Saskatchewan
Ministry of
Agriculture

Varieties of Grain Crops 2012

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 2012 Seed Guide:

§ Variety may not be described in 2013
--- 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

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.

Financial and technical support is also provided by The Western Producer, publisher of the 2012 SaskSeed Guide.

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 canaryseed. 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.

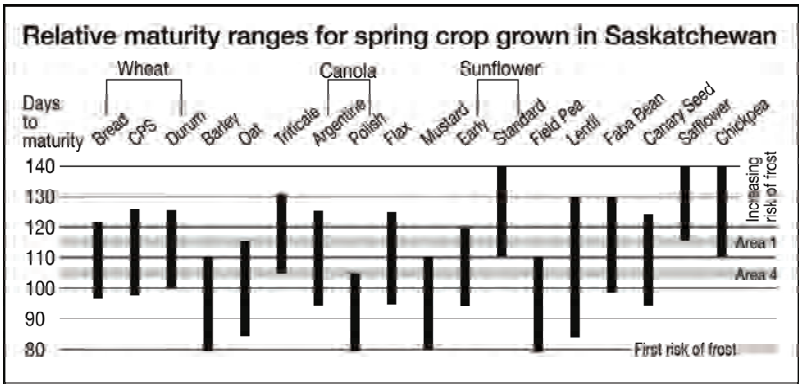
Some of the tables in this booklet express the relative maturity in days while others use a five category scale: VE, E, M, L, and VL (very early, early, medium, late, very late). The limits for each category can vary from crop to crop. In barley, for example, AC Metcalfe would be M with L and E varieties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

By Saskatchewan Ministry of Agriculture

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, chickpea 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 (PBR) 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 can be obtained from the Plant Breeders' Rights Office, tel. (613) 773-7133, fax (613) 773-7261.

Cereal Crops

Wheat

Main Characteristics of Varieties

Variety	Years Tested	Area 1 & 2	Area 3 & 4	Irrigation	Protein	Resistance to: Lodging	Sprouting	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt	Leaf Spot	Fusarium Head Blight	Relative Maturity in days	Head Awned-ness	Seed Weight (mg)	Volume Weight** (Kg hL-1)	Height (cm)
Canada Western Red Spring ♣		**Yield as % of AC Barrie**																	**Relative to AC Barrie**
AC Barrie	11	100	100	100	14.9	G	G	G	P	VP	G	F	P	F	100	N	36.0	79.9	93
CDC Abound	7	109	106	---	-0.3	G	F	VG	P	P	F	F	P	VP	+2	Y	+2.4	-0.3	-10
CDC Alsask	4	107	106	---	+0.2	F	G	VG	VG	F	G	G	P	P	-1	N	-0.3	-1.3	-1
Alvena	4	105	104	---	+0.2	G	P	G	F	F	G	G	---	P	-2	N	-1.1	0.0	0
Carberry	3	112	105	---	-0.1	VG	F	G	VG	G	G	VG	P	G	+3	Y	+1.2	+1.2	-12
Cardale ✪ ♣	2	104	112	---	+0.2	G	G	VG	VG	G	F	VP	P	G	+1	Y	-3.3	0.0	-9
AC Elsa	7	103	104	97	-0.1	G	F	VG	G	F	G	F	F	P	-1	N	-2.4	-0.5	-1
Fieldstar VB ***	8	111	110	---	-0.3	F	VG	G	VG	P	F	G	---	F	+3	Y	-2.1	+0.7	3
Glenn	3	112	109	---	-0.3	VG	F	VG	VG	G	F	F	F	F	+3	Y	-1.7	+1.9	-4
CDC Go	4	102	103	---	-0.1	G	VP	VG	F	G	P	G	VP	P	-1	Y	+3.6	-0.3	-6
Goodeve VB ***	8	111	111	---	0.0	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	G	F	P	VP	-1	N	-0.4	+0.1	-6
CDC Imagine	5	98	102	---	-0.1	G	F	F	F	F	G	G	P	VP	0	N	-1.7	-1.8	-3
Infinity	8	108	107	---	-0.2	G	G	G	G	P	G	F	G	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	F	P	F	F	F	+1	Y	-0.5	+1.4	-5
CDC Kernen ✪	3	111	112	---	-0.1	G	F	G	G	F	VG	F	F	F	+1	Y	1.3	-0.1	+3
Lillian	7	102	99	---	+0.3	F	G	G	VG	VG	F	G	G	VP	0	N	-0.3	-1.1	-1
McKenzie	6	107	103	109	-0.4	F	VG	VG	VG	P	VP	VG	P	F	-1	Y	-1.5	+0.1	+1
Muchmore	3	117	104	---	-0.5	VG	G	VG	VG	G	G	VG	P	P	+3	Y	+1.3	0	-15
CDC Osler	3	101	104	---	-0.3	G	F	VG	G	F	G	G	F	VP	-1	N	-3.7	-0.7	-2
Shaw VB ***	3	125	120	---	-0.7	G	G	VG	G	---	P	G	P	P	+1	N	-0.4	-1.6	+5
CDC Stanley ✪	3	116	113	---	-0.3	G	G	VG	G	---	G	VP	F	P	0	N	-2.2	-1.1	-3
Stettler	4	116	111	---	+0.1	G	G	G	P	G	G	G	P	P	+1	Y	-0.6	0.0	-6
Superb	7	109	108	---	-0.4	G	F	VG	P	VP	F	G	VP	P	+3	Y	+2.6	-0.5	-7
CDC Teal	7	102	101	99	-0.1	G	P	G	G	G	G	F	P	VP	-2	N	-1.2	-0.3	0
CDC Thrive ✪	3	112	113	---	0.0	G	P	G	F	F	G	F	F	P	0	N	-0.5	0.0	+1
Unity VB ***	8	118	120	---	-0.7	F	G	VG	VG	P	P	VG	F	P	0	Y	-0.6	+1.0	+1
CDC Utmost VB ✪ ***	3	121	116	---	-0.5	G	G	G	VG	F	P	VP	F	P	-1	N	-0.5	-0.1	-3
Vesper VB *** ♣	2	120	125	---	-0.9	F	F	G	VG	VP	P	VP	F	F	0	Y	0.9	-1.2	-1
Waskada	8	117	112	---	-0.3	F	VG	VG	F	P	G	G	P	G	+1	Y	+0.3	+1.4	+4
WR859CL	4	113	105	---	-0.2	G	G	G	VG	F	VG	VG	P	G	0	Y	-2.2	0.0	-7
5602HR	6	103	104	---	+0.1	F	F	VG	VG	F	G	G	P	G	+1	Y	0.0	+1.6	+1
5603HR ♣	4	113	113	---	-0.7	G	VG	G	VG	P	P	F	G	F	+3	Y	-2.7	-2.0	+1
5604HR CL ✪ ♣	3	106	103	---	-0.5	G	G	VG	VG	---	P	F	P	F	-1	Y	-2.5	-0.3	-2
Canada Prairie Spring Red ♣																			
Conquer VB ***	3	121	123	---	-1.3	F	P	VG	G	---	P	VG	F	P	+1	Y	+9.2	+2.8	-4
AC Crystal	11	118	115	110	-1.3	VG	P	VG	P	VP	P	VG	F	VP	+3	Y	+4.9	-0.1	-11
5700PR	5	115	120	115	-1.2	VG	F	VG	F	P	P	G	P	VP	+2	Y	+6.8	+1.1	-16
5702PR	5	126	124	---	-1.6	G	P	F	G	P	P	F	G	P	+1	Y	+8.5	0.0	-10
SY985 ✪	2	114	112	---	-0.6	G	F	VG	VG	---	VG	G	F	F	+1	Y	+11.8	+1.6	-15
Canada Prairie Spring White ♣																			
AC Vista §	9	122	121	113	-1.4	G	F	VG	P	F	P	VG	P	VP	+1	Y	+6.7	-2.1	-9
Canada Western Hard White Spring ♣																			
Snowbird	5	99	102	---	-0.6	G	G	G	F	P	G	F	P	P	+2	N	-1.8	-0.4	+1
Snowstar	4	107	108	---	-1.2	VG	G	VG	G	P	P	P	P	P	0	N	-3.4	+1.5	-10
Canada Western Soft White Spring ♣																			
AC Andrew	5	138	135	---	-3.6	G	P	G	P	F	P	P	F	F	+5	Y	+0.7	-1.8	-9
Bhishaj §	5	128	---	128	---	G	---	P	F	G	F	P	F	VP	+3	Y	-4.2	-2.0	-7
Sadash	3	149	135	---	-4.3	VG	P	G	F	G	P	VP	F	P	+5	Y	+0.7	+0.6	-6
Canada Western Extra Strong ♣																			
CDN Bison §	4	120	119	---	-0.8	G	F	VG	G	---	VG	F	F	F	+3	Y	+6.6	-0.4	-6
Burnside	6	97	100	---	0.0	F	G	VG	G	VG	VG	F	P	P	0	N	+3.6	-0.4	+6
Glencross VB ***	4	110	118	---	-0.6	F	F	VG	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 ♣																			
CDC NRG003 ✪	3	130	126	---	-1.9	G	F	VG	G	---	G	VG	VP	VP	0	Y	+6.4	-1.8	-10
NRG010	3	131	130	---	-2.5	G	P	VG	VG	VG	VG	VG	P	VP	+2	Y	+3.3	-2.0	-7
Minnedosa	3	122	117	---	-1.7	G	G	VG	VG	G	F	VG	P	P	+1	Y	+6.7	-2.1	-9
Pasteur ✪	1	---	---	---	-2.4	VG	F	G	VG	G	P	VP	F	F	+8	N	+2.9	+0.9	-7
Canada Western Amber Durum		**Yield as % of Strongfield**																	**Relative to Strongfield**
Strongfield	7	100	100	100	14.4	F	F	VG	VG	G	P	VG	F	VP	105	Y	42.1	79.2	89
AC Avonlea	7	95	96	---	-0.2	F	F	VG	VG	G	P	VG	F	VP	+1	Y	-0.6	-1.0	+2
Brigade	4	106	110	107	-1.0	G	F	VG	VG	G	P	VG	F	P	+2	Y	+1.1	+0.3	+6
Enterprise ✪	3	102	97	102	-0.2	F	F	VG	VG	VG	P	G	F	P	0	Y	-3.2	+0.6	+2
Eurostar	4	99	102	103	-0.4	F	F	VG	VG	VG	P	VG	F	P	+2	Y	+0.6	+0.8	+4
Kyle §	6	89	91	---	-0.4	P	F	VG	VG	VG	P	VG	P	VP	+1	Y	-0.5	-0.6	+12
AC Navigator	6	99	91	---	-0.7	G	G	VG	VG	VG	P	VG	VP	VP	+2	Y	+1.2	-0.1	-8
Transcend ✪	2	101	98	---	-0.2	F	F	VG	VG	VG	P	VG	F	P	+2	Y	-1.4	0.0	+8
CDC Verona	4	100	102	105	-0.3	G	F	VG	VG	VG	P	VG	F	P	+2	Y	+0.1	-0.2	+1

♣ Includes direct and indirect comparisons with AC Barrie

** multiply by 0.8 = lbs per bushel

*** VB = varietal blend

Additional Information

Producers are strongly encouraged to use a combination of the Canadian Food Inspection Agency's List of Registered Varieties (www.inspection.gc.ca) and the Canadian Grains Commission's Variety Designation Lists (www.grainscanada.gc.ca) to determine the registration and grade eligibility status of varieties.

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 and durum wheat are compared to **AC Barrie** and **Strongfield**, respectively.

Most varieties have been rated for their relative resistance to pre-harvest sprouting. Under wet postmaturity 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 and stripe rust continue to evolve, so the rust resistance in varieties change from 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, 2012*.

All wheat and durum varieties exhibit similar susceptibilities to ergot infection.

CANADA WESTERN RED SPRING

Fieldstar VB, **Goodeve VB**, **Shaw VB**, **Unity VB**, **CDC Utmost VB**, and **Vesper VB** are CWRS wheat midge tolerant varieties. They contain the same *Sm1* gene for tolerance. To manage against the buildup of midge resistance to the *Sm1* 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. More information on midge tolerant wheat cultivars and interspersed refuge can be found at: *www.midgetolerantwheat.ca/farmers/faq.aspx* or page 21.

Seed of the new varieties **Cardale** and **Vesper VB** will not be available in 2012. Limited quantities of seed of the new varieties **Carberry**, **CDC Kernen**, **Muchmore**, **Shaw VB**, **CDC Stanley**, **CDC Thrive**, **CDC Utmost VB** and **5604HR CL** will be available in 2012.

Lillian has a solid stem and some resistance to the wheat stem sawfly.

CDC Abound, **CDC Imagine**, **CDC Thrive**, **WR859CL**, and **5604HR CL** are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX.

CANADA PRAIRIE SPRING

Conquer VB is the only CPS-red midge tolerant variety using the *Sm1* gene and will be marketed with an interspersed refuge (see above).

Limited quantities of seed of **Conquer VB** will be available in 2012.

CANADA WESTERN EXTRA STRONG

Glencross VB is the only CWES wheat midge tolerant variety based on the *Sm1* gene and will be marketed with an interspersed refuge (see above).

SOFT WHITE SPRING

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.

GENERAL PURPOSE

Limited quantities of seed of **CDC NRG003**, **NRG010** and **Pasteur** will be available in 2012.

CANADA WESTERN AMBER DURUM

Seed of the new variety **Transcend** will not be available in 2012. Limited quantities of seed of **Enterprise** will be available in 2012. 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.

Brigade, **Eurostar** and **AC Navigator** have strong gluten properties.

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**
- **Saskatchewan Seed Growers Assoc.**
- **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	Site-Years Tested	Yield as % of CDC Buteo – Low Moisture Potential		Yield as % of CDC Buteo – High Moisture Potential		Protein Content (%)	Relative Maturity	Height (cm)	Resistance to: Lodging	Winter Damage	Stem Rust	Leaf Rust	Stripe Rust	Bunt	Fusarium Head Blight
Canada Western Red Winter															
CDC Buteo (bu/ac)		40	60	80	100	12.4	M	88	G	VG	G	G	VP	VP	G
AC Bellatrix	89	105	102	100	99	+0.1	L	0	G	F	VP	VP	VP	F	F
CDC Clair	87	108	103	102	102	-0.6	M	0	G	VG	P	P	---	VP	---
CDC Falcon	212	105	103	102	102	-0.6	E	-15	VG	F	G	G	VP	VP	VP
Flourish	62	98	99	101	102	+0.3	E	-10	VG	F	F	F	F	F	VP
CDC Harrier	149	108	105	104	102	-1.2	M	+5	G	G	G	P	VP	VP	P
CDC Kestrel	113	108	105	105	104	-1.6	M	+5	G	VG	P	P	---	VP	---
McClintock	150	105	100	99	97	-0.2	L	+3	G	F	VG	G	G	VP	VP
Moats	19	105	105	104	103	+0.2	M	+1	G	G	VG	VG	G	P	---
CDC Osprey	102	102	102	100	100	-0.2	M	+2	G	VG	P	P	VP	VP	P
Radiant	76	102	102	102	102	-0.3	L	-1	VG	VG	VP	VP	P	P	VP
CDC Raptor	143	108	103	101	100	-0.6	M	-7	VG	G	VG	G	---	VP	P
Canada Western General Purpose															
Accipiter	55	120	112	106	104	-0.4	M	-7	VG	G	VG	G	---	VP	VP
Broadview	58	106	104	103	103	-0.9	E	-9	VG	G	VG	VG	VP	VP	VP
Peregrine	52	118	112	109	107	-0.5	M	+6	G	VG	VG	VG	G	VP	P
CDC Ptarmigan	45	123	117	113	111	-2.1	M	+2	F	G	P	P	VP	VP	---
Sunrise	21	127	115	109	105	-0.9	M	-1	G	G	G	G	G	VP	---

Yield: For a more in-depth yield analyses go to: *http://www.usask.ca/agriculture/plantsci/winter_cereals/select.php*
Winter damage: For more detailed information go to *http://www.wheatworkers.ca/FowlerSite/winter_cereals/WWModel.php*
CDC Ptarmigan has an awnless head and soft white kernels. **Sunrise** has soft red kernels.

Classes and Marketing:

Effective August 1, 2013, the Canadian Grain Commission advises that the varieties **CDC Clair, CDC Harrier, CDC Kestrel**, and **CDC Raptor** will be moved from the Canada Western Red Winter Class to the Canada Western General Purpose class.

Rye

Main Characteristics of Varieties

Variety	Years Tested	Yield as % of Prima – Area 1 & 2	Yield as % of Prima – Area 3	Relative Maturity	Resistance to: Winter Damage	Shattering	Lodging
Prima	20	100	100	M	VG	F	F
AC Rifle	20	98	89	M	VG	VG	VG
AC Remington	8	102	95	M	VG	VG	G
Hazlet	7	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	Yield as % of AC Certa – Area 1 & 2	Yield as % of AC Certa – Area 3	Test Weight Kg hL^{-1}	Relative Maturity	Resistance to: Lodging	Stem Rust	Leaf Rust	Bunt	Root Rot
Spring Habit										
AC Certa	18	100	100	73	M	G	VG	VG	VG	G
Bumper	3	100	115	71	E	G	VG	VG	VG	---
Bunker	4	99	97	73	E	G	VG	VG	VG	---
Pronghorn	20	100	102	68	E	G	G	VG	VG	F
Tyndal	4	106	102	73	E	G	VG	VG	VG	---
AC Ultima	16	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	---	---	---	---
Metzger	5	96	101	67	E	G	---	---	---	---

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. Susceptiblity to fusarium head blight is at least as great in triticale as in wheat. **AC Ultima** has an improved Hagberg Falling Number.

Winter triticale has winter hardiness equal to that of winter wheat. **Tyndal** and **Bunker** spring forage types and **Bobcat**, **Luoma** and **Metzger** winter triticales have reduced awns.

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 Area 1 & 2	Yield as % of AC Metcalfe Area 3 & 4	Relative Maturity*	Resistance to: Lodging	Net-Form Net Blotch**	Spot-Form Net Blotch	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	Fusarium Head Blight
Malting acceptance: Recommended																
AC Metcalfe	12	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 Meredith	6	2	R	115	112	L	G	P	VG	P	P	VG	G	F	G	F
Newdale	6	2	R	112	113	M	G	F	G	F	P	VP	G	G	G	F
CDC PolarStar+	3	2	R	106	100	M	F	VP	G	P	VP	VP	VG	P	VP	G
Legacy	6	6	S	104	101	M	G	VP	G	G	P	F	G	G	G	P
Stellar-ND	4	6	R	110	104	M	VG	VP	F	G	VP	G	VG	P	F	F
Tradition	5	6	S	112	107	M	VG	VP	F	G	P	VP	G	G	G	VP
Malting acceptance: Under Test																
Bentley	6	2	R	115	113	L	G	P	VG	F	P	P	G	F	G	P
Cerveza	5	2	R	114	116	M	G	P	G	VG	VP	VG	VG	F	F	F
CDC Kindersley	4	2	R	104	104	E	G	P	G	F	VP	VP	VG	F	G	F
Major	5	2	R	114	116	M	G	F	G	G	VP	VG	G	P	G	F
Merit 57	6	2	R	111	108	L	G	P	VG	P	F	VP	F	G	F	P
Norman	6	2	R	105	105	M	G	P	VG	VP	VP	VP	VP	P	VP	G
CDC Reserve §	6	2	R	111	108	M	G	VP	VG	F	P	VP	P	F	G	F
CDC Anderson	4	6	R	108	102	M	G	P	G	G	P	G	VG	F	F	P
Celebration	4	6	S	109	102	M	VG	VP	G	G	VP	VG	VG	P	F	P
CDC Mayfair	6	6	R	106	107	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 Landis §	6	2	R	111	110	M	G	F	VG	F	VP	VP	G	P	G	F
CDC Kendall	11	2	R	101	102	M	G	F	G	VP	P	P	P	G	P	F
CDC Battleford	6	6	S	108	108	M	G	P	VG	VG	P	P	G	G	G	VP
CDC Clyde	8	6	S	110	106	M	VG	F	G	VG	P	F	VG	G	G	VP
CDC Kamsack	5	6	R	103	108	M	G	VP	F	G	P	F	VG	P	G	VP
Lacey §	4	6	S	101	101	M	G	VP	F	G	P	F	G	G	G	VP

♣ These categories are established annually by the Canadian Malting Barley Technical Centre (CMBTC - 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.

+ **CDC PolarStar** is available only through a closed loop Identity Preserved program offered by Prairie Malt Limited/Sapporo Breweries and their agents.

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.

CMBTC™
CANADIAN MALTING BARLEY TECHNICAL CENTRE

Canada

Recommended Malting Barley Varieties 2012-13

These recommendations are based on the varieties expected to be selected by grain and malting companies for both domestic and export markets from the 2012 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 2011.

Recommended Two-Row Barley Varieties

VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
AC Metcalfe[4]	Established	Established	Stable Demand
CDC Copeland[4]	Established	Established	Stable Demand
CDC PolarStar[5] **	Limited	Limited	Stable Demand
Newdale[3]	Established	Limited	Stable Demand
CDC Meredith[4]	Limited	Limited	Increasing Demand

Bentley, Major, Merit 57, Norman, Cerveza, CDC Kindersley 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 is available only through a closed loop Identity Preserved program offered by Prairie Malt Limited/Sapporo Breweries and their agents.**

Recommended Six-Row Barley Varieties

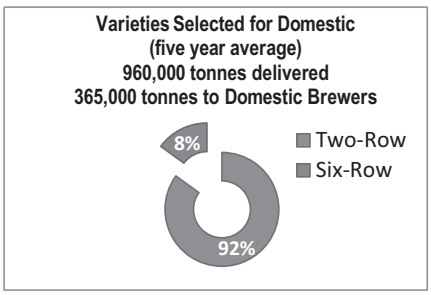
VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
Legacy[1,2,3]	Established	Established	Stable Demand
Stellar-ND[5]	Limited	Limited	Stable Demand
Tradition[1,2,3]	Established	Established	Declining Demand

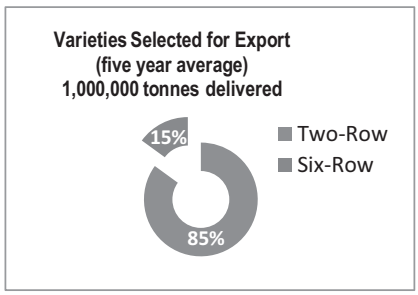
Innovation, CDC Mayfair and CDC Anderson are not yet being grown for the commercial market. Production is limited to quantities required for testing and market development. Celebration reached capacity for plant scale testing in 2010. **Please talk to your local malting company selector in regards to demand for CDC Battleford, Lacey and Robust.**

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 SEEDS

"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: Alfred C. Toepfer (Canada) Ltd., Canadian Wheat Board, Canadian Grain Commission, Cargill AgHorizons, SABMiller, Richardson International, Parrish and Heimbecker, Prairie Malt Limited, the Public Barley Breeders, Rahr Malting Canada, SeCan, Manitoba Liquor Control Commission, Alberta Ag, Saskatchewan Ag, Manitoba Ag, Molson Coors, Alberta Barley Commission, FP Genetics and Viterra.
Other organizations providing input to this list: BMBRI, BARI-Canada and CANTERRA SEEDS

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 Area 1 & 2	Yield as % of AC Metcalfe Area 3 & 4	Relative Maturity*	Resistance to: Lodging	Net-Form Net Blotch**	Spot-Form Net Blotch	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	Fusarium Head Blight
Hulled																
CDC Austenson	6	2	R	119	121	M	G	P	VG	G	VP	VP	VG	F	F	F
CDC Bold	7	2	R	111	112	L	G	VP	F	VP	P	P	G	G	G	VP
Busby	5	2	R	104	106	E	G	P	G	P	F	VP	VG	VP	F	F
Champion	8	2	R	117	117	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	VP	F	VP	F	F	P	G
Gadsby	4	2	R	114	111	M	F	P	G	VP	VG	VG	VG	F	F	F
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	7	2	R	104	103	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	6	6	S	110	111	M	G	F	G	G	G	P	VG	VP	VP	VP
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
Muskwa	3	6	S	118	108	M	G	P	G	G	G	P	VG	P	G	VP
Hulless																
CDC Carter	5	2	R	99	100	M	G	F	G	F	P	VG	VG	VP	F	F
CDC ExPlus	5	2	R	90	98	M	VG	F	F	F	VP	P	P	VP	F	G
CDC McGwire	8	2	R	98	99	M	G	F	G	F	F	P	G	G	F	G
Taylor	4	2	R	81	88	M	VG	P	G	F	VP	VG	F	P	G	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 prevelant.

Forage Barley

Binscarth, Desperado, Dillon, 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.
CDC Lophy-I is a low phytate hulless two-row feed variety.

Hulless Food

CDC Alamo, CDC Candle, CDC Fibar, and **CDC Rattan** are high beta-glucan waxy starch varieties. **CDC Hilose** is a high beta-glucan, high amylose starch variety. All are available for specialty markets.
CDC Carter, **CDC McGwire**, **Millhouse** and **Roseland** are two-row normal starch hulless barleys suitable for food use.

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.

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 -- Area 1 & 2	Area 3 & 4	Test Weight (g/0.5L)	% Hull	% Plump	Relative Maturity*	---------- Resistance to: ---------- Lodging	Stem Rust	Crown Rust	Smut
CDC Dancer	9	100	100	253	19.8	70	M	G	F	F	VG
SW Betania	7	105	105	245	22.0	67	M	G	VP	P	G
CDC Big Brown	4	104	108	256	20.4	71	L	G	P	VG	VG
CDC Boyer §	8	99	100	232	23.3	71	M	G	F	F	P
Bradley	3	101	100	---	---	---	---	---	P	P	VG
Derby	8	98	102	247	22.9	65	M	G	VP	VP	P
HiFi	6	99	97	253	22.4	55	M	G	F	VG	P
Jordan	7	110	118	238	22.4	76	VL	G	F	F	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	7	106	107	245	21.0	75	L	VG	F	P	VG
AC Morgan	8	104	108	236	25.1	54	L	VG	VP	VP	F
CDC Morrison	3	100	95	248	24.4	67	L	VG	P	VG	VG
CDC Nasser	4	109	111	233	21.8	64	VL	G	P	P	VG
CDC Orrin	6	108	109	253	23.2	74	L	G	P	VP	VG
Pinnacle	8	113	109	244	23.6	70	VL	F	F	P	VG
Ronald	7	96	99	249	22.4	55	L	VG	F	P	VG
CDC Seabiscuit	5	110	106	240	20.3	73	L	G	F	P	F
CDC Sol-Fi	6	93	94	246	22.2	50	M	F	P	VP	G
Souris	5	103	104	253	21.5	58	M	VG	F	VG	VG
Stainless	5	95	95	243	22.4	64	M	G	G	VG	VG
Summit	6	101	102	256	21.6	67	M	G	F	VG	VG
Triactor	7	114	118	240	22.8	66	L	G	VP	G	F
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, crown rust races capable of attacking most varieties, except **CDC Big Brown, HiFi, Leggett, CDC Morrision, Souris, Stainless, Summit,** and **Triactor** are increasing in southeast Saskatchewan. Early seeding will reduce the likelihood of severe infection.

Feed Oat

CDC SO-I and **CDC Nasser** are specialty feed oat varieties with higher digestible energy for cattle.

Forage Oat

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

Hulless Oat

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 percent moisture.

False Wild Oats or Fatuoids:

False wild oats, or fatuoids, are off-types within common oat fields that have an appearance similar to wild oat, most noticeably, a prominent, dark awn and increased hairiness at the base of each floret. They are thought to result from the infrequent cross-pollination between common oat (Avena sativa) and true wild oat (Avena fatua). As such, their presence will likely be observed more often in fields planted from farm-saved seed. They have been reported within fields of common oat at rates up to 1 percent and occur within all oat varieties.

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.

Canaryseed

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)***	Seed Weight (g/1000)
CDC Maria	glabrous	83	100	58	104	103	71	7.3
CDC Togo	glabrous	76	110	+1	+1	+1	-1	+0.8
CDC Bastia	glabrous	71	112	+1	0	+2	0	0.0
Keet	hairy	83	122	+2	+2	+5	-6	-0.2
Cantate**	hairy	26	127	+1	+2	0	-6	+0.2

* Yield data not collected by Area
** 2004-2011 data only
*** multiply by 0.8 = lb per bushel

Additional Information:
The seed of annual canarygrass, more commonly called canaryseed, 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 canaryseed is threshed and handled and are called glabrous.

Canaryseed plants have a dense, shallow root system and growing the crop on sandy soils is not recommended. Canaryseed 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) (with germination greater than 85 percent). Reduced emergence might be expected if canaryseed is seeded below 5 cm.

Canaryseed is subject to damage by English grain aphid and bird cherry oat aphid. Aphid populations build up rapidly on leaves, stems and heads 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 percent 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 canaryseed plant. Damage may occur at populations below these levels.

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

Canaryseed is resistant to shattering. It may be straight-combined or swathed when fully mature. For more information on canaryseed, consult the Saskatchewan Agriculture publication, *Canaryseed 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 percent 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 percent seed infection is acceptable in the Brown and Dark Brown Soil Zones, but 0 percent 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 percent. In pea, up to 10 percent seed infection with ascochyta is acceptable. In chickpea, 0 percent 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 percent ergot is considered poisonous and should not be used for food. Refer to *www.agriculture.gov.sk.ca/ergot-of-cereal-grasses*

Seed Inoculation
Legume crops obtain much of their nitrogen 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. Consider the use of midge-tolerant varieties. Refer to the Saskatchewan Agriculture publication, *Wheat Midge*.

Pulse Crops

2011 Regional Variety Trials

Funding for pulse crop regional trials is supported by financial assistance provided by Saskatchewan Pulse Growers. The Crop Development Centre (CDC) coordinates the trials with collaborating researchers from Agriculture and Agri-Food Canada research stations, provincial Agri-ARM sites, and the Canada-Saskatchewan Irrigation Diversification Centre. The project collects data on varieties from the CDC program and from other public and private pulse breeding programs.

Since 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 Coat Colour	Seed Weight (g/1000)
			Area 1 & 2	Area 3 & 4				Ascochyta Blight	Anthracnose Race 1			
Small green	CDC Milestone	16	100	100	31	49	E	G	VP	yellow	green	37
	CDC Imvincible CL	6	108	100	33	49	E	G	G	yellow	green	34
	CDC Viceroy	8	103	111	34	49	E	G	G	yellow	green	33
	Eston §	15	88	89	30	48	E	VP	VP	yellow	green	33
Medium green	CDC Impress CL	5	101	84	34	50	M	G	P	yellow	green	52
	CDC Imigreen CL	5	86	82	44	50	M	G	VP	yellow	green	57
	CDC Meteor	9	111	102	34	50	M	G	VP	yellow	green	51
	CDC Richlea	13	102	92	35	50	M	VP	VP	yellow	green	51
Large green	CDC Glamis §	11	84	83	39	54	VL	G	VP	yellow	green	60
	CDC Grandora §	10	78	84	40	53	VL	G	VP	yellow	green	69
	CDC Greenland	10	103	87	38	52	ML	G	VP	yellow	green	64
	CDC Impower CL	5	94	79	41	52	ML	G	VP	yellow	green	64
	CDC Improve CL	6	96	88	39	51	M	F	VP	yellow	green	67
	CDC Plato	12	98	88	38	52	ML	G	P	yellow	green	62
	CDC Sedley §	9	81	85	39	51	M	F	VP	yellow	green	68
	CDC Sovereign	10	90	89	40	52	L	G	P	yellow	green	66
French green	CDC LeMay	6	91	92	35	48	E	F	VP	yellow	green/marbled	33
	CDC Peridot CL	6	95	100	37	48	E	F	P	yellow	green/marbled	38
Extra small red	CDC Impala CL	**6**	102	101	30	51	E	G	G	red	gray	31
	CDC Imperial CL	**7**	94	91	30	49	E	G	G	red	gray	30
	CDC Redbow	5	111	114	30	49	E	G	G	red	gray	32
	CDC Rosebud	6	108	114	30	50	E	G	G	red	tan	31
	CDC Rosetown §	**8**	107	109	31	52	E	G	G	red	gray	31
	CDC Ruby	**5**	103	102	30	48	E	G	G	red	gray	29
Small red	CDC Cherie	4	118	122	32	51	EM	G	F	red	gray	39
	CDC Dazil CL	4	116	115	33	53	EM	G	F	red	gray	35
	CDC Imax CL	5	106	112	35	51	EM	G	F	red	gray	45
	CDC Impact CL	6	87	87	30	47	E	G	P	red	gray	34
	CDC Maxim CL	5	110	119	34	51	EM	G	G	red	gray	40
	CDC Redberry	9	105	111	34	50	EM	G	G	red	gray	42
	CDC Redcliff	5	120	125	35	51	EM	G	F	red	gray	38
	CDC Redcoat	5	116	107	33	50	EM	G	G	red	gray	39
	CDC Red Rider	6	103	98	34	52	EM	G	F	red	gray	45
	CDC Rouleau	6	104	107	33	52	M	G	G	red	gray	37
Large red	CDC KR-1	5	123	108	37	52	M	G	G	red	gray	56
Green cot	CDC QG-1	4	86	76	42	49	M	F	F	green	green	49
Spanish brown	CDC SB-1	4	83	93	30	48	E	F	F	yellow	gray/dotted	37

***** 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 may be limited for **CDC Imigreen CL, CDC Impower CL, CDC Peridot CL, CDC Redbow, CDC Rosebud, CDC Imax CL, CDC Redcoat, CDC Ruby, CDC Dazil CL and CDC Cherie. Indianhead** lentil is a small black-seeded specialty variety.

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	Lodging (1-9)**	Vine Length (cm)	---------- Resistance to: ----------							Seed Weight g/1000
		1.2 & South 3	North 3 & 4	Irrig-ation					Mycosphae-rella Blight	Powdery Mildew	Fusarium Wilt	Seed Coat Breakage	Bleaching	Seed Coat Dimpling♣	Greenness♦	
Yellow																
Cutlass	12	100	100	100	SL	M	5	75	F	VG	F	F	n/a	F	G	220
Agassiz	7	114	116	120	SL	M	4.5	85	F	VG	F	G	n/a	F	G	230
Argus	4	110	114	113	SL	M	4	80	F	VG	F	F	n/a	F	G	230
Canstar	5	96	101	98	SL	M	4	85	P	VG	G	F	n/a	G	G	240
CDC Bronco	8	109	104	102	SL	M	4.5	75	F	VG	F	G	n/a	G	G	230
CDC Centennial	5	106	112	117	SL	E	5.5	70	F	VG	F	G	n/a	G	F	270
CDC Golden	9	108	102	107	SL	M	4.5	85	F	VG	F	G	n/a	G	G	230
CDC Handel	5	103	93	110	SL	L	6	75	P	VG	F	G	n/a	G	F	220
CDC Hornet	6	104	107	106	SL	M	4	85	F	VG	F	F	n/a	G	G	220
CDC Mozart	7	104	101	108	SL	M	5.5	70	F	VG	F	G	n/a	G	F	220
CDC Meadow	9	107	109	108	SL	E	4	85	F	VG	F	G	n/a	G	G	220
CDC Minuet	5	100	101	---	SL	M	5.5	70	F	VG	F	F	n/a	G	F	190
CDC Prosper	7	99	102	87	SL	E	4.5	80	F	VG	G	G	n/a	F	G	150
CDC Saffron	4	113	114	110	SL	M	4	80	F	VG	F	G	n/a	F	G	250
CDC Treasure	7	103	109	111	SL	E	4	80	F	VG	F	F	n/a	F	G	210
Delta	4	93	92	---	SL	E	5.5	70	P	P	---	G	n/a	---	---	250
DS Admiral	6	93	103	95	SL	E	4.5	80	F	VG	F	G	n/a	G	G	240
Eclipse	11	98	98	101	SL	M	4	80	F	VG	P	G	n/a	F	G	250
Hugo	4	114	120	116	SL	M	5.5	75	F	VG	G	G	n/a	F	G	220
Polstead	8	102	105	107	SL	M	5	75	P	VG	P	F	n/a	G	F	280
Reward	5	98	107	108	SL	M	4	90	F	VG	F	G	n/a	G	F	240
Sorento	6	100	102	113	SL	M	5.5	80	F	VG	F	G	n/a	F	G	260
SW Midas	5	96	91	105	SL	E	4	80	F	VG	F	G	n/a	G	G	220
Thunderbird	6	106	106	108	SL	M	4	85	F	VG	F	G	n/a	G	F	220
Green																
CDC Montero	6	91	89	90	SL	M	5.5	80	F	VG	F	G	F	F	n/a	230
CDC Patrick	7	101	105	102	SL	M	4.5	80	F	VG	G	G	G	G	n/a	190
CDC Pluto	4	112	104	107	SL	M	5.5	80	F	VG	F	G	G	G	n/a	160
CDC Raezer	4	100	107	125	SL	M	3.5	85	F	VG	G	G	G	G	n/a	220
CDC Sage	5	80	84	86	SL	M	4	80	F	VG	G	G	G	F	n/a	220
CDC Striker	12	93	100	101	SL	M	3.5	80	F	P	G	VG	G	G	n/a	230
CDC Tetris	5	105	112	103	SL	L	4	85	F	VG	G	G	G	G	n/a	210
Cooper	10	105	102	103	SL	L	4	80	F	VG	F	F	G	G	n/a	270
Nitouche	7	86	91	95	SL	M	5	75	F	P	F	G	G	F	n/a	250
SW Sergeant	5	88	87	90	SL	M	4	80	F	VG	F	G	G	G	n/a	200
Venture	4	89	82	---	SL	E	5	75	P	P	P	G	F	F	n/a	220
Maple																
CDC Acer	3	100	94	---	SL	L	6.5	60	F	VG	---	G	n/a	VG	n/a	170
CDC Mosaic	2	85	91	---	SL	L	4	85	F	VG	---	G	n/a	VG	n/a	180
CDC Rocket	3	93	104	100	SL	M	6	75	F	VG	---	G	n/a	VG	n/a	210
Dun																
CDC Dakota	2	127	129	---	SL	M	3.5	85	F	VG	---	G	n/a	VG	n/a	205
Forage																
CDC Sonata	4	102	94	---	N	L	6.5	85	F	VG	---	G	n/a	F	F	220
CDC Horizon	2	102	100	---	SL	M	4.5	90	F	VG	---	G	n/a	G	G	170
CDC Leroy	3	98	96	89	SL	M	5	95	F	VG	---	G	n/a	G	G	150
CDC Tucker	3	99	99	88	SL	M	4	100	F	VG	---	G	n/a	G	F	170
Stella	2	89	92	---	SL	M	4	90	F	VG	---	G	n/a	G	G	210
Trapper	7	68	68	---	N	L	8.5	115	P	P	---	G	n/a	---	---	130
40-10	3	80	84	56	N	L	8.5	120	P	P	---	G	n/a	G	---	140

* Co-op and regional trials in Saskatchewan

** Lodging Score (1-9) where 1=completely upright, 9=completely lodged

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

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

♦ Greenness: Good = 0-10%; Fair = 11-25%

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

Additional Information

Forage pea cultivars are generally grown in mixture with annual cereal crops. For forage pea cultivars, biomass yield is generally more important than grain yield.

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.

The following varieties have purple flower colour and pigmented seed coats: **CDC Acer, CDC Mosaic, CDC Rocket, CDC Dakota** and **40-10**. **CDC Acer, CDC Mosaic,** and **CDC Rocket** have a maple patterned seed coat, **40-10** has a speckled seed coat, while **CDC Dakota** has a solid dun (tan) coloured seed coat. All other varieties have white flower colour and non-pigmented seed coats.

Chickpea

Characteristics of Kabuli and Desi Chickpea Varieties

KABULI Variety	Type ♣	Years Tested	----- Yield (% Amit) ----- Area 1*	Area 2*	Ascochyta Blight**	Height (cm)	Days to Flower	Maturity	Seed Weight (g/1000)	Seed Shape♦	Seed or Seed Coat Colour♥
Amit (B-90)	K	13	100	100	4.3	46	56	L	258	Ro	B
CDC Frontier	K	10	107	104	4.2	44	56	L	349	RH	B
CDC Luna	K	9	99	100	5.5	39	54	ML	369	RH	B
CDC Orion	K	5	107	106	5.0	44	53	L	436	RH	B
CDC Alma	K	3	94	97	5.9	40	55	L	368	RH	B
CDC Leader	K	6	109	107	4.5	40	55	M	402	RH	B
CDC Vanguard	D	9	110	108	5.1	41	54	ML	220	P	T
CDC Cabri	D	9	103	102	4.9	48	51	M	304	P	T
CDC Corinne	D	9	118	110	4.2	43	55	M	244	A/P	T
CDC Cory	D	3	122	104	4.2	47	56	M	268	A/P	T

♣ Type: D = Desi; K = Kabuli

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

** Ascochyta Blight at pod filling period:0-9 scale; 0 = no symptom; 9 = plants are completely blighted. Scores 4 - 6 are considered fair.

♦ Seed shape: Ro = Round; RH = Ram-head; P = plump; A = angular

♥ Seed or seed coat colour:B = beige; T = tan; LT = light tan

Additional Information

Please refer to SaskSeed 2012 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

Variety[1]	Years Tested	Site Years Tested	Yield (% of NSC Warren RR)	Corn Heat Units	Days to[2] Maturity	Lodging Resistance	Relative[3] Seed Size (# seeds/lb)	Hilum[4] Colour
NSC Warren RR	2	22	100	2350	118	VG	3062	BR
LS 0036RR	2	22	103	2425	122	VG	3800	BL
900Y71	2	22	97	2400	123	VG	2316	IY

[1] All varieties in this table are Roundup Ready 1 type. For full list of commercial varieties see Seed Manitoba 2012 (www.seedmb.ca).

[2] Average from 2010 and 2011. Moist growing seasons result in delayed maturity.

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

[4] Hilum is the point where the seed attaches to the pod. BR-Brown, IY-Imperfect Yellow, BL-Black

Additional Information

Data are derived from the western Canada soybean trial co-ordinated by Manitoba Agriculture Food and Rural Initiatives.

Saskatchewan test sites were Saskatoon and Outlook (dry land and irrigated). Alberta test sites were Bow Island (dry land and irrigated). Manitoba test sites were Hamiota, Boissevain, Roblin, Carberry, Melita.

Two year (2010-2011) mean yield of the check variety **NSC Warren RR** was 49 bushels/acre. 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.

For effective nodulation and nitrogen fixation, soybean must be inoculated with a *Bradyrhizobium japonicum* bacterial inoculant since this bacteria is not native to western Canadian soils.

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	13	100	100	100	50	E	80	350	I
CDC WM-1	pinto	5	102	100	91	50	E	78	345	I
CDC WM-2 ✪	pinto	5	110	97	97	52	E	74	365	II
Island	pinto	5	104	110	90	55	M	74	350	II
Winchester	pinto	3	121	123	104	52	M	74	352	II
Winmor	pinto	4	115	106	96	55	M	73	356	II
Cruiser §	navy	6	73	85	97	54	L	69	164	II
Envoy	navy	8	83	87	85	53	M	73	184	I
Lightning	navy	3	---	---	88	60	L	87	180	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	shiny black	7	102	95	94	54	M	70	250	II
Carman Black	black	3	---	---	112	59	M	88	191	II
CDC Blackcomb	black	4	106	92	86	56	M	74	167	II
CDC Expresso §	black	11	65	78	74	47	M	87	191	I
CDC Jet	black	9	88	95	91	58	L	80	175	II
CDC Sol	Yellow	4	---	---	---	55	L	78	399	I

* 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 (4 cm) at time of swathing

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

Additional Information

Seed of **Carman Black** will not be available in 2012.

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	4	96	107	480
CDC Blitz	6	101	109	410
Orion	6	92	103	350
Florent	4	112	107	660
FB9-4	3	96	104	680
FB18-20	3	103	105	750
SSNS-1	6	93	105	350
White Flower				
Snowbird	5	104	104	495
Imposa	4	110	107	695
Tobasco ✪	5	101	106	530

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
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)

The Flax Council of Canada's Triffid Stewardship Program recommends the testing of all flax seed intended for planting, and only flax seed which tests negative for the presence of Triffid should be planted. For the latest recommendations, please visit *www.flaxcouncil.ca* .

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 as % of 63A21	Average Maturity (days)	Harvest Moisture %
63A21	2	100	116	14.3
803 DMR NS	2	92	119	14.6
306 DMR NS	2	102	124	20.7
2930	2	97	120	16.8
7120 HO/DM	2	87	125	21.0
8N 270CL DM*	2	104	120	20.7
Defender plus	2	91	120	18.7

2 year data based on 8 locations in total

* 8N 270CL is a Clearfield® tolerant variety. Please consult with seed distributor for specific herbicides.

Sunflower (Oilseed) EMSS

Main Characteristics of Varieties

Variety	Years Tested	Yield as % of 63A21	Average Maturity (days)	Harvest Moisture %
63A21	12	100	116	14.3
AC Sierra	3	56	109	13.3

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. Harvest moisture is a good indication of how quickly these hybrids will be ready to combine in the field. The earlier maturing, short stature (EMSS) varieties are adapted to production in most areas of Saskatchewan. **AC Sierra** is open pollinated and not a hybrid.

The Saskatchewan Sunflower Committee has been conducting trials in Saskatchewan for the purpose of registration and demonstration since 1983. Sunflowers no longer require three years of yield testing to be sold in the Saskatchewan. Saskatchewan Sunflower Committee will publish results from each year. For the complete data set please email Elaine Moats with Saskatchewan Ministry of Agriculture (Elaine.Moats@gov.sk.ca) or call 306-848-2856.

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	43.7	34.4	29.6	5.7
AC Base	100	98	39.8	34.4	29.5	5.9
Ace	99	101	49.0	34.9	29.3	5.5
Andante	101	100	53.9	35.2	28.5	6.1
	Yield % of Duchess	**Plant Height (cm)**	**Volatile oil‡ mg/g seed**	**Protein % Seed**	**Fixed Oil % Seed**	**Seed Weight (g/1000)**
Brown						
Duchess	100	112	9.1	28.8	38.1	2.7
Centennial Brown	101	116	9.9	30.1	36.4	3.0
Amigo**	94	109	13.4	30.7	34.2	2.7
Oriental	**Yield % of Cutlass**					
Cutlass	100	113	11.1	29.2	41.0	2.8
Forge	98	123	11.7	29.8	38.8	2.5
AC Vulcan	97	115	11.9	29.6	40.6	2.8

* Data from 1999-2010 Co-operative Test. Yield % of check: 103 locations for yellow mustard, and 97 locations for brown and oriental mustard.

** Data from 2008-2010 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.

The four yellow mustard varieties have similar yield and range in height from 95 cm to 101 cm. A unique feature of yellow mustard is high mucilage content. Mucilage is valued by the mustard industry as a stabilizer 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 than **Duchess**. 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.

***Brassica napus* (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. 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 practices, such as proper crop and herbicide rotations.

The Prairie Canola Variety Testing (PCVT) program that was conducted until 2009 was replaced with Canola Performance Trials (CPT) in 2011. The CPT trials represent the next generation in variety evaluation for Western Canadian canola growers. The trials were designed to provide:

- Relevant, unbiased and timely performance data that reflects actual production practices;
- Comparative data on leading varieties and newly introduced varieties; and,
- Detailed reporting on agronomic characteristics such as yield, height, lodging, maturity and economic performance, and site specific performance variables including weather, soil type, crop nutrition, seeding and harvest management.

The CPT trials in 2011 were conducted under the guidance of a governance committee that oversaw approvals of varieties, protocol design, data collection, analysis, reporting and finance management. The Canola Council of Canada delivered the program on the committee's behalf.

The CPT program included 26 small plot trials and 111 field scale trials in 2011. The trial sites were distributed based on seeded acres in Manitoba, Saskatchewan and Alberta.

Small plot trials included leading varieties and varieties that are newly introduced. The new small plot system ensured that:

- All varieties are treated with appropriate commercially associated herbicides and seed treatments;
- An independent third party representative inspected all trials; and,
- Varieties were in blocks based on maturity. That way, harvest occurred at the most appropriate time to minimize harvest losses due to maturity differences.

Field scale comparisons added extra perspective for assessing consistency in variety performance.

To ensure quality data, the CPT technical committee established protocols and developed research plot designs to ensure that the data is representative. Performance objectives were established to provide guidelines on timely field operations and data collection. All sites were inspected to verify if these guidelines were followed to allow a fair comparison among the varieties tested. Audits of field scale projects give growers the confidence that the protocol was conducted in a scientifically sound manner and that comparisons are appropriate. Qualified professionals with extensive background in conducting field scale research trials performed the audits.

Where can you get the CPT results?
Results will be available through an online interactive tool at *www.canolaperformancetrials.ca*. The interactive tool will allow growers to explore many agronomic factors and to search for trial data in specific geographic areas near their farming operations. Details on management, operations and environmental data for each individual site will be reported online. The online tool will have an economic calculator that includes the costs associated with growing the selected variety to assist growers in determining potential profitability.

Data will also be available in booklet form and can be obtained from your local agri-retailer.

***Brassica rapa* (Polish Canola)**
Polish varieties mature approximately two weeks earlier than Argentine varieties and are less likely to produce green seed. Polish varieties are more heat and drought tolerant than the Argentine type. They are also more shatter resistant than Argentine varieties and are therefore well suited to straight combining. ACS-C7 has fair resistance to blackleg; all other Polish varieties have poor resistance. Blackleg is less of a threat in Polish canola because of its early maturity, which tends to reduce the impact of the disease on seed yields. Three new synthetic Polish varieties are Early One, ACS-C29 and Synergy. All three varieties yield significantly more than their open-pollinated counterparts like AC Sunbeam. Early One and ACS-C29 are available through Mastin Seeds, while Synergy is available through SeCan. (Source: AAFC, Saskatoon)

***Brassica juncea* Canola**

Brassica juncea canola is a new class of canola that is especially well adapted to areas where hot, dry conditions are common. It has very good resistance to blackleg and exhibits better heat and drought tolerance than other canola. Juncea canola shattering resistance is similar to Polish canola and is well suited to straight-cut combining. All production is contracted.

XCEED VT Oasis CL, available from Viterra in 2012, is suited to the Brown and Dark Brown season growing zones. It is compatible with the Clearfield Production System (Source: Viterra).

Clubroot

By Saskatchewan Ministry of Agriculture

Clubroot is a soil-borne disease caused by a microbe, *Plasmodiophora brassicae*. Clubroot affects the roots of cruciferous field crops such as canola, mustard and camelina, as well as cruciferous vegetables (e.g. radish, turnip, cabbage, broccoli, cauliflower) and weeds (e.g. stinkweed, shepherd's purse, wild mustard). Clubroot has become a significant problem for canola growers in some areas of Alberta and the pathogen has been detected in Saskatchewan and reported once in Manitoba. Clubroot is a regulated pest in Saskatchewan under *The Pest Control Act*.

Clubroot is of particular concern because the disease can cause devastating yield losses with limited control options. In areas where it has not yet occurred, clubroot is also of concern because the disease can spread through movement of soil contaminated with resting spores.

Invasion of the interior of the host roots alters hormone balance and leads to increased cell division and growth, resulting in clubroot galls. These deformed roots have reduced ability to absorb water and nutrients leading to stunting, wilting, yellowing, premature ripening and shriveling of seeds. The cause of these above-ground symptoms can be confirmed by digging up suspect plants to check roots for gall formation (see photo).

Clubroot affects canola yield and quality to a similar degree as other diseases affecting water and nutrient uptake, and its impact depends on soil conditions and the growth stage of the crop when infection occurs. Warm soils, high soil moisture and low soil pH favour spore germination, infection and disease development; however, the disease can still occur under conditions outside of the optimum parameters.

Infected roots will eventually disintegrate, releasing resting spores into the soil, which may then be transported by vehicles/tires or earth tag on agricultural or industrial field equipment, wind, water erosion, animals/manure and shoes/clothing. Resting spore numbers will decline over time when non-host crops are grown, but a small proportion can survive in soil for up to 20 years.

Clubroot is primarily a soil-borne disease; it does not infect seed but may be found in soil attached to seed or other plant parts. There are currently no seed treatments or foliar fungicides registered for control of clubroot on canola.

The following best practices are recommended for prevention and management of clubroot:

1. Plant susceptible crops, including clubroot resistant varieties, no more than once every four years.
   Although crop rotation will not prevent the introduction of clubroot to fields that are free of the pathogen, it will restrict clubroot development by reducing the increase of clubroot inoculum, as well as help alleviate the impact of other plant pathogens.
2. Scout crops regularly and carefully:
   • Identify suspicious above-ground symptoms including wilting, stunting, yellowing and premature ripening of canola or other susceptible crops.
   • Field entrances and approaches are likely to be contaminated with clubroot spores first; therefore, symptoms will often appear there first.
   • Confirm cause of above ground symptoms by checking the roots for galls. If unsure about symptoms, send suspect samples to the provincial Crop Protection Lab in Regina.
3. Practice good sanitation by restricting movement of potentially contaminated soil to non-contaminated regions:
   • For producers, this means restricting entry into their fields of vehicles, field machinery or oil rig equipment with earth tag from infested regions unless it has been properly sanitized. Ask questions about where the equipment is from and what sanitation measures have been used before the equipment left the infested area, dealer or auction site.
   • Cleaning steps may include: removal of crop debris and soil, washing of equipment with a power washer using hot water or steam and misting with disinfectant (1-2 per cent bleach solution), followed by an additional rinse with water.
   • Other agricultural products, which could carry soil, should be carefully checked for excess soil.

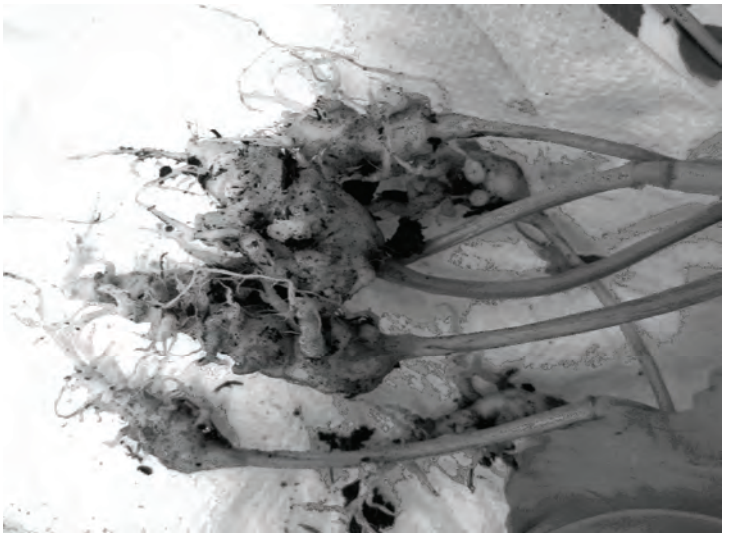


Photo courtesy Saskatchewan Ministry of Agriculture.

For more information on clubroot, visit *www.agriculture.gov.sk.ca/clubroot-canola* and *www.clubroot.ca.*

Wheat Midge Management

By Saskatchewan Ministry of Agriculture

The wheat midge (*Sitodiplosis mossellana*) is a small fly that can cause significant damage to wheat crops.

Wheat midge tolerant wheat varieties were released for the first time in 2010. The source of reduced damage is from a single gene – *Sm1*. Resistance based on a highly effective single gene is often short-lived due to genetic mutations that occur in the insect population and the high selection pressure that results from a very effective gene in a mono-culture crop situation.

In order to maintain the maximum benefit of the gene, varieties have been released with a refuge (susceptible wheat variety) to discourage the development of a mutant midge population that could overcome the resistance. The refuge allows sufficient numbers of susceptible type midge to survive, ensuring that a midge that has overcome the resistance will most likely mate with a susceptible midge.

Based on current information, a wheat blend containing 10 percent wheat midge susceptible varieties is recommended. The blended varieties (VB) are released as certified seed. Since the adult midge does not generally move far from their emergence sites prior to mating, an interspersed refuge method is utilized.

Of particular concern is the stability of the composition of these varietal blends. After several generations, the refuge may decline to a very low frequency, putting the midge resistance at risk. Alternatively, the refuge may increase in frequency in some situations and not provide the level of resistance expected in years when midge infestations are significant. Research is currently underway to ensure that the refuge is 10 percent of the varietal blend. No other sources of midge resistance have been conclusively identified. Maintaining the efficacy of this gene is vital to midge management.

Description of the Pest
The wheat midge is about one-half the size of a mosquito. The adult midge lays eggs on the glumes of the wheat head.

During the egg laying period, the adult midge remains 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. Larvae hatch from the eggs and crawl into the wheat glumes to feed on developing wheat kernels.

After feeding for two to three weeks, the larvae may remain in the head until the crop is harvested or they may drop to the ground. The midge over-winters as cocoons in the soil. In spring, once climatic conditions are favourable, the larvae become active and move to the soil surface to pupate. Emergence of the adult wheat midge from the pupae occurs in late June and early July, starting the cycle over again.

Monitoring
Careful and regular monitoring of wheat fields is needed when the wheat plants are susceptible to midge - from the time the boot splits and the head becomes visible until flowering (anthesis). 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 is 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.

Biological Control
On the prairies, wheat midge populations can be maintained at tolerable levels by a small, 1 to 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 winter, but in the following spring, it grows rapidly and destroys the midge larva.

Cultural Control
Midge populations will increase with continuous wheat cropping situations. Spring rye is highly susceptible. Rotations with oilseeds and pulse crops, and other less susceptible cereal crops will avoid problems with wheat midge.

Chemical Control
An insecticide application should be considered when economically warranted. One adult midge for every four to five wheat heads generally equates to about a 10 percent yield loss. One adult midge for every eight to ten heads could affect grade. Insecticides should be applied in the evening when the female midge is 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. Late insecticide application may also have a negative effect on the parasites.

For more information, see the Saskatchewan Ministry of Agriculture publications Wheat Midge and Wheat Midge Forecast Map on the Ministry website: *www.agriculture.gov.sk.ca/Crop-Protection.*

Breeding Institutions and Seed Distributors of Varieties Listed in this Publication

Crop Kind, Class & Variety	Breeding Institution	Distributor
WHEAT		
Canada Western Red Spring		
CDC Abound	U of S - CDC	Viterra Inc.
CDC Alsask	U of S - CDC	Viterra Inc.
Alvena	AAFC (Swift Current)	SeCan Members
AC Barrie	AAFC (Swift Current)	SeCan Members
Carberry	AAFC (Swift Current)	SeCan Members
Cardale	AAFC (Winnipeg)	Seed Depot
AC Elsa	AAFC (Swift Current)	SeCan Members
Fieldstar VB	AAFC (Winnipeg)	SeCan Members
Glenn	NDSU	CANTERRA SEEDS
CDC Go	U of S - CDC	Public release U of S - CDC
Goodeve VB	AAFC (Swift Current)	Alliance Seed Corp.
Harvest	AAFC (Winnipeg)	FP Genetics
CDC Imagine	U of S - CDC	Viterra Inc.
Infinity	AAFC (Swift Current)	CANTERRA SEEDS
AC Intrepid	AAFC (Swift Current)	CANTERRA SEEDS
KANE	AAFC (Winnipeg)	SeCan Members
CDC Kernen	U of S - CDC	CANTERRA SEEDS
Lillian	AAFC (Swift Current)	SeCan Members
McKenzie	Viterra Inc.	Viterra Inc.
Muchmore	AAFC (Swift Current)	FP Genetics
CDC Osler	U of S - CDC	Public release U of S - CDC
Shaw VB	AAFC (Winnipeg)	SeCan Members
CDC Stanley	U of S - CDC	Viterra Inc.
Stettler	AAFC (Swift Current)	SeCan Members
Superb	AAFC (Winnipeg)	SeCan Members
CDC Teal	U of S - CDC	FP Genetics
CDC Thrive	U of S - CDC	Cargill
Unity VB	AAFC (Winnipeg)	SeCan Members
CDC Utmost VB	U of S - CDC	FP Genetics
Vesper VB	AAFC (Winnipeg)	SeCan Members
Waskada	AAFC (Winnipeg)	SeCan Members
WR859CL	Syngenta Seeds Canada Inc.	Richardson Intl
5602HR	Syngenta Seeds Canada Inc.	Viterra Inc.
5603HR	Syngenta Seeds Canada Inc.	Viterra Inc.
5604HR CL	Syngenta Seeds Canada Inc.	Viterra Inc.
Canada Prairie Spring Red		
Conquer VB	AAFC (Winnipeg)	CANTERRA SEEDS
AC Crystal	AAFC (Swift Current)	SeCan Members
SY985	Syngenta Seeds Canada Inc.	Viterra Inc. / Richardson Intl
5700PR	Syngenta Seeds Canada Inc.	Viterra Inc.
5702PR	Syngenta Seeds Canada Inc.	Viterra Inc.
Canada Prairie Spring White		
AC Vista	AAFC (Swift Current)	FP Genetics
Canada Western Hard White Spring		
Snowbird	AAFC (Winnipeg)	FP Genetics
Snowstar	AAFC (Winnipeg)	SeCan Members
Canada Western Extra Strong		
CDN Bison	AAFC (Winnipeg)	David W. Faurschou - MB
Burnside	AAFC (Winnipeg)	David W. Faurschou - MB
Glencross VB	AAFC (Winnipeg)	David W. Faurschou - MB
CDC Rama	U of S - CDC	FP Genetics
CDC Walrus	U of S - CDC	Public Release U of S - CDC
Canada Western Soft White Spring		
AC Andrew	AAFC (Lethbridge)	SeCan Members
Bhishaj	AAFC (Lethbridge)	Tony Crooymans
Sadash	AAFC (Lethbridge)	SeCan Members
Canada Western General Purpose		
CDC NRG003	U of S - CDC	CANTERRA SEEDS
NRG010	AAFC (Swift Current)	CANTERRA SEEDS
Minnedosa	AAFC (Winnipeg)	SeCan Members
Pasteur	Wiersum Plant Breeding	SeCan Members
Canada Western Amber Durum		
AC Avonlea	AAFC (Swift Current)	FP Genetics
Brigade	AAFC (Swift Current)	Viterra Inc.
Enterprise	AAFC (Swift Current)	CANTERRA SEEDS
Canada Western Amber Durum (cont'd)		
Eurostar	AAFC (Swift Current)	SeCan Members
Transcend	AAFC (Swift Current)	FP Genetics
Kyle	AAFC (Swift Current)	SeCan Members
AC Navigator	AAFC (Swift Current)	Viterra Inc.
Strongfield	AAFC (Swift Current)	SeCan Members
CDC Verona	U of S - CDC	Alliance Seed Corp.
WINTER WHEAT		
Accipiter	U of S - CDC	SeCan Members
AC Bellatrix	AAFC (Lethbridge)	FP Genetics
Broadview	AAFC (Lethbridge)	CANTERRA SEEDS
CDC Buteo	U of S - CDC	SeCan Members
CDC Clair	U of S - CDC	SeCan Members
CDC Falcon	U of S - CDC	SeCan Members
CDC Harrier	U of S - CDC	SeCan Members
CDC Kestrel	U of S - CDC	SeCan Members
Flourish	AAFC (Lethbridge)	SeCan Members
McClintock	U of M (Winnipeg)	CANTERRA SEEDS
Moats	U of S - CDC	SeCan Members
CDC Osprey	U of S - CDC	CANTERRA SEEDS
Peregrine	U of S - CDC	SeCan Members
CDC Ptarmigan	U of S - CDC	Western Ag
Radiant	AAFC (Lethbridge)	CANTERRA SEEDS
CDC Raptor	U of S - CDC	SeCan Members
Sunrise	U of S	Western Ag
WINTER RYE		
Hazlet	AAFC (Swift Current)	SeCan Members
Prima	AAFC (Swift Current)	SeCan Members
AC Remington	AAFC (Swift Current)	CANTERRA SEEDS
AC Rifle	AAFC (Swift Current)	SeCan Members
TRITICALE		
Bobcat	AARD (Lacombe)	Progressive Seeds
Bumper	CIMMYT, International Mexico	SeCan Members
Bunker	AARD (Lacombe)	FP Genetics
AC Certa	AAFC (Swift Current)	Progressive Seeds
Luoma	AARD (Lacombe)	Corns Brothers Farms
Metzger	AARD (Lacombe)	Haney Farm Ltd.
Pika	AARD (Lacombe)	Progressive Seeds
Pronghorn	AARD (Lacombe)	Progressive Seeds
Tyndal	AARD (Lacombe)	SeCan Members
AC Ultima	AAFC (Swift Current)	FP Genetics
MALTING BARLEY		
Two-Row		
Bentley	AARD (Lacombe)	CANTERRA SEEDS
Cerveza	AAFC (Brandon)	Mastin Seeds Ltd.
CDC Copeland	U of S - CDC	SeCan Members
Harrington	U of S - CDC	SeCan Members
CDC Kendall	U of S - CDC	Viterra Inc.
CDC Kindersley	U of S - CDC	SeCan Members
CDC Landis	U of S - CDC	TBA
Major	AAFC (Brandon)	Viterra Inc.
CDC Meredith	U of S - CDC	SeCan Members
Merit 57	Busch Ag Res. Inc.	CANTERRA SEEDS
AC Metcalfe	AAFC (Brandon)	SeCan Members
Newdale	AAFC (Brandon)	FP Genetics
Norman	AAFC (Brandon)/U of S - CDC	FP Genetics
CDC PolarStar	U of S - CDC/Sapporo/PML	SeCan Members
CDC Reserve	U of S - CDC	SeCan Members
Six-Row		
CDC Anderson	U of S - CDC	SeCan Members
CDC Battleford	U of S - CDC	SeCan Members
Celebration	Busch Ag Res. Inc.	CANTERRA SEEDS
CDC Clyde	U of S - CDC	Viterra Inc.
CDC Kamsack	U of S - CDC	CANTERRA SEEDS
Lacey	U of Minnesota	Alliance Seed Corp.
Legacy	Busch Ag Res. Inc.	Viterra Inc./FP Genetics
CDC Mayfair	U of S - CDC	CANTERRA SEEDS
Stellar-ND	NDSU	CANTERRA SEEDS
Tradition	Busch Ag Res. Inc.	Viterra Inc./FP Genetics

Crop Kind,	Breeding Institution	Distributor
FEED BARLEY		
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	AARD (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
Gadsby	AARD (Lacombe)	SeCan Members
CDC Helgason	U of S - CDC	SeCan Members
McLeod	Westbred, LLC	Viterra Inc.
CDC Mindon	U of S - CDC	SeCan Members
Muskwa	AARD (Lacombe)	SeedNet Inc.
AC Rosser	AAFC (Brandon)	SeCan Members
Sundre	AARD (Lacombe)	Mastin Seeds
CDC Trey	U of S - CDC	FP Genetics
Xena	Viterra Inc./W. Plant Breeders	Viterra Inc.
Hulless		
CDC Carter	U of S - CDC	SeCan Members
CDC ExPlus	U of S - CDC	TBA
CDC Hilose	U of S - CDC	CANTERRA SEEDS
CDC Lophy-I	U of S - CDC	Public release U of S - CDC
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 release U of S - CDC
CDC Candle	U of S - CDC	Public release U of S - CDC
CDC Fibar	U of S - CDC	CANTERRA SEEDS
CDC McGwire	U of S - CDC	SeCan Members
Millhouse	AAFC (Brandon)	TBA
CDC Rattan	U of S - CDC	CANTERRA SEEDS
Taylor	AAFC (Brandon)	Alliance Seed Corporation
OAT		
CDC Baler	U of S - CDC	FP Genetics
SW Betania	Lantmannen SW Seed	Viterra Inc.
CDC Big Brown	U of S - CDC	SeCan Members
CDC Boyer	U of S - CDC	SeCan Members
Bradley	AAFC - ECORC	SeCan Members
Bullion	Lantmannen SW Seed	Viterra Inc.
CDC Dancer	U of S - CDC	FP Genetics / Cargill
Derby	U of S - CDC	Viterra Inc. / Mastin Seeds
AC Gwen	AAFC (Winnipeg)	SeCan Members
HiFi	NDSU	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
CDC Morrison	U of S - CDC	CANTERRA SEEDS
Murphy	AAFC (Lacombe)	SeCan Members
CDC Nasser	U of S - CDC	T & L Seeds
CDC Orrin	U of S - CDC	FP Genetics / Cargill
Pinnacle	AAFC (Winnipeg)	FP Genetics
Ronald	AAFC (Winnipeg)	SeCan Members
CDC Seabiscuit	U of S - CDC	CANTERRA SEEDS
CDC SO-I	U of S - CDC	T & L Seeds
CDC Sol-Fi	U of S - CDC	Public release U of S - CDC
Souris	NDSU	Seed Depot
Stainless	AAFC (Winnipeg)	TBA
Summit	AAFC (Winnipeg)	FP Genetics
Triactor	Lantmannen SW Seed	CANTERRA SEEDS
CDC Weaver	U of S - CDC	FP Genetics / Cargill
CANARYSEED		
CDC Bastia	U of S - CDC	Public release U of S - CDC
Cantate	J. Joordans Zaadhandel BV	Hansen Seeds
Keet	U of Minnesota; U of S - CDC	Public release U of S - CDC
CDC Maria	U of S - CDC	C. Special Crops
CDC Togo	U of S - CDC	CANTERRA SEEDS

Crop Kind,	Breeding Institution	Distributor
LENTIL		
CDC Cherie	U of S - CDC	Sask. Pulse Growers
CDC Dazil CL	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 Imvincible CL	U of S - CDC	Sask. Pulse Growers
CDC KR-1	U of S - CDC	SaskCan Pulse Trading
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 QG-1	U of S - CDC	SaskCan Pulse Trading
CDC Redberry	U of S - CDC	Sask. Pulse Growers
CDC Redbow	U of S - CDC	Sask. Pulse Growers
CDC Redcliff	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 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 Ruby	U of S - CDC	Sask. Pulse Growers
CDC SB-1	U of S - CDC	Simpson Seeds
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
DRY BEAN		
AC Black Diamond	AAFC (Lethbridge)	Viterra Inc.
CDC Blackcomb	U of S - CDC	Sask. Pulse Growers
Carman Black	AAFC (Morden)	CANTERRA SEEDS
Cruiser	AAFC (Harrow)	Hensell District Co-op
Envoy	GenTec Seeds	Hensell District Co-op
CDC Expresso	U of S - CDC	CANTERRA SEEDS
Island	AAFC (Lethbridge)	Viterra Inc.
CDC Jet	U of S - CDC	B&J Martens Seeds
Lightning	U of Guelph	Hensell District Co-op
CDC Pintium	U of S - CDC	Sask. Pulse Growers
AC Polaris	AAFC (Lethbridge)	Viterra Inc.
AC Redbond	AAFC (Lethbridge)	Viterra Inc.
CDC Sol	U of S - CDC	Walker Seeds Ltd.
Winchester	Rogers Brothers	ADM Edible Bean Specialities
Winmor	AAFC (Morden)	Viterra Inc.
CDC WM - 1	U of S - CDC	Walker Seeds Ltd.
CDC WM - 2	U of S - CDC	Walker Seeds Ltd.
FABA BEAN		
CDC Blitz	U of S - CDC	Redview Farms
CDC Fatima	U of S - CDC	R.Legumex / Walker S.
FB9-4		SaskCan Pulse Trading
FB18-20		SaskCan Pulse Trading
Florent	NPZ	DL Seeds
Imposa	Limagrain Nederland	Cyre Seed Farms
Orion	AAFC (Lacombe)	Roger Lee, Lyster Farm
Snowbird	Limagrain Nederland	Bob Park - Lacombe, AB
SSNS-1		Hemp Genetics Intl.
Taboar	Globe Seeds - Netherland	Terramax Holding Corp.
Tobasco	DL Seeds Inc.	Ridell Seed Co.
CHICKPEA		
CDC Alma	U of S - CDC	Sask. Pulse Growers
Amit (B-90)		Viterra Inc.
CDC Cabri	U of S - CDC	Sask. Pulse Growers
CDC Corinne	U of S - CDC	Sask. Pulse Growers
CDC Cory	U of S - CDC	Sask. Pulse Growers
CDC Frontier	U of S - CDC	Sask. Pulse Growers
CDC Leader	U of S - CDC	Sask. Pulse Growers
CDC Luna	U of S - CDC	Sask. Pulse Growers
CDC Orion	U of S - CDC	Sask. Pulse Growers
CDC Vanguard	U of S - CDC	Sask. Pulse Growers

Crop Kind,	Breeding Institution	Distributor
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
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.
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
803 DMR NS	CROPLAN Genetics	CROPLAN Genetics
306 DMR NS	CROPLAN Genetics	CROPLAN Genetics
2930	Syngenta	Syngenta
7120 HO/DM	Syngenta	Syngenta
8N 270CL DM	Mycogen Seeds	Mycogen Seeds
Defender plus	Seeds 2000	Seeds 2000
AC Sierra	AAFC (Saskatoon)	AAFC (Indian Head)
SAFFLOWER		
Saffire	AAFC (Lethbridge)	Jerry Kubic (AB)
AC Sunset	AAFC (Lethbridge)	Viterra Inc.
SOYBEAN		
900Y71		Pioneer Hi-Bred Ltd.
LS 0036RR		Delmar Commodities
NSC Warren RR		NorthStar Genetics Manitoba

Crop Kind,	Breeding Institution	Distributor
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
Argus	AAFC (Lacombe)	SeCan Members
CDC Bronco	U of S – CDC	Sask. Pulse Growers
Canstar	AAFC	Canseed
CDC Centennial	U of S - CDC	Sask. Pulse Growers
Cooper	Limagrain Nederland	CANTERRA SEEDS
Cutlass	AAFRD / CDC	Sask. Pulse Growers
CDC Dakota	U of S - 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 Horizon	U of S - CDC	Sask. Pulse Growers
CDC Hornet	U of S - CDC	Sask. Pulse Growers
Hugo	AAFC	Alliance Seed Corp.
CDC Leroy	U of S - CDC	Sask. Pulse Growers
CDC Meadow	U of S - CDC	Sask. Pulse Growers
SW Midas	Lantmannen SW Seed	FP Genetics
CDC Minuet	U of S - CDC	Sask. Pulse Growers
CDC Montero	U of S - CDC	Sask. Pulse Growers
CDC Mosaic	U of S - CDC	Sask. Pulse Growers
CDC Mozart	U of S - CDC	Sask. Pulse Growers
Nitouche	Limagrain Nederland	FP Genetics
CDC Patrick	U of S - CDC	Sask. Pulse Growers
CDC Pluto	U of S - CDC	Sask. Pulse Growers
Polstead	Limagrain Nederland	FP Genetics
CDC Prosper	U of S - CDC	Sask. Pulse Growers
CDC Raezer	U of S - CDC	Sask. Pulse Growers
Reward	AAFC (Lacombe)	SeCan Members
CDC Rocket	U of S - CDC	Sask. Pulse Growers
CDC Saffron	U of S - CDC	Sask. Pulse Growers
CDC Sage	U of S - CDC	Sask. Pulse Growers
SW Sergeant	Lantmannen SW Seed	FP Genetics
Stella	AAFC	Alliance Seed Corp.
CDC Sonata	U of S - CDC	Sask. Pulse Growers
Sorento	Limagrain Nederland	FP Genetics
CDC Striker	U of S – CDC	Sask. Pulse Growers
CDC Tetris	U of S - CDC	Sask. Pulse Growers
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
Venture	Axel Toft	Johnson Seeds (MB)

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
NDSU	North Dakota State University

Accessing Public Release Varieties

Breeder seed of public release varieties is available to anyone (including farmers and seed growers) for multiplication, increase and marketing. There are no royalties or seed marketing agency fees attached to use or sale of seed produced from Breeder seed of public release varieties. While subsequent seed production may be Pedigreed, this is the buyer's choice and the buyer may increase and sell the seed of public release varieties in any way he/she wishes. To purchase Breeder seed of public release varieties, contact the breeding institution listed above.