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Food for Your Good Health

From helping farmers grow more food per acre, to enabling sustainable agriculture practices, biotechnology offers many benefits for people and our planet. Through continuous research initiatives, biotechnology is also creating healthier food alternatives and improving nutrition at our tables and around the world.



PLANT BIOTECHNOLOGY HELPS PROVIDE NUTRITIONAL SOLUTIONS BY:

**Increasing agricultural
productivity to help feed
a growing world**

**Producing an
affordable diet**

**Creating healthier
food choices**

**Enhancing
food safety**

Food and food products derived from biotech crops such as canola, corn and soybeans have been on the market for almost two decades and contribute to providing a healthy and abundant food supply to meet consumer demands. Consumers are requesting food products with reduced trans fat, healthier oils and improved nutritional composition. Through agricultural tools like plant biotechnology, farmers are providing today's consumers with healthier products such as canola oil, which can reduce the risk of heart disease, stroke and diabetes.

In the future, biotechnology will help create plant varieties with higher nutritional value such

as grains, fruits and vegetables fortified with extra vitamins or higher protein to protect against disease and malnutrition. For example, adding vision-protecting Vitamin A, iron and zinc to rice can help prevent millions of cases of blindness and micronutrient malnutrition in the developing world.





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Canola oil is one of the healthiest cooking oils in the world. It has the least amount of saturated fat, is free of trans fat and cholesterol and contains essential fatty acids.

Feeding a Growing World

It is estimated that food production needs to increase by 70 per cent if we are to feed the nine billion people expected to populate the world by 2050.¹ Farmers need access to innovative tools and technologies to nourish this growing population, while using less of nature's limited land and water resources.

Plant biotechnology provides farmers with high-yielding, pest- and disease-resistant crops that allow them to produce more food on less land. Since 1996, biotech traits have added 74 million tonnes of soybeans, 80 million tonnes of corn and almost five million tonnes of canola to global production levels.² These higher yields are equal to production from over 62 million hectares of land.³

Plus, drought-tolerant crops that are expected on the market in the near future will help enhance food security during times of low moisture levels.

Creating Healthier Food Choices

Along with increasing yields, plant biotechnology research also focuses on providing more nutritious foods that can help prevent diseases and deliver other healthy benefits.

Vegetable oils derived from biotech oilseed crops like canola and soybeans respond to consumer demands for more heart-healthy oils and low saturated fats. In addition to being low in saturated fat, canola oil includes essential fatty acids, lowers blood cholesterol, has a beneficial effect on clot formation and is a good source of vitamins E and K. New high oleic canola varieties help food companies reduce the amount of trans fat in their products and provide consumers with healthier options.

Enhancing Food Safety

Plant biotechnology plays an important role in protecting Canadian food and feed sources from pests and disease. For example:

- Bt corn, containing built-in protection against insect pests such as the corn borer, makes food and feed safer by minimizing insect damage that causes the incidence of harmful mycotoxins.
- Biotechnology could help decrease the amount of natural plant toxins found in foods, such as those that may be found in potatoes or reducing fusarium toxins in wheat.
- Research is helping to identify the allergenic protein naturally found in foods such as peanuts, soybeans and milk, so that they can be removed.



In the future, plant biotechnology aims to provide foods with even more health benefits. Just a few examples of current research efforts around the world toward improved traits include:

Disease-fighting properties:

- Tomatoes rich in lycopene, a powerful carotenoid antioxidant
- Corn and soybeans with increased levels of Vitamin C and E to help prevent disease
- Tomatoes with 10 times the normal levels of folic acid, a B vitamin essential in healthy cell formation

Improved oil profiles and healthier processed foods:

- Canola and soybean oils with higher levels of natural plant sterols, shown to help reduce cholesterol
- Canola and soybean oils with higher levels of heart-healthy essential fatty acids and even lower saturated fat
- Potatoes that absorb less oil during frying and cooking

Improved food protein profiles:

- Increasing protein content in staple foods like potato, corn, rice and cassava to improve nutrition in developing nations
- Higher levels of essential amino acids in soybean, corn, rice and cassava

Fresher, longer-lasting and tastier foods:

- Peppers and peas that will remain sweeter
- Strawberries with improved freshness, texture and better flavour
- Reducing browning and increasing the shelf life of apples, tomatoes, bananas, melons and potatoes

Producing an Affordable Diet

Through plant science innovations, including biotechnology, Canadian farmers are ensuring high productivity rates and increased food quality. For example, in Canada plant biotechnology has contributed to an increase in corn yields of 33 per cent.⁴

High and stable crop yields achieved in part through plant biotechnology allows Canadian consumers to enjoy one of the most affordable, high quality food supplies in the world. On average, Canadians currently spend only 10 per cent of their household income on food, compared to over 18 per cent in the 1960s.⁵

In addition to enhancing food safety, biotech products are thoroughly tested and analyzed for food and environmental safety before any product enters the marketplace. Canada's strict regulatory standards ensure that we produce one of the safest food supplies in the world. All plant biotechnology products

go through an extensive safety review by the Canadian Food Inspection Agency and Health Canada to ensure they are safe for people, animals, plants and our environment.

To learn more about Canada's regulatory system for biotech foods, visit whybiotech.ca.



Did You Know?

Over eight million hectares of biotech crops including canola, corn and soybeans are being grown in Canada.⁶

Golden rice, which is near commercialization, contains vision-protecting Vitamin A (beta-carotene), iron and zinc. This can help prevent millions of cases of blindness and micronutrient malnutrition in developing countries.

Beer, wine, bread and cheese were the original biotech foods – developed through the use of naturally occurring bacteria, yeasts and moulds.

The HarvestPlus Challenge Program is working to biofortify seven key staple crops that will have the greatest impact in alleviating micronutrient malnutrition in Asia and Africa – beans, cassava, maize, pearl millet, rice, sweet potato and wheat.

Plant biotechnology, the use of living organisms to give plants new beneficial traits, has been in practice for centuries. The term is very broad and includes traditional applications such as selective breeding and modern techniques like genetic modification or genetic engineering.

Genetic modification (GM) or **genetic engineering (GE)** involves altering the genetic material of a plant to create a crop with specific beneficial traits.

Visit www.whybiotech.ca to learn more about plant biotech regulations and environmental benefits.

THE COUNCIL FOR BIOTECHNOLOGY INFORMATION

The Council for Biotechnology Information is a non-profit association whose mandate is to communicate science-based information about the benefits and safety of agricultural and food biotechnology. CBI members are the leading agricultural companies.

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- 1 Food and Agriculture Organization of the United Nations
- 2 Brookes, G., and P. Barfoot. (April 2010) GM Crops: global socio-economic and environmental impacts 1996-2008.
- 3 James, Clive. 2009. Highlights of "Global Status of Commercialized Biotech/GM Crops: 2009." ISAAA: Ithaca, NY.
- 4 Corn Crops in Canada, CropLife Canada Study, November 2007.
- 5 Statistics Canada. Survey of Household Spending, 2008.
- 6 James, Clive. 2009. Global Status of Commercialized Biotech/GM Crops: 2009. ISAAA Brief No. 41. ISAAA: Ithaca, NY.