



# Plant Gene Resources of Canada in Saskatoon: Canada's national seed genebank

Agriculture in Canada and around the world depends on the diversity of wild and crop plants that has evolved over millions of years. This diversity holds options for finding genetic resistance to pests and diseases, increasing yield, adapting to climate change, addressing new consumer demands and developing new crops.

Plant Gene Resources of Canada (PGRC) is a vital national resource with a mandate to acquire, preserve and provide access to genetically diverse plant material (germplasm) of cultivated plants and their wild relatives with an emphasis on germplasm relevant to Canada. PGRC is managed and funded by the Canadian government through Agriculture and Agri-Food Canada (AAFC). Additional funding is received through external collaborative research partnerships. PGRC interacts with many world genebanks and contributes to global food security.

The PGRC facilities at the AAFC-Saskatoon Research and Development Centre preserve a growing collection of more than 110,000 unique seed samples (accessions) representing 47 botanical families, 258 genera and nearly 1,000 botanical species. Barley, oat, wheat and their wild relatives account for about 75% of the Saskatoon germplasm holdings.

All germplasm preserved at PGRC is freely available on request for research, plant breeding and education according to provisions under the International Treaty on Plant Genetic Resources for Food and Agriculture. To aid plant breeders and other researchers in selecting appropriate germplasm for crop improvement, PGRC generates and distributes information about the accessions.

## CORE ACTIVITIES AT PGRC-SASKATOON

**Acquisition:** New germplasm is received from AAFC and Canadian researchers/plant breeders, through exchanges with other genebanks, and by collection expeditions in Canada and abroad. About 500 accessions are added yearly.

**Germplasm conservation:** Seed samples are kept in vaults at +4°C for medium term storage (working collection) and at -18°C for long term storage. Seed viability testing is conducted on a regular schedule following international standards.

**Regeneration and characterization:** Accessions are grown in the field, greenhouses and growth cabinets for regeneration so seed germplasm is maintained in sufficient quantities with good viability. Important traits are recorded such as height, yield, lodging resistance, disease resistances, quality characteristics and molecular diversity. This information is made available to genebank clients through the Germplasm Resources Information Network-Canadian Version (GRIN-CA), an online searchable database.

**Distribution:** PGRC-Saskatoon distributes about 4,000 accessions annually around the world for research, breeding and education.



Genetic diversity is variation within a species. For example, oat seed (*Avena sativa* L.) at PGRC vary in characters such as size, weight, shape, chemistry and colour.

## OTHER PGRC GENE BANKS

The Canadian Clonal Genebank, located at AAFC's Harrow Research and Development Centre in Ontario, is responsible for preserving, characterizing and distributing the genetic diversity of Canadian fruit crops (such as apple and strawberry). The Canadian Potato Genetic Resources preserves potato germplasm and is located at AAFC's Fredericton Research and Development Centre in New Brunswick.

## INFORMATION ACCESS AND GERMPLASM REQUESTS

Information about the PGRC germplasm holdings and germplasm requests can be made on Agriculture and Agri-Food Canada's PGRC website ([www.agr.gc.ca/pgrc-rpc](http://www.agr.gc.ca/pgrc-rpc)).

## CONTACT INFORMATION

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For more information reach us at [www.agr.gc.ca](http://www.agr.gc.ca) or call us toll-free 1-855-773-0241.



Seeds stay viable when stored dry and at low temperature (above, view of the medium term seed storage vault at PGRC-Saskatoon [working collection]).



Most seeds can be stored for decades but growing accessions in the field or greenhouse is essential to maintain seed viability and to record essential information relevant to genebank clients. (above, diverse flax (*Linum usitatissimum* L.) accessions).