



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



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Canadian Animal Genetic Resources (CAGR) Program

Agriculture and Agri-Food Canada and University of Saskatchewan



WHAT IS THE CAGR PROGRAM?

Canadian Animal Genetic Resources (CAGR) program is a joint initiative of Agriculture and Agri-Food Canada (AAFC) and the University of Saskatchewan (U of S), to preserve the genetic diversity of Canadian livestock and poultry breeds, and to develop new techniques to conserve germplasm. The three branches of the CAGR program include Genetic Diversity, Gamete and Embryo Biology, and Cryobiology.

Canada



CAGR MISSION

To ensure the genetic diversity of Canadian livestock and poultry, support environmentally friendly livestock and poultry production, and maintain food security, by acquiring, evaluating, and cryopreserving tissue and germplasm. Research is focused on genetic diversity, conservation and reproductive biology.

WHERE IS CAGR PROGRAM?

CAGR program is coordinated at the *University of Saskatchewan* and *AAFC/Saskatoon Research Center*, Saskatchewan. This program has facilities at the *College of Agriculture and Bioresources* and at *Western College of Veterinary Medicine*.

KEY MANDATES OF CAGR

- Acquire, maintain, and distribute genetic resources.
- Characterize, evaluate, and analyze genetic diversity.
- Develop indicators of change in domestic animal genetic diversity.
- Perform research on biology of gametes and embryos.
- Develop new techniques for conservation of genetic resources.

WHY PRESERVE?

Consumer demands for high quality, uniform and commercial food supplies, and other animal products, require intense animal breeding and selection, and efficient production systems. This situation may lead to the erosion of genetic diversity in popular livestock and poultry breeds. Facing environmental changes and the emergence of new animal diseases, it is imperative to preserve and maintain our Canadian animal genetic resources. The conservation of our livestock and poultry genetics is our insurance:

- To enhance Canada's ability to respond quickly to biosecurity, environmental, and food safety risks and provide economic opportunities through authoritative knowledge of bioresources.
- To improve the competitiveness of the Canadian livestock and poultry industries through the evaluation of the status of domestic livestock genetic diversity.

CAGR ACTIVITIES

• Promotion

CAGR promotes animal and poultry genetic resource conservation and integrates Canadian conservation activities with those at the global level, in particular with the *Food and Agriculture Organization of the United Nations*.

• Germplasm and DNA Preservation

CAGR will cryopreserve semen, ova, embryos (germplasm), and DNA of domestic livestock and poultry to estimate genetic diversity and to allow conservation if needed.

• Research

Research efforts focus on developing capacity and strategy for conservation of animal and poultry genetic resources. CAGR also works to improve current methods and develop new techniques for the conservation of all domestic livestock species. Tissue donated to CAGR may be used to extract DNA for use in genetic diversity studies and to develop methods to help identify breeds.

• Data Management

The CAGR database will contain physical and phenotypic data corresponding to DNA and germplasm maintained at the center. It will be connected to an international animal genetic resource database, including links to breed registries, participating industry representatives, producer groups and cooperating farm animal conservation initiatives.

• Industry Liaison and Education

Co-operation, collaboration, and donations are required to preserve animal and poultry genetic resources. CAGR collaborates with the Canadian livestock and poultry industries, Provincial and Federal governments, and international stakeholders to study and conserve domestic livestock and poultry genetic resources. Education and training of highly qualified young Canadian scientists are central to the program and students and visiting scientists are welcome.

The CAGR program relies on donations of germplasm and DNA from the livestock and poultry industries, veterinarians, animal breeders and producers, as well as Canadian universities and conservation agencies. If you wish to participate and contribute to the conservation of Canada's animal genetic resources, please do not hesitate to contact, Yves Plante, (306) 956-7209, or email: yves.plante@agr.gc.ca. Your support is important and appreciated. Thank you!

