Government of Saskatchewan

Varieties of Grain Crops 2018

Table of Contents

Symbols and Abbreviations Used:

§ Variety may not be described in 2019

--- Insufficient test data to describe
n/a = Not applicable

Applied for PBR protection at time of printing (UPOV'91)
Plant Breeders' Rights (UPOV'78) at time of printing
Plant Breeders' Rights (UPOV'91) at time of printing

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

Agronomic Rating: VG = Very Good, G = Good, F = Fair, P = Poor, VP = Very Poor

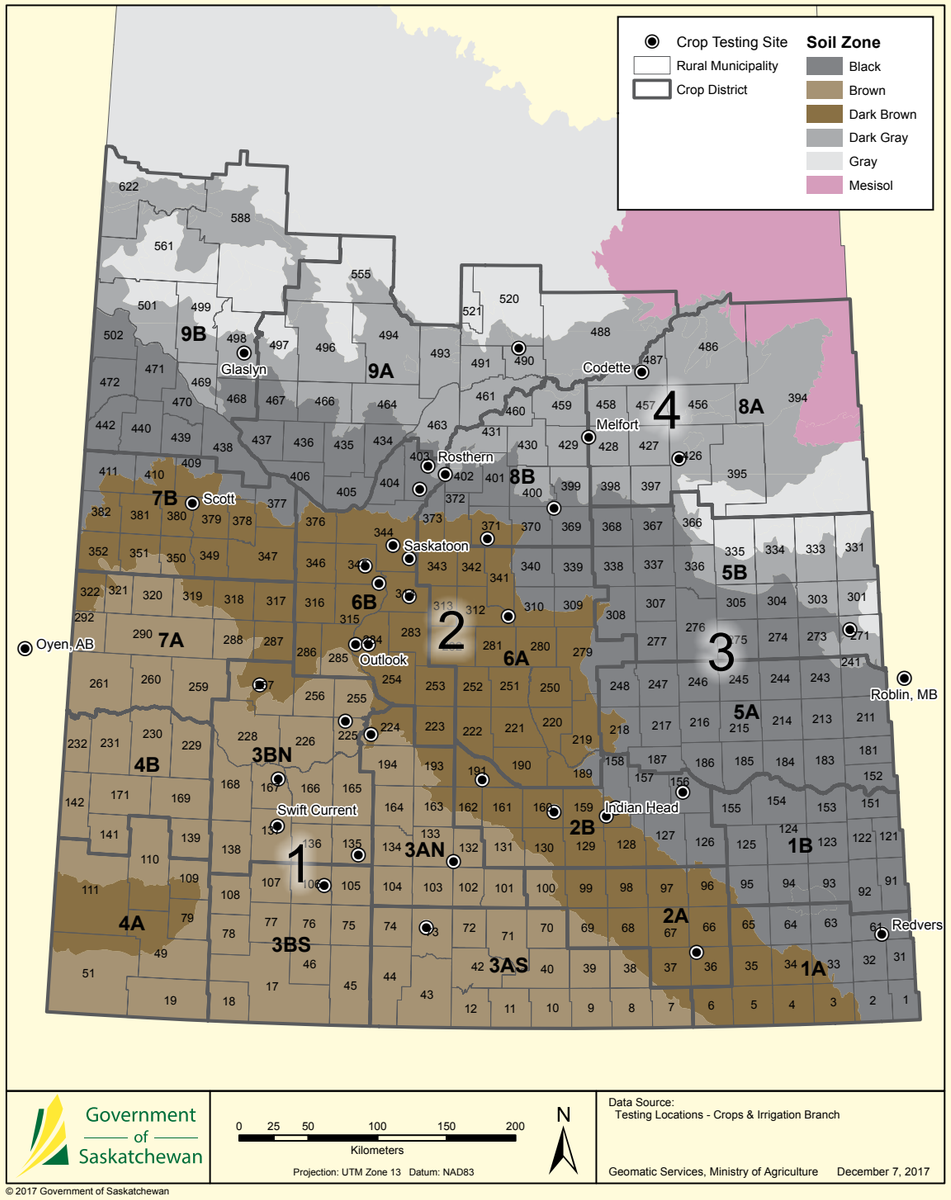
Disease Resistance: R = Resistant, MR = Moderately Resistant, I = Intermediate Resistance, MS = Moderately Susceptible, S = Susceptible

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 the seed of public release varieties in any way he/she wishes (only pedigreed seed can be sold by variety name, for most major crop kinds). To purchase Breeder seed of public release varieties, contact the breeding institution listed in the Breeding Institution and Seed Distributors listings on pages 30-32.

Legal Disclaimer

Regional Variety Testing Locations



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.

Regional Variety Testing in Saskatchewan relies on support from many organizations, including:

Saskatchewan Pulse Growers

Saskatchewan Winter Cereals Development Commission

SaskOats Saskatchewan Oat Development Commission

SaskWheat Development Commission

SaskBarley Development Commission

SaskFlax

SaskCanola Saskatchewan Canola Development Commission

SaskSeed Saskatchewan Seed Growers Association

Government of Saskatchewan

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 Association
- Crop Commissions
- Agriculture and Agri-Food Canada
- Crop Development Centre
- University of Saskatchewan
- Saskatchewan Crop Insurance Corporation

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

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.

The Saskatchewan Ministry of Agriculture provides $100,000 toward 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, Saskatchewan Wheat Development Commission, Saskatchewan Barley Development Commission, Saskatchewan Oat Development Commission and SaskFlax collectively provide $75,000 to the core program. Supplementary funds enhance the core program.

Technical and in-kind support is also provided by Agriculture and Agri-Food Canada, Saskatchewan Crop Insurance Corporation and *The Western Producer*, publisher of the *2018 SaskSeed Guide*.

A long-term database is maintained to provide 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 for spring cereals, fall rye and flax. SVPG is composed of representatives from seed industry, producers, breeders and government.

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, sunflower, winter wheat 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 for most crops.

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.

Testing Pulse Crops

In 2017, the Saskatchewan Pulse Growers and the pulse breeding program at the Crop Development Centre (CDC), University of Saskatchewan, continued a 5-year agreement, with a budget of $160,000 per year, to conduct the pulse crop regional variety trials in Saskatchewan. The CDC collaborates with researchers at several locations to conduct the trials, including 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, as well as those arising from other public or private pulse breeding programs. Since 2006, field pea, lentil, chickpea, dry bean and faba bean variety trials were conducted at 3 to 15 locations per crop in their target areas of adaptation in Saskatchewan. (Source: CDC)

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.

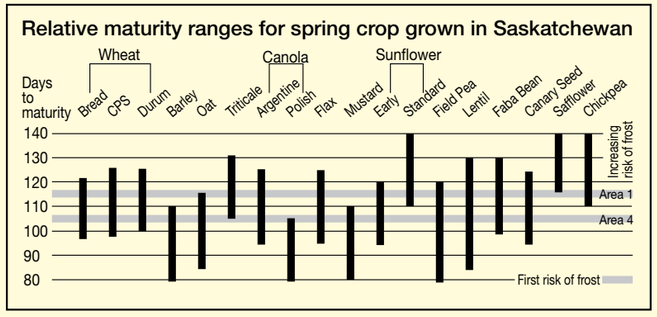
Some of the tables in this booklet express the relative maturity in days while others use a five-category scale: VE, E, M, L and VL (very early, early, medium, late, very late). The limits for each category can vary from crop to crop. In barley, for example, AC Metcalfe would be M, with L and E varieties 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 environmental 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 as part of the variety registration process. 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 Resistant (R), Moderately Resistant (MR), Intermediate Resistance (I), Moderately Susceptible (MS) and Susceptible (S). 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 makeup and/or differences in the genetic makeup of the pathogen that causes the disease. However, the genetic makeup of a pathogen can change over time and can enable the pathogen to 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.

Preserving the efficacy of disease resistance genes in current crop varieties is the most economical method of plant disease control. Disease resistance can be prolonged with good agronomic and integrated pest management practices. Crop type, variety and fungicide rotation are important methods of preserving the effectiveness of disease resistance genes and fungicides. Disease resistance genes usually become ineffective due to short rotations and the prolonged use of one crop variety on a large acreage.

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 makeup 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 Intermediate (I) resistance can show disease symptoms under favourable conditions, a Susceptible (S) 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 (S) varieties within two weeks of symptoms first appearing. Chickpea varieties currently grown commercially in Saskatchewan have Intermediate (I) ascochyta blight ratings. This resistance weakens as plant development nears the flowering stage. Cool, moist environmental conditions favour the disease; 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 the past, infected chickpea varieties lacking resistance to ascochyta blight could become 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.

Fusarium Damaged Kernels

By Mitchell Japp, Saskatchewan Agriculture

Fusarium head blight has recently become more common in Saskatchewan. Producers will find out the level of fusarium damaged kernels (FDK) and perhaps also DON (deoxynivalenol) on their grain from the elevator. However, *Fusarium* infection levels are needed to determine seed quality.

FDK does not provide the whole story regarding *Fusarium* infection. FDK is a measure of grain quality, not seed quality. Seed can be infected by *Fusarium* even when FDK are not present.

Fusarium spp. can infect the plant at different stages of the kernel development. Early infection may lead to an aborted floret, while later infection may leave spores on the kernel without showing visual symptoms. Tombstone kernels (FDK) are infected in between those extremes.

Because there is no correlation between FDK and *Fusarium* infection of the seed, FDK cannot be used to predict *Fusarium* infection levels. A disease test is needed to determine if seed has *Fusarium* spores on it that could cause seedling blight or root rot.

Fusarium infection on the seed can sometimes be managed with a seed treatment. *Fusarium graminearum* is particularly aggressive form of fusarium head blight, so recommendations are to prevent its introduction into new areas.

Seed treatments are used to manage seedling blights caused by *Fusarium spp.* The primary source of fusarium head blight infection is infected residue. Seed is not considered a contributing factor to fusarium head blight.

In areas where *F. graminearum* has not become established, seed with more than 5% *F. graminearum* is not recommended for planting. Seed with 2-5% *F. graminearum* should be treated with an appropriate seed treatment.

F. graminearum now has a wide distribution in Saskatchewan so, for most producers, a seed treatment should be used when total *Fusarium* species is greater than 10%.

If seed is tested early in winter, germination should be retested again in the spring, especially if disease is present. Germination can decrease during storage.

For more information, refer to the Saskatchewan Agriculture publication *Seed-Borne Diseases of Cereal Crops.*

What Are Plant Breeders' Rights?

By Mitchell Japp, Saskatchewan Agriculture

The goal of Plant Breeders' Rights (PBR) legislation is to encourage investment and development in the crops sector. There are many ways to accomplish this, but UPOV-based PBR balances the interests of the farmer and the breeder. This gives the farmer fair access to the use of purchased seed, and the breeder can expect a royalty from every new farmer buying seed of the breeder's variety.

The royalty and protections under PBR 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. Some of the benefits of PBR include:

- Access to new and improved plant varieties, improving the bottom line for producers. Enhanced protection under the revised PBR will encourage the release of new varieties from other countries (once registered in Canada), as well as stimulate increased investments in variety development here in Canada.
- Farmers are allowed to save seed for their own use, on their own farms, if the original seed was obtained legitimately.
- No negative impacts for those who legitimately purchase seed.

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 the written permission of the breeder or their agent.

> UPOV is the International Union for the Protection of New Varieties of Plants. In order to be a member, a country must have legislation that aligns with a ratified UPOV convention. There are 75 UPOV member countries, 58 of which have ratified UPOV'91 compliant legislation.

Varieties protected by PBR are identified with one of two logos. Varieties protected prior to Feb. 27, 2015, are identified by:

PBR
Progress through Research

and those protected after Feb. 27, 2015, are identified by:

91
Progress Through Research
Le progrès grâce à la recherche

Varieties previously protected by PBR remain under the same rules as before. Varieties protected since Feb. 27, 2015, are protected under the new PBR act.

The new PBR act extends the right of the breeder, giving them further opportunity to protect their variety and ensuring that those who are benefitting from the technology are paying for it.

It has always been illegal to sell seed without consent of the breeder. Now, it will also be illegal to purchase seed, meaning both the seller and purchaser can be liable if the seed sale is not approved. To be sure, the best way to know if the seed being purchased is an approved sale is to purchase certified seed. Producers should look for the blue certified seed tag and keep it in their records as long as they grow grain derived from that original seed purchase.

The first 10 years of Canada's PBR Act brought improved access to varieties, new investment in varieties, and new and improved genetics for farmers. With the new PBR, producers will benefit from greater access to new varieties for the crops they grow, and breeders will be able to better protect the investment made in the development of new varieties so they can continue to develop new varieties.

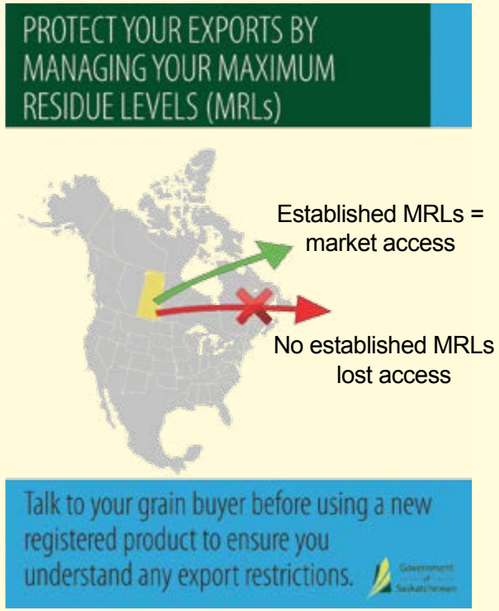
For more information visit *www.pbrfacts.ca* or contact the PBR Office at 613-773-7188.

Maximum Residue Limits

Maximum Residue Limits (MRLs) are the level of pesticide residues permitted in the harvested crop, including imported food. Each country establishes its own MRLs, including Canada.

MRLs are set for each pesticide registered in Canada. Sometimes MRLs in Canada differ from those in export markets or may not exist in export markets for certain pesticides. Agricultural exports may be tested by importing countries for residues of unregistered products, excess residues of registered products or unregistered uses.

For more information, visit keepingitclean.ca.



Interpreting Seed Test Results

By Jason Danielson, Discovery Seed Labs

What a difference a year can make! The 2016 harvest was challenging for most farming regions in Western Canada. Fortunately, in 2017 the weather has not been as big of a factor in terms of adverse harvest conditions and poor crop quality. However, it is still important to have your seed tested to determine its quality.

Seed testing can give an indication of how fit your seed is for planting. Tests should be done for germination, vigour and disease. This package of tests can help you better understand how suitable seed will be for next spring.

The germination test will give you an indication of the percentage of seeds that will grow in an ideal growth environment. The vigour test indicates the percentage of seed that will grow in adverse conditions. Even though the vigour assay is not standardized between seed labs, the results should be indicative of the seed's fitness when grown in harsher conditions. Combining the information from the germination and vigour tests will give you a good snapshot of the fitness of your seed.

Ideally, the germination rate from your sample should be higher than 85%. The vigour should be close to the germination value; but if there is variation, it should be no greater than 10 percentage points. A large difference could be an indication of issues in the seed, especially if storage conditions over the winter months are not ideal.

If forced to use seed with a lower germination rate, you will have to increase the seeding rate to reach your target plants per square foot. Keep in mind that you cannot just increase the seeding amount by the percentage you are off from 100% as not all of the seeds you are adding to the increased seeding rate will germinate. A seeding rate calculator can be a helpful tool to determine the correct seeding rate.

Significant time between when your test was completed and when seeding will occur can result in your germination and vigour values dropping. You can retest your seed in the spring to determine if germination has changed from the initial test in the fall.

When performing your own germination tests, it can be challenging to determine if a seed has germinated and is healthy, versus a seed that develops weak roots that won't grow into a plant. Other issues such as fresh and hard seeds, in addition to seed dormancy, can lead to inaccurate results. A certified seed analyst is trained to conduct seed tests.

Disease is present in a surprising number of 2017 samples. The disease could be caused by higher populations of carry-over disease in the soil, untimely rain showers in the fall or a humid crop canopy. Some of these samples have disease levels high enough to result in concern when choosing seed for 2018.

There are different diseases of interest depending on the crop that you are seeding. For cereals, the main diseases to test for are *Cochliobolus sativus* (root rot), *Ustilago nuda* (smut) and *Fusarium* (root rot) – both *Fusarium graminearum* and total. Although *F. graminearum* is not the most aggressive *Fusarium* species for seedling blight, any areas that have not had fusarium head blight caused by *F. graminearum* should avoid introducing it. The *Fusarium* total reported on the seed test includes *F. graminearum*.

For pulses, the diseases of interest are *Ascochyta* (leaf blight), *Anthracnose*, *Botrytis* (grey mould) and *Sclerotinia* (white mould). The amount of disease pressure during the last growing season will determine what you will likely have available for quality of seed.

A good practice is to always use the best seed you can source. In good years you should look for seed with little to no presence of disease. In challenging years when the disease is higher, it is important to still source the best seed available and be sure to use seed with good germination.

When using seed with high disease and low germination, more seed is needed to achieve the target plants per square foot. Increasing the seeding rate increases the amount of disease inoculum that you are adding to your soil. A seed treatment can be a good investment in a variety of scenarios, including when using seed with higher disease levels.

It is important to communicate if the crop intended for seed has been treated with pre-harvest glyphosate. Otherwise, the seed will be tested in a normal germination test and the glyphosate may adversely affect germination. This adds an additional cost because the sample will have to be retested for germination. If there is a possibility of glyphosate on the seed, a soil germination test should be requested to "tie up" any glyphosate that might be on the outside of the seed so it does not have adverse effects when the seed is germinating.

Some crop desiccants are registered for use on crops intended for seed production. Glyphosate is not a desiccant. Glyphosate is not recommended for any crop that is to be used for seed. Glyphosate at pre-harvest can cause germination and possibly vigour problems if the herbicide was applied before the seed was fully mature. Crops sprayed with pre-harvest glyphosate may germinate, but the seedling could be stunted and deformed. Crops treated prematurely are off-label and have the potential to threaten export markets.

The quantity of seed tested is minuscule compared to the size of the seed lot that it represents. Improper sampling is the greatest source of error in seed testing. Make certain the sample is representative of the entire seed lot. To collect a representative sample, gather more seed than needed for a given test. Hand sample or use a probe so that all areas of the seed lot are represented. If the seed is in a bin, sample it from the top, centre, sides and bottom. Do not take your seed sample from beside the bin door. It might be more appropriate to collect subsamples as the seed is being transferred from a truck or bin. After collecting the seed, thoroughly mix it.

Regardless of how accurately the technical work is the results can only show the quality of the sample submitted for analysis. Consequently, every effort must be made to ensure the samples sent to the analyst accurately represent the composition of the lot in question.

CEREAL CROPS

Wheat

Main Characteristics of Varieties

Category and Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3 & 4	Yield (%) Irrigation	Protein	Resistance To[2] Lodging	Sprouting	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt	Leaf Spot	FHB	Head Awnedness	Rel. Maturity (days)	Seed Weight (mg)	Volume Wt.[3] (kg/hL)	Ht. (cm)
CWRS[1]		--- Relative to Carberry ---														---- Relative to Carberry ----			
Carberry	6	100	100	100	14.6	VG	F	MR	R	MR	MR	R	MS	MR	Y	99	34.8	80.3	82
CDC Adamant VB	2	108	114	---	-0.1	P	F	R	I	MS	S	S	MS	I	Y	-2	-0.9	-0.1	+4
AAC Alida VB	1	105	108	---	+0.1	VG	VG	R	R	MR	R	I	MS	MR	Y	-1	+2.0	+0.3	+7
CDC Bradwell	4	100	107	---	-0.1	VG	F	MR	R	MS	MR	R	MS	I	Y	0	-1.4	+0.5	+8
AAC Brandon	5	106	106	---	-0.4	G	P	R	R	MR	MR	S	I	MR	Y	0	+0.4	-0.1	0
AAC Cameron VB	4	109	118	---	-0.7	F	F	MR	MR	S	S	R	I	I	Y	-2	+3.1	-0.5	+17
Cardale	5	99	101	---	-0.1	F	G	R	R	S	I	MR	MS	MR	Y	0	-0.8	-1.1	+1
Coleman	5	96	96	---	-0.2	VP	P	MR	R	MR	S	S	MS	MR	Y	-3	-2.5	+0.2	+16
AAC Connery	4	99	100	---	+0.4	G	G	R	MR	R	MR	I	I	MR	N	-2	+0.3	-1.0	+4
AAC Elie	5	105	105	---	-0.2	G	F	R	R	MR	I	I	I	I	Y	0	+0.2	0.0	-2
Glenn	6	100	102	102	-0.4	F	F	R	R	MR	I	I	I	I	Y	-1	-0.3	+2.5	+10
CDC Go	5	95	102	---	0.0	G	P	R	I	MR	MS	I	S	MS	Y	-3	-1.9	+2.3	+7
Go Early	4	95	101	---	+0.4	P	VP	MR	MR	I	MS	MR	S	I	Y	-4	-0.1	-2.6	+15
Goodeve VB	6	101	107	100	0.0	G	G	MR	MR	I	MR	S	MS	S	N	-4	-2.0	-0.6	+9
CDC Hughes VB	3	101	112	---	-0.2	F	VG	R	MR	I	MR	MS	I	I	Y	0	+2.0	+0.3	+2
AC Intrepid §	6	96	105	---	-0.2	G	P	MR	MR	MR	I	MR	MS	MS	N	-5	+3.2	-1.8	+11
AAC Jatharia VB	4	109	115	---	-0.2	F	G	I	R	I	S	MS	I	I	Y	0	+1.1	+0.8	+16
CDC Landmark VB	3	111	114	---	-0.2	G	G	R	MS	MR	MR	MS	I	I	Y	-1	+1.4	+0.8	+3
CDC VR Morris	5	108	106	---	-0.2	F	P	MR	R	---	I	I	I	MR	N	-1	-0.3	-1.0	+12
Muchmore	6	102	98	102	-0.4	VG	G	R	R	MR	MR	R	MS	MS	Y	-1	-0.1	-1.0	-4
Parata	1	97	107	---	+0.2	F	---	R	MR	MR	MS	S	I	I	Y	-2	-1.5	-0.2	+11
CDC Plentiful	5	105	104	---	-0.2	G	P	R	R	MR	R	I	I	MR	N	-2	-1.6	-0.6	+9
AAC Prevail VB	5	110	108	---	-0.5	F	G	MR	R	R	S	S	MS	I	N	-1	-0.2	-1.0	+19
AAC Redberry	3	105	109	---	-0.2	F	G	R	R	R	R	I	MS	I	Y	-3	-0.9	+0.7	+6
AAC Redwater	5	102	101	---	+0.1	F	VG	R	R	MR	MS	I	MS	I	Y	-4	-3.2	-1.6	+8
Shaw VB	6	112	114	103	-0.7	F	G	R	MR	I	S	MR	MS	MS	N	-1	+0.4	-0.6	+19
SY Slate	3	102	108	---	+0.3	P	P	MR	R	MR	MS	S	MS	I	Y	-1	+0.5	-0.8	+7
SY Sovite	2	97	105	---	0.0	F	F	MR	R	R	R	MS	MR	MR	Y	0	+3.0	-0.1	+8
CDC Stanley	6	102	105	100	-0.1	G	G	R	MR	I	MR	S	I	MS	N	-2	-1.2	-1.8	+12
Stettler	6	105	107	100	+0.2	F	G	MR	MS	MR	R	MR	MS	MS	Y	-1	-1.1	-1.4	+7
Thorsby	4	101	102	---	0.0	F	F	MR	R	R	I	S	MS	I	N	-2	+0.8	-1.1	+13
AAC Tisdale	2	100	110	---	+0.6	F	F	R	R	S	MR	MR	MS	MR	Y	-1	+1.0	-0.2	+9
CDC Titanium VB	5	106	110	---	+0.6	P	P	I	R	R	MS	I	MS	MR	Y	-3	+1.4	-0.4	+10
CDC Utmost VB	6	108	112	107	-0.4	F	G	MR	R	I	MS	S	I	MS	N	-2	-0.3	-1.6	+12
Vesper VB	6	108	113	109	-0.7	P	F	MR	R	S	I	S	I	I	Y	-2	+1.7	-0.6	+12
AAC Viewfield	3	108	106	---	-0.4	VG	G	R	MR	R	S	MR	I	I	Y	-1	-0.9	+0.6	-4
AAC W1876	4	99	100	---	+0.2	F	F	MR	R	I	I	I	MS	I	Y	0	-0.7	-0.9	+3
Waskada	6	108	107	101	-0.2	P	VG	R	I	MS	MR	R	MS	MR	Y	-1	+0.3	-1.0	+16
WR859CL	6	101	101	102	-0.1	F	G	MR	R	I	R	R	MS	MR	Y	-4	-0.9	-3.3	+12
SY433 §	5	96	101	---	-0.3	P	VG	R	R	---	I	S	I	MR	Y	-1	+0.8	-1.3	+17
SY479 VB	4	92	101	---	+0.5	G	VG	I	R	S	MS	R	MS	I	Y	-2	-1.3	-0.2	+17
5605HR CL	5	103	106	---	+0.1	F	F	MS	R	MR	R	MR	MS	MR	Y	-1	-0.7	+0.4	+13
CWRS or CPS moving to CNHR August 1, 2018[1]																			
Conquer VB §	5	118	125	---	---	VP	P	R	MR	MR	MS	R	I	MS	Y	-1	+8.3	+1.9	+8
Harvest §	6	94	103	---	-0.3	G	VG	R	MR	MR	MR	S	MS	S	N	-3	-1.6	-2.8	+10
Lillian §	6	93	96	---	+1.1	P	G	MR	R	R	I	MR	MR	S	N	-2	-2.7	0.0	+12
Unity VB §	6	107	114	103	-0.6	P	VG	MR	R	MS	MS	R	I	I	Y	-2	+0.4	-1.7	+14

Wheat (cont'd)

Category and Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3 & 4	Yield (%) Irrigation	Protein	Resistance To[2] Lodging	Sprouting	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt	Leaf Spot	FHB	Head Awnedness	Rel. Maturity (days)	Seed Weight (mg)	Volume Wt.[3] (kg/hL)	Ht. (cm)
CPSR[1]		--- Relative to Carberry ---														---- Relative to Carberry ----			
AAC Crossfield	2	117	112	---	-1.5	F	---	MR	R	R	I	S	I	I	Y	-2	+1.6	-1.8	0
AC Crystal §	6	111	119	100	---	G	P	R	MS	S	MS	R	I	S	Y	+1	+5.6	-1.3	+1
Enchant VB §	5	109	117	---	-1.5	P	VG	MR	R	S	MR	R	MS	S	Y	-1	+9.1	-1.0	+9
AAC Entice	2	118	110	---	-1.2	P	---	R	R	R	MS	S	MS	I	Y	-2	+0.8	-2.6	+1
AAC Foray VB	5	116	121	---	-1.7	F	P	MR	R	I	MS	I	MS	I	Y	0	+7.6	-1.4	+6
AAC Goodwin	2	116	117	---	-0.5	G	G	I	R	R	MS	I	I	I	Y	-1	+1.2	+0.2	+1
AAC Penhold	5	108	111	---	-1.0	VG	VG	MR	R	MR	I	R	I	MR	Y	-2	+4.8	-0.1	-9
SY Rowyn	2	103	107	---	-1.1	F	F	R	R	MR	I	S	I	MR	Y	-1	-4.4	-0.4	-5
AAC Ryley	5	103	110	---	-1.2	P	G	R	R	S	I	R	MS	MS	Y	-2	+6.6	-4.7	+2
AAC Tenacious VB	5	100	106	---	-1.6	VP	G	MR	R	R	R	MR	MS	R	Y	0	-0.6	0.0	+21
CDC Terrain	3	115	113	---	-1.5	P	G	MR	R	R	MR	MR	I	MS	Y	0	+4.2	-2.2	+4
SY985	5	107	115	---	-1.3	P	P	R	R	---	R	MR	I	I	Y	-2	+5.6	-1.6	+1
5700PR	5	107	113	106	---	VG	F	R	I	S	MS	R	MS	MS	Y	-1	+5.5	0.0	-4
CNHR[1]																			
AAC Concord	3	105	105	---	-0.2	VP	F	R	R	R	I	MR	I	MS	N	-1	+3.5	-1.4	+14
Elgin ND	3	112	117	---	-0.8	F	F	I	R	MR	---	S	I	I	Y	-1	-1.8	-0.6	+8
Faller	2	113	119	---	-1.9	F	F	I	MR	MS	---	I	MS	I	Y	-1	+1.9	-1.2	+3
Prosper	2	114	120	---	-1.9	F	F	MR	MR	S	---	I	I	I	Y	-1	+2.4	-1.3	+4
CWSWS[1]																			
AC Andrew	5	130	137	---	---	VG	P	MR	MS	I	S	S	---	I	Y	+2	-1.4	-5.0	+3
AAC Chiffon VB*	5	136	137	---	-3.7	P	VP	S	I	MR	S	S	---	S	Y	+1	+2.2	-3.8	+12
AAC Indus VB*	3	127	129	---	-4.0	VG	P	S	I	R	S	MS	MS	MS	Y	+4	+2.3	-2.6	+8
AAC Paramount VB*	3	132	130	---	-3.5	VG	P	I	I	R	MR	S	---	MS	Y	+1	+1.2	-2.6	+7
Sadash VB*	5	137	139	---	---	VG	P	MR	I	R	I	S	---	S	Y	+3	0.0	-3.0	+6
CWSP[1]																			
Alderon	2	131	131	---	-3.3	VG	F	MR	R	MR	---	MS	I	---	N	+4	+0.9	-6.9	-5
AAC Awesome VB*	2	131	134	---	-3.5	F	P	R	MR	R	I	I	I	I	Y	0	+4.9	-0.8	+6
Charing VB	2	130	132	---	-2.8	VG	G	---	MR	R	---	---	MR	---	N	+5	+1.3	-3.5	-1
AAC Innova §	5	128	132	---	-3.2	G	VP	MR	R	R	S	S	I	S	Y	+1	-0.1	-5.2	+5
CDC Kinley	3	103	110	---	-0.1	G	P	I	MR	I	MS	MR	I	I	Y	-1	-0.2	-0.1	+6
CDC NRG003	5	119	123	---	---	F	G	R	MS	---	MS	R	MS	S	Y	-1	+3.4	-4.1	+2
AAC NRG097 §	5	116	121	---	-2.7	P	F	MR	R	S	I	R	I	I	Y	0	+3.6	-1.4	+1
Pasteur	5	127	133	---	-2.5	VG	G	MR	R	MR	MS	S	I	I	N	+3	+1.0	-1.2	+3
Sparrow VB	2	131	133	---	-2.7	VG	G	MR	R	MR	---	I	I	---	N	+4	+0.4	-3.7	0
CDC Throttle	3	122	123	---	-2.2	P	P	MR	MR	I	MR	I	S	I	Y	+1	+4.9	-0.7	+3
SY087 §	5	113	121	---	-1.2	F	F	MR	MR	MR	MS	MR	I	MR	Y	0	-1.7	-0.8	+5
WFT603	4	111	119	---	-2.1	VP	F	I	I	MR	I	R	I	MR	Y	+4	+7.1	-1.7	+11
CWHWS[1]																			
AAC Iceberg	5	100	96	---	-0.5	F	P	R	R	I	MS	MR	MS	I	Y	-1	-0.1	-0.9	+4
AAC Whitefox	5	103	106	---	-0.9	F	F	MR	MR	MS	MS	MS	MS	I	N	-2	-1.0	-0.4	+17
Whitehawk	5	98	95	---	-0.9	F	G	I	R	MS	I	MS	MS	MS	N	-2	-4.4	-0.8	+12
CDC Whitewood	5	95	94	---	-0.3	F	G	MR	MR	I	S	S	MS	I	Y	0	-1.9	-1.5	+4

[1] Includes direct and indirect comparisons with **Carberry**.
[2] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.
[3] multiply by 0.8 = lbs per bushel.
VB = varietal blend.

***AAC Awesome VB**, **AAC Chiffon VB**, **AAC Indus VB**, **AAC Paramount VB** and **Sadash VB** were recently discovered to be midge-tolerant varieties with the *Sm1* gene. Producers with seed purchased prior to 2018 should check with their seed grower to ensure they have a stewardship agreement in place in order to preserve the single gene resistance. New seed may be needed to preserve the gene. More information is available at *www.midgetolerantwheat.ca*.

Durum Wheat

Category and Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3 & 4	Yield (%) Irrigation	Protein	Resistance To[1] Lodging	Sprouting	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt	Leaf Spot	FHB	Head Awnedness	Rel. Maturity (days)	Seed Weight (mg)	Volume Wt.[2] (kg/hL)	Ht. (cm)
CWAD		--- Relative to Strongfield ---														-- Relative to Strongfield --			
Strongfield	6	100	100	100	14.4	P	F	R	R	MR	S	MR	I	S	Y	101	39.8	77.5	89
CDC Alloy	3	110	112	108	-0.4	F	F	MR	R	R	I	R	MS	MS	Y	+1	-0.5	+1.2	+4
Brigade	5	107	114	110	-1.1	F	F	R	R	MR	S	R	I	MS*	Y	+3	+1.4	+0.6	+9
AAC Cabri	4	105	104	103	-0.3	P	F	MR	R	R	MR	R	I	MS	Y	+1	-0.1	+0.8	+3
CDC Carbide VB	4	107	108	103	-0.2	P	P	R	R	R	MS	R	MS	MS	Y	0	-1.2	+0.2	+1
AAC Congress	3	109	108	118	-0.5	P	F	MR	R	R	MR	R	MS	MS	Y	+1	-1.1	+0.4	+3
CDC Credence	2	106	112	---	-0.7	F	F	MR	R	MR	MR	R	I	MS*	Y	+1	-0.1	+0.1	+7
AAC Current §	5	101	97	94	0.0	F	P	R	R	MR	MS	MR	I	MS	Y	0	-0.8	+1.0	+4
CDC Desire §	5	101	100	104	-0.2	F	G	R	R	MR	MS	R	I	S	Y	-2	-3.0	-0.1	0
AAC Durafield §	5	102	104	110	-0.2	P	F	R	R	MR	S	R	I	S	Y	0	-0.5	+0.2	0
CDC Dynamic	3	107	109	114	0.0	F	F	MR	R	MR	I	R	I	MS	Y	0	-0.2	+1.0	+2
Enterprise	5	102	103	106	-0.2	P	G	R	R	R	MS	MR	I	MS	Y	0	-3.2	+0.6	+2
Eurostar	5	99	104	102	-0.5	P	F	R	R	R	S	R	I	MS	Y	+2	+0.6	+0.8	+4
CDC Fortitude	5	104	103	98	-0.2	F	F	MR	R	R	MS	R	MS	MS	Y	+1	-2.0	+0.1	-1
AAC Marchwell VB	5	99	104	93	-0.1	P	P	R	R	R	MR	R	MS	MS	Y	0	-2.7	-0.6	+0
AC Navigator	6	97	89	---	-0.6	F	G	R	R	R	MS	R	S	S	Y	+2	+1.2	-0.1	-8
CDC Precision	3	110	114	115	-0.6	G	F	MR	R	R	MS	R	MS	MS	Y	0	-0.2	+1.2	+4
AAC Raymore	5	95	99	93	+0.2	P	F	R	R	MR	MS	MR	I	S	Y	-1	+1.8	-0.1	0
AAC Spitfire	4	109	111	111	-0.5	G	F	R	R	R	MS	R	MS	S	Y	0	+0.8	-0.4	-2
AAC Stronghold	2	104	104	---	-0.4	VG	G	R	R	MR	R	I	I	MS	Y	+2	+2.5	+0.9	-2
AAC Succeed VB	1	104	114	---	-0.1	F	---	MR	R	I	R	R	MS	MS	Y	0	+2.7	-0.7	+2
Transcend	5	102	105	93	-0.3	F	G	R	R	R	S	R	I	MS*	Y	+2	-1.4	0.0	+8
CDC Verona	5	101	106	103	-0.3	G	F	R	R	R	MS	R	MS	MS	Y	+2	+0.1	-0.2	+1
CDC Vivid §	5	103	101	108	-0.3	G	F	R	R	MR	I	R	I	S	Y	0	-0.6	-0.2	0

[1] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.
[2] 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.

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 **Carberry** and **Strongfield**, respectively. In 2017, the spring wheat varieties supported for registration since 2012 were grown in replicated trials at 14 locations and compared to **Carberry**. Spring wheat varieties registered prior to 2010 have been compared indirectly to **Carberry** using a long-term comparison to **AC Barrie** and **Katepwa**.

Most varieties have been rated for their relative resistance to pre-harvest sprouting. Under wet post-maturity conditions, varieties rated poor have a reduced ability to retain high 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. Therefore, the rust resistance in varieties may change from year to year. The seed guide contains the most up-to-date information on 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. Field scouting throughout the growing season is encouraged so that timely corrective action can be undertaken if required

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

Seed of varieties rated moderately susceptible and susceptible for bunt and loose smut should be treated with a recommended fungicide. Please refer to the Seed Facts section of this booklet or the most recent *Guide to Crop Protection*.

All wheat and durum varieties exhibit similar susceptibility to ergot infestation.

CANADA WESTERN RED SPRING (CWRS)

AAC Adamant VB, **AAC Alida VB**, **AAC Cameron VB**, **Goodeve VB**, **CDC Hughes VB**, **AAC Jatharia VB**, **CDC Landmark VB**, **AAC Prevail VB**, **Shaw VB**, **SY479 VB**, **CDC Titanium VB**, **Unity VB***, **CDC Utmost VB**, **Vesper VB** are CWRS midge-tolerant varieties. They contain the same "Sm1" gene for tolerance. To manage against the build-up of midge resistance to the *Sm1* gene, an interspersed refuge is 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.*

CDC Adamant VB, **CDC Hughes VB**, **CDC Landmark VB**, **Lillian*** and **Unity VB*** have partially solid to solid stems that may provide protection against the wheat stem sawfly.

***Lillian** and **Unity VB** will be moving to the CNHR class as of August 1, 2018.

Seed of new varieties **CDC Hughes VB**, **CDC Landmark VB**, **AAC Redberry**, **SY Slate**, and **AAC Viewfield** will be available spring 2018. Seed of new varieties **CDC Adamant VB**, **Parata** and **AAC Tisdale** will be available in limited quantities fall 2018. Seed of new variety **AAC Alida VB** is expected to be available in limited quantities fall 2019.

WHEAT ADDITIONAL INFORMATION (CONT'D)

WR859CL and **5605HR CL** are tolerant to the CLEARFIELD® herbicides **Adrenalin SC** and **Altitude FX**.

CANADA PRAIRIE SPRING RED (CPSR)

Conquer VB*, **Enchant VB**, **AAC Foray VB** and **AAC Tenacious VB** are CPSR midge-tolerant varieties using the same *Sm1* gene as in the CWRS varieties and will be marketed with an interspersed refuge (see above).

***Conquer VB** will be moving to the CNHR class as of August 1, 2018.

Seed of new variety **AAC Goodwin** will be available in limited quantities fall 2018.

CANADA NORTHERN HARD RED (CNHR)

AAC Concord has a solid stem that can provide protection against the wheat stem sawfly.

CANADA WESTERN HARD WHITE SPRING (CWHWS)

Varieties in the Hard White market class are intended for whole wheat bread and Yellow Alkaline Noodle markets.

CANADA WESTERN SOFT WHITE SPRING (CWSWS)

AAC Chiffon VB, **AAC Indus VB**, **AAC Paramount VB** and **Sadash VB** are CWSWS midge-tolerant varieties using the same *Sm1* gene as in the CWRS varieties and will be marketed with an interspersed refuge (see above).

Soft white spring wheat may be used as a feedstock in the production of ethanol. 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 are similar.

Seed of **AAC Indus VB** will be available spring 2018. Limited seed of **AAC Paramount VB** will be available fall 2018.

CANADA WESTERN SPECIAL PURPOSE (CWSP)

AAC Awesome VB, **Charing VB** and **Sparrow VB** are CWSP midge-tolerant varieties using the same *Sm1* gene as in the CWRS varieties and will be marketed with an interspersed refuge (see above).

Varieties in the Special Purpose market class have no defined quality attributes and may have specific end-uses. Most varieties are intended for ethanol and livestock feed purposes. Producers are encouraged to contact the variety distributor or developer regarding uses of these varieties.

Seed of **CDC Throttle** will be available spring 2018. Limited seed of **Alderon**, **AAC Awesome VB**, **Charing VB**, and **Sparrow VB** will be available fall 2018.

CANADA WESTERN AMBER DURUM (CWAD)

AAC Cabri, **CDC Fortitude**, **AAC Raymore** and **AAC Stronghold** have a solid stem that can provide protection against the wheat stem sawfly.

CDC Carbide VB, **AAC Marchwell VB** and **AAC Succeed VB** are CWAD midge-tolerant varieties using the same *Sm1* gene as in the CWRS varieties and will be marketed with an interspersed refuge (see above).

Seed of new varieties **CDC Alloy**, **AAC Congress**, **CDC Dynamic** and **CDC Precision** will be available spring 2018. Limited quantities of seeds of varieties **AAC Stronghold** and **CDC Credence** available fall 2018. Seed of new variety **AAC Succeed VB** is expected to be available fall 2019.

CWAD varieties are generally more susceptible than CWRS varieties to Fusarium Head Blight (FHB). Growing varieties with improved resistance is recommended to reduce infection and disease propagule production as part of an integrated management strategy. Although no varieties are resistant, **Brigade**, **CDC Credence** and **Transcend** generally express lower FHB symptoms compared to other cultivars in the class. Mycotoxin (DON) production by FHB fungi is generally lower for **Transcend**.

All durum varieties are susceptible to two new races of loose smut.

Wheat Classes Changes

By Mitchell Japp, Saskatchewan Agriculture

The Canadian Grain Commission (CGC) Wheat Class Modernization that was initiated in 2015 will affect 29 varieties planted in 2018. Revised quality standards (established in May 2015) led to a review of the suitability of all western Canadian wheat varieties for their current market classification. The review was in part due to some concerns about declining gluten strength in Canadian wheat shipments.

The observed weaker gluten strength was due to a number of factors, including the predominance of some varieties that were on the lower end of the range of gluten strength for CWRS (Canada Western Red Spring). Customers require higher gluten strength from CWRS for their products to perform consistently. CGC reviewed the quality standards expected for CWRS and CPSR (Canada Prairie Spring Red) wheat classes so that the performance of those classes are more consistent with customer expectations.

> Producers are strongly encouraged to use the Canadian Grain Commission's (CGC) Variety Designation Lists (*www.grainscanada.gc.ca*), which indicate the varieties belonging to each class of wheat in Canada and the complete list of varieties being designated to another class, effective Aug. 1, 2018 and beyond. For complete and up-to-date information on the Canadian Wheat Class Modernization initiative, visit CGC's website. It is also recommended producers use the Canadian Food Inspection Agency's List of Registered Varieties (*www.inspection.gc.ca*) to determine registration status of varieties.

The wheat class review was comprehensive. The initial 29 varieties will be moved out of CWRS and CPSR Aug. 1, 2018. As a result, those varieties, if sown in 2018, will be marketed in their new class – the Canada Northern Hard Red (CNHR) class.

As an ongoing part of the review, one additional variety, **AC Crystal**, has been identified will move out of CPSR to CNHR Aug. 1, 2019. If any further varieties are identified, producers will be notified of any class designation changes after up to two years of data have been collected.

The list of varieties moving to CNHR includes 25 CWRS and five CPSR varieties, but only five appear in the *2018 Varieties of Grain Crops* – **Harvest**, **Lillian** and **Unity VB** in CWRS, **Conquer VB** and **AC Crystal** in CPSR.

For farmers growing one of the varieties that will be moved to a new class, these varieties can continue to be grown, but after Aug. 1, 2018 they will not be eligible for the CWRS or CPSR classes. After Aug. 1, 2019, **AC Crystal** will not be eligible for CPSR.

Winter Wheat

Main Characteristics of Varieties

Category and Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3 & 4	Protein (%)	Winter Survival	Resistance To[2] Lodging	Stem Rust	Leaf Rust	Stripe Rust	Bunt	FHB	Head Awnedness	Relative Maturity	Seed Weight (mg)	Volume Wt.[3] (kg/hL)	Height (cm)
CWRW[1]		-- Relative to CDC Buteo --											------- Relative to CDC Buteo -------			
CDC Buteo	17	100	100	12.3	VG	F	I	I	S	S	MR	Y	M	32.8	81.0	91
CDC Chase	6	109	110	+0.3	F	F	R	R	MR	S	MS	Y	M	-0.5	-0.2	+3
AAC Elevate	7	110	103	-0.1	G	VG	MR	I	MS	MR	I	Y	M	+4.3	-2.2	-7
Emerson	6	105	97	+0.4	G	G	R	I	MR	S	R	Y	M	-4.1	-0.8	-5
Flourish	9	101	101	+0.3	F	VG	I	I	I	MR	S	Y	E	+2.3	-1.7	-11
AAC Gateway	7	101	100	+0.5	F	VG	MR	I	MR	S	I	Y	M	-0.1	-1.5	-14
AAC Goldrush	5	111	114	+0.2	VG	G	MR	R	I	S	I	Y	M	+0.3	-1.7	-4
Moats	10	108	103	+0.4	G	F	R	R	MR	MS	S	Y	M	-0.3	-0.4	+1
Radiant	17	103	102	-0.3	VG	VG	S	S	MS	S	S	Y	L	+1.7	-1.9	0
AAC Wildfire	6	114	118	0.0	VG	G	S	I	R	MR	MR	Y	VL	+2.6	-1.2	-5
CW Experimental																
AAC Icefield	5	113	99	-0.9	F	VG	MR	R	R	S	MS	Y	M	-1.7	-1.5	-10
CWSP[1]																
Accipiter §	7	110	106	-0.9	G	VG	R	I	S	S	MS	Y	M	-1.1	-0.9	-7
CDC Falcon	16	103	98	-0.8	F	VG	MR	MR	S	S	S	Y	E	-3.0	-1.9	-16
Peregrine §	7	114	110	-1.0	VG	F	I	MR	MR	S	I	Y	M	+0.6	-1.0	+6
Pintail	6	109	112	-1.7	VG	F	MS	MS	MR	S	S	N	M	-4.2	-3.4	-3
CDC Ptarmigan §	10	113	113	-2.0	G	F	S	S	S	S	I	N	M	0.0	-4.6	+2
Sunrise §	6	114	118	-1.2	G	G	MR	MR	MR	S	---	Y	M	-1.0	-4.4	-2
Swainson §	6	118	115	-0.5	F	F	R	R	MR	S	---	Y	M	+3.4	-2.6	+5

[1] Includes direct and indirect comparisons with **CDC Buteo**
[2] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.
[3] Multiply by 0.8 = lbs per bushel

ADDITIONAL INFORMATION

Winter wheat can be grown successfully in most areas if seeded into standing stubble within the optimal seeding date period (generally before Sept. 15) and if there is adequate snowfall.

Winter wheat will often escape fusarium head blight and wheat midge damage if recommended seeding dates are followed.

Radiant and **AAC Elevate** have tolerance to the wheat curl mite vector that transmits Wheat Streak Mosaic Virus. To preserve the effectiveness of this wheat curl mite tolerance gene, agronomic practices that eliminate the “green bridge” of plant material that serves as a reservoir for mites should be followed whenever possible.

AAC Wildfire expresses tolerance to Biotype 1 of the Russian wheat aphid.

AAC Icefield is a new hard white winter wheat that is eligible for experimental grades under an identity preserved system. It has been granted interim registration to facilitate market research. **AAC Icefield** expresses high milling yield of very white flour and good gluten strength at lower protein concentrations that may be of interest in some niche markets.

CDC Ptarmigan has a soft white kernel. **Sunrise** has a soft red kernel.

Radiant and **AAC Wildfire** express bronze chaff at maturity.

The awnless head of **CDC Ptarmigan** and **Pintail** may improve palatability when harvested for forage or silage.

Seed of the new variety **AAC Wildfire** will be available in fall 2018. Limited quantities of **AAC Goldrush** and **AAC Icefield** may be available in fall 2018.

Fall Rye

Main Characteristics of Varieties

Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3 & 4	Protein (%)	Resistance To[1] Winter Survival	Lodging	Shattering	Ergot	Heading Date (days)[2]	Maturity (days)[3]	Seed Weight (mg)	Volume Weight (kg/hL)[4]	Height (cm)	Falling Number (seconds)
		----- Relative to Hazlet -----							----------		Relative to Hazlet		----------	
Open-Pollinated Varieties														
Hazlet	14	100	100	11.0	VG	G	VG	MS	June 8	August 3	37.1	72.7	105	171
Prima	14	81	94	0.4	VG	F	F	MS	0	-3	-4.8	-1.1	11	+56
Hybrid Varieties														
KWS Bono	5	128	125	-1.2	G	VG	---	MS	1	1	-5.1	-0.8	-13	+117
Brasetto	6	113	122	-1.0	VG	VG	---	MS	1	1	-3.5	-1.7	-10	+107
KWS Daniello	3	111	111	-0.7	VG	VG	---	I	1	0	-4.5	-1.7	-10	+133
KWS Gatano	3	118	120	-1.2	G	G	---	I	0	2	-6.1	-0.5	-14	+118
Guttino	6	116	127	-0.9	VG	VG	---	MS	1	0	-4.5	-0.9	-13	+148

[1] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.
[2] Average heading date relative to **Hazlet**. Flowering typically occurs 7-14 days after heading, depending on weather conditions.
[3] Average maturity date relative to **Hazlet**. Wet and cool conditions can prolong maturity beyond these dates.
[4] Multiply by 0.8 = lbs per bushel.

ADDITIONAL INFORMATION

Fall rye is much more cold tolerant than winter wheat or winter triticale, with field survival being approximately 30 to 100% better than winter wheat for current fall rye varieties.

A major factor in marketing rye grain into the milling market is sprouting. This is generally measured using the Hagberg falling number test and is measured in seconds. Typically, a falling number of 180 seconds or greater is preferred by the rye milling market. Falling number is heavily influenced by moisture around harvest time, and producers must make sure rye is harvested in a timely manner, similar to wheat crops. There is considerable variation in fall rye varieties for falling number; this must be considered if the milling market is the targeted end-user for rye grain.

Very little recent information on shattering in rye has been obtained, as it has not been observed in field trials recently, thus no information is available for recently released varieties.

Triticale

Main Characteristics of Varieties

Variety	Years Tested	Yield (%) Area 1 & 2	Yield (%) Area 3	Test Weight (kg/hL)	Seed Weight (mg)	Height (cm)	Maturity	Resistance To[1] Lodging	Stem Rust	Leaf Rust	Bunt	Root Rot	Ergot	FHB
Spring Habit		---------- Relative to AC Ultima ----------												
AC Ultima	21	100	100	70.1	44.0	101	104	G	R	R	R	I	MS	I
Brevis	11	110	110	3.7	-3.0	-7	1	VG	R	R	R	---	I	I
Bunker	4	92	---	3.0	1.1	5	1	G	MR	R	R	I	I	MR
AAC Delight	5	103	104	1.7	-0.1	-2	2	VG	R	R	R	---	I	I
Pronghorn	20	98	100	-0.3	0.5	7	2	G	MR	R	R	I	I	MR
Sunray	8	105	101	-1.7	-4.4	-1	1	G	R	R	R	---	MR	MS
Taza	6	105	98	-0.5	-1.9	6	2	G	R	R	R	---	I	S
Tyndal	6	100	104	1.8	-3.2	-6	0	G	R	R	R	---	---	MS
Winter Habit		---------- Relative to Pika ----------												
Pika	6	100	100	68		125	E	F	---	---	---	---	---	---
Luoma	5	100	96	-1.0		1	L	F	---	---	---	---	---	---
Metzger	5	96	101	-1.0		-14	E	G	---	---	---	---	---	---

[1] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.

ADDITIONAL INFORMATION

Spring triticale matures 2-4 days later than **AC Andrew** CWSWS wheat; therefore it should be planted as early as possible. Newer triticale varieties yield 2 to 10% higher than **AC Andrew**. Susceptibility to Fusarium Head Blight is at least as great in triticale as in wheat. **AC Ultima** has an improved Hagberg Falling Number. **Brevis** has shorter and stronger straw. **AAC Delight**, **Tyndal** and **Bunker** are spring forage types and, along with **Taza**, have reduced awns.

Winter triticale has winter hardiness equal to that of winter wheat. **Luoma** and **Metzger** have reduced awns. **Metzger** is shorter with stronger straw.

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. **Sunray** represents an improvement in ergot resistance.

Malting Barley

Main Characteristics of Varieties

Category[1] and Variety	Years Tested	2 or 6 Row	Awns[2]	Yield (% AC Metcalfe) Area 1 & 2	Yield (% AC Metcalfe) Area 3 & 4	Relative Maturity[3]	Resistance To[4] Lodging	Netted Net Blotch[5]	Spotted Net Blotch[5]	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	FHB
Malting Acceptance: Recommended																
AC Metcalfe	11	2	R	100	100	M	G	S	I	I	MS	R	I	I	MR	I
CDC Bow	6	2	R	113	111	M	VG	S	MR	I	MS	S	I	MS	MR	MS
AAC Connect	3	2	R	103	113	M	G	I	MR	MR	S	S	R	MS	MR	MR
CDC Copeland	8	2	R	107	108	M	G	I	I	S	MS	MS	I	I	MR	I
AAC Synergy	7	2	R	118	118	M	G	MR	R	R	S	S	I	I	MR	MS
Celebration	7	6	S	109	107	M	VG	S	MR	MR	S	R	R	MS	I	MS
Legacy	6	6	S	104	101	M	G	S	MR	MR	MS	I	MR	MR	MR	MS
Tradition	5	6	S	112	107	M	VG	S	I	MR	MS	S	MR	MR	MR	S
Malting Acceptance: In Development or Limited Demand																
Bentley	7	2	R	113	112	L	G	MS	R	I	MS	MS	MR	I	MR	MS
CDC Fraser	5	2	R	112	115	M	G	MR	R	MR	MS	R	R	MS	MR	I
CDC Kindersley	7	2	R	105	107	E	G	MS	MR	I	S	S	R	I	MR	I
Lowe	4	2	R	109	109	L	G	I	MR	I	MR	R	R	---	S	MR
Newdale	6	2	R	112	113	M	G	I	MR	I	MS	S	MR	MR	MR	I
CDC PolarStar[7]	7	2	R	104	99	M	F	S	MR	MS	S	S	R	MS	S	MR
CDC PlatinumStar[7]	6	2	R	104	104	M	F	I	MR	S	S	S	R	S	I	MR
Other[6]																
Cerveza §	7	2	R	113	117	M	G	MS	MR	R	S	R	R	I	MR	I
CDC Goldstar[7]	3	2	R	109	113	M	G	I	MR	I	S	I	R	---	MR	MS
Harrington §	11	2	R	95	89	M	F	S	MS	S	MS	MS	MS	I	MS	MR
CDC Landis §	7	2	R	109	109	M	G	I	R	I	S	S	MR	MS	MR	MR
Major §	7	2	R	112	115	M	G	I	MR	MR	S	R	MR	MS	MR	I
CDC Meredith §	7	2	R	114	112	L	G	MS	R	MS	MS	R	MR	I	MR	I
Merit 57 §	7	2	R	109	107	L	G	MS	R	MS	I	S	I	MR	I	MS
Sirish	4	2	R	99	103	M	VG	MS	MS	MS	MR	S	R	---	S	MS
CDC Anderson §	7	6	R	107	108	M	G	MS	MR	R	MS	MR	R	I	I	I
CDC Battleford §	6	6	S	108	108	M	G	MS	R	R	MS	MS	MR	MR	MR	S
Lacey §	4	6	S	101	101	M	G	S	I	R	MS	I	MR	MR	MR	S

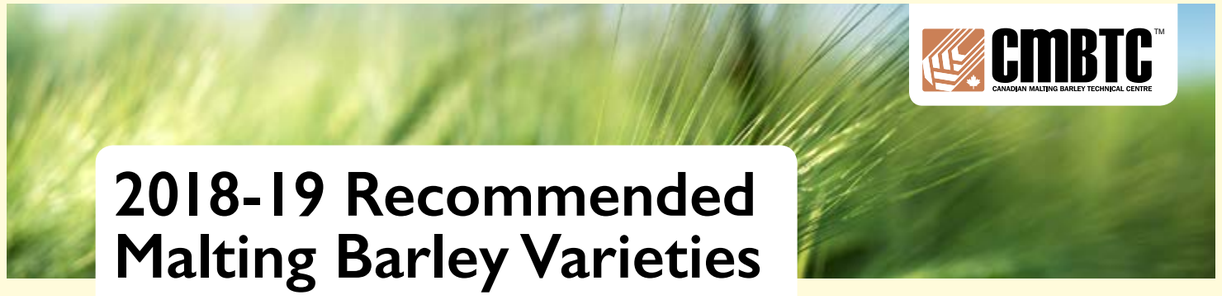
[1] These categories are established annually by the Canadian Malting Barley Technical Centre (Call 204-984-4399 for more information).
[2] R=Rough, S=Smooth
[3] Relative maturity: The relative maturity of the check, **AC Metcalfe**, is M (on average, 91 days from seeding to swathing ripeness).
[4] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate; MS = Moderately Susceptible; S = Susceptible.
[5] There are two forms of net blotch, netted (*Pyrenophora teres f. teres*) and spotted (*Pyrenophora teres f. maculata*). Generally, in Saskatchewan the netted form is more prevalent.
[6] Although not on the CMBTC list, a malting barley market may exist for these varieties.
[7] **CDC PolarStar**, **CDC PlatinumStar** and **CDC GoldStar** are available only through a closed loop Identity Preserved program offered by Prairie Malt Limited/Sapporo Breweries and their agents.

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.

Lines Tested 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.



2018-19 Recommended Malting Barley Varieties

The following varieties of two-row and six-row malting barley are recognized by the CMBTC as having good agronomic and quality characteristics, as well as substantial or growing market demand. The varieties have been pilot scale tested by the CMBTC and all exhibit good malting and brewing characteristics. All two-row and six-row varieties on the CMBTC recommended list are registered with the Canadian Food Inspection Agency (CFIA). A comprehensive list of all malting barley varieties designated by the Canadian Grain Commission can be found at https://www.grainscanada.gc.ca/legislation-legislation/orders-arretes/ocgcm-maccg-en.html.

Two-Row Varieties

VARIETY	MARKET COMMENTS
CDC Copeland[1]	Established Demand
AC Metcalfe[1]	Established Demand
AAC Synergy[4]	Growing Demand
AAC Connect[2]	Under Commercial Market Development
CDC Bow[1]	Under Commercial Market Development

Note: CDC PlatinumStar[2] and **CDC PolarStar**[2] are currently closed-loop varieties. For contracting opportunities contact Prairie Malt - Cargill Biggar. Marketing opportunities remain for the varieties **Bentley**[2] and **Newdale**[3] and **CDC Kindersley**[1] in certain areas.

The CMBTC and its members recommend:

- Talk with your local malting barley buyer about opportunities in your area to grow and market two-row and six-row malting barley varieties.
- Use certified seed to ensure varietal purity, reduce disease incidence and increase the likelihood of selection for malt.
- For contracting opportunities, contact your grain company representative, local elevator operators, malting companies, or the representative seed company.

Six-Row Varieties

VARIETY	MARKET COMMENTS
Legacy[3]	Limited Demand
Tradition[3]	Limited Demand
Celebration[2]	Limited Demand

New Varieties in Development

The following varieties have been registered with CFIA and are undergoing seed propagation. Both varieties have been pilot scale tested at the CMBTC and exhibit good quality characteristics suitable for all malt and/or adjunct brewing styles.

VARIETY	COMMENTS
CDC Fraser[1]	Two-Row - Undergoing seed propagation
Lowe[1]	Two-Row - Undergoing seed propagation

The following companies have pedigreed seed distribution rights for those varieties that are footnoted:

1 – SeCan	2 – CANTERRA SEEDS
3 – FP Genetics	4 – Syngenta

Questions? Call your selector, seed company, grain handling company or contact the CMBTC.

cmbtc.com

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Feed and Food Barley

Main Characteristics of Varieties

Category and Variety	Years Tested	2 or 6 Row	Awns[1]	Yield (% AC Metcalfe) Area 1 & 2	Yield (% AC Metcalfe) Area 3 & 4	Relative Maturity[2]	Resistance To[3] Lodging	Netted Net Blotch[4]	Spotted Net Blotch[4]	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	FHB
Hulled																
Altorado	5	2	R	117	111	M	VG	S	MR	MS	S	MR	MR	MR	MR	I
CDC Austenson	7	2	R	118	121	M	G	MS	R	MR	S	S	R	I	I	I
Brahma	7	2	R	114	115	M	G	S	I	S	MS	MS	R	MR	MR	I
Canmore	7	2	R	111	114	L	G	MS	MR	I	MR	R	R	I	MS	I
Champion	8	2	R	117	117	M	G	S	I	MS	S	S	R	MR	I	I
Claymore	6	2	R	119	117	L	VG	S	I	I	S	S	R	I	MR	I
CDC Coalition	7	2	R	111	114	M	VG	S	MR	I	MS	R	MR	I	MR	I
CDC Cowboy	6	2	R	99	105	L	F	I	MR	I	MS	MS	MR	I	MR	MR
CDC Dolly §	11	2	R	103	103	E	G	S	MS	MS	I	S	I	I	MS	MR
Gadsby §	7	2	R	110	110	M	F	MS	MR	S	R	R	R	I	MR	I
CDC Helgason §	7	2	R	105	106	M	G	MR	MR	I	MS	R	MR	I	I	MS
CDC Maverick	6	2	S	98	98	M	F	I	MR	I	MS	S	R	I	MR	MR
Oreana	6	2	R	117	112	L	VG	S	MR	I	S	S	R	I	I	S
CDC Trey §	5	2	R	104	110	M	G	I	R	I	MS	MS	R	MR	MR	I
Amisk	7	6	SS	113	110	M	G	I	MR	MR	I	S	MS	MS	MR	S
Chigwell §	7	6	S	107	111	M	G	I	MR	MR	MR	MS	R	S	S	S
Muskwa	7	6	S	112	110	M	G	MS	MR	I	MR	MS	R	MS	MR	S
AC Rosser §	11	6	S	115	115	M	G	I	MR	MR	S	MS	MR	MR	MR	S
Sundre §	5	6	S	120	116	L	G	MS	I	I	R	MS	R	MS	I	S
Hulless																
CDC Ascent	4	2	R	99	97	M	G	S	MR	I	MS	MR	MR	I	I	MR
CDC Carter	7	2	R	94	99	M	G	I	MR	I	MS	R	R	S	I	I
CDC Clear	7	2	R	96	103	L	G	MS	R	I	MS	R	R	I	MR	MR
CDC McGwire	8	2	R	98	99	M	G	I	MR	I	I	MS	MR	MR	I	MR
Taylor §	7	2	R	82	87	M	VG	MS	MR	I	S	R	I	MS	MR	MR

[1] R = Rough, S = Smooth, SS = Semi-Smooth

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

[3] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate; MS = Moderately Susceptible; S = Susceptible.

[4] There are two forms of net blotch: netted (*Pyrenophora teres f. teres*) and spotted (*Pyrenophora teres f. maculata*). Generally, in Saskatchewan the netted form is more prevalent.

ADDITIONAL INFORMATION

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% 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.

Forage Barley

Desperado and **AC Ranger** are six-row forage varieties. **CDC Cowboy** and **CDC Maverick** are two-row forage varieties.

Hulless

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

Hulless Food

CDC Ascent, **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** 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.

Oat

Main Characteristics of Varieties

Variety	Years Tested	Yield (% CDC Dancer) Area 1 & 2	Yield (% CDC Dancer) Area 3 & 4	Test Weight (g/0.5L)	% Hull	Hull Colour	% Plump	Relative Maturity[1]	Height (cm)	Resistance To[2] Lodging	Stem Rust	Crown Rust	Smut
CDC Dancer	8	100	100	253	19.8	White	86	M	103	G	I	I	R
CDC Arborg	3	114	119	250	20.1	White	85	M	108	VG	S	I	R
SW Betania §	7	105	105	245	22.0	White	82	M	97	G	S	MS	MR
CDC Big Brown §	7	106	106	256	20.4	Tan	88	L	101	G	MS	R	R
CDC Boyer §	8	99	100	232	23.3	White	85	M	105	G	I	I	MS
CS Camden	7	113	114	242	24.3	White	82	L	94	VG	S	MS	I
Derby	8	98	102	247	22.9	White	79	M	107	G	S	S	MS
CDC Haymaker	5	92	95	225	24.9	White	87	VL	111	G	S	S	MR
AAC Justice	7	111	107	255	22.4	White	75	L	101	G	I	I	R
Leggett	7	103	104	256	22.0	White	82	L	96	G	I	R	R
Lu §	6	102	103	248	25.2	Yellow	58	E	99	G	S	S	MR
CDC Minstrel	7	106	107	245	21.0	White	92	L	98	VG	I	MS	R
AC Morgan	8	104	108	236	25.1	White	82	L	101	VG	S	S	I
CDC Morrison	5	100	92	248	24.4	Yellow	83	L	95	VG	I	MS	R
CDC Nasser §	7	109	107	233	21.8	White	79	VL	106	G	MS	S	R
CDC Norseman	6	110	108	241	20.0	White	81	M	102	G	S	MR	MS
ORe3541M	4	104	99	257	21.5	White	90	L	93	VG	S	R	R
ORe3542M	4	108	100	247	22.5	White	95	L	93	VG	S	R	R
CDC Orrin	6	108	109	253	23.2	White	91	L	103	G	MS	S	R
Pinnacle	8	113	109	244	23.6	White	89	VL	101	F	I	S	R
Ronald §	7	96	99	249	22.4	White	74	L	97	VG	I	S	R
CDC Ruffian	7	114	110	247	20.4	White	88	L	95	G	S	I	R
CDC Seabiscuit §	7	110	106	240	20.3	White	89	L	100	G	I	S	MR
Souris	7	108	103	253	21.5	White	72	M	98	VG	MR	MS	R
Stride §	7	110	107	255	22.9	White	80	L	103	G	I	R	R
Summit	7	104	105	256	21.6	White	81	M	94	G	I	I	R
Triactor	7	114	118	240	22.8	White	80	L	99	G	S	MR	I
Varieties being tested for adaptability in Western Canada													
Akina	3	115	110	242	22.5	White	---	M	95	G	---	R	R
Bradley §	5	105	102	240	21.7	White	81	L	103	VG	MS	MS	R
Kara	3	117	112	247	23.2	White	---	M	88	G	---	MR	MR
Kyron	2	118	113	244	23.7	White	---	M	93	G	---	---	---
Pomona	2	105	102	262	22.8	White	---	L	96	G	---	---	---

[1] Maturity Rating M = 96 days.

[2] Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.

ADDITIONAL INFORMATION

Although disease pressure is lower in eastern Saskatchewan than in Manitoba, crown rust races capable of attacking most varieties, except those with an MR or R rating, are increasing in southeast Saskatchewan. Early seeding will reduce the likelihood of severe infection.

Producers growing oats for the milling market are advised to check the “approved” varieties list available from the various oat millers.

Feed Oat

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

Forage Oat

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

Hulless Oat

AC Gwen is a hulless variety available for production in Saskatchewan. The hull is part of normal oat yield, thus hulless types yield less. They are difficult to handle and store and should be stored at less than 12% moisture.

False Oats or Fatuoids

False wild oats, or fatuoids, are off-types within common oat fields that have an appearance similar to wild oat, most notably 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% and occur within all oat varieties.

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.

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

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

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

Use of seed from cereal crops infected with *Fusarium* species 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. Tolerance for *Fusarium* vary with species. Refer to the Saskatchewan Agriculture publication *Seed-Borne Diseases of Cereal Crops* for more information.

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 susceptible (S) should be treated every year, those rated moderately susceptible (MS) every second year and those rated intermediate resistance (I) 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 treatments containing insecticides.

Read the label carefully before using any seed treatment. 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 per cent seed infection is acceptable in the Brown and Dark Brown Soil Zones, but 0 per cent is desirable in the Black Soil Zone. A seed treatment for ascochyta-infected lentil seed is available and is recommended if seed infection levels approach 5%. In pea, up to 10% seed infection with ascochyta is acceptable. In chickpea, 0% ascochyta seed infection is recommended because of the high rate of transmission of the disease from the seed to the emerging seedlings and its highly destructive nature. Refer to the Saskatchewan Agriculture publication *Seed-Borne Diseases of Pulse Crops*.

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

ERGOT
Ergot attacks all varieties of rye, triticale, wheat and barley, as well as most common grass species. Oat is rarely attacked and all broadleaf species are immune. Grain containing 0.1% ergot is considered poisonous and should not be used for food. Refer to the Saskatchewan Agriculture publication *Ergot of Cereals and 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 that is stored damp or tough may be low in germination and may lack adequate vigour. Grain that 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, unless varieties are midge-tolerant. Consider the use of midge-tolerant varieties. Refer to the Saskatchewan Agriculture publication *Wheat Midge*.

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.

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*.

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.

SAFFLOWER
Safflower is an annual oilseed or birdseed crop that 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.

Canaryseed

Main Characteristics of Varieties

Variety	Type	Site Years Tested	Yield[1] (%)	Days to Heading	Days to Maturity	Height (cm)	Test Weight (kg/hL)[3]	Seed Weight (g/1000)
			Relative to CDC Bastia					
CDC Bastia	glabrous	54	100	56	98	102	70.8	8.0
CDC Calvi[2]	glabrous	40	106	2	3	4	0.7	0.3
CDC Cibo[2]	glabrous	40	105	0	-1	-9	-0.4	0.2
CDC Togo §	glabrous	48	96	1	0	-4	-1.4	0.5
Cantate	hairy	54	115	1	2	-3	-7.0	0.5
Keet	hairy	54	125	4	3	4	-6.1	-0.2

[1] Yield data not collected by Area
[2] 2011-2017 yield data; other varieties 2007 -2017, except CDC Togo (2007-2016)
[3] 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. Seed hulls of **CDC Bastia**, **CDC Togo**, **CDC Calvi**, and **CDC Cibo** do not have the small, sharp hairs that cause irritation when canaryseed is threshed and handled and are called glabrous. **CDC Cibo** is yellow-seeded while the other varieties produce brown seed.

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 per cent. 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, inside the boot and panicles of the plant in July and August and may require an insecticide application to prevent yield loss. Information from the United States indicates that infestations of 10 to 20 aphids on 50 per cent of the stems prior to soft dough stage may cause enough damage to warrant insecticide application. The aphids often hide in the dense head of the 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 source of infection, thus crop rotation is key in limiting the severity of leaf mottle.

In recent years *Fusarium spp*., particularly *F. graminearum*, were commonly found in a majority of the Saskatchewan canaryseed fields surveyed. The average incidence within fields was generally low (3-4%). In most instances there were no obvious infection symptoms and seed plating was required to detect the fungus. In some cases an orange discoloration arising from *Fusarium* infection is visible on the infected panicles in the field.

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*.

PULSE CROPS

Lentil

Main Characteristics of Varieties

Market Class	Variety	Herbicide Tolerance[1]	Years Tested[2]	Yield (% CDC Maxim) Area 1 & 2	Yield (% CDC Maxim) Area 3 & 4	Height (cm)	Days to Flower	Maturity Rating[3]	Resistance To[4] Ascochyta Blight	Resistance To[4] Anthracnose Race 1	Seed Coat Colour	Cotyledon Colour	Seed Weight (g/1000)
Small Red	CDC Maxim	CL	11	100	100	34	51	E/M	MR	MR	gray	red	40
	CDC Cherie §		5	109	106	32	51	E/M	MR	I	gray	red	39
	CDC Dazil	CL	6	97	93	33	53	E/M	MR	I	gray	red	35
	CDC Imax	CL	6	92	78	35	51	E/M	MR	I	gray	red	45
	CDC Impact	CL	6	80	76	30	47	E	MR	MS	gray	red	34
	CDC Impulse	CL	8	108	95	37	52	E/M	MR	MR	gray	red	44
	CDC Proclaim	CL	7	105	102	34	51	E/M	MR	MR	gray	red	40
	CDC Red Rider §		6	95	85	34	52	E/M	MR	I	gray	red	45
	CDC Redberry		6	97	99	34	50	E/M	MR	MR	gray	red	42
	CDC Redcliff §		7	107	103	35	51	E/M	MR	I	gray	red	38
	CDC Redcoat §		6	105	93	33	50	E/M	MR	MR	gray	red	39
	CDC Redmoon		7	114	106	33	52	E/M	MR	MR	gray	red	41
	CDC Scarlet		9	104	104	35	53	E/M	MR	I	gray	red	36
Extra Small Red	CDC Impala	CL	7	80	90	30	51	E	MR	MR	gray	red	31
	CDC Imperial	CL	6	84	79	30	49	E	MR	MR	gray	red	30
	CDC Redbow §		6	102	99	30	49	E	MR	MR	gray	red	32
	CDC Rosebud §		6	100	99	30	50	E	MR	MR	tan	red	31
	CDC Rosie §		7	92	90	33	52	E/M	MR	MR	gray	red	30
	CDC Roxy §		7	102	98	34	53	E/M	MR	MR	gray	red	32
Large Red	CDC KR-1		10	110	92	37	52	M	MR	MR	gray	red	56
	CDC KR-2	CL	7	102	90	37	52	M	MR	MR	gray	red	55
Small Green	CDC Imvincible	CL	11	92	80	33	49	E	MR	MR	green	yellow	34
	CDC Kermit		8	104	99	36	49	E/M	MR	MR	green	yellow	34
	CDC Viceroy		6	97	98	34	49	E	MR	MR	green	yellow	33
Extra Small Green	CDC Asterix §		9	96	93	30	48	E	MR	I	green	yellow	26
Medium Green	CDC Imigreen	CL	7	78	71	44	50	M	MR	S	green	yellow	57
	CDC Impress	CL	6	87	71	34	50	M	MR	MS	green	yellow	52
	CDC Meteor §		6	102	89	34	50	M	MR	S	green	yellow	51
	CDC Richlea		6	93	80	35	50	M	S	S	green	yellow	51
Large Green	CDC Greenland		7	89	70	38	52	M/L	MR	S	green	yellow	64
	CDC Greenstar		8	97	81	40	52	M/L	MR	I	green	yellow	73
	CDC Impower	CL	6	79	63	41	52	M/L	MR	S	green	yellow	64
	CDC Sovereign		6	83	77	40	52	L	MR	MS	green	yellow	66
French Green	CDC Marble		7	102	98	36	49	E	MR	I	green marble	yellow	34
	CDC Peridot	CL	6	84	94	37	48	E	I	MS	green marble	yellow	38
Green Cotyledon	CDC QG-1		5	80	65	42	51	M	I	I	green	green	49
	CDC QG-2		7	88	90	40	48	E	I	I	green marble	green	32
	CDC QG-3	CL	7	73	63	38	53	E/M	I	MR	green	green	46
Spanish Brown	CDC SB-3	CL	6	88	87	35	51	E	I	MR	gray dotted	yellow	38

[1] CL indicates Clearfield® tolerant variety.
[2] Co-op and Regional Trials in Saskatchewan since 2006. Comparisons to the check variety, small red lentil **CDC Maxim**.
[3] 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 4 for more information on maturity range in lentil.

ADDITIONAL INFORMATION

Seed supplies may be limited for **CDC Impulse**, **CDC Roxy**, **CDC Proclaim**, **CDC Redmoon** and **CDC Kermit.**

Field Pea

Main Characteristics of Varieties

Variety	Years Tested[1]	Yield (% CDC Amarillo) 1, 2 & South 3	Yield (% CDC Amarillo) North 3 & 4	Yield (% CDC Amarillo) Irrigation	Leaf Type[2]	Relative Maturity	Lodging[3] (1-9)	Vine Length (cm)	Resistance To: MB[4]	Powdery Mildew	Fusarium Wilt	SCB[5]	Bleaching	SCD[6]	Greenness[7]	Seed Weight (g/1000)	Protein vs. CDC Amarillo
Yellow																	
CDC Amarillo	9	100	100	100	SL	M	3.5	85	4.5	R	MR	F	n/a	F	G	230	23.0
Abarth	7	93	90	92	SL	E	3.5	75	5.0	R	I	F	n/a	G	G	280	-0.1
Agassiz	9	98	93	100	SL	M	4.5	85	5.0	R	I	G	n/a	F	G	230	0.3
AAC Ardill	7	102	99	87	SL	M	3.5	85	4.5	R	MR	G	n/a	G	G	230	-1.7
CDC Athabasca	6	93	99	---	SL	M	3.0	85	4.5	R	I	F	n/a	F	G	300	0.8
CDC Canary	5	96	98	---	SL	E	3.5	85	4.5	R	I	G	n/a	F	F	230	0.0
AAC Carver	4	103	101	---	SL	E	4.0	85	5.0	R	I	G	n/a	F	G	240	-1.6
AAC Chrome	3	105	102	---	SL	M	4.5	75	4.5	R	I	G	n/a	G	G	240	-1.2
Earlystar	5	92	91	---	SL	VE	5.0	80	5.0	R	I	F	n/a	G	G	210	-1.1
CDC Golden	9	91	82	90	SL	E	4.5	75	5.0	R	I	G	n/a	G	G	230	0.7
CDC Hornet	8	91	84	91	SL	M	4.0	85	4.5	R	I	F	n/a	G	G	220	-0.6
Hyline	3	96	96	---	SL	E	4.5	75	5.0	R	I	G	n/a	G	G	240	-1.5
CDC Inca	6	104	100	---	SL	M	4.0	85	4.5	R	I	G	n/a	G	F	230	-1.1
AAC Lacombe	5	98	99	---	SL	M	3.5	85	5.0	R	I	F	n/a	F	F	250	-0.9
CDC Meadow	9	91	89	90	SL	E	4.0	85	5.0	R	I	G	n/a	G	G	220	-0.6
CDC Prosper §	8	84	79	73	SL	E	4.5	80	5.0	R	MR	G	n/a	F	G	150	-0.7
CDC Saffron	9	98	91	91	SL	E	4.0	80	4.5	R	I	G	n/a	F	G	250	-0.3
CDC Spectrum	6	104	102	---	SL	M	3.5	85	4.5	R	I	G	n/a	G	F	240	0.7
Thunderbird	6	89	83	91	SL	M	4.0	85	5.0	R	I	G	n/a	G	F	220	---
CDC Treasure	8	88	87	93	SL	E	4.0	80	5.0	R	I	F	n/a	F	G	210	-0.4
Green																	
AAC Comfort	3	91	99	---	SL	M	4.5	85	4.5	R	I	G	G	G	n/a	250	-0.4
Cooper	8	89	80	85	SL	M	4.0	80	5.0	R	I	F	F	G	n/a	270	0.9
CDC Forest	5	100	101	---	SL	M	4.0	85	4.5	R	I	G	G	G	n/a	230	-0.2
CDC Greenwater	8	99	92	86	SL	M	3.5	90	4.0	R	MR	F	G	F	n/a	230	-1.1
CDC Limerick	9	95	89	90	SL	M	3.5	85	4.0	R	I	G	G	G	n/a	210	2.8
CDC Patrick	9	87	85	87	SL	M	4.5	80	4.5	R	MR	G	G	G	n/a	190	-0.9
CDC Pluto	7	93	83	91	SL	M	5.5	80	4.5	R	I	G	G	G	n/a	160	-0.2
AAC Radius	6	77	77	---	SL	M	5.0	85	4.5	R	I	VG	G	G	n/a	230	0.5
CDC Raezer	9	81	81	94	SL	E	3.5	85	5.0	R	MR	G	G	G	n/a	220	-0.3
AAC Royce	5	92	84	---	SL	M	5.0	70	5.0	R	I	F	G	F	n/a	260	0.4
CDC Sage	5	73	71	73	SL	M	4.0	80	5.0	R	MR	G	G	F	n/a	220	---
CDC Spruce	6	95	99	---	SL	M	4.0	85	4.5	R	I	F	G	F	n/a	240	0.3
CDC Striker	9	81	80	84	SL	M	3.5	80	4.5	S	MR	VG	G	G	n/a	240	2.0
CDC Tetris	9	89	91	88	SL	M	4.0	85	4.5	R	MR	G	F	G	n/a	210	0.6
Red																	
Redbat 8	5	93	84	---	SL	M	5.0	85	5.0	R	---	G	n/a	G	n/a	200	1.3
Redbat 88	4	92	91	---	SL	M	4.5	90	4.5	R	---	G	n/a	G	n/a	190	0.5
Maple																	
CDC Acer	3	84	73	---	SL	M	6.5	60	5.0	R	---	G	n/a	VG	n/a	170	---
CDC Blazer	3	100	97	---	SL	M	5.0	80	5.0	R	---	G	n/a	VG	n/a	190	1.9
AAC Liscard	4	90	90	---	SL	M	4.0	85	5.0	R	---	G	n/a	VG	n/a	200	-0.7
CDC Mosaic	4	81	74	58	SL	M	4.0	85	4.5	R	---	G	n/a	VG	n/a	180	---
Dun																	
CDC Dakota	8	103	99	95	SL	M	3.5	85	4.5	R	---	G	n/a	VG	n/a	205	1.7
Forage[8]																	
40-10	3	68	65	47	N	M	8.5	130	4.5	S	---	G	n/a	G	---	140	3.2
CDC Horizon	4	88	78	63	SL	M	4.0	100	4.5	R	---	G	n/a	G	G	170	2.2
CDC Jasper	2	78	80	---	SL	M	4.5	105	4.5	R	---	G	n/a	G	G	180	2.6
CDC Leroy §	3	82	75	75	SL	M	4.5	85	4.5	R	---	G	n/a	G	G	150	1.1
CDC Tucker §	3	83	77	74	SL	M	4.0	90	4.5	R	---	G	n/a	G	F	170	2.1

[1] Co-op and regional trials in Saskatchewan
[2] N = normal leaf type; SL = semi-leafless
[3] Lodging score (1-9) where 1 = completely upright, 9 = completely lodged
[4] Mycosphaerella blight score (1-9) 1=no disease, 9=completely blighted
[5] Seed Coat Breakage
[6] Seed Coat Dimpling: VG = 0-5%; G = 6-20%; F = 21-50%
[7] Greenness: Good = 0-15%; Fair = 16-40%
[8] Forage dry matter biomass, as % of check 40-10 (100), CDC Jasper (111), CDC Horizon (108) CDC Leroy (104), and CDC Tucker (106).

FIELD PEA ADDITIONAL INFORMATION

The following varieties have purple flower colour and pigmented seed coats: **CDC Acer**, **CDC Blazer**, **AAC Liscard**, **CDC Mosaic**, **CDC Dakota** and **40-10**. **CDC Acer**, **CDC Blazer** and **CDC Mosaic** have a maple-patterned seed coat, **AAC Liscard** and **40-10** have 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.

The relative maturity of the check variety **CDC Amarillo** is medium (M), which is, on average, 95 days from seeding to swathing ripeness.

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

Soybean

Main Characteristics of Varieties

Variety	Canadian Marketing Agent	Company Maturity Grouping[1]	Type[2]	Hilium Colour[3]	Years Tested	Yield (% TH 33003R2Y)[4]		Days to Maturity
						South	North	
TH 33003R2Y	Thunder Seeds	00.3	RR2	BR	3	100	100	121
NSC LEROY RR2Y	NorthStar Genetics	000.6	RR2	Y	2	89	92	111
NSC Watson RR2Y	NorthStar Genetics	000.8	RR2	IY	3	88	100	115
P002T04R	DuPont Pioneer	00.2	RR1	TN	3	86	97	116
S0009-M2	Syngenta Canada Inc.	000.9	RR2	IY	3	97	103	116
S003-L3	Syngenta Canada Inc.	00.3	RR2	BR	2	102	107	117
22-60 RY	DEKALB	000.9	RR2	BL	3	104	103	118
S001-B1	Syngenta Canada Inc.	00.1	RR2	Y	2	96	101	119
Bishop R2	SeCan	00.2	RR2	IY	3	96	98	119
LS Northwester	Delmar Commodities	00.1	RR2	BL	3	101	96	119
23-60RY	DEKALB	00.2	RR2	BL	2	106	101	120
P006T46R	DuPont Pioneer	00.6	RR1	BR	2	103	110	120
NSC RESTON RR2Y	NorthStar Genetics	00.1	RR2	BL	2	107	103	120
TH 37004 R2Y	Thunder Seeds	00.4	RR2	BL	2	103	102	120
McLeod R2	Secan	00.4	RR2	BL	3	105	102	121
Mahony R2	Secan	00.3	RR2	BL	3	107	107	121
S007-Y4	Syngenta Canada Inc.	00.5	RR2	IY	3	106	107	121
Lono R2	Brett Young/Elite Seeds	00.5	RR2	Y	3	109	107	121
PS 0035 NR2	PRIDE Seeds	00.3	RR2	BL	3	103	95	122
LS 002R24N	Delmar Commodities	00.2	RR2	BL	3	105	100	122
23-11RY	DEKALB	000.9	RR2	BL	2	106	102	122
Akras R2	Brett Young/Elite Seeds	00.3	RR2	IB	3	112	110	122
TH 35002R2Y	Thunder Seeds	00.2	RR2	BL	2	103	104	123
P006T78R	DuPont Pioneer	00.6	RR1	BR	2	111	105	124
HS 006RYS24	Dow Seeds	00.6	RR2	BL	3	107	96	124
TH 33005R2Y	Thunder Seeds	00.5	RR2	BL	2	113	105	124
NSC TILSTON RR2Y	NorthStar Genetics	00.4	RR2	BL	2	102	99	124
TH 32004R2Y	Thunder Seeds	00.4	RR2	BL	3	108	103	125
Hero R2	Secan	00.4	RR2	BL	2	115	101	127

[1] In North America, soybean varieties are classified into maturity groupings from 9 in southern USA to 1 or 0 in southern Ontario. 00 refers to shorter season varieties than 0 types, while 000 refers to shorter season varieties than 00 types. The decimal point notation refers to differences within a class, for example, 00.1 should be a shorter season variety than 00.2

[2] All varieties in this table are either Roundup Ready 1 or Genuity Roundup Ready 2 Yield™

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

[4] South: Redvers, Halbrite, Swift Current, and Indian Head; North: Outlook (irrigated and dryland), Saskatoon, Floral, Kamsack, Rosthern, Melfort, and Scott

ADDITIONAL INFORMATION

The soybean variety trial is coordinated by Saskatchewan Pulse Growers. Mean yield of the check variety **TH 33003R2Y** was 46 bu/ac in 2017, 44 bu/ac in 2016 and 51 bu/ac in 2015 with an overall 3-year average of 47 bu/ac. Typical on-farm yields are 25 to 30 bu/acre. Soybean is not native to the Canadian Prairies and so must be inoculated with soybean inoculant that contains *Bradyrhizobium japonicum* bacteria.

Chickpea

Main Characteristics of Varieties

Market Class	Variety	Years Tested	Yield (% Amit)		Ascochyta Blight[2]	Height (cm)	Days to Flower	Maturity	Seed Weight (g/1000)	Seed Shape[3]	Seed or Seed Coat Colour[4]
			Area 1[1]	Area 2[1]							
Kabuli	Amit (B-90)	16	100	100	4.4	47	56	L	258	Ro	B
	CDC Alma	9	92	92	6.1	42	54	L	365	RH	B
	CDC Frontier	16	108	104	4.5	45	55	L	349	RH	B
	CDC Leader	12	109	108	4.4	42	54	M	392	RH	B
	CDC Luna	15	98	100	5.7	40	54	ML	370	RH	B
	CDC Orion	11	108	106	5.0	44	51	L	435	RH	B
	CDC Palmer	7	107	105	4.8	42	53	ML	420	RH	B
Desi	CDC Consul	10	107	110	3.9	46	53	M	303	P	LT
	CDC Cory	9	114	107	4.2	48	57	M	271	A/P	T

[1] Area 1: Brown soil zone; Area 2: Dark Brown soil zone; see map on page 2.

[2] Ascochyta Blight at pod filling period: 0-9 scale; 0 = no symptom; 9 = plants are completely blighted. Scores 4-6 are considered intermediate resistance (I).

[3] Seed shape: Ro = Round; RH = Ram-head; P = plump; A = angular

[4] Seed or seed coat colour: B = beige; LT = light tan; T = tan.

ADDITIONAL INFORMATION

Please refer to *SaskSeed Guide 2017* for pedigreed seed availability. For more details on production, consult the *Pulse Production Manual* published by the Saskatchewan Pulse Growers (*www.saskpulse.com*).

Dry Bean

Main Characteristics of Varieties

Type	Variety	Years Tested[1]	Yield --- (% CDC Pintium) ---		Days to Flower	Maturity Rating[2]	% Pod Clearance[3]	Seed Weight (g/1000)	Growth Habit[4]
			Irrigation	Dryland					
Pinto	CDC Pintium	16	100	100	50	E	85	350	I
	Island	10	120	110	55	M	79	355	II
	Mariah	5	114	103	55	L	82	293	II
	CDC Marmot	8	109	108	50	E	80	367	I
	Medicine Hat	4	139	112	58	M	72	360	II
	Winchester	5	116	110	52	M	82	352	II
	CDC WM-2	11	116	106	52	E	79	365	II
Navy	Envoy	16	96	84	53	M	77	184	I
	Bolt	4	114	104	58	L	82	190	II
	Lightning	7	109	92	60	L	85	175	II
	Portage	6	101	99	52	M	85	175	II
	Skyline	5	74	91	57	L	80	163	I
	OAC Spark	7	90	102	55	L	81	163	I
Small Red	AC Redbond	8	98	100	51	M	65	290	II
Black	CDC Blackcomb	7	115	95	56	M	85	167	II
	CDC Blackstrap	7	119	116	53	M	85	195	II
	Carman Black	5	125	113	59	M	88	180	II
	CDC Jet	16	100	97	58	L	85	170	II
	CDC Superjet	6	125	107	58	L	85	170	II
Shiny Black	AC Black Diamond	7	102	94	54	M	70	250	II
flor de junio	CDC Ray	6	146	127	56	L	70	300	III
Yellow	CDC Sol	10	104	95	55	L	78	399	I

[1] Co-op and regional trials grown in narrow rows. Direct comparisons to **CDC Pintium** since 2002.

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

[3] Pod clearance: percentage of pods that completely clear the cutterbar at time of swathing (~4 cm).

[4] Growth habit: I = Determinate bush; II = Indeterminate bush; III = Indeterminate vine.

Faba Bean

Main Characteristics of Varieties

Variety	Years Tested	Yield (% CDC Fatima)	Height (cm)	Lodging[1] (1-9)	Maturity (days)	Seed Weight (g/1000)
Coloured Flower (normal tannin)						
CDC Fatima	11	100	106	3.8	105	520
CDC Blitz	6	101	101	3.7	109	410
Fabelle	5	105	104	2.4	105	533
FB9-4	9	92	95	3.7	104	680
Florent	4	112	102	2.3	107	660
CDC SSNS-1	10	91	109	3.4	105	335
Taboar	5	96	110	3.7	107	480
Vertigo	4	110	107	3.0	106	571
186S-11	6	106	105	3.1	106	749
247-13	4	107	103	3.4	106	620
White Flower (zero tannin)						
Imposa	4	110	99	2.4	107	695
Snowbird	11	104	96	2.6	104	495
CDC Snowdrop	8	94	98	2.6	104	335
Tabasco	5	101	96	2.3	106	530

[1] Lodging score (1-9) where 1 = completely upright, 9 = completely lodged.

ADDITIONAL INFORMATION

Faba bean regional trials began in 2006 to accommodate growing interest in this crop as a nitrogen-fixing high-protein food and feed grain in moist areas. 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.

Seed Quality and Seeding Rates Are Crucial to a Good Plant Stand

By Saskatchewan Ministry of Agriculture

Seed quality and seeding rates are important for establishing good plant stands and—unlike the weather—are two factors we can control. Determining the quality of the seed starts with a seed test prior to buying seed or seeding the crop. Sending a seed sample to a qualified lab can provide information on germination, vigour, diseases present, purity and thousand kernel weight (TKW). All of these factors help to inform growers of whether the seed is suitable for planting. Germination tells us how many seeds are expected to germinate and the vigour gives an indication of how well the seedlings will thrive under stressful conditions. Disease tests identify the level of seed-borne diseases in the sample and help determine whether a seed treatment is recommended. Seed with good germination and a high disease level may still be suitable for planting as long as a seed treatment that controls the disease is used.

TKW and germination are needed when calculating the seeding rate, using the following formula:

Seeding rate (kg/ha) = (target plant population/m^2) x (TKW in grams) ÷ (expected seedling survival in per cent)

Crop	Target Plant Population (per m^2)	Target Plant Population (per ft^2)	TKW (grams)
Wheat – hard red spring	250	24	31 – 38
Wheat – CPS	250	24	39 – 50
Durum	210 – 250	20 – 24	41 – 45
Wheat – SWS	210 – 250	20 – 24	34 – 36
Barley – 2 row	210 – 250	20 – 24	40 – 50
Barley – 6 row	210 – 250	20 – 24	30 – 45
Oat	350	35	30 – 45
Triticale – spring	310	29	42 – 48
Mustard & Polish Canola	70 - 100	7 – 9	2 – 3
Yellow Mustard	70 - 100	7 – 9	5 – 6.5
Argentine Canola	70 - 100	7 – 9	2.5 – 7.5
Flax	300 – 400	30 – 40	5 – 6.5
Pea	85	8	125-300
Fababean	45	4	350-425
Lentil	105 - 147	10 – 14	30 – 80
Chickpea	44	4	220 - 450

Target plant populations for various crops are shown in the adjacent table. Expected seedling survival is typically 5 to 20% less than the germination rate with pulses and cereals—more under ideal conditions and less under adverse conditions. For canola, expected survival rates range from 40 to 60%. Factors to take into account when determining the expected seedling survival are seeding date, soil temperature, moisture and texture, as well as possible soil-borne diseases and insect pressures. The amount of seed-placed fertilizer and the seeding depth are factors that can also affect seedling survival.

OILSEED CROPS

Flax

Main Characteristics of Varieties

Variety	Years Tested	Yield[1] (% CDC Bethune) Area 1 & 2	Yield[1] (% CDC Bethune) Area 3 & 4	Yield[1] (% CDC Bethune) Irrigation	Relative Maturity[2]	Seed Size[3]	Resistance To Lodging	Resistance To Powdery Mildew[4]	Resistance To Fusarium Wilt[4]
CDC Bethune	10	100	100	100	L	M	G	MR	MR
AAC Bravo	5	100	96	83	L	L	G	MR	MR
CDC Buryu	3	88	106	66	L	M	G	---	MR
CDC Glas	6	108	102	88	L	M	VG	MR	MR
CDC Neela	5	111	96	87	L	M	G	MR	MR
NuLin VT50	4	97	95	86	L	S	VG	---	MR
CDC Plava	4	91	96	77	M	M	G	---	MR
Prairie Blue	4	99	92	97	L	S	VG	MR	MR
Prairie Grande	3	92	98	100	M	M	VG	MR	MR
Prairie Sapphire	6	104	91	90	L	M	G	MR	MR
Prairie Thunder	3	93	103	104	M	M	VG	MR	R
CDC Sanctuary	5	111	92	104	L	M	F	MR	MR
CDC Sorrel	4	105	101	100	L	L	G	MR	MR
Topaz	3	90	102	75	L	M	G	MR	MR
Vimy	10	94	90	85	M	L	P	MS	MR
WestLin 60	4	90	92	85	M	M	G	---	MR
WestLin 70	3	102	94	96	L	L	VG	MS	MR
WestLin 71	5	99	96	88	L	S	VG	MR	MR
WestLin 72	4	96	99	88	L	S	VG	MR	MR

[1] Data from Regional and Coop yield trials.
[2] Relative maturity: The relative maturity of the check, **CDC Bethune**, is L (on average 101 days from seeding to swathing ripeness).
[3] Seed size: S = Small, M = Medium, L = Large.
[4] Disease Resistance Scale: MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant.

ADDITIONAL INFORMATION

Flax was last tested in 2017. All cultivar descriptions other than yield are based on data from the Linseed Cooperative Tests. All cultivars are immune to rust.

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

Camelina

Camelina, sometimes known as false flax, is a short-season crucifer oilseed that can be grown on a wide range of soil types. It is well adapted to dryland conditions and does not tolerate excessive soil moisture.

Camelina seed is very small (1.0g/1,000 seed) and requires shallow seeding. Reduced emergence may be expected when camelina is seeded deeper than 1.5 cm (0.5 inch).

Camelina plants are resistant to blackleg disease and flea beetles and possess good shatter resistance. Camelina may be straight-combined at full maturity or swathed when pods have turned colour from green to yellow.

Camelina is grown almost exclusively under contract; both camelina oil and meal are marketed for food, feed and industrial applications. For more information on camelina, consult the Saskatchewan Agriculture publication *Camelina*.

MIDAS™ is a spring-type camelina cultivar with high seed yield and high oil content. **MIDAS**™ grows to medium heights (65 to 85 cm), flowers, depending on the weather conditions, after about 45 days and reaches maturity 85 to 100 days after emergence.

MIDAS™ possesses quantitative resistance to downy mildew. Certified seed of **MIDAS**™ will be available to producers in 2017.

Mustard

Main Characteristics of Varieties

Type and Variety	Yield[1]	Plant Height (cm)	Hydroxylbenzyl Glucosinolate (µmol/g seed)	Allyl Glucosinolate (µmol/g seed)	Mucilage[2] (cS*ml/g seed)	Resistance to White Rust[3] 2a	2v	Fixed Oil (% seed)	Protein (% Seed)	Seed Weight (g/1000)	Maturity (days)
Yellow	(% Andante)										
Andante[4]	100	102	145	n/a	55.7	n/a		28.4	35.1	6.0	93
AAC Adagio[5] ✪	102	103	139	n/a	96.8	n/a		30.1	33.0	5.1	94
AC Pennant[4]	99	96	148	n/a	44.7	n/a		29.5	34.3	5.7	92
Brown	(% Centennial Brown)										
Centennial Brown[4]	100	117	n/a	10.4	n/a	S	S	36.3	30.1	3.1	92
Amigo[6]	93	109	n/a	13.9	n/a	R	S	34.2	30.7	2.7	98
AAC Brown 100[7]	105	123	n/a	12.8	n/a	R	R	34.9	30.7	3.5	92
AAC Brown 120[8] ✪	117	144	n/a	12.6	n/a	R	R	35.9	29.5	3.65	90
Duchess[4] §	99	113	n/a	9.4	n/a	S	S	38.1	28.7	2.7	92
Oriental	(% Cutlass)										
Cutlass[4]	100	115	n/a	11.6	n/a	R	S	41.0	29.1	2.8	91
Forge[4]	97	125	n/a	12.2	n/a	S	S	38.9	29.6	2.6	92
AAC Oriental 200[7] ✪	106	124	n/a	11.7	n/a	R	S	37.0	30.0	2.7	92
AC Vulcan[4]	98	116	n/a	12.4	n/a	R	S	40.6	29.5	2.9	91

[1] Yield data not collected by area.
[2] Mucilage in yellow mustard is a measurement of viscosity of aqueous extracts from seed.
[3] Varieties are rated S (Susceptible) or R (Resistant) to White Rust strains.
[4] Data from 1999-2012 Co-operative Mustard Test. Yield % of check: 124 station years for yellow mustard, and 117 station years for brown and oriental mustard.
[5] Data from 2009-2012 Co-operative Mustard Test (29 station years).
[6] Data from 2008-2010 Co-operative Mustard Test (21 station years).
[7] Data from 2012 yield test and 2013-2015 Co-operative Mustard Test (21 station years).
[8] Data from 2016-2017 Co-operative Mustard Test (16 station years).

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 91 to 98 days.

AAC Adagio is a new yellow mustard variety registered in 2014. Breeder seed of **AAC Adagio** was produced in 2013.

The three yellow mustard varieties have similar yield. A unique feature of yellow mustard is high mucilage content. Mucilage is valued by the mustard industry as a stabilizer in prepared food products. **AAC Adagio** has significantly higher mucilage content, but smaller seed size and lower protein content than **AC Pennant** and **Andante**.

Brown mustard is grown primarily for the Dijon mustard market. **AAC Brown 120** is a new brown mustard variety registered in September 2017. It has 17% higher yield than the check variety **Centennial Brown**. **AAC Brown 120** has significantly higher allyl glucosinolate content, as well as signicantly larger seed size, than **Centennial Brown**. It is resistant to white rust 2a and 2v, whereas Centennial Brown is susceptible to white rust 2a and 2v.

AAC Oriental 200, registered in October 2015, has a higher (6%) yield and significantly lower oil content than **Cutlass**. **AC Vulcan** and **Forge** have higher allyl glucosinolate content than **Cutlass** and **AAC Oriental 200**.

Understanding Clubroot Resistance and the Classification System

By Errin Willenborg, Sask Canola

In 2017, Clubroot was detected in Saskatchewan in Crop Districts 9A and 9B. If you farm in areas where clubroot has been detected, or if you are concerned about clubroot, the following management tips are recommended:

- Minimize soil movement by restricting the entry of vehicles that have not been sanitized, minimizing tillage and creating a separate exit as far as possible from the field entrance
- Post multiple “no-trespassing” signs
- Extend your crop rotation, including at least a two-year break between susceptible crops, even when resistant varieties are utilized.
- Grow clubroot-resistant varieties in regions where clubroot has been identified
- Control volunteers and canola-related weeds throughout the rotation
- Scout canola crops by examining the roots for the presence of swollen root tissue (galls). Focus on field entrances, low areas and suspicious patches
- Consider DNA-based soil testing to help detect the pathogen, even when there are no visible symptoms or in fields that have other crops (wheat, barley, etc)

Clubroot-resistant (CR) canola varieties are key tools used to delay clubroot establishment and manage clubroot disease on the farm. However, to prevent rapid genetic shifts in clubroot populations and subsequent loss of effective resistance in CR varieties, this valuable resource must be used judiciously in an integrated management approach. An integrated approach includes practicing a diverse crop rotation — ideally three years between susceptible crops in infested areas — while effectively managing weeds, sanitizing equipment and minimizing soil movement. This approach allows for reduction of soil inoculum levels and minimizes the risk of selecting for clubroot pathotypes that can overcome our current resistant (R) varieties.

Clubroot resistance in a variety should be substantiated through standard testing procedures outlined in the Western Canada Canola/Rapeseed Recommending Committee (WCC/RRC) guidelines and protocols. Varieties are compared to the susceptible check variety for clubroot infection and are assigned resistant (R), intermediate (I) or susceptible (S) ratings.

Resistant (R) ratings indicate less than 30% infection compared to susceptible checks in disease tests. It is important to remember that **resistant** (**R) varieties are not immune**, but highly restrict the development of clubroot symptoms in fields with low to moderate disease pressure from resting spores in the soil. Under heavy pressure in severely infested fields, a resistant (R) variety can show significant root galling, but may develop fewer and smaller galls than a susceptible variety. Under these heavy pressure situations and frequent use of CR varieties, clubroot populations rapidly evolve to overcome the genetic resistance. **To delay this shift in clubroot strains and loss of CR variety efficacy, CR varieties should not be grown in short rotations.**

Intermediate (I) ratings indicate between 30 to 50% infection compared to susceptible checks in disease tests. This rating will mainly be used for adding rating labels to the base resistant (R) label in multiple resistance gene varieties to specify moderate resistance against certain new strains. Varieties with additional intermediate (I) labels can provide marginally better disease protection on fields with presence of new corresponding strains, but should not be grown in fields where resistance to predominant strains has been widely defeated.

If there is no clubroot label on a variety, assume it is susceptible to clubroot. An extreme buildup of spores can occur very quickly when susceptible varieties are grown in short rotation on slightly infested fields. Susceptible varieties should not be grown in clubroot-infected fields, or those at higher risk of becoming infected.

A base (R) resistance label requires that the variety is resistant to the predominant clubroot strains or pathotypes in Western Canada. Additional ratings can be appended to the base (R) label to describe resistance to specific uncommon or new pathotypes. To date, no CR varieties, including new ones with multiple resistance genes, are resistant to all of the clubroot pathotypes detected in Western Canada.

Careful scouting in all host crops, including (R) rated canola crops, is extremely important to help detect early infestations. Waiting to use (R) varieties until significant infestations have developed will result in high soil spore loads and increase the probability for pathogen shifts, which can rapidly defeat variety resistance.

Visit *www.clubroot.ca* to learn more.

Clubroot-Resistant Varieties (as of September 2017)

DuPont Pioneer	BrettYoung	Bayer CropScience	Proven Seed/CPS
45H29	6056 CR	L135C	PV 580 GC
45H33	6076 CR	L241C	PV 581 GC
45H37	6086 CR	L255PC	PV 590 GCS
D3155C	6090 RR		VR 9562 GC
45CM36	4187 RR (formerly SY)		
45CS40			
DEKALB	**CANTERRA SEEDS**	**Dow AgroSciences**	**Cargill - VICTORY**
75-42 CR	CS2000	2020 CL	V 12-3
		1020 RR	V 14-1
		1024 RR	

Canola (Small-Scale Trials)

Main Characteristics of Varieties

Variety (*B. napus*)	Distributor	2011-2016 ALL Season Zones		Resistance Rating		2017 LONG Season Zone (3 trials)				2017 MID Season Zone (5 trials)			
		Site Year Tested	Yield (%5440)	Blackleg	Clubroot	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (cm)	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (cm)
Liberty Link													
5440	Bayer CropScience	55	100	R	---	100	92	1.0	127	100	96	1.3	112
L130	Bayer CropScience	43	96	R	---	---	---	---	---	---	---	---	---
L140P	Bayer CropScience	12	98	R	---	---	---	---	---	---	---	---	---
L241C	Bayer CropScience	---	---	R	R	97	91	1.0	122	97	96	1.3	107
L252	Bayer CropScience	37	107	R	---	106	93	1.1	121	105	96	1.4	109
L261	Bayer CropScience	32	103	R	---	---	---	---	---	---	---	---	---
LSD(%)[3]						*11*				*13*			
Clearfield													
5525 CL	Brett Young	50	89	R	---	---	---	---	---	---	---	---	---
5545 CL	Brett Young	---	----	R	---	89	93	1.3	126	96	97	1.7	107
CS2200 CL	CANTERRA SEEDS	---	----	R	---	90	92	1.1	129	89	100	1.6	107
PV 200 CL	Proven Seed / CPS	17	91	R	---	92	93	1.2	128	93	98	1.7	109
46H75	DuPont Pioneer	---	---	R	---	94	95	1.2	129	96	100	1.6	107
LSD (%)[3]						*14*				*12*			
Roundup Ready													
4157 RR	Brett Young	32	99	R	---	---	---	---	---	---	---	---	---
4187 RR	Brett Young	17	98	R	R	95	92	1.1	135	97	99	1.4	109
6074 RR[2]	Brett Young	26	100	R	---	95	92	1.0	128	99	100	1.7	102
6076 CR[2]	Brett Young	---	---	R	R	94	92	1.0	135	95	98	1.5	112
6080 RR	Brett Young	17	95	R	---	89	93	1.1	124	91	97	1.5	97
6090 RR	Brett Young	---	---	R	R	95	92	1.3	137	101	99	1.5	115
1990	CANTERRA SEEDS	49	96	R	---	---	---	---	---	---	---	---	---
CS2000	CANTERRA SEEDS	26	98	R	R	92	92	1.0	129	94	98	1.7	105
CS2100	CANTERRA SEEDS	---	---	R	---	90	92	1.8	120	97	97	1.8	102
CS2300	CANTERRA SEEDS	---	---	R	---	100	93	1.3	137	103	98	1.5	108
V12-1[1]	Cargill - VICTORY	55	96	R	---	96	92	1.5	124	95	96	1.6	104
73-75 RR	DEKALB	43	96	R	---	---	---	---	---	---	---	---	---
74-44 BL	DEKALB	35	94	R	---	89	91	1.0	117	87	95	1.7	98
74-54	DEKALB	25	95	R	R	---	---	---	---	---	---	---	---
45H33	Pioneer	---	---	R	R	97	91	1.4	139	100	95	1.7	107
45M35	Pioneer	---	---	R	---	100	92	1.5	123	103	97	1.5	104
PV 540 G	Proven Seed/CPS	---	---	R	---	99	93	1.1	124	94	96	1.6	101
PV 581 GC	Proven Seed/CPS	---	---	R	---	93	93	1.3	134	97	99	1.5	110
VR 9562 GC	Proven Seed/CPS	25	99	R	---	---	---	---	---	---	---	---	---
LSD(%)[3]						*11*				*10*			

[1] Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit www.canolaperformancetrials.ca for more details.
[2] Indicates Improved Tolerance (IT) to sclerotinia stem rot based on data submitted to & approved by CFIA by distributor, using the WCC/RRC-approved protocol.
[3] LSD = least significant difference (5% level) within herbicide system.
Data presented is based on harvest data received as of October 27, 2017.

ADDITIONAL INFORMATION

Varieties listed in the 2011 to 2016 data include only those that had more than 10 sites, and were either grown in two of the last three years of CPTs or were in both 2016 and 2017 trials.

Data from the 2017 Long Season Zone and 2017 Mid Season Zone are included. This data summarizes 2017 Canola Performance Trials (CPT) - *www.canolaperformancetrials.ca*.

Insufficient data was collected to publish Short Season Zone results. Individual location results are available at *www.canolaperformancetrials.ca*.

All varieties in the table above have a resistant rating for blackleg. Lesions and yield loss can still occur, based on the level of inoculum and pathotype(s) present in the field, in combination with environmental conditions conducive for disease development. R-gene labels will be included in future guides.

Clubroot is caused by a soil-borne pathogen that produces resting spores as part of its life cycle. These spores are long-lived and inhibit canola performance once the plant is infected. Using clubroot-resistant varieties in Crop Districts where clubroot has been found is highly recommended as a risk mitigation tool in combination with adequate rotations.

CANOLA ADDITIONAL INFORMATION (CONT'D)

Varieties are available that have resistance to the predominant pathotypes, but are still not immune to the disease. Soil testing can help detect the presence of the clubroot pathogen early, even at soil concentrations much lower than concentrations that result in visible symptoms in the field.

Least Significant Difference
When comparing average zone yields for varieties in the small plot data, the least significant difference (LSD) is about 10 to 14 bu/ac. If variety A yielded 52 bu/ac. and variety B yielded 45 bu/ac., they would be considered statistically the same. This is based on a confidence level that significant differences would occur by chance less than 5% of the time. In the small plot design used, varieties were grouped by herbicide system, which means that the LSD shown strictly applies to comparisons between varieties of the same herbicide system.

More importantly, comparisons between varieties within the same herbicide system reveal only genetic differences, whereas variety comparisons between herbicide systems compare the net effect of both genetic and herbicide effects (weed control and crop tolerance).

Where can you get the Canola Performance Trial results?
Results are available through an online interactive tool at *www.canolaperformancetrials.ca*. The interactive tool allows 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 are reported online. The online tool has an economic calculator that includes the costs associated with growing the selected variety to assist growers in determining potential profitability. Data is also available in booklet form and will be distributed through various publications or can be obtained from your local agri-retailer.

Sunflower

Main Characteristics of Hybrids

Hybrid	Herbicide Tolerance	Years Tested	Yield (% 63A21)	Average Maturity (days)	Harvest Moisture (%)
Oilseed EM (Early Maturing)					
63A21 §		8	100	110	17.9
Honeycomb NS		4	114	107	13.0
AC Sierra		8	68	106	15.5
Oilseed (Full Season)					
Cobalt II	Clearfield ®	3	76	115	30.4
Talon	ExpressSun ®	2	92	113	30.1
8N 270	Clearfield ®	8	93	114	24.0

ADDITIONAL INFORMATION

Sunflower requires 105 to 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 EM 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 Saskatchewan. Saskatchewan Sunflower Committee will publish results from each year. For the complete data set, please email or call Sherri Roberts with Saskatchewan Agriculture at sherri.roberts@gov.sk.ca or 306-848-2856.

Breeding Institutions and Seed Distributors of Varieties Listed in this Publication

Crop Kind, Class & Variety	Breeding Institution	Distributor
WHEAT		
Canada Western Red Spring		
CDC Adamant VB ✪	U of S - CDC	FP Genetics
AAC Alida VB	AAFC (Swift Current)	SeCan Members
CDC Bradwell	U of S - CDC	SeCan Members
AAC Brandon	AAFC (Swift Current)	SeCan Members
AAC Cameron VB	AAFC (Brandon)	CANTERRA SEEDS
Carberry	AAFC (Swift Current)	SeCan Members
Cardale	AAFC (Winnipeg)	Seed Depot
Coleman	U of Alberta	Lefsrud Seed
AAC Connery	AAFC (Swift Current)	CANTERRA SEEDS
AAC Elie	AAFC (Swift Current)	Alliance Seed
Glenn	NDSU	CANTERRA SEEDS
CDC Go	U of S - CDC	Public release U of S - CDC
Go Early	U of Alberta	Mastin Seeds
Goodeve VB	AAFC (Swift Current)	Alliance Seed
CDC Hughes VB ✪	U of S - CDC	Proven Seed/CPS Canada
AC Intrepid	AAFC (Swift Current)	CANTERRA SEEDS
AAC Jatharia VB	AAFC (Brandon)	SeCan Members
CDC Landmark VB ✪	U of S - CDC	FP Genetics
CDC VR Morris	U of S - CDC	Proven Seed/CPS Canada
Muchmore	AAFC (Swift Current)	FP Genetics
Parata ✪	U of Alberta	SeCan Members
CDC Plentiful	U of S - CDC	FP Genetics
AAC Prevail VB	AAFC (Winnipeg)	Alliance Seed
AAC Redberry ✪	AAFC (Swift Current)	Alliance Seed
AAC Redwater	AAFC (Winnipeg)	SeCan Members
Shaw VB	AAFC (Winnipeg)	SeCan Members
SY Slate ✪	Syngenta Seeds Canada Inc.	Syngenta Canada
SY Sovite	Syngenta Seeds Canada Inc.	Richardson Intl
CDC Stanley	U of S - CDC	Proven Seed/CPS Canada
Stettler	AAFC (Swift Current)	SeCan Members
Thorsby	U of Alberta	CANTERRA SEEDS
AAC Tisdale ✪	AAFC (Swift Current)	SeCan Members
CDC Titanium VB	U of S - CDC	Proven Seed/CPS Canada
CDC Utmost VB	U of S - CDC	FP Genetics
Vesper VB	AAFC (Winnipeg)	SeCan Members
AAC Viewfield ✪	AAFC (Swift Current)	FP Genetics
AAC W1876	AAFC (Swift Current)	CANTERRA SEEDS
Waskada	AAFC (Winnipeg)	SeCan Members
WR859CL	Syngenta Seeds Canada Inc.	Richardson Intl
SY433	Syngenta Seeds Canada Inc.	Syngenta Canada
SY479 VB	Syngenta Seeds Canada Inc.	Alliance Seed
5605HR CL	Syngenta Seeds Canada Inc.	Proven Seed/CPS Canada
Canada Western Special Purpose		
Alderon	KWS-UK	SeCan Members
AAC Awesome VB ✪	AAFC (Lethbridge)	SeCan Members
Charing VB ✪	KWS-UK	SeCan Members
AAC Innova	AAFC (Lethbridge)	Alliance Seed
CDC Kinley	U of S - CDC	Public Release U of S - CDC
CDC NRG003	U of S - CDC	CANTERRA SEEDS
AAC NRG097	AAFC (Swift Current)	CANTERRA SEEDS
Pasteur	Wiersum Plant Breeding	SeCan Members
Sparrow VB	KWS-UK	SeCan Members
CDC Throttle ✪	U of S - CDC	Public Release U of S - CDC
SY087	Syngenta Seeds Canada Inc.	United Suppliers Canada
WFT603	Western Feed Grains Co-op	Western Feed Grains Co-op
Canada Western Amber Durum		
CDC Alloy ✪	U of S - CDC	FP Genetics
Brigade	AAFC (Swift Current)	Proven Seed/CPS Canada
AAC Cabri	AAFC (Swift Current)	SeCan Members
CDC Carbide VB ✪	U of S - CDC	Proven Seed/CPS Canada
AAC Congress ✪	AAFC (Swift Current)	CANTERRA SEEDS
CDC Credence ✪	U of S - CDC	CANTERRA SEEDS
AAC Current	AAFC (Swift Current)	Alliance Seed
CDC Desire	U of S - CDC	Syngenta Canada
AAC Durafield	AAFC (Swift Current)	SeCan Members
CDC Dynamic ✪	U of S - CDC	Proven Seed/CPS Canada
Enterprise	AAFC (Swift Current)	CANTERRA SEEDS
Eurostar	AAFC (Swift Current)	SeCan Members
CDC Fortitude	U of S - CDC	Proven Seed/CPS Canada
AAC Marchwell VB	AAFC (Swift Current)	SeCan Members
AC Navigator	AAFC (Swift Current)	Proven Seed/CPS Canada
CDC Precision ✪	U of S - CDC	Alliance Seed
AAC Raymore	AAFC (Swift Current)	SeCan Members
AAC Spitfire	AAFC (Swift Current)	SeCan Members
Strongfield	AAFC (Swift Current)	SeCan Members
AAC Stronghold ✪	AAFC (Swift Current)	SeCan Members
AAC Succeed VB ✪	AAFC (Swift Current)	FP Genetics
Transcend	AAFC (Swift Current)	FP Genetics
CDC Verona	U of S - CDC	Alliance Seed
CDC Vivid ✪	U of S - CDC	Proven Seed/CPS Canada

Crop Kind, Class & Variety	Breeding Institution	Distributor
WHEAT (CONT'D)		
CWRS or CPSR moving to CNHR - August 1, 2018		
Conquer VB	AAFC (Winnipeg)	CANTERRA SEEDS
Harvest	AAFC (Winnipeg)	FP Genetics
Lillian	AAFC (Swift Current)	SeCan Members
Unity VB	AAFC (Winnipeg)	SeCan Members
Canada Prairie Spring Red		
AAC Crossfield ✪	AAFC (Winnipeg)	CANTERRA SEEDS
AC Crystal	AAFC (Swift Current)	SeCan Members
Enchant VB	AAFC (Winnipeg)	FP Genetics
AAC Entice ✪	AAFC (Winnipeg)	Proven Seed/CPS Canada
AAC Foray VB	AAFC (Winnipeg)	SeCan Members
AAC Goodwin ✪	AAFC (Swift Current)	SeCan Members
AAC Penhold	AAFC (Swift Current)	SeCan Members
SY Rowyn ✪	Syngenta Seeds Canada Inc.	Alliance Seed
AAC Ryley	AAFC (Swift Current)	SeCan Members
AAC Tenacious VB	AAFC (Winnipeg)	Alliance Seed
CDC Terrain ✪	U of S - CDC	FP Genetics
SY985	Syngenta Seeds Canada Inc.	Proven Seed/Richardson Intl
5700PR	Syngenta Seeds Canada Inc.	Proven Seed/CPS Canada
Canada Northern Hard Red		
AAC Concord ✪	AAFC (Swift Current)	CANTERRA SEEDS
Elgin ND	NDSU	FP Genetics
Faller	NDSU	Seed Depot
Prosper	NDSU	Seed Depot
Canada Western Hard White Spring		
AAC Iceberg	AAFC (Winnipeg)	Alliance Seed
AAC Whitefox	AAFC (Winnipeg)	SeCan Members
Whitehawk	AAFC (Winnipeg)	SeCan Members
CDC Whitewood	U of S - CDC	SeCan Members
Canada Western Soft White Spring		
AC Andrew	AAFC (Lethbridge)	SeCan Members
AAC Chiffon VB	AAFC (Lethbridge)	SeedNet Inc.
AAC Indus VB	AAFC (Lethbridge)	SeCan Members
AAC Paramount VB ✪	AAFC (Lethbridge)	SeCan Members
Sadash VB	AAFC (Lethbridge)	SeCan Members
WINTER WHEAT		
Canada Western Red Winter		
CDC Buteo	U of S - CDC	SeCan Members
CDC Chase	U of S - CDC	CANTERRA SEEDS
AAC Elevate	AAFC (Lethbridge)	SeCan Members
Emerson	AAFC (Lethbridge)	CANTERRA SEEDS
Flourish	AAFC (Lethbridge)	SeCan Members
AAC Gateway	AAFC (Lethbridge)	Seed Depot
AAC Goldrush ✪	AAFC (Lethbridge)	FP Genetics
Moats	U of S - CDC	SeCan Members
Radiant	AAFC (Lethbridge)	CANTERRA SEEDS
AAC Wildfire ✪	AAFC (Lethbridge)	SeCan Members
Canada Western Experimental		
AAC Icefield ✪	AAFC (Lethbridge)	FP Genetics
Canada Western Special Purpose		
Accipiter	U of S - CDC	SeCan Members
CDC Falcon	U of S - CDC	SeCan Members
Peregrine	U of S - CDC	SeCan Members
Pintail	FCDC (Lacombe)	Mastin Seeds
CDC Ptarmigan	U of S - CDC	Western Ag
Sunrise	U of S - CDC	Western Ag
Swainson	U of S - CDC	Public Release, U of S - CDC
TRITICALE		
Spring Habit		
Brevis	AAFC (Swift Current)	Wagon Wheel Seed Corp
Bunker	FCDC (Lacombe)	FP Genetics
AAC Delight ✪	AAFC (Lethbridge)	Fabian Seed Farms
Pronghorn	FCDC (Lacombe)	Progressive Seeds
Sunray	AAFC (Lethbridge)	SeedNet Inc.
Taza	FCDC (Lacombe)	Solick Seeds
Tyndal	FCDC (Lacombe)	SeCan Members
AC Ultima	AAFC (Swift Current)	FP Genetics
Winter Habit		
Luoma	FCDC (Lacombe)	Corns Brothers Farms
Metzger	FCDC (Lacombe)	Haney Farm Ltd.
Pika	FCDC (Lacombe)	Progressive Seeds

Crop Kind, Class & Variety	Breeding Institution	Distributor
BARLEY		
Malting Two-Row		
Bentley	FCDC (Lacombe)	CANTERRA SEEDS
CDC Bow	U of S - CDC	SeCan Members
Cerveza	AAFC (Brandon)	Mastin Seeds
AAC Connect ✪	AAFC (Brandon)	CANTERRA SEEDS
CDC Copeland	U of S - CDC	SeCan Members
CDC Fraser ✪	U of S - CDC	SeCan Members
CDC Goldstar ✪	U of S - CDC	CANTERRA SEEDS
Harrington	U of S - CDC	SeCan Members
CDC Kindersley	U of S - CDC	SeCan Members
CDC Landis	U of S - CDC	Fedoruk Seeds Ltd.
Lowe ✪	FCDC (Lacombe)	SeCan Members
Major	AAFC (Brandon)	Alliance Seed
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
CDC PolarStar	U of S - CDC/Sapporo/PML	CANTERRA SEEDS
CDC PlatinumStar	U of S - CDC/Sapporo/PML	CANTERRA SEEDS
Sirish ✪	Syngenta Seeds Canada Inc.	Syngenta Canada
AAC Synergy	AAFC (Brandon)	Syngenta Canada
Malting 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
Lacey	U of Minnesota	Alliance Seed
Legacy	Busch Ag Res. Inc.	Proven Seed/FP Genetics
Tradition	Busch Ag Res. Inc.	Proven Seed/FP Genetics
Hulled - Feed Two-Row		
Altorado	Westbred, LLC.	Proven Seed/CPS Canada
CDC Austenson	U of S - CDC	SeCan Members
Brahma	Westbred, LLC.	Proven Seed/CPS Canada
Canmore	FCDC (Lacombe)	CANTERRA SEEDS
Champion	Westbred, LLC.	Proven Seed/CPS Canada
Claymore	Westbred, LLC.	Proven Seed/CPS Canada
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	FCDC (Lacombe)	SeCan Members
CDC Helgason	U of S - CDC	SeCan Members
CDC Maverick	U of S - CDC	SeCan Members
Oreana	Westbred, LLC.	Proven Seed/CPS Canada
CDC Trey	U of S - CDC	FP Genetics
Hulled - Feed Six-Row		
Amisk	FCDC (Lacombe)	SeCan Members
Chigwell	FCDC (Lacombe)	SeCan Members
Muskwa	FCDC (Lacombe)	SeedNet Inc.
AC Rosser	AAFC (Brandon)	SeCan Members
Sundre	FCDC (Lacombe)	Mastin Seeds
Hulless - Food, Malting, Feed		
CDC Ascent ✪	U of S - CDC	SeCan Members
CDC Carter	U of S - CDC	SeCan Members
CDC Clear	U of S - CDC	SeCan Members
CDC Fibar	U of S - CDC	
CDC Hilose	U of S - CDC	
CDC McGwire	U of S - CDC	SeCan Members
CDC Rattan	U of S - CDC	
Roseland	AAFC (Brandon)	Wayfinder Farms
Taylor	AAFC (Brandon)	Alliance Seed
Forage		
CDC Cowboy	U of S - CDC	SeCan Members
Desperado	AAFC (Brandon)	Alliance Seed
CDC Maverick	U of S - CDC	SeCan Members
AC Ranger	AAFC (Brandon)	FP Genetics
CANARYSEED		
CDC Bastia	U of S - CDC	Public release U of S - CDC
CDC Calvi	U of S - CDC	CANTERRA SEEDS
Cantate	J. Joordans Zaadhandel BV	Hansen Seeds
CDC Cibo ✪	U of S - CDC	CANTERRA SEEDS
Keet	U of Minnesota; U of S - CDC	Public release U of S - CDC
CDC Togo	U of S - CDC	CANTERRA SEEDS
RYE		
KWS Bono	KWS Lochow GMBH	FP Genetics
Brasetto	KWS Lochow GMBH	FP Genetics
KWS Daniello	KWS Lochow GMBH	SeedNet Inc.
KWS Gatano	KWS Lochow GMBH	FP Genetics
Guttino	KWS Lochow GMBH	SeedNet Inc.
Hazlet	AAFC (Swift Current)	SeCan Members
Prima	AAFC (Swift Current)	SeCan Members

Crop Kind, Class & Variety	Breeding Institution	Distributor
OAT		
Hulled		
Akina	Lantmannen SW Seed	Elite Seeds
CDC Arborg ✪	U of S - CDC	FP Genetics
SW Betania	Lantmannen SW Seed	---
CDC Big Brown	U of S - CDC	SeCan Members
CDC Boyer	U of S - CDC	SeCan Members
Bradley	AAFC - ECORC	SeCan Members
CS Camden	Lantmannen SW Seed	CANTERRA SEEDS
CDC Dancer	U of S - CDC	FP Genetics/Cargill
Derby	U of S - CDC	Mastin Seeds
AAC Justice	AAFC (Winnipeg)	FP Genetics
Kara	Lantmannen SW Seed	Elite Seeds
Kyron ✪	Lantmannen SW Seed	Elite 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
CDC Nasser	U of S - CDC	T & L Seeds
CDC Norseman	U of S - CDC	SeCan Members
ORe3541M ✪	Oat Advantage	SeCan Members
ORe3542M ✪	Oat Advantage	SeCan Members
CDC Orrin	U of S - CDC	FP Genetics/Cargill
Pinnacle	AAFC (Winnipeg)	FP Genetics
Pomona ✪	U of Minnesota	Elite Seeds
Ronald	AAFC (Winnipeg)	SeCan Members
CDC Ruffian	U of S - CDC	FP Genetics
CDC Seabiscuit	U of S - CDC	CANTERRA SEEDS
CDC So-I	U of S - CDC	T&L Seeds
Souris	NDSU	Seed Depot
Stride	AAFC (Winnipeg)	SeCan Members
Summit	AAFC (Winnipeg)	FP Genetics
Triactor	Lantmannen SW Seed	CANTERRA SEEDS
Hulless		
AC Gwen	AAFC (Winnipeg)	SeCan Members
Forage		
CDC Baler	U of S - CDC	FP Genetics
CDC Haymaker	U of S - CDC	SeCan Members
Murphy	AAFC (Lacombe)	SeCan Members
FLAX		
CDC Bethune	U of S - CDC	SeCan Members
AAC Bravo	AAFC (Morden)	FP Genetics
CDC Buryu	U of S - CDC	SeCan Members
CDC Glas	U of S - CDC	SeCan Members
CDC Neela	U of S - CDC	CANTERRA SEEDS
Nulin VT50	CPS Canada Inc.	Proven Seed/CPS Canada
CDC Plava	U of S - CDC	SeCan Members
Prairie Blue	AAFC (Morden)	SeCan Members
Prairie Grande	AAFC (Morden)	SeCan Members
Prairie Sapphire	AAFC (Morden)	Alliance Seed
Prairie Thunder	AAFC (Morden)	CANTERRA SEEDS
CDC Sanctuary	U of S - CDC	SeCan Members
CDC Sorrel	U of S - CDC	SeCan Members
Topaz	CPS Canada Inc.	Alliance Seed
Vimy	U of S - CDC	SeCan Members
Westlin 60	CPS Canada Inc.	Proven Seed/CPS Canada
Westlin 70	CPS Canada Inc.	Proven Seed/CPS Canada
Westlin 71	CPS Canada Inc.	Proven Seed/CPS Canada
Westlin 72	CPS Canada Inc.	Proven Seed/CPS Canada
MUSTARD		
Brown		
Amigo	AAFC (Saskatoon)	Canadian Mustard Assoc.
AAC Brown 100	AAFC (Saskatoon)	Mustard 21 Canada Inc.
AAC Brown 120 ✪	AAFC (Saskatoon)	Mustard 21 Canada Inc.
Centennial Brown	AAFC (Saskatoon)	Canadian Mustard Assoc.
Duchess	Colman's of Norwich	---
Oriental		
Cutlass	AAFC (Saskatoon)	Canadian Mustard Assoc.
Forge	Colman's of Norwich	Proven Seed/CPS Canada
AAC Oriental 200 ✪	AAFC (Saskatoon)	Mustard 21 Canada Inc.
AC Vulcan	AAFC (Saskatoon)	Canadian Mustard Assoc.
Yellow		
AAC Adagio ✪	AAFC (Saskatoon)	Mustard 21 Canada Inc.
Andante	AAFC (Saskatoon)	Canadian Mustard Assoc.
AC Pennant	AAFC (Saskatoon)	Canadian Mustard Assoc.
SAFFLOWER		
Saffire	AAFC (Lethbridge)	Jerry Kubic (AB)

Crop Kind, Class & Variety	Breeding Institution	Distributor
LENTIL		
CDC Asterix	U of S - CDC	Sask. Pulse Growers
CDC Cherie	U of S - CDC	Sask. Pulse Growers
CDC Dazil	U of S - CDC	Sask. Pulse Growers
CDC Greenland	U of S - CDC	Sask. Pulse Growers
CDC Greenstar	U of S - CDC	Sask. Pulse Growers
CDC Imax	U of S - CDC	Sask. Pulse Growers
CDC Imigreen	U of S - CDC	Sask. Pulse Growers
CDC Impact	U of S - CDC	Sask. Pulse Growers
CDC Impala	U of S - CDC	Sask. Pulse Growers
CDC Imperial	U of S - CDC	Sask. Pulse Growers
CDC Impower	U of S - CDC	Sask. Pulse Growers
CDC Impress	U of S - CDC	Sask. Pulse Growers
CDC Impulse	U of S - CDC	Sask. Pulse/SeCan*
CDC Imvincible	U of S - CDC	Sask. Pulse Growers
CDC Kermit	U of S - CDC	Sask. Pulse/SeCan*
CDC KR-1	U of S - CDC	AGT Foods Canada
CDC KR-2	U of S - CDC	AGT Foods Canada
CDC Marble	U of S - CDC	Sask. Pulse Growers
CDC Maxim	U of S - CDC	Sask. Pulse Growers
CDC Meteor	U of S - CDC	Sask. Pulse Growers
CDC Peridot	U of S - CDC	Sask. Pulse Growers
CDC Proclaim	U of S - CDC	Sask. Pulse/SeedNet**
CDC QG-1	U of S - CDC	AGT Foods Canada
CDC QG-2	U of S - CDC	AGT Foods Canada
CDC QG-3	U of S - CDC	AGT Foods Canada
CDC Red Rider	U of S - CDC	Sask. Pulse Growers
CDC Redberry	U of S - CDC	Sask. Pulse Growers
CDC Redbow	U of S - CDC	Sask. Pulse Growers
CDC Redcliff	U of S - CDC	Sask. Pulse Growers
CDC Redcoat	U of S - CDC	Sask. Pulse Growers
CDC Redmoon	U of S - CDC	Sask. Pulse/SeCan*
CDC Richlea	U of S - CDC	SeCan Members
CDC Rosebud	U of S - CDC	Sask. Pulse Growers
CDC Rosie	U of S - CDC	Sask. Pulse Growers
CDC Roxy	U of S - CDC	Sask. Pulse/SeCan*
CDC SB-3	U of S - CDC	Simpson Seeds
CDC Scarlet	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
SUNFLOWER		
Cobalt II	Nuseed Americas	Nuseed Americas
Honeycomb NS	USDA	---
AC Sierra	AAFC (Saskatoon)	AAFC (Indian Head)
Talon	Nuseed Americas	Nuseed Americas
63A21	Pioneer Hi-Bred	Pioneer Hi-Bred
8N 270CL DM	Mycogen Seeds	Dow Seeds
CHICKPEA		
CDC Alma	U of S - CDC	Sask. Pulse Growers
Amit (B-90)	ARO Volcani Centre	AGT Foods Canada
CDC Consul	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 Palmer	U of S - CDC	Sask. Pulse/SeedNet**
CAMELINA		
MIDAS™	AAFC (Saskatoon)	Smart Earth Seeds
CANOLA		
see table on page VR28		
SOYBEAN		
see table on page VR22		

* SeCan Members for outside Sask
** SeedNet Inc. for outside Sask

Abbreviations Used in this List

AC	Agriculture Canada (Agriculture and Agri-Food Canada)
AAC	Agriculture Canada (Agriculture and Agri-Food Canada)
AAFC	Agriculture and Agri-Food Canada
CDC	Crop Development Centre
CPS	Crop Production Services
FCDC	Field Crop Development Centre
NDSU	North Dakota State University
OAC	Ontario Agricultural College
SY	Syngenta Seeds Canada Inc.
U	University
U of S	University of Saskatchewan
USDA	United States Department of Agriculture

Crop Kind, Class & Variety	Breeding Institution	Distributor
FIELD PEA		
Abarth	Limagrain, Netherlands	FP Genetics
CDC Acer	U of S - CDC	Sask. Pulse Growers
Agassiz	AAFC (Lacombe)	CANTERRA SEEDS
CDC Amarillo	U of S - CDC	Sask. Pulse Growers
AAC Ardill	AAFC	Wagon Wheel Seed Corp.
CDC Athabasca	U of S - CDC	Sask. Pulse/SeCan*
CDC Blazer	U of S - CDC	Sask. Pulse/SeCan*
CDC Canary	U of S - CDC	Sask. Pulse/SeCan*
AAC Carver	AAFC	CANTERRA SEEDS
AAC Chrome	AAFC (Lacombe)	FP Genetics
AAC Comfort	AAFC (Lacombe)	CANTERRA SEEDS
Cooper	Limagrain Nederland	CANTERRA SEEDS
CDC Dakota	U of S - CDC	Sask. Pulse Growers
Earlystar	AAFC (Lacombe)	CANTERRA SEEDS
CDC Forest	U of S - CDC	Sask. Pulse/SeCan*
CDC Golden	U of S - CDC	Sask. Pulse Growers
CDC Greenwater	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
Hyline	Lantmannen SW Seed	Legume Logic
CDC Inca	U of S - CDC	Sask. Pulse/SeedNet**
CDC Jasper	U of S - CDC	Sask. Pulse/SeCan*
AAC Lacombe	AAFC	SeedNet Inc.
CDC Leroy	U of S - CDC	Sask. Pulse Growers
CDC Limerick	U of S - CDC	Sask. Pulse Growers
AAC Liscard	AAFC	Wagon Wheel Seed Corp.
CDC Meadow	U of S - CDC	Sask. Pulse Growers
CDC Mosaic	U of S - CDC	Sask. Pulse Growers
CDC Patrick	U of S - CDC	Sask. Pulse Growers
CDC Pluto	U of S - CDC	Sask. Pulse Growers
CDC Prosper	U of S - CDC	Sask. Pulse Growers
AAC Radius	AAFC	Columbia Seeds
CDC Raezer	U of S - CDC	Sask. Pulse Growers
Redbat 8	U of S - CDC	ILTA Grain Inc
Redbat 88	U of S - CDC	ILTA Grain Inc
AAC Royce	AAFC	Columbia Seeds
CDC Saffron	U of S - CDC	Sask. Pulse Growers
CDC Sage	U of S - CDC	Sask. Pulse Growers
CDC Spectrum	U of S - CDC	Sask. Pulse/SeCan*
CDC Spruce	U of S - CDC	Sask. Pulse/SeCan*
CDC Striker	U of S - CDC	Sask. Pulse Growers
CDC Tetris	U of S - CDC	Sask. Pulse Growers
Thunderbird	AAFC (Lacombe)	CANTERRA SEEDS
CDC Treasure	U of S - CDC	Sask. Pulse Growers
CDC Tucker	U of S - CDC	Sask. Pulse Growers
40-10	DL Seeds Inc.	FP Genetics
DRY BEAN		
AC Black Diamond	AAFC (Lethbridge)	Viterra Inc.
CDC Blackcomb	U of S - CDC	Scoular
CDC Blackstrap	U of S - CDC	Scoular
Bolt	U of Guelph	---
Carman Black	AAFC (Morden)	---
Envoy	GenTec Seeds	Hensell District Co-op
Island	AAFC (Lethbridge)	Viterra Inc.
CDC Jet	U of S - CDC	Sask. Pulse Growers
Lightning	U of Guelph	Hensell District Co-op
Mariah	Seminis Vegetable Seeds	CANTERRA SEEDS
CDC Marmot	U of S - CDC	Sask. Pulse Growers
Medicine Hat	Seminis Vegetable Seeds	CANTERRA SEEDS
CDC Pintium	U of S - CDC	Sask. Pulse Growers
Portage	AAFC (Morden)	CANTERRA SEEDS
CDC Ray	U of S - CDC	Rudy Agro
AC Redbond	AAFC (Lethbridge)	Viterra Inc.
Skyline	Globe Seeds - Netherland	Terramax
CDC Sol	U of S - CDC	Scoular
OAC Spark	U of Guelph	U of Guelph
CDC Superjet	U of S - CDC	Scoular
Winchester	Rogers Brothers	ADM Edible Bean Specialities
CDC WM - 2	U of S - CDC	Scoular
FABA BEAN		
CDC Blitz	U of S - CDC	Redview Farms
CDC Fatima	U of S - CDC	Scoular
Fabelle	DL Seeds Inc.	Stamp Seeds
FB9-4	U of S - CDC	AGT Foods Canada
Florent	NPZ	DL Seeds
Imposa	Limagrain Nederland	Cyre Seed Farms
Snowbird	Limagrain Nederland	Bob Park - Lacombe, AB
CDC Snowdrop	U of S - CDC	Sask. Pulse Growers
CDC SSNS-1	U of S - CDC	Meier Brothers
Tabasco	DL Seeds Inc.	Ridell Seed Co.
Taboar	Globe Seeds - Netherland	Terramax
Vertigo	DL Seeds Inc.	Stamp Seeds
186S-11	U of S - CDC	AGT Foods Canada
247-13	U of S - CDC	AGT Foods Canada