



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, specifically products that have been modified by genetic engineering (commonly referred to as genetically modified organisms, or GMO) provides opportunities and presents challenges. The benefits of food biotechnology 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.
- The production of food processing aids such as chymosin used in cheese making to replace calf rennet using GMOs; its benefits include purity, reliable supply, cost savings, high cheese yield efficiency and non-animal source.
- Improved nutrition in crops such as rice which is a staple in developing countries but is nutritionally inadequate
- Though not in Canada, phyto-remediation, where plants such as poplar trees are grown not as crops but to clean up the heavy metal soil contamination.
- Prolonging shelf-life of foods.ⁱ
- Making foods cheaper, safer and better tastingⁱⁱ
- Future benefits may include: food without allergens; grains, fruit & vegetables with improved nutrition, longer shelf life and better taste; rice enhanced with iron to prevent anemia, cold tolerance where plants are developed to tolerate cold temperatures and withstand unexpected frost which could destroy seedlings resistance to harsh environments and more, as the technology evolves. Overall, biotechnology seeks to improve the quality and quantity of the food supply.

The 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, dramatically change nutritional content, etc.

What You Need To Know

In Canada, **Health Canada** and the **Canadian Food Inspection Agency (CFIA)** share the responsibilities for the safety of novel foods 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. A list of currently approved novel foods is available at the following website: http://www.hc-sc.gc.ca/fn-an/gmf-agm/appro/index_e.html

Responsibility for food labelling is shared by Health Canada and CFIA. Mandatory labelling for foods, including foods derived from biotechnology, could be required 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.

Food biotechnology has the ability to address hunger and malnutrition issues, improve crop yields and reduce chemical usage. However, there are challenges such as environmental, human health and economic concerns which need to be addressed.

CPMA Contacts and Other Resources

For more information, please contact CPMA at question@cpma.ca, or use the following resources:

- **Toll-free Information Line on Food Biotechnology: 1-877-366-3246**
- Health Canada – Genetically Modified (GM) Foods and other Novel Foods
http://www.hc-sc.gc.ca/fn-an/gmf-agm/index_e.html
- Health Canada – Biotechnology- Food
http://www.hc-sc.gc.ca/sr-sr/biotech/food-aliment/index_e.html
- Canadian Food Inspection Agency – Information for the General Public
<http://www.inspection.gc.ca/eng/1337380923340/1337384231869>
- Canadian Food Inspection Agency – Guide to Food Labelling and Advertising
<http://www.inspection.gc.ca/english/fssa/labeti/guide/ch4ae.shtml>
- Canadian Food Inspection Agency – Labelling of Genetically Engineered Foods in Canada
<http://www.inspection.gc.ca/eng/1333373177199/1333373638071>

ⁱ Uzogara SG. (2000). The impact of genetic modification of human foods in the 21st century: A review. *Biotechnology Advances*. 18:179-206.