



Varieties of Grain Crops 2010

Crop Production Areas



The cropland of Saskatchewan has been divided into four areas based roughly on agro-climatic conditions. Crop yields can vary from area to area. In choosing a variety, producers will want to consider the yield data in combination with marketing and agronomic factors.

Area 1: Drought is a definite hazard and high winds are common. Sawfly outbreaks often occur in this area. Cereal rust may be a problem in the southeastern section.

Area 2: Drought and sawfly may be problems in the western and central sections of the area. Cereal rust may be a problem in the southern section.

Area 3: Sawfly can also be a problem. Drought is not as likely to be a problem in this area, particularly in the east. Cereal rust may occur in the eastern portion. The frost-free period can be fairly short in the northern section.

Area 4: Rainfall is usually adequate for crop production. However, early fall frosts and wet harvest conditions are frequent problems.

Note About Dividing Lines:

The dividing lines do not represent distinct changes over a short distance. The change from one area to another is gradual.

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Symbols Used in 2010 Seed Guide:

- § Variety may not be described in 2011
- Insufficient test data to describe
- ☉ Plant Breeders' Rights at time of printing
- ☼ Applied for PBR protection at time of printing

Abbreviations used:

Relative maturity: VE = Very Early, E = Early, M = Medium, L = Late, VL = Very Late

Resistance: VG = Very Good, G = Good, F = Fair, P = Poor, VP = Very Poor, n/a = not applicable

Seed size: S = Small, M = Medium, L = Large

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Testing Varieties in Saskatchewan

By Saskatchewan Ministry of Agriculture

Regional testing of crop varieties is conducted to provide producers with information on the agronomic performance of varieties under different agro-climatic conditions. Saskatchewan producers will continue to have the opportunity to evaluate the newest grain crop varieties and their suitability for production in different regions of the province.

Saskatchewan Ministry of Agriculture provides \$100,000 towards a testing program that is based on industry-government partnership. An entry fee system is used in which variety owners or companies with the distribution rights to a particular variety pay a portion of the cost of having the variety tested. The Saskatchewan Seed Growers' Association also provides \$5000 to the program.

A long term database is developed providing comparisons to a commonly grown check variety. The data include information on yield, various agronomic factors, and certain market related traits.

The Saskatchewan Variety Performance Group (SVPG) administers the program. SVPG is composed of representatives from individual organizations with an interest in providing variety testing information.

SeCan Association administers the funds for SVPG. Crop coordinators manage the data and provide expertise for their respective crops.

The results of the testing are reviewed by the Saskatchewan Advisory Council on Grain Crops (SACGC), which also updates disease and other agronomic information, and approves the data prior to inclusion in this publication.

The Saskatchewan Ministry of Agriculture grant also provides some support to programs that test pulses, canola and canary seed. The testing information from these crops is included in this publication.

Relative yield of varieties

Trials are conducted using uniform protocols and standard check varieties. Data are collected from as many sites as are available and statistically analyzed. Results in this publication are aggregated over a number of years and on an area basis.

Grain yield is a function of genetic and non-genetic factors. Variety trials are designed to measure the yield differences that are due to genetic causes. It is important to minimize variability due to non-genetic factors such as moisture, temperature, transpiration, weeds, diseases, and other pests. Experimental design uses replication (repeated plantings of the

varieties) and randomization (the position of the varieties within the test is assigned by chance) to estimate the precision with which the genetic factors can be measured.

Relative yield is the yield of one variety expressed as a percentage of the check variety. Yields obtained in these trials are not identical to those obtained in commercial production. However, the relative ranking of these varieties compared to the check variety, obtained over a number of years at several locations, would remain the same regardless of whether the grain yield was measured in small plots or large-scale fields. Relative yield is the best estimate of expected yield advantage in the areas indicated.

Relative Maturity

Ratings

Maturity is measured from seeding to swathing ripeness. The actual number of days to reach maturity depends on local climatic conditions and to some extent on management practices.

Some of the tables in this booklet express the relative maturity in days while others use a five category scale: VE, E, M, L, and VL (very early, early, medium, late, very late). The limits for each category can vary from crop to crop. In barley, for example, AC Metcalfe would be medium with L and E varieties plus or minus 1-2 days, and VL and VE varieties beyond this range.

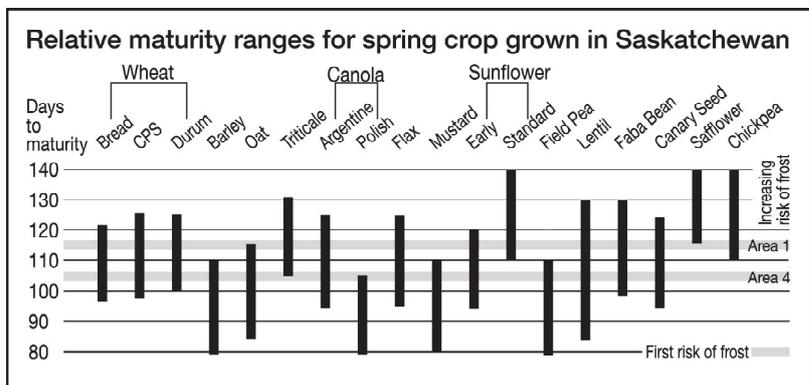
Comparisons

The relative maturity of varieties of different crops is important when making plans for seeding.

The table below compares the relative maturity ranges for crops grown in Saskatchewan.

Within each crop there are early and late maturing varieties. Whether a crop matures before the first killing frost depends on seeding date, management practices and environment factors. Not all crops have a wide area of adaptation.

It is noted that climatic conditions can cause a wide variability in crop maturity.



Plant Disease Resistance

Resistance to the most important diseases in Western Canada is assessed in most crops before the variety is registered. The methods used to assess resistance in each crop are different. In some cases, spores of the pathogen are applied to plants in the greenhouse or in the field. In other cases, assessment is based on naturally occurring infection in the field. Each variety is rated on a five-point scale of very poor (VP), poor (P), fair (F), good (G), very good (VG). New varieties are not tested side-by-side with all existing varieties.

Because of variation in disease levels from year to year, each new variety is assigned a rating relative to a few existing varieties that serve as disease level standards or checks. Varieties differ in resistance because of differences in their genetic make-up and/or differences in the genetic make-up of the pathogen that causes the disease. However, the genetic make-up of a pathogen can change over time, and overcome the resistance in a variety. In such cases, a variety with good resistance can quickly display poor resistance to a

particular disease. Unfortunately, because not all varieties are tested side-by-side every year, the ratings of older varieties may be less reliable.

A number of factors can affect the level of disease symptoms observed at a given location in a given year. Environmental conditions such as moisture and temperature, the genetic make-up of both the variety and the pathogen, and the amount of the pathogen present can all affect the level of disease. Although a variety with fair resistance can show disease symptoms under favourable conditions, a susceptible variety would have much more disease under the same conditions.

For example, ascochyta blight of chickpea is a very aggressive fungal disease. It can completely kill susceptible varieties within two weeks of symptoms first appearing. Chickpea varieties grown commercially in Saskatchewan to date have ascochyta blight ratings from very poor to fair. This resistance weakens as plant development nears the flowering stage. Cool, moist environmental conditions favour the disease, and if these conditions persist early in the growing season, the disease symptoms can occur much earlier than the flowering stage. This is especially true on chickpea grown outside the Brown Soil Zone (the area of best adaptation) or on heavy textured soils such as clays and clay loams.

In these conditions, varieties with ascochyta blight resistance ratings of very poor to poor do not show resistance to ascochyta and can be defoliated, with girdled branches and dead plants. If conditions turn warm and dry, the diseased plants can re-grow from auxiliary nodes, often producing flowers and pods. However, these late pods and seeds will most likely be frozen in the first fall frost and have no commercial value.

What is Plant Breeders' Rights?

Plant Breeders' Rights provides a way to assure that companies and institutions that invest in plant breeding are able to keep reasonable control of their varieties and secure fair compensation for their efforts. This encourages additional investment in crop variety development for Canadian farmers.

Plant Breeders' Rights for crop variety developers are comparable in many ways to patent protection in other

areas. When a plant breeder develops a new variety for use in Canada they may apply under the Plant Breeders' Rights Act to obtain certain controls over the multiplication and sale of the seed of that variety. Sale, trade or any other transfer of the seed for propagation purposes is prohibited by law without:

- 1) the written permission of the breeder or their agent, and
- 2) payment of a royalty to the breeder or their agent.

Under PBR, farmers are allowed to save seed of the variety for their own use, on their own farms.

Varieties protected by Plant Breeders' Rights are identified with the above logo.

Further information on Plant Breeders' Rights can be obtained from the Plant Breeders' Rights Office, tel. (613) 221-7522, fax (613) 228-4552.



Wheat

Main Characteristics of Varieties

Variety	Years Tested	Area 1 & 2	Area 3 & 4	Irrigation	Protein	Resistance to:										Relative Maturity in days	Head Awed-ness	Seed Weight (mg)	Volume Weight** (Kg hL-1)	Height (cm)
						Lodging	Sprout-ing	Stem Rust	Leaf Rust	Stripe Rust*	Loose Smut	Bunt	Leaf Spot	Fusarium Head Blight						
Bread Wheat		Yield as % of AC Barrie															Relative to AC Barrie			
AC Barrie ☺	11	100	100	100	14.8	G	G	G	P	P	G	F	P	F	100	N	36.0	79.9	93	
CDC Abound *	7	109	106	---	-0.3	G	F	G	P	---	F	F	P	VP	2	Y	+2.4	-0.3	-10	
CDC Alsask *	4	107	106	---	+0.2	F	G	G	VG	F	G	G	P	P	-1	N	-0.3	-1.3	-1	
Alvena ☺	4	105	104	---	+0.2	G	F	G	F	---	G	G	---	P	-2	N	-1.1	0.0	0	
CDC Bounty	5	104	106	---	-0.1	F	G	G	F	---	G	F	P	F	-1	N	-0.2	+1.6	+8	
AC Cadillac ☺ §	7	102	102	98	-0.2	F	F	G	G	F	VG	VG	P	F	-1	N	+1.3	+1.7	+7	
Carberry *	2	117	108	---	-0.3	VG	F	G	VG	---	G	VG	P	G	+3	Y	+1.2	+1.2	-12	
AC Elsa ☺	7	103	104	97	-0.1	G	F	G	G	F	G	F	F	P	-1	N	-2.4	-0.5	-1	
Fieldstar VB ***	6	109	109	---	-0.3	F	G	G	VG	---	F	G	---	F	0	Y	-2.1	+0.7	3	
Glenn ☺	2	107	112	---	-0.3	VG	F	G	VG	---	F	F	F	F	+3	Y	-1.7	+1.9	-4	
CDC Go	4	102	103	---	-0.1	G	P	G	F	---	P	G	VP	P	-1	Y	+3.6	-0.3	-6	
Goodeve VB ***	6	109	111	---	-0.1	VG	G	G	G	F	G	P	F	VP	-2	N	+0.8	-0.9	-2	
Harvest ☺	6	101	104	---	-0.4	VG	VG	VG	G	---	G	F	P	VP	-1	N	-0.4	+0.1	-6	
Helios ☺	4	102	101	101	0.0	G	G	G	P	---	VG	G	P	F	-2	N	-0.7	-0.4	0	
CDC Imagine ☺	5	98	102	---	-0.1	G	F	F	F	F	G	G	P	VP	0	N	-1.7	-1.8	-3	
Infinity ☺	7	107	106	---	-0.2	G	G	G	G	---	G	F	F	VP	-1	N	-2.8	-0.6	-1	
AC Intrepid ☺	5	101	104	102	-0.3	G	P	G	G	G	F	G	P	P	-3	N	-0.2	-0.4	+2	
KANE ☺	5	104	104	---	-0.2	G	VG	G	VG	---	P	F	F	F	1	Y	-0.5	+1.4	-5	
Lillian ☺	6	103	100	---	+0.2	F	G	G	VG	G	F	G	F	VP	0	N	-0.3	-1.1	-1	
McKenzie	6	107	103	109	-0.4	F	G	G	VG	P	VP	VG	P	F	-1	Y	-1.5	+0.1	+1	
Muchmore *	2	121	105	---	-0.7	VG	F	G	VG	---	G	VG	P	P	+3	Y	+1.3	0	-15	
CDC Osler	3	101	105	---	-0.3	G	F	G	G	---	G	G	F	VP	-1	N	-3.7	-0.7	-2	
Somerset ☺ §	4	105	101	---	+0.1	G	G	G	G	---	G	F	P	P	-1	N	+1.1	-2.4	+6	
Stettler *	2	116	113	---	+0.1	G	G	G	P	---	G	G	P	P	+1	Y	-0.6	0.0	-6	
Superb ☺	6	109	109	---	-0.4	G	G	G	P	P	F	G	VP	P	+3	Y	+2.6	-0.5	-7	
CDC Teal	7	101	101	99	-0.1	G	P	G	G	F	G	F	P	VP	-2	N	-1.2	-0.3	0	
Unity VB ***	6	114	120	---	-0.7	F	G	G	VG	---	P	VG	P	P	0	Y	-0.6	+1.0	+1	
Waskada *	6	115	112	---	-0.3	F	G	G	F	---	G	G	P	G	+1	Y	+0.3	+1.4	+4	
WR859CL *	2	114	104	---	-0.3	G	G	G	VG	---	VG	VG	P	G	0	Y	-2.2	0.0	-7	
5602HR ☺	6	103	104	---	+0.1	F	F	G	VG	F	G	G	P	G	+1	Y	0.0	+1.6	+1	
5603HR *	2	111	113	---	-0.7	G	VG	G	VG	---	P	F	G	F	+3	Y	-2.7	-2.0	+1	
Canada Prairie Spring - Red Seeded																				
AC Crystal ☺	11	118	115	110	-1.3	VG	P	G	P	P	P	VG	F	VP	+3	Y	+4.9	-0.1	-11	
AC Taber §	5	119	118	116	---	VG	P	G	F	P	P	VG	F	VP	+4	Y	+4.5	-0.5	-11	
5700PR ☺	5	115	120	115	-1.2	VG	F	G	F	P	P	G	P	VP	+2	Y	+6.8	+1.1	-16	
5701PR ☺	4	108	110	105	-0.6	G	F	G	VG	G	P	F	F	VP	+2	Y	+8.9	+0.9	-13	
5702PR *	3	129	128	---	-1.7	G	F	F	G	P	P	F	F	P	+1	Y	+8.5	0.0	-10	
Canada Prairie Spring - White Seeded																				
AC Vista ☺	9	122	121	113	-1.5	G	F	G	P	F	P	VG	P	VP	+1	Y	+6.7	-2.1	-9	
Hard White Wheat																				
Kanata ☺ §	5	91	93	---	0.0	VG	F	F	G	P	F	P	P	F	-2	N	-1.9	-0.1	-6	
Snowbird ☺	5	99	102	---	-0.6	G	G	G	F	---	G	F	P	P	+2	N	-1.8	-0.4	+1	
Snowstar ☺	3	105	108	---	-1.2	VG	G	VG	G	---	P	P	P	P	0	N	-3.4	+1.5	-10	
Soft White Spring																				
AC Andrew	3	136	137	129	-3.5	G	P	G	P	---	P	P	---	F	+5	Y	+0.7	-1.8	-9	
Bhishaj	5	128	---	128	---	G	---	P	F	---	F	P	---	VP	+3	Y	-4.2	-2.0	-7	
Sadash ☺	2	141	---	---	-4.2	VG	P	F	F	G	P	VP	---	P	+5	Y	+0.7	+0.6	-6	
Canada Western Extra Strong																				
CDN Bison	2	119	122	---	-0.8	G	F	G	G	---	VG	F	F	F	+3	Y	+6.6	-0.4	-6	
Burnside	4	95	98	---	-0.1	F	G	G	G	---	VG	F	P	P	0	N	+3.6	-0.4	+6	
Glencross VB ***	2	110	117	---	-0.5	F	F	G	G	---	VG	F	P	VP	-1	N	+7.2	-2.5	+7	
CDC Rama	4	107	107	---	-0.2	F	G	G	G	G	VG	G	P	F	+2	Y	+7.5	+1.0	+7	
CDC Walrus	3	102	101	---	-0.3	F	G	G	G	---	VG	F	P	P	+2	N	+5.3	-0.2	+7	
Canada Western General Purpose																				
Minnedosa *	2	112	117	---	---	G	F	G	VG	---	F	VG	P	P	+1	Y	+6.7	-2.1	-9	
Durum Wheat		Yield as % of Strongfield															Relative to Strongfield			
Strongfield ☺	7	100	100	100	14.5	F	F	VG	VG	G	P	VG	F	VP	99	Y	42.1	79.2	89	
AC Avonlea ☺	6	95	96	---	-0.1	F	F	VG	VG	---	P	VG	F	VP	0	Y	+0.1	-0.8	+3	
Brigade *	2	103	109	---	-0.8	G	F	VG	VG	---	P	VG	F	P	+2	Y	+1.1	+0.3	+6	
Commander ☺	4	105	96	---	-0.6	G	F	VG	VG	---	P	VG	P	VP	0	Y	+2.0	-0.8	-12	
Enterprise *	2	104	98	---	-0.1	F	F	VG	VG	---	P	G	F	P	0	Y	-3.2	+0.6	+2	
Eurostar *	2	98	102	---	-0.3	F	F	VG	VG	---	P	VG	F	P	+2	Y	+0.6	+0.8	+4	
Kyle	6	89	91	---	-0.3	P	F	VG	VG	G	P	VG	P	VP	+1	Y	-0.5	-0.6	+12	
AC Navigator ☺	6	98	90	---	-0.7	G	F	VG	VG	G	P	VG	VP	VP	+2	Y	+1.6	+0.1	-9	
CDC Verona *	2	100	104	---	-0.3	G	F	VG	VG	---	P	VG	F	P	+2	Y	+0.1	-0.2	+1	

☺ Includes direct and indirect comparisons with AC Barrie

* stripe rust data are preliminary

** multiply by 0.8 = lbs per bushel

*** VB varietal blend

Additional Information

The Western Grains Research Foundation has co-ordinated the establishment of a web based tool to make comparisons among varieties on a prairie wide basis. <http://www.pvttrials.com>.

Varieties in the General Purpose market class are intended for ethanol and livestock feed purposes.

Grain yield, protein content, time to maturity, seed weight, volume weight, and plant height of all varieties of common wheat are compared to **AC Barrie**. The grain yield, protein content, time to maturity, seed weight, volume weight, and plant height of all durum varieties are rated relative to **Strongfield**.

Most varieties have been rated for their relative resistance to pre-harvest sprouting. Under wet post-maturity conditions varieties rated poor would have reduced ability to retain Hagberg Falling Number values relative to those rated good or very good. Varieties with high test weight retain grade better under adverse harvest weather than those with low test weight. During wet harvest weather, grades drop more rapidly due to sprouting in swathed than in standing crops.

New races of leaf rust continue to evolve, so leaf rust resistance in varieties changes year to year. The seed guide contains the most up-to-date information on leaf rust resistance in current varieties. Early seeding may minimize risk of crop losses for varieties sown in southeastern Saskatchewan that are rated poor or very poor to leaf rust.

All varieties are at least moderately resistant to shattering. All varieties have moderately good resistance to common root rot.

Seed of varieties rated poor and very poor for bunt and loose smut should be treated with a recommended fungicide. Please refer to the Seed Facts section of this booklet or *Guide to Crop Protection, 2010*.

Canada Western Red Spring Wheat Goodeve VB, Unity VB and Fieldstar VB are CWRS wheat midge tolerant varieties. They contain the same "Sm1" gene for tolerance. To manage against the build-up of midge resistance to the gene, an "interspersed refuge" will be used commercially. These varieties are not immune to wheat midge and can suffer some midge damage when high midge infestation levels occur. See article about midge on Page11.

Seed of the new varieties **Carberry, Fieldstar VB, Helios, Muchmore, Stettler, and 5603HR** will not be available in 2010. Limited quantities of seed of the new varieties **Goodeve VB, Unity VB, Waskada, and WR859CL** will be available in 2010.

Lillian has solid stem and some resistance to the wheat stem sawfly. **CDC Abound, CDC Imagine and WR859CL** are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX.

Canada Prairie Spring Wheat AC Crystal, 5700PR, 5701PR, and 5702PR have improved quality compared to **AC Taber**.

Canada Western Extra Strong Glencross VB is the first CWES wheat midge tolerant variety based on the "Sm1" gene (see above). Seed of the new variety **CDN Bison and Glencross VB** will not be available in 2010. Limited quantities of seed of the new varieties **Burnside and CDC Walrus** will be available in 2010.

Soft White Spring Wheat

Soft white spring wheat may have potential demand as a feedstock in the production of ethanol. All soft white spring wheat varieties are eligible for both domestic and export markets. Soft white spring wheat varieties are susceptible to pre-harvest sprouting. The leaf spot pathogens that affect other wheat classes also affect soft white cultivars and therefore recommendations for leaf spot control would be similar. Seed of **Sadash** will be available in 2010.

General Purpose

Seed of **Minnedosa** will not be available in 2010.

Canada Western Amber Durum

Seed of the new varieties **Brigade, Eurostar, Enterprise and CDC Verona** will not be available in 2010. Durum wheat varieties are generally more susceptible than CWRS varieties to Fusarium Head Blight. All durum varieties are susceptible to two new races of loose smut.

Commander and **AC Navigator** have strong gluten properties. They may be grown only under contract with the Canadian Wheat Board and Viterra.

The Saskatchewan Advisory Council on Grain Crops (SACGC) and the Saskatchewan Variety Performance Group (SVPG) coordinate, supervise and review the collection, analysis and reporting of information in this booklet.

Membership consists of representatives from:

- Saskatchewan Ministry of Agriculture
- Seed Companies
- Sask. Seed Growers' Association
- Producer Associations
- Agriculture and Agri-Food Canada
- Crop Development Centre
- Canada-Saskatchewan Irrigation Diversification Centre

SACGC and SVPG gratefully acknowledge the contributions of all individuals and organizations involved in the generation and publication of this information.

Winter Wheat

Main Characteristics of Varieties

Variety	Years Tested	Yield as % of CDC Clair			Resistance to:					
		Area 1 & 2	Area 3 & 4	Irrigation	Lodging	Winter Damage	Stem Rust	Leaf Rust	Bunt	
Accipiter ☼	3	---	112	127	VG	G	VG	G	P	
AC Bellatrix	8	99	97	---	G	P	VP	P	G	
CDC Clair	16	100	100	100	G	VG	P	P	P	
CDC Buteo	9	97	98	109	G	VG	G	G	P	
CDC Falcon	12	98	95	116	VG	F	VG	G	P	
CDC Harrier	13	102	99	109	G	G	G	P	P	
CDC Kestrel	16	101	101	103	G	VG	P	P	P	
CDC Osprey	16	100	99	93	G	VG	P	P	P	
CDC Raptor	10	99	100	112	VG	VG	VG	G	P	
McClintock ☼	9	97	98	111	G	P	VG	VG	P	
Peregrine	3	---	114	121	G	G	VG	G	P	
Radiant ☼	3	100	99	---	G	G	P	P	F	

Additional Information

Accipiter, **Peregrine** and **Broadview** are General Purpose winter wheat varieties with a hard red kernel.

Sunrise is a General Purpose winter wheat variety with a soft red kernel.

CDC Ptarmigan is a General Purpose winter wheat variety with a soft white kernel.

General Purpose winter wheat varieties are suitable for the ethanol and feed markets.

Rye

Main Characteristics of Varieties

Variety	Years Tested	Yield as % of Prima		Relative Maturity	Resistance to:		
		Area 1 & 2	Area 3		Winter Damage	Shattering	Lodging
Prima	19	100	100	M	VG	F	F
AC Rifle	19	98	89	M	VG	VG	VG
AC Remington	8	102	95	M	VG	VG	G
Hazlet	6	116	104	M	VG	VG	VG

Additional Information

Medium maturity of rye means that the variety will mature about July 31 in an early year, August 4 in a medium year and August 8 in a late year. An early variety would mature about July 27 in an early year, July 31 in a medium year and August 4 in a late year. Late varieties would mature about August 4 in an early year, August 8 in a medium year and August 12 in a late year. Wet and cool conditions during maturation can prolong maturity far beyond these dates.

Triticale

Main Characteristics of Varieties

Variety	Years Tested	Area 1 & 2	Area 3	Test Weight Kg hL ⁻¹	Relative Maturity	Resistance to:				
						Lodging	Stem Rust	Leaf Rust	Bunt	Root Rot
Spring Habit Yield as % of AC Certa										
AC Certa	18	100	100	73	M	G	VG	VG	VG	G
Bumper ☼	3	100	115	71	E	G	VG	VG	VG	---
AC Alta	13	105	100	68	L	G	VG	VG	VG	F
Bunker ☼	4	99	97	73	E	G	VG	VG	VG	---
AC Copia	13	100	97	72	M	G	VG	VG	VG	F
Pronghorn	18	100	102	68	E	G	VG	VG	VG	F
Sandro	10	105	102	73	E	G	VG	VG	VG	G
Tyndal ☼	4	106	102	73	E	G	VG	VG	VG	---
AC Ultima	14	103	103	69	E	G	VG	VG	VG	F
Winter Habit Yield as % of Pika										
Pika	6	100	100	68	E	F	---	---	---	---
Bobcat	6	86	86	66	M	G	---	---	---	---
Luoma	5	100	96	67	L	F	---	---	---	---

Additional Information:

Triticale matures 1-2 days later than **AC Crystal** CPS wheat, therefore it should be planted as early as possible. The seeding rate for triticale should be at least 30 percent more than that of CWRS wheat to obtain the same number of plants per square foot. Susceptibility to fusarium head blight is at least as great in triticale as in wheat. **AC Ultima** has improved Hagberg Falling Number.

Winter triticale has winter hardiness equal to that of winter wheat. **Tyndal** and **Bunker** spring and **Bobcat** and **Luoma** winter triticales are awnletted.

All triticale cultivars are susceptible to ergot infection and similar in reaction. Severe infestation of ergot can occur in any of the available cultivars if environmental conditions are favourable.

Malting Barley

Main Characteristics of Varieties

Category and Variety	Years Tested	2 or 6 Row	Rough or Smooth Awns	Yield as % of AC Metcalfe		Relative Maturity*	Lodg- ing	Resistance to:										Fusarium Head Blight
				Area 1 & 2	Area 3 & 4			Net-Form Blotch**	Net Blotch	Spot-Form Net Blotch	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust		
Malting acceptance: Recommended																		
AC Metcalfe ☼	11	2	R	100	100	M	G	VP	F	F	P	VG	F	F	G	F		
CDC Copeland ☼	8	2	R	107	108	M	G	F	F	VP	P	P	F	F	G	F		
CDC Kendall ☼	11	2	R	101	102	M	G	F	G	VP	P	P	P	G	P	F		
Newdale ☼	6	2	R	112	113	M	G	F	G	F	P	VP	G	G	G	F		
Legacy ☼	6	6	S	104	101	M	G	VP	G	G	P	F	G	G	G	P		
Tradition ☼	5	6	S	112	107	M	VG	VP	F	G	P	VP	G	G	G	VP		
Malting acceptance: Under Test																		
Bentley ☼	4	2	R	114	114	L	G	P	VG	F	P	P	G	F	G	P		
CDC Landis ☼	4	2	R	110	108	M	G	F	VG	F	P	VP	G	P	G	F		
Major ☼	3	2	R	109	115	M	G	F	G	VP	VP	VG	G	P	F	F		
CDC Meredith ☼	4	2	R	116	112	L	G	P	VG	P	P	VG	G	F	G	F		
Merit 57 ☼	4	2	R	110	106	L	G	P	VG	P	F	VP	F	G	F	P		
Norman ☼	4	2	R	104	104	M	G	P	VG	VP	P	VP	VP	P	VP	F		
CDC Reserve ☼	4	2	R	111	107	M	G	VP	VG	P	P	VP	P	F	P	P		
CDC Clyde ☼	8	6	S	110	106	M	VG	F	G	VG	P	F	VG	G	G	VP		
CDC Kamsack ☼	4	6	R	101	106	M	G	VP	F	G	P	F	VG	P	G	VP		
CDC Laurence ☼	6	6	S	117	110	M	G	P	G	G	P	P	G	P	P	VP		
CDC Mayfair ☼	4	6	R	104	108	M	G	P	G	F	P	VP	VG	P	G	P		
Other ***																		
Harrington	11	2	R	95	89	M	F	VP	P	VP	P	P	P	F	P	G		
CDC Battleford ☼	6	6	S	108	108	M	G	P	VG	VG	P	P	G	G	G	VP		
Lacey ☼	4	6	S	101	101	M	G	VP	F	VG	P	F	G	G	G	VP		
Robust §	8	6	S	94	97	M	G	VP	P	G	P	F	F	F	G	VP		
CDC Yorkton ☼ §	8	6	S	100	107	M	G	F	G	G	P	P	G	G	G	VP		

☼ These categories are established annually by the Canadian Malting Barley Technical Centre (Call 204-984-4399 for more information)

* Relative maturity: The relative maturity of the check, **AC Metcalfe**, is M (on average, 91 days from seeding to swathing ripeness)

** There are two forms of net blotch, the net-form (*Pyrenophora teres f. teres*) and spot-form (*Pyrenophora teres f. maculata*). Generally, in Saskatchewan the net-form is more prevalent.

*** Although not on the CMBTC list, a malting barley market may exist for these varieties.

Lines Under Test for Malting and Brewing Quality

Small scale tests are a good measure of malting potential but are not sufficient to determine the commercial acceptability of malting varieties. Final acceptance is given only after two years of successful plant scale evaluation. Several carload lots of barley are malted and brewed. The beer is then given the ultimate test – a taste panel. This process normally takes a minimum of three years since a crop grown in one year will be malted in January-February, brewed in May-June, and aged and tasted in October-November of the following year.

Additional Information

Growers are reminded that the malting and brewing industry is cautious about using new varieties.

Growers are cautioned that most malting varieties, especially two-row barley, are more susceptible to sprouting.

Recommended Malting Barley Varieties 2010-11

These recommendations are based on the varieties expected to be selected by grain and malting companies for both domestic and export markets from the 2010 harvest. Seeding decisions should be based on agronomic considerations and feedback from your grain company representative, local elevator operators and malting companies. This list is published on behalf of the members of the CMBTC, and other companies that have provided their input. Varieties not listed are not recommended. The varieties are listed in descending order to the amount selected in 2009.

Recommended Two-Row Barley Varieties

VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
AC Metcalfe ₄	Established	Established	Stable, High Demand
CDC Copeland ₄	Established	Established	Stable Demand
CDC Kendall ₁	Established	Established	Stable Demand
Newdale ₃	Limited	Limited	Stable Demand

Bentley, CDC Landis, Major, CDC Meredith, Merit 57, Norman, and CDC Reserve are not yet being grown for the commercial market. Production is limited to quantities required for testing and market development. CDC PolarStar will reach commercial scale levels this year.

Recommended Six-Row Barley Varieties

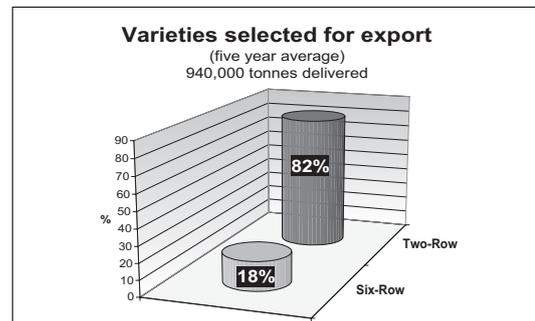
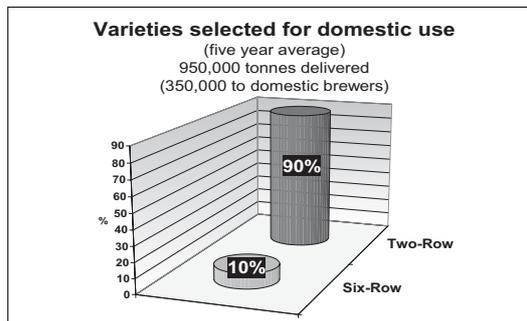
VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
Legacy _{1,2,3}	Established	Established	Declining Demand
Tradition _{1,2,3}	Established	Established	Declining Demand
Stellar-ND ₅	Limited	Limited	Increasing Demand

Celebration, CDC Clyde, CDC Kamsack, CDC Laurence, and CDC Mayfair are not yet being grown for the commercial market. Production is limited to quantities required for testing and market development. Please talk to local malting company selector in regards to demand for CDC Battleford and Robust. Canadian registration is still pending for Celebration and Stellar-ND.

The CMBTC recommends the use of Certified seed to ensure varietal purity and to increase opportunity for selection.

The following companies have pedigreed seed distribution rights for those varieties that are footnoted:
1-Viterra; 2- BARI-Canada; 3 – FP Genetics; 4 - SeCan; 5 - Canterra

"Domestic" as used in this publication, means barley selected for domestic processing into malt to supply domestic brewers as well as for malt destined for export. "Export" is that malting barley designated for markets outside of Canada including the U.S., shipped as unmalted grain.



CMBTC Members: AB-InBev, Alberta Agriculture, Alfred C. Toepfer (Canada) Ltd., Canadian Grain Commission, Canadian Wheat Board, Cargill AgHorizons, FP Genetics, Manitoba Agriculture, Manitoba Liquor Control Commission, Parrish and Heimbecker, Prairie Malt Limited, Prairie West Terminal, the Public Barley Breeders, Rahr Malting Canada, Richardson International, Saskatchewan Agriculture, SeCan and Viterra.

Other organizations providing input to this list: BMBRI

Questions? Call your selector, seed company, grain handling company or the Canadian Wheat Board, or contact the CMBTC at 204-984-4399 (cmbtc@cmbtc.com).

Feed and Food Barley

Main Characteristics of Varieties

Category and Variety	Years Tested	2 or 6 Row	Rough or Smooth Awns	Yield as % of AC Metcalfe		Relative Maturity*	Lodging	Resistance to:								
				Area 1 & 2	Area 3 & 4			Net-Form Blotch**	Spot-Form Net Blotch	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	Fusarium Head Blight
Feed																
CDC Austenson	4	2	R	116	120	M	G	P	VG	G	VP	VP	VG	F	F	F
CDC Bold	7	2	R	111	112	L	G	VP	F	VP	G	P	G	G	G	VP
Busby	3	2	R	104	108	E	G	P	G	P	F	VP	VG	VP	F	F
Champion	7	2	R	117	116	M	G	VP	F	P	VP	VP	VG	G	F	F
CDC Coalition	7	2	R	111	114	M	VG	VP	G	F	P	VG	G	F	G	F
CDC Cowboy	6	2	R	99	105	L	F	F	G	F	P	P	G	F	G	G
CDC Dolly	11	2	R	103	103	E	G	VP	P	P	F	VP	F	F	F	G
Formosa	3	2	R	100	103	--	--	--	--	--	--	--	--	--	--	--
CDC Helgason	7	2	R	105	106	M	G	G	G	F	P	VG	G	F	F	P
McLeod	6	2	R	108	114	M	G	VP	F	VP	P	VP	VG	F	P	F
CDC Mindon	6	2	R	104	102	M	G	VP	G	F	VP	VG	VG	F	F	G
CDC Trey	5	2	R	104	110	M	G	F	VG	F	P	P	VG	G	G	F
Xena	7	2	R	112	115	M	G	VP	F	VP	P	P	P	G	G	G
Chigwell	4	6	S	109	113	M	G	F	G	F	G	P	VG	VP	P	VP
Manny	7	6	S	111	107	M	F	P	F	P	VG	P	VG	P	P	P
AC Rosser	11	6	S	115	115	M	G	F	G	G	VP	P	G	G	G	VP
Sundre	5	6	S	120	116	L	G	P	F	F	VG	P	VG	P	F	VP
Hulless																
CDC Carter	3	2	R	96	99	M	G	F	G	F	P	VG	VG	VP	F	F
CDC ExPlus	3	2	R	87	97	M	VG	F	F	F	VP	P	P	VP	F	G
HB705	3	2	R	84	93	M	VG	P	G	F	VP	VG	F	P	F	G
CDC McGwire	8	2	R	98	99	M	G	F	G	F	F	P	G	G	F	G

* Relative maturity: The relative maturity of the check, **AC Metcalfe**, is M (on average, 91 days from seeding to swathing ripeness)

** There are two forms of net blotch, the net-form (*Pyrenophora teres f. teres*) and spot-form (*Pyrenophora teres f. maculata*). Generally, in Saskatchewan the net-form is more prevalent.

Forage Barley

Binscarth, **Desperado**, and **AC Ranger** are six-row forage varieties.

CDC Cowboy and **Stockford** are two-row forage varieties.

Hulless

In hulless varieties the hull is left in the field, therefore, comparable yields are 9-12 percent lower. Hulless seed is more susceptible to damage than hulled seed, so handling should be minimized.

Hulless Food

CDC Alamo, **CDC Candle**, **CDC Fibar**, and **CDC Rattan** are high beta-glucan waxy starch varieties for specialty markets.

CDC McGwire and **Millhouse** are two-row normal starch hulless barleys suitable for food use. For further information contact SeCan or FP Genetics, respectively.

Irrigation

Disease resistance, straw strength and maturity are more critical when barley is grown under irrigation. Growers should select early, strong-strawed, disease resistant varieties and should consider semi-dwarf varieties.

Feed and Food Barley (cont'd)

General Comments

Most available varieties are susceptible to one or more types of smut. Therefore, seed of susceptible varieties should be treated with a registered fungicide on a regular basis.

Harvesting grain over 16 percent moisture and then using aeration bins for drying can lead to sprouting and embryo death. Seed with reduced germination is undesirable for seed or malting.

Two-row barley varieties are generally more resistant to shattering than six-row varieties.

Oat

Main Characteristics of Varieties

Variety	Years Tested	-- Yield as % of CDC Dancer --		Test Weight (g/0.5L)	% Hull	% Plump	Relative Maturity*	----- Resistance to: -----			
		Area 1 & 2	Area 3 & 4					Lodging	Stem Rust	Leaf Rust	Smut
CDC Dancer	9	100	100	253	19.8	70	M	G	F	F	VG
Calibre §	8	97	99	246	23.6	39	M	F	VP	VP	P
SW Betania	7	105	105	245	22.0	67	M	G	VP	F	G
CDC Boyer	8	99	100	232	23.3	71	M	G	F	F	P
Derby §	8	98	102	247	22.9	65	M	G	VP	VP	P
Furlong	6	102	104	245	21.6	76	L	G	F	P	VG
HiFi	6	99	97	253	22.4	55	M	G	F	VG	P
Jordan	7	110	118	238	22.4	76	VL	G	F	P	VG
Leggett	7	103	104	256	22.0	71	L	G	F	VG	VG
Lu	6	102	103	248	25.2	47	E	G	VP	VP	G
CDC Minstrel	5	108	109	245	21.0	75	L	VG	F	P	VG
AC Morgan	8	104	108	236	25.1	54	L	VG	VP	VP	F
AC Mustang §	9	105	111	244	29.9	62	L	G	VP	VP	P
CDC Orrin	6	108	109	253	23.2	74	L	G	VP	VP	VG
Pinnacle	8	113	109	244	23.6	70	VL	F	F	P	VG
CDC Pro-Fi	5	98	92	245	19.8	72	M	G	F	P	F
Ronald	7	96	99	249	22.4	55	L	VG	F	P	VG
CDC Sol-Fi	6	93	94	246	22.2	50	M	F	VP	VP	G
Stainless	4	93	94	243	22.4	64	M	G	G	VG	VG
Summit	4	99	97	256	21.6	67	M	G	F	VG	VG
Triactor	5	109	116	240	22.8	66	L	G	P	G	VG
CDC Weaver	7	108	111	245	19.2	71	L	F	F	P	VG

* Maturity Rating M = 96 days

Additional Information

Although disease pressure is lower in eastern Saskatchewan than in Manitoba, leaf rust races capable of attacking most varieties, except **Leggett**, **HiFi**, **Stainless**, **Summit** and **Triactor** may be present in southeast Saskatchewan. Early seeding will reduce the likelihood of severe infection.

Furlong has brown hulls.

Forage Oat

CDC Baler and **Murphy** are forage oat varieties available for annual production in Saskatchewan.

Hulless Oat

Boudrias, **Bullion**, **AC Gwen**, and **Lee Williams** are hulless varieties available for production in Saskatchewan. The hull is part of normal oat yield, thus hulless types yield less. They are difficult to handle and should be stored at less than 12% moisture.

Wheat Midge

The wheat midge (*Sitodiplosis mossellana*) is a small fly that can cause significant damage to wheat crops. It is widely distributed in Saskatchewan and Manitoba, and adjacent northern US states. In recent years, significant damage has been reported in these areas. The midge larvae feed on developing wheat kernels, resulting in yield loss and/or grade reduction. The appearance of damaged kernels can range from being slightly misshaped to being completely shriveled. Tiny cracks in the seed coat can also occur. In some instances, this could promote sprouting, which releases enzymes that can interfere with the baking quality.

New Varieties with Improved Tolerance

Goodeve VB and Unity VB are Canada Western Red Spring (CWRS) varieties with tolerance to wheat midge, and will be available for commercial production in 2010. Two additional varieties, Fieldstar VB (CWRS) and Glencross VB (Canada Western Extra Strong), will be available in 2011. Wheat varieties with this tolerance show significantly less damage from feeding caused by wheat midge larvae, and consistently grade better under midge infestations compared to susceptible varieties.

Certified seed of Unity VB will be distributed through SeCan Members, while seed of Goodeve VP will be distributed through Alliance Seed Corporation.

Varietal blends will be used to preserve the technology. It took more than 15 years for researchers to transfer the single gene for midge tolerance (*Sm1*) into spring wheat and no other source of midge tolerance has been identified. Single gene tolerance has a history of becoming ineffective over time as insect populations change. Therefore an interspersed refuge system is necessary to prevent buildup of the virulent midge population.

The interspersed refuge system will be a varietal blend of 90 per cent tolerant and 10 per cent susceptible. An interspersed system means that the refuge variety will be evenly distributed throughout the field. This is different than other refuge management systems that may have the refuge grown in a block beside or within the same field. Since wheat midge mate at the site of emergence and are thought to be weak flyers, it was determined that an interspersed system was superior to other methods. Blending of the tolerant and susceptible varieties will generally occur at the Breeder seed stage of pedigreed seed production.

If midge tolerant varieties are grown in pure stands, the only surviving midge would carry a mutation for virulence against the

Sm1 gene. These surviving midge would mate with other surviving midge, thereby quickly building up a large population that can survive on these otherwise tolerant varieties. The purpose of the 10% susceptible portion of the blend is to provide a small refuge for the majority of the current population of midge. These non-virulent midge (non-virulent to the tolerant wheat varieties) will survive on the 10% susceptible plants and inter-mate with the midge that possess the mutation for virulence. The progeny of this inter-mating will be non-virulent, and the effectiveness of the gene will remain intact.

There will likely be a small amount of damage to the kernels of the tolerant varieties. This is a function of how the *Sm1* gene works. When the midge larvae begin to feed on the kernel, the *Sm1* gene causes the level of phenolic compounds (plant acids) to elevate more rapidly than in wheat kernels without the *Sm1* gene. The higher levels of phenolic compounds cause the midge larvae to stop feeding and the larvae starve to death. These phenolic compounds are naturally occurring and return to normal levels when the kernel is mature, thereby not affecting the quality of the harvested grain.

For more information on wheat midge and the stewardship of the *Sm1* gene, please see the midge tolerant wheat website at <http://www.midgetolerantwheat.ca/>.

Description of the pest

The wheat midge is about one-half the size of a mosquito. The adult midge lay eggs on the glumes of the wheat head. The most critical period is from the time the head becomes visible until flowering. Larvae emerge from the eggs and feed on the developing kernels. After feeding for two to three weeks, the larvae crawl off the wheat head and fall to the ground in order to burrow into the soil to over-winter. This usually occurs during damp conditions. The following spring, once temperature and soil conditions end the over-wintering period, the larvae become active and move to the soil surface to pupate. In late June and early July, the adult wheat midge emerge from the pupae, starting the cycle over again.

During the egg laying period, the adult midge remain within the crop canopy in the daytime where conditions are humid. During the evening, females become active at the top of the canopy, laying eggs on the newly emerged wheat heads. The female midge live for less than seven days and lay an average of 80 eggs.

Monitoring

Careful and regular monitoring of wheat fields between heading and flowering is necessary to identify an infestation. The field should be inspected in at least three or four locations. Infestations are sometimes higher at field edges, and low lying areas where moisture is higher.

Field inspection should occur within an hour of dusk when the female midge are most active. This generally occurs when the temperature is above 15°C and wind speed is less than 10 km/h. When wind speeds are greater than 10 km/h, egg-laying may still occur on lower heads that are sheltered within the crop canopy.

Pest Management – Biological, Cultural and Chemical

Biological

On the prairies, wheat midge populations can be maintained at tolerable levels by a small, 1 – 2 mm long parasitic wasp. The wasp lays its eggs inside the eggs of the midge, and starts to slowly grow inside the midge larva. The parasite remains dormant within the midge larva over the winter period, but in the following spring, it grows rapidly and destroys the midge larva.

Cultural

Midge populations will increase in continuous wheat cropping situations. Rotations with oilseeds and pulse crops, and other less susceptible cereal crops are recommended.

Chemical

When growing susceptible varieties, an insecticide application should be considered when economically warranted. One adult midge for every four to five wheat heads generally equates to a 10% yield loss. One adult midge for every eight to ten heads could possibly affect grade. Insecticides should be applied in the evening when female midge are most active; however, early morning applications may also produce acceptable results. Application during advanced stages of flowering is discouraged because plants at this growth stage are no longer susceptible, and larvae that are inside the florets are unlikely to be affected.

For more information on wheat midge and a forecast map, see the Saskatchewan Agriculture publications *Wheat Midge* and *Wheat Midge Forecast Map* on the Saskatchewan Agriculture website <http://www.agriculture.gov.sk.ca>.

Written and edited by Blaine Recksiedler, Dr. Ron DePauw and Jim Downey.

OTHER CROPS:

Buckwheat

Buckwheat is sensitive to high temperatures and dry weather conditions in the blossom stage which can reduce seed set and yields. New self-pollinated varieties are being released. Buckwheat is very susceptible to frost at all stages of growth. Delayed seeding is advisable to avoid spring frost.

Caraway

Caraway is a biennial spice crop, producing seed in the second year and sometimes in the third year. Seedlings are small, slow in developing and compete poorly with weeds. The crop is usually swathed because of its indeterminate growth habit and seed shattering. For more information, consult the Saskatchewan Agriculture publication, *Caraway in Saskatchewan*.

Coriander

Coriander is an annual spice crop. Seedlings are small, slow to develop, and compete poorly with weeds. The large seeded type is earlier maturing than the small seeded type. **CDC Major** is a large-seeded coriander variety and **CDC Minor** is a small-seeded variety. The crop is usually straight-cut to avoid wind damage in swaths. For more information, consult the Saskatchewan Agriculture publication, *Coriander in Saskatchewan*.

Fenugreek

Fenugreek is a leguminous spice crop adapted to dryland conditions in the Dark Brown and Brown soil zones. The crop should be seeded early to avoid yield and quality loss from fall frost. Contract production is advisable, as

markets are limited. For more information, consult the Saskatchewan Agriculture publication, *Fenugreek in Saskatchewan*.

Safflower

Safflower is an annual oilseed or birdseed crop which can be grown successfully in the Brown soil zone. Safflower must be sown early (late April).

Saffire matures in about 120 days. Seed should be planted shallow but into a firm, moist seedbed at about 30 kg/ha (27 lbs/ac). **Saffire** has moderate resistance to Sclerotinia head rot and Alternaria leaf spot. Contract production is advised.

AC Sunset has the earliness of **Saffire** combined with higher oil content and resistance to Sclerotinia head rot.

Canary Seed

Main Characteristics of Varieties

Variety	Type	No. of Trials	Yield as % of CDC Maria*	Days to Heading	Days to Maturity	Height (cm)	Test Weight (kg/hL)***	Weight per 1000 seeds (g)
CDC Maria	glabrous	75	100	55	95	93	71	7.3
CDC Togo	glabrous	68	110	1	1	1	-1	0.7
CDC Bastia	glabrous	63	112	1	0	2	0	0.0
Keet	hairy	75	119	1	1	4	-6	-0.3
Cantate**	hairy	18	123	0	2	-1	-6	0.3

* Yield data not collected by Area

** 2004-2009 data only

*** multiply by 0.8 = lb per bushel

No seed of CDC Bastia will be available in 2010

Additional Information:

The seed of annual canarygrass, more commonly called canary seed, is used as food for caged and wild birds. In head to head testing **Elias**, **Keet** and **Cantate** are similar in yield. **Elias** pedigreed seed has not been produced in recent years. Seeds and plants of **CDC Maria**, **CDC Togo** and **CDC Bastia** do not have the small sharp hairs that cause irritation when canary seed is threshed and handled and are called glabrous.

Canary seed plants have a dense, shallow root system and growing the crop on sandy soils is not recommended. Canary seed may be grown successfully on stubble, providing adequate moisture is available for rapid germination and emergence. The recommended seeding rate is 34 kg/ha (30 lb/ac) (germination greater than 85 per cent). Plant the seed 3.5 to 5 cm deep into a firm seedbed.

Canary seed is subject to damage by English grain aphid and bird cherry oat aphid. Aphid populations build up rapidly on leaves, stems and head of the plant in July and August and may require an insecticide application to prevent yield loss. Information from the United States indicates that infestations of 10 to 20 aphids on 50 per cent of the stems prior to soft dough stage may cause enough damage to warrant insecticide application. The aphids often hide in the dense head of the canary seed plant. Damage may occur at populations below these levels.

Canary seed leaf mottle is a foliar disease that can cause yield losses. Leaf mottle is caused by a fungus, *Septoria triseti*, that only affects canary seed. The disease is inconspicuous at early stages because there is little visual contrast between healthy and diseased leaf area. Stubble borne inoculum is the source of infection, thus crop rotation is key in limiting the severity of leaf mottle.

Canary seed is resistant to shattering. It may be straight-combined or swathed when fully mature. For more information on canary seed, consult the Saskatchewan Agriculture publication, *Canary Seed in Saskatchewan*.

GENERAL SEED FACTS

Pedigreed Seed

Use certified seed regularly. This assures that the seed has high genetic purity, high germination and is relatively free from weeds and other crop seeds.

Reuse of Hybrid Variety Seed

Seed grown from a hybrid variety (regardless of crop or variety) should not be reused since a 20 to 25% yield reduction can occur in the next generation. This reduction is due to loss of hybrid vigour and possible occurrence of male-sterile plants. Lack of uniformity for maturity and quality traits can also occur.

Seed Cleaning

Seed should be cleaned carefully to remove weed seeds, trash, small or broken kernels, ergot and sclerotia. Not all seed-cleaning plants are equipped to clean grain to acceptable seed standards.

Seed Treatment

Various fungicides have been registered for the control of seedling diseases caused by soil- and seed-borne pathogens.

Use of seed from cereal crops infected with *Fusarium* may result in poor emergence. Such seed should be treated with a registered fungicide before planting. Use of infected seed may introduce *Fusarium* diseases into unaffected areas.

Smuts that attack wheat, barley, oat and rye can be controlled by seed treatment. If seed from a crop in which bunt or smut was observed must be used for seed, seed should be tested and seed treatment should be considered. If the presence of smut is uncertain, varieties rated VERY POOR should be treated every year, those rated POOR every second year and those rated FAIR every third year.

Only systemic fungicides will control true loose smut of barley and wheat, and stem smut of rye. Pathogens causing the other types of smut (covered, false loose, oat smut and bunt) are carried on the outside of the seed and can be controlled by non-systemic seed treatments.

The virulent form of blackleg of canola is widespread in Saskatchewan. Seed treatment with a recommended fungicide can reduce the level of disease. Use of canola seed commercially coated with an appropriate seed treatment is a convenient alternative to on-farm seed treatment.

Wireworms that attack all grain crops, and flea beetles that attack canola and mustard, can be controlled by seed treatment with insecticides.

Read the label carefully before using any seed treatment or insecticide. Information on their use and recommended rates is found in the Saskatchewan Agriculture publication, *Guide to Crop Protection*. Carryover stocks of treated seed should be tested for germination before planting. Treated seed **must not** be delivered to an elevator or used for feed.

Seed-borne diseases of pulses

Pulse growers should use seed that has been tested for seed-borne diseases such as ascochyta, anthracnose and botrytis. Tolerances for seed infection vary with the pulse crop, the disease, weather conditions of the region and the availability of a seed treatment. If infection of the crop from sources other than seed is likely, using seed with low infection levels becomes less important.

In regions with frequent rainfall and high humidity, tolerances will be lower. Thus, for ascochyta blight of lentil, use of seed with up to 5% seed infection is acceptable in the Brown and Dark Brown Soil Zones, but 0% is desirable in the Black Soil Zone. A seed treatment for ascochyta-infected lentil seed is available and is recommended if seed infection levels approach 5%. In pea, up to 10% seed infection with ascochyta is acceptable. In chickpea, 0% ascochyta seed infection is recommended because of the high rate of transmission of the disease from the seed to the emerging seedlings and its highly destructive nature. Refer to Saskatchewan Agriculture publication, *Guidelines for Seed-Borne Diseases of Pulse Crops*.

Crop Rotation

Seeding into stubble of the same crop kind will increase disease risk, particularly in higher rainfall areas. Residue of infected crops may harbour disease pathogens. Maintain a diverse crop rotation.

Ergot

Ergot attacks all varieties of rye, triticale, wheat and barley, as well as most common grass species. Oat is rarely attacked and all broadleaf species are immune. Grain containing 0.1% ergot is considered poisonous and should not be used for food. Refer to Saskatchewan Agriculture publication, *Ergot of Cereals and Grasses*.

Seed Inoculation

Legume crops obtain much of their nitrogen (N) requirement by forming a symbiotic association with soil bacteria called *Rhizobium*. These bacteria colonize the roots to form structures called nodules where they fix nitrogen for the legume plant. To enhance nitrogen fixation, the legume crop seed should be inoculated. **Use the proper strain of bacteria specific to that crop.** For further details, consult the *Pulse Production Manual* (Saskatchewan Pulse Growers).

Damp and Frozen Seed

Seed which is stored damp or tough may be low in germination and may lack adequate vigour. Grain which will be used for seed should be dried, if necessary, soon after harvest. The drying temperature should be below 37°C for batch driers and 43°C for recirculating and continuous driers. Frozen grain should always be tested for germination by a seed-testing laboratory before planting. Such grain will frequently produce a high percentage of abnormal seedlings.

Wheat Midge

All wheat classes, including durum and triticale, are susceptible to wheat midge. Farmers in infested areas should be prepared to spray fields with recommended insecticides if necessary. Refer to the Saskatchewan Agriculture publication, *Wheat Midge*.

Pulse Crops

2009 Regional Variety Trials

In 2009, the Saskatchewan Pulse Growers and the pulse breeding program at the Crop Development Centre (CDC), University of Saskatchewan continued a 5-year agreement with a budget of \$100,000 per year to conduct the pulse crop regional variety trials in Saskatchewan. The CDC collaborates with researchers at several locations, including Agriculture and Agri-Food Canada research stations, provincial Agri-ARM sites, and the Canada-Saskatchewan Irrigation Diversification Centre, in order to conduct the trials. The project collects data on varieties from the CDC program, as well as those arising from other public or private pulse breeding programs.

In 2009, field pea, lentil, chickpea, and dry bean variety trials were conducted at 8-14 locations per crop in their target areas of adaptation in Saskatchewan. The number of entries per trial was 26 for pea, 36 for lentil, 24 for chickpea, and 16 for dry bean.

Lentil

Main Characteristics of Varieties

Market class	Variety	Years Tested ⁺	Yield % CDC Milestone		Height (cm)	Days to Flower	Maturity Rating	----- Resistance to: -----		Cotyledon Colour	Seed Weight (g/1000)
			Area 1 & 2	Area 3 & 4				Ascochyta Blight	Anthracnose Race 1		
Small green	CDC Milestone	14	100	100	31	49	E	G	VP	yellow	37
	CDC Invincible CL	4	100	92	33	49	E	G	G	yellow	34
	CDC Viceroy	8	103	111	34	49	E	G	G	yellow	33
	Eston	13	88	89	30	48	E	VP	VP	yellow	33
Medium green	CDC Impress CL	4	98	80	34	50	M	G	P	yellow	52
	CDC Imigreen CL	4	81	76	44	50	M	G	VP	yellow	57
	CDC Meteor	9	111	102	34	50	M	G	VP	yellow	51
	CDC Richlea	12	101	92	35	50	M	VP	VP	yellow	51
Large green	Laird	13	77	74	41	53	VL	VP	VP	yellow	67
	CDC Glamis	11	84	83	39	54	VL	G	VP	yellow	60
	CDC Grandora	10	78	84	40	53	VL	G	VP	yellow	69
	CDC Greenland	8	103	86	38	52	ML	G	VP	yellow	64
	CDC Impower CL	4	91	75	41	52	ML	G	VP	yellow	64
	CDC Improve CL	5	91	87	39	51	M	F	VP	yellow	67
	CDC Plato	10	98	89	38	52	ML	G	P	yellow	62
	CDC Sedley	9	81	85	39	51	M	F	VP	yellow	68
	CDC Sovereign	10	90	89	40	52	L	G	P	yellow	66
French green	CDC LeMay	6	91	92	35	48	E	F	VP	yellow	33
	CDC Peridot CL	4	89	97	37	48	E	F	P	yellow	38
Extra small red	CDC Impala CL	4	89	99	30	51	E	G	G	red	31
	CDC Imperial CL	5	88	87	30	49	E	G	G	red	30
	CDC Redbow	3	105	107	30	49	E	G	G	red	32
	CDC Robin	11	86	91	30	49	E	G	G	red	29
	CDC Rosebud	4	100	109	30	50	E	G	G	red	31
	CDC Rosetown	7	102	107	31	52	E	G	G	red	31
Small red	CDC Blaze	9	84	82	30	47	E	G	P	red	34
	CDC Imax CL	4	106	100	35	51	EM	G	F	red	45
	CDC Impact CL	5	86	87	30	47	E	G	P	red	34
	CDC Maxim CL	4	105	110	34	51	EM	G	G	red	40
	CDC Redberry	7	102	109	34	50	EM	G	G	red	42
	CDC Redcoat	4	113	103			E	G	G	red	41
	CDC Red Rider	6	103	98	34	52	EM	G	F	red	45
	CDC Rouleau	6	104	107	33	52	M	G	G	red	37
Large red	CDC KR-1	3	117	102	37	52	M	G	G	red	56

* Co-op and Regional Trials in Saskatchewan since 1995. Comparisons to CDC Milestone.

CL indicates Clearfield variety.

Maturity ratings: Normal maturity range in days based on May 1 seeding is E=100, VL=110 but maturity can be much earlier in dry years, much later in cool wet years. See Page 2 for more information on maturity range in lentil.

Additional Information

Seed supplies are limited for CDC Invincible CL, CDC Imigreen CL, CDC Impower CL, CDC Peridot CL, CDC Redbow, CDC Rosebud, CDC Imax CL, CDC Redcoat and CDC KR-1. Indianhead lentil is a black-seeded variety for green manure use.

Weight, diameter and thickness of lentil seeds will vary depending on environmental conditions and agronomic factors.

Field Pea

Main Characteristics of Varieties

Variety	Years Tested*	Yield as % Cutlass			Leaf Type▼	Relative Maturity	Vine Length (cm)	Resistance to:			Resistance to:			Seed Coat Dimpling*	Green Seed Coat*	Seed Weight g/1000
		1.2 & South 3	North 3 & 4	Irrigation				Mycosphae-rella Blight	Powdery Mildew	Fusarium Wilt	Seed Coat Breakage	Lodging	Bleaching			
Yellow																
Cutlass	10	100	100	100	SL	M	75	F	VG	F	F	G	n/a	F	G	220
Agassiz ☼	5	107	111	115	SL	M	85	F	VG	F	G	G	n/a	F	G	230
Canstar ☼	5	96	101	98	SL	M	85	P	VG	G	F	G	n/a	G	G	240
CDC Bronco	7	108	102	104	SL	M	75	F	VG	F	G	G	n/a	G	G	230
CDC Centennial	5	106	112	117	SL	E	70	F	VG	F	G	F	n/a	G	F	270
CDC Golden	7	106	101	107	SL	M	85	F	VG	F	G	G	n/a	G	G	230
CDC Handel	5	103	93	110	SL	L	75	P	VG	F	G	F	n/a	G	F	220
CDC Mozart	7	104	101	108	SL	M	70	F	VG	F	G	F	n/a	G	F	220
CDC Meadow	7	104	108	108	SL	E	85	F	VG	F	G	G	n/a	G	G	220
CDC Minuet	5	100	101	---	SL	M	70	F	VG	F	F	F	n/a	G	F	190
CDC Prosper	5	97	104	92	SL	E	80	F	VG	G	G	G	n/a	F	G	150
CDC Treasure	5	98	107	107	SL	E	80	F	VG	F	F	G	n/a	F	G	210
Delta	4	93	92	---	SL	E	70	P	P	---	G	F	n/a	---	---	250
DS Admiral ☼	6	93	103	95	SL	E	80	F	VG	F	G	G	n/a	G	G	240
Eclipse ☼	10	97	98	101	SL	M	80	F	VG	P	G	G	n/a	F	G	250
Noble ☼ §	4	99	97	106	SL	M	80	F	VG	F	F	G	n/a	F	G	250
Polstead ☼	6	102	107	104	SL	M	75	P	VG	P	F	G	n/a	G	F	280
Reward ☼	5	98	107	108	SL	M	90	F	VG	F	G	G	n/a	G	F	240
Sorento ☼	4	98	95	105	SL	M	80	F	VG	F	G	F	n/a	F	G	260
SW Carousel ☼ §	5	94	106	106	SL	E	85	F	VG	F	F	G	n/a	G	G	250
SW Circus ☼ §	4	95	108	106	SL	E	75	F	P	F	F	G	n/a	F	G	220
SW Capri ☼	4	94	101	---	SL	E	75	F	P	F	F	G	n/a	F	G	210
SW Midas ☼	5	96	91	105	SL	E	80	F	VG	F	G	G	n/a	G	G	220
Thunderbird ☼	5	103	104	109	SL	M	85	F	VG	F	G	G	n/a	G	F	220
Tudor ☼ §	5	94	94	107	SL	M	80	P	VG	F	F	G	n/a	G	F	270
Green																
Bluebird ☼ §	5	86	90	82	SL	E	65	F	VG	P	G	F	F	F	n/a	250
Camry ☼	5	96	90	94	SL	M	65	F	VG	P	F	G	F	G	n/a	260
CDC Montero	6	91	89	90	SL	M	80	F	VG	F	G	F	F	F	n/a	230
CDC Patrick	5	96	99	101	SL	M	80	F	VG	G	G	G	G	G	n/a	190
CDC Sage	5	80	84	86	SL	M	80	F	VG	G	G	G	G	F	n/a	220
CDC Striker	10	90	98	97	SL	M	80	F	P	G	VG	G	G	G	n/a	230
Cooper ☼	8	102	97	101	SL	L	80	F	VG	F	F	G	G	G	n/a	270
Nitouche ☼	7	86	91	95	SL	M	75	F	P	F	G	G	G	F	n/a	250
Stratus ☼	7	105	99	104	SL	M	70	F	VG	P	G	F	F	G	n/a	270
SW Sergeant	5	88	87	90	SL	M	80	F	VG	F	G	G	G	G	n/a	200
Tamora ☼	5	92	87	87	SL	M	80	F	VG	P	F	G	F	G	n/a	290
Venture	4	89	82	---	SL	E	75	P	P	P	G	F	F	F	n/a	220
Maple																
CDC Acer	3	100	94	---	SL	L	60	F	VG	---	G	F	n/a	VG	n/a	170
CDC Rocket	3	93	104	100	SL	M	75	F	VG	---	G	F	n/a	VG	n/a	210
Courier	4	90	86	78	SL	M	75	F	P	---	F	P	n/a	VG	n/a	210
Silage																
CDC Sonata	4	102	94	---	N	L	85	F	VG	---	G	F	n/a	F	F	220
CDC Leroy	3	98	96	89	SL	M	95	F	VG	---	G	G	n/a	G	G	150
CDC Tucker	3	99	99	88	SL	M	100	F	VG	---	G	G	n/a	G	F	170
Trapper	7	68	68	---	N	L	115	P	P	---	G	P	n/a	---	---	130
40-10	3	80	84	56	N	L	120	P	P	---	G	P	n/a	G	---	140

* Co-op and regional trials in Saskatchewan

▼ N=normal leaf type; SL = semi-leafless

★ Seed coat dimpling: VG = 0-5%; G = 6-20%; F = 21-50%

◆ Green seed coats: Good = 0-10%; Fair = 11-25%

The following varieties have purple flower colour and tannin containing seed coats: **CDC Acer**, **CDC Rocket**, **Courier**, and **40-10**; all other varieties have white flower colour and non-pigmented seed coats.

Additional Information

For detailed production information consult the *Pulse Production Manual* published by Saskatchewan Pulse Growers.

The relative maturity of the check variety **Cutlass** is M (Medium), which is on average 90 days from seeding to swathing ripeness.

Please add 3-4 days for each rating beyond Medium. As harvest proceeds into the fall, these ranges expand.

Chickpea

Characteristics of Kabuli and Desi Chickpea Varieties

KABULI Variety	Years Tested	Yield (% Amit)		Leaf Type**	Ascochyta Blight	Height (cm)	Days to Flower	Maturity	Seed Weight (g/1000)
		Area 1*	Area 2*						
Amit (B-90) ☺	12	100	100	F	F	46	56	L	260
Sanford §	9	69	68	U	VP	50	57	VL	415
CDC ChiChi §	5	76	84	F	P	45	53	L	385
CDC Chico §	7	95	101	F	P	45	51	M	265
CDC Diva §	4	69	71	U	VP	45	52	L	490
CDC Frontier	9	104	106	F	F	44	56	L	360
CDC Xena §	9	75	81	U	VP	44	54	L	464
CDC Yuma §	7	78	79	F	P	50	53	VL	410
CDC Luna	7	100	102	F	F	38	54	ML	377

DESI Variety	Years Tested	Yield (% Myles)		Leaf Type**	Ascochyta Blight	Height (cm)	Days to Flower	Maturity	Seed Weight (g/1000)	Seed Shape ♦	Seed Coat Colour ▼
		Area 1*	Area 2*								
Myles §	13	100	100	F	F	43	52	M	184	A	T
CDC Anna	8	108	113	F	F	40	52	L	210	P	T
CDC Cabri	11	112	114	F	F	47	51	M	301	P	T
CDC Desiray §	7	97	108	F	F	35	49	M	210	P	LT
CDC Nika§	6	97	104	F	F	40	50	L	320	P	T
CDC Vanguard	7	122	123	F	F	41	53	M	219	P	T
CDC Corinne	7	131	125	F	F	43	55	M	244	A/P	T

* Area 1: brown soil zone; Area 2: dark brown soil zone

** Leaf type: F = fern; U = unifoliate

♦ Seed shape: P = plump; A = angular

▼ Seed coat colour: T = tan; LT = light tan

Additional Information

Please refer to SaskSeed 2010 for pedigreed seed availability. For more details on production consult the Pulse Production Manual published by the Saskatchewan Pulse Growers (www.saskpulse.com).

Soybean

Main Characteristics of Varieties

² Use caution in interpreting this table as data were derived from only one year of testing (2009). Most of these varieties will be evaluated again in 2010 resulting in a more reliable table in the 2011 seed guide.

Variety ¹	Years Tested ²	Site Years Tested	Yield % of RR Rosco	Corn Heat Units	Days to Maturity ³	Plant Height (cm)	Lodging	Seed Size ⁴ (# seeds per lb)	Hilum ⁵ Colour
NSC Warren RR	1	9	107	2350	127	74	VG	3663	BR
Apollo RR	1	9	101	2450	128	69	G	2390	BR
RR Rosco	1	9	100	2450	128	75	VG	2800	IY
NSC Gimli RR	1	9	106	2450	129	74	VG	2628	BR
RR Russell	1	9	99	2550	129	77	VG	2900	BR
IsisRR	1	9	102	2400	130	69	G	3450	BR
Montcalm	1	9	90	2450	130	73	F	3219	IY
LS 0036	1	9	100	2425	131	71	VG	3800	BR
LS 0028	1	9	98	2375	131	70	VG	3800	BR
25-04 R	1	9	102	2450	132	66	G	2800	BR
24-52 R	1	9	92	2500	135	65	G	2250	BL
90A06	1	9	81	2450	136	68	VG	3203	BU

¹ All varieties in this table are Roundup Ready type. Other varieties are commercially available. For complete list of commercial varieties see Seed Manitoba 2010 (www.seedmb.ca).

³ Days to maturity was determined in Hamiota, Boissevain, Melita, Saskatoon, Bow Island from 2009 ratings. Only 2 varieties matured fully at Roblin, longer season varieties did not fully mature at Hamiota and Outlook. From past experience, moist growing seasons results in delayed maturity.

⁴ Number of seeds/lb as entered in the trial, data supplied by individual companies.

⁵ Hilum is the point where seed attaches to the pod. BR-Brown, IY-Imperfect Yellow, BL-Black, BU-Buffer

Soybean (cont'd)

Additional Information

Saskatchewan test sites were Saskatoon, Outlook dryland, and Outlook irrigated. Alberta test site was at Bow Island. Manitoba test sites were Hamiota, Boissevain, Roblin, Wawanesa, Melita.

Mean yield of the check variety **RR Rosco** was 44 bushels/acre in 2009. Typical on-farm yields are 25-30 bushels/acre.

Corn Heat Unit ratings are assigned by individual companies to assist growers select varieties suitable for their area; growers should not rely on only one source for judging maturity.

Soybeans are not native to the Canadian Prairies and so crop must be inoculated with soybean inoculant that contains *Bradyrhizobium japonicum* bacteria.

Dry Bean

Main Characteristics of Varieties

Variety	Type	Years Tested*	Yield % of CDC Pintium			Days to Flower	Maturity Rating	% Pod Clearance▲	Seed Weight (g/1000)	Growth Habit‡
			Irrigation	Area 2	Area 3					
CDC Pintium	pinto	12	100	100	100	50	E	80	350	I
CDC WM-I	pinto	5	102	100	91	50	E	78	345	I
Envoy	navy	7	84	85	86	53	M	73	184	I
Cruiser	navy	6	73	85	97	54	L	69	164	II
AC Polaris	great northern	7	97	102	95	52	L	70	310	III
AC Redbond	small red	8	96	103	99	51	M	65	290	II
AC Black Diamond	black	7	102	95	94	54	M	70	250	II
CDC Espresso	black	11	65	78	74	47	M	87	191	I
CDC Jet	black	8	87	94	95	58	L	80	175	II

* Co-op and regional trials grown in narrow rows. Direct comparisons to CDC Pintium since 1996

Maturity ratings based on E=100 days L= 110 days for May 20 planting to swathing maturity. See page 2 for more information.

▲ Pod clearance: percentage of pods that completely clear the cutterbar at time of swathing

‡ Growth habit: I = determinate bush; II = indeterminate bush; III = indeterminate vine

Faba Bean

Main Characteristics of Varieties

Variety	Years Tested*	Yield % CDC Fatima	Maturity Rating	Seed Weight (g/1000)
Coloured Flower				
CDC Fatima	12	100	105	520
Taboar ☉	3	97	107	480
CDC Blitz	6	101	109	410
Orion	6	92	103	350
Florent	4	112	107	660
White Flower				
Snowbird ☉	4	104	104	495
Imposa ☼	4	110	107	695

Additional Information

Faba bean regional trials were started again beginning in 2006 to accommodate growing interest in this crop as a nitrogen-fixing high protein feed grain in moist areas where producers experience problems with pea diseases. White-flowered types are zero tannin. All coloured flower types have seed coats that contain tannins and may be suitable for export food markets if seed size and quality match customer demand.

Maturity ratings are based on days until swathing maturity but will vary depending on seeding date and weather conditions.

Oilseed Crops

Flax

Main Characteristics of Varieties

Variety	Years Tested	Yield as % of CDC Bethune*			Relative Maturity♣	Seed Size	Resistance to		
		Area 1 & 2	Area 3 & 4	Irrigation			Lodging	Powdery Mildew	Fusarium Wilt
CDC Bethune ☼	10	100	100	100	L	M	G	F	F
CDC Arras	10	95	92	92	M	L	F	P	F
Hanley ☼	4	90	90	93	M	M	G	F	G
Lightning ☼	6	92	92	93	L	M	G	F	G
Macbeth ☼§	4	91	93	94	L	M	G	F	G
CDC Mons	4	99	96	93	L	S	G	F	F
CDC Normandy	6	91	93	89	M	M	F	P	F
Prairie Blue ☼	4	99	92	97	L	S	VG	F	F
Prairie Grande ☼	7	92	94	92	M	M	VG	F	F
Prairie Thunder ☼	8	95	95	98	M	M	VG	F	G
CDC Sorrel ☼	8	100	101	92	L	L	G	F	F
Taurus ☼	6	94	99	94	M	M	G	F	F
Vimy	10	94	90	85	M	L	P	P	F
AC Watson ☼	6	88	93	92	M	M	G	F	F

* Data from Regional and Co-op trials

♣ Relative maturity: The relative maturity of the check, **CDC Bethune**, is L (on average 101 days from seeding to swathing ripeness)

Additional Information:

All varieties are resistant to rust.

Frozen flax should be analyzed by a feed testing laboratory to determine that it is free of prussic acid before using it as a livestock feed.

Sunflower (Oilseed)

Main Characteristics of Varieties

Variety	Years Tested	Yield (kg/ha) (2 yr avg.)	Average Maturity	Oil %*
63M40**	2	4293	126	44.8
63M80**	2	4422	123	50.9

* Dry Basis

**Mid oleic NuSun

Sunflower (Oilseed) EMSS

Main Characteristics of Varieties

Variety	Years Tested	Yield (kg/ha) (10 yr avg.)	Average Maturity	Oil %*
63A21	10	2373	113	46.5

* Dry Basis

Additional Information

Sunflower requires 105-125 days to mature, depending on the cultivar and the growing season. Oilseed sunflower has been grown in the Dark Brown and Black soil zones in southeastern Saskatchewan. The earlier maturing, short stature (EMSS) varieties are adapted to production in most areas of Saskatchewan.

The Saskatchewan Sunflower Committee has been conducting trials in Saskatchewan for the purpose of registration and demonstration since 1983. Varieties that have been tested in official Saskatchewan Sunflower Committee trials for three years, continue to be tested and are registered for production in Canada are placed on the list.

The Committee has been testing NuSun, a sunflower with a fatty acid profile desired by major frying companies. Listed results are from the Saskatchewan Sunflower Committee Trials.

Mustard

Main Characteristics of Varieties*

Type and Variety	Yield % of AC Pennant	Plant Height (cm)	Mucilage† cS*ml/g seed	Protein % Seed	Fixed Oil % Seed	Seed Weight (g/1000)
Yellow						
AC Pennant	100	95	42.2	34.6	29.5	5.74
AC Base	100	98	38.5	34.6	29.3	5.91
Ace	98	100	46.9	35.3	29.1	5.55
Andante	100	100	51.3	35.6	28.3	6.13
Brown						
	Yield % of Duchess	Plant Height (cm)	Volatile oil‡ mg/g seed	Protein % Seed	Fixed Oil % Seed	Seed Weight (g/1000)
Brown						
Duchess	100	111	9.2	28.7	38.4	2.71
Centennial Brown	101	115	9.9	30.1	36.7	3.03
Amigo**	98	112	12.8	30.6	35.4	2.60
Oriental						
	Yield % of Cutlass	Plant Height (cm)	Volatile oil‡ mg/g seed	Protein % Seed	Fixed Oil % Seed	Seed Weight (g/1000)
Oriental						
Cutlass	100	113	11.2	29.3	41.3	2.76
Forge	98	124	12.0	29.9	38.9	2.51
AC Vulcan	98	114	12.0	29.6	40.7	2.83

* Data from 1999-2008 Co-operative Test. Yield % of check: 95 locations for yellow mustard, and 88 locations for brown and oriental mustard.

** Data from 2004-2008 Co-operative Mustard Test.

† Mucilage in yellow mustard is a measurement of viscosity of aqueous extracts from seed.

‡ Volatile oil = allyl glucosinolate

Additional Information

Three types of mustard are grown in western Canada: yellow (*Sinapis alba*) and brown and oriental (*Brassica juncea*). Mustard is typically grown under contract, where the contractor specifies the variety to be grown to meet industry specifications for product quality. All mustard varieties have good resistance to blackleg disease and mature, on average, in 90 to 92 days.

All four yellow mustard varieties have similar yield. **AC Pennant** has shorter straw (95 cm) while newer varieties are slightly taller. A unique feature of yellow mustard is high mucilage content. Mucilage is valued by the mustard industry as a stabilizer in prepared food products. **Andante** has the highest mucilage content. High protein content is of importance for yellow mustard flour as an ingredient in meat products. The protein contents of **Andante** and **Ace** are significantly higher than **AC Pennant** and **AC Base**, with corresponding lower fixed oil content. **Andante** and **AC Base** have significantly higher seed weight than **AC Pennant**, with **Ace** having smaller seed.

Brown mustard is grown primarily for the Dijon mustard market. **Centennial Brown** has significantly higher allyl glucosinolate and protein content, as well as lower fixed oil. It is also larger seeded than **Duchess**. **Centennial Brown** and **Duchess** are highly susceptible to white rust disease (staghead). **Amigo** has good yield and plant height is similar to **Duchess**. **Amigo** is the first brown mustard variety highly resistant to white rust race 2a, but susceptible to race 2v. **Amigo** has very high allyl glucosinolate content, much higher than **Centennial Brown** and **Duchess**. It also has greater protein and much reduced fixed oil content. Its seed weight is somewhat lower than that of the other brown mustard varieties.

Three varieties of oriental mustard (yellow-seeded) are available for production. **Cutlass** is the highest yielding variety. **Forge** is the tallest variety. **AC Vulcan** and **Forge** have high allyl glucosinolate content and greater protein content than **Cutlass**. **Forge** has significantly lower fixed oil and smaller seed.

The canola table and report, as presented, was provided by the Canola Council of Canada.

Canola

Main Characteristics of Varieties

2009 Prairie Canola Variety Trial - All Zone Summary

Variety B. napus (Argentine)	Type	2007 Yield	2008 Yield	2009 Yield % of 45H21, 5020				Days to Maturity				Height	Lodging	rating +=""better""	Blackleg Rating	Organization
		% of 45H21, 5020	% of 45H21, 5020	Zones (Station Years)				Zones				+/- inches				
		All Zones Avg	All Zones Avg	Zones (Station Years)				Zones								
		Short (8)	Mid (14)	Long (10)	All Zone Average	short	mid	long	All Zones							
Checks																
45H21, 5020	Hyb	100	100	100	100	100	0	0	0	0	0	0	0	0		
Clearfield Res.																
5525 CL	Hyb			103	102	100	102	3	3	3	3	4	1	R	BrettYoung	
1651H	Hyb				89	85	88		2	2	2	3	0	R	Canterra Seeds	
45H73	Hyb	98	99	93	97	99	97	1	1	0	1	1	0	R	Pioneer Hi-Bred Production Ltd.	
45P70	Hyb	102	98	97	98	98	97	1	2	1	2	1	0	R	Viterra Inc.	
Liberty Res.																
5020	Hyb	101	105	102	102	103	102	-1	-1	-1	-1	-1	0	R	Bayer CropScience	
5030	Hyb	114	108	108	104	114	108	1	0	1	1	5	1	R	Bayer CropScience	
5440	Hyb	115	110	118	105	117	112	1	0	1	1	3	1	R	Bayer CropScience	
5770	Hyb			112	107	121	113	4	3	3	4	3	1	R	Bayer CropScience	
8440	Hyb	107	108	105	103	109	105	2	0	0	0	0	0	R	Bayer CropScience	
9590	Hyb	107	106	102	104	106	104	2	0	0	1	2	0	R	Bayer CropScience	
Roundup Res.																
6020 RR	Hyb			100	93	102	98	5	3	3	3	0	0	MR	BrettYoung	
6040 RR	Hyb				94	103	98		1	1	1	2	0	R	BrettYoung	
1950	Hyb				94	94	94		2	2	2	2	0	MR	Canterra Seeds	
1956	Syn				98	95	97		2	2	2	1	0	R	Canterra Seeds	
1852H	Hyb	94		94	94	84	91	1	-1	-1	0	2	0	R	Canterra Seeds	
v1037**	Hyb		94		93	89	91		1	0	1	2	0	R	Cargill Specialty Canola Oil	
93H01RR	Hyb				96	94	93	94	3	1	1	2	0	MR	FP GENETICS	
71-45 RR	Hyb		97		102	98	94	98	1	-1	0	0	1	0	MR	DEKALB
45H21	Hyb	99	95	98	98	97	98	1	1	1	1	1	0	R	Pioneer Hi-Bred Production Ltd.	
43E01	Hyb		90		91		91		-2			-2	-2	MR	Pioneer Hi-Bred Production Ltd.	
45H26	Hyb	101	99	99	101	98	100	2	1	1	1	2	0	R	Pioneer Hi-Bred Production Ltd.	
45H28	Hyb		100		102	99	100	2	1	2	2	1	0	R	Pioneer Hi-Bred Production Ltd.	
D3150	Hyb		96		100	97	98	3	1	1	2	2	0	MR	Pioneer Hi-Bred Production Ltd.	
D3151	Hyb		95		97	100	97	98	1	0	-1	0	1	0	MR	Pioneer Hi-Bred Production Ltd.
Café	OP	76	82	81			81		-1		-1	-2	0	R	Secan	
Rugby	OP	89	86	84	89		87	1	0		0	0	0	R	Secan	
9350	Hyb				93		93		-1		-1	-2	-1	MR	Viterra Inc.	
9553	Hyb		97		105	102	100	102	2	2	1	2	0	R	Viterra Inc.	
9555	Syn				95		95		2		2	2	0	R	Viterra Inc.	
46P50	Hyb	103	96	103	100	102	101	3	3	3	3	3	0	R	Viterra Inc.	
SP DESIRABLE RR	Syn	88			92		92		1		1	1	0	R	Viterra Inc.	
Hyb=Hybrid, Syn=Synthetic, OP=Open Pollinated																
** Specialty oil																

Additional Information

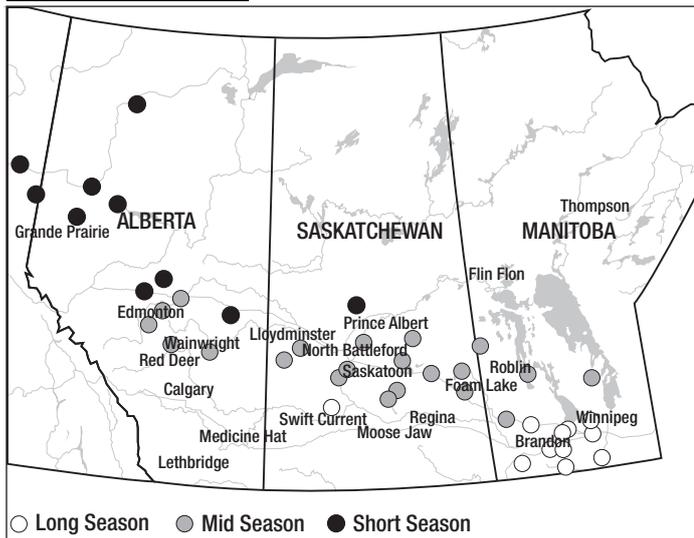
The Prairie Canola Variety Testing (PCVT) program entered its seventh year in 2009. The testing system unites the provincial variety testing programs to standardize protocol and improve trial consistency and quality. Now growers can look to a single source of information on how a canola variety performed in three different zones across western Canada. The Canola Council of Canada, canola seed industry, WCC/RRC, Saskatchewan Ministry of Agriculture, Manitoba Agriculture Food and Rural Initiatives, Alberta Agriculture and Rural Development, Agriculture and Agri-Food Canada contributed to the development and operation of the PCVT.

Trials were conducted by seed companies, government researchers and independent contractors in three growing zones across the prairies: short-, mid- and long-season zones (see map). Varietal characteristics appear in the table. Interpreting PCVT information:

Use the map to identify your zone of adaptation. For site-specific data please refer to the Canola Digest or the Canola Council of Canada website. Don't limit your search to the areas closest to you. Comparing local results to other locations with similar growing conditions can also be valuable.

The table shows variety yield as a percent relative to the check variety or varieties. Although variety trials are carefully conducted, small percentage differences (e.g. <5%) in yield are usually insignificant. The table includes information on maturity, resistance to lodging, blackleg resistance, varietal type (open-pollinated, hybrid, synthetic) and herbicide tolerance. Use this information in addition to yield to choose a variety.

2009 PCVT Locations:



Argentine Canola

Argentine varieties mature two weeks later than Polish varieties and are therefore better suited to the mid- and long-season growing areas of Saskatchewan. Blackleg disease, which is now widespread in Saskatchewan, can cause severe yield losses in varieties that are susceptible (S). Argentine varieties are susceptible to seed shattering when left standing at full maturity. Later maturing varieties tend to produce higher levels of green seed under wet and cool conditions at harvest, which can cause substantial grade reductions. The control of herbicide tolerant canola volunteers requires good agronomic practice such as proper crop and herbicide rotation.

Polish Canola

Polish varieties mature approximately two weeks earlier than Argentine varieties and are therefore less likely to produce green seed. Polish varieties are more heat and drought tolerant than Argentine varieties. They are also more shatter resistant than Argentine varieties and are therefore well suited to straight combining.

In 2005, three varieties were tested in the PCVT. ACSunbeam is available through SeCan members. ACS-C7 is available through the Seidle Seed Farm or authorized seed dealers. ACS-C7 is a synthetic variety with fair resistance to blackleg. AC Sunbeam is an open-pollinated variety. SW SPIRITRIVER is an open-pollinated variety available through Peace Pedigreed Seed.

Brassica juncea Canola

Brassica juncea canola is a new class of canola that is especially well adapted to areas where hot, dry conditions are often encountered. It has very good resistance to blackleg and exhibits better heat and drought tolerance than other canola. Juncea canola has shattering resistance similar to Polish canola, and is therefore well suited to straight-cut combining. All production is contracted. The first commercial variety, Arid, yielded approximately 112% of AC Excel in the zone of adaptation. The first Clearfield variety, XCEED 8571 will be available from Viterra in 2010. A new Clearfield variety, XCEED 8470 will be available in 2011. These two varieties yield about 118 and 122 % of Arid respectively. Pioneer Hi-Bred launched 45J10, the first juncea hybrid, in 2008 and is available for sale through Pioneer sales reps. In registration trials, 45J10 yielded 119% of Arid

The Canola POD

The Canola POD, or Performance On-line Database (<http://www.canola-council.org/pod>), was developed by the Canola Council of Canada to allow farmers to explore canola performance trial results from a broad range of sources in their own area. In addition to the Prairie Canola Variety Trial results, POD provides access to private seed company performance trial information which often includes more detailed information, such as notes on site management.

Crop Kind, Class & Variety	Breeding Institution	Distributor
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FEED BARLEY

Crop Kind, Class & Variety	Breeding Institution	Distributor
Feed		
CDC Austenson 🌱	U of S - CDC	SeCan Members
CDC Bold	U of S - CDC	CANTERRA SEEDS
Busby 🌱	AARD (Lacombe)	Mastin Seeds
Champion 🌱	Westbred, LLC	Viterra Inc.
Chigwell 🌱	AAFC (Lacombe)	SeCan Members
CDC Coalition 🌱	U of S - CDC	CANTERRA SEEDS
CDC Cowboy 🌱	U of S - CDC	SeCan Members
CDC Dolly	U of S - CDC	SeCan Members
Formosa	ACS Ltd.	FP Genetics
CDC Helgason 🌱	U of S - CDC	SeCan Members
Manny 🌱	AAFRD (Lacombe)	SeCan Members
McLeod 🌱	Westbred, LLC	Viterra Inc.
CDC Mindon 🌱	U of S - CDC	SeCan Members
AC Rosser 🌱	AAFC (Brandon)	SeCan Members
Sundre 🌱	AARD (Lacombe)	Mastin Seeds
CDC Trey 🌱	U of S - CDC	FP Genetics
Xena 🌱	Viterra / W. Plant Breeders	Viterra Inc.

Hulless

CDC Carter 🌱	U of S - CDC	SeCan Members
CDC ExPlus 🌱	U of S - CDC	TBA
HB705 🌱	AAFC (Brandon)	Alliance Seed Corp.
CDC McGwire 🌱	U of S - CDC	SeCan Members

Forage

Binscarth	AAFC (Brandon)	Wagon Wheel Seeds
CDC Cowboy 🌱	U of S - CDC	SeCan Members
Desperado 🌱	AAFC (Brandon)	Alliance Seed Corp.
AC Ranger	AAFC (Brandon)	FP Genetics
Stockford 🌱	W. Plant Breeders	Viterra Inc.

Food Barley

CDC Alamo	U of S - CDC	Public
CDC Candle	U of S - CDC	Public
CDC Fibar 🌱	U of S - CDC	CANTERRA SEEDS
CDC McGwire 🌱	U of S - CDC	SeCan Members
CDC Rattan 🌱	U of S - CDC	CANTERRA SEEDS
Millhouse 🌱	AAFC (Brandon)	FP Genetics

OAT

CDC Baler	U of S - CDC	FP Genetics
SW Betania 🌱	SW Seed Ltd.	Viterra Inc.
CDC Boyer	U of S - CDC	SeCan Members
Boudrias 🌱	AAFC (Lacombe)	FP Genetics
Bullion 🌱	SW Seed Ltd.	Viterra Inc.
Calibre	U of S - CDC	SeCan Members
CDC Dancer 🌱	U of S - CDC	FP Genetics / Cargill
Derby	U of S - CDC	Viterra Inc.
Furlong 🌱	AAFC (Winnipeg)	CANTERRA SEEDS / Cargill
AC Gwen	AAFC (Winnipeg)	SeCan Members
HiFi 🌱	North Dakota State University	Seed Depot
Jordan 🌱	AAFC (Winnipeg)	SeCan Members
Lee Williams	AAFC (Lacombe)	CANTERRA SEEDS
Leggett 🌱	AAFC (Winnipeg)	FP Genetics
Lu	AAFC (Lacombe)	SeCan Members
CDC Minstrel 🌱	U of S - CDC	FP Genetics
AC Morgan	AAFC (Lacombe)	SeCan Members
Murphy 🌱	AAFC (Lacombe)	SeCan Members
AC Mustang	AAFC (Lacombe)	Mastin Seeds
CDC Orrin 🌱	U of S - CDC	FP Genetics / Cargill
Pinnacle 🌱	AAFC (Winnipeg)	FP Genetics
CDC Pro-Fi	U of S - CDC	FP Genetics
Ronald 🌱	AAFC (Winnipeg)	SeCan Members
CDC Sol-Fi 🌱	U of S - CDC	TBA
Stainless 🌱	AAFC (Winnipeg)	CANTERRA SEEDS
Summit 🌱	AAFC (Winnipeg)	FP Genetics
Triactor 🌱	Svalof Weibull AB	CANTERRA SEEDS
CDC Weaver 🌱	U of S - CDC	FP Genetics / Cargill

CANARY SEED

CDC Bastia	U of S - CDC	
Cantate		Hansen Seeds
Keet	U of Minnesota; U of S - CDC	Public
CDC Maria	U of S - CDC	C. Special Crops
CDC Togo 🌱	U of S - CDC	CANTERRA SEEDS

Crop Kind, Class & Variety	Breeding Institution	Distributor
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SAFFLOWER

Saffire	AAFC (Lethbridge)	Jerry Kubic (AB)
AC Sunset	AAFC (Lethbridge)	Viterra Inc.

LENTIL

CDC Blaze	U of S - CDC	Sask. Pulse Growers
Eston	U of S - CDC	SeCan Members
CDC Glamis	U of S - CDC	Sask. Pulse Growers
CDC Grandora	U of S - CDC	Sask. Pulse Growers
CDC Greenland	U of S - CDC	Sask. Pulse Growers
CDC Imax CL	U of S - CDC	Sask. Pulse Growers
CDC Imigreen CL	U of S - CDC	Sask. Pulse Growers
CDC Impact CL	U of S - CDC	Sask. Pulse Growers
CDC Impala CL	U of S - CDC	Sask. Pulse Growers
CDC Imperial CL	U of S - CDC	Sask. Pulse Growers
CDC Impower CL	U of S - CDC	Sask. Pulse Growers
CDC Impress CL	U of S - CDC	Sask. Pulse Growers
CDC Improve CL	U of S - CDC	Sask. Pulse Growers
CDC Invincible CL	U of S - CDC	Sask. Pulse Growers
Indianhead	U of S - CDC	
CDC KR-1	U of S - CDC	SaskCan Trading
Laird	U of S - CDC	SeCan Members
CDC LeMay	U of S - CDC	Sask. Pulse Growers
CDC Maxim CL	U of S - CDC	Sask. Pulse Growers
CDC Meteor	U of S - CDC	Sask. Pulse Growers
CDC Milestone	U of S - CDC	Sask. Pulse Growers
CDC Peridot CL	U of S - CDC	Sask. Pulse Growers
CDC Plato	U of S - CDC	Sask. Pulse Growers
CDC Redberry	U of S - CDC	Sask. Pulse Growers
CDC Redbow	U of S - CDC	Sask. Pulse Growers
CDC Redcoat	U of S - CDC	Sask. Pulse Growers
CDC Red Rider	U of S - CDC	Sask. Pulse Growers
CDC Richlea	U of S - CDC	SeCan Members
CDC Robin	U of S - CDC	Sask. Pulse Growers
CDC Rosebud	U of S - CDC	Sask. Pulse Growers
CDC Rosetown	U of S - CDC	Sask. Pulse Growers
CDC Rouleau	U of S - CDC	Sask. Pulse Growers
CDC Sedley	U of S - CDC	Sask. Pulse Growers
CDC Sovereign	U of S - CDC	Sask. Pulse Growers
CDC Viceroy	U of S - CDC	Sask. Pulse Growers

FIELD PEA

40-10	SWS, Germany	FP Genetics
CDC Acer	U of S - CDC	Sask. Pulse Growers
DS Admiral 🌱	Danisco Seeds	FP Genetics
Agassiz 🌱	AAFC	CANTERRA SEEDS
Bluebird 🌱	Limagrain Nederland	Bob Park - Lacombe, AB
CDC Bronco	U of S - CDC	Sask. Pulse Growers
Camry 🌱	Limagrain Nederland	FP Genetics
Canstar	AAFC	Canseed
SW Capri 🌱	SW Seed Ltd.	CANTERRA SEEDS
SW Carousel 🌱	Svalof Weibull VB	FP Genetics
CDC Centennial	U of S - CDC	Sask. Pulse Growers
SW Circus 🌱	SW Seed Ltd.	Secan Members
Cooper 🌱	Limagrain Nederland	CANTERRA SEEDS
Courier	NZ Crop & Food	CANTERRA SEEDS
Cutlass	AAFRD / CDC	Sask. Pulse Growers
Delta	Limagrain Nederland	FP Genetics
Eclipse 🌱	Limagrain Nederland	FP Genetics
CDC Golden	U of S - CDC	Sask. Pulse Growers
CDC Handel	U of S - CDC	Sask. Pulse Growers
CDC Leroy	U of S - CDC	Sask. Pulse Growers
CDC Meadow	U of S - CDC	Sask. Pulse Growers
SW Midas 🌱	Svalof Weibull BV	FP Genetics
CDC Minuet	U of S - CDC	Sask. Pulse Growers
CDC Montero	U of S - CDC	Sask. Pulse Growers
CDC Mozart	U of S - CDC	Sask. Pulse Growers
Nitouche 🌱	Limagrain Nederland	FP Genetics
Noble 🌱	Limagrain Nederland	FP Genetics
CDC Patrick	U of S - CDC	Sask. Pulse Growers
Polstead 🌱	Limagrain Nederland	FP Genetics
CDC Prosper	U of S - CDC	Sask. Pulse Growers
Reward 🌱	AAFC (Lacombe)	SeCan members
CDC Rocket	U of S - CDC	Sask. Pulse Growers
CDC Sage	U of S - CDC	Sask. Pulse Growers
SW Sergeant	Svalof Weibull	FP Genetics
CDC Sonata	U of S - CDC	Sask. Pulse Growers
Sorento 🌱	Limagrain Nederland	FP Genetics
Stratus 🌱	Limagrain Nederland	CANTERRA SEEDS
CDC Striker	U of S - CDC	Sask. Pulse Growers
Tamora 🌱	Limagrain Nederland	FP Genetics

Crop Kind, Class & Variety	Breeding Institution	Distributor
Field Pea (cont'd)		
Thunderbird ☞	AAFC	CANTERRA SEEDS
Trapper	AAFC (Morden)	Public
CDC Treasure	U of S - CDC	Sask. Pulse Growers
CDC Tucker	U of S - CDC	Sask. Pulse Growers
Tudor ☞	Limagrain Nederland	FP Genetics
Venture	Axel Toft	Johnson Seeds (MB)
Chickpea		
Desi		
CDC Anna	U of S - CDC	Sask. Pulse Growers
CDC Cabri	U of S - CDC	Sask. Pulse Growers
CDC Corinne	U of S - CDC	Sask. Pulse Growers
CDC Desiray	U of S - CDC	Sask. Pulse Growers
Myles	USDA / Washington State U	Public
CDC Nika	U of S - CDC	Sask. Pulse Growers
CDC Vanguard	U of S - CDC	Sask. Pulse Growers
Kabuli		
Amit (B-90) ☞		Viterra Inc.
CDC Chico	U of S - CDC	Sask. Pulse Growers
CDC ChiChi	U of S - CDC	Sask. Pulse Growers
CDC Diva	U of S - CDC	Sask. Pulse Growers
CDC Frontier	U of S - CDC	Sask. Pulse Growers
CDC Luna	U of S - CDC	Sask. Pulse Growers
Sanford	USDA / Washington State U	Public
CDC Xena	U of S - CDC	Sask. Pulse Growers
CDC Yuma	U of S - CDC	Sask. Pulse Growers
Dry Bean		
AC Black Diamond	AAFC (Lethbridge)	Viterra Inc.
Cruiser	AAFC (Harrow)	
Envoy	GenTec Seeds	
CDC Expresso	U of S - CDC	CANTERRA SEEDS
CDC Jet	U of S - CDC	B&J Martens Seeds
CDC Pintium	U of S - CDC	Sask. Pulse Growers
AC Polaris	AAFC (Lethbridge)	Viterra Inc.
AC Redbond	AAFC (Lethbridge)	Viterra Inc.
CDC WM - 1	U of S - CDC	Walker Seeds Ltd.
Faba Bean		
CDC Blitz	U of S - CDC	
CDC Fatima	U of S - CDC	R.Legumex / Walker S.
Florent	NPZ	DL Seeds
Imposa ☞	Limagrain Nederland	Cyre Seed Farms
Orion	AAFC (Lacombe)	Roger Lee, Lyster Farm
Snowbird ☞	Limagrain Nederland	Bob Park - Lacombe, AB
Taboar ☞	Globe Seeds - Netherland	Terramax Holding Corp.
Flax		
CDC Arras	U of S - CDC	FP Genetics
CDC Bethune ☞	U of S - CDC	SeCan Members
Hanley ☞	AAFC (Morden)	SeCan Members
Lightning ☞	AAFC (Morden)	CANTERRA SEEDS
Macbeth ☞	AAFC (Morden)	Viterra Inc.
CDC Mons	U of S - CDC	FP Genetics
CDC Normandy	U of S - CDC	SeCan Members
Prairie Blue ☞	AAFC (Morden)	SeCan Members
Prairie Grande ☞	AAFC (Morden)	SeCan Members
Prairie Thunder ☞	AAFC (Morden)	CANTERRA SEEDS
CDC Sorrel ☞	U of S - CDC	SeCan Members
Taurus ☞	Limagrain Nederland	FP Genetics
Vimy	U of S - CDC	SeCan Members
AC Watson ☞	AAFC (Morden)	Viterra Inc.

Crop Kind, Class & Variety	Breeding Institution	Distributor
Soybean		
NSC Warren RR		NorthStar Genetics Manitoba
Apollo RR		CANTERRA SEEDS
RR Rosco		Hyland Seeds
NSC Gimli RR		NorthStar Genetics Manitoba
RR Russell		Hyland Seeds
Isis RR		BrettYoung
Montcalm		SeCan Members
LS 0036		Quarry Grain Commodities Inc
LS 0028		Quarry Grain Commodities Inc
25-04 R		Monsanto Canada Inc.
24-52 R		Monsanto Canada Inc.
90A06		Pioneer Hi-Bred Ltd.
Mustard		
Brown		
Amigo	AAFC (Saskatoon)	Canadian Mustard Assoc.
Centennial Brown	AAFC (Saskatoon)	Canadian Mustard Assoc.
Duchess	Colman's of Norwich	Viterra Inc.
Oriental		
Cutlass	AAFC (Saskatoon)	Canadian Mustard Assoc.
Forge	Colman's of Norwich	Viterra Inc.
AC Vulcan	AAFC (Saskatoon)	Canadian Mustard Assoc.
Yellow		
Ace	Colman's of Norwich	Viterra Inc.
Andante	AAFC (Saskatoon)	Canadian Mustard Assoc.
AC Base	AAFC (Saskatoon)	Canadian Mustard Assoc.
AC Pennant	AAFC (Saskatoon)	Canadian Mustard Assoc.
Sunflower		
63A21	Pioneer Hi-Bred	Pioneer Hi-Bred
63M40		
63M80		
Canola - see Canola table VR20		

Abbreviations used in this list

AC	Prefix to variety names Agriculture Canada (Agriculture and Agri-Food Canada)
AAFC	Agriculture and Agri-Food Canada
CDC	Crop Development Centre
AARD	Alberta Agriculture and Rural Development, Lacombe, AB
U	University
U of S	University of Saskatchewan
USDA	United States Department of Agriculture