Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

# GUELPH FOOD RESEARCH CENTRE

## Agricultural Research: Leading the Way in Food Safety, Quality and Nutrition

Canada





Scientists at the Guelph Food Research Centre (GFRC) work with industry and other partners to improve food safety, quality and nutrition. It is part of Agriculture and Agri-Food Canada's extensive network of research centres across the country that keep Canadian food among the best in the world.

The GFRC specializes in finding innovative ways to control food contamination risks on farms and in food processing factories. The Centre also focuses on the potential for developing novel functional foods (foods that offer nutritional and therapeutic benefits).

It is home to a unique pilot-scale food processing facility – the most modern one of its kind in Canada – which helps scientists test-drive the latest food processing technologies.

The GFRC works collaboratively with industry, farm organizations, the University of Guelph and other universities and research organizations in Canada and abroad.



Electronic version available at *www.agr.gc.ca/researchcentre/Guelph*.

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For more information, reach us at www.agr.gc.ca or call us toll-free 1-855-773-0241.
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## How our Research Benefits Canadians

**We:**

- Develop innovative methods to prevent food-borne biological and chemical hazards that can cause illness in humans and animals;
- Characterize bioactive compounds in foods to better understand their health benefits and to develop innovative ingredients to create new economic opportunities;
- Investigate the potential health and disease fighting benefits of natural antioxidants and nutrients;
- Investigate how adding whole grains (like rye, oats and barley) and pulses (like beans, lentils and chickpeas) into a diet can improve gastrointestinal health, and lead to new supplements and functional foods.

**Examples of our success**

- We helped substantiate the physical effects of oat beta-glucan to support the industry in making the health claim that "oat fibre helps reduce cholesterol, which is a risk factor for heart disease", opening up new markets and potential sales for Canadian crops.
- We demonstrated the high antioxidant capacity of purple vegetables over their non-colourful counterparts. Dietary antioxidants such as those found in fruits and vegetables may help reduce the risk of chronic diseases such as cancer, heart disease and diabetes.

## How our Research Supports Agri-Business and Industry

**We:**

- Study ways to help the agri-food industry reduce processing costs to be more competitive;
- Develop ways to add value to agricultural products for both food and non-food uses to create new products and new markets, thereby increasing profits for industry;
- Identify agricultural bioproducts for human, animal and industrial use to create new opportunities for business;
- Study how to preserve the nutritional and therapeutic elements of foods so that both consumers and industry benefit;
- Conduct research on phytochemicals (plant chemicals with potential disease-preventing compounds) and natural health products, and by doing so, discover new opportunities for the agri-food sector;
- Partner with industry and universities to share knowledge, find solutions to problems and increase competitiveness.

**Examples of our success**

- We developed a flax dehulling technology which is used commercially to create new health and beauty products for global markets.
- We discovered purple wheat products as a source of natural antioxidants. Purple wheat is now commercially produced as Anthograin™.

## How our Research Helps Farmers

**We:**

- Investigate technologies to control pathogens and reduce the need for antibiotics in livestock feed;
- Study the nutritional benefits of Canadian-grown new crops (like quinoa, black and blue barley, lentils and beans) to help provide local farmers with new markets and consumers with more choice.

**Examples of our success**

- We discovered types of naturally occurring bacteria that are key to developing feed additives and feeding systems to manage animal feed contaminated with mycotoxins (toxins produced by molds).
- We discovered the gene cluster responsible for necrotic enteritis (a deadly poultry disease), paving the way to controlling it.

## Looking Forward

- Scientists are working in a specialized genomics research unit to study nutrition and harmful food-borne bacteria.
- The most modern pilot-scale food processing facility in Canada that enables testing for processing techniques with real food-borne pathogens is at the GFRC. It offers scientists and industry partners access to equipment for testing new processing techniques like high pressure, high temperature, ozone and ultraviolet light to inactivate food-borne hazards while maintaining product quality.