

# NRC Technology Clusters

## COMMUNITY INNOVATION, ECONOMIC GAIN

**T**hrough dynamic and rapidly growing technology clusters, the National Research Council advances world-class R&D in collaboration with Canadian communities. Using its research facilities as hubs for community innovation, NRC partners with universities and industry to inject local drive into the Canadian economy.

## Saskatoon—Plant Biotechnology, Nutraceuticals, Bio-Products

Saskatoon is among the world's most dynamic locations for innovation and commercialization of bio-based sciences. The evolution of NRC's agricultural biotechnology cluster from small industrial community to major global player providing more than 1,100 local jobs is a world-leading example of how visionary thinking and careful planning can turn federally funded research into marketable products.



### Powerful catalyst

NRC has been a catalyst for Saskatoon's spectacular cluster growth for more than 20 years. In 1983, NRC revamped its existing Saskatoon research facility, encouraging plant-biotechnology stakeholders to use it as the cluster's hub. Since then, NRC has delivered pioneering science, sophisticated research labs, and top-notch industry support to its partners.

The research facility—the NRC Plant Biotechnology Institute — offers companies a full range of services including access to laboratory space and leading-edge genomics equipment. The facility's industry partnership program incubates businesses during the critical early years of development, ensuring they have a firm foundation of technology and business expertise.

### A strong and growing cluster

Now home to more than 40 companies engaged in groundbreaking agricultural biotechnology R&D—30 percent of Canada's activity in the field—the Saskatoon cluster is using its unique technology experience and commercialization skills to diversify into rapidly expanding markets for functional foods, nutraceuticals and industrial bioproducts.

Moreover, the cluster has nurtured North America's largest legume and cereal microbial inoculant manufacturing centres, and ranks as one



# Transforming technology into business

NRC offers strategic services to businesses that wish to take their innovations to market—easing the transition from small start-up company to bona fide industrial presence.

## Assisting with industrial research

The NRC Industrial Research Assistance Program—aimed specifically at helping small- and medium-sized businesses develop technologies for market—contributes funding and expertise to all NRC clusters, including Saskatoon's. In recent years, the program has provided invaluable assistance to Saskatoon-based biotechnology companies: InfraReady Products Ltd., Bioriginal Food and Science Corporation and Prairie Plant Systems Inc., to name a few. In all cases, NRC's support has helped bring the companies' promising technologies closer to commercial success.

## Increasing support

To further the success of cluster-based companies, NRC is developing a Centre for Innovation in Value-Added Plant Products. The Centre will draw on NRC's research strengths, its technology-development expertise, and full network resources to help young companies develop natural health products, functional foods, and other value-added plant products for market. In particular, the centre will provide competitive intelligence support, regulatory advice and services, networking and path-to-market advice to clients with the goal of increasing commercial success.



of the most competitive cities in the world for food processing. Annual revenues from the cluster total nearly \$60 million.

## Connecting vital players

As the nucleus of Saskatoon's cluster activities, NRC's plant biotechnology research facility has united key partners around critical common goals. For example, NRC along with Agriculture and Agri-Food Canada, the University of Saskatchewan, Protein Oilseed Starch Corp., and AgWest Bio Inc. have mapped out a vision framework to diversify into natural health products, a potentially lucrative market for the Saskatoon cluster. Meanwhile, the NRC facility leverages its \$10 million annual budget by attracting \$30 million of investments from its private and public partners.

As these players collaborate and develop groundbreaking agricultural biotechnology products, processes and marketing strategies, the University of Saskatchewan provides a deep pool of human resources talent, much of which flows directly into Saskatoon's cluster organizations.

## CLUSTER FACTS AT A GLANCE

- 40 Ag-biotech companies, and growing rapidly
- 30 nutraceutical and functional food companies, which generate annual revenues of nearly \$60 million from a global market estimated at more than \$182 billion a year
- 1,100 staff in cluster's private- and public-sector organizations, including 400 research and technology professionals
- Cluster accounts for 30% of Canada's Ag-biotech industry
- Saskatoon's investment in genomics alone: \$120 million
- Nutraceutical market worth \$172 million (Nutrition Business Journal)
- Cluster's industry partnership facility houses six tenants and provides labs for non-tenants

“Since its inception in 1983, NRC's plant biotechnology research facility has been critical to the success of the bio-economy cluster in Saskatchewan and instrumental in the development and commercialization of innovative technologies.”

Dr. Ashley O'Sullivan, President and CEO of Ag-West Bio Inc.



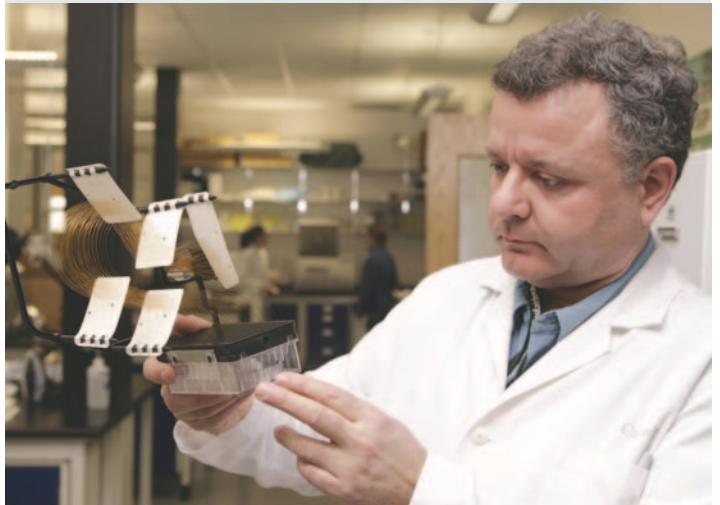
## COMMERCIALIZATION SUCCESS

NRC's pioneering efforts decades ago led to the invention of canola. It leverages its world-leading authority in the field by partnering with companies as they develop new commercial applications for the crop.

- NRC has renewed a strategic alliance with multinational Dow AgroSciences Canada until 2009. The partnership, worth \$10 million to NRC, is focused on improving canola crops through R&D.
- In 2004, NRC signed a partnership agreement with Chromatin Inc. NRC and Chromatin will test a new plant-breeding technique that uses canola.

“The key for any company is to share their needs with NRC-IRAP. NRC’s people have the experience and contacts to really help a company move ahead.”

Mark Picard, General Manager, InfraReady Products Ltd.



## SUPPORTING INDUSTRY NEEDS

To support the cluster’s diversification priorities, and to increase Saskatoon’s and Canada’s share of a global biotechnology market estimated at more than US\$182 billion, NRC’s research facility has realigned its programs to focus on three key industry priorities:

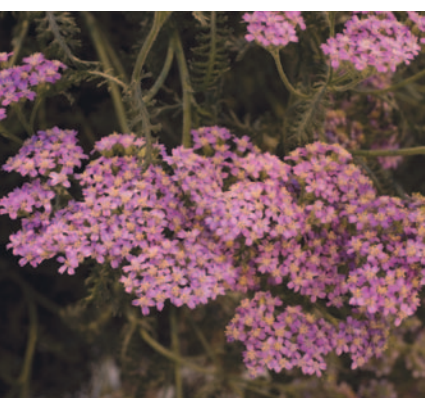
- production of bio-products from plants
- production of compounds from plants that have human health benefits
- genomics research to enhance the performance and market diversity of Canadian crops

## NRC’S CLUSTER PARTNERS

- Agriculture and Agri-Food Canada
- Ag-West Bio Inc.
- Dow AgroSciences Canada
- Saskatchewan Ministry of Industry and Resources
- Saskatchewan Research Council
- University of Saskatchewan
- Western Economic Diversification Canada

## MILESTONES FOR COMMUNITY ENGAGEMENT

- 1983—NRC lab commits to foster excellence in plant biotechnology R&D
- 2002—NRC secures \$10 million for nutraceutical R&D
- 2003—\$15.4 million industrial partnership facility opens
- 2004—Ag-biotech, nutraceutical and bio-product cluster groups amalgamate
- 2005—NRC partners with Bioriginal to complete a technology-landscape assessment for producing plant oils with specific health benefits



# NRC Technology Clusters

## GLOBAL REACH—LOCAL TOUCH

NRC has played a critical role in the development of emerging and mature clusters, acting as a catalyst for technological progress and economic growth in every region of Canada. Its successful clustering model encourages and supports local strengths while leveraging NRC's national and international resources, science and technology capabilities, networks and partnerships. This proven approach ensures that each cluster can develop according to its unique needs, opportunities and challenges.

### Committed leadership

Successful clusters need staying power, often taking decades to mature. The building process must be community-driven and focused, and must have the support of effective networks and committed local champions.

For many years, NRC has distinguished itself as an effective catalyst for cluster development, providing not only R&D expertise, but also the leadership clusters need to move research out of the lab and put it to work for Canada's economy.

NRC stimulates the growth of world-class technology clusters, putting its leading-edge research to work in innovative communities across Canada.



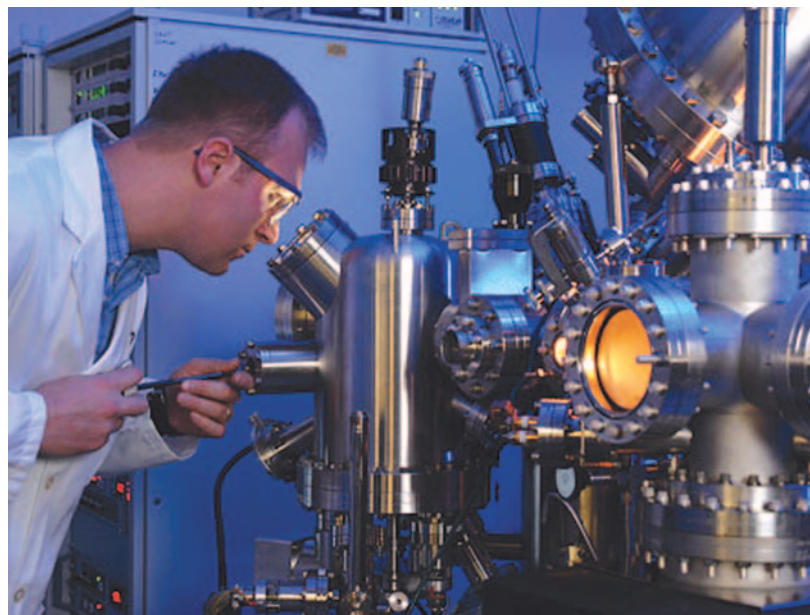
● NRC Technology Cluster Initiatives

## Delivering results

Clustering is a term economists have borrowed from science to describe the significant concentration of innovative companies around a nucleus of R&D facilities in a single locale—the ideal environment for innovation to flourish.

A key ingredient is the presence of a science and technology anchor—usually a government research institution or a university—able to work with local companies, transfer technology and spin off new enterprises.

Innovative, knowledge-based firms act as a magnet, attracting others with technical and business expertise to locate and invest in the area. Over time, partners grow into a critical mass of skilled people, capital and entrepreneurial drive.



## GREAT PEOPLE, GREAT MINDS

Recognized globally for cutting-edge research and innovation, the National Research Council helps Canada create a world-class, knowledge-based economy. NRC is home to nearly 4,000 creative and skilled people held in highest regard by their colleagues and collaborators worldwide. NRC employees have earned international acclaim for excellence and for winning innovations – their honours include a Nobel Prize, an Academy Award, and helping Canada capture Olympic Gold.

<http://pbi-ibp.nrc-cnrc.gc.ca>

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