

CANADA
National Reporting to CSD-16/17
Thematic Profile: Agriculture

The Canadian agriculture and agri-food sector is a major contributor to the national economy. Canadian farmers are world leaders in the efficient production of high-quality, environmentally sustainable agricultural and food products. A strong and vibrant farm sector provides security of income for farm families and a sound economic foundation for rural communities. In turn, this helps strengthen the economic and social fabric of this nation, providing a secure food supply for Canadians and others around the world.

In addition, the agriculture and agri-food industry spans a great number of smaller and diverse industries and sectors -- from primary commodity groups to food service producers and food manufacturers. Over the last few decades, there have been substantial changes to the agriculture and agri-food sector in Canada. One of the most prominent trends is that primary production, while still important, is a declining component of the larger agri-food value chain.

In 2006, Canada's federal department of agriculture, [Agriculture and Agri-Food Canada](#) (AAFC), released an [Overview of the Canadian Agriculture and Agri-food System](#) which reveals a highly complex, integrated and internationally competitive value chain that is a growing part of the Canadian economy. This resilient system has been transformed as it adapts to the persistent challenges of changing consumer demands, advancing technology, North American integration and globalization.

Canada last reported on the theme of Agriculture to the [United Nations Commission on Sustainable Development](#) in 2000. Since then, the Government of Canada has continued to work with all levels of government and the agriculture and agri-food sector with a view to strengthen food safety and food security, to develop appropriate new technologies that maximize the positive effects of the agri-food sector on health and the environment, to create opportunities for farmers, and to broaden the competitive success of the sector as a whole.

1. Sustainable agricultural and rural development: Canada's Agricultural Policy Framework

In 2002, Canada's Federal, Provincial and Territorial Ministers introduced a five-year comprehensive [Agricultural Policy Framework](#) (APF). The APF stems from the realization that sustainable development is the only option for the security and growth of the sector. The APF aims to position Canada as the world leader in food safety, innovation and environmentally responsible agricultural production. AAFC's [2006 - 2007 Departmental Performance Report](#) outlines progress made on sustainable action in the APF's five key areas: food safety and food quality, the environment, science and innovation, business risk management, and renewal.

A key aspect of the Government of Canada's approach to sustainable development is the requirement for departments to develop [Sustainable Development Strategies](#) (SDS) and table them in Parliament every three years. The APF, with its integrated environmental, economic and social components was identified as the Department's approach to sustainable development in AAFC's third SDS, [Sustainable Agriculture: Our Path Forward](#) (2004-2006). The Department's fourth SDS, [Making Progress Together](#) (2007-2009), focuses on enhancing the integration of the three pillars of sustainable development through various initiatives. The fourth SDS reports

on the Department's achievements and continued progress towards sustainable agriculture in Canada. It also highlights the ongoing implementation of the APF and helps to lay the groundwork for the next generation of agricultural policies and programs.

As the current APF is set to expire in 2008, federal, provincial and territorial governments have been working to develop the next generation of agriculture policy. [Growing Forward](#) is the new policy framework for Canada's agriculture, agri-food and agri-based products industry. It incorporates a collaborative, forward-focused vision for a profitable and competitive agriculture sector that seizes opportunities in responding to market demands and contributes to the health and well-being of Canadians.

2. Domestic food safety and food security

The Government of Canada is committed to ensuring that food produced in Canada continues to be among the safest and highest-quality in the world. Government departments and agencies work with farmers and the agri-food industry to build on existing food safety measures. For example, the [Canadian Food Safety and Quality Program](#) aims to deliver safe, high-quality food at home and abroad. It does this by providing industry with funding to undertake new measures to enable the tracing of food products back to the farm, improve food quality and share critical information for food safety. The program also assists producers in implementing standardized food safety systems on their farms, and supports provincial and regional food safety implementation and outreach activities. Together, these measures improve the sector's ability to identify and respond to food safety issues and concerns, while improving market access and opportunities for the sector.

Hazard Analysis Critical Control Points (HACCP) is a system which identifies, evaluates, and controls hazards that are significant for food safety. Working with provinces and territories, the [Canadian Food Inspection Agency](#) (CFIA) leads a key process, based on HACCP and the [Food Safety Enhancement Program](#) (FSEP), to provide government recognition for industry-developed on-farm food safety and quality management programs. This approach encourages and supports the development, implementation and maintenance of HACCP-based systems in all federally registered meat and poultry, dairy, processed product, egg, honey, maple and hatchery establishments. FSEP outlines the criteria for a HACCP system which incorporates prerequisite programs and principles of HACCP as outlined by [Codex Alimentarius](#).

[Canada's Action Plan for Food Security](#) is Canada's response to the [World Food Summit](#) commitment to reduce by half the number of undernourished people by no later than 2015. Since 2000, Canada has published three [Progress Reports on Food Security](#). The reports build on a wide range of existing international commitments made in the 1996 Rome Declaration and Canada's Action Plan. The commitments identified in the progress report include many actions related to health, the environment, and rural development, and involve the efforts of all levels of government, civil society, and the private sector. Although the reports are not intended to be exhaustive, the scope and volume of initiatives presented are a clear reflection of Canada's ongoing commitment to reduce hunger and increase food security at home and abroad.

3. International assistance for food security, food safety and capacity building

Developing countries are facing major development challenges. The international development community is now orienting development support according to the [United Nations Millennium](#)

[Development Goals](#) that set out specific targets for developing countries. Canada is committed to delivering a visible, durable impact on the world's key development challenges as identified in these goals. The [Canadian International Development Agency](#) (CIDA) aims to reduce poverty, promote human rights, and support sustainable development. CIDA's Policy Statement in [Promoting Sustainable Rural Development through Agriculture](#) addresses agriculture in the context of progress toward meeting the Millennium Development Goals. CIDA's programming focuses on five priority areas:

- strengthening national capacity
- creating and using traditional and new knowledge for development
- enhancing food security, agricultural productivity, and income
- agricultural sustainability and natural resource management, and
- developing well-functioning markets.

In order to increase the effectiveness and efficiency to fight hunger world-wide, Canada currently allows for up to fifty percent of its food aid to be purchased in developing countries. This policy has meant that Canada has bought more food from farmers in developing countries, thereby helping to support local agricultural sectors while also supplying more culturally appropriate food to food aid recipients. This can significantly decrease the transportation costs to deliver the food aid, and hence more food can be purchased per dollar of funding. Untied food aid can also significantly decrease the time required to purchase and deliver the food to the hungry. These steps have improved the effectiveness of Canada's food aid, and Canada's support for world food security.

AAFC's [International Capacity Building](#) strategy was developed to guide its activities to support Canadian efforts and provide development assistance where needed. The Department provides agriculture capacity building assistance to meet these countries' needs for food security and agricultural trade. These activities provide trade benefits for Canada's agriculture sector and developing countries by enhancing the positive contribution of agricultural trade to economic development, poverty reduction and food security.

For example, under the [China-Canada Agriculture Development Program](#), two programs have been implemented. The [Small Farmers Adapting to Global Markets Project](#) includes a comprehensive capacity-building program through training of key national and provincial decision and policy makers in food and feed safety, plant and animal health, trade and agricultural policy reform. The [Sustainable Agriculture Development Project - Phase II](#) is intended to promote sustainable land use in rural western regions. The expected outcomes include the adaptation of land resource management systems for sustainable agriculture, enhanced sustainable agriculture extension systems, and improved enabling environment for sustainable land resource management.

The [International Development Research Centre](#) (IDRC) is a public corporation that works in close collaboration with researchers from the developing world in their search for the means to build healthier, more equitable, and more prosperous societies. IDRC and CIDA support efforts towards improved environmental sustainability and natural resource management in the developing regions of the world. For example, the [Productive Strategies for Poor Rural Households to Participate in Global Economic Processes](#) project identifies:

- how the rural poor can participate more effectively in mainstream domestic and export markets
- what types of value chains are most effective for reducing poverty, and

- ways the rural poor can develop their own capacities and define their own productive strategies to improve their livelihoods.

Sponsored by IDRC's [Rural Poverty and Environment Program Initiative](#), this project developed new research methods for integrating poverty and environmental concerns into value chain analysis. Ongoing work explores opportunities for applying these insights in the Sahel, the Nile Basin, the Mekong Delta and South Asia.

IDRC has supported formal research in the field of urban agriculture for more than 20 years. This research approach is aimed at maximizing the potential for improving household food supply, incomes, and health, as well as the management of waste, water, and land. For example, IDRC-supported research in South Africa is addressing development challenges and making a difference in the lives of people. Detailed information on the benefits of this research can be found in [Feeding the Sustainable City](#) and [Growing Better Cities: Urban Agriculture for Sustainable Development](#).

The [Regoverning Markets](#) project supports research that analyzes production and market conditions for horticulture, dairy and meat sectors. The project identifies how re-structuring of food supply chains is affecting food production and distribution systems, and identifies success stories in removing barriers and involving small-scale producers in supermarket supply chains. The project analyses changes in the processing and retail sectors of national and regional agri-food systems and opportunities for rural livelihoods and communities. Research results are available online, including the Innovative Practice Series and Agri-food Sector Studies with case studies from India, Indonesia, Mexico, South Africa, Turkey, Poland and Zambia. Such insights contribute to development abroad, as well as providing useful information for developing policies in Canada.

Canada participates in the joint [Food and Agriculture Organization](#) / [World Health Organization](#) Food Standards Program (Codex Alimentarius), whose mandate is to develop international food standards to protect consumers' health and ensure fair practices in the food trade. An [FAO/WHO Project and Trust Fund for Enhanced Participation in Codex](#) was created to aid developing countries that otherwise would be unable to allocate the resources to participate in the Codex standard setting process. As Codex food safety standards are referenced in the [World Trade Organization's](#) (WTO) Sanitary and Phytosanitary (SPS) Agreement, many countries will adopt Codex standards as their own. Codex standards relating to fair practice in the food trade also facilitate trade through the prevention and reduction of technical barriers. Canada has contributed to the Trust Fund since its inception in 2003.

Canada has provided technical assistance to developing countries with a view to enhancing their understanding of international standards-setting bodies recognized under the WTO SPS Agreement. Workshops and training sessions on implementing WTO SPS Measures (trade, environment and sustainable development) have been held in least-developed and other developing countries.

Individual government departments also provide in-kind contributions to various projects such as strengthening developing countries' capacities to respond to health and safety requirements for plant and animal health, and food safety. Recipient governments have the opportunity to acquire the necessary skills and expertise to analyze and manage trade, environment and development issues and enhance their capacity to make policy choices with due regard to environmental sustainability.

4. Support for international scientific activities: scientific cooperation

The Government of Canada invests in science and technology in order to build Canada's reputation and competitive advantage, and to maximize international opportunities arising from progress on the domestic front. As such, the [International Scientific Cooperation Bureau](#) aims to mobilize international scientific capability in order to expand its knowledge base and contribute to international well-being. The Bureau:

- promotes scientific activities with other countries and inter-governmental organizations
- acts as the hub for a Canadian network of expertise to support international scientific activities, and
- provides an interface between scientific capacity and market and trade requirements, and activities in developing countries.

During 2004-2006, significant progress was made in deploying Canadian scientific expertise, by intensifying collaboration with the [Organization for Economic Co-operation and Development](#) member nations, emerging markets (China, India and Russia) and intergovernmental organizations.

Officials from various federal government departments and agencies continue to monitor developments within the [Cartagena Protocol on Biosafety](#) (the Protocol) and conduct analysis on implications of this multilateral environmental agreement for Canada. Although not a Party to the Protocol, Canada supports initiatives which clarify key elements of the Protocol. For example, in 2007 Norway and Canada co-hosted an international expert workshop on risk assessment of emerging applications of living modified organisms (LMOs). At this workshop, it was determined that the general principles of risk assessment contained within Annex 3 of the Protocol also apply to emerging applications of LMOs, but that there may be a need to develop specific methodologies and to gather further guidance on risk assessment for certain types of LMOs. A summary report was produced and will be made available for the next meeting of the Conference of the Parties to the [Convention on Biodiversity](#) in Bonn, Germany in 2008. Within the Western hemisphere, Canada supported the [Inter-American Institute for Cooperation on Agriculture](#) in the delivery of two workshops in 2007 regarding Article 27 of the Protocol, which relates to liability and redress mechanisms.

The [Biosafety Clearing-House](#) (BCH) is an information exchange mechanism established by the Cartagena Protocol to assist governments to implement its provisions and facilitate the sharing of information on and experience with LMOs. The BCH provides a unique venue to inform other countries of changes to regulations, newly approved LMOs, and government departments responsible for providing regulatory oversight of LMOs. In an effort to ensure transparency and information exchange, Canada regularly submits information to the BCH concerning newly approved LMOs, directives and contact points of agencies providing regulatory oversight. In addition, to provide more specific information regarding Canada's regulatory process and regulatory decisions with respect to LMOs, Canada has established a [Canadian Node of the BCH](#).

5. Sustainable utilization and conservation of genetic resources for food and sustainable agriculture

Farm animal genetic resources are economically significant in Canada. Animal products have traditionally been marketed as commodities, which has encouraged the use of standardized

animals. Canada's success in genetic improvement, its programs in pedigree verification, and its high health status have resulted in significant international demand for Canada's genetic materials.

In 2003, [Canada's Country Report on Farm Animal Genetic Resources](#) was released as a contribution towards the development of the first report on the [State of the World's Animal Genetic Resources](#). In 2004, AAFC and the [University of Saskatchewan](#) developed the [Canadian Animal and Poultry Genetic Resources](#) initiative to enhance the competitiveness of Canadian livestock and poultry industries. The program will acquire, maintain and distribute genetic resources and information about breeds and genetic material for researchers across Canada. Scientists will characterize, evaluate and analyze existing genetic diversity and monitor it for change. They will also work to develop new techniques to collect and preserve genetic material.

In 2006, Canada actively participated in the [First International Technical Conference on Animal Genetic Resources](#) held in Switzerland which resulted in the adoption of the [Global Plan of Action on Animal Genetic Resources](#).

No country, including Canada, is self-sufficient in plant genetic resources; all depend on genetic diversity in crops from other countries and regions. International cooperation and open exchange of genetic resources are therefore essential for food security. The [International Treaty on Plant Genetic Resources for Food and Agriculture](#), adopted by the FAO in 2001, recognizes the contribution of farmers to the diversity of crops that feed the world. The Treaty establishes a global system to provide farmers, plant breeders and scientists with access to plant genetic materials, and helps to ensure that providers and recipients share benefits derived from the use of these genetic materials.

Access to Genetic Resources and Benefit-sharing (ABS) is an emerging issue. The Treaty includes an agreed legally-binding ABS regime for the genetic resources of crops that are covered under its Multilateral System. The fair sharing of benefits arising from the use of these resources will be practically implemented at the international level through the Treaty and its Standard Material Transfer Agreement. Canada ratified the Treaty in 2002, and participated in the first and second sessions of the Governing Body in 2006 and 2007. Through the FAO, Canada funded work in Algeria to monitor its implementation within the Global Plan of Action on Plant Genetic Resources.

Canada actively participates in international discussions on ABS of other genetic resources, including domesticated animals and microbes for food and agriculture, through the [Convention on Biological Diversity](#) (which was charged to elaborate an international ABS regime) and through the FAO [Commission on Genetic Resources for Food and Agriculture](#).

A federal inter-departmental committee and a federal-provincial-territorial committee led by [Environment Canada](#) and Foreign Affairs and International Trade have been established to further develop ABS policy in Canada.

6. Reducing trade barriers to support agricultural growth

AAFC works in collaboration with DFAIT, the CFIA and other government departments and agencies to secure, improve, and where necessary, restore market access for agriculture and

agri-food products. Canada strongly supports efforts to advance the [WTO Doha Development Agenda](#), for the benefit of developed and developing countries. Canada is also pursuing an active regional and bilateral trade negotiations agenda to advance Canada's commercial agricultural interests. Canada is seeking to achieve enhanced opportunities and a more level playing field for agriculture producers and processors through the [WTO Agriculture Negotiations](#).

AAFC promotes and defends the interests of Canadian farmers and agri-food processors in these negotiations and through dispute settlement processes, when required. Further, AAFC monitors and seeks to influence policy developments in key countries, using tools such as trade advocacy, and agri-food specialist positions in selected embassies abroad. AAFC's [Agri-Food Trade Policy](#) Web site provides information about international agricultural trade policy, including Canada's participation in on-going agricultural trade negotiations, and domestic consultations that are currently underway.

7. Science and innovation to enhance productivity and farmers' incomes

As one of the most significant contributors to agricultural science and technology research in Canada, AAFC is committed to ensuring its investments and efforts in science and innovation remain relevant to Canada's agriculture and agri-food sector and all Canadians. The Department's [Science and Innovation Strategy](#) proposes renewed thinking to:

- optimize the use of scientific resources and manage investments in order to collectively create new opportunities,
- contribute to long-term profitability and growth, and
- enhance the competitiveness of the sector.

For example, new science-based programs such as the [Broker Program](#) and the [Agri-Innovation Program](#) are designed to develop ideas that will accelerate the adoption of innovation and the commercialization of products. Furthermore, the [Canada Agricultural Skills Service](#) provides funding to help Canadian farm families improve farm profitability and the safety and quality of farm food production, enhance environmentally responsible production, and take advantage of new market opportunities resulting from recent scientific research.

8. Improving farm production and farm systems through structural reform, adjustment and renewal

Canadian producers adjust continually to face challenges and stay competitive. They adopt new technologies, management, production and processing approaches to adapt to new market environments, evolving consumer demands and societal needs. The Government of Canada provides support to facilitate adjustments to changing circumstances. For example, in the aftermath of the BSE event, the Government of Canada announced the [Repositioning the Livestock Industry Strategy](#) to help the industry adjust to changing market and trade circumstances and new practices throughout the value chain. Likewise, when freight subsidies were eliminated, it undertook various measures to ease transition, encourage diversification, and facilitate change.

Furthermore, national [Renewal Programs and Initiatives](#) assist in the sector's structural adjustment and provide producers with access to information, skills, knowledge, and advisory services in farm business management. For example, the [Farm Debt Mediation Service](#)

provides insolvent farmers and their creditors with mediation services. Successful businesses set goals for the short term and have a vision of where they want to be in the long term. The [Canadian Farm Business Advisory Services](#) help identify the strengths and weaknesses of farming operations and explores options to improve farms' financial situation or to address a specific problems.

9. Building participation and community-based and indigenous approaches to sustainable agriculture

To ensure that Indigenous Peoples (Aboriginal Peoples) of Canada participate in the economy and jobs generated as a result of activity in the Canadian agriculture and agri-food sector, a comprehensive *National Aboriginal Agriculture Strategy* was developed based on feedback from nation-wide [Aboriginal Discussion Workshops](#) in 2007. The intended outcome of this Strategy is to:

- increase Aboriginal involvement in the agricultural sector and associated economic opportunities
- support Aboriginal values of environmental stewardship
- build strong and trusted relationships, and
- develop capacity through education and awareness.

Activities to implement the Strategy include:

- the promotion and development of Aboriginal infrastructures to support a competitive and innovative sector
- incorporating Aboriginal traditional knowledge to mitigate risks and manage environmental sustainability and production, and
- increase access to management programs and incentives for planning and implementing good stewardship of land, food safety and quality, water, and bio-resources.

10. Initiatives that enhance global-market opportunities

Canada is the world's third-largest exporter of agricultural products. As global competition intensifies, Canada must continually innovate to stay ahead of its competitors in meeting market demands. The goal of [Canada's International Strategy](#) is to use the Agricultural Policy Framework initiatives introduced nationally to maximize the global-market opportunities for the Canadian agriculture and food sector. The Strategy focuses on branding and building recognition, improving market access, and overcoming technical barriers to trade.

For example, the [Canadian Agriculture and Food International Program](#) provides contributions to industry associations, alliances and technical marketing support organizations to undertake activities that enhance and promote Canada's reputation as the world leader in supplying safe, high-quality agriculture, agri-food, beverage, and seafood products. Some of the activities include promoting quality products and industry-wide brands in targeted international markets, and undertaking trade advocacy initiatives designed to improve market access and advance Canada's trade policy objectives.

Launched in 2006, the [Branding Canada's Food and Agriculture Sector in International Markets](#) initiative is a comprehensive, research-based branding strategy designed to leverage Canada's strong international image to support the sales and profile of Canadian food and agriculture products. This is a long-term initiative aimed at working with industry to meet customer

expectations, while increasing customer awareness of what Canada has to offer, in order to build brand equity and bolster global market success.

Since 2003, industry leaders and governments have been working together to create and advance the agendas of [Value Chain Roundtables](#) for various commodities. Producers, processors, retailers and others cooperate to build and implement a shared strategic vision for their sectors. Roundtables foster partnerships along the value chains, enabling participants to collectively understand their competitive position, formulate long-term strategies for success and put action plans in place that are designed to provide a competitive advantage.

11. Emerging technologies that improve the quality of health and the environment: biotechnology

Biotechnology is one of the world's fastest-growing technologies. The [Canadian Biotechnology Strategy](#) (CBS), which was in effect from 1982 to 2007, was designed to enhance the quality of life of Canadians in terms of health, safety, the environment, and social and economic development. Under the CBS, the CFIA worked in partnership with other government departments on biotechnology regulatory initiatives. As the main regulatory body responsible for assessing the safety of agricultural products derived from biotechnology, the CFIA continues to conduct work in support of the objectives of the CBS under its [Canadian Regulatory System for Biotechnology](#) initiative, which was established in 2000.

With the conclusion of the CBS in 2007, Canada's new strategic plan – [Mobilizing Science and Technology to Canada's Advantage](#) – provides an overall guide for future government science and technology decision-making. This includes regulating products of emerging technology such as novel products of biotechnology. The CFIA works to keep pace with emerging technologies as they develop and evolve, and continues to increase its capability for product assessment monitoring, inspection, communications, surveillance and enforcement, scientific research, policy development, and accountability.

The Government of Canada's [BioPortal](#) acts as a gateway to government information on biotechnology for consumers, scientists, educators, industry and academia, covering everything from the latest government research, policies, and strategies to emerging trends in food and agricultural biotechnology, genetically modified organisms, food labelling, ethics, regulations, and the business of biotechnology.

The BioPortal has quickly emerged as one of the most up-to-date and comprehensive sources for biotechnology information in the world. Through BioPortal, users can also access the international [BioGov](#) portal to tap into government biotechnology sites from more than 40 countries, using topic, major subject area, country or the keyword search feature as their entry point.

12. Emerging technologies that enhance rural energy transition and productivity: agricultural bioenergy products

Recent advances in information and communication technology, biochemistry and engineering are creating a new range of environmentally-friendly replacement products which can be made from agricultural and other renewable feedstock. Referred to as bioproducts, these products

are biologically-based commercial or industrial products other than food, feed and medicines made with biological or renewable agricultural (plant or animal), marine or forestry materials.

In an effort to better define the size and structure of the bioproducts industry in Canada, the 2004 [Bioproducts Development Survey: Analysis of the Summary Results](#) provides a better understanding of the driver behind developing bioproducts, the challenges facing the industry and the gaps in knowledge that may require future research to enable the Canadian bioproducts industry to grow.

Environment Canada is leading the development of the national strategy that will require a minimum of five percent average renewable fuel content in all transport fuel in Canada by 2010. AAFC's [Biofuels Opportunities for Producers Initiative](#) under the [Advancing Canadian Agriculture and Agri-food Program](#) is designed to assist farmers and rural communities in developing business proposals to create and expand biofuels production capacity involving significant (greater than one-third) ownership by agricultural producers.

The [ecoAgriculture Biofuels Capital Initiative](#) (ecoABC) is a national initiative designed to provide an opportunity for agricultural producers to diversify their economic base and participate in the biofuels industry through equity investment/ownership in biofuels production facilities. As well, ecoABC will help achieve the federal government's goal of reaching an average of five percent renewable content in gasoline by 2010 and two percent renewable content in diesel fuel and heating oil by 2012. This four-year program provides repayable contributions for the construction or expansion of transportation biofuel production facilities.

The [Agricultural Bioproducts Innovation Program](#) is a multi-year program that seeks to mobilize Canada's academic, private and public sectors, and to integrate resources to build greater research capacity in agricultural bioproducts and bioprocesses. Through supporting networks and clusters, the program promotes research, development, technology transfer and commercialization activities in areas such as biofuels, other forms of bioenergy, biochemicals, and biopharmaceuticals.

13. Approaches for environmentally sound agricultural production

AAFC's [Science and Innovation Strategy for the 21st Century](#) is helping to provide safer food for Canadians while encouraging environmental stewardship among producers. Research activities focus on generating new knowledge and improved understanding of the interactions and impacts between agriculture and the environment, including biodiversity, and on developing new and improved [Beneficial Management Practices](#) (BMPs) in support of on-farm environmental performance. The development and promotion of BMPs remains one of AAFC's cornerstone commitments to producers and the Canadian agriculture sector. For example, the objective of the [Watershed Evaluation of BMPs](#) project is to measure the relative environmental and economic performance of selected BMPs in representative watersheds across Canada.

Another example is integrated pest management approaches to reduce the use of chemical pesticides on crops while maintaining crop productivity. Since 2002, programs delivered by the [Pest Management Centre](#) reflect the goals to position Canada as the world leader in environmentally responsible production while improving air, water and soil quality and conserving biodiversity. Although it is too early to measure progress, these initiatives aim to improve growers' access to safer pesticides, enhance production approaches that reduce

reliance on pesticides, and encourage environmentally friendly and cost-effective food production.

AAFC has developed new technologies in biological control, biopesticides, resistant germplasm, cultivars and varieties, methods for pest detection, monitoring and surveillance, identification, biology, aetiology, and ecology of pest and natural enemies. With Health Canada's [Pest Management Regulatory Agency](#) as the lead, AAFC is researching alternative technologies in pest control to strengthen the science-based decision making in the registering, re-evaluating and overall regulation of pesticides. As a member of the FAO, Canada is guided by the recently developed [International Code of Conduct on the Distribution and Use of Pesticides](#). Federal departments work together to facilitate information exchange and advice to enhance the effectiveness of programs, services and decisions in pest control.

Invasive alien species threaten Canada's environment, economy and society, including human health. Invasive alien species have been identified as a priority for action under the [Canadian Biodiversity Strategy](#). Canada has developed [An Invasive Alien Species Strategy for Canada](#) (2004) and a proposed [Implementation Plan for Invasive Alien Terrestrial Plants and Plant Pests](#) (2005). Strategic investments have been put in place over a five-year period to minimize the risks associated with invasive alien animal and plant species in Canada.

Farmers, governments and other stakeholders in Canada's agricultural industry have become increasingly aware of the need to integrate environmental factors into their decision-making processes. They share a common need for objective information on the current environmental performance of the agricultural sector, to determine whether this performance is satisfactory and how it is likely to behave in response to the decisions they make.

Under the [National Agri-Environmental Health Analysis and Reporting Program](#), AAFC has developed a set of agri-environmental indicators specific to the agriculture and agri-food sector to assess how well agriculture and agri-food systems manage and conserve natural resources, and how compatible they are with the natural systems and processes in the broader environment. AAFC's [Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series - Report #2](#) focuses on four key components of the environmental sustainability of primary agriculture: soil quality, water quality, air quality and biodiversity. The results reveal some consistent national trends, as well as considerable differences in various agri-environmental conditions across Canada. Overall, the results suggest that considerable progress has been achieved towards environmental sustainability, but that further expansion and intensification of cropping and livestock production has the potential to exacerbate the environmental risks unless appropriate actions are taken to manage them.

In 2005, AAFC launched the [National Land and Water Information Service](#) project, to strengthen the capacity of land managers to make better decisions about land use. The Service is an Internet-based portal that brings together new and pre-existing applications, data and tools into a single on-line window thereby allowing easier access to on-line users. The Service is being implemented collaboratively with other Canadian federal government departments, the agricultural sector, provinces, and territories to give producers the information, tools and expertise they need to make environmentally responsible land-use decisions. The Service provides a growing number of interactive maps and tools focusing on land, soil, water, climate, and biodiversity resources across Canada. These interactive mapping applications and tools provide information to producers and other land-use decision makers to support an

environmentally sustainable agricultural sector. When fully operational, the new Service will help transform the way land-use decisions are made in Canada.

14. Protecting the safety of the food supply and animal and public health

The development of Canada's emergency response procedures involve all levels of government aimed at protecting the health of Canadians. [Emergency Response Procedures](#) are in place to protect food, plants and animals from accidental or intentional events. The CFIA is ready to act rapidly and effectively in response to emergencies impacting food safety and the agricultural sector. These measures support strong surveillance and inspection programs designed to detect the presence of hazards in food, animals and plants, and a well-established emergency food recall system. Programs and activities are designed to identify and manage food safety risk, respond to food safety emergencies, carry out emergency food recalls and prevent the spread of animal diseases to humans. Scientific expertise, extensive laboratory network and inspection capacity allow it to act rapidly and effectively in the event of a threat to public safety or agri-food security.

The threat posed by highly pathogenic avian H5N1 influenza and a potential human influenza pandemic has stimulated extensive international cooperation and collaboration to increase global preparedness and plan an appropriate response. Canada's *International Engagement on Avian Influenza and Pandemic Planning – Strategic Framework* provides a foundation to guide Canada's international engagement in avian influenza and human influenza pandemic preparedness and response. It reflects a whole-of-government approach to our global efforts and will be used to inform policy-making and priority-setting with respect to further international engagement on avian influenza and pandemic influenza (AI/PI). The Strategic Framework also outlines the key policy positions that Canada should take internationally, based on fundamental principles and key considerations which underlie our international engagement. It also identifies Canada's top strategic priorities for international engagement on AI/PI in 2007. For example, it includes the importance of controlling avian influenza at its source, and seeks to strengthen the linkages between animal and public health sectors. The Strategic Framework is expected to be available by the end of 2007.

The International Development Research Centre is supporting the [Asian Partnership for Avian Influenza Research](#) (APAIR) which brings together researchers, science granting agencies and ministries responsible for research in Cambodia, Vietnam, China, Thailand, Indonesia and Canada. Four projects are underway to examine backyard farming, the formulation of policy for anti-virals and poultry vaccination, surveillance of wild birds, and the socio-economic impacts of avian influenza and counter measures. Two further projects are under development to investigate human behaviour as it relates to transmission risk, and to investigate the effectiveness of control measures. Information on avian influenza projects is available on the [IDRC Development Research Information Service](#) Website. The Research Centre also provides support to the APAIR Coordinating Office in Bangkok. A similar set of activities is being explored for Africa and the Middle East.