Most influenced	Don't know/not sure
TV and Radio	1	2	3	4	5	6
Newspapers and Magazines	1	2	3	4	5	6
Internet	1	2	3	4	5	6
Family and Friends	1	2	3	4	5	6
Promotional flyers	1	2	3	4	5	6
Health professionals	1	2	3	4	5	6
In-store communication	1	2	3	4	5	6
Label on package	1	2	3	4	5	6

[Labeling]

Q28. Before buying beef products, do you read the product labels?:

    1. Always
    2. Most of the time
    3. Sometimes
    4. Rarely
    5. Never
    6. Don't know / not sure

Q29. In a situation in which you are considering purchasing a food product that you have not bought before, how often do you read the nutrition labels on the food products that you are considering purchasing?:

    1. Always
    2. Most of the time
    3. Sometimes
    4. Rarely
    5. Never
    6. Don't know / not sure

Q30. Currently, food companies sometimes make certain claims on food labels linking food consumption with the prevention of certain illnesses or conditions. For example, a diet low in saturated fat may reduce the risk of heart disease. In your opinion, how believable, in general, are health claims on food product labels?:

    1. Never believable
    2. Not very believable
    3. Somewhat believable
    4. Very believable
    5. Always believable
    6. Don't know / not sure

Q31. Would you like to purchase a beef product that has labeled as being a good source of CLA?

    1. Yes, I would
    2. No, I wouldn't
    3. Don't know / not sure.

Q32. Do you think the food industry should be allowed to provide information on its products even if the information is not approved by the government?:

   1. Yes, I do
   2. No, I don't.
   3. Don't know / not sure

Q33. Suppose product A can provide a number of health benefits. However, under the regulatory system in Canada, the manufacturers of product A are not allowed to provide any information on those benefits. Do you think the manufacturers should be granted more freedom to provide information or must they follow government regulations strictly?:

   1. Manufacturers should have more freedom to provide information.
   2. Government should have total control of information on food products.
   3. Don't know / not sure.
   4. Other, please specify:_____

Q34. As a consumer, would you like to have access to more information (regardless of whether the information is approved by the government or not), so that you can make your own judgements when purchasing related food products?:

   1. Yes, I do.
   2. No, I don't.
   3. Don't know / not sure.
   4. Other, please specify:_____

 [Demographic Information]

Q35. What is your gender?

   1. Male
   2. Female

Q36. What is your age?: _____

Q37. Are there children in your household?:

   1. Yes
   2. No

Q38. If there are children in your household how many of those children fall into each of the following age groups?

1-4 _____

5-11 _____

12-17 _____

Q39. What is the highest level of education that you have completed?:

1. Never attended school
2. Grade school (grades 1 to 9)
3. Some high school
4. High school graduate
5. Post secondary trade or technical school certificate / degree
6. Some university or college
7. College diploma / degree
8. University undergraduate degree
9. Some post graduate university study
10. Post graduate university degree (e.g., Masters or Ph.D.)

Q40. Which of the following best describes your employment status?:

1. Working full- or part-time
2. Full-or part-time student
3. Not in the wage labor force
4. Retired

Q41. For classification purposes, what is your total household income before taxes?:

1. Less than $10,000
2. $10,000 - $19,999
3. $20,000 - $29,999
4. $30,000 - $39,999
5. $40,000 - $49,999
6. $50,000 - $59,999
7. $60,000 - $69,999
8. $70,000 - $79,999
9. $80,000 - $89,999
10. $90,000 - $99,999
11. $100,000 - $150,000
12. More than $150,000

Q42. Do you work in any of the following areas?:

1. Hospital or health services
2. Government institutions
3. Non-profit non-governmental organization
4. Food industry (farming, retailing, or food-related industry)
5. None of the above

Document d'information

Connaissances du consommateur et préférences associées
aux produits bovins enrichis en bons gras pour la santé

Objectif

L'objectif de cette recherche est d'identifier les besoins du consommateur, son attitude et son acceptabilité face aux produits bovins enrichis en bons gras pour la santé.

Méthodologie

Nous vous poserons une série de questions concernant votre consommation de viande. En tant qu'acheteur de viande de bœuf à l'intérieur de votre ménage, vous serez appelé à choisir parmi différents produits de bœuf.

Confidentialité

L'information que vous apportez restera confidentielle. Les données du sondage seront recueillies à l'intérieur d'une base de données qui empêchera toute forme de divulgation de l'identité des répondants. Les données conserveront l'anonymat des répondants. Les rapports de recherche, les travaux d'étudiants, les revues académiques et les autres formes de publications disponibles ne feront qu'une synthèse des statistiques obtenues. Aucune identité ou information sur les répondants de cette étude ne sera rapportée dans ces documents. Une fois le projet de recherche complété, toute information servant à identifier les répondants sera supprimée.

Avantages

Il est possible que vous ne puissiez bénéficier directement des résultats de cette étude. Cependant, vous recevrez un certificat-cadeau d'une valeur de 10$ à votre supermarché local en guise de compensation pour votre temps aujourd'hui. L'étude fournira une information économique aux producteurs et aux décideurs politiques dans leurs décisions d'investissement. Il se pourrait que vous ayez un éventail de choix plus grand pour les produits bovins à court terme.

Risque

Il n'y a aucun risque pour vous en répondant au sondage. Puisque toutes les données seront confidentielles et que l'information résumée ne divulguera pas le nom des répondants, il n'y a pas de risque de révéler de l'information confidentielle au public.

Retrait de votre participation

Vous pouvez retirer votre participation de ce sondage avant de répondre à n'importe quelle question, ou au moment où vous êtes en train de répondre au questionnaire. Après avoir répondu au sondage, il vous est possible de demander que vos réponses et votre coupon de participation soient détruits à condition de le faire dans un délai maximum de 24 heures. Notez que même si vous retirez votre participation, nous pouvons modifier notre questionnaire original en tenant compte de vos commentaires sur des questions spécifiques. Toutefois, cela n'implique pas la retenue et l'utilisation de votre information personnelle. Une fois le délai limite de 24 heures écoulées, il ne sera plus possible de répondre à une demande de retrait de participation à ce sondage. Nous vous prions de comprendre que ce processus garantit la confidentialité des participants ainsi que leurs réponses.

Utilisation de l'information

L'information que vous nous fournissez permettra d'analyser la demande et les préférences pour les produits bovins enrichis avec des gras bons pour la santé. Seulement les personnes faisant partie de l'équipe de recherche dirigée par le Dr Sean Cash ont accès à l'information que vous avez fournie aujourd'hui. Les résultats de cette études peuvent être cités dans des rapports de recherche, des travaux d'étudiant, des présentations, des articles publiés ou d'autres formes de publication similaires.

Information supplémentaire

Pour plus d'information concernant cette étude, veuillez contacter Sean B. Cash, Ph. D, professeur assistant. Les coordonnées se trouvent ci-haut.

Pour toute question avec laquelle vous ne vous sentez pas à l'aise de discuter directement avec les chercheurs, veuillez contacter Georgie Jarvis, Administrative Support to the AFHE Research Ethics Board, 2-14 Ag/For Centre, University of Alberta, Edmonton AB T6G 2P5, tél. (780) 492-8126, fax (780) 492-0097.

Merci de votre participation

Introduction

Bienvenue et merci d'avoir accepté de participer à cette étude!

Ce sondage fait partie d'une étude réalisée à l'Université d'Alberta, à Edmonton. L'étude est financée par des subventions provenant de divers organismes à but non-lucratif, dont le *Alberta Livestock Industry Development Fund Ltd*, le *Alberta Agriculture Research Institute*, le *Agriculture and Food Council*, le *Centre d'information sur le boeuf*, et *Alberta Agriculture, Food, and Rural Development*.

Par ce sondage nous désirons connaître vos intérêts, attitudes et votre acceptation des gras bons pour la santé.

Nous vous demandons de compléter toutes les sections du sondage. Si vous avez des questions, n'hésitez pas à nous contacter. Le formulaire de consentement contient les coordonnées pour nous contacter.

Note: Le genre masculin est utilisé pour désigner femmes et hommes, sans discrimination et dans le seul but d'alléger le texte.

Questionnaire

[Questions sur les attitudes générales par rapport à la consommation alimentaire]

Q1. Quelle importance accordez-vous au choix des aliments dans la prévention des maladies chroniques permanentes?
1. Pas du tout important
2. Pas très important
3. Plus ou moins important
4. Très important
5. Extrêmement important
6. Je ne sais pas/incertain

Q2. S'il vous plaît, lire chacune des affirmations attentivement et indiquez votre accord ou désaccord avec l'affirmation.

Affirmations	Fortement en désaccord	Plus ou moins en désaccord	Plus ou moins d'accord	Fortement d'accord	Ne sais pas / incertain
La santé est très importante pour moi.	1	2	3	4	5
Je me soucie de la salubrité des aliments.	1	2	3	4	5
Le goût est très important pour moi.	1	2	3	4	5
Le prix est très important pour moi.	1	2	3	4	5
La nutrition est très importante dans mes choix alimentaires.	1	2	3	4	5

Q3. Ci-après se trouve une liste de différentes choses que l'on retrouve dans les aliments. S'il vous plaît, indiquez desquelles vous avez déjà entendu parler. Cochez tous les cas applicables.

	Déjà entendu parler	Jamais entendu parler	Ne sais pas / incertain
ALC (Acides linoléiques conjugués)	1	2	3
Acide gras de type Oméga-3	1	2	3
Calcium	1	2	3
Gras saturés	1	2	3
Acides gras trans	1	2	3
Gras hydrogénés	1	2	3
Protéine de soya	1	2	3

[Questions reliées à la santé]

Q7. Êtes-vous présentement au régime ou avez-vous au cours des six derniers mois suivi un régime qui limite soit le nombre de calories que vous consommez et/ou les sortes d'aliments que vous mangez?

    1. Oui   2. Non

Si oui, lequel ou lesquels des types de régimes suivant avez-vous suivi au cours des six derniers mois? Cochez tous les cas applicables.

1. Régime réduit en calories
2. Régime faible en gras
3. Régime faible en glucides (ou faible en hydrates de carbones)
4. Régime faible en sel
! Autres, s'il vous plaît spécifiez :

Q8. Est-ce que l'un des membres de votre famille immédiate (incluant tous les membres de votre foyer, enfants, parents, grands-parents, tantes ou oncles) a déjà été diagnostiqué comme souffrant de l'une des maladies suivantes?

	Oui	Non	Je ne sais pas
Cancer	1	2	3
Maladies cardiaques	1	2	3
Diabète	1	2	3

Q9. Jusqu'à quel point êtes-vous inquiet que vous ou quelqu'un dans votre famille immédiate (incluant tous les membres de votre foyer, enfants, parents, grands-parents, tantes et oncles) puisse être diagnostiqué comme souffrant de l'une des maladies suivantes?

	Pas inquiet du tout	Pas très inquiet	Plus ou moins inquiet	Très inquiet	Extrêmement inquiet	Ne sais pas
Cancer	1	2	3	4	5	6
Maladies cardiaques	1	2	3	4	5	6
Diabète	1	2	3	4	5	6

Q10. Ci-après se trouve une liste d'intérêts et de préoccupations possibles concernant les produits alimentaires. Pour chacun veuillez indiquer jusqu'à quel point cet intérêt ou cette préoccupation revêt de l'importance par rapport à votre santé.

Situation	Très peu important	Peu important	Modérément important	Très important	Ne sais pas / incertain
Contamination bactérienne des aliments	1	2	3	4	5
Utilisation d'hormones dans la production des aliments	1	2	3	4	5
Utilisation d'antibiotiques dans la production des aliments	1	2	3	4	5
Contenu en gras et en cholestérol	1	2	3	4	5
Utilisation de modifications génétiques dans la production des aliments	1	2	3	4	5
Utilisation d'aliments fonctionnels (tel le lait enrichi d'oméga-3) pour la prévention des maladies ou pour promouvoir la santé	1	2	3	4	5

[Vos achats de bœuf typiques]

Q11. Au cours d'une semaine typique de sept jours, combien de fois mangez-vous du bœuf sous n'importe quelle forme? Assurez-vous de compter tous les repas contenant du bœuf, tels que les steaks et les rôtis, les spaghettis sauce à la viande, les hamburgers, la fondue chinoise, etc.:

  1. Aucune
  2. 1-2 fois
  3. 3-5 fois
  4. 6 fois ou plus
  5. Ne sais pas / refuse de répondre

Q13. Lorsque vous achetez du bœuf haché, quel format d'emballage préférez-vous?

  1. Moins de 0,25 kg   (approximativement 0,5 lb ou moins)
  2. 0,26 – 0,5 kg (approximativement 0,5-1 lb)
  3. 0,51 – 1,00 kg (approximativement 1-2 lb)
  4. 1,01 – 1,5 kg   (approximativement 2-3 lb)
  5. Plus de 1,5 kg   (approximativement plus de 3 lb)
  6. Ne sais pas / incertain

Q14. Lorsque vous achetez du bœuf, quelles sont vos coupes préférées? COCHEZ TOUS LES CHOIX APPLICABLES.

1. Bifteck de palette désossé
2. Faux-filet
3. Bifteck d'aloyau (T-bone)
4. Bœuf haché
5. Bœuf à mariner désossé
6. Burgers ou boulettes préparées
7. Saucisses de boeuf
8. Surlonge
9. Autres
   a. Tournedos
   b. Viande à fondue chinoise
   c. Autre (spécifier): _____

Dans cette section nous vous présenterons une série d'options d'achat de bœuf. Chaque option inclura une description des différentes caractéristiques possibles. Pour chacune des simulations d'achat nous vous demanderons d'indiquer votre choix préféré. S'il vous plaît ne choisissez qu'UNE SEULE OPTION par scénario.

Nous vous demandons d'indiquer ce que vous feriez si ces produits étaient disponibles en magasin, aux prix tels que décrits. Des études passées ont démontré que lorsque les gens se font poser des questions hypothétiques de ce type, les gens disent souvent qu'ils choisiraient certains produits même s'ils sont plus dispendieux. S'ils devaient choisir de dépenser cet argent dans la réalité, leurs choix pourraient être différents. S'il vous plaît, répondez aux questions comme si vous alliez réellement payer pour les produits décrits.

Certaines des options présentées iront peut-être à l'encontre de votre intuition (ex.: un prix moindre pour une combinaison de caractéristiques désirables). Nous vous assurons qu'il ne s'agit pas d'une erreur, que cela fait bel et bien partie de la conception du sondage. S'il vous plaît choisissez simplement l'option que vous préférez.

[Note : Chaque choix comporte trois options : A, B et C. Vous pouvez choisir n'importe laquelle de ces trois options.]

[Participants will receive one of the following 2 information treatments]

INFO SCENARIO 1:

S'il vous plaît veuillez lire la courte introduction suivante sur les ALC.

Les acides linoléiques conjugués (ALC) sont naturellement formés chez les ruminants, tel le bœuf. Des études indiquent que les ALC pourraient contribuer à la perte de poids et à modifier la composition corporelle (c'est-à-dire changer le ratio de muscles par rapport au gras), de même qu'à combattre le cancer et renforcer le système immunitaire. Cependant, ces études reposent principalement sur des tests sur des animaux. La recherche sur les bienfaits pour la santé des ALC en est encore à ses débuts.

Normalement nous consommerions des ALC dans notre alimentation en mangeant du bœuf et des produits laitiers. Cependant, des changements au cours des 30 dernières années dans la façon d'élever le bétail (nourri au grain plutôt qu'au foin), jumelés à une tendance envers la consommation de produits laitiers faibles en gras et de viandes maigres ont diminués de façon draconienne la quantité d'ALC que les humains retirent de leur alimentation.

Si l'on nourri les vaches d'une ration enrichie en graines de tournesol ou en graines de lin, il est possible d'augmenter de façon significative la teneur en ALC du lait et du bœuf. Selon l'industrie de l'élevage, du bœuf enrichi en ALC sera bientôt offert aux consommateurs canadiens.

INFO SCENARIO 2:

S'il vous plaît veuillez lire la courte introduction suivante sur les ALC.

Les acides linoléiques conjugués (ALC) sont naturellement formés chez les ruminants, tel le bœuf, et sont importants pour la santé humaine. Malgré le fait que les ALC soient classifiés comme étant des acides gras « trans », ils ne partagent pas les propriétés néfastes des acides gras trans formés lors de la transformation industrielle. Au contraire la recherche suggère que les ALC pourraient contribuer à la perte de poids et à modifier la composition corporelle (c'est-à-dire changer le ratio de muscles par rapport au gras), de même qu'à combattre le cancer et renforcer le système immunitaire.

Normalement nous consommerions des ALC dans notre alimentation en mangeant du bœuf et des produits laitiers. Cependant, des changements au cours des 30 dernières années dans la façon d'élever du bétail (nourri au grain plutôt qu'au foin), jumelés à une tendance envers la consommation de produits laitiers faibles en gras et de viandes maigres ont diminués de façon draconienne la quantité d'ALC que les humains retirent de leur alimentation.

Si l'on nourri les vaches d'une ration enrichie en graines de tournesol ou en graines de lin, il est possible d'augmenter de façon significative la teneur en ALC du lait et du bœuf. Selon l'industrie de l'élevage, du bœuf enrichi en ALC sera bientôt offert aux consommateurs canadiens.

Supposez que vous magasiniez pour du bœuf haché.

Veuillez s'il vous plaît examiner les choix ci-dessous, en gardant à l'esprit que, dans une situation de la vie réelle, vous devriez payer pour le produit que vous choisissez.

FEATURES	Option A	Option B	Option C
Fat level	Lean	Lean	
CLA Content Label	No Label (regular content)	Rich in CLA	Buy none of these
Price ($/kg)	4.39	4.39	
Color	Dark red	Bright red	

Q16. SVP choisir UNE des options présentées. SVP, assurez-vous de choisir l'option qui reflète le mieux ce que serait votre décision dans une situation d'achat réelle :

☐
Option A

☐
Option B

☐
Option C

[Repeated with different attribute levels]

[Source d'information sur la consommation de bœuf]

Q24. À quel point êtes-vous familier avec les ALC ou les produits enrichis en ALC?

1. Très familier
2. Modérément familier
3. Légèrement familier
4. Pas familier
5. N'en ai jamais entendu parler avant ce sondage
6. Ne sais pas / incertain

Q25. À quel point êtes-vous familier avec les oméga-3 ou les produits enrichis en oméga-3

1. Très familier
2. Modérément familier
3. Légèrement familier
4. Pas familier
5. N'en ai jamais entendu parler avant ce sondage
6. Ne sais pas / incertain

Q26. Si vous achetiez des produits du bœuf enrichis en ALC et/ou en oméga-3, où rechercheriez-vous de l'information sur les ALC? Cochez toutes les réponses applicables.
1. Amis et famille
2. Journaux et magazines
3. Radio et télévision
4. Internet
5. Autre (spécifiez) _____
6. Je ne chercherais aucune information
7. Ne sais pas / incertain

Q27. Si vous achetiez des produits du bœuf enrichis en ALC et/ou en oméga-3, jusqu'à quel point seriez-vous influencé par l'information provenant de diverses sources?

Source d'information	Pas du tout influencé	Peu influencé	Plus ou moins influencé	Fortement influencé	Très influencé	Ne sais pas / incertain
TV et radio	1	2	3	4	5	6
Journaux et magazines	1	2	3	4	5	6
Internet	1	2	3	4	5	6
Famille et amis	1	2	3	4	5	6
Dépliants promotionnels	1	2	3	4	5	6
Professionnels de la santé	1	2	3	4	5	6
Information en magasin	1	2	3	4	5	6
Étiquette sur l'emballage	1	2	3	4	5	6

[Étiquetage]
Q28. Avant d'acheter du bœuf, lisez-vous l'étiquette sur le produit?

1. Toujours
2. La plupart du temps
3. Des fois
4. Rarement
5. Jamais
6. Ne sais pas / incertain

Q29. Lorsque vous songez à acheter un produit alimentaire que vous n'avez jamais acheté auparavant, lisez-vous l'étiquette sur ce produit?

1. Toujours
2. La plupart du temps
3. Des fois
4. Rarement
5. Jamais
6. Ne sais pas / incertain

Q30. À l'heure actuelle, les compagnies alimentaires peuvent parfois imprimer des allégations santé sur leurs étiquettes reliant la consommation d'aliments avec la prévention de certaines maladies et de problèmes de santé. Par exemple : « Une alimentation faible en graisses saturées peut réduire les risques de maladies cardiovasculaires ». Selon vous, quelle crédibilité ont, en général, ces allégations santé sur les étiquettes des produits alimentaires?

     1. Jamais crédible
     2. Pas très crédible
     3. Plus ou moins crédible
     4. Très crédible
     5. Toujours crédible
     6. Ne sais pas / incertain

Q31. Aimeriez-vous acheter du bœuf qui serait étiqueté comme étant une « bonne source d'ALC »?
     1. Oui, j'aimerais acheter du bœuf étiqueté une « bonne source d'ALC ».
     2. Non, je n'aimerais pas acheter du bœuf étiqueté une « bonne source d'ALC ».
     3. Ne sais pas / incertain

Q32. Croyez-vous que l'industrie alimentaire devrait pouvoir fournir de l'information sur ses produits même si cette information n'est pas approuvée par le gouvernement?

     1. Oui, je crois que l'industrie devrait pouvoir fournir plus d'information.
     2. Non, je ne crois pas que l'industrie devrait pouvoir fournir plus d'information.
     3. Ne sais pas / incertain

Q33. Supposez que le produit A puisse fournir un certain nombre de bénéfices pour la santé. Cependant, dans le cadre réglementaire canadien, le fabricant du produit A ne peut fournir aucune information sur ces bénéfices. Pensez-vous que les fabricants devraient se voir accorder plus de liberté de fournir de l'information ou devraient-ils être forcés de suivre de strictes règlementations?

     1. Les fabricants devraient avoir plus de liberté de fournir de l'information.
     2. Le gouvernement devrait avoir le contrôle absolu sur l'information sur les aliments.
     3. Ne sais pas / incertain.
     4. Autres (spécifiez):_____

Q34. En tant que consommateur, voudriez-vous avoir accès à plus d'information (que l'information soit approuvée par le gouvernement ou non), afin de juger par vous-même lorsque vous achetez un produit alimentaire?

     1. Oui, je voudrais plus d'information.
     2. Non, je ne voudrais pas plus d'information.
     3. Ne sais pas / incertain.
     4. Autres (spécifiez):_____

[Données démographiques]

Q35. Êtes vous…

    1. Un homme   2. Une femme

Q36. Quel âge avez-vous? _____

Q37. Y a-t-il des enfants dans votre foyer? _____

Q38. Si oui, combien des enfants habitant dans votre foyer entrent dans chacune des catégories d'âge ci-dessous?

    1 à 4 ans   _____

    5 à 11 ans   _____

    12 à 17 ans   _____

Q39. Quel est le plus haut degré de scolarité que vous avez complété?

1. Jamais allé à l'école
2. École primaire (1$^{\text{ère}}$ à 6$^{\text{e}}$ année) et premier cycle du secondaire (Secondaire 3)
3. Plus que secondaire 3, moins que secondaire 5
4. Diplôme d'études secondaires (DES) ou diplôme d'études professionnelles (DEP)
5. Diplôme d'études collégiales (DEC) techniques
6. Diplôme d'études collégiales (DEC) pré-universitaires
7. Certificat universitaire (1 an)
8. Diplôme universitaire de premier cycle (baccalauréat)
9. Quelques années d'études universitaires de deuxième cycle
10. Diplôme universitaire de deuxième ou troisième cycle (ex : maîtrise ou doctorat)

Q40. Laquelle des options suivantes décrit le mieux votre situation d'emploi?

1. Travailleur à temps plein ou à temps partiel
2. Étudiant à temps plein ou à temps partiel
3. Ne fait pas partie de la population active rémunérée
4. À la retraite

Q41. À des fins de classification, quel est le revenu total de votre ménage avant taxes?
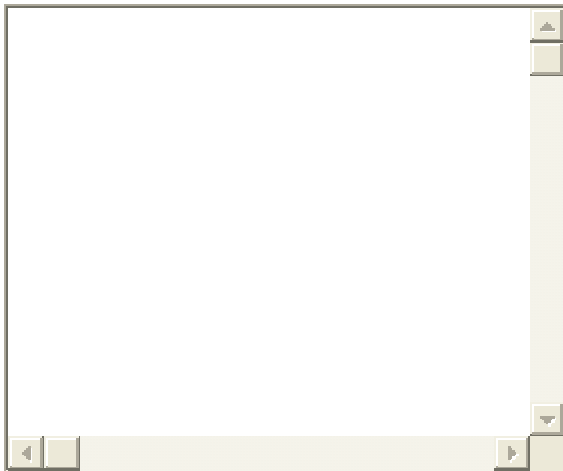
1. Moins de 10 000$
2. 10 000$ - 19 999$
3. 20 000$ - 29 999$
4. 30 000$ - 39 999$
5. 40 000$ - 49 999$
6. 50 000$ - 59 999$
7. 60 000$ - 69 999$
8. 70 000$ - 79 999$
9. 80 000$ - 89 999$
10. 90 000$ - 99 999$
11. 100 000$ - 150 000$
12. Plus de 150 000$

Q42. Travaillez vous dans l'un des secteurs suivants?

1. Hôpitaux ou services de santé
2. Institutions gouvernementales
3. Organismes non gouvernementaux à but non lucratif
4. Secteur alimentaire (production agricole, vente de détail ou autre secteur relié à l'alimentation)
5. Aucune de ces réponses

Merci d'avoir participé à ce sondage.

Afin de vous dédommager pour le temps que vous avez passé à répondre à ce sondage, nous aimerions vous envoyer par la poste un certificat-cadeau de 10$ valide à votre supermarché local. Si vous désirez recevoir ce certificat-cadeau, veuillez s'il vous plaît nous fournir votre adresse postale ainsi que le nom et lieu du supermarché où vous avez été recruté pour ce sondage.

Veuillez s'il vous plaît nous adresser vos commentaires, s'il y a lieu, dans la case ci-dessous:

Purchase Simulation Questions Images Translation

ENGLISH TERM	FRENCH TERM
Features	Caractéristiques
Option	Option
Fat level	Contenu en gras
Lean	Maigre
Regular	Régulier
CLA Content Label	Étiquette indiquant la teneur en ALC
No Label (Regular content)	Absence d'étiquette (teneur standard)
CLA Enhanced	Enrichi en ALC
Rich in CLA	Riche en ALC
Buy none of these	N'acheter aucune de ces options
Price ($/kg)	Prix ($/kg)
$4.39	4,39$
Color	Couleur
Dark red	Rouge foncé
Bright red	Rouge vif

How to do é and É without a French keyboard, using ASCII codes:
- É: ALT+144
- é: ALT+130

Appendix 2: Detailed breakdown of the data

Demographic	Calgary, AB		Vancouver area, BC		Toronto area, ON		Quebec City, PQ		Total Sample[18]	
	No.	%	No.	%	No.	%	No.	%	No.	%
Gender:										
Male	81	32.5	99	41.8	66	45.5	63	38.0	311	38.9
Female	168	67.5	138	58.2	79	54.5	103	62.0	489	61.1
Total	249	100	237	100	145	100	166	100	800	100
Age:										
Less than 35	40	16.1	61	25.7	29	20.0	63	38.0	196	24.5
35 – 44	38	15.3	49	20.7	28	19.3	28	16.9	143	17.9
45-54	99	39.8	63	26.6	26	17.9	31	18.7	218	27.3
55-64	35	14.1	44	18.6	23	15.9	31	18.7	134	16.8
65 and older	37	14.9	20	8.4	39	26.9	13	7.8	109	13.6
Total	249	100	237	100	145	100	166	100	800	100
Median age	45-54		45-54		45-54		35-44		45-54	
Income:										
Less than $10,000	2	.8	11	4.6	8	5.7	10	6.0	31	3.9
$10,000 - $19,999	10	4.0	15	6.3	9	6.4	24	14.5	58	7.3
$20,000 - $29,999	22	8.8	17	7.2	12	8.6	25	15.1	77	9.7
$30,000 - $39,999	27	10.8	23	9.7	19	13.6	20	12.0	89	11.2
$40,000 - $49,999	26	10.4	24	10.1	15	10.7	21	12.7	87	10.9
$50,000 - $59,999	23	9.2	26	11.0	10	7.1	16	9.6	70	8.8
$60,000 - $69,999	47	18.9	44	18.6	19	13.6	19	11.4	134	16.9
$70,000 - $79,999	26	10.4	19	8.0	8	5.7	8	4.8	61	7.7
$80,000 - $89,999	16	6.4	13	5.5	7	5.0	7	4.2	43	5.4
$90,000 - $99,999	10	4.0	10	4.2	10	7.1	3	1.8	33	4.2
$100,000 - $150,000	40	16.1	35	14.8	23	16.4	13	7.8	112	14.1
Total	249	100	237	100	140[19]	100	166	100	795	100

[18] Total sample includes 3 online responses that did not identify in which city they live

[19] 5 non-responses for income from Toronto respondents

Demographic	Calgary, AB		Vancouver area, BC		Toronto area, ON		Quebec City, PQ		Total Sample[18]	
	No.	%	No.	%	No.	%	No.	%	No.	%
Median Income	$60,000 - $69,999		$60,000 - $69,999		$50,000 - $59,999		$40,000- $49,000		$50,000 - $59,999	
Education										
Never attended school	0	0	0	0	0	0	1	.6	1	.1
Grades 1-9	3	1.2	4	1.7	3	2.1	5	3.0	15	1.9
Some high school	8	3.2	7	3.0	10	6.9	0	0	26	3.3
High school graduate	43	17.3	47	19.8	21	14.5	55	33.1	166	20.8
Post secondary trade or technical school certificate / degree	43	17.3	30	12.7	5	3.4	33	19.9	111	13.9
Some university or college	28	11.2	36	15.2	20	13.8	17	10.2	101	12.6
College diploma / degree	38	15.3	34	14.3	22	15.2	10	6.0	104	13.0
University undergraduate degree	47	18.9	38	16.0	39	26.9	30	18.1	154	19.3
Some post graduate university study	12	4.8	9	3.8	11	7.6	5	3.0	38	4.8
Post graduate degree	27	10.8	32	13.5	14	9.7	10	6.0	84	10.5
Total	249	100	237	100	145	100	166	100	800	100
Median Education	Some university or college		Some university or college		College diploma / degree		Post secondary trade or technical school certificate/degree		Some university or college	
Children in Household										
Yes	88	35.3	90	38.0	39	26.9	56	33.7	273	34.1
No	161	64.7	147	62.0	106	73.1	110	66.3	527	65.9
Total	249	100	237	100	145	100	166	100	800	100

Appendix 3: Data by City

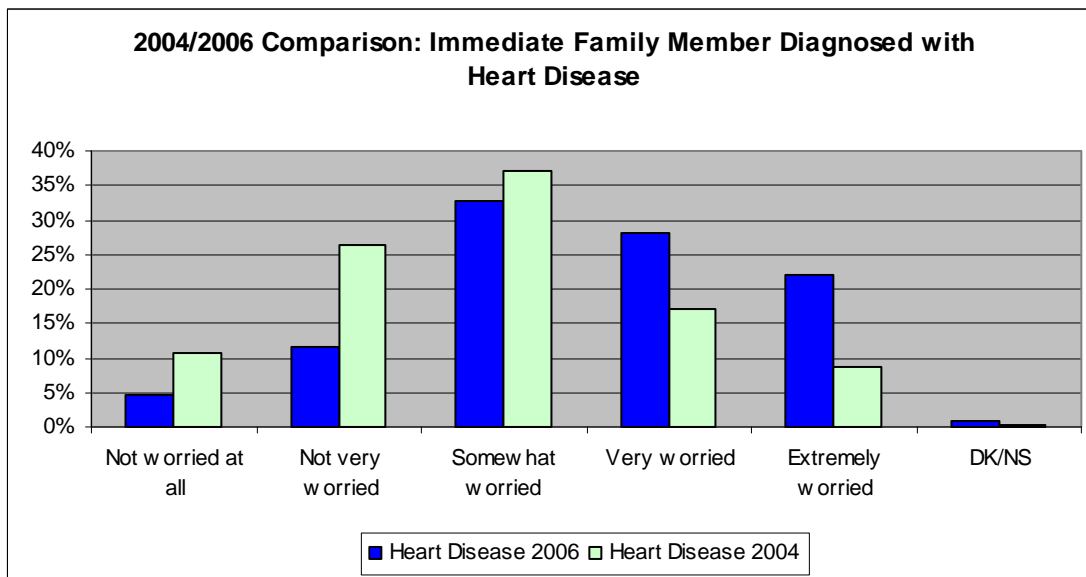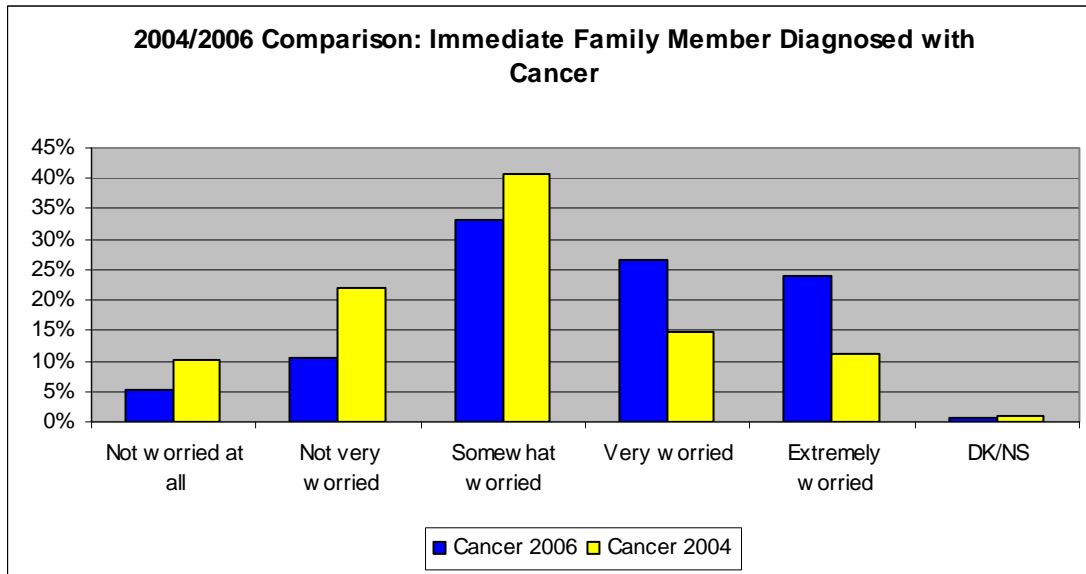| I consider myself to be very health conscious	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
Calgary	0.8	2.8	41.4	55.0	0.0	**3.5**
Vancouver	5.1	3.4	34.6	56.1	0.8	**3.4**
Toronto	2.8	8.3	35.2	53.1	0.7	**3.4**
Quebec	6.0	0.0	2.4	91.6	0.0	**3.8**

I am conscious about food safety	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
Calgary	1.6	2.8	23.7	70.3	1.6	**3.7**
Vancouver	4.6	3.8	17.7	72.6	1.3	**3.6**
Toronto	3.4	3.4	19.3	73.8	0.0	**3.6**
Quebec	5.4	0.6	5.4	88.6	0.0	**3.8**

Taste is very important to me	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
Calgary	1.6	0.0	16.1	79.1	3.2	**3.8**
Vancouver	5.1	1.3	14.3	79.3	0	**3.7**
Toronto	3.4	0.7	17.9	77.9	0	**3.7**
Quebec	4.2	1.8	7.2	86.7	0	**3.8**

Price is important to me	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
Calgary	2.0	5.2	36.5	55.0	1.2	**3.5**
Vancouver	3.8	9.7	36.7	49.8	0	**3.3**
Toronto	4.1	6.9	33.8	55.2	0	**3.4**
Quebec	4.2	7.8	42.8	45.2	0	**3.3**

Nutrition is very important in my food decisions	1=Strongly Disagree	2=Some what Disagree	3=Some what Agree	4=Strongly Agree	0=Don't know/not sure	Sub group index score
			Percentage			
Calgary	1.2	2.0	26.5	68.7	1.6	**3.7**
Vancouver	5.1	3.4	24.5	65.8	1.3	**3.5**
Toronto	2.8	5.5	24.8	66.9	0.0	**3.6**
Quebec	5.4	1.8	16.9	75.9	0.0	**3.6**

Appendix 4: Comparisons of the 2004 and 2006 data

2004/2006 Comparison: Immediate Family Member Diagnosed with Cancer

Legend: ■ Cancer 2006 □ Cancer 2004

2004/2006 Comparison: Immediate Family Member Diagnosed with Heart Disease

Legend: ■ Heart Disease 2006 □ Heart Disease 2004

2004/2006 Comparison: Immediate Family Member Diagnosed with Diabetes