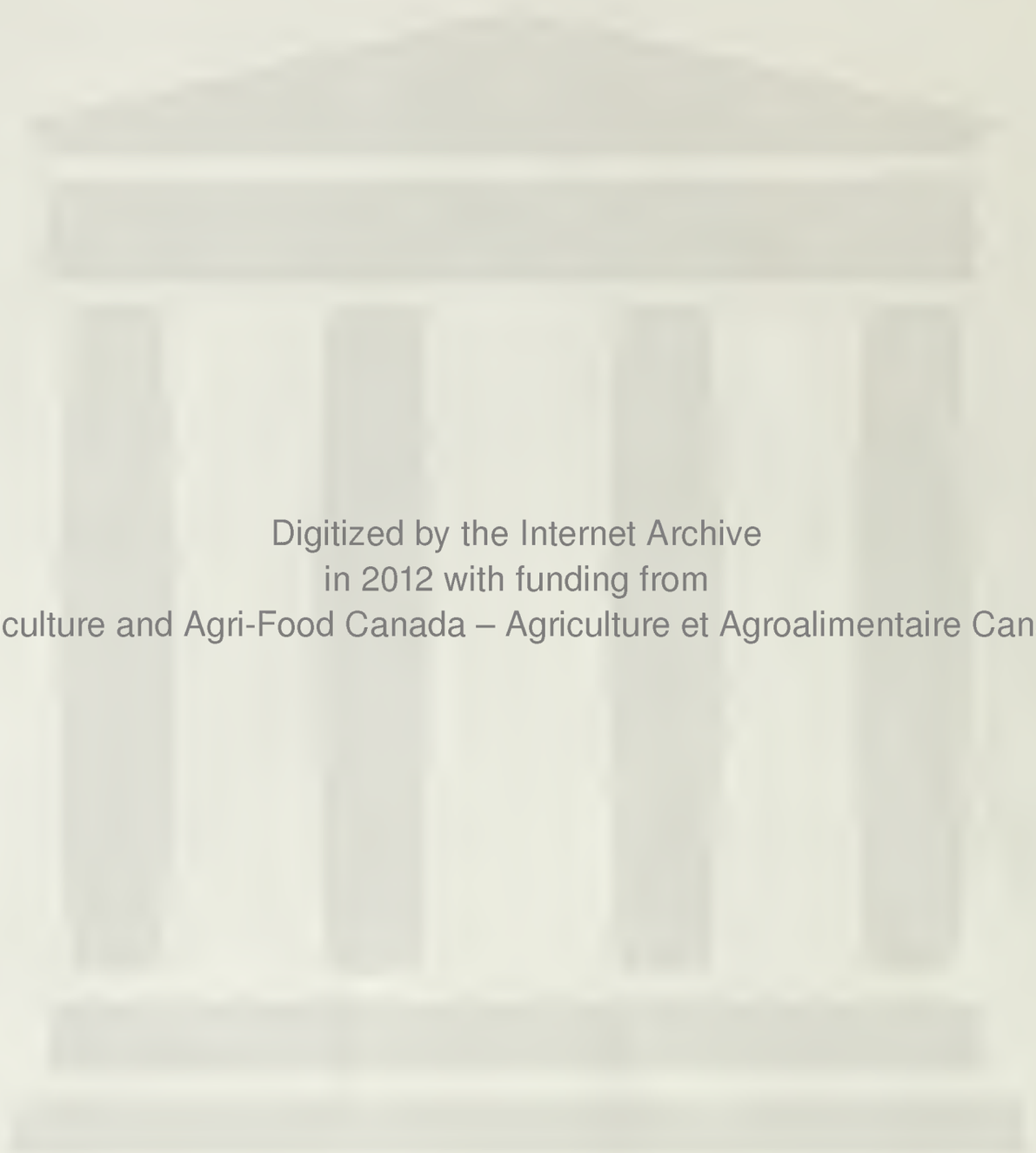

AGRICULTURE AND AGRI-FOOD

MOVING *forward*

INNOVATION THROUGH SCIENCE AND TECHNOLOGY

Agriculture Canada

THE GOVERNMENT OF CANADA'S ACHIEVEMENTS IN AGRICULTURE

Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada

Canada

Innovation for the Future

Canada's agri-food industry is one of the oldest sectors of our economy, deeply rooted in our history and culture. But it is also one of the most innovative, knowledge-intensive sectors – increasingly dependent on leading edge research, science and technology to stay competitive today and in the future.

New technologies have dramatically changed the way food is produced, processed, transported and distributed across Canada and around the world. Canada's success in transforming agriculture and agri-food into a high-tech, forward looking industry has made it an international leader in innovation.

The Federal Commitment

That leadership is more important today than ever before. In today's global economy, science and technology are the key to continued growth in the agri-food sector and secure jobs for Canadians working in the industry.

The Research Key to Growth

Innovation creates wealth. Economist Robert Solow, recognized with a Nobel Prize for his work on innovation, noted that between 1909 and 1949, only one-eighth of growth in the U.S. could be attributed to increases in capital. Innovation, he concluded, was behind the other seven-eighths of U.S. growth. In a 1992 study entitled Multi-factor Productivity for Canadian Agriculture, authors S. Narayanan and E. Kizita found that in the years 1962 to 1990, primary agriculture and forestry led all Canadian industrial sectors and productivity growth.

The Research Mission and Business

"To improve the on-going competitiveness of the Canadian food and agriculture sector through the development and transfer of innovative technologies. " (Research Branch Business Plan 1995-2000, pg 15)

"Focus on research of national significance that is valuable to Canada but which the private sector could not provide profitably, working alone. We do not compete with the private sector in areas where they have an interest and capability to do the R&D. Rather, we collaborate to create wealth where our strengths are complementary and there is a need to share risk." (Research Branch Business Plan 1995-2000, pg 15)

The federal government is committed to working with the industry to keep the Canadian food and agriculture sector competitive through the development and transfer of new technologies. Agriculture and Agri-Food Canada continues to re-focus research and development to become more client driven, more efficient, and more relevant to the needs of producers and processors across the country. That effort is paying off.

Research Centre Networks

Over the past few years the department has been reorganizing its research facilities, creating a network of research centres. Agriculture and Agri-Food Canada now has 18 national research centres across the country. Each centre has a specialized research focus, reflecting industry strengths of the region where it is located and can also respond to needs in its area of specialization on a broader regional and national basis.

Federal researchers and scientists have a well-earned international reputation for excellence in basic research. Staff at Agriculture and Agri-Food Canada's research centres conduct world-class research aimed at improving the long-term competitiveness of the Canadian food and agriculture sector. Research and development activities yield improvements in all areas of the industry, with a focus on:

- quality, safety and product competitiveness;
- environmental practices that sustain agricultural production; and
- developing and transferring technologies that add value to products for strategic advantage.

Research and innovation benefits by "clustering" – assembling a pool of knowledge and expertise by concentrating specialized research facilities and industries in one area. These clusters become incubation centres for innovation through strategic partnerships and exchange of information.

For example, some of the department's top molecular biologists are now working in the research centre in Saskatoon, a city which is becoming a world leader in agricultural biotechnology. A growing number of companies – including multinationals that could set up anywhere in the world – are coming to Saskatoon, because they recognize that this is where the leading edge of research is developing. They know that this is the place to satisfy their biotechnology needs in agriculture.

Each of the 18 national centres is the hub of an interconnected network that links with sister centres across the country. For example, there are centres for tree fruit research in British Columbia, beef system research in Alberta, cereal research in Manitoba, eastern cereal and oilseed research in Ontario,

hog research in Quebec and potato research in New Brunswick. By concentrating facilities and resources in areas where they are closest to the industry, the government is helping trigger a new dynamic between federal research and industrial applications in the agri-food sector.

This reflects the high priority the department puts on increasing the relevance and decreasing the distance between research centres and clients. Always seeking better ways to do this, we are encouraging our clients to link up with any of our research networks – from anywhere in Canada. You can get information, participate in management and research, browse our internet home page or visit any research centre.

Tapping into our multi-disciplinary and commodity research network from anywhere in Canada is easy. Just call, write, fax, e-mail or visit us.

Matching Investment Initiative

The government has introduced a research funding mechanism to ensure that federal agri-food research can be tied directly to industry needs. Under the Matching Investment Initiative, introduced in 1995, the department can match, one-for-one, industry contributions to collaborative research projects. In the first year, more than 500 agreements were reached between the government and the private sector, representing research and development projects totalling more than $23 million. The budget for federal contributions in the first year of the initiative was $12.5 million. The government increased the budget to $21.6 million in 1996-97, and it will continue to grow steadily to reach $35.2 million in 1998-99 – representing a total government-industry shared commitment that could reach over $70 million if fully subscribed.

Research Projects

The projects supported through the Matching Investment Initiative include:

- The Pacific Agri-Food Research Centre in B.C. is working with the Ironwood Clay Co. to test a new natural growing media additive for soilless greenhouse crops.
- The Lacombe Research Centre in Alberta is investigating the main cellular mechanisms of meat tenderness.
- Scientists at the Saskatoon Research Centre are working with the Canola Council of Canada to improve the quality of canola oil and meal, and to develop canola's resistance to blackleg disease.
- The Cereal Research Centre in Winnipeg is taking a lead role in a project with the Western Grains Research Foundation to improve genetic resistance to a fungal disease of wheat.
- The Ontario Greenhouse Vegetable Producers' Marketing Board has teamed up with the research centre in Harrow to come up with better, biology-based strategies to manage greenhouse pests.
- In Quebec the efforts of the research centre in Saint-Jean-sur-Richelieu, Les services NPK+ inc. and the Association des manufacturiers de produits alimentaires du Québec are combined to develop more efficient and environmentally sustainable vegetable production systems.
- In the Atlantic region, McCain Foods Ltd. and scientists from the Fredericton Research Centre are looking into different irrigation and fertilizer combinations. Their goal is to lower potato processing costs while reducing ground water pollution.
- In P.E.I., Ingleside Farms and the Charlottetown Research Centre are working to maximize the yield of Russet Burbank potatoes using small whole seed.
- In Nova Scotia, at the research centre in Kentville, a new dessert product from Sarsfield Foods Ltd. is in the works. The exact ingredients are a secret, but we do know it is made with horticultural produce.
- Newfoundland's PA Pure Additions, Inc., is looking to develop new forage crops. Working with the St. John's Research Centre, they are investigating the beach pea's potential as a commercially viable forage, food and industrial crop.

Return on Investment (ROI) Studies

- A key priority of the department's agri-food R&D activity is to help ensure the health and safety of the resource base and agricultural production.
- In order to demonstrate the economic impact of publicly funded R&D, the Research Branch has commissioned two separate studies that estimate the total return and the rate of return on wheat and potato R&D.
- Using "conservative estimates," university and federal economists have concluded that wheat research provided a return on investment of 34%, while that conducted on potatoes yielded a return of 28%.
- Translating that into dollars, the net benefit per year for wheat and potato R&D was $377 million and $220 million respectively, for a combined net benefit of $597 million.

What Does That Really Mean?

From 1960 to 1995, AAFC was the major source of R&D in both commodity areas, conducting approximately 80% of wheat R&D and 60% of potato R&D. As a consequence, the component attributable to AAFC's efforts more than pays for the department's current annual R&D budget.

For More Information (List of Research Centre and MII contacts)

ST JOHN'S RESEARCH CENTRE
NEWFOUNDLAND
CONTACT:
Dr. John Richards, Directar
(709) 722-4619

CHARLOTTETOWN RESEARCH CENTRE
PRINCE EDWARD ISLAND
CONTACT:
Dr. Dave Bailey, Director
(902) 566-6816

ATLANTIC FOOD & HORTICULTURE
RESEARCH CENTRE
KENTVILLE, NOVA SCOTIA
CONTACT:
Dr. Wade Johnsan, Directar
(902)679-5333

FREDERICTON RESEARCH CENTRE
NEW BRUNSWICK
CONTACT:
Dr. Gilles Saindan, Directar
(506)452-3260

SOILS & CROPS RESEARCH &
DEVELOPMENT CENTRE
SAINT-FOY QUEBEC
CONTACT:
Mme Angèle St-Yves, Director
(418)657-7980

DAIRY & SWINE RESEARCH &
DEVELOPMENT CENTRE
LENNOXVILLE, QUEBEC
CONTACT:
Dr. Jean-Marc Deschênes, Directar
(819)565-9171

HORTICULTURE RESEARCH &
DEVELOPMENT CENTRE
SAINT-JEAN SUR RICHELIEU, QUEBEC
CONTACT:
Dr. Denis Demars, Director
(514)346-4494

FOOD RESEARCH &
DEVELOPMENT CENTRE
SAINT-HYACINTHE, QUEBEC
CONTACT:
Dr. Claude Aubé, Directar
(514)773-1105

PEST MANAGEMENT RESEARCH CENTRE
LONDON, ONTARIO
CONTACT:
Dr. Frank Marks, Directar
(519)457-7470

GREENHOUSE & PROCESSING CROPS
RESEARCH CENTRE
HARROW, ONTARIO
CONTACT:
Dr. Gary Whitfield, Directar
(519)738-2251

EASTERN CEREAL & OILSEEDS
RESEARCH CENTRE
OTTAWA, ONTARIO
CONTACT:
Dr. John Dueck
(613)759-1816

CEREAL RESEARCH CENTRE
WINNIPEG, MANITOBA
CONTACT:
Dr. Jim Bale, Directar
(204) 983-0099

BRANDON RESEARCH CENTRE
MANITOBA
CONTACT:
Dr. Reg Kucey, Directar
(204)726-7650

SASKATOON RESEARCH CENTRE
SASKATCHEWAN
CONTACT:
Dr. Ashley O'Sullivan, Directar
(306)956-7211

SEMIARD PRAIRIE AGRICULTURAL
RESEARCH CENTRE
SWIFT CURRENT, SASKATCHEWAN
CONTACT:
Dr. Wayne Lindwall, Directar
(306)778-7216

LETHBRIDGE RESEARCH CENTRE
ALBERTA
CONTACT:
Dr. Steve Margan Janes, Director
(403)327-4561

LACOMBE RESEARCH CENTRE
ALBERTA
CONTACT:
Dr. Perry Lidster, Director
(403)782-8100

PACIFIC AGRI-FOOD RESEARCH CENTRE
BRITISH COLUMBIA
CONTACT:
Dr. Gardan Neish, Director
(250)494-6355

April 1997, Published by:
Communications Branch, Agriculture
and Agri-Faad Canada

For Publications or Information:
Agriculture and Agri-Food Canada
Sir John Carling Building,
930 Carling Avenue, Ottawa, ON,
Canada K1A 0C5

TEL.: (613) 759-1000
FAX: (613) 759-6726
e-mail: pirs@em.agr.ca,
Internet: http://www.agr.ca
Publicatian 1929E
Cat No. A22-165/3-1997E
ISBN: 0-662-25722-7

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Canadian Rural Information Service:
Telephone: 1-888-757-8725
Fax: (613) 759-6643
e-mail: cris@em.agr.ca
Internet: http://www.agr.ca/policy/cris

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Internet: http://atn-riae.agr.ca

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