

Science and Innovation

Semi-arid Prairie Agricultural Research Centre

Swift Current, Saskatchewan

The Semi-arid Prairie Agricultural Research Centre (SPARC) is one of Agriculture and Agri-Food Canada's network of 19 research centres. Located at Swift Current, in the southwest corner of Saskatchewan, SPARC conducts major agricultural research on the dryland regions of Canada's prairies. The Research Centre was established in 1920 with the mandate to address severe drought, erosion, frost, pests, and crop disease related problems, and to provide support to the expanding settlements in the region characterized by a semi-arid climate.

The semi-arid prairie region, where SPARC – Swift Current is situated, encompasses 20% of the arable land in Canada (the Brown soil zone). In addition, SPARC's research extends across the Dark- Brown and Thin- Black soil zones via the associated research site at Indian Head.

Canada is known world wide for producing high performance and quality wheat which researchers located at SPARC have played and continue to play a key role developing. Today, SPARC wheat varieties are grown on about 50% of the wheat acreage in Canada. Durum wheat varieties at SPARC account for well over 90% of the Canadian acreage. In addition to a strong effort in wheat research, scientists at SPARC are actively conducting research to further our understanding of integrated cropping systems, especially for pulse and

forages, and developing best practices to enhance environmental performance and sustainability. Long-term-rotation field experimental plots have been in place at SPARC for more than 40 years and at Indian Head for more than 50 years.

Areas of Research

At the Semi-arid Prairie Agricultural Research Centre (SPARC) our science and research activities focus on dryland farming systems. The Centre's areas of core research are aligned with national priorities to help the sector adapt and remain competitive in domestic and global markets. Greater participation in research networks and industry-led partnerships expands the Centre's innovation capacity.

New Products, New Users, New Markets

- Identifying crop species to produce specialty grains for niche markets such as alternative dietary foods and specialty materials for industrial use
- Finding new food and non-food products for crops that are grown in and are unique to western Canada
- Identifying species that will diversify crops, reducing production risks associated with a single-product use of land
- Breeding and developing common wheat, durum, rye and triticale (a high yield hybrid of wheat and rye) varieties that can adapt to dry land prairie conditions



- Developing native plant materials for pasture and animal grazing
- Developing the end-use quality of cereal varieties to meet the rigorous demands of domestic and export markets

Improving Production and Management Practices for Sustainable Growth

- Conducting research in sustainable practices for cereal, oilseed, pulse and green manure production
- Developing best management practices for specialty and alternative crops
- Conducting research in pasture and grazing management systems for beef that contribute to conserving and protecting the environment
- Conducting research in the management of tame and native pasture and grazing lands
- Developing land management systems to enhance soil and water quality

Protecting the Environment and Stimulating Biodiversity

- Conducting studies on climate change and how it affects Canadian prairie agriculture
- Quantifying greenhouse gas emissions from beef cattle
- Determining the effects of pasture and grazing lands on the containment of carbon dioxide
- Determining the impact of agriculture on biodiversity, in particular native grasses, legumes and shrubs

Sector Support and Competitiveness through Research

- Conducting genetic research to accelerate the breeding of new cereal products with desirable traits
- Conducting research and identifying the genes in grain that confer resistance to insects, diseases and weather, and that control grain quality
- Conducting research on specialty and alternative crops for Canada's prairies and determining how well they will adapt to their environment

Facts Figures and Facilities

- Research land base of 930 hectares in Swift Current. Forage researchers use about 575 hectares for forage and pasture, of which 140 hectares are native grasslands
- Research land base of 535 hectares in Indian Head
- Facilities for analytical chemistry, biotechnology, plant pathology, biochemistry, physiology, microbiology, soil chemistry, soil physics and salinity research
- Greenhouse and growth facilities, design and maintenance shops, field services laboratory, and animal husbandry facilities



Contact us

PO Box 1030
Swift Current,
Saskatchewan
S9H 3X2
Tel.: 306-770-4400

Associate Director, Research,
Development, and Technology
(RDT):
Bruce McArthur:
Tel.: 306-770-4420
Email: bruce.mcarthur@agr.gc.ca

Acting Director, Research,
Development, and Technology
(RDT):
Alain Giguère
Tel.: 306-385-9320
Email: alain.giguere@agr.gc.ca

Indian Head Research Farm
PO Box 760
Indian Head, SK, Canada
S0G 2K0