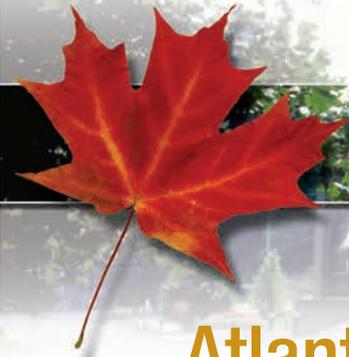


# Science and Innovation



## Atlantic Food and Horticulture Research Centre

**Kentville, Nova Scotia**

The Atlantic Food and Horticulture Research Centre (AFHRC) is one of Agriculture and Agri-Food Canada's (AAFC) national network of 19 research centres. It is located in Kentville, in western Nova Scotia's Annapolis Valley. It was established in 1911 to serve the needs of the rapidly developing agricultural economy of south western Nova Scotia, particularly the nascent apple and pear industry.

Today, research is focused on horticulture, functional foods, and post-harvest processing of horticultural products. The Centre also supports research in agri-environmental science and the identification of beneficial management practices in intensively farmed land. The Centre is responsible for science activities in one of nine intensively-studied watersheds in AAFC's WEBS (Watershed Evaluation of Beneficial Management Practices) program.

The AFHRC is a Minor Use Pesticide Program site, and is accountable for AAFC's only beef research program in the Atlantic Region, conducted at the Nappan Experimental Farm, one of the original five experimental farms established by the Dominion Experimental Farms Act.

The Centre focuses its research in three key areas:

- Primary production and integrated crop production technology for the Atlantic region
- Food safety and quality
- Environmental stewardship: improving performance of the agricultural production system

### Areas of Research

Researchers at the Atlantic Food and Horticulture Research Centre (AFHRC) address problems throughout the entire horticulture and food system. The field and laboratory facilities allow multidisciplinary research at all levels. The Centre's areas of core research are aligned with national priorities to help the sector adapt and remain competitive in domestic and global markets. Greater participation in research networks and industry-led partnerships expands the Centre's innovation capacity.

#### Protecting our Food in a Sustainable Environment

- Reducing the impact of agricultural practices on soil health and water quality
- Finding methods to reduce the movement of pesticides, nutrients and other materials from agricultural lands into nearby waters
- Improving nutrient supply to organic cropping systems through use of composted solid wastes
- Researching methods for inoculating fruit trees
- Studying crop production on dykeland soils (Nappan)
- Documenting the diversity and distribution of fungi and insects in Atlantic Canada for possible use in cropping systems
- Conducting research on pest management principles to control the threat to crops caused by insects, fungi, viruses and bacteria



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- Adapting international pest management programs for effective application in Atlantic Canada

### Improvements in Crop Production, Handling and Storage

- Breeding strawberries, raspberries, blackberries and grapes; evaluating their properties and quality as well as those of advanced selections of apples and pears
- Breeding forages - primarily red clover
- Examining technologies for producing and managing tree fruits, berries and vegetables, including organic fruit; commercializing superior plants
- Extracting and characterizing bioactive components of fruits and vegetables
- Developing technologies to enhance the storage of horticultural crops
- Finding new processes for handling and producing processed (or minimally processed) fruits and vegetables and analyzing the effects of processing on food microbes
- Evaluating handling operations for perishable foods throughout the cold chain (eg. storage, transportation, retailing) and their effect on the quality and safety of food
- Studying methods to control microbes and decay of freshly harvested produce

### Safe, Nutritious Food - a National Priority

- Assessing the chemical, structural, nutritional, physical and sensory properties of food
- Conducting research on the molecular properties of food to improve quality
- Conducting research on food fermentation techniques to improve nutritional value
- Determining the impact of farm practices on the introduction of disease-causing and antibiotic-resistant bacteria into food.

### Sustainable Production Systems for Livestock

- Conducting research on beef systems and nutrition programs for the Atlantic region (Nappan)

## Facts, Figures and Facilities

- 188 hectare site
- Nappan Research Farm (240)
- Team of statisticians supporting research programs in the Atlantic region
- Specialized laboratories and facilities including:
  - Small and large lab-scale controlled atmosphere storage chambers for fresh fruits and vegetables
  - Modern equipment for the determination of fry colour and tuber sugars in potatoes
  - Electron and light microscopes
  - Quantitative Digital Image Analysis
  - Chemical analysis and identification of bio-active and other selected components using chromatographic, selective detectors, immunoassay and biochemical techniques
  - Plant volatile analysis using gas chromatography-mass spectroscopy/olfactometry
  - Proteomic analysis of fruit
  - Geographic Information Systems Analysis (Arc-View)
- A multi-service phytotron with modern greenhouses and growth chambers
- Insect rearing facilities; insect collection; equipment for pollinator biodiversity studies
- Linkages and networking with provincial departments, universities and industry associations. Co-located at the Centre are:
  - Provincial offices for Agriculture
  - Perennia (Provincial Crown extension agency)
  - Nova Scotia Agricultural College faculty
  - Federal representatives of the; Canadian Food Inspection Agency; Pest Management Regulatory Agency (Health Canada); Industrial Research Assistance Program (National Research Council)
  - Offices for the Nova Scotia Tree Fruit Growers' Association and Horticulture Nova Scotia



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