



TEAM

The Centre has a team of over 100 staff, including professionals, technicians and animal care workers, who work together with some 20 research scientists on research projects. An operations support team facilitates the work of all employees. Recognized for its expertise, the Centre hosts roughly a dozen invited international researchers and over 50 college and university students every year.

SCIENTIFIC EXPERTISE

Environment: This group consists of three researchers, including two with training in agricultural engineering and one with training in molecular microbiology. Some projects bring together nutritionists from the dairy and swine sectors.

Health, welfare and society: This group consists of nine researchers: four with expertise in molecular biology and five with expertise in immunology, lactation biology, ethology, pre-slaughter stress and meat quality.

Production: Six nutritionists from the dairy sector, two from the swine sector and two specialists in lactation biology focus their efforts on improving the viability and competitiveness of livestock operations.

TECHNOLOGY PLATFORMS

The research teams have access to a wide range of equipment for research in the areas of cell biology, immunology, genomics and molecular biology, and for physical-chemical analyses.



DAIRY AND SWINE RESEARCH AND DEVELOPMENT CENTRE

VISION AND MISSION

To provide dairy and swine producers with the technological innovations and know-how to achieve economically viable production of high-quality milk and meat in a way that ensures livestock health and welfare, with zero environmental footprint.

The DSRDC focuses all of its research on:

- livestock production with zero environmental footprint;
- livestock health and welfare and socially acceptable agricultural practices; and
- sustainable dairy and swine production.

2000 College Street
Sherbrooke, Quebec J1M 0C8
Tel.: 819-565-9171
Fax: 819-564-5507

<http://www.agr.gc.ca/eng/science-and-innovation/research-centres>



Legend: Bird's eye view of the Dairy and Swine Research and Development Centre

© Her Majesty the Queen in Right of Canada, represented by the Minister of Agriculture and Agri-Food, (2014)

AAFC No. 12290E

Paru également en français sous le titre
*Centre de recherche et de développement sur le bovin
laitier et le porc*

For more information, reach us at www.agr.gc.ca or
call us toll-free at 1-855-773-0241.

The Dairy and Swine Research and Development Centre (DSRDC) is located in Sherbrooke in the heart of an agricultural region characterized by a large diversity of livestock farms, primarily dairy and swine operations. The Centre opened in 1914 and is currently the only Agriculture and Agri-Food Canada research institute that addresses challenges related to dairy and swine production. The multidisciplinary nature of the research teams—with expertise in the fields of environment, production, nutrition, animal behaviour and functional genomics—allows for both basic and applied scientific approaches to the study, understanding and solution of problems in livestock production.

According to a report by the United Nations Food and Agriculture Organization (FAO), world demand for dairy products and meat is expected to double by 2050. In such a context, the Centre is actively involved in the development of innovative ways to reduce the environmental footprint of livestock production and to promote the growth of farms. If Canada is to play a leading role in sustainable agriculture, we need to develop technologies for small, medium and large farms alike and to design simple, cost-effective management practices.

THE WAY FORWARD

By leveraging its expertise and state-of-the-art facilities, the Centre is able to integrate the various issues relating to livestock production while promoting economic viability, health, animal welfare and the environment.

The livestock production systems developed at the DSRDC:

- minimize greenhouse gas and ammonia emissions while improving air quality, including odours attributable to livestock operations;
- utilize waste from livestock and agri-food industry operations to produce green energy;
- eliminate biological contaminants contained in livestock waste, such as pathogens, prions, antibiotics and hormone residues;
- protect sensitive ecosystems and biodiversity;
- optimize production systems tailored to animal needs;
- improve the health of animals and reduce the incidence of disease by increasing immune resistance and developing prevention strategies;
- develop value-added animal products in response to market needs;
- design management practices for enriching animal products with substances beneficial to human health;

- improve the organoleptic qualities of animal products;
- improve the security of the animal products supply chain;
- increase the understanding of the factors that influence the social acceptance of new technologies, practices and production methods; and
- increase the economic viability of production through better use of resources, management and genetic potential.

Environment

The environmental research facilities of the DSRDC are unique in Canada. They use various technologies to treat slurry, manure and other waste and wastewater from the agri-food industry (bioreactors, biofilters, membrane filtration, ozonators, UV irradiation). They can handle a wide range of waste volumes, from a few litres to several tonnes. They allow the full development of technologies and best management practices (BMPs), from feasibility studies to the assessment of scale-up with large volumes. They also provide the conditions for conducting rigorous research involving potentially harmful substances (methane, ammonia, pathogens) in complete safety. The Centre also has an olfactometer, which is used to objectively quantify odours.

The facilities available for conducting research minimize the environmental impact of livestock operations, at the scale of a dairy or swine farm.

Dairy complex

The dairy complex can accommodate 140 cows: 108 in the main section and 32 in a temperature-controlled area. The temperature-controlled area is used to carry out projects that require more rigorous follow-up. It contains two controlled-environment chambers for measuring greenhouse gas emissions from cows. The complex also includes a double-six milking parlour, a feeding room providing considerable flexibility in terms of both the complexity of the rations developed and the number of groups to be fed, a surgical room, an exercise area, and laboratories for the preparation of projects and sample analysis. The Centre also has a separate Biosafety Level 2 building for research on mastitis-causing pathogens, such as *Staphylococcus aureus* bacteria.

Swine complex

The Centre has a modern swine complex that houses a permanent herd of 100 sows and their offspring, as well as facilities for conducting metabolic studies, feed studies and behavioural observations. An experimental slaughter plant is available to researchers for projects aimed at reducing pre-slaughter stress and improving pork quality. There are also laboratories for assessing meat quality.

