

Sustainable Agriculture

The agri-food industry plays an important role in the economic health of the country. The agri-food industry's contribution to Canada's Gross Domestic Product (GDP) was in the order of 8.8% in 1996 (last comprehensive census figures readily available) representing over \$70 billion worth of goods and services. Primary agriculture accounts for over 24% of the \$70 billion generated by the agri-food industry. This represents 2.2% of Canada's GDP. Allied food industries, such as food and beverage processing and the agri-food service sector (retail, wholesale and food service industries), account for the remainder.

Much of rural Canada is dependent on agriculture for their livelihood. There are five major agricultural production sectors in Canada. In order of importance to farm cash receipts, these are:

- grains and oilseeds (34%) - wheat, durum, oats, barley, rye, flax seed, canola, soybeans, and corn
- red meats (27%) - beef cattle, hogs, veal, and lamb
- dairy (12%)
- horticulture (9%)
- poultry and eggs (8%)

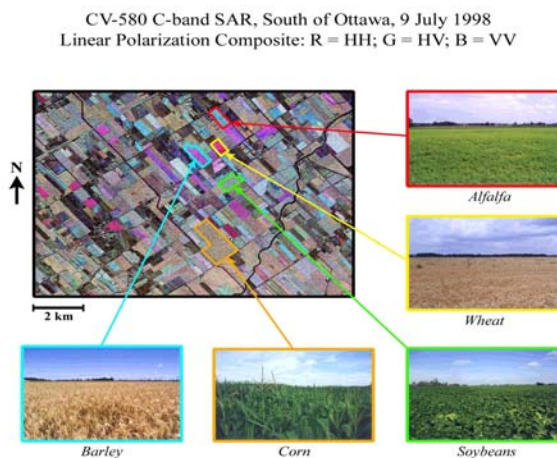
Ontario and Quebec contribute more than 56.2% of the nation's agri-food production and approximately 70.6% of the country's food processing.

In recent years, unsustainable agricultural practices have caused damage to soil and to water tables, and made Canadians aware of the need to implement sustainable agricultural practices. Federal, provincial and territorial Ministers of Agriculture have pledged to meet today's challenges by jointly developing a comprehensive Agricultural Policy Framework (APF) composed of five elements:

- Business risk management
- Food safety and food quality
- Science and innovation
- Environment
- Renewal

All provinces have now signed on to the APF, and several have signed Implementation Agreements with the Government of Canada. In support of the APF, the federal government has announced the following funding new federal funding of \$5.2 billion. Products produced in an environmentally sound manner translate into benefits to producers and consumers. In 5 years, Canada aims to have:

- Comprehensive national agriculture programs integrated with other federal environmental priorities
- National standards
- New tools for producers that will support environmentally sound food production
- Environmental farm planning as part of normal farm operations
- Marketplace recognition for environmentally sound food production
- Consumer access to quality food produced according to the highest environmental performance standards



Courtesy of AAFC

The key players:

- **Agriculture and Agri-Food Canada** is the federal government department responsible for agriculture. http://www.agr.gc.ca/cb/apf/index_e.php
- **Provincial Ministries of Agriculture** play a major role in promoting and regulating farms in Canada. All provinces have signed agreements with the federal government for the implementation of the APF. http://www.agr.gc.ca/cb/apf/index_e.php?section=info&page=frame
- **Canadian Agri-food Research Council** or CARC. CARC is a national coordinating system for agri-food research and technology transfer in Canada and is a catalyst for building consensus on related priorities. CARC's committee system consists of participants from all sectors (industry, university and government) who identify issues and opportunities to be addressed through research. <http://www.carc-crac.ca/index.html>
- **Canadian Foundation for Agriculture**. The CFA was formed in 1935 to answer the need for a unified voice to speak on behalf of Canadian farmers. It continues today as a farmer-funded, national umbrella organization representing provincial general farm organizations and national commodity groups. Through its members, it represents over 200,000 Canadian farm families from coast to coast. The CFA's mission is to promote the interests of Canadian agriculture and agri- food producers, including farm families, through leadership at the national level and to ensure the continued development of a viable and vibrant agriculture and agri-food industry in Canada. http://www.cfa-fca.ca/english/about_cfa/index.html
- **Canadian Food Inspection Agency** is responsible for ensuring Canada's food supply is safe. <http://www.inspection.gc.ca/english/toce.shtml>
- The **Canadian Wheat Board** is responsible for marketing wheat in Canada.
- **Manitoba Center for Remote Sensing** uses remote sensing data to forecast cereal grow and production;
- **Canada Centre for Remote Sensing** has worked closely with MCRS and others on agricultural projects.
- Associations of Canadian Producers and Growers (wheat, milk, etc)

“Hot” Issues:

- Genetically modified organisms; buyers are beginning to insist that Canada be able to certify wheat crops are not GMOs; if GMOs are introduced, risk of spreading out of control is great;
- “Mad cow” disease (BSE);
- Sustainable agriculture:
 - Run-off of fertilizers and pesticides into streams, lakes and rivers;
 - Contamination of water tables through manure seepage;
 - Tillage practices.

Space and Sustainable Agriculture:

Space based EO is a critical tool for understanding agricultural practices, particularly for national validation of data collected from test sites. In order to properly implement the APF, AAFC will require an annual updating of national land cover maps and an updating of land use maps every five years. This represents an insurmountable challenge for traditional mapping practices. AAFC has turned to space to address these requirements, in particular for information at test sites about:

- Discrimination of crop types;
- Usefulness of fertilizer applications;
- General classification information.

Issues for the CSA:

- AAFC is a new user of remote sensing data and has strong requirements for on-going data use in years to come; satisfying their operational requirements may be a critical test to establish another anchor tenant for EO within government;
- Main interest in AAFC is for visible band data, though there is great hope placed in RADARSAT-2 data to identify crops based on cross-polarisation;
- Financing processing for data from \$450 million offset under RADARSAT-2 master agreement.



Courtesy of the Royal School of Veterinary Studies, UK

Related themes:

Great Lakes and St. Lawrence River
Climate Change & Variability
Environmental Factors Affecting Health
Biodiversity and Ecosystem Conservation
Data policy
Weather

References:***Basic Information***

Agriculture in Canada: http://www.cfa-fca.ca/english/agriculture_in_canada/index.html

Latest Update

AAFC website: http://www.agr.gc.ca/cb/apf/index_e.php

A closer look

BSE in North America:

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/bseesbindexe.shtml>

Comprehensive look at Canadian system from US source:

<http://www.hort.purdue.edu/newcrop/proceedings1999/v4-015a.html>

GMOs - Genetically Modified Food News (over 2500 news stories): <http://www.connectotel.com/gmfood/>