



*The Canadian Produce Marketing Association supports all Canadian Government approved production practices which will ensure the future viability and sustainability of horticulture production.*

## Fresh Facts for Industry: **Biotechnology**

"**Biotechnology**" means the application of science and engineering in the direct or indirect use of living organisms, or parts or products of living organisms, in their natural or modified forms. This term is very broad and includes the use of traditional or conventional breeding, as well as more modern techniques such as genetic engineering<sup>i</sup>. Biotechnology, particularly the development of products that have been modified by genetic engineering, (commonly referred to as genetically modified organisms, or GMO), provides both opportunities and presents challenges, while allowing for the development of new food products through a variety of scientific tools and techniques<sup>ii</sup>. Food biotechnology has the ability to address hunger and malnutrition issues, improve crop yields and reduce chemical usage.

The benefits of food biotechnology may include:

- Increased crop productivity, including herbicide tolerance, pest and disease resistance, (e.g. herbicide-resistant plants that can withstand herbicides which are sprayed on crops to reduce weeds, or plants that act as pesticides).
- Prolonging shelf-life of foods<sup>iii</sup>.
- Additional benefits such as: the development of food without allergens, fruit and vegetables with improved nutrition, better taste, plants that are developed to tolerate cold temperatures and withstand unexpected frost that could destroy seedlings, resistance to harsh environments (e.g. drought, salt resistance), and more, as the technology evolves.
  - Genetically modified produce recently approved for sale in Canada include several varieties of Arctic Apple (resistant to browning) and the Innate Potato (reduced acrylamide during thermal processing, reduced colouration when exposed to air).

Challenges surrounding food biotechnology include:

- Environmental – There may be unintended harm to other organisms such as reduced effectiveness of pesticides as pests become resistant to modified crops.
- Human health – There may be a possibility that introducing a gene into a plant may create a new allergen or cause an allergic reaction in susceptible individuals, or dramatically change nutritional content.

Overall, biotechnology seeks to improve the quality and quantity of the food supply.

- The [Nature Nurtured Campaign](#) provides information on the various benefits of gene editing.
- For a Canadian farmer's perspective on the value of the use of modern techniques, including biotechnology, watch "[A License to Farm](#)".
- A 2016 report from the U.S. National Academies of Science, Engineering and Medicine, [Genetically Engineered Crops: Experiences and Prospects](#), concluded that there is broad scientific consensus that [current GE\(GMO\) crop traits do not pose a threat to human health or to the environment](#).

## What You Need to Know

In Canada, **Health Canada** and the **Canadian Food Inspection Agency (CFIA)** share responsibility for the safety of “novel foods”, including those developed using agricultural biotechnology.

Before a product is approved in Canada, both Health Canada and the CFIA determine the safety or potential risks to human, plant and animal health, and the environment. The organization applying for approval collects the data for the government's team of scientific experts, who also consider other relevant information, such as peer-reviewed publications. All assessments are performed on a case-by-case basis, and only products judged to be as safe as their traditional counterparts are approved.

- [View a list of currently approved novel foods](#)

Responsibility for food labelling is also shared by Health Canada and the CFIA. Mandatory labelling for foods, including foods derived from biotechnology, could be required in order to highlight a significant nutritional or compositional change, or where there are health or safety concerns that could be mitigated through labelling, (such as the introduction of an allergen). Voluntary labelling is permitted in order to provide consumers with information that is not related to the safety of the product.

Important criteria for making voluntary labelling and advertising claims for foods sold in Canada that are, or are not, products of genetic engineering can be found in the [National Standard of Canada for Voluntary labelling and advertising of foods that are and are not products of genetic engineering](#) (See Section 6 and Appendix B par.B2.5).

## CPMA Contacts and Other Resources

For more information, please contact CPMA at [question@cpma.ca](mailto:question@cpma.ca), or use the following resources:

- Health Canada – [Genetically Modified \(GM\) Foods and other Novel Foods](#)
- Canadian Food Inspection Agency – [Plants with novel traits: Information for the general public](#)
- Canadian Food Inspection Agency – [Food Labelling for Industry](#)
- Canadian Food Inspection Agency – [Labelling of Genetically Engineered Foods in Canada Factsheet](#)

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<sup>i</sup> Canadian Food Inspection Agency – [Modern Biotechnology: A Brief Overview](#)

<sup>ii</sup> Health Canada – [Biotechnology: Food](#)

<sup>iii</sup> Uzogara SG. (2000). [The impact of genetic modification of human foods in the 21st century: A review](#). *Biotechnology Advances*. 18:179-206.