

Canadian Consumers' Choices for GM Food: Risk Attitudes, Perceptions and Responses to Information



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Consumers' Perceptions and Choice Behaviour for GM foods in Canada



- ⌘ Based on the Genome Prairie GE3LS project: The Influence of Social Interactions and Information on Risk Perceptions and Attitudes Towards Genomic Technologies
- ⌘ The study is motivated by the lack of knowledge on how people form and change risk perceptions, for food in particular, as these are expressed in people's behavioural trade-offs, for GM food.
 - ⊞ How do these trade-offs and choices change in the context of different sources and types of information?
 - ⊞ How are such changes in trade-offs influenced by demographic and socioeconomic factors?

The Influence of Information on Risk Perceptions and Attitudes Towards Genomic Technologies

Theoretical framework:

- ⌘ Draws mainly from economics, sociology and psychology;
- ⌘ Focuses on decision making under risk as seen in the context of people's choices

Major methods:

- ⌘ Focus groups
- ⌘ Computer-aided survey instrument
- ⌘ Choice experiment formats

Survey Development I



- ⌘ Reduce problems of bias by embedding choices within the context of simulated purchases;
- ⌘ Choice of bread as a basic food for which market values of GM content/certified absence have not yet been established (GM wheat is not available but is proposed).
- ⌘ Two statistically designed experiments; one (A) focusing on information type, source and search/acquisition; the second (B) focusing on the effects on choices of two labelling information regimes

Survey Development II: focus groups



- ⌘ We tested concepts, wording and proposed methods in focus groups: four student groups and three public groups. Two different foods were used in different focus group discussions: a tortilla chip (snack food) and bread (basic food). Bread was chosen for the survey.
 - ☒ i. Attributes of importance for purchase of specified food product were discussed.
 - ☒ ii. A survey task was assessed;
 - ☒ ii. whether and why group members would buy such GM food was discussed, as was where and how information on GM was/would be obtained.

Survey Design



- ⌘ Internet based survey to incorporate interactive components as basis for a switching task in Experiment A and choice tasks in Experiment B and to enable respondents to seek more information within Experiment A.
- ⌘ Design structure for the two stated choice experiments: fractional factorial orthogonally designed; blocked design (8 blocks with 8 tasks each): 8 choice tasks per respondent; 3 choices in each set. Random assignment to information/labelling scenarios within A & B.

Survey Application



- ⌘ An international market research firm was contracted to pretest and apply the developed survey to a sample from their internet-based panel; 887 respondents were drawn from their national panel of 40,000 households; incentive; screener.
- ⌘ The sample respondents are slightly older, more educated and richer but similar in language, employment and family structure (proportion with children) to the Canadian population

Four Part Survey Structure:

- ⌘ Part 1: establish basic preference for bread attributes: “compose your own” (for basic choice in product switching design of Experiment A and reference points of Experiment B).
- ⌘ Part 2: Split sample with random assignment to Experiments A and B.
- ⌘ Part 3: Knowledge; attitudes: risk & trust
- ⌘ Part 4: Socioeconomic characteristics.

Experiment A: Information effects on choice



- ⌘ Design attributes:
- ⌘ GMO present/absent: “with GMO”
- ⌘ Health attribute present/absent: “with healthy vitamins”
- ⌘ Environmental attribute present/absent: “environmentally friendly”
- ⌘ Price compared to base choice(-30%, -10%, same, +10%)
- ⌘ Seven information scenarios re GM (positive/negative; specific/generic; controls)

Sample Screen

Ipsos i-Say Online Help

E-mail: psark@ipsos.com Phone: 1-888-618-2056

Tester: **Choice Set 1 of 8, Block 4**

FEATURES	Option A	Option B	Option C
Brand	National brand [sliced, pre-packaged, for example, Dempster's, Wonderbread, Owejoy, Oatlon, Healthy]	National brand [sliced, pre-packaged, for example, Dempster's, Wonderbread, Owejoy, Oatlon, Healthy]	I would not buy any bread at all
Type of Flour	Whole wheat [100%]	Whole wheat [100%]	
Leaf	Dense loaf consistency	Dense loaf consistency	
Thickness	Thick slices	Thick slices	
Bread Crust	Mid brown, crunchy crust	Mid brown, crunchy crust	
Shape of Slices	Sandwich loaf, square slices	Sandwich loaf, square slices	
Price	\$2.49 /600g loaf	\$2.49 /600g loaf	
		Predicted to be environmentally friendly way *	

More on the new feature(s) of this bread:
 * Option B's additional features are a result of genetic modification/engineering of the wheat. Genetic modification, sometimes also called genetic engineering, is a recent development in modern biotechnology. This technique involves the transfer of a piece of genetic material from one organism to another. Through genetic engineering it is easier to introduce new traits without changing other traits in the plant or animal. It is also possible to introduce traits from outside the species, something that is not possible with traditional breeding methods.

To find out whether genetically modified/engineered foods are safe to eat, please [click here](#)
 To find about environmental effects of genetically modified crops, please [click here](#)
 To find out why this product is environmentally friendly, please [click here](#)
 Why is reducing herbicides in agriculture important? Please [click here](#)

I would purchase ...

Option A
 Option B
 Option C

[Previous](#) [Next](#) [Stop](#)

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Analysis of Experiment A data:




- ⌘ Information matters
- ⌘ People vary (unexplained heterogeneity); a latent class model works well, suggesting that about 50% of consumers are not appreciably affected by the presence of identified GM content; another group is willing to purchase the GM product with a discount (and aversion to GM is softened if this incorporates healthy attributes); a third segment tries to avoid GM content at almost all costs

Experiment B: GM label context effects on choice (see Hu et al poster)

- ⌘ Design attributes: Brand name; Type of flour/bread; Price (and price change relative to base choice); GM inclusion /exclusion in listed ingredients.
- ⌘ Labelling scenarios: Mandatory (positive label statements)
 - : Voluntary (negative label claims)
 - : Mixed regimes

Analysis of Data from Experiment B: GM label context effects on choice (See Hu et al Poster):



- ⌘ The labelling regime matters;
identification of GM content implies price discounts
- ⌘ There is an asymmetric response in the marginal values of utility loss associated with identified GM content relative to utility gained from identified absence of GM content.

In progress—what leads people to seek for/access information?



⌘ Although information seems to matter in terms of respondents' choices, many respondents did not in fact voluntarily access available information; currently we are assessing whether demographic or attitudinal factors are associated with the voluntary access of information about the GM product in Experiment A.

Part 3 of survey: risk-benefit attitudes—Respondents' risk ratings:

- ⌘ Ratings from 1 (“very high”) to 4 (“almost no risk”) or “don’t know” to questions on “how risky is..” for a variety of agricultural/food issues relative to environmental safety and food safety.
- ⌘ Most risky (v. high risk) issues for environment: water pollution by agricultural chemical runoff (61%); herbicide/pesticide resistance (50%); ag. waste disposal (41%); soil erosion (28%); GM effect on environment (27%); adverse effects of ag. on biodiversity (26%);
- ⌘ Most risky issues for food: bacteria contamination (41%); pesticide residuals (41%); use of antibiotics (36%); mad cow disease (32%); fat & cholesterol in food (24.9%); GM use (21%); food additives (15%)

Part 3, attitudes: many people agreed with these statements:

Respondents' agreement or otherwise (Strongly Agree; Agree; Disagree; Strongly Disagree; Don't Know):

⌘ "Canada should advance GM/GE to prevent or cure diseases"

(SA/A: 67%; D/SD: 22%; DK:12%)


⌘ "GM/GE in agriculture is unnatural"

(SA/A: 54%; D/SD: 44%; DK:9%)

⌘ "I would sample foods from GM/GE"


(SA/A: 56%; D/SD: 35%; DK:10%)

Part 3, attitudes: numbers of people disagreed with these statements:



- ⌘ "Prefer cheaper foods from GM crops over more expensive foods" (SD/D: 57%; SA&A: 33%)
- ⌘ "Feeding animals with GM/GE feed is not a concern" (SD/D: 57%; SA&A: 33%);
- ⌘ "Benefits for the environment of GM/GE crops outweigh risks" (SD/D: 40%; SA&A: 32%)

Part 3, attitudes: numbers of people chose “don’t know” for these statements:



⌘ “GM/GE in livestock will worsen animal welfare”

(SA/A:38%; D/SD:35%; DK:27%)

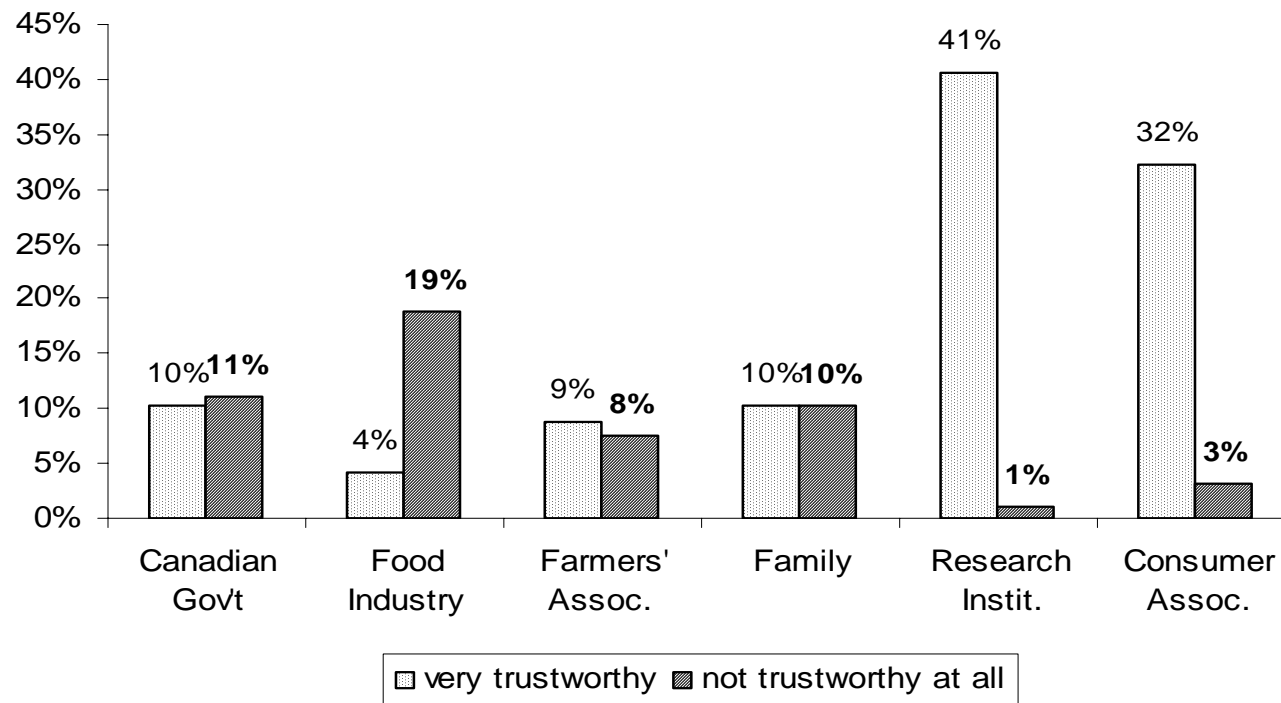
⌘ “Foods from GM/GE crops are less risky than foods from GM/GE animals”

(SA/A:23%; D/SD:43%; DK:35%)

⌘ “GM leads to harmful market concentration”

(SA/A:42%; D/SD: 34%; DK:24%)

Part 3 of survey: trusted information sources



Why do GM food attitudes vary?

Some hypotheses:



- ⌘ Trust in government and regulators varies;
- ⌘ There are differences in social and cultural attitudes to food (and the importance of “nature” and “natural” varies);
- ⌘ Food scares and scandals have been important elements of trust/lost trust;
- ⌘ Information is important to trust and attitudes;

Conclusions



- ⌘ There is a need for further research to better understand consumers' risk attitudes and trade-offs in the context of information on food safety and quality.
- ⌘ Better information about the impact of information on risk trade-offs will aid risk communication, government policy and industry decision-making

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⌘ Genome Canada

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