

# SaskCanola Research Projects Quick List

SaskCanola's mandate is to enhance canola producers' competitiveness and profitability through a producer led and controlled fund to support research, market development, and communication activities.

This document lists research projects supported financially by SaskCanola from 1991 to 2011.

**\*Note – some projects may not be listed here due to confidentiality**

## 2011 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Borhan	AAFC	Identifying virulence factors in <i>Leptosphaeria maculans</i> , the causative agent of blackleg disease of canola
Brule-Babel	U of M	Advanced statistical analysis of strip-plot canola variety trial data and comparison to small-plot variety trial data
Brule-Babel	U of M	Advanced statistical analysis of small-plot canola variety trial data
Bonham-Smith	U of S	Genomics of clubroot disease development in canola and development of in planta RNAi to impart novel resistance
Dalai	U of S	Investigation and demonstration of close coupled gasification combustion of raw glycerin and canola hull fiber fuel pellets/brique
Fernando Kutcher	U of M AAFC	Blackleg Resistance Stewardship: improving our management of host resistance
Fernando Kutcher	U of M AAFC	Mitigating blackleg disease of canola using fungicide strategies
Gruber	AAFC	Final phase research to improve 'hairy canola' trait in <i>Brassica napus</i>
Holzapfel	IHARF	Quantifying genetic differences in seed losses due to pod drop and pod shattering in canola
Lange	Alberta Innovates	Rapid farm-level detection of blackleg pathotypes – proof of concept

Peng	AAFC	Characterization and utilization of a newly identified resistance sources for sustainable clubroot control on canola
Scott	U of S	Adding nutritive value to vegetable protein meals and legume seeds with feed processing, enzymes and non-essential amino acids
Selvaraj	NRC-PBI	Building durable resistance to clubroot disease in canola: identification of multiple clubroot resistance genes from <i>Brassica napus</i> and <i>B. rapa</i> for marker-assisted gene stacking in canola breeding
Yu	U of S	Quantify protein structure and subfractions in canola seed and canola meal in relation o nutrient availability in animals

## 2010 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Boyle Stonehouse Martinka Flaten	SK AG SK AG CCC SaskCanola	High Moisture Canola in Bags
Buchwaldt Hegedus Lydiate Falk Parkin	AAFC	Canola producer success through innovation and technology (DIAP: Pod shatter resistance, blackleg resistance, sclerotinia resistance, camelina genetics)
Buckley	AAFC	ISTA method validation of a 24-hour canola seed vigor/deterioration assay
CCC	various	Canola/Flax Canadian agri-science cluster
Carcamo	AAFC	Management of lygus and seedpod weevils in canola
Cheng	AAFC	Improving the Ogura cms hybrid system and establishing heterotic gene pools for hybrid breeding in canola <i>Brassica juncea</i>
Elevance		Elevance Demonstration Biorefinery
Holzapfel	IHARF	Evaluating the effectiveness of pod sealants on the yield of straight-combined canola on a large field scale

Holzappel Nybo Phelps Vera	IHARF WCAI WARC NARF	Evaluating the effectiveness of pod sealants for reducing shattering losses in several cultivars of direct-combined canola
Hwang	AB AG	Effects of clubroot-resistant canola lines on soils infested by <i>Plasmodiophora brassicae</i>
Lange	AAFC	Linking the FusR1 gene for fusarium wilt resistance in <i>Brassica napus</i> to molecular markers
Leduc	PAMI	Conditions for long term storage of new higher oil content canola
Mohr	AAFC	Response of canola to the application of phosphorus fertilizer and <i>penicillium bilaii</i> (Jumpstart®)
Nickerson	U of S	Development of formulated canola protein-based ingredients for the food industry
Phelps Holzapfel Vera Nybo	WARC IHARF NARF WCAI	Response of canola to low plant populations and evaluation of reseeding options
Proulx	SARM	Richardson Ground Squirrel Control
Strelkov	U of A	Studies on the genetic and molecular basis for clubroot resistance in canola
Wanasundara	AAFC	An innovative fractionation process for better utilization of canola non-oil components: pilot scale testing and techno-economic analysis

## 2009 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Parkin	AAFC - SRC	Tools for crop improvement in <i>Camelina sativa</i> : tagging traits through gene expression analysis
Hegedus	AAFC	Detection of sclerotinia resistance genes in newly identified <i>B. napus</i> germplasm by association mapping
Tao	Elevance Renewable Sciences Inc	Feedstock characterization for commercialization of Petrolatum and other chemicals from canola oil via metathesis

Holliday	U of M	Classical biological control of root maggots in canola with <i>Aleochara bipustulata</i>
Soroka	AAFC	Potential flea beetles species composition shift in Prairie canola
Shah	Alberta Research Council	Developing <i>Brassica napus</i> lines with reduced pod shattering
Howard	Alberta Ag and Rural Development	Evaluating physical and chemical methods for cleaning and disinfecting tools, machinery, equipment and other hard surfaces contaminated with clubroot
Gruber	AAFC - SRC	Advancing the 'hairy canola' trait in <i>Brassica napus</i> and <i>Brassica carinata</i>
	AAFC	Prairie Wide Agreement for agronomy research
Holzapfel Nybo Phelps Vera	IHARF WCAI WARC NARF	Evaluating the effectiveness of pod sealants for reducing shattering losses in several cultivars of direct-combined canola
Beltranena	AARD	Feeding value of air-classified canola meal fractions for swine poultry and fish
Wanasundara	AAFC/SRC	Data collection, model design and calibration for techno-economic modeling of canola meal fractionation process developed by AAFC
Dosdall	U of A	Developing root maggot resistant canola

## 2008 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
	CCC	Canola Meal Research Plan
Peng	AAFC - SRC	Survey and evaluation of soil micro-organisms for control of clubroot on canola
Harker	AAFC - Lacombe	Managing canola for a sustainable biodiesel platform
Hwang	Alberta Ag and Food	Effect of non-host crops and host management on clubroot of canola

Kav	U of A	Antifungal peptide from pine for multiple disease resistance in canola
Garvin	Harvest Foods	Trait Commercialization Study III
Niu	U of S	Separation of ethanol-water mixtures using canola meals

## 2007 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Steppuhn	AAFC	Evaluating canola and other crucifer cultivars for food and bio-diesel oil production on saline lands
Smith/ Grushcow	Linneaus Plant Science	Development of a new industrial oilseed crop for hydroxyl fatty acid production
Hwang	Alberta Ag and Food	Reducing seedling blight to improve stand establishment in hybrid canola
Dosdall	U of A	Identifying agronomic practices that conserve and enhance natural enemies of insect pests of canola
Rahman	U of A	Investigation on the individual genes of <i>Brassica carinata</i> in canola for their resistance to different blackleg pathotypes
Olfert	AAFC, Saskatoon	Development of reduced-risk strategies through coordinated monitoring, forecasting and risk warning systems for insect pests
Kutcher	AAFC	A large-scale study of races of <i>Leptosphaeria maculans</i> occurring on canola in western Canada
Zou	PBI - NRC	Engineering plants with improved phosphorus usage efficiency by modifying glycerolipid metabolism
Dalai	U of S	Production of epoxidized canola oil (ECO): A value-added product from canola oil
Reaney	U of S	Biodiesel and lithium grease production technology
Smyth	U of S	Feasibility for establishing producer group commercialization vehicle

Nybo	WCAI	Minimizing harvest losses and improving seed quality in canola using Spodnam
Johnson	WARC	Agronomy of <i>Camelina sativa</i>
	CCC	Canola Meal Research Plan
	Gowans Feed Consulting	Influence of feeding increasing amounts of pressed canola cake on grow-finish pig performance in a commercial environment
Stonehouse	ECRF	Hybrid canola's response to high fertility regimes in East Central Saskatchewan

## 2006 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Chalmers	SERF	To evaluate the pre-harvest crop management strategies of straight cutting, desiccation, pushing and swathing in Argentine and Polish canola on the effects of yield characteristics
Nybo	WCAI	Optimizing Harvestability of oilseeds for profitability
Johnson	WARC	Integrating drift reduction technologies with agronomic practices
Brandt	AAFC	Fertilizer N efficiency and utilization on weeds and crops in a canola-barley rotation study
Buchwaldt	AAFC	Evaluation of sclerotinia resistance in Canadian canola cultivars and identification of resistant <i>Brassica napus</i> germplasm held at Plant Gene Resources of Canada
Evenden	U of A	The development of semiochemical monitoring and detection system for the diamondback moth on canola
Kutcher	AAFC	Determination of pathogenic variability of <i>Leptosphaeria maculans</i> in western Canada and resistance in Canadian <i>Brassica napus</i> cultivars
McLaren	AAFC	Impact of timing, rate and application technology on biological control of sclerotinia stem rot of canola caused by <i>Sclerotinia sclerotiorum</i>
Hwang	AAF/ARC	Cultural control of seedling blight in hybrid and specialty canola

Shirtliffe	U of S	Determining the economic plant density in canola
Leterme	Prairie Swine Centre	Maximizing the use and value of canola meal and full-fat canola seeds by defining their digestible and net energy values in growing pigs and adult sows
Reaney	U of S	Lipids lubricity, vegetable oil, byproducts, synchrotron, photoemmission electron microscopy, Raman IR microscopy, electron paramagnetic resonance
Dalai	U of S	Production of propylene glycol from crude glycerol: a value addition to canola biodiesel
Classen	U of S	Trmethylamine research with laying hens
	U of S	Producer group commercialization vehicle
	CCC	Canola Product Research Foundation
	U of S	Saskatoon biodiesel-hybrid bus evaluations – Phase III
	CCC	Prairie Canola Variety Trials and publications of PCVT results

## 2005 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Gruber	AAFC - SRC	Flea beetle and drought resistance in canola
Fernando	U of M	Optimizing canola production through biological control of virulent strains of blackleg <i>Leptosphaeria maculans</i> and insect pests of canola
Lange	ARC	Marker-assisted breeding for fusarium wilt resistance in <i>Brassica napus</i>
Hallett	U of G	Assessing impact of swede midge on canola production in the prairies and ON
Hultgreen	PAMI	Reducing canola seed damage from metering and air distribution system
Holzapfel	IHARF	Evaluating In-Season Yield Potential in Canola using the GreenSeeker Sensor

Stonehouse	ECRF	Hybrid canola's response to high fertility regimes in east central SK
	CCC	Summarize Elliott's Seed Vigor Research Projects
Drew	U of S	The use of canola, pea, and flax fractions in aquafeeds
	CCC	Prairie Canola Variety Trials
Smyth	U of S	Implications and potential impacts from the expiry of patents on herbicide tolerant canola varieties
Wanasundara	AAFC - SRC	Development of functional protein products from canola/rapeseed meal
Rimmer	AAFC	Sclerotinia resistance genes in canola
Nybo	Wheatland Cons. Area	Stripper header and crop pusher technology

## 2004 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Nybo	WCAI	Optimizing harvest yield in <i>Brassica juncea</i> , canola and mustard in SK
Stonehouse	ECRF	Delaying nitrogen fertilizer application to optimize harvest yield of canola in SK
Ripley	AAFC	Pod shatter resistant canola
Olivier	AAFC/SRC	Are the malformations observed on canola seedlings in 2002 & 2003 caused by phytoplasma?
Johnson	WARC	Using seed derived from hybrid canola
Dosdall	U of A	Improving Integrated Crop Management by Conserving Natural Enemies of Insect Pests
Olfert	AAFC	Coordinated monitoring, forecasting and risk warning for insect pests of field crops in Canada
Gan	AAFC	Economic Adaptation of Canola Quality <i>Brassica Juncea</i> and Sunflowers across Soil-climatic Zones
Soroka	AAFC	Effects of late season flea beetle feeding on canola yields

Elliott	AAFC	Factors influencing seed vigor, seed deterioration and agronomic performance of canola
Strelkov/Hartman	U of A	Evaluation of Clubroot Control with Rotation Frequency and Soil Amendments
Sharma	ARC	Development of a diagnostic field guide of herbicide injury in canola
Gan	AAFC	Optimizing the production of Brassica Juncea canola, in comparison with other Brassica species, in different soil climatic zones
Kutcher	AAFC	Optimizing canola production: pest implications of intensive canola rotations
Sequin-Swartz	AAFC	Development of stem rot resistant Brassica Napus canola for Western Canada
Falk	AAFC/SRC	Developing high yielding Brassica Rapa cultivars with resistance to brown girdling root rot, blackleg, white rust and clubroot
	CCC	Canola Council of Canada Variety Testing (\$10,000 for one year subject to receipt of a proposal and budget)
	CSALE	A guide to addressing on-farm liability
	U of S	Department of Animal and Poultry Science Project: "Amino acid utilization and peripheral tissue metabolism in ruminants fed full-fat canola based diets"

## 2003 Research Initiated

*Author                      Organization                      Research Title*

No projects were started in 2003

## 2002 Research Initiated

*Author                      Organization                      Research Title*

Soroka                      AAFC                      Strategies for managing flea beetle and other pest insect populations in canola

McClay	ARC	Field evaluation of a gall mite for biological control of false cleavers
Footit/Mason	AAFC	Assessing genetic diversity of lygus pest species in crop and noncrop habitats
Holliday	U of M	Classical biological control of root maggots in canola: assessment of control agents
Brandt	AAFC	Evaluating the agronomic and economic value of high quality canola seed

## 2001 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Elliott	AAFC	Factors influencing germination, seed vigor and agronomic performance of canola
Flaten	U of M	Optimizing canola production: fertilization, crop protection and genetic yield potential
Pelcat	IHARF	Determining the contribution of crop plant populations, weeds and plant diseases to yield variability in canola on a field scale basis
Dosdall	U of A	Integrated management of the cabbage seedpod weevil and overwintering biology of canola pests
McIntosh	NARF	No-till seeding of canola using the rotary harrow
Olfert	AAFC	Impact of thrip populations in canola
Reaney	U of S	Utilization of canola for fugitive dust control
Reaney	U of S	Isolation of the canola lubricity factor

## 2000 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Irvine	AAFC	Improving disease management using planned limited tillage
Lange	AAFC	Identification & quantification of a new canola wilt
Carcamo	AAFC	Management of lygus bugs & cabbage seedpod weevils

Buckley	AAFC	Biochemical test for low seedling vigor
Gan	AAFC	Optimizing seedling establishment of late fall seeded canola in the water-limited, heat and drought stressed environments
Oystryk	ECRF	Seeding dates, tillage systems and fertilizer placement in fall and spring seeded canola
Brandt	AAFC	Determining the barriers to higher canola yields in SK, an extensive analysis and a closer look at heat stress
Kutcher	AAFC	The relationship between lodging resistance and sclerotinia stem rot tolerance
Shirtliffe	U of S	Reducing the occurrence of volunteer canola as a weed
Rimmer	AAFC	A genomics approach to sclerotinia resistance in Brassica Napus

### 1999 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Kutcher	AAFC	Pathogenic and genetic variability of blackleg across the Canadian prairies
Rimmer	AAFC	Effect of herbicides and disease resistance on survival and inoculum production of <i>Leptosphaeria maculans</i> , the cause of blackleg
Dosdall	U of A	Biology and control of the cabbage seedpod weevil
Kharbanda	ARC	Biocontrol of economically important diseases of canola using a bacterium
Leach	NARF	Demonstration of fall seeded canola vs. spring seeded canola
Cutforth	AAFC	Seeding management to increase and stabilize canola production in the semiarid prairie
Brandt	AAFC	Management for maximum yield of open pollinated and hybrid canola
Kutcher	AAFC	Effect of fall and early spring seeding on diseases of canola

## 1998 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Mason		Identification of pest populations of lygus species and their parasites in canola
Brandt	AAFC	Canola yield decline project
Elliott	AAFC	Insect resistance and agronomic performance of canola
Malhi	AAFC	Improving low canola yields with balanced and efficient nutrition
Wolf	AAFC	Spray application methods to maximize sclerotinia control in canola with foliar fungicide
Elliott	AAFC	Factors limiting germination, emergence <sup>4</sup> and vigor of canola
Zatylny	CCC	Development of a canola insect pest forecast model
Brandt	AAFC	Canola rotational study

## 1997 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Morrison	AAFC	UV-B radiation tolerance of canola
Dosdall	U of A	Evaluation of the role of elemental sulfur and sulfate in the integrated management of root maggots in canola
Zatylny	CCC	CD ROM canola manual

## 1996 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Kirkland	AAFC	Management of fall and early spring seeded herbicide tolerant canola in the prairie region
McClay	ARC	Biological control of false cleavers with a gall mite
Kharbanda	ARC	Influence of tillage on blackleg and other diseases of canola in rotation with barley

Miller	AAFC	Developing profitable canola production strategies for the semi-arid prairie
Olfert	AAFC	Surveys for the yield impact of root maggots in canola and resistance potential of new germplasm
Zatylny	CCC	Coordinated canola disease survey

## 1995 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Maze	AFMRC	Effectiveness of double shoot openers for applying anhydrous ammonia
Schoenau	U of S	Low cost alternative sulphur fertilizers for canola production
Dosdall	U of A	The effect of conventional versus zero tillage with different agronomic practices on insect pests of canola
Thomas	Alberta Ag.	Canola database for FBMI-net
Elliott	AAFC	Reduced pesticide inputs for flea beetle control in canola and mustard
Issauralde	U of A	Temperature, spacing and seed vigor effects of direct seeded canola
Germida	U of S	Nitrogen fixing rhizobacteria and biofertilizers for canola
Henry	U of S	Seed placement of nitrogen for canola
Hultgreen	PAMI	Performance of side banded openers
Soroka	AAFC	Video - Control of insect pests of canola
Duczek	AAFC	Alternaria blackspot
McKinnon	U of S	Nutritional Evaluation and processing of canola screenings

## 1994 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
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Varma	AEC	Biological control of stinkweed with a fungal pathogen
Blenis	U of A	Blackleg control through enhanced straw decomposition
Lamb	U of A	Estimating the abundance of lygus bugs in canola fields
Clayton	AAFC	Tillage and N management related to canola yield, quality & diseases
Clayton	AAFC	Blackleg of canola: influence of tillage practices and residue composition

### 1993 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
McMullan	AAFC	Adjuvants to reduce sodium bicarbonate antagonism of sethoxydim and clothodim
Kharbanda	AEC	Control of blackleg in canola
Hultgreen	PAMI	Effect of seed placed nitrogen and row space on direct seeded canola
Hume	U of G	Stress protection of spring canola
Hultgreen	PAMI	Green seed chlorophyll reduction in harvested canola

### 1992 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Holm	U of S	Effect of water quality on post-emergence grass herbicide efficacy
Hultgreen	PAMI	No-till seeding of canola using the rotary harrow
Downey	AAFC	The effect of temperature and precipitation on yield and quality
Kirkland	AAFC	The effects of winter annual weed control
Derkson	AAFC	Direct seeded canola production in the black soil zone

### 1991 Research Initiated

<i>Author</i>	<i>Organization</i>	<i>Research Title</i>
Keller	PBI-NRC	Project 9217

Townley-Smith AAFC/SRC

Tillage, fertilizer and herbicide effects on weeds in canola