

ADF Crops Projects 2010

23 crops-related research projects **\$3,260,247**

Breakdown by Commodity

Pulses	\$1,068,540
Oilseeds	\$766,055
Cereals	\$539,312
Honeybees	\$270,000
Other/General Crops	\$616,340

Breakdown by Organization

University of Saskatchewan	\$1,341,352
Agriculture and Agri-Food Canada	\$939,312
Saskatchewan Beekeeper's Association	\$270,000
Saskatchewan Flax Development Commission	\$150,000
Saskatchewan Research Council	\$120,000
Alberta Invasive Plants Council	\$90,000
Parrheim Foods	\$84,000
EcoTech Research Ltd.	\$81,240
Prairie Agricultural Machinery Institute	\$78,743
Canadian Malting Barley Technical Centre	\$60,000
Canadian Cherry Producers Inc.	\$45,600

ADF Crops Projects Research Funding 2010

University of Saskatchewan

Department of Food and Bioproduct Sciences

51 Campus Drive, Saskatoon, SK S7N 5A8

Sphingolipids from Saskatchewan Crops

Objectives:

Funding: \$179,500

- To develop a cost effective method of isolating novel fat replacing components from various Saskatchewan agricultural crops and under utilized by-products. The new fats have the potential for use in the Canadian food, cosmaceutical and pharmaceutical industries.

Contact: Michael Rogers (306) 966-5028

Department of Plant Sciences and Crop Development Centre

51 Campus Drive, Saskatoon, SK S7N 5A8

Plant Growth Regulators as a Disease Management Tool in Potatoes

Objectives:

Funding: \$40,000

- To determine whether foliar application of the herbicide 2,4-D represents an effective and economically viable control option for potato scab. Specifically, this study will evaluate mechanism that affects scab formation and an economic analysis. The efficacy and crop safety data generated will support a label expansion to cover the use of 2,4-D as a tool for disease control in potatoes.

Contact: Doug Waterer (306) 966-5860

Growing Conditions and Crop Performance in Multispan High Tunnels

Objectives:

Funding: \$60,000

- To assess growing conditions, crop growth and quality and production economics in the first multi-span high tunnel complex in Saskatchewan. This project will determine the suitability and economic viability of a multi-span high tunnel complex for production of high value crops.

Contact: Doug Waterer (306) 966-5860

Enhancing the Nutritional Value of Saskatchewan Pulses through Improved Levels of Folate and Carotenoids

Objectives:

Funding: \$104,800

- To determine the genetic variation in natural folate and carotenoid content for selected pea, chickpea and dry bean germplasm.
- To determine the impact of storage, milling, cooking or canning on folate and carotenoid content.
- To outline a breeding strategy to enhance the levels of folates and carotenoids in Saskatchewan pulse crops.

Contact: Tom Warkentin (306) 966-2371

Enhancing Nitrogen Management through Genetics in Cereal-legume Crop Rotations

Objectives:

Funding: \$149,835

- To determine the impact of pulse stubble on Nitrogen Harvest Index of wheat cultivars and the resulting protein quality.
- To evaluate soil microbial diversity in the stubble of selected pulse and wheat cultivars under the different cropping scenarios used in this project.

Contact: Pierre Hucl (306) 966-8667

Exploiting Response to Photoperiod to Improve Adaptation and Yield of Chickpea in Canadian Prairies

Objectives:

Funding: \$252,500

- To determine the genetic basis of the association between flowering time and resistance to ascochyta blight. The proposed research is divided into three components: 1) Effect of temperature and photoperiod on flowering; 2) Determination of photoperiod sensitive phases; and 3) Mapping genes for early flowering, photoperiod insensitivity and reaction to ascochyta blight.

Contact: Bunyamin Taran (306) 966-2130

Development of Semi-dwarf Durum Wheat Cultivars with Enhanced Protein Concentration

Objectives:

Funding: \$295,477

- To utilize the identified protein genes Gpc-B1 and QGpc.cdc-7A in semi-dwarf durum wheat cultivars so that durum producers could have access to high yield, short-straw cultivars adapted to the Saskatchewan durum growing area. In addition, these genes will be transferred to solid-stemmed germplasm, which traditionally has also lacked expression of high grain protein concentration. If successful, this germplasm could then be utilized in the Saskatchewan durum breeding programs to develop superior new cultivars.

Contact: Curtis Pozniak (306) 966-2361

Intercropping Field Pea Varieties for Organic Production

Objectives:

Funding: \$78,200

- To establish the optimum ratio of leafed and semi-leafless field pea varietal mixtures for organic crop production. To do this we will determine the weed suppression, lodging resistance and disease benefits associated with different ratios and seeding rates of leafed and semi-leafless field peas.

Contact: Steven Shirliffe (306) 966-4959

Lentil Resistance Gene Identification Using Legumes Comparative Genomics

Objectives:

Funding: \$181,040

- To develop the tools necessary to develop genetic and physical resistance-gene maps of lentil (*Lens culinaris*; Lc) using *Medicago truncatula* (Mt) Resistance Gene Homologues (RGHs). This foundational work will be used to: a) develop molecular markers for breeding; b) assist resistance gene discovery; and c) compare resistance gene clusters in lentil with those of other legume species. In addition, the molecular structure of lentils will be further resolved as this project will examine a rapidly changing portion of the lentil genome.

Contact: Kirstin Bett (306) 966-4947

Agriculture and Agri-Food Canada

Agriculture and Agri-Food Canada

107 Science Place, Saskatoon, SK S7N 0X2

Industrial Oilseed Mustard: Ethiopian Mustard Optimized for High Oil and Sinigrin Content for Industrial Applications

Objectives:

Funding: \$136,312

- To develop Brassica carinata strains that are optimized for the production of allyl glucosinolate (sinigrin), as a bio-pesticide. As well, this trait will be incorporated into varieties with higher seed oil for high value applications such as bio-lubrication or fuel.

Contact: Kevin Falk (306) 956-7614

Improving Camelina Seed Quality and Disease Resistance in a Mutagenized Population

Objectives:

Funding: \$257,000

- To develop camelina germplasm with improved seed quality and disease resistance, herbicide resistance and adapted to Western Canada.

Contact: Kevin Falk (306) 956-7614

Synergy of Microbial Fungicides and Cultivar Resistance for Control of Clubroot on Canola

Objectives:

Funding: \$144,000

- Develop new formulations for selected efficacious biofungicides (registered in Canada) to enhance the efficacy of clubroot control and practicality of treatment delivery in canola cropping systems.
- Screen Brassica germplasm for potential new resistance sources and evaluate available resistant canola hybrids for performances and potential durability under varying soil conditions and pathogen inoculum (dose and/or race).
- Assess the interaction and potential synergy of selected microbial biofungicide formulations with resistant canola lines carrying different genes for resistance.
- Validate/demonstrate the synergy of biofungicide formulations with resistant canola lines for clubroot control and potential resistance stewardship under field conditions.

Contact: Gary Peng (306) 956-7617

Natural Insecticides from Peas

Objectives:

Funding: \$402,000

- To control stored grain insect pests effectively, economically and in an environmentally sound manner, using a natural insecticide derived from pea. This will provide new value-added processing of peas in Saskatchewan.
- Verify scale up from laboratory (10-100 g) to pilot plant (500 kg) for production of natural insecticide derived from peas.
- Determine best formulation of active ingredients.
- Test pea insecticidal extract in farm bins to determine efficacy, required for product registration.

Contact: Russell Hynes (306) 956-7638

Saskatchewan Beekeeper's Association

Saskatchewan Beekeeper's Association

Comp 55, RR #3, Yorkton, SK S3N 2X5

The Saskatraz Project: The Saskatchewan Beekeepers Honey Bee Breeding Program-Renewal

Objectives:

Funding: \$270,000

- To continue development of productive, gentle, honey bee colonies with tolerance to mites and brood disease, without the use of synthetic chemical miticides.
- To identify new types of molecular markers by comparing high and low honey producers, varroa sensitive and tolerant lines and viral sensitive and resistant (immune) lines for differences in expression of key genes and molecules.

Contact: Albert J Robertson (306) 373-9140

Saskatchewan Flax Development Commission

Saskatchewan Flax Development Commission

A5A, 116 - 103rd Street E., Saskatoon, SK S7N 1Y7

Northern Adapted Flax Variety Development Project

Objectives:

Funding: \$150,000

- To develop new flax varieties more adapted to the northern prairie region of Western Canada.
- Better-adapted varieties will have the following characteristics: a) Early maturity and daylength sensitivity; b) Tolerance to seeding into cold soils; c) Determinate in maturity (resist reflowering caused by autumn rain); and d) Ability for crop to naturally dry down rapidly to facilitate harvest.

Contact: Linda Braun (306) 664-1901

Saskatchewan Research Council

Energy Division

6 Research Drive, Regina, SK S4S 7J7

Pretreatment of Lignocellulose Prior to Fermentation to Ethanol

Objectives:

Funding: \$120,000

- To optimize the use of straw for Saskatchewan ethanol production using a novel supercritical carbon dioxide pretreatment method.

Contact: Cindy Jackson (306) 787-9388

Alberta Invasive Plants Council

Alberta Invasive Plants Council

Box 869, Okotoks, AB T1S 1A9

Screening and Testing Biological Control Agents for Common Tansy

Objectives:

Funding: \$90,000

- To conduct detailed biological and host-specificity tests on several European insects feeding on common tansy and assess their suitability and safety as biological control agents.
- To use data generated on the biology, host-specificity and effects of these agents to support regulatory submissions for the field release of these agents against common tansy in Canada.

Contact: Virginia Battiste (403) 982-7923

Parrheim Foods

Parrheim Foods

817 – 48th Street E., Saskatoon, SK S7K 0X5

Functional Behaviour of Pea Starch-hydrocolloid Blends

Objectives:

Funding: \$50,000

- To evaluate the advantageous functional behaviour of pea starch-hydrocolloid blends verses wheat/corn blends for use in food processing applications.

Contact: Shannon Hood (306) 931-1655

Incorporation of Barley Flours into Frozen and Refrigerated Doughs

Objectives:

Funding: \$34,000

- To investigate the potential of Saskatchewan produced barley flours as an ingredient in frozen and refrigerated doughs.

Contact: Shannon Hood (306) 931-1655

EcoTech Research Ltd.

EcoTech Research Ltd.

1717 13th Avenue, Regina, SK S4P 0V4

Improve Yields by Incorporating Soil Conductivity Measurements into Precision Farming Practices

Objectives:

Funding: \$81,240

- Develop methods to estimate various soil properties, including topsoil depth, texture, soil moisture, nutrients such as N and P, organic matter and clay content from soil conductivity measurements and how to use those measurements to predict yields.

Contact: Evan Morris (306) 352-2468

Prairie Agricultural Machinery Institute

Prairie Agricultural Machinery Institute

Box 1150, Humboldt, SK S0K 2A0

Conditions for Long-Term Storage of New Higher Oil Content Canola

Objectives:

Funding: \$78,743

- To determine safe storage conditions for canola for both average oil content and higher oil content canola.
- To assess the impact of new higher bins on safe storage and to assess the effect of green seeds or dockage above 2.5 per cent in the grain on storage ability.

Contact: Phil Leduc (306) 682-5033 Ext. 224

Canadian Malting Barley Technical Centre

Canadian Malting Barley Technical Centre

1365 – 303 Main Street, Winnipeg, MB R3C 3G7

Market Development of New Six-Row Malting Barleys

Objectives:

Funding: \$60,000

- Perform malting quality tests to demonstrate to the marketplace that newly registered six-row malting barley varieties have the necessary malting and brewing quality to compete with current varieties on an international level.
- To develop more interest worldwide in Canadian six-row malting barley.
- To develop new markets and expand existing markets for Canadian malting barley.

Contact: Robert McCaig (204) 983-1981

Canadian Cherry Producers Inc.

Canadian Cherry Producers Inc.

Box 360, Imperial, SK S0G 2J0

Variety Variations in New and Existing University of Saskatchewan Sour Cherries

Objectives:

Funding: \$45,600

- Develop quality standards for sour cherry production and processing.
- Quantify variations among varieties of U of S Sour Cherries.
- Understand differences among varieties especially for suitable end-uses.
- Create guidelines for growers to harvest when fruit is at optimal quality.

Contact: Bruce Hill (306) 963-2632