

2010



Report of the
**Auditor General
of Canada**
to the House of Commons

SPRING

Chapter 5
Scientific Research—
Agriculture and Agri-Food Canada



Office of the Auditor General of Canada

The Spring 2010 Report of the Auditor General of Canada comprises a Message from the Auditor General of Canada, Main Points—Chapters 1 to 5, and six chapters. The main table of contents for the Report is found at the end of this publication.

The Report is available on our website at www.oag-bvg.gc.ca.

For copies of the Report or other Office of the Auditor General publications, contact

Office of the Auditor General of Canada
240 Sparks Street, Stop 10-1
Ottawa, Ontario
K1A 0G6

Telephone: 613-952-0213, ext. 5000, or 1-888-761-5953
Fax: 613-943-5485
Hearing impaired only TTY: 613-954-8042
Email: distribution@oag-bvg.gc.ca

Ce document est également publié en français.

© Minister of Public Works and Government Services Canada 2010
Cat. No. FA1-2010/1-5E-PDF
ISBN 978-1-100-15345-2
ISSN 0821-8110

Chapter

5

Scientific Research

Agriculture and Agri-Food Canada

Table of Contents

Main Points	1
Introduction	5
Unique challenges faced by research organizations	6
Significant change over the years	7
Science and Innovation Strategy	7
Focus of the audit	8
Observations and Recommendations	9
Implementing a strategic direction for research	9
The Department's action plan is under development	9
Communication needs to be improved	11
Management of collaborative agreements needs to be improved	13
Managing scientific projects	18
There have been delays in clarifying national priorities	18
The lack of predictable funding had an impact on research efforts	19
Monitoring and reporting of research projects is weak	20
Analysis of the project portfolio is limited	21
Managing human resources	23
Monitoring and reporting of the Research Branch's human resource plan are weak	23
Human resource planning is being reviewed	24
Managing capital assets	25
Capital assets are not regularly assessed	25
Conclusion	27
About the Audit	29
Appendix	
List of recommendations	32



Scientific Research— Agriculture and Agri-Food Canada

Main Points

What we examined

Agriculture and Agri-Food Canada has a mandate to provide information, research and technology, and policies and programs to achieve an environmentally sustainable, innovative, and competitive agriculture sector. The Department's work includes supporting productivity and trade, stabilizing farm incomes, and conducting research.

The Research Branch conducts and encourages innovative research to help Canadian producers benefit from new agricultural developments. It employs around 2,300 people, including almost 700 scientific staff and research professionals and 1,000 technical staff, in 19 research centres across the country. This represents over one third of the Department's human resources.

In 2006, the Department introduced its Science and Innovation Strategy, which placed greater emphasis on excellence in the conduct and management of science. Another key goal of the Strategy was to increase collaborative arrangements with other research organizations. The federal government's science strategy was launched in 2007 and the Department's policy framework, Growing Forward, was completed in 2009, increasing the emphasis on innovation as a strategic objective. These policy directions represented significant change for the Research Branch and its stakeholders.

We examined how the Department manages its research activities to achieve its strategic direction and priorities, including how it manages its research projects, its human resources, and its capital assets.

Audit work for this chapter was substantially completed on 22 September 2009.

Why it's important

The Canadian agriculture and agri-food industry is vital to Canada's economic success; it accounts for about eight percent of the country's gross domestic product and employs one in eight Canadians. However, the agriculture sector faces several challenges, including international competition, pressure to reduce operational costs through advanced production methods and technologies, falling prices for some

commodities, and consumers' heightened concerns about health, food safety, and the environment.

Agricultural and agri-food research has enabled farmers to increase yields, adapt crops to Canadian conditions, introduce new crops, and improve animal production. The Department's research is aimed at developing new knowledge and new discoveries in order to maintain Canada's ability to produce food, develop new products, and compete internationally, while improving the environmental sustainability of the sector.

What we found

- Agriculture and Agri-Food Canada has put in place only some of the elements needed to achieve its new strategic direction, in part due to the evolving policy environment. For example, while a strategic action plan for the Science and Innovation Strategy has been approved, it does not identify the human resources, equipment and facilities, and financial resources required; nor was a communication strategy finalized until the end of our audit. As a result, other organizations in the agriculture sector as well as the Department's own scientists have been uncertain about its strategic direction.
- The Research Branch has a history of successful collaboration on individual research projects with scientists in other organizations. The three collaborations we examined—which were more complex, long-term, and involved multiple partners and multiple projects—were not well-managed by the Department. This caused a significant loss of goodwill among a number of important partners.
- To select the research projects it funds, the Research Branch has implemented peer and management review processes in order to ensure the best investment of public funds. However, there is little monitoring of research activities and little feedback to scientists on their work. There is little analysis of the research portfolio as a whole.
- While many activities in the Research Branch human resource plan have been implemented, planning for the longer term has not been a focus due, in part, to the evolving policy direction. The Research Branch has not identified how it will staff positions over the longer term or determined those to be staffed in the future and those to be eliminated. However, as part of implementing the strategic action plan, a revised multi-year human resource plan was being developed at the end of our audit.

- Although it has undertaken some components of a plan for the renewal and replacement of its capital assets, the Department has not yet identified which locations are critical to maintain and which are no longer needed to achieve its research strategic direction. When last assessed in 2005, the condition of the majority of the buildings, based on square metres, was rated as poor (26 percent) or average (45 percent) rather than good or excellent. Also, about 71 percent of laboratory and agricultural equipment had exceeded its service life. However, as part of implementing the strategic action plan, the Research Branch is gathering more recent information from research centres on the condition and use of its assets.

The Department has responded. The Department agrees with all of our recommendations. Its detailed responses follow the recommendations throughout the chapter.

Introduction

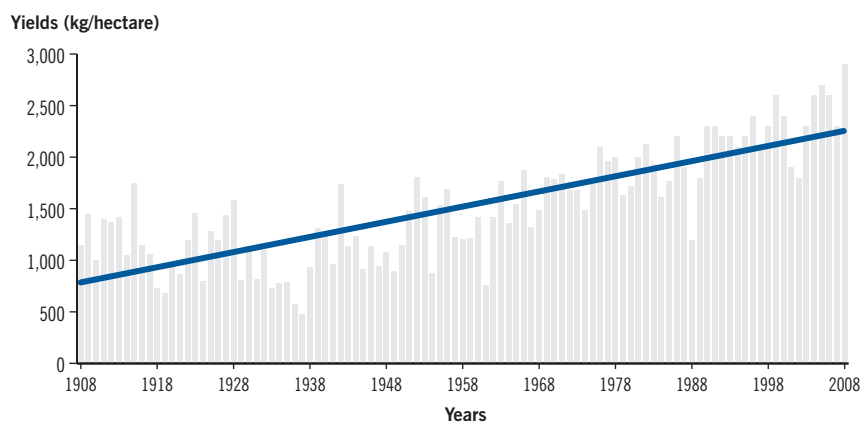
5.1 Agriculture and Agri-Food Canada strives to help the agriculture, agri-food, and agri-based products sector maximize its long-term profitability and competitiveness, while respecting the environment. The Department does this by supporting agricultural productivity and trade, stabilizing farm incomes, and conducting research, in order to achieve the three following strategic outcomes for the agriculture, agri-food, and agri-based products sector:

- environmental sustainability,
- competitiveness, and
- innovation.

5.2 The Department's Research Branch is responsible for delivering the research part of its mandate. In June 2009, the Branch had 2,300 employees—including almost 700 scientific staff and research professionals and about 1,000 technical staff—working in 19 research centres across the country. This represents over one third of the Department's human resources. In the 2008–09 fiscal year, the Branch's expenditures totalled about \$240 million. We noted a significant increase in both operating and capital asset expenditures over the past three years.

5.3 Over the years, the Research Branch has had many successes. For example, it has developed more disease-resistant and high-yielding wheat varieties that have helped to increase farmer income and production efficiency. Yield of Canadian wheat has more than doubled over the last century (Exhibit 5.1). It has also helped industry identify the health benefits of food such as cereals, nuts, and berries. The Research Branch has contributed to the safety of our food, the development of environmentally sound farming practices, and the development of bio-products, for example, using industrial soybean and flax crops to produce other products.

5.4 According to the Department, its research accounts for about 40 percent of agricultural research conducted in Canada, with universities and the private sector accounting for the remainder.

Exhibit 5.1 Canadian wheat average yields from 1908 to 2008

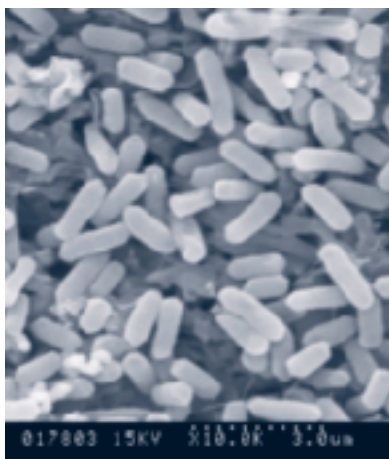
Source: Agriculture and Agri-Food Canada

Unique challenges faced by research organizations

5.5 Research organizations face a number of unique challenges, due to the nature of their work. We examined these challenges in the 1999 November Report of the Auditor General, Chapter 22, Attributes of Well Managed Research Organizations. They include

- setting priorities and articulating end results—this is due in part to the uncertainty about where the most valuable discoveries lie and to the long time frames before outcomes of research become evident;
- justifying the value of the investment in research;
- developing new approaches to managing research, such as protecting intellectual property and communicating results in a useful form;
- using foresight to anticipate future research challenges; and
- increasingly using collaborative arrangements and partnerships in order to share expertise and cost.

The Department has indicated that an additional challenge exists in the scientific environment, where the objective is to create an environment in which scientists can be innovative. In order to foster commitment among scientists, management frameworks need to be developed through ongoing dialogue with staff.



Research project: Controlling E. coli with Probiotics

E. coli O157:H7 is a bacterial strain that can cause illness. This project has determined that some bacteria can inhibit the production of toxins, suggesting that these probiotics could be used to prevent and treat infection caused by E. coli O157:H7.

Source: Agriculture and Agri-Food Canada



Research Project: Combating Wheat Stem Rust

Ug99 is a strain of wheat rust that is spreading across the world and may ultimately reach North America. This project involves identifying the resistant genes that could confer wheat plants' immunity to this disease and therefore protect the Canadian crop.

Source: Agriculture and Agri-Food Canada



Research Project: Genetics of Soybean Disease

Soybeans are subject to soybean root rot, a serious plant disease. This project has led to the discovery of genetic factors, paving the way to new resistant soybean varieties.

Source: Agriculture and Agri-Food Canada

Significant change over the years

5.6 Federal government funding of agricultural research formally debuted in June 1886 when an *Act Respecting Experimental Farm Stations* received Royal Assent. The Act authorized the inception of five experimental farms in Nova Scotia, Manitoba, the Northwest Territories, British Columbia, and Ontario (the Central Experimental Farm in Ottawa). Throughout the first half of the 20th century, many additional experimental farms were established. By the end of the 1970s, the Research Branch had more than 50 research locations.

5.7 The Research Branch has undergone significant change over the years. The 1995 Budget resulted in serious cutbacks in most federal departments, including Agriculture and Agri-Food Canada. The number of scientific and professional staff was significantly reduced, and the research locations were consolidated into 19 research centres, supported by 37 sub-sites. In 2002, the Department fundamentally changed its governance structure, adopting a horizontal, matrix management model. This necessitated a concurrent change in the Research Branch's organizational structure, which was followed in 2003 by a change in its program structure. The governance and operations of the research centres have been adjusting to this model. Over the years, in addition to having various reviews, the Branch has changed considerably at the senior management level.

Science and Innovation Strategy

5.8 In 2006, the Department released its Science and Innovation Strategy, which contains strategic goals and objectives to guide the Department's science and innovation direction. This direction includes

- investing in research, according to national priorities;
- promoting excellence in research;
- developing partnerships;
- enhancing the bio-based economy; and
- dealing with the commercialization of research.

5.9 As part of its strategic direction, the Research Branch is undergoing a transition, which will move it from an organization whose main role is the conduct of research in support of the sector to one that also provides leadership and direction in the building and coordination of national agricultural science and innovation. The Department has indicated that this will require increased emphasis on collaborative

efforts and initiatives to promote industry investment. This transition reflects one of the Department's primary objectives, that is, to develop a sector that can compete successfully in domestic and international markets and can achieve sustained growth and profitability, by making innovations, adapting to change, and seizing new opportunities.

5.10 The Department's Science and Innovation Strategy is aligned with Growing Forward, its new policy framework, and with the 2007 federal government's science strategy. Growing Forward is designed, in part, to encourage industry leadership and investment in agricultural science and innovation. The framework is for four years and is effective from April 2009 to March 2013.

Focus of the audit

5.11 Our audit examined whether the Department has managed its research activities to achieve its strategic direction, which includes its Science and Innovation Strategy, the Growing Forward policy framework, and the national priorities and the themes used to select research projects. Most of our audit work was conducted in the Department's Research Branch, but it also included supporting branches, such as Human Resources, Communications and Consultations, and Corporate Management.

5.12 The scope of our audit included examining the plans and activities the Department put in place to achieve its strategic direction and how it communicated those plans and activities to staff and external stakeholders. We also examined how scientific research projects were selected and managed. We reviewed human resource plans, actions to address resource gaps, and the management of capital assets. In addition, we examined the Department's management of formal collaborative research agreements involving multiple organizations. The audit included case studies as well as a representative sample of research project files.

5.13 More details on the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this chapter.

Observations and Recommendations

Implementing a strategic direction for research

5.14 We examined whether Agriculture and Agri-Food Canada had developed and implemented appropriate plans to execute its strategic direction. In developing these plans, we expected the Department to have assessed the need for the activities within the organization and developed programs that form a coherent suite.

5.15 Action plans are a means to provide a common understanding of what needs to occur to implement policy direction. They identify

- what specific actions need to be taken,
- what the results to be achieved are,
- who is responsible for the results,
- how the results will be achieved, and
- what the specific timelines are.

The Department's action plan is under development

5.16 The Department released its Science and Innovation Strategy in May 2006. Some aspects of the strategy were implemented in 2006, such as a peer review process for project selection to ensure science excellence, and a management review of projects for alignment with national priorities in 2007. However, we found that the Department did not begin to formally draft a strategic action plan until October 2008, after the Growing Forward policy framework was developed.

5.17 At the end of our audit, in September 2009, Research Branch senior officials had approved only the first year (the 2009–10 fiscal year) of the four-year action plan. The plan was developed with input from scientists and stakeholders. Branch management indicated that the action plan would be adjusted in subsequent years, as needed. However, many of the sections were still not prepared and were identified as “under development.” Specifically, we noted that the sections on resource requirements, risk and gap analysis, and reporting and evaluation requirements, as well as the appendices on the strategic management goals, were not complete.

5.18 In addition, the Department was still in the process of identifying the cost of carrying out its action plan. It had not identified all the requirements for implementing the action plan, including

- human resources (scientists and professional staff) and the specific skill sets needed for human resource planning purposes,

- the equipment and facilities, and
- the financial requirements.

Therefore, partly because of the evolving policy environment, the action plan was not timely or complete.

5.19 We also found that science and innovation programming under the Department's Growing Forward policy framework is intended to support a range of initiatives from discovery research to commercialization. The Research Branch has analyzed its programs to ensure that they form a coherent suite of programming across the research continuum.

5.20 Officials told us that the process for determining program funding was based on historical spending patterns and on the Growing Forward agreement. However, the process was not well documented. The allocation of funding is critical to the success of the programs and is an important part of financial management and control.

5.21 Recommendation. Agriculture and Agri-Food Canada should further develop and implement its strategic action plan, taking into account federal policy direction and its own Growing Forward policy framework. The Department should establish overall costs and ensure that future action plans are developed before programming commences. The plans and costs should be reviewed periodically, to reflect the changing circumstances of science research and its partnerships.

The Department's response. Agreed. The policy context for the Department's Research Branch has been changing very rapidly; changes included a new federal Science and Technology Strategy in 2007 and the Department's new Growing Forward policy framework in 2008. The Research Branch developed a Science and Innovation Strategy in 2006 and implemented several of its elements, taking into account needed adjustments to respond to the evolving policy environment. The 2009 Research Branch Strategic Action Plan was the first iteration of a comprehensive management plan to implement the policy directions in the federal and the Department's science and technology strategies and in Growing Forward.

The 2010 Strategic Action Plan updates and builds on the 2009 plan. It will include four additional components that cover the planning of human resources needs, a framework for the management of collaborative agreements, a framework for the allocation of research

funding for each national science priority, and measurable targets for each research priority. Implementation of the plan will begin in April 2010.

The plan, including cost information, will be used to guide implementation of the Research Branch's Science and Innovation Strategy and future programming. It will be updated annually in consultation with managers and staff.

Communication needs to be improved

5.22 Developing communication strategies. Well planned communication strategies are key components of internal and external information sharing, which includes

- identifying the target audiences,
- determining the purpose of the communications,
- determining what messages to communicate and how to communicate those messages, and
- verifying that the messages were conveyed.

5.23 We examined whether the Department had developed and implemented a communication strategy for the Research Branch that included plans for informing internal staff and external stakeholders of its plans and activities.

5.24 The Department had implemented various communication mechanisms since the release of its Science and Innovation Strategy in 2006. For example, in October 2007, it issued an internal newsletter, and its external communications have included news releases and targeted media stories. Despite these communication initiatives, we found that officials from other organizations in the agricultural research sector, as well as many of the Department's own research scientists, were uncertain about the Department's strategic direction. This was due, in part, to the fact that the Department did not have an action plan for executing its strategic direction. We noted that the Department had been operating under a draft science communication strategy since 2006. It was finalizing internal and external science communication strategies at the end of our audit in September 2009.

5.25 Dissemination of research results. We also expected that the Department had developed and implemented a communication strategy for the Research Branch that included plans for disseminating research results, in a timely manner, to meet the needs of those who depend on them for results.

5.26 The Department's external science communication focuses on

- raising awareness of the relevance of the Department's science and its benefits;
- reinforcing the government's role as a leader, funder, and facilitator of agricultural research; and
- ensuring that communications are aligned with the national priorities.

5.27 However, the important issue of the timely dissemination of research results is not directly addressed in the communication strategy.

5.28 We found that available web tools were not fully used. While scientists' names and the titles of their publications were available on the Department's website, the abstracts were not posted. The Department has plans to post abstracts of its scientists' research publications on its website.

5.29 Consistent with standard practices within the scientific community, the Department's scientists continue to share research results through scientific conferences. The Department also communicates with research users through open houses at research centres and by publishing internal and external newsletters. However, it has no systematic process for identifying who to share the research results with or for determining when and how to share those results. A frequent comment made by the stakeholders we interviewed was the need for the Department to improve its communication of research results.

5.30 Recommendation. Agriculture and Agri-Food Canada should better communicate its strategic direction for research and improve the timeliness of the dissemination of its research results.

The Department's response. Agreed. The Department is an internationally recognized knowledge-based organization that relies on the success of its scientists to generate benefits for the sector. It is important to communicate these successes.

The Department is stepping up its communication strategies (internal and external) and will have finalized a new engagement strategy for staff and stakeholders by April 2010. The Department is using its improved strategies to better inform and engage both employees and stakeholders in the development of its plans and activities, as well as to share its research results in a timely manner.

Staff and stakeholder engagement will be developed and sustained through town halls with senior management and new communication tools. The creation of a new regional research users' forum will accelerate the dissemination of research results.

The Department will monitor on an ongoing basis the effectiveness of its communication and engagement activities through media monitoring, reporting on events, staff and stakeholder feedback, tracking traffic to websites and distribution of products. The Department will adjust its strategies as necessary.

Management of collaborative agreements needs to be improved

5.31 One of the principles underlying the Department's 2006 Science and Innovation Strategy is the development of partnerships with other research providers. In an era of limited research resources in many science organizations and with ever broader challenges facing the sector, collaborative research is seen as a way to ensure that the agricultural sector maintains a competitive edge and to leverage resources. The development of partnerships requires that management, scientists, and the industry work together to understand and serve the sector's needs.

5.32 The Research Branch has a history of undertaking successful collaboration with scientists in other organizations, including provincial governments, academia, producer and commodity groups, other government departments, and international organizations. The Department manages numerous research agreements each year. These collaborative efforts tend to be for single projects and initiated by scientists conducting similar research.

5.33 Collaborative research involves a number of activities, including the sharing of post-doctoral students, meetings between scientists during the course of a research project, sharing of research results, and joint publication of research findings. Collaboration takes different forms, for example, individual research projects that the Department carried out for industry partners under its Matching Investment Initiative.

5.34 Our audit examined three formal long-term partnerships, involving multiple partners and multiple projects.

5.35 We examined whether the Department

- had developed and implemented appropriate plans to execute its strategic direction in relation to these partnerships;
- had appropriate communications for informing collaborative partners of its plans and activities;

- had planned, implemented, and monitored the research;
- had assessed human resource needs and addressed gaps; and
- had managed capital assets.

5.36 We found that the Department did not have appropriate plans to maximize the success of these collaborations, due, in part, to its evolving policy environment and the significant change this represented for the Research Branch and its stakeholders. The extent of research conducted was limited, primarily due to the limited financial and human resources contributed by the Department. In addition, there were implementation delays, which have important implications in the context of a five-year agreement. For one of the three collaborations the Department participated in, we also found weaknesses in financial management and control. For example, a significant capital asset was purchased before a network was approved for funding. Overall, we found that the Department had not managed these collaborative agreements well, causing significant loss of goodwill with a number of important partners.

5.37 The following is a summary of the three collaborations, for which the Department had signed agreements.

5.38 Scientific Research Collaboration in Prince Edward Island.

In May 2006, the Department signed a five-year agreement on agri-food research in bioresources and health with the National Research Council of Canada and the University of Prince Edward Island. The collaboration involves the sharing of a new building, which was available for occupancy in October 2006.

5.39 Under the agreement, the Department committed to hire up to seven scientists and seven technicians and to provide equipment to support their activities. In August 2006, the Department was aiming to fill three research positions in the 2006–07 fiscal year and three positions in the 2007–08 fiscal year.

5.40 However, the Department only hired three scientists after significant delays—two in March 2008 and one in September 2008. In addition, three technicians were eventually assigned to this partnership; not all were assigned on a full-time basis. Initial funding was allocated in September 2008, until scientists had identified opportunities and prepared proposals for peer review. Two scientists submitted proposals for funding for 2009–10 research projects, but they were not successful. They were then provided with start-up funding for a project in June 2009. The limited availability of research staff had a negative impact on the collaborative effort.

5.41 Food Innovation Network in Guelph. In May 2004, the Department signed a five-year agreement with the Ontario Ministry of Agriculture, Food and Rural Affairs, the University of Guelph, and the Guelph Food Technology Centre. A new agreement was signed, in June 2006, to include the Public Health Agency of Canada in the network.

5.42 The Department provided funding in the amount of \$158,000. The Food Innovation Network was to facilitate food research and knowledge transfer. An executive committee, which included representatives from each of the collaborating organizations, last met in November 2007.

5.43 The network faced a number of challenges:

- Champions for the initiative, including the Department's lead, left their respective organizations, leaving the network without continuity of leadership.
- Department funding provided support for an executive director, a key position, for only one year.
- A common direction needed to be established and terms of the collaboration needed to be agreed to.

5.44 The Food Innovation Network is currently inactive.

5.45 Agricultural Bioproducts Innovation Program (ABIP). In December 2006, \$145 million was announced for ABIP, for a five-year period, to support the establishment and operation of bioproducts research networks. An external committee of international experts reviewed proposals from 78 networks and recommended 15 networks for funding.

5.46 Program managers misunderstood how much funding was available, and they expected that all 15 networks would be funded. As a result, they requested that agency agreements be prepared and contribution agreements be drafted. There was also consultation about intellectual property rights, and a number of requests for information from the networks. Networks spent considerable time adjusting research plans to accommodate the Department's budgets. However, the Department selected only nine networks for funding, stating that the program funding envelope was not sufficient.

5.47 When it became apparent that not all 15 networks could be funded, Department management recommended not funding the six networks that were focusing on food for health. Based on their experience in obtaining funding from granting agencies,

those six networks had believed they would be funded, and many had incurred significant costs in time and resources. There was significant loss of goodwill as a result.

5.48 The six network participants questioned the Department's commitment to research on food for health; they felt that the decision-making process was not adequately explained to them. Given the resources they had spent on the process, participants also indicated that the process hindered research on food for health in Canada that could have been conducted.

5.49 According to letters that they were sent, the nine successful networks were allocated \$74.4 million for three years, from the 2008–09 fiscal year to 2010–11. However, the letters specify that only \$43.6 million can be used for non-government research. Therefore, while the original announcement indicated that \$145 million would be available to support research networks, only 30 percent was actually allocated for research external to the federal government. The Department has indicated that it is spending the difference.

5.50 The funds that the Department requested and received were not all intended for the networks. It was to use 40 percent of the funds for operating expenses associated with the program and 17.5 percent for capital purchases. However, because there was a significant time delay in rolling out the program, the funds could not be used when expected. The Department received approval to use about \$20.3 million for other department initiatives. The delays also meant that participants had less time to complete their research work.

5.51 During this time, Research Branch management approved and purchased a piece of equipment for a network, which cost almost \$1 million, before they approved funding for the network. Eventually, they recommended that the network not receive the funding. Purchasing equipment before all approvals were obtained for the networks demonstrated weak financial management and control. The Department has indicated that it was able to find alternative uses for the equipment in other projects.

5.52 The Department has recently launched the Canadian Agri-Science Clusters Initiative, which, like ABIP, aims to support collaborative science delivery. The deadline for organizations to submit proposals was January 2010. Successful clusters will again have just three years to complete their research before the funding ends. The Department has indicated that it is building on the lessons learned from ABIP to guide its administration of clusters.

5.53 Recommendation. Agriculture and Agri-Food Canada should strengthen collaborative efforts by improving the management of its agreements and ensuring their success by

- more clearly communicating the resources it intends to contribute to partners in collaborative agreements,
- carrying out commitments made in these agreements,
- ensuring timely involvement in programs and ensuring that timelines for program delivery are respected,
- improving its planning for the allocation of human and other resources, and
- ensuring that capital expenditures are not incurred prior to final approvals.

The Department's response. Agreed. The Department's Research Branch has put into place a dedicated unit to oversee the delivery of new programming that will support collaborative arrangements. The unit is led by senior managers with program management expertise. Improvements have been made to the programming rolled out in 2009 to include clearer targets and measurable performance indicators.

The Department's Research Branch is developing a new Collaborative Management Framework and Guidelines to build on successful elements of previous partnerships. The Framework and Guidelines will support decisions related to partnership selection, will support effective management of those partnerships and will support monitoring of implementation of partnership arrangements. The application of the Guidelines will ensure a rigorous process is in place for the development of future collaborative arrangements by identifying the resources and timelines required and the approval processes, the elaboration of corresponding implementation plans, as well as the planning and reporting of expenditures.

The Framework and Guidelines will be the basis for ongoing discussions with partners, to begin in April 2010. They will be used by the Research Branch to strengthen partner relations, ensure implementation of commitments in a timely manner, promote ongoing dialogue and help maximize the benefits of research projects for Canadians.

Managing scientific projects

5.54 We examined whether the Research Branch of Agriculture and Agri-Food Canada had planned and implemented the research projects undertaken by its scientists to align with its strategic direction. We also examined whether the Department had clear priorities for research selection. These include

- ensuring that the projects are based on excellent science and technology to stand up to the scrutiny of world-class experts;
- assessing the fit of research projects with the Department's mission, goals, and overall priorities; and
- leveraging resources with external capacity to maximize efficiency.

There have been delays in clarifying national priorities

5.55 In developing its 2006 Science and Innovation Strategy, the Department had extensive consultations with the public and its stakeholders. This led to the development of the following seven national research priorities:

- Enhance human health and wellness through food, nutrition, and innovative products.
- Enhance the quality of food and the safety of the food system.
- Enhance the security and protection of the food supply.
- Enhance economic benefits for all stakeholders.
- Enhance environmental performance of the Canadian agricultural system.
- Enhance understanding of Canadian bioresources and protecting and conserving their genetic diversity.
- Develop new opportunities for agriculture from bioresources.

5.56 For research to be conducted in the 2007–08 fiscal year, the Research Branch began a project selection process that included external peer reviews of research proposals submitted for departmental funding. The purpose was to ensure excellence in research. This represented a significant change for Research Branch staff; the selection of research projects moved from a decentralized model to a national model that included priorities.

5.57 The project proposals were evaluated against criteria such as scientific excellence, scientific merit, contribution to innovation and the public good, and feasibility and potential to achieve objectives and

deliver results. Following these reviews, a management committee assessed the proposals for alignment with the seven national priorities.

5.58 However, we found that these priorities were written as broad statements that provided little information on the expected research activities. For example, the most general national priority was “Enhance economic benefits for all stakeholders.” Research Branch scientific staff also told us that the national priorities were so broad that research projects could be easily aligned with one of them.

5.59 Some additional description of the national priorities was provided to scientists in June 2007. As part of developing the strategic action plan, in consultation with scientists, the Research Branch began elaborating on each national priority in November 2008. The first drafts were distributed for comment to the Department’s science community in March 2009—three years after the release of the Science and Innovation Strategy.

The lack of predictable funding had an impact on research efforts

5.60 Government research operates in an environment of changing priorities and competing pressures for funding. We noted that financial pressures have had a significant impact on the Department’s research efforts. Peer-reviewed project funding was reduced by about 6 percent in the 2007–08 fiscal year. In the 2008–09 fiscal year, funding was further reduced by approximately 20 percent, which had an impact on the researchers’ ability to conduct some of the research activities identified in the project proposals. Project proposals had to be adjusted to respond to funding reductions, which had a negative impact on some research projects.

5.61 From a financial management perspective, the Department was unable to commit all funding for approved research projects. For example, one project we examined focused on developing wheat varieties that were resistant to a fungal disease. The disease reduces production yields and is responsible for producing toxins in grain. The lead scientist requested almost \$100,000 per year for the four-year project, which included seven other scientists. However, following the recommendation made during the peer review process, only \$60,000 per year was approved. Budget reductions resulted in the project receiving only \$48,000 in the first year. In its second year, the project received an initial instalment of \$36,000. Subsequent to our audit, additional funds were released; the final allocation was \$54,000 for the 2009–10 fiscal year. However, the funding uncertainty had an impact on the work that was undertaken to achieve project objectives.

Monitoring and reporting of research projects is weak

5.62 We examined whether the Branch had developed and implemented processes for monitoring and reporting on its research activity and accountability for results. We conducted interviews with Department officials, including scientists at various research centres across Canada. In addition, we selected and analyzed two random samples of research projects—one sample of 39 in-progress research projects from a total of 683 and one sample of 34 completed projects from a total of 86—covering the 2007–08 and 2008–09 fiscal years.

5.63 We found that the Research Branch had developed processes for monitoring and reporting on its departmentally funded research projects, including requirements for management sign-off and approval. However, these monitoring processes were not always followed and did not apply to all research projects. Furthermore, scientists indicated that they received minimal management feedback from this monitoring, with respect to the assessment of research progress and final results achieved.

5.64 Beginning in the 2008–09 fiscal year, standard annual progress reports were requested for all departmentally funded projects. Science directors were required to sign the reports and indicate their approval. In our sample of in-progress projects, we found that in most cases the reports were not signed, and there was no indication of approval. Consequently, there was little indication that Branch management had assessed the progress made on the projects. Furthermore, less than half of the scientists interviewed indicated that they had received verbal feedback on their departmentally funded projects, and even fewer had received feedback on externally funded projects. Feedback that was provided typically did not occur until the scientists' annual performance appraisals.

5.65 According to Department officials, all research project planning and monitoring information was stored in the Research Branch's project inventory database. However, we found that project reports were available for only about 40 percent of the projects in our in-progress sample. Given that the project inventory database is the Branch's main planning and reporting tool for projects, Branch management lacked the necessary project information to assess the progress of individual research projects.

5.66 Furthermore, we found that over 70 percent of the projects in the in-progress sample had adjustments made to the original proposals, mainly related to budget reductions and staffing changes. Scientists

indicated that they had discussed the impact of these adjustments with their science directors in only about 25 percent of the cases.

5.67 For our completed projects sample, we found that there was no clear requirement for scientists to submit final project reports to Research Branch management at the end of the research project, except for externally funded projects. Externally funded projects have this requirement in the contractual agreement. Scientists submitted final project reports for 74 percent of the projects in our completed projects sample. Again, scientists indicated that management provided limited feedback on completed projects and that the feedback that was given was part of the annual appraisal process.

5.68 We reviewed the 2007 and 2008 performance appraisals of the scientists who led the projects in our samples to determine the timeliness of feedback. For both years, more than half of the appraisals were signed late—halfway through the next year—and the situation was worse in 2008.

Analysis of the project portfolio is limited

5.69 Analysis of the entire project portfolio is important to ensure alignment with strategic direction. For example, the Branch had targets by national priority for allocating funding to the peer-reviewed projects. It allocated budget amounts to research projects based on these targets. However, our analysis showed that there was a significant gap between the research projects and some of the targets, following the Department's elaboration of the national priorities. Thirty-six percent of the 2008–09 fiscal year funding for peer-reviewed projects was under the most general national priority, "Enhance the economic benefit of all stakeholders," although the target was twenty percent. Less than one percent of the funding was under "Enhance the security and protection of the food supply," which had a target of seven percent.

5.70 This demonstrates the importance of regularly analyzing the database and of elaborating on the national priorities earlier. In July 2009, senior management began a review of the entire portfolio. At the end of our audit, this review was still ongoing, as was an analysis of potential gaps in research.

5.71 While the Branch had targets set by national priority for the peer-reviewed projects, it did not have similar targets for its other research activities. In the 2008–09 fiscal year, 64 percent of the dollars allocated to research projects were not subject to peer reviews.

The lack of specific, measurable yearly commitments for the national priorities that applied to the entire research portfolio prevents a more integrated project management approach.

5.72 The Research Branch had not integrated an annual analysis of its entire research project portfolio in the decision-making process to approve new research projects or to approve the continuation of existing ones. A number of factors had an impact on the Branch's ability to produce a comprehensive analysis at the end of each year:

- There was no formal monitoring framework that would clearly identify what project information needs to be collected and how frequently, how the information needs to be monitored and by whom, and what information needs to be reported and to whom.
- During the past four to five years, project information was kept in various databases that did not collect the same type of information.
- The data in the project inventory database was not updated with accurate project information, such as changes to project budgets.

5.73 Recommendation. To improve research project oversight and monitoring, Agriculture and Agri-Food Canada should further develop and implement

- specific and measurable targets for the Research Branch's national priorities that apply to its entire research portfolio, and
- monitoring and reporting processes for assessing project performance.

The Department's response. Agreed. The Department's Research Branch is updating its performance measurement framework and improving its research project monitoring process.

A strengthened Performance Measurement Framework with clear and measurable targets for national priorities will be in place by April 2010. It will be implemented following consultation with staff and will support the production of annual performance reports, which will also be shared with staff.

Effectiveness of ongoing monitoring will be reviewed in 2010–11 by the Department's Office of Audit and Evaluation as part of its annual study of performance measurement at Agriculture and Agri-Food Canada.

Managing human resources

5.74 The functions related to human resource management at Agriculture and Agri-food Canada are provided by the corporate Human Resources Branch. It works with management in other branches to develop and implement human resource plans and activities.

5.75 We examined whether the Department had developed a human resource plan for the Research Branch that identified future needs for achieving its strategic direction and that aligned with the corporate human resource and Research Branch business plans. We also examined whether the Department had developed measuring and monitoring processes and whether it had taken action to address identified human resource gaps.

5.76 Like many public sector organizations, the Research Branch faces a demographic challenge in terms of labour force availability. As of September 2007, 40 percent of its employees were 50 years of age or older. Of the 2,180 indeterminate employees in September 2007, about 18 percent were eligible to retire by March 2010. As well, there were a total of 685 indeterminate employees in the Scientific and Professional category of Research Branch employees, 27 percent of whom were eligible to retire by March 2010.

5.77 The number of potential retirements in the near future could result in a significant loss of science knowledge and capacity in some scientific areas. However, it could also provide the Research Branch with opportunities to adjust the workforce to better meet its strategic direction. Identification of the skill sets needed would ensure that the right people are available to meet its human resource needs and to achieve its strategic direction.

Monitoring and reporting of the Research Branch's human resource plan are weak

5.78 We found that the Research Branch had developed a human resource plan for 2006 to 2009 that outlined the human resource activities needed to fulfill Branch and corporate goals. The activities were to be implemented by Branch management over the three-year period. In addition, the plan called for an annual detailed action plan that included an updated three-year time horizon and formal measuring and monitoring processes to facilitate reporting to Branch senior management semi-annually.

5.79 While many of the activities identified in the 2006–2009 Human Resource Plan were implemented, the formal monitoring and reporting processes were not developed. In addition, the annual three-year action plans, which were meant to ensure a continuous alignment

between the planned human resource activities and the Branch's operational needs, were not prepared.

Human resource planning is being reviewed

5.80 A number of systems and practices were developed to support human resource planning within the Research Branch, such as performance evaluation tools and new external hiring tools. We also noted that the Research Branch had developed annual short-term staffing plans and that three of the nineteen research centres drafted multi-year site plans that included some human resource planning information.

5.81 While these initiatives helped the Branch with some of its human resource planning, there was little focus on long-term planning. This planning would include, among other things, determining the number of scientists and the competencies required to achieve its strategic direction. The Department found that it was a challenge due to the evolving policy direction.

5.82 Although annual human resource requirements were identified as part of the Department's annual business planning, there was no indication of how the Research Branch would staff positions over the next several years. In addition, there had been no assessment of the numerous vacant positions within the Branch, to determine which ones need to be considered for staffing in the future and which ones need to be eliminated.

5.83 At the end of our audit, an extensive human resource review was under way. The Department intends to finalize the Research Branch's long-term human resource plan as part of the strategic action plan. The human resource plan will cover 2009 to 2012.

5.84 Recommendation. Agriculture and Agri-Food Canada should further develop and implement an updated human resource plan for the Research Branch that is aligned to departmental and branch priorities. The plan should

- address current and future human resource requirements,
- include strategies to address identified gaps,
- include a formal monitoring and reporting process, and
- be updated annually to reflect the current realities of the Research Branch environment.

The Department's response. Agreed. An updated Research Branch human resource plan will be completed by April 2010 to help achieve

the Branch's Strategic Action Plan objectives. This Branch plan will be aligned with the Department's integrated human resource plan. The 2009–12 Research Branch Human Resource plan will incorporate staffing requirements based on expected results identified in the Action Plan, taking into account succession planning needs; a suite of staffing strategies will also be identified to address gaps. It is being developed with input from research managers and staff from across the country. Implementation of the Research Branch Human Resource plan will be monitored, updated and reported on annually, starting in 2010–11.

Managing capital assets

5.85 The Research Branch has approximately 1,200 buildings, located at 19 main research centres and 37 sub-stations. In addition, the Research Branch uses approximately 28,000 items of laboratory and agricultural equipment—4,000 of which were valued at over \$10,000.

5.86 We expected Agriculture and Agri-Food Canada to have managed the Research Branch's capital assets to achieve its strategic direction. This included systematically and regularly assessing the condition, performance, functionality, and use of capital assets and investing in capital assets that support the strategic direction. We examined capital planning, including acquisition and disposal plans.

Capital assets are not regularly assessed

5.87 We found that the Department had developed a long-term capital plan for the 2005–06 to the 2009–10 fiscal year. The plan included an assessment of the condition of the buildings at research sites (centres and sub-stations). The results showed that a number of sites had heated and unheated outbuildings assessed as in poor condition. In addition, of the 19 main office laboratories, three were in poor condition and 8 were in average condition. Greenhouses were in similar condition. Overall, based on square metres, the condition of the majority of the buildings was rated as poor (26 percent) or average (45 percent) rather than good or excellent.

5.88 The Department has also obtained comprehensive information by conducting detailed building condition reviews of some of the research sites.

5.89 We found that the Department maintained a central inventory of buildings that identified the age of each building. However, the inventory did not include information on the physical condition of the buildings.

5.90 The long-term capital plan also showed that the percentage of the 28,000 equipment items that exceeded its service life was 71 percent. In addition, over the life of the long-term capital plan, a further 18 percent would exceed its service life. Equipment inventories were maintained at research centres, but the inventories did not include information on their use, functionality, or physical condition.

5.91 The Department has not systematically and regularly assessed the use and functionality of buildings and equipment. We noted that, as part of the development of the strategic action plan, managers at each research centre completed templates on equipment and infrastructure. The requested information included the age, condition, and use of all assets at the centres. The Department has informed us that the information collected is very preliminary and had not been validated.

5.92 We also found that many capital equipment purchases, costing more than \$10,000, were being charged to the operating budget. When total capital expenditures equal or exceed \$5 million, capital funds should be used for purchases that cost more than \$10,000. Between the 2006–07 and 2008–09 fiscal years, the percentage of capital equipment acquisitions charged to the operating budget ranged from 32 percent to 96 percent, based on dollar value. For the 2008–09 fiscal year, this represented \$3 million of the \$9.5 million worth of capital equipment purchased. It should be noted that these acquisitions were correctly recorded as capital assets for accounting purposes.

5.93 Disposal of buildings and land. We looked at the inventory of buildings that the Department identified as being surplus to its program needs for the past five fiscal years. The Department has made progress in demolishing or selling buildings and structures. For example, it has sold or demolished 43 buildings since 2005. This includes many smaller structures, such as storage sheds and garages.

5.94 We also looked at sites that the Department identified as surplus in the past 10 years. We found that four properties were disposed of or transferred in a timely manner. However, three sites have been on the disposal list since the mid-1990s and, due to a variety of circumstances, their disposal has been delayed.

5.95 Some properties were identified as surplus to program requirements by an expenditure review exercise in 2005. However, a moratorium was put on the disposal of these sites in the same year, and no further decisions on property disposals have been made.

5.96 Since the expenditure review exercise in 2005, the Department has not conducted a formal assessment of how all of its centres and

sub-stations are used. In addition, it has not yet identified the locations that are critical and need to be kept and those that are no longer needed to achieve its research strategic direction. However, the Department has carried out some planned activities for renewing and replacing its capital assets.

5.97 Department officials indicated that the disposal of properties will be considered in the review of all assets, as part of the strategic action plan.

5.98 Recommendation. Agriculture and Agri-Food Canada should develop mechanisms to systematically and regularly assess the condition, functionality, and use of the Research Branch's capital assets, to help plan for the renewal and replacement of the significant capital assets that the Research Branch needs to achieve its strategic direction.

The Department's response. Agreed. Building upon the 2005–10 Agriculture Agri-Food Canada Asset Management Strategy and Long-term Capital Plan, and consistent with the Treasury Board Policy on Investment Planning, the Department will complete, by April 2010, a 2010–2015 capital investment plan, which will include its Research Branch facilities. The Department will do regular inspections of its key facilities and the results of these inspections, combined with Research Branch priority requirements, will support future investment decisions.

Conclusion

5.99 We looked at whether Agriculture and Agri-Food Canada had developed and implemented appropriate plans and activities to execute its strategic direction. The Department's Research Branch approved a detailed action plan for its strategic direction, at the end of our audit. However, the action plan was not timely or complete, which is due, in part, to the evolving policy environment. Stakeholders and some Department scientists indicated a lack of clarity about the Department's strategic direction, partly because it lacked an action plan for executing its strategic direction.

5.100 As part of our review of the implementation of its strategic direction, we reviewed some of Agriculture and Agri-Food Canada's formal collaborative efforts. We found that, while the Research Branch has a history of successful collaboration with scientists in other organizations on individual research projects, it did not manage the more complex collaborative agreements we examined well. This caused significant loss of goodwill with a number of important partners.

5.101 We also found a number of financial management and control issues. The process for determining program funding was not well documented. The cost of carrying out its strategic action plan, in terms of human, capital, and financial resources, had yet to be determined.

5.102 Under research project management, revisions to budgets for research projects were not recorded in the project inventory database, and there was a lack of predictable funding for approved research projects. For capital asset management, a high percentage of capital equipment acquisitions were charged to the Department's operating budget. As part of the collaborative agreements, the Department purchased a major capital asset before funding for the project was approved. As well, program managers were unaware of the limited amount of funding available for a major program.

5.103 We examined the Research Branch's management of its research projects to achieve its strategic direction. We found that the Department had implemented an external peer review process to select the research projects it funds. This was a positive step to ensure excellence in science. However, we also found limited monitoring of research activity and feedback to scientists, and little analysis of the entire research project portfolio.

5.104 In addition, we looked at whether the Department had assessed the current and future human resource needs of the Branch to achieve its strategic direction, and whether it had taken action to address any gaps. While many activities in the human resource plan were implemented, we found that there was no long-term identification of how the Research Branch would staff positions and no assessment of the vacant positions. At the end of our audit, an extensive review of human resources was underway to identify and address gaps for the implementation of the Branch's strategic direction.

5.105 Finally, we examined the Department's management of the Research Branch's capital assets to achieve its strategic direction. We found that it does not regularly assess the condition of capital assets and their use, to ensure their continued need.

5.106 Overall, we found that the Department had not managed its research activities sufficiently to achieve its strategic direction. However, it was making significant changes in response to evolving policy directions. Some of the elements necessary to implement its strategic direction are being put in place. The Department needs to elaborate on and implement other key aspects of its strategic action plan, to ensure effective management of its research activities.

About the Audit

All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by The Canadian Institute of Chartered Accountants. While the Office of the Auditor General adopts these standards as the minimum requirements for our audits, we also draw upon the standards and practices of other disciplines.

Objectives

Our overall audit objective was to determine whether Agriculture and Agri-Food Canada has managed its research activities to achieve its strategic direction—that is, its Science and Innovation Strategy and Growing Forward Policy Framework and the national priorities and research themes for the selection of research projects.

There were four sub-objectives, which were to determine

- whether the Department has developed and implemented appropriate plans and activities to execute its strategic direction,
- whether the Department's Research Branch has managed its research projects to achieve its strategic direction,
- whether the Department has assessed the current and future human resource needs of its Research Branch to achieve the Branch's strategic direction and has addressed any identified gaps, and
- whether the Department has managed the Research Branch's capital assets to achieve its strategic direction.

Scope and approach

The focus of our audit was on the Research Branch of Agriculture and Agri-Food Canada. We also looked at support functions provided to the Research Branch by the Human Resources Branch, the Corporate Management Branch, and the Communications and Consultation Branch.

The audit focused on the planning and implementation of the Research Branch's strategic direction and the management of research projects led by Department scientists. We also analyzed a random sample of 34 completed research projects, from a total of 86, and a second random sample of 39, from a total of 683 research projects in progress. These were selected from the Research Branch Project Inventory database covering the 2007–08 and 2008–09 fiscal years. The two samples were statistically significant and meet our Office standards.

We also examined three collaborations, involving multiple partners, for which the Department had signed agreements.

We reviewed documents and interviewed research scientists as well as other officials at 12 of the Department's research centres and at its headquarters in Ottawa. We also interviewed representatives from academia, industry, and other government departments involved in research collaborations with the Department.

Criteria

Listed below are the criteria that were used to conduct this audit and their sources.

Criteria	Sources
Implementing a strategic direction for research	
We expected Agriculture and Agri-Food Canada to have developed and implemented appropriate plans to execute its strategic direction. In developing these plans, we expected the Department to have assessed the need for the activities within the organization and developed programs that form a coherent suite.	• Management Accountability Framework (Governance and Strategic Direction: Effective Planning Function), Treasury Board of Canada Secretariat, 2003 • Management, Resources, and Results Structure Policy, Treasury Board, 2008 • 1999 November Report of the Auditor General, Chapter 22, Attributes of Well-Managed Research Organizations
We expected the Department to have developed and implemented a communications strategy for the Research Branch that includes plans for • informing staff and external stakeholders of its plans and activities; and • disseminating research results in a timely manner, to meet the needs of those who depend upon them for results.	• Science and Innovation Strategy, Agriculture and Agri-Food Canada, 2006 • Communications Policy of the Government of Canada, Treasury Board, 2006 • 1999 November Report of the Auditor General, Chapter 22, Attributes of Well-Managed Research Organizations
Managing scientific projects	
We expected the Research Branch to have planned and implemented the research projects undertaken by Department scientists to align with its strategic direction and to have clear priorities for research selection. This includes • ensuring that projects are based on excellent science and technology and stand up to the scrutiny of world-class experts; • assessing the fit of research projects to the Department's mission, goals, and overall priorities; and • leveraging resources with external capacity.	• Management Accountability Framework (Governance and Strategic Direction: Effectiveness of the Corporate Management Structure), Treasury Board of Canada Secretariat, 2003 • Management Accountability Framework (Stewardship: Effective Project Management), Treasury Board of Canada Secretariat, 2003 • 1999 November Report of the Auditor General, Chapter 22, Attributes of Well-Managed Research Organizations
We expected the Research Branch to have developed and implemented processes for monitoring and reporting on its research activity and accountability for results.	Management Accountability Framework (Stewardship: Effective Project Management), Treasury Board of Canada Secretariat, 2003
Managing human resources	
We expected the Department to have developed a human resource plan for the Research Branch that • identifies future needs for achieving its strategic direction, and • aligns with the corporate human resource and Research Branch business plans.	• Integrated Planning Guide, Office of Chief Human Resources Officer, Treasury Board of Canada Secretariat, 2007 • Succession Planning and Management Guide Office of Chief Human Resources Officer, Treasury Board of Canada Secretariat, 2007 • Management Accountability Framework (Governance and Strategic Direction: People), Treasury Board of Canada Secretariat, 2003

Criteria	Sources
We expected the Department to have developed human resource plans and measures and to have taken action to address identified human resource gaps.	• Integrated Planning Guide, Office of Chief Human Resources Officer, Treasury Board of Canada Secretariat, 2007 • Succession Planning and Management Guide, Office of Chief Human Resources Officer, Treasury Board of Canada Secretariat, 2007 • Management Accountability Framework (Governance and Strategic Direction: People), Treasury Board of Canada Secretariat, 2003
Managing capital assets	
We expected the Department to have managed the Research Branch's capital assets to achieve its strategic direction.	• Policy on Management of Real Property, Treasury Board, 2006 • Policy on Long-term Capital Plans, Treasury Board, 1994 • Directive on the Sale or Transfer of Surplus Real Property, Treasury Board, 2006 • Policy on Management of Materiel, Treasury Board, 2006 • Management Accountability Framework (Effectiveness of Asset Management), Treasury Board of Canada Secretariat, 2003

Management reviewed and accepted the suitability of the criteria used in the audit.

Period covered by the audit

The audit covered the period between April 2005 and September 2009. Audit work for this chapter was substantially completed on 22 September 2009.

Audit team

Assistant Auditor General: Neil Maxwell
Principal: Katherine Rossetti
Director: Raymond Kunze

Irene Andayo
Janice Carkner
Alina Dan

For information, please contact Communications at 613-995-3708 or 1-888-761-5953 (toll-free).

Appendix List of recommendations

The following is a list of recommendations found in Chapter 5. The number in front of the recommendation indicates the paragraph where it appears in the chapter. The numbers in parentheses indicate the paragraphs where the topic is discussed.

Recommendation	Response
Implementing a strategic direction for research	
5.21 Agriculture and Agri-Food Canada should further develop and implement its strategic action plan, taking into account federal policy direction and its own Growing Forward policy framework. The Department should establish overall costs and ensure that future action plans are developed before programming commences. The plans and costs should be reviewed periodically, to reflect the changing circumstances of science research and its partnerships. (5.16–5.20)	Agreed. The policy context for the Department's Research Branch has been changing very rapidly; changes included a new federal Science and Technology Strategy in 2007 and the Department's new Growing Forward policy framework in 2008. The Research Branch developed a Science and Innovation Strategy in 2006 and implemented several of its elements, taking into account needed adjustments to respond to the evolving policy environment. The 2009 Research Branch Strategic Action Plan was the first iteration of a comprehensive management plan to implement the policy directions in the federal and the Department's science and technology strategies and in Growing Forward. The 2010 Strategic Action Plan updates and builds on the 2009 plan. It will include four additional components that cover the planning of human resources needs, a framework for the management of collaborative agreements, a framework for the allocation of research funding for each national science priority, and measurable targets for each research priority. Implementation of the plan will begin in April 2010. The plan, including cost information, will be used to guide implementation of the Research Branch's Science and Innovation Strategy and future programming. It will be updated annually in consultation with managers and staff.
5.30 Agriculture and Agri-Food Canada should better communicate its strategic direction for research and improve the timeliness of the dissemination of its research results. (5.22–5.29)	Agreed. The Department is an internationally recognized knowledge-based organization that relies on the success of its scientists to generate benefits for the sector. It is important to communicate these successes. The Department is stepping up its communication strategies (internal and external) and will have finalized a new engagement strategy for staff and stakeholders by April 2010. The Department is using its improved strategies to better inform and engage both employees and stakeholders in the

Recommendation	Response
5.53 Agriculture and Agri-Food Canada should strengthen collaborative efforts by improving the management of its agreements and ensuring their success by • more clearly communicating the resources it intends to contribute to partners in collaborative agreements, • carrying out commitments made in these agreements, • ensuring timely involvement in programs and ensuring that timelines for program delivery are respected, • improving its planning for the allocation of human and other resources, and • ensuring that capital expenditures are not incurred prior to final approvals. (5.31–5.52)	development of its plans and activities, as well as to share its research results in a timely manner. Staff and stakeholder engagement will be developed and sustained through town halls with senior management and new communication tools. The creation of a new regional research users' forum will accelerate the dissemination of research results. The Department will monitor on an ongoing basis the effectiveness of its communication and engagement activities through media monitoring, reporting on events, staff and stakeholder feedback, tracking traffic to websites and distribution of products. The Department will adjust its strategies as necessary. Agreed. The Department's Research Branch has put into place a dedicated unit to oversee the delivery of new programming that will support collaborative arrangements. The unit is led by senior managers with program management expertise. Improvements have been made to the programming rolled out in 2009 to include clearer targets and measurable performance indicators. The Department's Research Branch is developing a new Collaborative Management Framework and Guidelines to build on successful elements of previous partnerships. The Framework and Guidelines will support decisions related to partnership selection, will support effective management of those partnerships and will support monitoring of implementation of partnership arrangements. The application of the Guidelines will ensure a rigorous process is in place for the development of future collaborative arrangements by identifying the resources and timelines required and the approval processes, the elaboration of corresponding implementation plans, as well as the planning and reporting of expenditures. The Framework and Guidelines will be the basis for ongoing discussions with partners, to begin in April 2010. They will be used by the Research Branch to strengthen partner relations, ensure implementation of commitments in a timely manner, promote ongoing dialogue and help maximize the benefits of research projects for Canadians.

Recommendation	Response
Managing scientific projects 5.73 To improve research project oversight and monitoring, Agriculture and Agri-Food Canada should further develop and implement • specific and measurable targets for the Research Branch's national priorities that apply to its entire research portfolio, and • monitoring and reporting processes for assessing project performance. (5.55–5.72)	Agreed. The Department's Research Branch is updating its performance measurement framework and improving its research project monitoring process. A strengthened Performance Measurement Framework with clear and measurable targets for national priorities will be in place by April 2010. It will be implemented following consultation with staff and will support the production of annual performance reports, which will also be shared with staff. Effectiveness of ongoing monitoring will be reviewed in 2010–11 by the Department's Office of Audit and Evaluation as part of its annual study of performance measurement at Agriculture and Agri-Food Canada.
Managing human resources 5.84 Agriculture and Agri-Food Canada should further develop and implement an updated human resource plan for the Research Branch that is aligned to departmental and branch priorities. The plan should • address current and future human resource requirements, • include strategies to address identified gaps, • include a formal monitoring and reporting process, and • be updated annually to reflect the current realities of the Research Branch environment. (5.78–5.83)	Agreed. An updated Research Branch human resource plan will be completed by April 2010 to help achieve the Branch's Strategic Action Plan objectives. This Branch plan will be aligned with the Department's integrated human resource plan. The 2009–12 Research Branch Human Resource plan will incorporate staffing requirements based on expected results identified in the Action Plan, taking into account succession planning needs; a suite of staffing strategies will also be identified to address gaps. It is being developed with input from research managers and staff from across the country. Implementation of the Research Branch Human Resource plan will be monitored, updated and reported on annually, starting in 2010–11.

Recommendation	Response
Managing capital assets 5.98 Agriculture and Agri-Food Canada should develop mechanisms to systematically and regularly assess the condition, functionality, and use of the Research Branch's capital assets, to help plan for the renewal and replacement of the significant capital assets that the Research Branch needs to achieve its strategic direction. (5.87–5.97)	Agreed. Building upon the 2005–10 Agriculture Agri-Food Canada Asset Management Strategy and Long-term Capital Plan, and consistent with the Treasury Board Policy on Investment Planning, the Department will complete, by April 2010, a 2010–2015 capital investment plan, which will include its Research Branch facilities. The Department will do regular inspections of its key facilities and the results of these inspections, combined with Research Branch priority requirements, will support future investment decisions.

Report of the Auditor General of Canada to the House of Commons—Spring 2010

Main Table of Contents

Message from the Auditor General of Canada Main Points—Chapters 1 to 5

Chapter 1	Aging Information Technology Systems
Chapter 2	Modernizing Human Resource Management
Chapter 3	Rehabilitating the Parliament Buildings
Chapter 4	Sustaining Development in the Northwest Territories
Chapter 5	Scientific Research—Agriculture and Agri-Food Canada
Chapter 6	Special Examinations of Crown Corporations—2009

