



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



GREENHOUSE AND PROCESSING CROPS RESEARCH CENTRE

Agricultural Research:

Supporting Canada's Agricultural
Sector in the Development
of Innovative Products
and Management Practices

Canada

Agriculture and Agri-Food Canada's (AAFC) Greenhouse and Processing Crops Research Centre (GPCRC) develops and transfers new technologies for producing and protecting greenhouse vegetables and ornamentals, as well as field crops, including soybeans, dry beans, corn, winter wheat and tomatoes. Covering over 200 hectares, the GPCRC manages two field sites, one at Harrow and a second at the Honourable Eugene F. Whelan Experimental Farm near Woodslee, Ontario.

The GPCRC is:

- one of the largest greenhouse research facilities in North America;
- a Centre of Excellence for greenhouse and processing crops, carrying out soil, water and greenhouse gas emission research;
- the site of the Canadian Clonal Genebank (CCGB);
- one of seven locations for AAFC's national Minor Use Pesticide Program; and
- home to a number of long-term heritage field plots.

Research Serving Canadians

- Develops top-quality safe and nutritious crops, such as dry beans, soybeans and greenhouse vegetables.
- Works with industry and academia to produce new disease resistant soybean varieties for healthy food products, such as tofu, soymilk and miso.
- Maintains the CCGB for research, conservation and access to diverse fruit and berry germplasm. This genetic resource helps the sector improve productivity, adapt to changing conditions and minimize the impact of natural challenges, such as climate and pests.



Did you know?

The CCGB conserves and maintains native Canadian species, including: 1100 strawberries and 100 raspberries varieties – plus 800 apple, 85 peach, 60 grape and 12 chestnut varieties that are used as a valuable genetic resource by scientists around the world.

Research Helping Farmers

- Conducts conventional plant breeding to develop new dry bean and soybean cultivars with a focus on improving yield, quality, disease resistance and environmental sustainability.
- Improves greenhouse crop management through novel pest control practices, energy conservation and environment control.
- Develops tailored weed management strategies for vegetables and field crops using alternative agricultural practices.
- Identifies and implements best practices for use of biological control agents in greenhouse crops to reduce pesticide use and pest damage.
- Provides growers access to new pest control products through the Minor Use Pesticide Program, to manage disease, weed and insect problems that can threaten crops.

Research Strengthening Canada's Agricultural Industry

- Participates in projects and research partnerships with the sector to innovate and increase the value of agricultural crops and the competitiveness of Canadian producers.
- Finds new ways to improve the productivity and profitability of crops, while maintaining soil quality and environmental sustainability.
- Reduces energy use and production costs in growing greenhouse vegetables.
- Develops new fertilizer nutrient additives and application practices to enhance nutrient efficiency and crop productivity and profitability.
- Increases dry bean yield and quality and develops new food-grade soybean varieties to improve the competitiveness of the industry and meet overseas export demand.
- Leads a collaborative bean breeding program with university and producer partners to develop disease-resistant, high-quality and high-yield beans that require fewer inputs.

Examples of our Success:

- Invented a revolutionary biopesticide delivery process called vectoring, which resulted in the establishment of a new Canadian company.
- Introduced new soybean varieties for export markets – including Harovinton, a food-grade variety which established Canada as a preferred source of premium-quality soybeans for products, such as tofu, in Japan.

Did you know?

The GPCRC's heritage field plots are of international significance for examining soil, water and air quality, and plant dynamics on clay loam soils. These plots have a long history of use – over 100 years – and a diverse soil profile reflective of southwestern Ontario.

Research Supporting Sustainable Agriculture

- Improves the ability of dry beans to fix atmospheric nitrogen and be less dependent on chemical fertilizers.
- Addresses strategies for conservation tillage, new cover crop varieties, composts and improved crop rotations to enrich soil quality.
- Develops national agri-environmental indicators to identify regions in Canada with high risk of water contamination by nitrogen and develops alternative farming practices in these areas.
- Develops alternative pest control options, using biocontrol agents or cultural controls, to minimize the use of traditional pesticides.
- Conducts regional and national studies to develop new environmentally-friendly technologies and practices that improve crop productivity and soil and water quality.
- Works with producers, industry and universities to develop more efficient nutrient application practices to enhance crop productivity and improve environmental quality.

Example of our Success:

- Developed an innovative water management system that stores and recirculates tile drainage water within a field, improving crop productivity by more than 50% during dry years and reducing phosphorus and nitrate losses by more than 20%.

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Catalogue No. A52-190/2014E-PDF ISBN 978-1-100-23307-9 AAFC No. 12191E

For more information, reach us at www.agr.gc.ca or call us toll-free 1-855-773-0241.
2585 County Road 20, Harrow, Ontario N0R 1G0