

## Crops Research Funding

46 crop-related research projects	<b>\$7,671,664</b>
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### Breakdown by Commodity

Cereals	\$1,606,056
Oilseeds	\$1,738,149
Pulses	\$2,386,204
Alternative Crops	\$363,994
Miscellaneous Crops Related	\$1,577,261

### Breakdown by Organization

University of Saskatchewan	\$3,662,505
Agriculture & Agri-food Canada	\$1,554,736
National Research Council	\$696,997
Prairie Agricultural Machinery Institute	\$539,416
Prairie Tide Chemicals	\$445,000
Western Applied Research Corporation	\$103,200
University of Regina	\$255,030
Saskatchewan Food Industry Development Centre	\$163,500
Northeast Agriculture Research Foundation	\$161,280
Alberta Invasive Species Council	\$90,000

## Cereals

### ***Establishment of Liquid Chromatography-Mass Spectrometry (LC-MS/MS) Based Mycotoxin/Deoxynivalenol (DON) Diagnostic Platform for Fusarium Head Blight (FHB) Research and Breeding Program (20160007)***

**Objectives:** Develop a rapid, accurate, sensitive and cost-efficient DON diagnostic platform.  
Develop a state-of-the-art analytical platform to identify and quantify additional FHB mycotoxins.  
Apply DON diagnostic platforms to existing FHB research and breeding program in the National Research Council, Agriculture & Agri-Foods Canada and the University of Saskatchewan.

**ADF:** \$98,040

**Saskatchewan Wheat Development Commission:** \$98,040

**Organization:** National Research Council of Canada

**Contact:** Dr. Lipu Wang, 306-975-5283

### ***An Integration of Agronomy and Breeding to Reduce Disease Susceptibility in Fall Rye (20160047)***

**Objectives:** Evaluation of the Fusarium head blight (FHB) reaction to Fusarium graminearum of 75 fall rye cultivars in multi-environment replicated trials.  
Comparison of the reaction of a sample of fall rye cultivars and lines to different species of Fusarium.  
Comparison of the effect of fungicide application timing on FHB in three rye genotypes.  
Evaluation of the leaf and stem rust reaction of up to 75 fall rye cultivars and lines in replicated trials.  
Breeding for disease resistance in fall rye.  
Examination of seeding rate x seeding date interactions to determine effects on yield and susceptibility to ergot.

**ADF:** \$159,882

**Western Grains Research Foundation:** \$159,881

**Organization:** Agriculture and Agri-Food Canada

**Contact:** Dr. Roger James (Jamie) Larsen, (403) 317-2159

***Assessment and Deployment of a New Dwarfing Gene in Red Spring Wheat*** (20160080)

**Objectives:** Evaluate near-isogenic lines for potential linkage drag.  
Develop a high through-put molecular marker for the Rht18 dwarfing gene.

**ADF:** \$71,263

**Saskatchewan Wheat Development Commission:** \$71,263

**Alberta Wheat Commission:** \$52,174

**Organization:** University of Saskatchewan

**Contact:** Dr. Pierre Hucl, Crop Development Centre, 306-966-8667

***Breeding Spring Spelt and Emmer Wheat for Reduced Lodging*** (20160115)

**Objectives:** Develop spring spelt lines with reduced lodging and improved rust resistance.  
Develop spring emmer lines with reduced lodging.

**ADF:** \$148,500

**Organization:** University of Saskatchewan

**Contact:** Dr. Pierre Hucl, Crop Development Centre, 306-966-8667

***Optimization of Root Development and Photosynthesis Parameters for Yield Increase/Protection*** (20160126)

**Objectives:** Identify the genetic basis of sustained photosynthesis when plants experience drought/heat stress, and derive molecular markers.  
Derive molecular markers for optimal root development characteristics that are pertinent for grain productivity.  
Identify gene targets for future manipulations; maintain selected grain quality aspects.  
Develop durum prototypes with advantageous root development and stress-resistant photosynthesis.

**ADF:** \$173,475

**Saskatchewan Wheat Development Commission:** \$173,475

**Alberta Wheat:** \$52,174

**Organization:** National Research Council Canada

**Contact:** Dr. Gopalan Selvaraj, 306-975-5577

### ***Comparing Wheat Allergenicity in Ancient and Modern Wheats*** (20160197)

**Objectives:** Characterize wheat allergenic gluten protein components.  
Analyze the change in Celiac disease causing wheat gluten polypeptides over 150 years of wheat improvement.  
Determine the diversity in immune-reactive polypeptides in current wheat varieties belonging to all market classes.  
Study the immunogenic / allergenic protein fractions in ancient wheats.  
Characterize the allergenic / immunogenic proteins by peptide sequencing and identify genes coding the proteins.

**ADF:** \$170,800

**Saskatchewan Wheat Development Commission:** \$85,400

**Western Grains Research Foundation:** \$85,400

**Organization:** University of Saskatchewan

**Contact:** Dr. Ravindra Chibbar, Plant Sciences, 306-966-4969

### ***Input Study: Intensive Wheat Management*** (20160210)

**Objectives:** To enhance wheat profitability by incorporating some or all components of intensive wheat management.  
To identify how wheat classes and varieties are affected by enhanced wheat management.  
To identify how interactions of wheat genetic characteristics respond to varying soil and climate conditions across Saskatchewan.

**ADF:** \$161,280

**Saskatchewan Wheat Development Commission:** \$161,280

**Organization:** Northeast Agriculture Research Foundation

**Contact:** Mr. Stewart Brandt, 306-843-7811

### ***Development of Physiological Markers for High Throughput Field Screening of Drought Tolerant Wheat Lines*** (20160229)

**Objectives:** Non-destructive quantification of root biomass and architecture of drought tolerant and susceptible spring wheat varieties.  
Non-destructive determination of the epicuticular wax thickness, wax composition and bulliform cells.  
Determine the role of essential ions to drought tolerance in spring wheat varieties.  
Identify phenotyping methods for high throughput screening of drought tolerant wheat varieties.

**ADF:** \$197,334

**Saskatchewan Wheat Development Commission:** \$98,666

**Organization:** University Of Saskatchewan

**Contact:** Dr. Karen Tanino, Plant Sciences, 966-8617

***Accelerating Germplasm Development and Disease Testing (20160231)***

**Objectives:** Pilot study to evaluate if large-scale phenotypic effects occur due to multiple generations of growth under constant light.  
Evaluation of cultivars for response to accelerated growth conditions.  
Rapid generation of RIL population under accelerated growth conditions.  
Determine comparability of rust adult plant resistance and fusarium head blight tests under normal and accelerated growth.

**ADF:** \$170,793

**Organization:** National Research Council Canada

**Contact:** Dr. Patricia Vrinten, 306-975-4637

***High-throughput Omics Approaches for Effective Breeding Selection of Durum Wheat Quality (20160288)***

**Objectives:** Defining a reference proteome map of Canadian durum wheat for quality improvement.  
Identification of Quantitative Trait Loci (QTLs) and alleles controlling protein composition, yellow pigment content (YPC) and milling quality.  
Develop KASPar (Kompetitive Allele Specific PCR) based marker to practice marker assisted selection (MAS).

**ADF:** \$254,689

**Saskatchewan Wheat Development Commission:** \$127,343

**Organization:** National Research Council Canada

**Contact:** Dr. Wentao Zhang, 306-975-4796

## Oilseeds

### ***Development of Genetically Diverse Inbred Lines for Producing High-yielding Synthetic Varieties in Condiment Yellow Mustard*** (20160009)

**Objectives:** Developing genetically diverse elite inbred lines.  
Establishing parental component lines for high yielding synthetics.  
Production and performance evaluation of synthetics.

**ADF:** \$400,000

**Organization:** Agriculture & Agri-Food Canada

**Contact:** Dr. Bifang Cheng, 306-385-9358

### ***Genome Wide Functional Analysis of Plasmodiophora brassicae Effectors and the Management of Clubroot Disease*** (20160138)

**Objectives:** Genome-wide identification and in planta expression profiling of Plasmodiophora brassicae (P. brassicae) secretome.  
Functional analysis of P. brassicae effectors.  
Elucidation of virulence mechanisms of P. brassicae intracellular, biotrophic parasitism on host plants.  
Exploration of genetic diversity and population structures of P. brassicae in canola fields in Western Canada.

**ADF:** \$276,750

**Saskatchewan Canola Development Commission:** \$92,250

**Organization:** University of Saskatchewan

**Contact:** Dr. Peta Bonham-Smith, Biology, 306-966-4232

### ***Regional Testing for Flax Cultivar Registration*** (20160150)

**Objectives:** Evaluate elite breeding lines, candidate lines, and check cultivars under shorter season environments for adaptation traits.  
Evaluate elite breeding lines, candidate lines, and check cultivars in multi-location tests for stability of yield and maturity.

**ADF:** \$10,389

**Saskatchewan Flax Development Commission:** \$93,539

**Western Grains Research Foundation:** \$52,111

**Organization:** University of Saskatchewan

**Contact:** Dr. Helen Booker. Plant Sciences/Crop Development Centre, 306-966-5878

***Mapping and Introgression of the Highly Effective Brassica rapa Blackleg Resistance Gene Rlm11 into Spring-type Brassica napus*** (20160158)

**Objectives:** Introgression of the Rlm11 gene from winter-type Brassica rapa to spring-type Brassica napus.

Genetic mapping of the blackleg resistance gene Rlm11.

**ADF:** \$120,668

**Saskatchewan Canola Development Commission:** \$120,666

**Western Grains Research Foundation:** \$120,666

**Organization:** Agriculture & Agri-Food Canada

**Contact:** Dr. Hossein Borhan, Molecular Genetics, 306-956-2827

***Characterization of Rust Resistance Genes of Flax*** (20160222)

**Objectives:** Complete sequencing of RM gene locus and develop assays to distinguish between M, M1, and M3 genes.

Determine the location of the RK1 rust resistance gene and develop an assay to distinguish RK1 gene alleles.

Development of molecular marker assays to determine the rust resistance alleles present in flax germplasm.

Characterize the Core Collection for RK, RL, RM, RN, and RP allelic diversity.

**ADF:** \$119,166

**Saskatchewan Flax Development Commission:** \$118,927

**Western Grains Research Foundation:** \$119,046

**Organization:** University of Saskatchewan

**Contact:** Dr. Helen Booker. Plant Sciences/Crop Development Centre, 306-966-5878

***Industrial Production of Beneficial Plant Endosymbionts for Seed Treatment and Improved Canola, Soybean & Pea*** (20160226)

**Objectives:** To undertake development, scale-up and field testing studies on Saskatchewan's microbial endophytes with yield promoting efficacy.

**ADF:** \$273,380

**Organization:** University of Saskatchewan

**Contact:** Dr. Vladimir Vujanovic, Food and Bioproduct Sciences, 306-966-5048

#### ***Industrial Products from Vegetable Oils*** (20160110)

**Objectives:** Develop methods for improving the physical and chemical properties of flaxseed and camelina oil.  
Determine the yellowing of flaxseed and camelina based oil paints produced with ultra-pure oils.  
Develop processes for improving the chemical and physical properties of canola and rapeseed oil.

**ADF:** \$225,750

**Saskatchewan Canola Development Commission:** \$90,250

**Organization:** University of Saskatchewan

**Contact:** Dr. Martin Reaney, Plant Sciences, 306-966-5027

#### ***Enhancing the Nutritional Value of Byproducts Through Steam Explosion*** (20160208)

**Objectives:** To improve the nutritional value of co-products from canola, flax and camelina through the application of steam explosion.

**ADF:** \$49,068

**Saskatchewan Canola Development Commission:** \$49,066

**Saskatchewan Flax Development Commission:** \$49,066

**Organization:** University of Saskatchewan

**Contact:** Dr. Rex Newkirk, Animal and Poultry Science, 306-281-6611

#### ***Utilization of Defatted Flaxseed Meal*** (20160219)

**Objectives:** To investigate the sensory attributes and consumer acceptability of the flaxseed protein concentrate containing products.  
Develop an unassailable intellectual property portfolio.  
To evaluate the functional properties and in vitro digestibility of the resulting protein concentrate.  
To investigate the food applications of protein concentrate in protein fortified, gluten free, dairy free and egg free products.  
To identify an industrial scalable method to develop a protein concentrate from defatted flaxseed meal.  
To identify the flaxseed variety(ies) with the potential for development of protein concentrates.

**ADF:** \$225,000

**Organization:** Prairie Tide Chemicals

**Contact:** Dr. Martin King, 306-955-3566

#### ***Improved Management of Stored Flaxseed*** (20160303)

**Objectives:** To better define management practices for on-farm storage of flax seed.  
To develop tools for effective dissemination of information to producers.

**ADF:** \$37,978

**Saskatchewan Flax Development Commission:** \$37,978

**Organization:** Prairie Agricultural Machinery Institute

**Contact:** Dr. Joy Agnew, 306-682-5033 ext 280



## Pulses

### ***Lentil Input Study*** (20160010)

**Objectives:** To determine which combination of the common agronomic practices produce the greatest lentil yield.  
To determine which agronomic practices provide the best economic return to producers.

**ADF:** \$103,200

**Western Grains Research Foundation:** \$103,200

**Saskatchewan Pulse Growers:** \$103,200

**Organization:** Western Applied Research Corporation

**Contact:** Ms. Jessica Weber, 306-247-2001

### ***Enhancing the Long-Term Sustainability of Pulse Cultivation Using System Approaches*** (20160036)

**Objectives:** Investigate major factors influencing root rot complex on pulse crops.  
Discover antagonists (anti-fungal organisms) in the Saskatchewan soil that help pulse plants combat root rot pathogens.  
Optimize crop rotation systems for dry and humid ecoregions of Western Canada using system approaches.  
Enhance soil carbon and nitrogen dynamics in different cropping systems.  
Minimize harvest loss in pulses through improved agronomic practices.  
Decrease the carbon footprints of agroecosystems with improved farming strategies.  
Enhance whole farms economic outcomes by improving input efficiency and increasing productivity.

**ADF:** \$511,986

**Organization:** Agriculture and Agri-Food Canada

**Contact:** Dr. Yantai Gan, Swift Current Research Centre, 306-770-4464

### ***Epidemiology of Chocolate Spot of Faba Bean*** (20160074)

**Objectives:** Determine conditions leading to Botrytis spore release and infection in the field.  
Evaluate conditions for chocolate spot disease development in controlled studies.  
Assess incidence and severity of chocolate spot and other foliar diseases on faba bean in Saskatchewan and Alberta.

**ADF:** \$105,475

**Saskatchewan Pulse Growers:** \$105,475

**Organization:** Agriculture and Agri-Food Canada

**Contact:** Dr. Syama Chatterton, Science and Technology, (403) 317-2226

***Genetic Analysis of Flowering Genes and Their Associated Effects on Agronomic Performance and Stress Tolerance in Chickpea (20160277)***

**Objectives:** To evaluate the flowering genes and their associated effects on agronomic performance and adaptation in chickpea.

**ADF:** \$150,207

**Saskatchewan Pulse Growers:** \$150,206

**Organization:** University of Saskatchewan

**Contact:** Dr. Bunyamin Tar'an, Crop Development Centre, 306-966-2130

***Developing Field Pea Varietal Blends for Higher Yields and Pest Suppression (20160294)***

**Objectives:** Develop varietal blends of leafed and semi-leafless field pea for release by the Crop Development Centre.

**ADF:** \$53,492

**Saskatchewan Pulse Growers:** \$87,879

**Western Grains Research Foundation:** \$87,879

**Organization:** University of Saskatchewan

**Contact:** Dr. Steven Shirtliffe, Plant Sciences, 306-966-4959

***Enzymatic Hydrolysis of Pulse Starches to Produce Maltodextrins and Sweeteners for Food Use (20160057)***

**Objectives:** To evaluate the application value of the derived regular and resistant maltodextrins and sweeteners in different food products.  
To produce regular and resistant maltodextrins and sweeteners from the isolated pulse starches using different enzymatic methods.  
To characterize the obtained regular and resistant maltodextrins and sweeteners.  
To scale up isolation and enzymatic modifications of pulse starches in a pilot plant and assess the economic feasibility.  
To isolate pea, lentil, and faba bean starches from starch rich flours.

**ADF:** \$298,895

**Organization:** University of Saskatchewan

**Contact:** Prof. Yongfeng Ai, Food & Bioproduct Sciences, 306-966-2139

***Development of Novel Healthier Plant-Based Shortening Alternative Without the Presence of Saturated and Trans Fats (20160136)***

**Objectives:** Evaluation of the new shortening replacer in baked-food products.  
Modification of pulse proteins to improve oil holding properties.  
Strategies to remove off-flavour from pulse proteins.  
Preparation of pulse protein gels in the aqueous phase.  
Development of mixed vegetable oil pulse protein gel.  
Characterize the mixed vegetable oil-pulse protein gels as shortening replacer and determine their stability.

**ADF:** \$95,050

**Saskatchewan Pulse Growers:** \$100,000

**Organization:** University of Saskatchewan

**Contact:** Prof. Supratim Ghosh, Food & Bioproduct Sciences, 306-966-2555

***Development of Resistant Starch and Emulsifiers from Pulse Starches for Food Applications (20160202)***

**Objectives:** To isolate starches from commercial starch-rich flours of pea, lentil, and faba bean.  
To characterize chemical structures and functional properties of the resistant starch (RS) and emulsifiers developed from the octenylsuccinylated (OS) pulse starches.  
To assess the performance of the OS starches in selected food products.  
To scale up the isolation and octenyl succinic anhydride (OSA) modification of one pulse starch in a pilot plant and assess the economic viability.  
To produce resistant starch (RS) and emulsifiers from the pulse starches using (OSA) modification.

**ADF:** \$193,500

**Organization:** University of Saskatchewan

**Contact:** Prof. Yongfeng Ai, Food & Bioproduct Sciences, 306-966-2139

***Enzymatic Treatment of Chickpea Flour and Air-Classified Fractions to Improve Their Functionality for Ingredient Line Extensions (20160246)***

**Objectives:** To examine the effect of enzyme treatment on the physicochemical properties of chickpea flour and air-classified flour fractions.  
To examine functionalities of enzyme-treated chickpea flour and air classified fractions.  
To examine the performance of selected enzyme-treated chickpea ingredients in various prototype products.

**ADF:** \$162,000

**Organization:** University of Saskatchewan

**Contact:** Dr. Takuji Tanaka, Food & Bioproduct Sciences, 306-966-1697

***Optimization of Fermentation Platforms (Batch vs Solid-State) for Improving the Value of Pulse (Pea and Fava Bean) Fractions (20160289)***

**Objectives:** Determine optimal conditions for submerged (batch) fermentation for protein modification.  
Determine optimal conditions for solid-state fermentation for protein modification.  
Examine the potential of fermented pea (flour and protein concentrates) for novel food development.

**ADF:** \$100,500

**Saskatchewan Pulse Growers:** \$100,500

**Organization:** University of Saskatchewan

**Contact:** Dr. Darren Korber, Food & Bioproduct Sciences, 306-966-7786

***Tolerance of Pulse Crops to Seed Placed Nitrogen Fertilizer (20160022)***

**Objectives:** To assess the tolerance of pulses to seed-row placed fertilizer blends and composite products containing nitrogen.

**ADF:** \$44,450

**Saskatchewan Pulse Growers:** \$44,450

**Organization:** University of Saskatchewan

**Contact:** Prof. Jeff Schoenau, Soil Science, 306-966-6884

***Improved Management of Stored Pulse Crops (20160178)***

**Objectives:** To collect data specific for pulse crops grown in Saskatchewan that is critical for improved storage management.  
To generate and disseminate practical information to producers on managing stored pulses.

**ADF:** \$130,527

**Organization:** Prairie Agricultural Machinery Institute – PAMI

**Contact:** Dr. Joy Agnew, 306-682-5033 ext 280

***Relating Soil Microbial Properties to Pulse Crop Performance Following a Conventional, Vertical and Zero Till Application (20160185)***

**Objectives:** Determine the return on investment (ROI) on pulse crop production potential with the introduction of tillage management.  
Evaluate the effect of conventional, vertical and zero tillage on pulse emergence, disease pressure, and yield.  
Evaluate greenhouse gas (GHG) emissions from applying tillage practices in a primarily no-tillage crop rotation.  
Evaluate microbial populations in the soil in a zero-till environment alongside conventional and vertical tillage.

**ADF:** \$350,172

**Organization:** Prairie Agricultural Machinery Institute – PAMI

**Contact:** Ms. Patricia Lung, 306-682-5033 ext 228

***Knowledge, Tools and Practices to Manage Insect Pests of Pulse Crops in Saskatchewan***  
(20160215)

**Objectives:** Determine the overwintering biology of pea leaf weevil populations in southern Saskatchewan.  
Obtain baseline data on aphids and their natural enemies in pulse crops to aid in future development of action thresholds.  
Assess foliar/nodule damage and yield in field peas in response to seed-coated and foliar insecticides in a field plot study.  
Compare on-farm yields of treated and untreated seed to develop and validate action thresholds for pea leaf weevil in field peas.

**ADF:** \$86,750

**Saskatchewan Pulse Growers:** \$86,750

**Organization:** Agriculture & Agri-Food Canada

**Contact:** Dr. Owen Olfert, 306-385-9355

## **Alternative Crops**

***Characterizing Canary Seed Germplasm for Fusarium Blight (FHB) and Enhanced Herbicide Tolerance*** (20160079)

**Objectives:** Characterize canary seed germplasm panel for response to group 2, 10 and 27 herbicides.  
Evaluate canaryseed germplasm for FHB resistance in a field disease nursery.  
Characterize lines selected after three years of screening with a three times (3X) rate of fenoxaprop-ethyl. Screen canary seed panel at 3X.  
Identify the suspected toxins produced from FHB of canary seed.  
Determine the benefit of fungicide application to control FHB in canaryseed.  
Determine the infection time of FHB of canary seed.

**ADF:** \$112,200

**Western Grains Research Foundation:** \$112,200

**Organization:** University of Saskatchewan

**Contact:** Dr. Pierre Hucl, Crop Development Centre, 306-966-8667

***Determining the Impact of Aphids in Canaryseed*** (20160191)

**Objectives:** To develop a better understanding on when an insecticide application is required against cereal aphids in canaryseed.

**ADF:** \$55,975

**Western Grains Research Foundation:** \$55,975

**Organization:** Agriculture & Agri-Food Canada

**Contact:** Mr. William May, Indian Head Research Farm, 306-695-5225

***Longer-Term Health Effects of Saskatoon Berries in Elderly – a Placebo Controlled Study***  
(20160008)

**Objectives:** To persuasively confirm the longer-term health effects of Saskatoon berries.  
To promote Saskatoon berries to mainstream consumers nationally and internationally.

**ADF:** \$195,819

**Organization:** University of Saskatchewan

**Contact:** Dr. Jim Fang, Pharmacy & Nutrition, 306-966-6372

## **Miscellaneous Crops Related**

***Field Evaluation of One Seed Treatment Inducing Multiple Agronomic Responses from Emergence to Yield*** (20160218)

**Objectives:** Determine the optimum seed soaking treatment dose under field conditions and examine field-based effects on agronomic traits.  
Determine the optimum spray treatment dose under field conditions.  
Evaluate the interaction of the novel seed treatment with standard seed treatments.  
To optimize seed treatment delivery systems for on-farm use.  
To optimize seed treatment delivery systems for seed coating.

**ADF:** \$278,850

**Saskatchewan Wheat Development Commission:** \$92,950

**Organization:** University Of Saskatchewan

**Contact:** Dr. Karen Tanino, Plant Sciences, 966-8617

***Biology and Host Specificity of Potential Biological Control Agents for Common Tansy***  
(20160240)

**Objectives:** Initiate testing of *Chrysolina eurina*.  
Complete testing of *Microplontus millefolii*.  
Conduct testing of *Platyptilia ochrodactyla*.

**ADF:** \$90,000

**Organization:** Alberta Invasive Species Council

**Contact:** Mr. Barry Gibbs, (587) 999-0954

***Protein Quality and Consumer Acceptance of High-Moisture Meat Analogues: Closing the Commercialization Gap*** (20160193)

**Objectives:** Determine effect of formulation and extrusion parameters on digestibility.  
Understand market dynamics of plant-based foods.  
Determination of the protein quality of high-moisture meat analogues.

**ADF:** \$163,500

**Organization:** Saskatchewan Food Industry Development Centre

**Contact:** Dr. Shannon Hood-Niefer, 306-964-1819

***Recovery of Protein and Nutraceutical from Ethanol Thin Stillage (20160233)***

**Objectives:** Develop strategies for characterizing stillage protein concentrate.  
Develop lactobacillus fermentation of thin stillage.  
Determine feed value of wet stillage protein concentrate.  
Develop processes for separating protein isolates from stillage.  
Determine the capacity of thin stillage to add value to biodiesel glycerine.  
Scale up processes for recovery of valuable compounds from solution remaining from centrifugal separation.

**ADF:** \$220,000

**Organization:** Prairie Tide Chemicals

**Contact:** Dr. Martin King, 306-955-3566

***Development of Bio-Desiccant Materials from Modified Biopolymers and Agricultural Biomass (20160266)***

**Objectives:** Pilot-scale testing of Energy Recovery Ventilator devices in collaboration with academic/industrial partners.  
Develop a suitable desiccant for vapour phase adsorption of water.  
Screening of biopolymers, biomass, and their modified forms through characterization of their physicochemical properties.  
Evaluate the performance of desiccant materials under dynamic conditions.

**ADF:** \$376,500

**Organization:** University of Saskatchewan

**Contact:** Dr. Lee Wilson, Chemistry, 306-966-2961

***Tools for Carbon Neutral Farming: The Role of Dugouts in Greenhouse Gas Capture (20160015)***

**Objectives:** Measure greenhouse gas (GHG) capture (or release) by dugouts by measuring C burial and flows of carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) during summer.  
Determine best management practices to maximize greenhouse gas capture by dugouts.  
Measure how GHG capture (or release) by dugouts varies among seasons during the 'ice free' season (early spring – fall).  
Compare rates of GHG capture (or release) in dugouts with those measured for natural wetlands.

**ADF:** \$255,030

**Organization:** University of Regina

**Contact:** Dr. Kerri Finlay, Biology, 306-585-4236

#### ***Investigation into Converting a Combine Grain Loss Signal Into a Grain Loss Rate (20160192)***

**Objectives:** Optimize the harvest loss sensor.  
Determine if current loss sensing technology is adequate.  
Decrease harvest losses for all Saskatchewan crops.  
Correlate existing harvester loss sensor data with actual loss curves.

**ADF:** \$20,739

**Saskatchewan Pulse Growers:** \$20,737

**Saskatchewan Wheat Development Commission:** \$20,737

**Saskatchewan Canola Development Commission:** \$20,737

**Organization:** Prairie Agricultural Machinery Institute – PAMI

**Contact:** Mr. Nathan Gregg, 306-682-5033 ext 229

#### ***Fertigation of Canola and Wheat (20160241)***

**Objectives:** To assess in-season application of N fertilizer to canola and wheat by fertigation (crop yield & quality, and GHG emissions).  
To assess plant tests (tissue testing, plant reflectance) as indicators of crop N needs, and develop test interpretive criteria.  
Technology transfer, through field days, reports, publications, and meetings.

**ADF:** \$114,000

**Organization:** Agriculture & Agri-Food Canada

**Contact:** Dr. Dale Tomasiewicz, 306-867-5412

#### ***In-Crop Weed Clipping for Weed Control (20160291)***

**Objectives:** Develop a weed clipping strategy to reduce crop-weed competition and weed seed production.

**ADF:** \$58,642

**Saskatchewan Pulse Growers:** \$125,496

**Saskatchewan Wheat Development Commission:** \$92,894

**Alberta Wheat Commission:** \$65,218

**Organization:** University of Saskatchewan

**Contact:** Dr. Steven Shirliffe, Plant Sciences, 306-966-4959