

Genetically Modified Foods and Consumer Concerns



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Consumers' awareness of, and questions about, genetically modified organisms (GMOs) in food is growing. While most consumers have heard of GMOs, there is still confusion around what they are exactly, and in what foods they are found. In this issue, a review of GM food is done to enhance understanding about the current market situation.

What is genetically modified (GM) food?

According to World Health Organization, GMOs can be defined as organisms (i.e. plants, animals or micro-organisms) in which the genetic material (DNA) has been altered in a way that does not occur naturally by mating and/or natural recombination. The technology is often called "modern biotechnology" or "gene technology," sometimes also "recombinant DNA technology" or "genetic engineering." It allows selected individual genes to be transferred from one organism into another. Foods produced from or GM organisms are often referred to as GM foods.

Why do producers develop GM crops?

One main reason for developing GM crops is improved crop protection. These crops can be less susceptible to insect pests or diseases and some can tolerate certain non-selective herbicides. Therefore, farmers can apply a lower quantity of pesticide, or in some cases a less toxic pesticide, and still obtain a high crop yield. Some of the perceived benefits of GM crops are given below (Figure 1).

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Figure 1: Perceived Benefits Associated with GM crops

Perceived benefits associated with GM foods
Higher yields
Shorter growing season
Faster to market
Ability to grow crops under harsh conditions (i.e., drought resistant)
Ability to withstand long distance transportation
Longer shelf life (this is also viewed as a negative to the extent that preservatives are added to the product to lengthen its shelf life)
Ability to minimize or eliminate seasonality in food production (i.e., produce certain products year-round)

The first GMO crop (the Flvr Savr tomato) was approved by the *Food and Drugs Act* in Canada in 1994. Since then, over 120 GM foods are approved for sale in Canada ranging from insect-resistant corn and herbicide-resistant canola to genetically modified yeasts that reduce levels of unwanted compounds in wine.



How is the safety of GM foods assessed?

Health Canada is responsible for the regulation of GM food. In determining the safety of GM foods, Health Canada undertakes a detailed scientific assessment. They examine how the food was developed, including a full description of the genes involved in the modification and their integration into the modified product. They assess the composition of the product, its nutritional quality, and the potential for the production of toxic or allergenic products. Only when they are completely satisfied do they approve the product.

Consumer questions about GM food

Over the years, public opinion surveys have shown that North American consumers can be skeptical about GM foods. A recent survey by Health Canada found that consumer views have been largely shaped by media coverage.

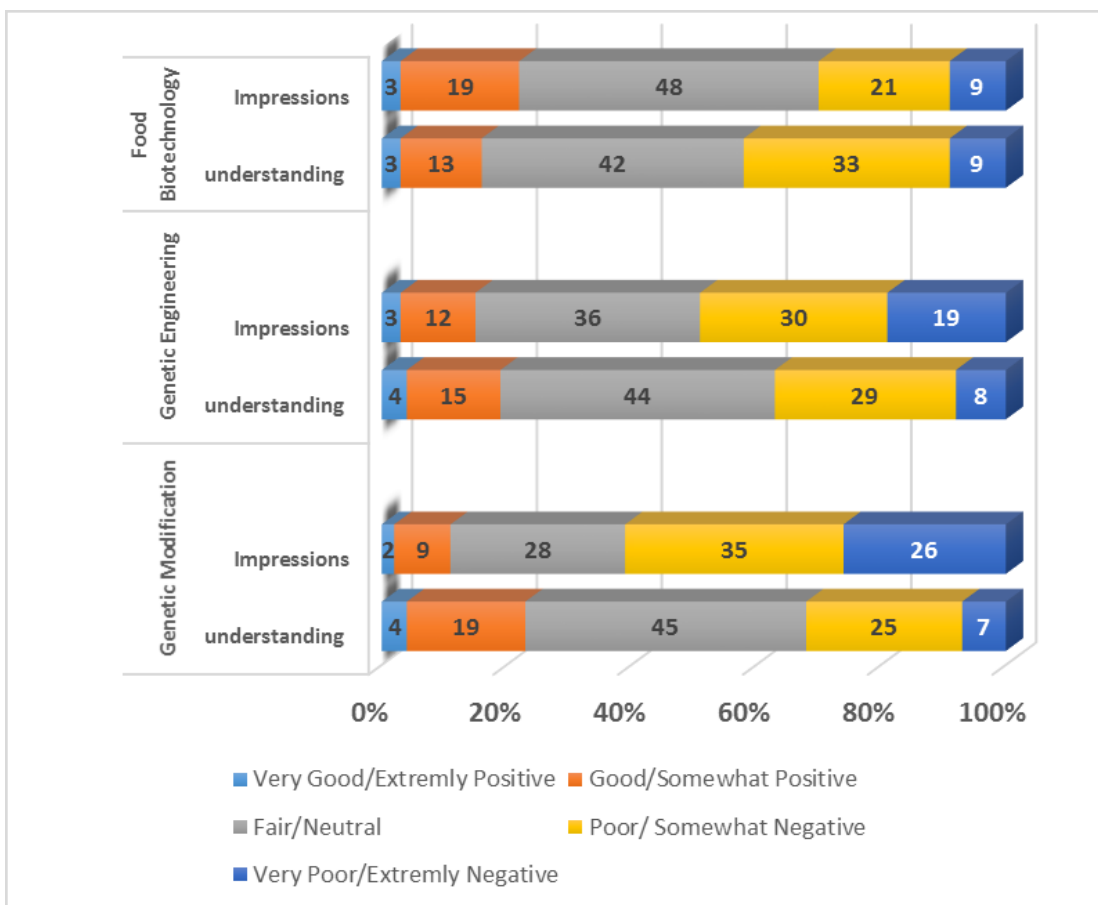
In the same Health Canada survey above found that 61 per cent of the survey respondents have negative impressions of genetic modification. These are usually associated with fruits, vegetables and grains, and less so with animal and fish.

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In the same Health Canada survey, Canadians acknowledge that their understanding of various food technologies such as genetic modification, genetic engineering, and food biotechnology is minimal. “Genetic modification” is perceived to be the most negative, with only 11 per cent of positive impressions. As the chart below

illustrates, impressions of GM foods and genetic engineering are mostly negative (61% and 49%, respectively), while impressions of food biotechnology are somewhat less pronounced (48% neutral; 30% negative).

Figure 2: Level of understanding and impressions of various food technologies

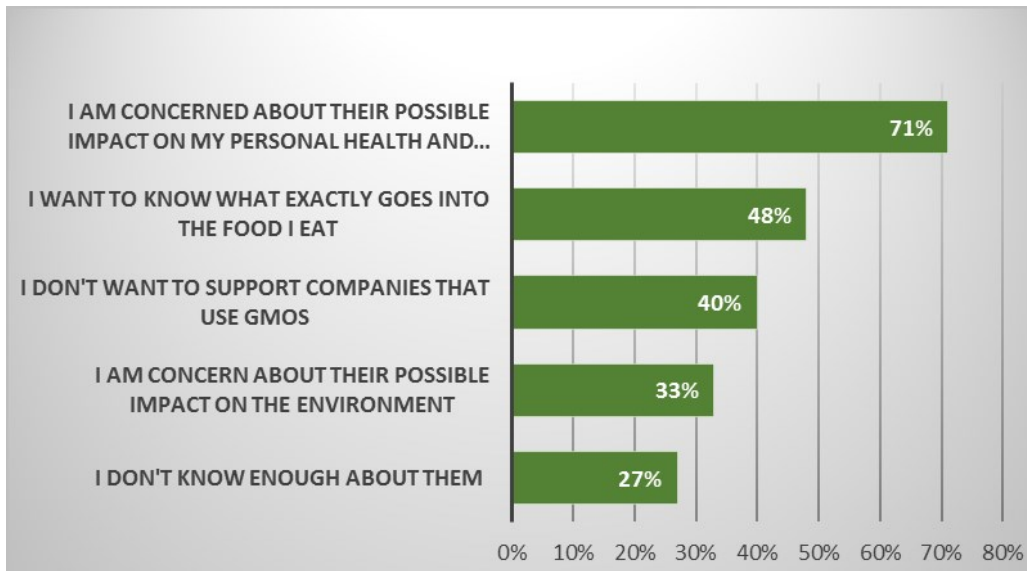


Source: Health Canada/Strategic Counsel, Consumer Views of Genetically Modified Foods

A survey conducted by Hartman Group in the United States provides some reasons as to why consumers avoid GM foods. Among several factors given in responses from consumers, the possible impact on their health is a major concern. However, respondents rarely connected GMOs to a specific or tangible health concern.

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Figure 3: Reasons for avoiding GMO



Source: The Hartman Group, Organic & Natural, 2014



Another topic of discussion about GM foods is labelling requirements. In Canada, the Canadian Food Inspection Agency (CFIA), in association with Health Canada, is responsible for ensuring food products are properly labelled according to certain regulations. According to the Government of Canada website, manufacturers can indicate the presence of genetically engineered ingredients as they see fit and on a voluntary basis. This is similar to how a manufacturer might

indicate their food as trans-fat free or reduced sodium. In the U.S., several states voted to enact legislation to make it mandatory to label GM foods. In July 2016, President Barack Obama signed a federal law that nullified all state mandates. As a result, all food in the U.S. will be required to identify if they contain GMOs within two years. It is not clear whether there will be any changes with the change in U.S. government administration.

Opponents of mandatory labelling suggest that providing such information is unnecessary because current science has yet to identify any negative health effects of GMO foods. Further, they argue that such labelling could mislead consumers regarding the safety of foods they purchase and could end up making the food more costly for consumers. Some in favour of GMO labelling propose that at a minimum, consumers have a right to know whether the food they eat contains GMOs.

What Does This Mean?

The research results cited above suggest that there is a communication gap with respect to GM food. Health Canada research confirms that there are definitive and fairly widespread negative perceptions about GM foods. There is an opportunity to educate consumers about what GMOs are and any misconceptions that might be out there, answer consumers' questions, and build a more collaborative approach going forward.

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