

# SaskSeed

2018 Guide

Saskatchewan Seed Growers Association



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JANUARY 2018



# #IGROW SOYBEANS

## What are growers saying about NorthStar Genetics soybeans?

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Mike Fedoruk - Kamsack, SK

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# NorthStar Genetics



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**CATHY FEDORUK**  
SSGA PRESIDENT

Farmers often ask where their check-off dollars go. This seed guide represents a fraction of the investment dollars from these check offs. A first look through the pages of this seed guide one may be blown away by the number of varieties listed here. But what is even more impressive is the number of varieties that have been tested and don't make it to these pages. Thousands of potential se-

lections are tested every year. Only a few make the cut. Even fewer make it through the variety registration process.

So, by the time these varieties reach the pages of this seed guide, many years of research and many dollars of research money have been invested by plant breeders and seed companies. Whether the new varieties are the result of public research dollars or from the private sector, the farmers' only link to these new varieties is the seed grower. He too, has invested many years and many dollars to deliver innovative and advanced genetics and technologies to his farmer customers. In Saskatchewan, this task is the responsibility of some 500 seed growers. Canada wide we are 3,500.

This Canadian system of in-

vestment in our seed industry ensures continuous and affordable improvement in our genetics and maintains us as a world leader of quality end products. This seed guide is a reflection of the farmers check off dollars at work. Without this investment, the farmer voice may not be heard. By continuing to invest in the seed industry through check offs, farmers will ensure they continue to have a say in this industry.

The articles and tables in the Saskatchewan Seed Guide reflect the combined experience of breeders and seed growers. Seed growers work closely with seed breeders and developers when varieties are first released and give feedback as to how they perform in field scale trials, not just the small-scale breeder trials. By the time a new variety is

available as certified seed, your local seed grower has had several years of experience growing it. They walk their fields and they evaluate and compare them to existing varieties. They know the varieties because they grow them!

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The Canadian system of variety registration, third party overview and inspection is unique in the world and ensures the farmer is getting the seed he is paying for. The certified seed blue tag is his guarantee. The Seed grower is the only one who can deliver this.

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# MEMORIES FROM 2017: DESPITE DRY WEATHER, MOST OF THE SURPRISES WERE GOOD ONES

BY SHIRLEY BYERS FREELANCE WRITER

A lot of pedigreed seed growers in Saskatchewan probably wouldn't describe 2017 as a banner year, but for many it was better than expected, with average to well above average yields and little or no disease.

"Being so dry, it sure had us wondering," said Darryl Blyth at Lakeside Seeds near Wynyard.

"But when we went to harvest, it had good quality. That excess moisture from other years saved our butt."

Richard Klemmer at Cherry Ridge Seeds near Nipawin, Sask., said his farm's pea and canola crops were the best he's ever grown.

The canola ran over 60 bushels per acre and the peas almost 80 bu. per acre.

"Much more than we normally get," he said.

Although he had expected to see issues with seed weight, that wasn't the case.

"We've had seed this year where the bushel weight is off the chart and the barley, which we were especially worried about, is weighing up too," he said.

At Rosthern, Sask., Greg Kerber said wheat and canola did very well on 2.5 inches of rain all summer.

"The wheat went around 70 bu. per acre and canola 45-50 bu. per acre. The only disease was a little bit of ergot in the wheat.

Even at Limerick, southwest of Regina, crop yields were generally better than expected despite reportedly experiencing the driest year since precipitation records have been kept, according to seed grower Barry Reisner.

"We pretty much had an average crop. Yields were equivalent to 10 year crop insurance averages and quality was excellent," he said.

Durum yields didn't do quite so well.

"Anything on pulse stubble was considerably better than anything on oilseed stubble and anything that got a little extra shower was better than where it didn't."

Pea and faba bean yields were on the low end.

Reisner said it's difficult to pin down the exact cause of poor yields in those crops.



Last year's harvest brought pleasant surprises for some growers and challenges, as usual, for others. Overall, commercial grain and oilseed production in Saskatchewan exceeded industry expectations and quality for most crops was above average.

It could have been the result of drought, or a frost that hit the area on July 25, or the presence of the pea weevil.

Seed growers offered different views on what commercial farmers would be planting in 2018.

Klemmer thought peas and wheat would probably be popular in the northeast.

Blyth said India's 50 percent import on peas, announced mid-November, would probably influence planting decisions.

Kerber thought malt barley would also be a strong seller in his area.

Midge tolerant wheat varieties are always popular, he added.

"Utmost wheat has been popular and there are new varieties that I think are going to catch on very quickly," he said.

"Farmers seem to be switching their seed more regularly. In general, I would say guys are replacing their seed more regularly."

Kerber and Blyth think CDC Landmark wheat will be a good seller.

It's a midge-tolerant semi-dwarf CWRS

variety with yields up to 113 percent of the western provincial checks.

Certified seed should be available in limited quantities for 2018 planting.

Commercial growers are also looking at new crops that traditionally haven't commanded large acres in Saskatchewan.

"Guys are trying fababeans and soybeans (and) getting 'okay' yields," said Kerber.

"I think we're still in the learning curve and varieties aren't quite there yet for our area."

Reisner said he's seen a steady movement towards canola in the Limerick area in the last few years.

Located 160 kilometres southwest of Moose Jaw, the Limerick area hasn't traditionally produced a lot of canola.

But changing weather patterns have many growers looking at different options.

continued on page 8 >>

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"We had several wet years prior to this and canola has been performing well under those conditions," Reisner said.

Yield losses in peas and lentils, attributed to aphanomyces and root rot, have also prompted growers to look at canola rather than pulses.

In east-central Saskatchewan, spring wheat varieties with improved resistance to fusarium have been in high demand, said Blyth.

"Fusarium has been such a big deal in the last few years," he said.

"We're kinda excited about the newest wheat — short straw, midge tolerant, CDC Landmark," he added.

"Before this, all midge tolerant (varieties) were very tall."

Disease in peas is becoming a greater problem as growers tighten their rotations, he continued.

Some are trying soybeans and fababeans.

In general, those crops didn't fare well in 2017 due to lack of rain.

Overall, Blyth doesn't think his area offers the right growing conditions for those crops.

Strong-stemmed dwarf wheat varieties are a popular product in the northeast, said Klemmer.

"The further north you go, the more straw we grow and lodging is more of a factor here than it is even 50 miles south."

Cardale, Goodeve and Brandon have been popular varietal choices among wheat growers in the Nipawin area.

SYRowan, a CPS variety, yielded from 30 to 50 percent more than his hard red wheat.

Excess moisture in the Nipawin area over the past few years has convinced some growers to get out of peas.

As a result, a lot of growers are using wheat/canola/wheat/canola rotations.

A few growers in the northeast are dabbling in soybeans and fababeans but those crops haven't really caught on in a big way, he said.

Even hemp acres are on the rise.

"More hemp is being grown in the area. It can be a challenging crop to grow, but some have done extremely well," Klemmer said.

"From what I understand, the acres and yields have outpaced the demand. So

there's been a backlog of seed in the bins but I think that's getting cleared up."

Klemmer said a lot of growers are moving toward contour type drills.

They have a small wheel behind each opener and seeding depth can be precisely controlled.

The drills aren't cheap but people are buying them because they allow seeding fewer pounds per acre and the crop gets out of the ground quicker.

"In the last five or six years we've had more moisture than we need. I think there's a big trend to get land black in fall so in the spring it can absorb heat.

"Our biggest problem is not shortage of moisture. It's cold, wet soil in the spring. We're moving away from real direct seeding. There's going to be quite a few heavy harrows and high speed discs.

"You just can't leave all the stubble there and all the chaff and expect it to warm up."

Pedigreed seed growers contacted by SaskSeed said they didn't anticipate any seed shortages, although Klemmer noted that there's always a limited supply of new varieties.

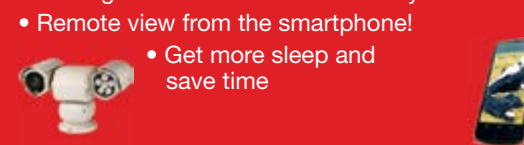
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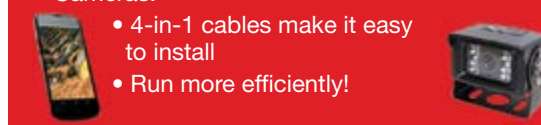
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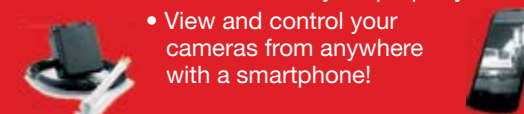
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# PEDIGREED SEED ACRES UP TWO PERCENT IN 2017

## SPECIAL TO SASKSEED

Canada's pedigreed seed growers planted more than 1.35 million acres to pedigreed seed crops in 2017, up from 1.33 million acres in 2016.

That's a year-over-year increase of roughly two percent.

According to the November 2017 Inspected Acreage Report prepared by the Canadian Seed Growers' Association (CSGA), pedigreed seed crop inspections were conducted on 1,353,175 acres last year.

That's largest pedigreed seed crop ever inspected in Canada.

The increase — a gain of nearly 30,000 acres over 2016 — was due primarily to a huge increase in pedigreed soybean acreage, which was up nearly 88,000 acres from 2016.

In 2017, total pedigreed soybean acreage surpassed 400,000 acres for the first time ever in Canada, signaling a continued interest in the crop among pedigreed seed growers and commercial oilseed growers.

Remarkably, nearly all other crop types commonly grown for pedigreed seed in Canada saw a reduction in acreage in 2017.

Pedigreed barley acreage was down by a whopping 25,000 acres in 2017 to 93,440 acres.

That's only the second time in the past 10 years that inspected barley area fell below 100,000 acres.

Lentil acreage was also down sharply.

Total pedigreed lentil acreage fell nearly 8,000 acres to 35,390, a year-over-year re-



Canada's pedigreed seed acreage was up by roughly two percent in 2017, thanks to a massive increase in soybean acreage. Seed inspections were conducted on 1.35 million acres last year. That total included inspections on more than 400,000 acres of soybeans. Saskatchewan's total pedigreed seed acreage came in at approximately 330,000 acres, up slightly from the previous year.

duction of approximately 18 percent.

Even with that reduction, pedigreed lentil acreage in 2017 was still well above the 10-year average.

Other crops that saw a reduction in pedigreed production were peas were down 7,000 acres, rye down 4,000 acres, oats down 3,000 and mustard down 3,000.

Pedigreed wheat acreage in 2017 saw a modest year-over-year gain, up 964 acres nation-wide to 366,000.

Acreage of pedigreed grass seed also took a big hit.

Ryegrass, timothy and brome, for example, saw their combined inspected area drop by more than 12,000 acres in 2017.

Hemp, meanwhile, was one of the year's biggest surprises.

Inspected hemp acres were up 6,125 acres to 13,373 — a year-over-year gain of more than 84 percent.

On the membership front, CSGA mem-

berships were virtually unchanged in 2017 at 3,536, down from 3,537 in 2016.

In Saskatchewan, pedigreed seed inspections were conducted on more than 330,000 acres last year, up slightly from 327,000 in 2016.

Over the past 10 years, Saskatchewan pedigreed seed acreage has typically ranged from a low of 275,000 acres per year, up to a high of 335,000 acres.

CSGA memberships in Saskatchewan dropped slightly in 2017 to 511 members, down from 532 in 2016.

Memberships in Manitoba were listed at 794 in 2017, a gain of 67 from the previous year.

Alberta had 807 CSGA memberships in 2017, a gain of 39 members from the previous year.

The CSGA acreage and membership report is prepared each November, after the conclusion of the seed inspection season.



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# BRANDON, TRANSCEND TOPS IN PRAIRIE WHEAT PRODUCTION IN 2017

## SPECIAL TO SASKSEED

AAC Brandon continued to gain popularity among western Canada's wheat growers in 2017, easily retaining its title as the most widely grown CWRS wheat variety on the Canadian Prairies.

According to data from the Canadian Grain Commission's annual insured acreage report, Brandon's total acreage nearly doubled during the past year, jumping from 1.16 million acres in 2016 to more than 2.28 million acres in 2017.

The variety, distributed through SeCan, accounted for nearly one-quarter of all CWRS acres sown in western Canada last year.

That included 1.14 million acres in Manitoba, 815,000 acres in Saskatchewan and 334,000 acres in Alberta.

Todd Hyra, SeCan's manager of business development for Western Canada, said Brandon is already well established in Manitoba and is gaining popularity in Saskatchewan and Alberta.

He said the variety performed "incredibly well" in Saskatchewan and Alberta last year, despite difficult conditions that included limited rainfall and extremely high temperatures.

"In 2015 and 2016, it stood up really well to high moisture conditions and high disease pressure, including fusarium," Hyra said.

"But the really neat thing was that in 2017, it held up to extremely dry conditions, so it really showed how versatile a variety it is."

"It's been a fantastic product and we're expecting a good long run, not only in Manitoba but in Saskatchewan and Alberta as well because it's only just getting going in those two



Commercial wheat growers across the province have been gravitating toward new, high-yielding wheat varieties with improved resistance to fusarium headblight. In 2017, AAC Brandon emerged as the most widely grown CWRS wheat variety in the province, surpassing Utmost, Cardale and Carberry. Transcend was easily the province's most widely grown durum variety.

provinces."

Anecdotal reports from commercial growers in the western prairies suggest yields in the range of 80-90 bushels per acre, even in areas that received only three to five inches of rainfall.

Brandon was first made available to commercial grain growers in 2015.

Within two years of its commercial release, it had emerged as the most widely grown CWRS wheat variety in Western Canada.

The rate of uptake among wheat growers was remarkable, but not completely unexpected.

Developed by Agriculture Canada wheat breeder Ron DePauw at the Semi-arid Prairie Agricultural Research Centre (SPARC) in Swift Current, Sask., Brandon first took hold in

Manitoba where growers were looking for a high-yielding wheat variety with short, strong straw and improved resistance to fusarium headblight.

By virtue of its shorter straw, it was hoped that Brandon would be less prone to lodging and easier to harvest.

"There's been a trend for the last seven or eight years ... where producers have been looking to become faster and more efficient (at harvest time)," Hyra said.

"So they were looking for varieties with short strong straw, with speed of harvest, ease of harvest and reduced lodging all being critically important factors."

"When you combine those characteristics with Brandon's MR rating for fusarium, it was just a really good fit

across a broad area...."

Protein levels in Brandon are considered average within the CWRS class and the variety offers a good disease package.

Based on Saskatchewan trial data over five years, it is rated moderately resistant (MR) to stripe rust and FHB and resistant (R) to leaf rust and stem rust.

In the CWAD class, another dominant variety continued to gain momentum in 2017.

According to data contained in the CGC insured acreage report, Transcend was planted on nearly 1.23 million acres in western Canada last year, easily surpassing No. 2 Strongfield (473,000 acres) and No. 3 Brigade (397,000 acres).

All told, Transcend accounted for 43 percent of all insured durum acres on the Prairies in 2017.

Rod Merryweather, chief executive officer of FP Genetics, said consistency is the key to Transcend's popularity.

"It's a solid performer that delivers on yield and quality every year," said Merryweather.

"The other thing that's really helped it ... is that Transcend was identified as having the lowest accumulation of DON (deoxynivalenol) in durum (in 2016)."

Although Transcend has a moderately susceptible (MS) rating for fusarium, it had lower DON levels than any other durum variety based on samples tested from the 2016 harvest.

Anecdotal reports from grain buyers also suggest that Transcend's colour was less impacted than many other CWAD varieties by poor harvest conditions that prevailed across much of Saskatchewan's durum producing region 2016.

Merryweather said Tran-

scend sales continued to show an upward trend in 2017, four years after the variety's commercial launch.

That upward trend occurred despite a significant reduction in overall durum plantings in 2017.

Transcend became commercially available in 2014.

At the time, Strongfield was the dominant CWAD variety, accounting for roughly 45 percent of all commercial durum acres planted in the West.

Transcend's popularity has grown steadily since then.

Across the West, it was planted on 233,000 insured acres in 2014, 597,000 acres in 2015,

1.06 million acres in 2016 and 1.23 million acres in 2017.

Last year was the second consecutive growing season that Transcend ranked as the top CWAD variety in Western Canada.

In Saskatchewan alone, Transcend was planted on close to one million acres of insured cropland.

Merryweather said Transcend acreage is expected to show continued strength until the next generation of higher-yielding durum varieties such as CDC Alloy, CDC Precision and AAC Spitfire become widely available to commercial growers.

## SASKATCHEWAN'S TOP 10 CWRS WHEAT VARIETIES

VARIETY	2017 ACRES	2016 ACRES	2016 RANK	DISTRIBUTER
AAC Brandon	814,524	252,123	4th	SeCan
CDC Utmost	513,980	602,034	1st	FP Genetics
Cardale	331,902	346,641	2nd	Seed Depot
CDC Plentiful	328,867	230,736	5th	FP Genetics
Carberry	262,048	332,951	3rd	SeCan
Shaw	196,148	207,875	6th	SeCan
CDC Titanium	178,732	96,487	15th	Proven / CPS
CDC Stanley	170,232	193,510	7th	Proven / CPS
Vesper	114,915	162,983	8th	SeCan
AAC Elie	106,262	35,125	22nd	Alliance

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Insured canola acreage jumped to 10.2 million acres in 2017 up from 8.9 million acres a year earlier. | FILE PHOTO

## OILSEED ACREAGE UP, BARLEY, DURUM AND LENTILS DOWN

### SPECIAL TO SASKSEED

Saskatchewan's farmers planted fewer acres of durum, barley and lentils in 2017 but boosted their canola plantings by nearly two millions acres.

That's according to data contained in the 2017 Insured Acreage Report, an annual summary of insured plantings prepared by the Canadian Grain Commission (CGC).

The report is based on information provided by provincial crop insurance programs in Manitoba, Saskatchewan, Alberta and British Columbia.

In Saskatchewan, data from 2017 reflects what many observers had expected.

Insured lentil acreage was down nearly 1.1 million acres, largely due to the fact that

2016 plantings produced generally disappointing yields and poor quality.

Excess moisture in key lentil producing areas resulted in many acres being abandoned. Of the lentil acres that were harvested in 2016, many produced yields that were well below average.

Insured lentil acres in 2017 were listed at 2.89 million acres, compared to 3.97 million acres in 2016.

Saskatchewan's insured durum acres were also down sharply, dropping to 2.79 million acres in 2017 from 3.58 million acres a year earlier.

Much of that reduction is the result of poor quality and high fusarium levels in the province's 2016 crop.

Fusarium incidence and se-

verity was unusually high in Saskatchewan's prime durum producing regions in 2016.

High levels of fusarium graminearum and its toxic byproduct, deoxynivalinol (DON) or vomitoxin, reduced the value of harvested durum in many parts of the province.

An unusually high proportion of the province's 2016 durum crop was sold into non-food markets and some of the crop was deemed unsellable.

Predictably, the collective response by Saskatchewan's growers was to reduce acres and reduce risk in 2017.

Insured barley acreage in the province was also down by approximately 250,000 acres, falling to 1.36 million acres in 2017 from 1.61 million acres a year earlier.

On the other side of the ledger, canola and soybeans saw big increases last year.

Insured canola acreage jumped to 10.2 million acres in 2017 up from 8.9 million acres a year earlier.

The province's insured soybean acreage also saw significant gains, jumping from 173,000 acres in 2016 to nearly 550,000 acres last year.

Soybean production continued to expand throughout the province with growers as far north as North Battleford, Prince Albert, Melfort and Nipawin planting the crop for the first time.

Non-durum wheat acres were relatively stable, increasing to 5.15 million acres in 2017 from 5.01 million acres the year before.

## MALT BARLEY CENTRE UNVEILS RECOMMENDED VARIETIES LIST FOR 2018

### SPECIAL TO SASKSEED

The Canadian Malting Barley Technical Centre (CMBTC) has released its list of recommended malting barley varieties for the 2018-19 growing season.

The list identifies varieties that the CMBTC recommends to producers for commercial production, based on the greatest potential for performance, quality and marketability.

"The list contains malting barley varieties that have good agronomic and quality characteristics, as well as substantial or growing market demand," said Peter Watts, managing director of the CMBTC.

The CMBTC recommendations are based on feedback from grain companies, domestic and international maltsters, brewers and grower associations as well as seed companies.

The list is aimed at providing growers with an indication of varieties that have the greatest potential to be selected for malt, according to Watts.

But it is not the only resource that growers should consider.

"We also recommend growers talk to their local elevators, or selectors from grain and malting companies, about the best two-row and six-row malting barley varieties to grow in their area," Watts said.

This year, the CMBTC list contains two new malting barley varieties — AAC Connect and CDC Bow.

"Canada has a new suite of varieties that will eventually replace the tried-and-true varieties like AC Metcalfe and CDC Copeland," said Watts.



Canada is one of the world's largest suppliers of malting barley and malt to the global brewing industry. | FILE PHOTO

"While these varieties have served the industry well, disease pressure and lower yields compared with newer varieties eventually render them less competitive."

AAC Connect and CDC Bow are new two-row varieties that were being multiplied in 2017.

Both varieties have been pilot scale tested at the CMBTC and both exhibited good quality characteristics suitable for all malt and adjunct brewing styles.

According to CMBTC, the two varieties are currently under commercial market development.

Agronomically, both varieties display good resistance to

lodging and good malting quality. (See additional information on Page 32).

Canada is one of the world's largest suppliers of malting barley and malt to the global brewing industry.

In 2016-17, Canada exported approximately one million tonnes of malting barley worth \$350 million and 620,000 tonnes of processed malt at a value of \$485 million.

The domestic brewing industry in Canada uses 300,000 tonnes of malting barley per year to make 18.5 million hectoliters of beer.

Founded in 2000, the CMBTC is a national, independent, non-profit organization with

funding provided by members of the malting barley, malt and brewing industries as well as producers and provincial and federal governments.

The CMBTC conducts applied malting and brewing research, providing technical support to members and customers.

Based in Winnipeg, the CMBTC facilities include a state-of-the-art pilot malt plant and brewery.

The CMBTC also operates the Malt Academy education program, providing instruction in malting and brewing.

The CMBTC recommendations can be viewed on Page VR15 of this publication.



# 2017 INSURED COMMERCIAL ACRES

This insured acreage report is prepared annually by the Canadian Grain Commission. Seeded area figures reflect commercial grain production only. Pedigreed seed production is excluded. Classification of varieties according to their class is based on the Canadian Grain Commission's lists of designated varieties. Variety names shown in this report were based on data keyed from different sources. The CGC has validated and corrected the data as much as possible using official sources. If discrepancies are found, please contact the Canadian Grain Commission. For further information, contact the CGC at 1-800-853-6705.

**BY PROVINCE:**

**TOTAL INSURED COMMERCIAL ACRES**

SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Canola	--	--	5,208,878	28	10,213,973	55	3,113,825	17	18,536,676	
Wheat	42,953	--	4,301,232	36	5,146,763	43	2,428,562	20	11,919,510	
Amber durum	--	--	729,154	21	2,787,229	79	1,204	--	3,517,587	
Barley	13,332	--	1,679,627	51	1,362,261	41	239,898	7	3,295,518	
Lentils	--	--	339,910	11	2,890,563	89	2,681	--	3,233,154	
Peas	--	--	1,296,587	45	1,502,574	52	63,646	2	2,862,807	
Soybeans	--	--	--	--	546,816	20	2,150,632	80	2,697,448	
Oats	--	--	166,941	12	782,826	56	437,386	32	1,387,153	
Flaxseed	--	--	60,174	9	607,035	86	39,294	6	706,503	
Corn	--	--	13,669	3	7,954	2	395,526	95	417,149	
Mustard	--	--	74,872	30	176,530	70	1,495	1	252,897	
Canary seed	--	--	638	--	214,260	98	4,283	2	219,181	
Beans	--	--	52,166	34	4,537	3	95,916	63	152,619	
Chickpeas	--	--	40,637	31	89,229	69	--	--	129,866	
Rye	--	--	12,312	12	16,767	16	73,403	72	102,482	
Sunflower	--	--	4,977	7	4,912	7	59,805	86	69,694	
Fababeans	--	--	20,271	30	37,976	57	8,379	13	66,626	
Pea beans	--	--	--	--	--	--	27,231	100	27,231	
Triticale	--	--	11,381	71	3,639	23	1,103	7	16,123	
Buckwheat	--	--	--	--	--	--	5,645	100	5,645	
<b>Total</b>	<b>56,285</b>	<b>1</b>	<b>14,013,426</b>	<b>--</b>	<b>26,395,844</b>	<b>--</b>	<b>9,149,914</b>	<b>--</b>	<b>49,615,469</b>	

**CPSR WHEAT:**

**INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES**

CPSR SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
AAC PENHOLD	--	--	310,236	50	26,648	4	29,885	5	366,769	59
AC FOREMOST	--	--	62,979	10	4,941	1	--	--	67,920	11
5700PR	435	--	60,270	10	6,929	1	150	--	67,784	11
SY ROWYN	--	--	825	--	1,151	--	22,772	4	24,748	4
AC CRYSTAL	--	--	14,165	2	9,476	2	--	--	23,641	4
AAC RYLEY	--	--	20,897	3	502	--	--	--	21,399	3
CONQUER	--	--	7,898	1	8,254	1	--	--	16,152	3
AAC FORAY	--	--	4,397	1	7,182	1	--	--	11,579	2
OSLO	--	--	7,431	1	--	--	--	--	7,431	1
5702PR	--	--	1,186	--	5,112	1	--	--	6,298	1
5701PR	--	--	2,257	--	1,261	--	--	--	3,518	1
SY985	--	--	1,750	--	629	--	--	--	2,379	--
ENCHANT	--	--	237	--	1,535	--	--	--	1,772	--
AC TABER	--	--	289	--	--	--	--	--	289	--
AAC CROSS-FIELD	--	--	200	--	--	--	--	--	200	--
SY995	--	--	136	--	--	--	--	--	136	--
CDC TERRAIN	--	--	69	--	--	--	--	--	69	--
AAC ENTICE	--	--	53	--	--	--	--	--	53	--
<b>Total</b>	<b>435</b>	<b>--</b>	<b>495,275</b>	<b>80</b>	<b>73,620</b>	<b>12</b>	<b>52,807</b>	<b>8</b>	<b>622,137</b>	<b>100</b>

**BY CROP TYPE:**

**TOTAL INSURED COMMERCIAL ACRES**

SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Canola	--	--	5,208,878	11	10,213,973	21	3,113,825	6	18,536,676	
Wheat	42,953	--	4,301,232	9	5,146,763	10	2,428,562	5	11,919,510	
Amber durum	--	--	729,154	1	2,787,229	6	1,204	--	3,517,587	
Barley	13,332	--	1,679,627	3	1,362,261	3	239,898	--	3,295,118	
Lentils	--	--	339,910	1	2,890,563	6	2,681	--	3,233,154	
Peas	--	--	1,296,587	3	1,502,574	3	63,646	--	2,862,807	
Soybeans	--	--	--	--	546,816	1	2,150,632	4	2,697,448	
Oats	--	--	166,941	--	782,826	2	437,386	1	1,387,153	
Flaxseed	--	--	60,174	--	607,035	1	39,294	--	706,503	
Corn	--	--	13,669	--	7,954	--	395,526	1	417,149	
Mustard	--	--	74,872	--	176,530	--	1,495	--	252,897	
Canary seed	--	--	638	--	214,260	--	4,283	--	219,181	
Beans	--	--	52,166	--	4,537	--	95,916	--	152,619	
Chickpeas	--	--	40,637	--	89,229	--	--	--	129,866	
Rye	--	--	12,312	--	16,767	--	73,403	--	102,482	
Sunflower	--	--	4,977	--	4,912	--	59,805	--	69,694	
Fababeans	--	--	20,271	--	37,976	--	8,379	--	66,626	
Pea beans	--	--	--	--	--	--	27,231	--	27,231	
Triticale	--	--	11,381	--	3,639	--	1,103	--	16,123	
Buckwheat	--	--	--	--	--	--	5,645	--	5,645	

**CWAD DURUM:**

**INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES**

CWAD SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%
TRANSCEND	253,878	9	973,330	34	185	--	1,227,393	43
STRONGFIELD	146,171	5	327,276	11	--	--	473,447	16
BRIGADE	94,989	3	301,972	10	404	--	397,365	14
CDC VERONA	35,457	1	140,378	5	--	--	175,835	6
CDC FORTITUDE	48,904	2	61,899	2	130	--	110,933	4
AAC RAYMORE	73,443	3	33,154	1	485	--	107,082	4
AAC SPITFIRE	30,843	1	61,279	2	--	--	92,122	3
EUROSTAR	943	--	69,758	2	--	--	70,701	2
ENTERPRISE	11,139	--	35,088	1	--	--	46,227	2
KYLE	2,165	--	39,600	1	--	--	41,765	1
AC NAVIGATOR	1,725	--	35,408	1	--	--	37,133	1
AAC CURRENT	4,282	--	21,376	1	--	--	25,658	1
AC AVONLEA	7,087	--	17,802	1	--	--	24,889	1
CDC VIDIV	11,115	--	6,320	--	--	--	17,435	1
AAC MARCHWELL	--	--	16,295	1	--	--	16,295	1
CDC PRECISION	3,639	--	5,513	--	--	--	9,152	--
COMMANDER	--	--	3,367	--	--	--	3,367	--
CDC DESIRE	785	--	2,347	--	--	--	3,132	--
CDC CARBIDE	136	--	1,509	--	--	--	1,645	--
NAPOLEON	--	--	1,547	--	--	--	1,547	--
CDC ALLOY	463	--	979	--	--	--	1,442	--
AAC CONGRESS	1,268	--	--	--	--	--	1,268	--
AC MORSE	350	--	--	--	--	--	350	--
AC MELITA	162	--	--	--	--	--	162	--
AAC SUCCEED	10	--	--	--	--	--	10	--
<b>Total</b>	<b>728,954</b>	<b>25</b>	<b>2,156,197</b>	<b>75</b>	<b>1,204</b>	<b>--</b>	<b>2,886,355</b>	<b>100</b>

**CNHR WHEAT:**

**INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES**

CNHR SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%
FALLER	578	--	14,266	6	162,493	66	177,337	72
PROSPER	--	--	6,625	3	45,381	18	52,006	21
ELGIN ND	--	--	11,455	5	6,280	3	17,735	7
AAC CONCORD	173	--	--	--	--	--	173	--
<b>Total</b>	<b>751</b>	<b>--</b>	<b>32,346</b>	<b>13</b>	<b>214,154</b>	<b>87</b>	<b>247,251</b>	<b>100</b>

**CWRS WHEAT:**

**INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES**

CWRS SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
AAC BRANDON	711	--	333,898	3	814,524	8	1,135,778	12	2,284,911	24
STETTLER	5,295	--	679,362	7	34,521	--	945	--	720,123	7
CDC UTMOST	--	--	143,346	1	513,980	5	2,842	--	660,168	7
CARDALE	--	--	25,651	--	331,902	3	231,728	2	589,281	6
CDC PLENTIFUL	--	--	172,626	2	328,867	3	54,142	1	555,635	6
AAC ELIE	--	--	232,757	2	106,262	1	168,576	2	507,595	5
CDC GO	2,396	--	462,337	5	18,023	--	6,943	--	489,699	5
MUCHMORE	--	--	398,494	4	56,524	1	15,953	--	470,971	5
CARBERRY	--	--	111,153	1	262,048	3	91,426	1	464,627	5
CDC STANLEY	250	--	210,673	2	170,232	2	17,917	--	399,072	4
GLENN	--	--	18,456	--	106,022	1	100,484	1	224,962	2
SHAW	--	--	18,447	--	196,148	2	--	--	214,595	2
CDC TITANIUM	665	--	9,810	--	178,732	2	6,309	--	195,516	2
CDC ABOUND	--	--	173,516	2	10,039	--	--	--	183,555	2
A										



## 2017 INSURED COMMERCIAL ACRES (CONTINUED)

### TRITICALE: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

TRITICALE SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
NOT SPECIFIED	245	2	2,354	15	66		2,665	17
BUNKER	1,403	9	862	5			2,265	14
SUNRAY	2,058	13					2,058	13
BREVIS	1,429	9			320	2	1,749	11
PRONGHORN	1,258	8	423	3			1,681	10
TYNDAL	1,680	10					1,680	10
TAZA	1,181	7					1,181	7
BOBCAT	503	3					503	3
FRIDGE	57				437	3	494	3
PIKA	345	2			130	1	475	3
AC ULTIMA	441	3					441	3
COMPANION	205	1					205	1
BANJO	169	1					169	1
GALAXY					150	1	150	1
LUOMA	121	1					121	1
AC CERTA	81	1					81	1
METZGER	80	1					80	1
AC ALTA	79						79	
BUMPER	46						46	
<b>Total</b>	<b>11,381</b>	<b>71</b>	<b>3,639</b>	<b>23</b>	<b>1,103</b>	<b>7</b>	<b>16,123</b>	<b>100</b>

Sources: Sask Crop Insurance, Alberta Ag Financial Services Corp., Manitoba Agricultural Services Corporation, BC Crop Insurance

### CWSP WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

CWSP SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
PASTEUR	14,073	10	81,231	59	4,272	3	99,576	73
CDC FALCON	--	--	--	--	12,492	9	12,492	9
PINTAIL	3,243	2	7,741	6	396		11,380	8
CDC PTARMIGAN	--	--	5,953	4			5,953	4
CDC NRG003	3,821	3					3,821	3
WFT 603	--	--	1,491	1			1,491	1
SY087	89	--			690	1	779	1
PEREGRINE	--	--			405		405	
BROADVIEW	--	--			363		363	
ALDERON	290	--					290	
CDC CLAIR	150	--					150	
CDC HARRIER	--	--			93		93	
CDC KESTREL	--	--			48		48	
<b>Total</b>	<b>21,666</b>	<b>16</b>	<b>96,416</b>	<b>70</b>	<b>18,759</b>	<b>14</b>	<b>136,841</b>	<b>100</b>

### BARLEY: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

BARLEY SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%
CDC COPELAND	192	--	500,882	25	436,896	22	20,844	1	958,814	48
AC METCALFE	--	--	172,900	9	442,188	22	15,674	1	630,762	32
AAC SYNERGY	--	--	79,196	4	53,067	3	19,568	1	151,831	8
LEGACY	--	--	7,302	--	54,398	3	1,575	--	63,275	3
NEWDALE	--	--	18,753	1	16,391	1	14,034	1	49,178	2
BENTLEY	--	--	26,213	1	6,372	--	5,026	--	37,611	2
CELEBRATION	--	--	--	--	3,893	--	17,868	1	21,761	1
CDC MEREDITH	2,710	--	5,843	--	4,660	--	1,152	--	14,365	1
TRADITION	--	--	--	--	1,661	--	10,162	1	11,823	1
CDC KINDERSLEY	--	--	6,027	--	2,593	--	1,404	--	10,024	1
CDC POLARSTAR	--	--	333	--	8,274	--	--	--	8,607	--
CDC PLATINUM STAR	--	--	--	--	7,478	--	--	--	7,478	--
CDC BOW	--	--	4,053	--	970	--	--	--	5,023	--
HARRINGTON	135	--	1,649	--	970	--	--	--	2,754	--
CDC YORKTON	--	--	1,270	--	1,241	--	165	--	2,676	--
AAC CONNECT	--	--	2,051	--	--	--	160	--	2,211	--
CDC ANDERSON	--	--	1,581	--	--	--	273	--	1,854	--
LACEY	--	--	528	--	--	--	925	--	1,453	--
STELLAR-ND	--	--	--	--	--	--	1,280	--	1,280	--
MERIT 57	--	--	1,215	--	--	--	--	--	1,215	--
ROBUST	--	--	160	--	--	--	964	--	1,124	--
CDC BATTLEFORD	--	--	767	--	--	--	--	--	767	--
MANLEY	--	--	--	--	673	--	70	--	743	--
CDC STRATUS	--	--	700	--	--	--	--	--	700	--
CERVEZA	--	--	699	--	--	--	--	--	699	--
CDC CLEAR	--	--	--	--	--	--	591	--	591	--
MAJOR	--	--	435	--	--	--	--	--	435	--
MERIT 16	--	--	225	--	--	--	--	--	225	--
AC BOUNTIFUL	--	--	220	--	--	--	--	--	220	--
CDC AURORA NUO	--	--	181	--	--	--	--	--	181	--
AC OXBOW	--	--	155	--	--	--	--	--	155	--
EXCEL	--	--	150	--	--	--	--	--	150	--
CDC FRASER	--	--	128	--	--	--	--	--	128	--
CDC MAYFAIR	--	--	87	--	--	--	--	--	87	--
LOWE	--	--	75	--	--	--	--	--	75	--
<b>Total</b>	<b>3,037</b>	<b>--</b>	<b>833,778</b>	<b>42</b>	<b>1,041,725</b>	<b>52</b>	<b>111,735</b>	<b>6</b>	<b>1,990,275</b>	<b>100</b>

### BARLEY: INSURED COMMERCIAL ACRES, NON-DESIGNATED VARIETIES

BARLEY SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%
CDC AUSTENSON	1,166	--	271,180	21	68,456	5	49,977	4	390,779	30
NOT SPECIFIED	6,165	--	1,568	--	189,248	15	3,895	--	200,876	15
XENA	--	--	125,781	10	4,108	--	--	--	129,889	10
CHAMPION	210	--	96,471	7	18,166	1	6,705	1	121,552	9
BRAHMA	--	--	117,576	9	453	--	50	--	118,079	9
CDC COALITION	--	--	63,264	5	780	--	--	--	64,044	5
CONLON	--	--	7,284	1	2,695	--	50,643	4	60,622	5
CDC COWBOY	--	--	25,712	2	9,462	1	3,623	--	38,797	3
CANMORE	--	--	28,942	2	--	--	8,719	1	37,661	3
CDC MAVERICK	754	--	12,023	1	7,995	1	1,761	--	22,533	2
GADSBY	--	--	11,790	1	--	--	--	--	11,790	1
CDC THOMPSON	--	--	9,800	1	--	--	--	--	9,800	1
SEEBE	--	--	9,459	1	--	--	--	--	9,459	1
PONOKA	365	--	8,208	1	--	--	--	--	8,573	1
SUNDRE	80	--	4,791	--	3,027	--	--	--	7,898	1
CHIGWELL	285	--	4,696	--	--	--	--	--	4,981	--
VIVAR	--	--	4,595	--	--	--	--	--	4,595	--
BUSBY	--	--	4,530	--	--	--	--	--	4,530	--
CDC TREY	--	--	4,487	--	--	--	--	--	4,487	--
AC RANGER	--	--	2,398	--	1,644	--	413	--	4,455	--
AMISK	--	--	4,331	--	--	--	--	--	4,331	--
CDC MCGWIRE	--	--	105	--	3,840	--	320	--	4,265	--
FALCON	--	--	3,604	--	603	--	--	--	4,207	--
STANDER	--	--	3,889	--	--	--	--	--	3,889	--
CDC CARTER	--	--	--	--	3,606	--	--	--	3,606	--
AC ROSSER	--	--	551	--	3,050	--	--	--	3,601	--
TROCHU	--	--	2,900	--	--	--	--	--	2,900	--
CDC HELGASON	--	--	2,848	--	--	--	--	--	2,848	--
CDC DOLLY	--	--	1,475	--	1,111	--	--	--	2,586	--
CLAYMORE	--	--	2,006	--	--	--	--	--	2,006	--
AC ALBRIGHT	1,010	--	35	--	853	--	--	--	1,898	--
CDC FIBAR	--	--	--	--	1,439	--	--	--	1,439	--
BRIDGE	--	--	1,107	--	--	--	--	--	1,107	--
OTAL	--	--	1,013	--	--	--	--	--	1,013	--
BEDFORD	--	--	63	--	--	--	911	--	974	--
OREANA	--	--	692	--	--	--	--	--	692	--
DESPERADO	--	--	--	--	--	--	657	--	657	--
MUSKWA	--	--	555	--	--	--	--	--	555	--

BARLEY SEEDED AREA	B.C.		ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%
AC LACOMBE	--	--	455	--	--	--	77	--	532	--
FORMOSA	--	--	504	--	--	--	--	--	504	--
PHOENIX	--	--	460	--	--	--	--	--	460	--
CDC BOLD	--	--	445	--	--	--	--	--	445	--
BONANZA	--	--	392	--	--	--	7	--	399	--
NIIBE	--	--	307	--	--	--	--	--	307	--
CDC EARL	--	--	304	--	--	--	--	--	304	--
BC 100	--	--	291	--	--	--	--	--	291	--
GALT	--	--	290	--	--	--	--	--	290	--
LEDUC	--	--	270	--	--	--	--	--	270	--
OTEL	260	--	--	--	--	--	--	--	260	--
CDC HILOSE	--	--	260	--	--	--	--	--	260	--
JOHNSTON	--	--	240	--	--	--	--	--	240	--
CALDER	--	--	175	--	--	--	55	--	230	--
DILLON	--	--	220	--	--	--	--	--	220	--
CENTURION	--	--	--	--	--	--	206	--	206	--
CDC MINDON	--	--	167	--	--	--	--	--	167	--
DUKE	--	--	155	--	--	--	--	--	155	--
BRETON	--	--	149	--	--	--	--	--	149	--
STETSON	--	--	144	--	--	--	--	--	144	--
MCLEOD	--	--	140	--	--	--	--	--	140	--
B 1215	--	--	135	--	--	--	--	--	135	--
OLLI	--	--	133	--	--	--	--	--	133	--
TYTO	--	--	125	--	--	--	--	--	125	--
KASOTA	--	--	104	--	--	--	--	--	104	--
SY SIRISH	--	--	83	--	--	--	--	--	83	--
PALLISER	--	--	70	--	--	--	--	--	70	--
CONQUEST	--	--	--	--	--	--	59	--	59	--
RIVERS	--	--	50	--	--	--	--	--	50	--
CONDOR	--	--	--	--	--	--	40	--	40	--
WESTFORD	--	--	37	--	--	--	--	--	37	--
CDC RICHARD	--	--	--	--	--	--	30	--	30	--
ASCENSION	--	--	--	--	--	--	15	--	15	--
SR 14501	--	--	10	--	--	--	--	--	10	--
TR 12225	--	--	5	--	--	--	--	--	5	--
<b>Total</b>	<b>10,295</b>	<b>1</b>	<b>845,849</b>	<b>65</b>	<b>320,536</b>	<b>25</b>	<b>128,163</b>	<b>10</b>	<b>1,304,843</b>	<b>100</b>

Sources: Sask Crop Insurance, Alberta Ag Financial Services Corp., Manitoba Agricultural Services Corporation, BC Crop Insurance

continued on next page >>





## 2017 INSURED COMMERCIAL ACRES (CONTINUED)

### OATS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

OATS SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
AC MORGAN	94,868	7	185,858	13	5,227		285,953	21
CAMDEN CS	7,803	1	130,606	9	126,615	9	265,024	19
SUMMIT	2,002		57,077	4	158,597	11	217,676	16
NOT SPECIFIED	783		116,050	8	8,055	1	124,888	9
SOURIS			42,393	3	74,681	5	117,074	8
TRIACTOR	241		80,959	6	2,525		83,725	6
CDC DANCER			35,277	3	2,769		38,046	3
CDC ORRIN	290		24,475	2			24,765	2
DERBY	13,409	1	10,678	1	237		24,324	2
CDC RUFFIAN	1,123		21,237	2	210		22,570	2
PINNACLE	5		9,982	1	12,493	1	22,480	2
AC MUSTANG	18,538	1	2,557				21,095	2
LEGGETT			13,202	1	5,541		18,743	1
CDC MINSTREL	120		16,654	1	12		16,786	1
CDC BALER	7,019	1	3,689		455		11,163	1
CDC SO-I	4,070		4,561		2,141		10,772	1
SW BETANIA			8,515	1			8,515	1
RONALD			3,108		4,909		8,017	1
FURLONG					7,700	1	7,700	1
CDC HAYMAKER	3,301		2,196		1,560		7,057	1
CDC BIG BROWN					5,733		5,733	
CDC NASSER	3,772		1,375		285		5,432	
CDC MORRISON			2,875		1,245		4,120	
CALIBRE	1,280		2,692				3,972	
WALDERN	2,600						2,600	
STRIDE	28				2,363		2,391	
TRIPLE CROWN					2,348		2,348	
AC ASSINIBOIA					2,334		2,334	
GEHL	108		535		1,685		2,328	
HAYWIRE					2,051		2,051	
CDC WEAVER			1,787				1,787	
AAC JUSTICE					1,634		1,634	
CDC BOYER	86		1,101		40		1,227	
RIEL					1,026		1,026	
LU	62		850				912	
CANMORE	427				452		879	
CASCADE	816				40		856	
GRIZZLY	824						824	
CDC SEABISCUIT	823						823	
AC MEDALLION	35		674		90		799	
ROBERT					785		785	
7600M	619						619	
HIFI			404		198		602	

OATS SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
AC JUNIPER	601						601	
AC STRIDE				593			593	
CDC SOL-FI				465			465	
CDC PACER				401			401	
FORAGE						250	250	
VICTORY	233						233	
MAJESTIC						222	222	
RUSSELL						178	178	
BRADLEY	169						169	
DUMONT						168	168	
RANDOM	122					40	162	
MURPHY	157						157	
ATHABASCA	149						149	
AC PREAMNESS						145	145	
SUTTON						145	145	
HARMON	123						123	
FOOTHILL	114						114	
JORDAN						112	112	
AC BELMONT	100						100	
RODNEY	55						55	
BUFF						40	40	
SIoux						28	28	
PENDEK 99	25						25	
ORE3542M	21					3	24	
AAC BULLET	20						20	
AC GWEN						13	13	
ORE3541M						6	6	
<b>Total</b>	<b>166,941</b>	<b>12</b>	<b>782,826</b>	<b>56</b>	<b>437,386</b>	<b>32</b>	<b>1,387,153</b>	<b>100</b>

### CWSWS WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

CWSWS SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
SADASH	88,360	34	74,812	29	625	--	163,797	64
AC ANDREW	29,457	11	45,579	18	--	--	75,036	29
AC CHIFFON	12,657	5	4,836	2	--	--	17,493	7
AC INDUS	360	--	--	--	--	--	360	--
AAC PARAMOUNT	80	--	--	--	--	--	80	--
AC REED	64	--	--	--	--	--	64	--
<b>Total</b>	<b>130,978</b>	<b>51</b>	<b>125,227</b>	<b>49</b>	<b>625</b>	<b>--</b>	<b>256,830</b>	<b>100</b>

### RYE: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

RYE SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
HAZLET	3,786	4	6,781	7	31,638	31	42,205	41
BONO	185		1,260	1	13,898	14	15,343	15
NOT SPECIFIED	50		5,943	6	4,590	4	10,583	10
PRIMA	3,821	4			4,440	4	8,261	8
BRASSETTO	414		1,345	1	5,828	6	7,587	7
DANKO			710	1	5,562	5	6,272	6
GUTTINO	2,342	2			1,192	1	3,534	3
AC RIFLE	25		728	1	1,483	1	2,236	2
DAKOLD					1,914	2	1,914	2
AC REMINGTON	660	1			1,019	1	1,679	2
PUMA					1,080	1	1,080	1
DAKOTA	540	1					540	1
RUSSIAN DWARF					335		335	
VOLUNTEER					329		329	
GAZELLE	94				95		189	
KODIAK	155						155	
MUSKETEER	135						135	
COUGAR	105						105	
<b>Total</b>	<b>12,312</b>	<b>12</b>	<b>16,767</b>	<b>16</b>	<b>73,403</b>	<b>72</b>	<b>102,482</b>	<b>100</b>

### CWRW WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

CWRW SEEDED AREA	ALTA.		SASK.		MAN.		TOTAL	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%
EMERSON	6,094	2	34,886	13	74,259	28	115,239	43
AAC GATEWAY	21,867	8	3,491	1	34,731	13	60,089	22
MOATS	17,254	6	18,403	7	1,672	1	37,329	14
CDC BUTEO	755	--	18,988	7	2,925	1	22,668	8
RADIANT	21,383	8	--	--	--	--	21,383	8
FLOURISH	2,102	1	5,925	2	668	--	8,695	3
MCCLINTOCK	--	--	--	--	1,153	--	1,153	--
AC BELLATRIX	489	--	660	--	--	--	1,149	--
AC TEMPEST	623	--	--	--	--	--	623	--
AC READYMADE	565	--	--	--	--	--	565	--
AAC ELEVATE	490	--	--	--	60	--	550	--
CDC OSPREY	181	--	--	--	--	--	181	--
AAC WILDFIRE	118	--	--	--	--	--	118	--
<b>Total</b>	<b>71,921</b>	<b>27</b>	<b>82,353</b>	<b>31</b>	<b>115,468</b>	<b>43</b>	<b>269,742</b>	<b>100</b>

Sources: Sask Crop Insurance, Alta. Ag Financial Services Corp., Man. Ag Services Corp., BC Crop Insurance



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## FHB RESISTANCE IN DURUM IMPROVING

BY ANGELA LOVELL  
FREELANCE WRITER

Farmers may be anxious for durum wheat varieties that offer better fusarium head blight (FHB) resistance but they'll have to be patient a while longer.

FHB resistance is unquestionably one of the priorities for durum breeding programs across Western Canada, and there have been some improvements in resistance in varieties released over the past few years.

But full resistance is still a long way away.

Resistance to FHB is not an easy thing to achieve, say experts.

From a global perspective, there is no durum wheat that has a high level of FHB resistance. This presents a challenge for breeders who need to find genetic resources to work with.

As well, unlike some diseases such as rust or smut, there is not one major gene that is responsible for FHB resistance. Fusarium resistance is a complex trait that involves a number of minor genes, so only small, incremental improvements are possible.

"These are minor genes and they have small effects," says Ron DePauw of Advancing Wheat Technologies, a former Agriculture and Agri-Food Canada (AAFC) durum and spring wheat breeder.

"We see newer varieties that have better FHB tolerance but they are still only moderately susceptible. As durum wheat breeders continue to assemble these minor effect genes, I expect that within the next five years, we're going to see durum varieties that are at the intermediate level to moderately



AC Strongfield was once the most popular durum wheat variety in western Canada. While it is still widely-grown, its acreage has been dwindling as growers look for new varieties with improved straw strength and lower DON accumulations.

resistant levels."

The next challenge for breeders is to find out why the genes for FHB tolerance in durum wheat do not function the same way as they do in spring wheat.

"If breeders can figure that out, we could get moderate and full resistance in durum, but there's some upstream research that needs to be done first," says DePauw.

Deoxynivalenol (DON), a mycotoxin associated with fusarium graminearum, has also become a bigger concern in

the registration process, and breeding programs are now testing durum lines for DON as well.

"We have to harvest additional samples of grain, and process and clean it in a way that is consistent so that we can make selections that include lower DON levels," says DePauw.

"It's labour intensive and the chemical analysis is expensive, so that all means slow progress."

FHB isn't the only focus of durum breeding programs.

Grain yield and quality remain front and centre, and because the two are negatively related traits, it's not easy to combine all these traits in one durum variety.

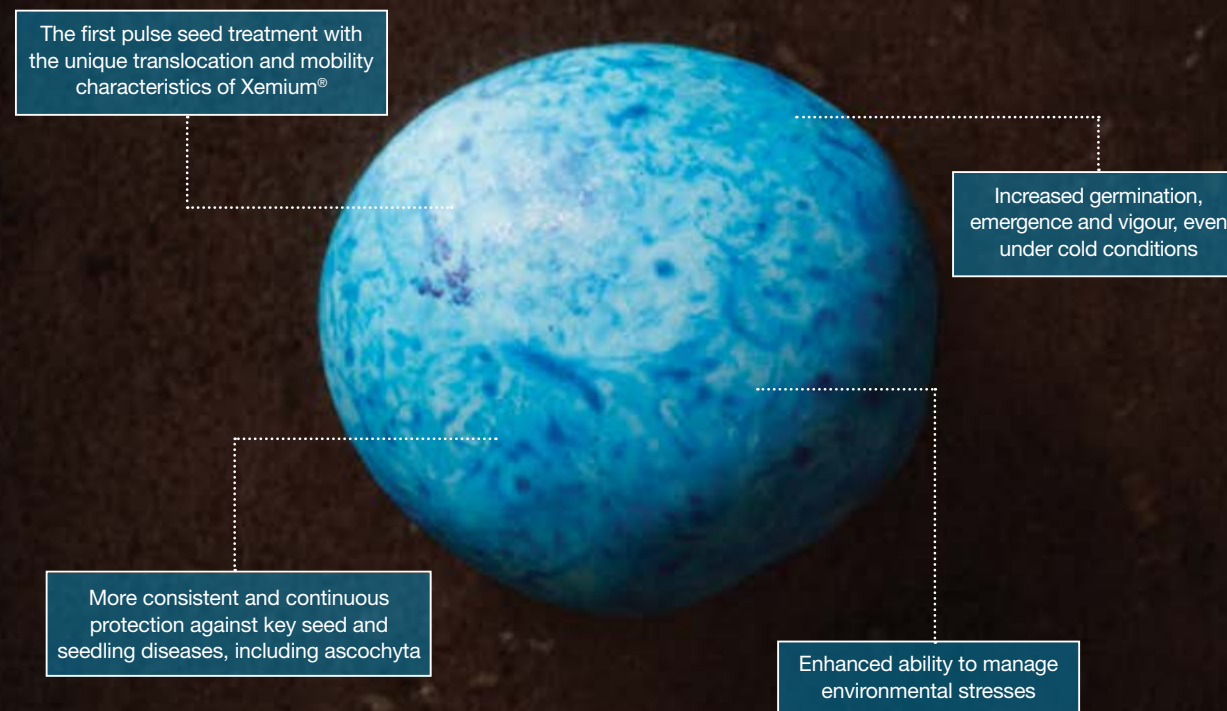
"As yield increases, protein content goes down," says DePauw.

"Breeders have to be able to hold the protein constant while they increase the grain yield. Dr. John Clarke, who was the durum breeder for a number of

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years at AAFC Swift Current, was able to show that for every half a percent drop in protein, they could get eight to 10 per cent higher grain yield.

“To hold the protein constant and get extra yield, they had to change the plant to make it much more nitrogen and water use efficient. These are important but subtle changes that have taken place over the past few years that have allowed varieties that have been released to have higher yield without sacrificing quality.”

Those breeding changes really showed themselves in a dry, hot year like 2017 when durum yields were much higher than expected.

“That’s because newer varieties have much better root systems than older varieties and better drought tolerance that results in this better nitrogen and water use efficiency,” says DePauw.

“But we do need to also recognize that the soil profile had lots of moisture in spring, and we have improved agronomic practices, which support the genetic improvements.”

Other significant genetic improvements in recent years have been better straw strength and lower plant height for improved standability and reduced lodging.

Seed grower, Gerald Girodat of Girodat Seeds in Shaunavon, Sask., says durum growers who had half a dozen varieties to choose from a few years ago, now have close to 20 varietal choices.

He says growers are very interested in varieties with shorter, stronger straw.

“Everyone now wants to straight combine, so they don’t want tall straw that falls over with wind or rain, and they don’t want to handle a lot of straw, so that is the advantage of the short straw varieties,” he says.

SASKATCHEWAN'S TOP 10 CWAD DURUM VARIETIES

VARIETY	2017 ACRES	2016 ACRES	2016 RANK	DISTRIBUTER
Transcend	997,330	842,696	1st	FP Genetics
Strongfield	327,276	688,757	2nd	SeCan
Brigade	301,972	494,302	3rd	Proven / CPS
CDC Verona	140,378	314,388	4th	Alliance
Eurostar	69,758	69,797	6th	SeCan
CDC Fortitude	61,899	94,080	5th	Proven / CPS
AAC Spitfire	61,297	2,788	17th	SeCan
Kyle	39,600	61,635	7th	
AC Navigator	35,408	45,280	11th	Proven / CPS
Enterprise	35,088	57,807	8th	Canterra
AAC Raymore	33,154	46,922	10th	SeCan

*Durum growers who had half a dozen varieties to choose from a few years ago, now have close to 20 varietal choices.*

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On the insect front, many newer durum varieties offer better orange wheat blossom midge tolerance or wheat stem sawfly resistance.

“We are now working on combining the midge tolerance and sawfly resistance with the straw strength and some lines are showing better insect resistance with stronger straw,” says Yuefeng Ruan, durum wheat breeder at AAFC Swift Current.

“At the same time we have to maintain the yield and quality to make sure everything matches farmers’ needs.”

Ron Knox, a research scientist at AAFC Swift Current, says a big focus of research is

applying new genetic techniques to breeding.

“A lot revolves around understanding the genetics of these traits, such as resistance to FHB and developing improved markers that we can use in a high throughput breeding system,” says Knox.

“There are a number of additional traits that we’re looking at in terms of research. Because we’re breeding in the dry prairie, where there can be some heat stress, our cultivars tend to be drought and heat tolerant, but we want to be able to understand the genetic basis of those traits so that when the breeders introduce mate-

rial for other traits like disease or pest resistance, we can still recover the heat and drought tolerance we have worked on over the years to incorporate into our cultivars.

“So, we want markers that help us get back to the adapted genotypes. We’re also looking at height and straw strength, maturity and pre-harvest sprouting resistance traits, as well as quality traits that make our durum wheat sought after in domestic and world markets, to enrich our breeding populations.”

So what are some of the newer varieties that will soon be available to commercial growers?

AAC Marchwell VB (registered in 2013) and CDC Carbide VB (registered in 2014) offer tolerance to orange wheat blossom midge. The refuge version of AAC Marchwell VB is the wheat stem sawfly resistant variety AAC Raymore.

Another midge resistant variety, AAC Succeed, only just been released by breeders, is in the multiplication process.

Other recent varieties, AAC Stronghold (available late 2018 for planting in 2019), AAC Cabri and CDC Fortitude all offer sawfly resistance.

Most of the newer durum varieties are moderately susceptible to FHB and offer good yield potential and lodging resistance. All but the very newest varieties are available as certified seed. CDC Alloy hasn’t reached that stage yet.

CDC Alloy combines the traits of two older varieties – Strongfield and Brigade – to offer high yield, shorter straw and good standability.

AC Transcend, registered in 2010, has one of the better levels of fusarium resistance with low DON accumulation and has been a dependable, high yielding variety on the Prairies.

In 2017, Transcend was the most widely grown durum variety in Saskatchewan.

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Wheat varieties that move to the Canada Northern Hard Red (CNHR) class on Aug. 1, 2018 will be visually indistinguishable from wheat varieties that remain in the Canada Western Red Spring (CWRS) class. This, coupled with anticipated price discounts for CNHR wheat, means that growers will be expected to make varietal declarations at the point of delivery, specifying which variety they are selling.

# INDUSTRY URGED TO PREPARE FOR WHEAT CLASS CHANGES

## SPECIAL TO SASKSEED

Wheat producers across western Canada should pay extra attention to the varieties they put in the ground this spring.

That's because 25 Canada Western Red Spring (CWRS) varieties and four Canada Prairie Spring Red (CPSR) varieties will be moved to the Canada Northern Hard Red (CNHR) class as of Aug. 1, 2018.

In other words, some wheat varieties that are planted as CWRS or CPSR in the spring will be sold as lower-priced CNHR grain this fall.

"Producers need to be aware that what they plant this coming spring could change a class by the time they harvest it,"

said Daryl Beswitherick, program manager for quality assurance with the Canadian Grain Commission.

"It's critical that they understand what they are planting this year, if they haven't already changed varieties."

The CNHR wheat class came into effect on Aug. 1, 2018.

The first varieties placed in the class were three high-yielding American varieties — Elgin, Faller and Prosper.

But as of Aug. 1, 2018, another 29 Canadian varieties — 25 from the CWRS class and four from CPSR — will be added to the CNHR designation.

The creation of the CNHR class was a key part of Canada's plan to modernize its

wheat classes.

The decision to move some CWRS varieties to the new CNHR class was aimed at narrowing the quality parameters for the CWRS class and ensuring that CWRS represents a higher quality product that is more appealing to bakers, millers and end-users.

Maintaining CWRS quality at the highest level was viewed as a way to ensure that CWRS varieties could continue to command the highest possible price in foreign and domestic markets.

In general, the varieties in the new CNHR class will have slightly lower gluten strength than CWRS varieties and a wider range of protein levels.

CNHR varieties will still offer good milling characteristics and baking properties but CWRS will be the gold standard.

It is widely assumed that CNHR wheat will sell at a discount to CWRS at delivery points across the West.

It remains to be seen how much CNHR varieties will be discounted but industry observers have suggested price differentials in the neighbourhood of \$10 per tonne or more.

"I'm not sure what the price differential will be between CWRS and CNHR. I guess the grain companies will decide that," said Beswitherick.

"But there's definitely going to be a discount from CWRS,

## DECLINING ACREAGE

Harvest, Lillian, Unity and McKenzie are among the most popular CWRS varieties that are scheduled for reclassification. Over the past few years, insured acreage of these varieties has been declining steadily across western Canada, suggesting that growers are preparing for classification changes.

SASKATCHEWAN	2014	2015	2016	2017
Harvest	293,011	276,040	133,004	35,398
Lillian	482,106	283,783	139,586	83,184
Unity	430,221	286,905	147,044	82,746
McKenzie	124,410	86,003	50,674	29,522
Other CWRS to be reclassified as CNHR	n/a	71,907	42,874	24,910
<b>Totals</b>	<b>n/a</b>	<b>1,004,638</b>	<b>513,182</b>	<b>255,760</b>

WESTERN CANADA	2014	2015	2016	2017
Harvest	1,171,651	1,082,421	547,362	162,319
Lillian	804,059	520,517	293,953	161,086
Unity	446,772	299,671	152,527	84,142
McKenzie	138,376	94,774	53,694	31,616
Other CWRS to be reclassified as CNHR	n/a	190,060	105,284	51,945
<b>Totals</b>	<b>n/a</b>	<b>2,187,443</b>	<b>1,152,820</b>	<b>491,108</b>

that's for sure." "So if there are producers out there that are holding on to a bin full of some older wheat varieties that are going to be reclassified, they should make a decision on how they want to market that wheat and move it as soon as possible."

Among the 25 CWRS varieties that will be moved to the CNHR class, three varieties — Lillian, Harvest and Unity — have garnered much attention.

Together, those three varieties were planted on nearly two million Western Canadian acres in 2015.

In Saskatchewan alone, the three varieties accounted for more than 850,000 insured acres in 2015, according to data compiled by the CGC.

Since then, Saskatchewan acreage and prairie-wide acreage has been declining steadily, suggesting that commercial grain growers are changing varieties.

In 2017, Saskatchewan growers insured just over 200,000 acres of Harvest, Lillian and Unity.

Beswitherick said the reduction in plantings of Lillian, Harvest and Unity is a signal that commercial grain growers are aware of the classification changes that are coming this year.

"We're seeing signals that producers are definitely start-

## THE CLASS OF 2017

Saskatchewan's insured acreage of registered wheat varieties in the Canada Northern Hard Red (CNHR) class. Approximately 30 wheat varieties will be added to CNHR class effective Aug. 1, 2018.

	2013	2014	2015	2016	2017
Faller	2,842	3,656	1,690	20,621	14,266
Prosper	3,481	5,647	6,145	11,425	6,625
Elgin	na	na	na	13,739	11,455

ing to move away from the 25 CWRS varieties that are going to be reclassified," he said.

"For example, in our 2016 varieties survey, which is based on insured acres, Harvest, Lillian and Unity accounted for about 11 percent of the CWRS market. "But in 2017, they were down to four percent of seeded acres so we're definitely seeing producers make the decision to move away from those particular varieties."

In addition to altering their planting decisions, producers should also ensure that supplies of soon-to-be-reclassified CWRS varieties are marketed and delivered prior to August 1.

Failure to sell or deliver those varieties into the commercial handling system before Aug. 1 could result in an immediate loss of value.

Farmers will still have the option to grow and sell the reclassified varieties after Aug. 1, but their value, in all likelihood, will be diminished.

"They are still registered varieties," Beswitherick said. "Farmers can still grow

them, but they will be required to declare them as CNHR varieties, not hard red spring or CPS Red."

Sources in the grain industry have suggested that some grainhandling companies are already urging farmers to clear their stocks of soon-to-be-reclassified CWRS.

Selling the varieties sooner rather than later will allow the grain companies to move the grain before the beginning of the 2018-19 crop year.

For individual producers, it will minimize the risk of being slapped with unexpected monetary penalties.

Varietal declarations will play an important role in the handling and marketing of CNHR wheat.

Since many varieties of the varieties in the new CNHR class will be visually indistinguishable from CWRS varieties after Aug. 1, varietal declarations will be used to inform grainhandlers of the specific variety being delivered.

"Those 25 varieties that get reclassified will look like

## RECLASSIFIED

Varieties scheduled for reclassification as of Aug. 1, 2018:

- AC Abbey (CWRS)
- AC Cora (CWRS)
- AC Eatonia (CWRS)
- AC Majestic (CWRS)
- AC Michael (CWRS)
- AC Minto (CWRS)
- Alvena (CWRS)
- Alikat (CWRS)
- CDC Makwa (CWRS)
- CDC Osler (CWRS)
- Columbus (CWRS)
- Conway (CWRS)
- Harvest (CWRS)
- Kane (CWRS)
- Katepwa (CWRS)
- Leader (CWRS)
- Lillian (CWRS)
- McKenzie (CWRS)
- Neepawa (CWRS)
- Park (CWRS)
- Pasqua (CWRS)
- Pembina (CWRS)
- Thatcher (CWRS)
- Unity (CWRS)
- 5603HR (CWRS)
- AC Foremost (CPRS)
- AC Taber (CPRS)
- Conquer
- Oslo

CWRS wheat and there will be no distinguishable characteristics about them, so it will be critical for producers to declare appropriately," he said.



# SASKATCHEWAN GROWERS STILL LEARNING ABOUT SOYBEANS

BY ANGELA LOVELL FREELANCE WRITER

Farmers in Saskatchewan seeded a record 850,000 acres of soybeans in 2017, up from 240,000 acres the year before. So what spurred this almost triple increase in soybean acres?

Good soybean prices and high yields in 2016 were definitely among the reasons, says Glenda Clezy, agronomy specialist with Saskatchewan Pulse Growers.

"We had great fall moisture in 2016, which resulted in higher yields for some producers, and with good prices that created a positive spin for the crop," she says.

"Growers also don't need any specialized equipment to grow soybeans, so that's positive for new growers."

Other growers may have wanted to replace peas or lentils in the rotation due to disease issues, she added.

"There may be concerns for disease, such as aphanomyces, a root rot which peas and lentils are susceptible to," says Clezy.

"Soybean is a non-host crop for that particular disease, so where they were looking to rotate a nitrogen fixing crop into their rotation and where there was a fit, soybean was an option."

In spite of the huge increase in acreage, 2017 wasn't a great year for soybeans in Saskatchewan.

Some growers, due to dry conditions especially in the south, had disappointing yields. That has many observers predicting that soybean acres may decrease in 2018.

"I think in the drier areas, some growers may rotate out of soybeans for a while, but in the areas where there was adequate moisture there may be a few more acres," says Clezy.

"The feedback from some agronomists is that producers who thought soybean would be an easy crop to just throw in the ground and be successful at, didn't get the yields they expected, and they may step back a little bit. But the growers who understand how to be successful at growing



Soybean acreage tripled in Saskatchewan last year, jumping from approximately 240,000 acres in 2016 to an estimated 850,000 acres in 2017. Will Saskatchewan growers continue to expand their acreage this year?

soybeans may continue to stick with it."

Soybeans are a fairly low maintenance crop compared to some, but new growers need to understand that the crop does require some management.

"Soybeans require warmer soil, and need to be seeded to the recommended depth," says Clezy.

"One of the biggest factors is fertility. Soybeans require phosphorus, potassium and sulfur and that will impact yield. As well, nodulation is another key factor so choosing the right inoculant to get good

nodulation is crucial because soybeans are high users of nitrogen."

Pedigree soybean seed grower, Kevin Elmy, has been growing soybeans on his farm near Saltcoats, Sask., since 2001.

He admits there has been a bit of a learning curve for some growers.

When soybeans first began pushing into Western Canada, a lot of farmers thought that they had to blacken the soil for planting them, Elmy says.

But experience has shown that's not always the case.

"In wet years, black soil gives the best response, but during a drought situation, I know some growers who have had great success with minimum till but with high disturbance within the seeding zone," says Elmy.

"It's like strip tillage to let the residue stand in-between the rows to retain the moisture, but with soil blackened in the seed row so that area warms up faster. Soybeans need moisture during pod formation, and if you have that moisture, whether it's rain or stored water, you're going to be better off."

Choosing the right variety for local conditions is also important.

And the best place to find that information is from other, local soybean growers or agronomists.

"It's probably best to have more than one source," says Clezy.

"The best source is going to be those who had success in your area. What did they do

to make them successful, what maturity group were they growing, and how does that particular maturity group of that variety relate to other suppliers' maturity groups because they're not necessarily equivalent.

"Growers could go to their local seed guide and look at the variety trials and correlate those numbers to the different suppliers to gain more understanding of how they relate to each other."

The seed label can say a variety is early maturing, but there are a few basic things growers need to know about the type of variety, not just its maturity.

"Is the variety heat sensitive or day length sensitive?" says Elmy.

"All varieties are day light sensitive from the standpoint of flowering but for maturing on the back end, if that variety is seeded in Moose Jaw and Nipawin at the same date, how does it mature?"

"If it's a heat loving variety that needs

2,500 heat units to mature, it might work in Moose Jaw, but it won't work in Nipawin because you'll never get 2,500 heat units," he continued.

"On the other hand, the light loving varieties, with the longer days as you move them further north, they may mature at the same time."

Clezy sees potential for soybeans in Saskatchewan.

"From the feedback we are getting, growers are looking for soybean varieties that fit their area that are going to give them the yields they're looking for to make them viable," says Clezy.

"I think those varieties are on the horizon, or maybe already here depending on where you are in the province."

"As with any crops, soybean yield is tied to how much moisture a region gets, how much fertility a region has, and how much growers are willing to invest in learning."

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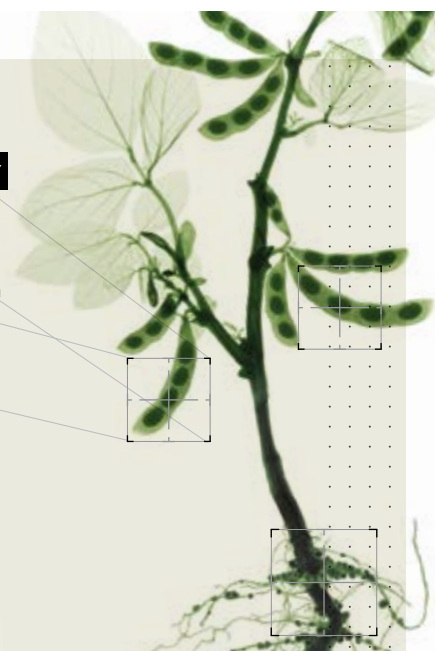
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## BOW, CONNECT SHOW GOOD MALT POTENTIAL

### SPECIAL TO SASKSEED

A pair of up-and-coming barley varieties — AAC Connect and CDC Bow — are the latest malt barley varieties to earn a spot on the Canadian Malting Barley Technical Centre's exclusive list of recommended malting barley varieties.

Earning a spot on the CMTC list is not easy.

Barley varieties on the list must offer malting and brewing characteristics that meet the expectations of the most demanding brewers and maltsters.

Perhaps more importantly, they must offer solid performance in the field, competitive yields and must be grown on enough land each year to ensure stable and dependable supplies to end-users.

AAC Connect was developed in the fall of 2004 at the Agriculture and Agri-Food Canada's Brandon Research and Development Centre in Brandon, Manitoba.

The breeder of record was Bill Legge.

Connect offers good resistance to lodging and good malting quality.

It is rated resistant to moderately resistant (R-MR) to covered smut and false loose smut; moderately resistant (MR) to spot blotch, net blotch spot-form, stem rust and fusarium head blight; moderately resistant to moderately susceptible (MR-MS) to net blotch net-form; moderately susceptible (MS) to common root rot; and susceptible (S) to septoria speckled leaf blotch, scald, true loose smut and barley yellow dwarf virus.

The variety was evaluated in the Western Cooperative



New malting barley varieties are slowly gaining traction among maltsters, brewers and Western Canadian barley growers. AAC Connect and CDC Bow are among the new varieties that are likely to command increasing commercial acreage in the next few years.

Two-Row Barley Registration Test and Collaborative Malting Barley Trial.

Initial breeder seed was produced in 2014.

Comparative tests and trials

for 'AAC Connect' were conducted during the 2015 and 2016 growing seasons in Brandon, Manitoba.

The kernels of AAC Connect are longer than those of AC

Metcalf and wider than Newdale's.

CDC Bow was developed by barley breeder Aaron Beattie

continued on page 32 >>

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AAC Redberry	NEW!	CWRS	★★★★	✓	★★★★	★★★★		★★★★
AAC Prevail VB	NEW!	CWRS	★★★★		★★★★	★★★★	✓	★★★★
SY479 VB	NEW!	CWRS	★★★★		★★★★	★★★★	✓	★★★★
CDC Precision	NEW!	CWAD	★★★★		★★★★	★★★★		★★★★

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continued from page 30 >>

at the University of Saskatchewan's Crop Development Centre in Saskatoon.

Including awns, the plants of CDC Bow are shorter than the plants of reference varieties AC Metcalfe and CDC Copeland.

The variety offers good resistance to lodging and shattering, good tolerance to straw breakage, fair to good tolerance to drought and good malting quality.

It is rated susceptible (S) to true loose smut.

CDC Bow was selected from an F5 hill plot in Saskatoon in 2007. From 2008 to 2010, test-

ing was done in the Crop Development Centre yield trials, followed by further testing in the Western Cooperative Two-Row Barley Registration Trials during 2011-2012.

CDC Bow, previously known by its experimental designation TR11127, was selected for its good agronomic performance and physical grain quality.

Bow's mean plant height in 2014 trials was listed at 83 cm, compared to 91.1 cm for CDC Copeland and 89.9 cm for AC Metcalfe.

Mean plant height in 2015 trials was 83.4, compared to 87.1 for Copeland and 86.4 for Metcalfe.

SASKATCHEWAN'S TOP 10 MALT BARLEY VARIETIES

VARIETY	2017 ACRES	2016 ACRES	2016 RANK	DISTRIBUTER
CDC Copeland	436,896	462,446	2nd	SeCan
AC Metcalfe	442,188	515,744	1st	SeCan
Legacy	54,398	66,325	3rd	Proven / FP Genetics
AAC Synergy	53,067	52,774	4th	Syngenta
Newdale	16,391	20,809	5th	FP Genetics
CDC PolarStar	8,274	19,055	7th	Canterra
CDC Platinum Star	7,478	n/a	n/a	Canterra
Bentley	6,372	8,471	8th	Canterra
CDC Meredith	4,660	20,627	6th	SeCan
Celebration	3,893	4,654	10th	Canterra
CDC Kindersley	2,593	6,017	9th	SeCan



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## CROP RESEARCH PARTNERSHIP MAPS TWO WILD LENTIL GENOMES



Crop scientists Kirstin Bett and Bert Vandenberg examine lentil plants at the University of Saskatchewan's Crop Development Centre (CDC). Bett and Vandenberg led a project that resulted in the genomic sequencing of two wild lentil cultivars, an accomplishment that will give lentil breeders access to new genetic resources that could have a positive influence on yield and agronomic performance. | PHOTO BY DEREK WRIGHT / UNIVERSITY OF SASKATCHEWAN

### SPECIAL TO SASKSEED

Pulse researchers in Saskatoon and Israel have joined forces to successfully sequence two wild lentil genomes — the largest legume genomes ever assembled.

The research partnership involved crop scientists at the University of Saskatchewan in Saskatoon and plant researchers at Israel's globally recognized genomics company, NRGene.

The breakthrough will clear the way for leading-edge work that is expected to result in the creation of new lentil varieties with improved agronomic and end-use characteristics and higher yield potential.

Lentil research and plant breeding ef-

forts at the U of S have helped to position Canada as one of the world's leading exporters of lentils.

Each year, millions of tonnes of lentils produced in Canada are delivered to processors and end-users in India, Pakistan, and Bangladesh where this vegetable-based protein serves as a critical food source.

The collaborative genome sequencing work was part of a \$7.9-million project funded by Genome Canada.

The project, entitled "Application of Genomics to Innovation in the Lentil Economy," was led by U of S scientists Kirstin Bett and Bert Vandenberg.

With the help of NRGene's genomic as-

sembly and analysis technology, the research is expected to empower future breeding efforts aimed at enhancing lentil yield and quality.

"NRGene's technology has dramatically accelerated our research, which aims to shed light on lentil domestication and adaptation," said Bett.

"Through identifying beneficial traits from wild relatives and integrating them into the genome of the domesticated lentil, we can now develop lentil varieties with much improved vigor, resilience and productivity," she said.

"Maintaining sustainable lentil production will play an important role in addressing the world's need for an ecologi-

cally sound protein source that is also highly nutritious."

Bett's research group at the U of S played a lead role in the international lentil genome sequencing initiative that resulted in the release of a so-called reference genome (a complete genome sequence) for a Canadian-cultivated lentil variety.

Now, with additional genomic information from the wild species, the researchers have a much broader view of genes and pathways that enable lentils to thrive in volatile climatic conditions.

To date, breeders have only been able to access a small fraction of the total germplasm diversity in existence, which hinders Canadian producers' ability to meet growing global demand, Bett said.

With its focus on wild lentil genomes, the project is aimed at introducing genetic diversity with great precision and speeding up the breeding cycle to provide breeders with faster access to better lentil varieties.

The University of Saskatchewan's Crop Development Centre (CDC) has so far developed 400 commercial crop varieties and is working with Israel's NRGene to sequence several of the world's major crops.

A huge step forward in crop genomic research was the release in 2017 of the wild Emmer wheat genome sequence, a sequence that was also generated using NRGene technology and involving U of S scientists.

Emmer wheat is the wild form of all the domesticated wheat in the world. The work was published in the scientific jour-

*Maintaining sustainable lentil production will play an important role in addressing the world's need for an ecologically sound protein source that is also highly nutritious.*

KIRSTIN BETT | CROP DEVELOPMENT CENTRE

nal Science in July of 2017.

Knowledge gained from this innovative research is expected to have an immediate effect on the world food supply since the scientists at the CDC are directly applying genomics to breeding of superior varieties grown on millions of acres.

NRGene data provides the underlying understanding that can lead to breeding seeds for higher yields with fewer resources.

"Our partners at the University of Saskatchewan are aggressively pursuing the quest to identify essential traits that strengthen the genetics of the crops that feed the world," said NRGene's chief executive officer Gil Ronen.

"We look forward to our continued partnership to disrupt the cycle of world hunger by offering hardier, more nutritious plants."

NRGene is a genomic data company that develops cutting-edge software and algo-

rithms to reveal the complexity and diversity of humans, plants and animals for supporting the most advanced medical research and sophisticated breeding programs.

NRGene tools have already been employed by some of the leading seed companies worldwide as well as the most influential research teams in academia.

The Crop Development Centre at the University of Saskatchewan is a field crop research organization that seeks to improve economic returns for farmers and the agriculture industry by improving existing crops, creating new uses for traditional crops, and developing new crop varieties.

Researchers from the Global Institute for Food Security (GIFS), also based at the University of Saskatchewan, also contributed to the research efforts.



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# SWEEPING CHANGES PROPOSED FOR PEDIGREED SEED SYSTEM

## SPECIAL TO SASKSEED

The Canadian Seed Growers Association (CSGA) and other seed industry stakeholders are proposing what amounts to a complete overhaul of Canada's pedigreed seed system.

In mid-November, the CSGA published a document outlining the elements of a proposed new industry-led seed system that encourages innovation and investment, simplifies regulatory requirements for new seed products, creates new value for the seed sector and promotes the use of certified seed.

The document, entitled the *Green Paper on The Next Generation Seed System*, was the first phase of an industry-led seed system review known as the Seed Synergy Collaboration Project.

### Among other things, the Green Paper suggests:

- a more streamlined regulatory system that promotes investment in varietal and seed trait development;
- a centralized seed sale listing system that facilitates seed sales and allows for better protection of intellectual properties;
- new measures that ensure the quality and purity of pedigreed seed produced in Canada;
- steps aimed at promoting the sale and use of pedigreed seed and discouraging the undocumented or unregulated use of common seed;
- a new framework for testing, registering and recommending new lines for registration, and;
- a greater level of co-operation and coordination between various seed industry groups, possibly culminating in a new governance structure that covers all aspects of the Canadian pedigreed seed industry.

Details of the Seed Synergy Project and the Green Paper can be viewed on-line at <http://seedgrowers.ca/wp-content/uploads/Synergy-Green-Paper-5.3.pdf>.

"CSGA has been working over the past

Members of the Seed Synergy planning groups say Canada's seed system needs major changes in order to take full advantage of new technologies and create more value for the Canadian agriculture sector. Proposed seed system changes are outlined in a new paper released by the Canadian Seed Growers Association.



year with its partners at the Canadian Seed Trade Association, the Canadian Seed Institute, the Commercial Seed Analysts Association of Canada, the Canadian Plant Technology Agency and CropLife Canada on the Seed Synergy Collaboration Project," the CSGA states on its website.

"The goal of the Seed Synergy Collaboration is to develop and articulate a broadly supported vision for the next generation seed system.

"It is hoped that this vision can serve as a starting point for industry and government to begin to work together to enact real change, in order to build an industry-led, government-enabled seed system that drives innovation and growth throughout the value chain, and which has direct benefits for seed professionals."

In a recent interview with SaskSeed, CSGA executive director Glyn Chancey said the green paper is the result of a process that began more than two years ago.

The next step in the process is to share details of the proposed new framework with provincial seed organizations, CSGA members and other industry stakeholders.

Once a thorough consultation has taken place, CSGA and other proponents will prepare another paper that articulates the vision in greater detail.

That paper is expected to be complete by April of 2018.

"This document (the Seed Synergy Green Paper) will, we hope, be the first step toward building a seed system that works better for you in the future," the CSGA stated.

"Now we need to hear what you think.

We invite you to read the Green Paper and the Executive Summary. We will be convening Seed Synergy discussions at (upcoming meetings) ... to gather feedback. In addition, we plan to hold regional workshops this winter to provide more opportunity for discussion and comment, as well as to provide a simple online forum for any additional feedback."

Pedigreed seed growers and other

stakeholders who would like to share their views on the paper are encouraged send their comments to [seed-talk@seedgrowers.ca](mailto:seed-talk@seedgrowers.ca).

Chancey said the timelines for implementing changes have yet to be determined.

It also remains to be seen which specific elements of the plan, will be implemented.

The Green Paper describes Canada's current seed system as one that is fragmented, inefficient and in need of change.

### Among other things, the Green paper suggests:

- that Canada's regulatory approval process for new varieties and novel seed traits is unpredictable and presents unnecessary obstacles to innovation and investment;
- that existing mechanisms aimed at protecting intellectual property and facilitating variety registration are difficult to navigate and that administration is unnecessarily complex;
- that Canada's seed system does not adequately promote the use of certified seed and would benefit from measures that discourage the use of common seed as new high-performing varieties replace older ones;
- that governance structures within the seed industry are fragmented and that resources are spread too thinly among too many organizations, and;
- that systems and measures aimed at ensuring varietal purity in the pedigreed seed system are outdated and do not account for new technologies that are available to seed growers.

"The ideas and proposals featured (in the Green Paper) are focused on the Seed Sector but their benefits extend to the entire agriculture sector and beyond," the paper states.

"The seed sector needs to change in order to deliver greater value and benefit to its customers."



## SEED SYNERGY OFFERS WISH LIST FOR NEW SEED SYSTEM

### SPECIAL TO SASKSEED

An executive summary of the *Seed Synergy Green Paper* says Canada's existing seed system is organizationally fragmented, limits innovation, is difficult to navigate, costly to administer, and does not generate enough value to sustain innovation that fuels the sector "Major change is needed, and it is needed now," the executive summary states.

"If industry stakeholders delay and fail to reach a workable program for immediate reform, we risk allowing the system to collapse, and foregoing our opportunity to plot a course for the future."

So, what types of reforms are required?

To answer this question, the Green Paper has identified key goals that it believes will strengthen the Canadian seed system.

### Key goals:

- A tiered, risk-based system for safety evaluation and approval of new plants with novel traits (PNTs) that ensures that Canada retains and improves its standing as a world class regulator in this field and improves its attractiveness to plant technology investment.
- A unified industry-managed and government-enabled integrated product registry providing comprehensive product profiles for the majority of commercial seed, capturing required varietal identity, intellectual property, regulatory, and market information - to replace the current government-run variety registration system and industry-run variety eligibility for certification registry.
- A unified industry-managed and government-enabled seed certification function that consolidates activities currently spread across multiple government and private sector bodies, re-
- moves duplication and overlap and provides single window information services for faster introduction of new products to market and facilitation of increasingly sophisticated and important electronic commerce.
- A more efficient and adaptive seed certification model that recognizes the diversity of the seed industry, the broad spectrum of crop types and associated production challenges, the wide range of business models and production systems and the impact of rapidly evolving seed production and cleaning technologies and the need to rapidly adjust rules and procedures to align with other jurisdictions, capture market opportunities and reduce cost pressures.
- A seed quality/standards system where the majority of sold seed is situated on a progressive spectrum of varietal identity and purity standards — from the most basic to the most stringent — for the full range of markets and intermediate and end users, and where common seed use becomes a key performance indicator of commercial producer lack of support for and lost returns to the seed system.
- A new value creation model which recognizes the disproportionate costs of product development borne by pedigreed seed developers and producers relative to common and other seed sellers and beneficiaries. This model would increase certified seed use and related revenue flows, and channel additional revenues generated by royalties, check-offs or matching government funding to the principal risk takers and innovators that contribute to trait and varietal development and their market success.
- Maintenance of Canada's strong genetic identification and traceability advantage, underpinned by an integrated product registry and seed certification function that facilitates both rapid introduction, and where necessary, removal, of new varieties.
- Enhanced capacity and support for the introduction of new crop types into the certified seed mainstream to maintain and expand Canada's position as a world leader in this area.
- Enhanced capacity and support for industry and government efforts to manage phytosanitary and low-level presence (LLP) related export market challenges.
- Enhanced capacity and support for international standard setting, building and facilitating international partnerships and cooperation, for international business development and for building Canada's international standing as a centre of excellence in plant breeding, seed production and seed system design and development.
- More cost-effective governance of the seed system overall, to sustain these reforms, to better coordinate priorities across the seed and agricultural sectors, and among government, industry, and academia to enable responsiveness to crop value chain needs, as well as broader societal considerations.
- A process to study the merits of an anchoring organization that would perform many of the functions proposed in the Seed Synergy Green Paper. This could take the form of a single organization or a formal network of organizations that are committed to working together.

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# CERTIFIED SEED: IT'S ALL ABOUT QUALITY ASSURANCE

## SPECIAL TO SASKSEED

What is the Canadian Seed Growers' Association and what does it do?

For many farmers in Canada, the answers to those two questions are clear.

But to others, familiarity with the CSGA is limited.

Perhaps they've heard of the association. But they may not fully understand the organization's critically important role in supporting the production of high quality pedigreed seed across the country.

The CSGA represents 4,500 seed growers across Canada.

It's key role is to provide standards for crop certification, according to Canada's Seeds Act and Regulations.

When farmers buy certified seed, they aren't just buying seed, they are buying an assurance of quality and purity.

It takes several generations for new pedigreed seed varieties to become available for commercial production.

The process begins with registered plant breeders at public and private research companies, where the breeder selects desirable traits for new variety development.

It typically takes several years for the plant breeder to assemble enough breeder seed to begin seed multiplication.

The seed is increased over a regulated number of years, depending on whether the crop is self-pollinated or open-pollinated.

Open-pollinated crops are available after fewer years to reduce cross-pollination with nearby off-type varieties.

Certified seed is the last generation, and is available to farmers for commercial production.

All classes are strictly regulated to ensure seed purity is maintained, until it reaches commercial growers.

Seed purity is critically important to the pedigreed seed industry and is maintained with the help of a quality assurance system that is administered and upheld by CSGA, in collaboration with the Canadian Food Inspection Agency and other groups.

Seed purity refers to sample quality with respect to weed seeds, inert material



(gravel, chaff, fungal bodies, etc.) and number of off-type seeds, as defined by the Canada Food Inspection Agency (CFIA).

Varietal purity of 99 percent must be maintained to be classified as pedigreed seed.

To comply with this stringent quality requirement, there are three stages of pedigreed seed crop production that a successful certified grower must follow.

The first stage is crop production.

During production of pedigreed seed, the land used by pedigreed seed growers must be free from off-type varieties and similar crop varieties.

As well, pre-determined isolation distances must be maintained.

Minimum isolation distances vary from crop to crop and are in place to reduce the chances of varietal contamination through cross-pollination or other means.

The pedigreed seed crop must be free of prohibited noxious weeds, as outlined in the Weed Seeds Order of the Seeds Act.

The crop must also be free of disease and must be inspected by a licensed seed crop inspector (LSCI) before harvest begins.

If the crop passes inspection the grower will be issued a crop certificate from CSGA.

To ensure varietal purity and eliminate potential contaminants, seed growers of-

ten spend much of their time roguing pedigreed seed crops.

This usually involves walking through the crop, row by row, and manually removing contaminants and off-types by hand.

The second stage in the process is seed storage.

Pedigreed seed growers must carefully harvest, handle, condition, and store the grain to ensure that seed purity and quality is maintained.

Equipment and storage facilities must be thoroughly cleaned, and seed from each field should be stored separately to avoid commingling.

The third stage is grading and inspection.

Grading involves germination testing and overall evaluation of seed lot quality, and an assessment of the number of weed seeds and off-type varieties in the harvested seed.

Producers who buy certified seed for planting on their commercial grain farms often ask whether the certified seed they are buying contains seed-borne diseases.

The only diseases specified in The Seeds Act are true loose smut in barley and the presence of ergot or sclerotial bodies.

Common seed-borne diseases such as ascochyta in pulses, anthracnose in lentils, fusarium in cereals, and blackleg in canola are not regulated by the Act, and thus it is buyer-beware for these diseases.

Farmers who buy certified seed are therefore encouraged to ask the seed grower whether a seed disease analysis was conducted by a commercial seed testing laboratory.

If a seed disease analysis was conducted, seed buyers can request a copy of the lab report.

Disease free seed is always recommended for planting.

The presence of weed seeds is another area of potential concern for pedigreed seed growers and seed buyers.

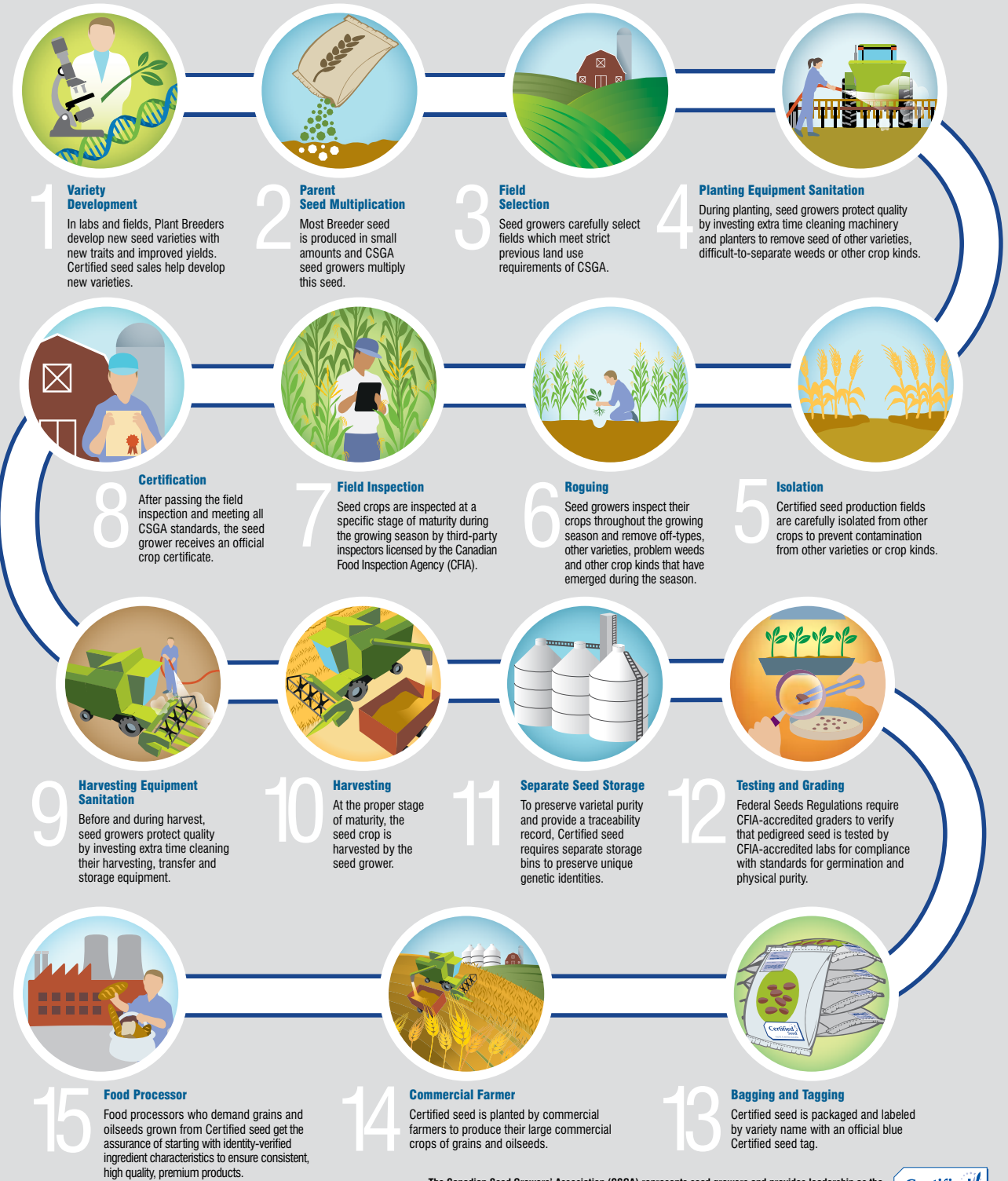
Certified seed is not guaranteed to be free of weed seeds although reputable seed growers will make every effort to ensure the seed they are selling is clean and

continued on page 42 >>



# How is Certified Seed Produced?

www.seedgrowers.ca



The Canadian Seed Growers' Association (CSGA) represents seed growers and provides leadership as the organization that certifies the pedigreed seed crop of all agricultural crops in Canada except potatoes.





continued from page 40 >>

free of impurities.

Upon request, seed dealers must provide buyers with a certificate of analysis outlining the species and number of weed seeds present.

At the Breeder, Select and Foundation levels of pedigreed production, there is almost zero tolerance for any weed seed content.

Tolerance levels are slightly higher in the Registered and Certified classes. There are also varying tolerances for the presence of different crop types.

Large seeded crops such as corn, beans and cereals typically have lower tolerances than small seeded crops such as forages, turfgrass or vegetables.

For all crop types, there is zero tolerance for the presence of prohibited noxious weed seeds as outlined in Weed Seeds Order, regardless of the seed's class or pedigree.

In some cases, there may be confusion about noxious weeds that are covered by

the Seeds Act (Canada) and noxious weeds that are covered under the Noxious Weeds Act (Saskatchewan).

The weeds covered under these two acts are not the same.

The Seeds Act is administered federally and is intended to reflect the needs of the entire country, whereas the Noxious Weeds Act applies to Saskatchewan only.

While many weeds are named as noxious in both Acts, there are some weeds that are found in one Act and not the other.

When buying certified seed, be sure to request a certificate of analysis from suppliers of certified seed to check for noxious weeds that are important to Saskatchewan under the category of other weeds, so that new noxious weeds are not being introduced to land that is clean and free of noxious weed species.

Growers who buy certified seed should always look for the recognizable blue tag when buying certified seed.

The blue tag is an assurance of quality

and purity.

When a pedigreed seed crop has successfully passed crop inspection, a CSGA crop certificate is issued, and the resultant certified seed is labeled with an official blue certified tag.

When a producer buys certified seed, it should have an official blue tag, pedigreed documentation (provided from the seller), and a copy of the mechanical purity. Germination analysis should also be provided.

The widespread usage of genetically modified (GM) crops in Canada has caused some export markets to implement a zero tolerance policy for GM seed.

However, it is difficult to maintain varietal purity in open pollinated crops like canola.

The current varietal purity standard for certified canola seed is 99.75 per cent.

This means that in a seeding rate of 100 plants per square metre, one GM canola plant may be found.

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## How is Certified Seed Produced?



- Variety Development**  
In laboratories and fields, Plant Breeders work diligently for many years to develop new seed varieties with improved genetics. For farmers, this means improved yields due to better lodging resistance, drought tolerance or insect and disease resistance. For food processors, this relates to innovative characteristics. A portion of the Certified seed sales is reinvested in research to develop new and innovative seed varieties.
- Parent Seed Multiplication**  
Breeder seed is usually produced in small amounts, so CSGA seed growers multiply the seed. Accredited CSGA plot growers choose a seed variety to produce in their elite parent seed plots. They reproduce this small amount of seed in accordance with rigorous production certification standards that ensure varietal purity and freedom from impurities. Their Select or Foundation class seed provides the parent seed for other seed growers to produce Registered and Certified class seed crops.  
Breeder & Select Plots > Foundation & Registered Seed > Certified Seed > Commercial Grains & Oilseeds  
The investment in additional production time means Certified seed growers are committed to producing a proven, quality product.
- Field Selection**  
Seed growers carefully select the field in which to produce their crop. Seed growers are required to follow stringent CSGA regulations for previous land use to prevent contamination from other varieties and difficult-to-separate weeds or other crop kinds in their Certified seed crops.
- Planting Equipment Sanitation**  
During planting, seed growers protect quality by investing extra time cleaning machinery to ensure no seed of other varieties, difficult-to-separate weeds or other crop kinds are mixed with the seed. When growers change varieties, the entire planter is cleaned to remove all seed of the previous variety.
- Isolation**  
Certified seed production fields are carefully isolated from other crops to prevent contamination from other varieties or difficult-to-separate other crop kinds. Seed crop kinds with different types of pollination risks have different isolation requirements. The isolation distance required by CSGA also varies depending on the crop kind in the neighboring field.
- Roguing**  
To preserve the purity of Certified seed crops, seed growers inspect their crops throughout the growing season and remove other varieties, off-types, weeds and other crop kinds that have emerged during the season.
- Field Inspection**  
Seed crops are inspected at a specific stage of maturity during the growing season by third-party inspectors licensed by the Canadian Food Inspection Agency (CFIA). Inspectors verify isolation distances, previous land use history and parent seed identity. They also complete representative counts throughout the seed field to report impurities such as off-types and other varieties and difficult-to-separate weeds and other crop kinds.
- Certification**  
After crop inspection, the inspection report is appraised by the Canadian Seed Growers' Association (CSGA). The CSGA assures the crop has been produced in compliance with its standards. After passing field inspection and meeting CSGA standards, the seed grower receives the official crop certificate that is required for CFIA-Registered Seed Establishments to label seed with official blue Certified tags.
- Harvesting Equipment Sanitation**  
Before and during harvest, seed growers protect quality by investing extra time cleaning their harvesting equipment. This prevents common seed, weed or other crop seeds getting mixed with the Certified seed at harvest. When seed growers change fields to harvest a different variety, the entire combine is cleaned to remove all seed of the previous variety harvested.
- Harvesting**  
At the proper stage of maturity, the Certified seed crop is harvested by the seed grower.
- Separate Seed Storage**  
To preserve varietal purity and provide a traceability record from where the seed was grown all the way to the consumer's table, Certified seed is the first link of an identity preserved (IP) system chain which requires a separate storage bin and records for each variety to preserve its unique genetic identity.
- Testing and Grading**  
Federal Seeds Regulations require pedigreed seed sold in Canada to be tested for compliance with official grade standards for germination and physical purity by CFIA-accredited labs and graders and labeled by CFIA-registered seed establishments. The federal standards for germination and physical purity of Certified seed are much higher than common grade seed, which assures a higher quality product. Federal Seeds Regulations prohibit common grade seed from being sold by variety name. Common grade seed is from a crop which has not been certified by the CSGA.
- Bagging and Tagging**  
After receiving the official CSGA crop certificate and a certificate of analysis from a CFIA-accredited lab, which verifies compliance with seed germination and physical purity standards in federal Seeds Regulations, Certified seed is packaged and labeled by variety name with an official blue Certified seed tag by a CFIA-registered seed establishment. Only then is the seed designated as Certified seed; only then can agricultural field crop seed be sold by variety name.
- Commercial Farmer**  
Certified seed is sold to commercial farmers to plant their large commercial crops of grain and oilseeds. Commercial farmers are choosing Certified seed of a specific variety to get the latest innovation, increased yields, improved disease and lodging resistance. Many commercial farmers work closely with food processors to deliver specific varieties of grains and oilseeds under an identity preservation programs.
- Food Processor**  
Food processors who demand grains and oilseeds grown from Certified seed get the assurance of starting with identity-verified ingredient characteristics to ensure consistent, high quality, premium products. They also get documented traceability of their food products right back to the field where the Certified seed was produced. Certified seed is the foundation of quality foods and a promise they can market specific varietal characteristics to today's health conscious and food savvy consumers. Ask for grains and oilseeds grown from Certified seed from your grain handler, miller, crusher, ingredient supplier or food manufacturer.





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# SEVEN THINGS PRAIRIE SEED LABS WANT GROWERS TO KNOW

BY SHIRLEY BYERS  
FREELANCE WRITER

As seed samples come into the seed labs for quality analysis, lab technicians often begin to see patterns and quality trends emerging.

In early November, SaskSeed spoke with Trevor Nysetvold, president and chief executive officer at BioVision, Jason Danielson, business manager at Discovery Seed Labs and Morgan Webb, owner and president at SeedCheck Technologies Inc.

Here's what those three seed quality professionals are seeing in their labs based on early submissions.

## Quality and germination are higher than last year

Nysetvold said he's seeing an increase in average germination. Cereal germs are up three or four percent compared to last year, pea germs are up two and a half percent, and lentil germs are up by five or six percent.

"We also saw quite a jump in the quality of durum," he added.

"But that's more to do with how bad it was last year than how good it was this year."

## Less disease but disease is still a factor

"Surprisingly because of how dry a fall we had, we are still seeing the presence of disease," said Danielson.

"It was nowhere near what it was last year but it was still present on seed. A lot of the fusariums are present, and there was some disease on pulses, but for the most part, oats seem to be higher than we



Seed samples submitted to accredited seed labs have generally shown good germination and seed quality. Disease is less prevalent than it was in 2016, thanks mainly to a drier growing season and favourable harvest conditions.

would expect. Overall, disease is still present on a lot of the samples, just nowhere near the dire year we had last year."

Some areas that were drier than normal in August and September saw less disease, said Webb.

But there are still reports of some fusarium and some root rot.

"Other areas that had moisture at harvest time are having some disease problems in the germ as well as some dormancy issues caused by the moisture," said Webb, whose lab is based in Leduc, Alta.

There was an upsurge in requests for soil tests to detect clubroot, added Danielson.

And some of those tests were positive. Positive test results came from the southeast corner of Saskatchewan, near the Manitoba border and the central to northeast part of the

province.

"We do know it (clubroot) is being found and it appears to be spreading," said Nysetvold.

A field in northwestern Saskatchewan was found to be heavily infested with clubroot spores.

"Producers need to know that some seed labs have the ability to test for clubroot and aphanomyces."

## Germination and vigour numbers vary

Normally, anything with a 10 percent gap between the germination number and the vigour number is considered normal.

"This year for whatever reason we're seeing numbers outside that 10 percent," said Danielson.

"We're seeing numbers lower in vigour beyond that 10 percent gap we're used to."

Danielson said he's not sure if the difference is the result of a dry harvest or mechanical damage or other factors.

He recommends that growers re-test their seed in the spring to see if germ and vigour numbers remained stable over the winter or if they declined even further.

## Mechanical issues were possibly triggered by hot, dry weather

Some mechanical damage was noted in samples from the 2017 harvest, mostly in pulses.

These issues may have been triggered by dry harvest conditions, said Nysetvold.

"That doesn't heal so it probably won't get any better and will possibly get worse," he said.

Heat damage caused by grain dryers may have occurred in samples taken from

areas that received more moisture during harvest. Excessive heat during the drying process can impact seed germination and vigour.

## Purity might be an issue

Varietal purity is always a top concern.

Pedigreed seed is inspected for varietal purity during the growing season.

Common seed samples are more prone to contamination.

"This year we're seeing a lot of samples guys are bringing in because of possible contamination either on their own yard or somewhere they bought the seed from. Barley is a big one..." said Danielson.

Some seed labs offer tests to determine purity, starting at around \$80.

*"Producers need to know that some seed labs have the ability to test for clubroot and aphanomyces"*

TREVOR NYSETVOLD | BIOVISION

## Check those 1,000 seed weights

Excessively dry weather may have resulted in lighter seed weights in some areas, said Webb.

"Some areas that were drier may have lighter seed weight

but their germinations are tending to be on the good side in areas that had a dry harvest."

Along, dry period during late summer can result in less than plump seeds.

While this can be a problem, yield-wise, it doesn't necessarily

mean the seed is poor.

Growers are encouraged to use the 1,000 seed weight calculations for to determine optimal seeding rates. Lighter seeds go a lot further.

## Testing is critically important

For all of the above reasons, growers should always have their seed tested.

"Don't take quality for granted," said Nysetvold.

"Check it in the fall and again in the spring. Always use pedigreed seed, clean your seed, have your seed tested.

"It has an impact on the potential of a good crop or a not-so-good crop. It's one of the variables we can take out of the equation."



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# Plant Breeders' Rights Fast Facts

## Understanding the changes and your obligations

As of **February 27, 2015**, all new PBR-protected varieties will be protected under the new legislation that conforms to the UPOV 1991 convention, bringing Canada in line with the rest of the world, and opening opportunities for increased investment to make new varieties available to Canadian farmers. It brings opportunity, but it also brings new obligations for the value chain.

		
Are all varieties protected under the same <i>Plant Breeders' Rights (PBR) Act</i> ?	As of February 27, 2015, all new varieties submitted for PBR are protected under the new legislation. These varieties carry the PBR 91 symbol.	All varieties granted protection under the PBR prior to February 27, 2015 continue under the original <i>Act</i> . These varieties carry the original PBR symbol.
<b>Breeders' rights</b>		
What are <b>breeders'</b> rights?	Breeders' rights are now expanded under the new <i>PBR Act</i> . Authorization from the breeder is required to produce, reproduce, sell, clean/condition, stock, import or export seed of PBR-protected varieties.	Authorization from the breeder is required to sell, or produce for sale, seed of PBR-protected varieties.
Can <b>breeders</b> be compensated on harvested grain?	Yes, if seed was obtained and used illegally or without the authorization of the breeder, the breeder can choose to seek compensation, including for lost royalty revenue; lost markets; and for court costs; on delivered grain produced from that seed.	No



# Plant Breeders' Rights Fast Facts



## Farmers' privilege

Can <b>farmers</b> save seed?	Yes, the "Farmers' Privilege" is entrenched in the legislation. It allows farmers to produce PBR 91-protected varieties for use as seed on their farms.	It is not spelled out in the legislation, but it is not prohibited.
Can <b>farmers</b> clean grain from PBR-protected varieties for use as seed on their farm?	Yes	Yes
Can <b>farmers</b> sell or advertise for sale seed they have produced from grain of PBR-protected varieties?	No	No
Can <b>farmers</b> exchange seed they have produced from grain of PBR-protected varieties?	No	No

## Seed conditioners' and Grain buyers' responsibilities

Can <b>seed conditioners</b> clean seed of a PBR-protected variety for purposes of propagation?	Yes, if the seed was obtained legally (i.e. certified seed was purchased) and if farm-saved seed will only be used on the farmer's own land.	Yes
Do <b>seed conditioners</b> have certain responsibilities when cleaning farm-saved seed of a PBR-protected variety?	Yes, expanded breeders' rights mean that cleaners may be liable for breaches of the breeder's right. They should take precautions to ensure the seed they are cleaning was obtained legally, and that farm-saved seed that they clean will only be used on the farm of the farmer who has brought it in for cleaning.	No
Do <b>grain buyers</b> have certain responsibilities when handling PBR-protected varieties?	Yes, the harvested material provisions mean that grain buyers may be liable for breaches of the breeder's right. They should be aware of the varieties that are protected under the new legislation and be satisfied that the seed used to produce that grain was legally obtained.	No

Want to learn more about Plant Breeders' Rights? Visit [pbrfacts.ca](http://pbrfacts.ca)



## DNA-BASED TEST ALLOWS FOR RAPID FUSARIUM DETECTION

BY REBECCA GOTTO  
SASKATCHEWAN RESEARCH  
COUNCIL

The Saskatchewan Research Council has developed a new DNA-based test that will identify and quantify fusarium species that are present in plant tissue samples and seeds.

The test will mean significantly shorter turn-around times for farmers, seed growers and grain industry stakeholders who need to know if a fusarium species is present in a sample and to what extent it is present.

Currently, many of the existing diagnostic laboratory tests for fusarium require samples to be tested on selective growth media for spore identification, a process that can take up to seven days to produce results.

The SRC's DNA-based testing platform can produce same-day results using different types of plant tissue.

The test has the potential to assist growers with seed selection decisions and proper timing of fungicide applications.

It also has the potential to address quality assurance concerns in the commercial grain industry.

Fusarium is a widespread problem and it is spreading across the Canadian prairie provinces.

Both the incidence and severity of fusarium infection has been increasing in recent years, leading to heightened concerns about the disease's financial and health-related impacts.

Fusarium is a fungus found most commonly on plant debris and soil.

It has the potential to cause a variety of toxic effects to both humans and livestock.

For grain producers, the eco-



nomic impact of the disease can be significant, as fusarium has the potential to reduce both yield and grain quality.

Fusarium concerns are well known to wheat and barley producers, especially in areas where changing weather patterns and more intensive farming practices have created increased potential for FHB infection.

According to the Canadian Plant Disease Survey, in 2015 alone, FHB affected 34 percent of the spring wheat grown in Saskatchewan and more than 77 percent of spring wheat in Manitoba.

A report from Alberta in 2010 estimated that losses related to FHB range from \$50 million to \$300 million dollars annually.

Plant breeders across Canada have been working hard to identify new sources of fusarium resistance and to develop varieties with improved fusarium ratings.

However, identification, detection and monitoring of the

continued on page 52 >>



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fusarium species complex are also important tools that can help growers to make informed planting decisions and enhance quality assurance efforts in domestic and export markets.

Before the SRC developed its new DNA-based testing platform, the industry lacked a sensitive, rapid, high-throughput DNA-based test capable of detecting and monitoring the fusarium species complex in infected tissues.

The industry also lacked a DNA test that has the ability to unequivocally distinguish among the fusarium species and the chemotypes (strains producing different types of toxins) that are prevalent in western Canada.

Identification and detection of fusarium in pedigreed or

common seeds will provide a greater assurance of the phytosanitary status of seeds before they are planted.

Identification and quantification of fusarium in seed will also influence decisions related to the processing of grain for food or animal feed markets.

DNA-based monitoring for fusarium under field conditions will also help with disease forecasting and prediction.

Although high fusarium inoculum in field stubble does not necessarily translate into increased disease, the potential for outbreak can be predicted and monitored.

The SRC project was led by Pooba Ganeshan, senior scientist at the Saskatchewan Research Council, along with collaboration from Ravi Chibbar, professor & Canada research chair at the University of Saskatchewan's Depart-

ment of Plant Sciences, Randy Kutcher, professor, at the U of S Department of Plant Sciences, and Myriam Fernandez, research scientist at Agriculture and Agri-Food Canada in Swift Current, Sask.

Funding for the project was provided by Saskatchewan Agriculture's ADF Funding, the Canada-Saskatchewan Growing Forward 2 bi-lateral agreement, and the Western Grains Research Foundation.

SRC began investigating the commercial applicability of sensitive DNA-based assays in an effort to provide industry with rapid detection of fusarium.

DNA sequencing of the genome of several fusarium species enabled the identification of single nucleotide polymorphisms (SNPs) for detection of *F. avenaceum*, *F. culmorum* and *F. graminearum* and the

chemotypes producing 3-acetyl-deoxynivalenol, 15-acetyl deoxynivalenol and nivale-nol.

Quantification methods were subsequently developed allowing scientists to determine the level of infection for each of the species and chemotypes.

The technology developed provides an understanding of not only the type of fusarium producing toxin present in plant tissue or soil, but also the level to which the sample is contaminated based on DNA quantification of the respective fusarium species.

While we cannot yet prevent FHB spread, the SRC's new testing platform, combined with the use of clean seed and good agronomic practices has the potential to enhance production and mitigate losses caused by FHB.



In the past, lab tests used to detect fusarium required spores to be grown on specialized growth media, a process that can take several days to produce results. The SRC's new DNA based system can produce results the same day.



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# ASSESSING YOUR FINANCIAL RISK: HOW MUCH DEBT IS TOO MUCH DEBT?

## SPECIAL TO SASKSEED

Canada's farmers carried a record debt-load into 2017 and they'll probably do the same in 2018.

According to Statistics Canada, total farm borrowings surpassed \$98 billion in 2017, up more than seven percent from the previous year.

Canada's farmers are getting bigger and more productive. They're expanding their landholdings, investing in new machinery and employing new technologies.

But they're also paying more each year to service their growing debt loads.

So how vulnerable are Canada's heavily indebted farmers?

That depends on who you ask.

J.P. Gervais, chief economist at Farm Credit Canada, suggests that Canada's farmers and the agriculture industry in general are in very good financial shape.

"The balance sheet of (Canadian) producers is very strong," said Gervais.

"Most producers in our portfolio are absolutely healthy ... (and) it's comforting to know that farmland values are high."

"But we need to start thinking about income being the primary driver of debt repayment," he said.

As Canada's largest farm lender, FCC has seen significant growth in the size of its lending portfolio over the last few years.

More than 80 percent of FCC's \$30 billion portfolio involves loans to primary producers.

Canadian farm debt levels grew by 7.3 percent in 2016, he said.

And they're are projected to grow by another six percent in 2017.



Canada's farmers are servicing a record debt load. According to Statistics Canada, accumulated farm debt surpassed \$98 billion in 2017. The rising value of farm assets has resulted in more borrowing, but can farm incomes keep pace?

Rising farmland values have driven much of the lending.

While the majority of Canadian farmers are still in good financial health, there are reasons to pay close attention to the farm sector's debt-carrying capacity.

Gervais said there are signs of a fundamental shift in the economic environment.

For example, the value of Canadian farm cash receipts has grown by an average of \$2 billion per year over the past decade.

That's a \$20 billion increase in total farm sales between 2005 and 2015.

But it's unlikely that that pace of growth will continue.

"Now, I think it's more realistic to expect income growth to start slowing down," Gervais said.

"I'm still expecting farm incomes to grow, but at a slower rate... and we're not seeing farm debt levels slow as much (as farm incomes)."

Despite a positive outlook for the Canadian farm sector in general, Gervais said the industry needs to shift its mindset.

Over the past decade, commodity pricing was the key driver of farm income growth.

Going forward, volume of production will be more important.

"There was a bit of a shift, I would say, in 2016 and 2017, in terms of where income growth was coming from," he said.

"For 10 years, pricing was the big driver in income growth. Now it's volume. We're going to grow our income because we're going to grow our yields."

"Obviously, from year to year we may very well run into some issues — like (drought conditions last year), for example in south Saskatchewan.

"The good news is that if indeed this is a shift in the environment... the good news is that we're starting from a position of strength."

Errol Anderson, market analyst and president at ProMarket Communications in Calgary, offered a different view.

In a recent interview with SaskSeed, Anderson called farm and consumer debt loads insidious, suggesting they have grown to unsustainable levels that will "haunt" global markets.

North American lenders have continued to extend credit in an environment characterized

by record low interest rates, Anderson explained.

For western Canadian farmers, the process has been facilitated by rapidly appreciating land values that borrowers are using as security.

Historically high debt loads mean that borrowers are more vulnerable than ever to income fluctuations, market swings, unfavourable trade policies, political instability and, perhaps most notably, unsustainable value in U.S. equity markets.

"The farm debt situation, which is a record ... is going to be a burden," Anderson said.

"All I can suggest is that when (commodity) rallies occur, hit them.

"You're going to have to be really sharp with your pencils. If you're a farmer and you can make money on a product, lock it in. Don't assume the market owes you anything."

Anderson's assessment of the North American economy is not a positive one.

He suggested that strength in equity markets is largely built on borrowed capital and is supported by low lending rates.

But he also warned that consumer debt levels are maxed out.

Efforts by central banks to gradually increase lending rates have already met with resistance in the form of reduced consumer spending.

Suggestions that the U.S. federal reserve will hike lending rates two or three times in 2018 will be proven false as the U.S. economy slows and equity markets weaken, he said.

The good news, if there's any, is that interest rates and inflation will remain low.

"All we've been hearing from central banks lately is how they're going to hike interest rates. Well good luck with that," Anderson said.

"The U.S. federal reserve is talking about three rate hikes in 2018, but it's not going to happen.

"This is all tied to debt so from the interest rate side, I have no fears of rates going up."

The worst case scenario is that a correction in U.S. equity markets — which Anderson considers imminent — will affect all parts of the economy, including commodity markets and farmland resale values.

"The day the U.S. equity bubble breaks, everything breaks," he said.

continued on page 56 >>

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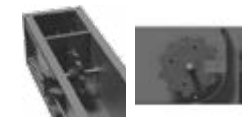
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continued from page 55 >>

"In time, the whole debt thing is going to take on a life of its own. It (the correction in equity values) is going to force people to reduce their debt loads."

Of course, borrowing money is an essential component to growth.

Done properly, it allows entrepreneurs to take advantage of opportunities and build wealth.

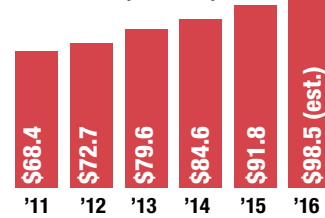
As it is in any industry, access to capital is critically important to ensuring continued strength in Canada's agriculture sector.

But how much debt is too much?

And how much is prudent in the context of lower commodity prices, a stronger Canadian currency, declining exports

CANADIAN FARM DEBT

2011-2016 (\$billions):



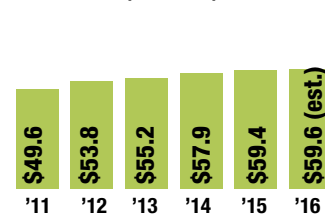
and trade distorting policies that limit access to key markets.

India's announcement in mid-November of a 50 percent duty on imports of green and yellow field peas is a case in point.

According to some Canadian market analysts, the Indian duty is expected to boost Canadian carry-outs of yellow

FARM CASH RECEIPTS

2011-2016 (\$billions):



and green field peas to one million tonnes, up from previous projections of 350,000 tonnes.

Not long after the Indian announcement, street prices for yellow peas dropped by more than \$2 per bushel.

Fears of similar duties on lentils and chickpeas have the Canadian pulse industry on high alert while growers look

for ways to replace lost income.

The future of the North American Free Trade Agreement is another example of how policies in other countries can have a dramatic or unknown impact on Canadian commerce.

The strength of the Canadian dollar is yet another wildcard.

In 2017, the House of Commons' Standing Committee of Agriculture and Agri-Food took notice of the farm debt issue and launched a study aimed at assessing debt levels.

In its report entitled *Debt in the Agricultural Sector and Its Effects*, the committee summarized presentations from more than two dozen witnesses and concluded that despite record farm debt levels in Canada, the country's agriculture sector is in relatively good shape.

Debt aside, Canadian farms, it seems, are doing quite well.

At the same time, the report warned that certain risk factors, including higher interest rates, could leave many farms in jeopardy.

"Despite a favourable agricultural outlook, witnesses said it was important to remain vigilant and that the agricultural sector faces many production and market risks," the House of Commons report stated.

"Even a small increase in interest rates could jeopardize many farms, especially start-up farms that have higher debt ratios than well-established ones."

"Rising rates have a significant impact on cash flow," it continued.

"The impact will depend on

*Even a small increase in interest rates could jeopardize many farms, especially start-up farms that have higher debt ratios than well-established ones.*

HOUSE OF COMMONS REPORT

how high they go and how quickly they climb."


The parliamentary report also touched on the need to strengthen farm support pro-

grams, promote business and debt management skills among Canadian farmers, and provide additional support to the next generation of Canadian farmers by mitigating the financial and tax consequences related to transferring farm assets or starting up new farm operations.

Ironically, witnesses that appeared before the parliamentary committee suggested that cash advances through the Advance Payment Program (APP) should be increased to reflect increasing farm sizes and rising operating costs.

"Witnesses believe that the current limits on advance payments should be increased and indexed to inflation to better meet production conditions," the report stated.

"New farmers should have access to greater interest-free advance limits to help them address the operating constraints of a start-up."



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## RESEARCH COULD LEAD TO IMPROVED DROUGHT TOLERANCE

### SPECIAL TO SASKSEED

Plant researchers in Canada are inching their way toward what might be considered the Holy Grail of drought tolerance in agricultural crops.

Julian Northey, an adjunct professor at the University of Ontario Institute of Technology, and Marcus Samuel, an associate professor of plant biology at the University of Calgary, are part of a team that's studying a natural physiological process linked to improved drought tolerance.

Precursory study suggests that the process, if deployed in new drought tolerant crop cultivars, could have the potential to boost yields by as much as 30 percent under moderate to severe drought conditions.

"When a plant is under stress, this phytohormone known as abscisic acid or ABA, is the main hormone (that confers drought tolerance)," said Northey.

"Basically, when a plant becomes more sensitive to this phytohormone, then it becomes more drought resistant."

"We haven't done a complete physiological overview ... to understand all of the mechanisms that are responding ... but (ABA) is the major one."

Northey, a molecular geneticist who studied at the University of Toronto, dedicated his doctoral research to understanding ABA and its relationship to drought tolerance in plants.

Using arabidopsis as a test species, he determined that drought tolerance is influenced through an interaction of two plant hormones — abscisic acid or ABA and brassinosteroids.

Researchers have determined that there is an inverse relationship between ABA and brassinosteroids.

If brassinosteroid levels in the plant are



Lack of moisture is among the greatest yield limiting factors facing farmers in Western Canada. The development of new drought tolerant plants would be a major step forward in reducing drought related yield losses and ensuring yield stability.

elevated, then abscisic acid or ABA levels are reduced, meaning the plant is less tolerant to abiotic stress caused by drought or excessive heat.

Similarly, if brassinosteroid levels are reduced, then abscisic acid responses are generally observed at higher levels, giving plants more tolerance to drought and stress conditions.

Northey and Samuel are now using various techniques or platforms to either suppress brassinosteroid production or hypersensitize plants to the presence of ABA.

Northey recently formed a biotechnology company called Frontier Agri-Science Inc., to develop and commercialize technologies associated with the management ABA levels or ABA hypersensitivity.

He is focusing on using non-GM platforms — namely mutagenesis and traditional plant selection — to identify experimental cultivars that contain a natural genetic hypersensitivity to ABA.

Experimental mutagenic cultivars of milling wheat were field tested in the United States in 2017.

Ideally, selections from those trials could result in the registration of new drought tolerant bread wheat lines within a few years.

Northey's use of mutagenic selections is intentional.

A non-GM application such as mutagenesis would be less expensive to commercialize and more readily accepted by consumers that are concerned about genetically modified organisms (GMOs).

At the University of Calgary, Samuel said ABA research could greatly increase agricultural productivity in areas that are prone to drought-related yield loss.

Samuel's group is focusing on developing drought-tolerant canola lines that could tolerate severe drought conditions for a longer period of time, without significantly impacting plant performance.

"This could lead to a generation of crop plants that are drought-tolerant, particularly in Canada," Samuel said recently.

"Our findings can be translated into a technology for canola, and possibly wheat, to make these crops more drought-tolerant. Under water-stressed condi-

*"Drought is a major problem (in areas)... where most canola depends on rainfall rather than irrigation."*

MARCUS SAMUEL | UNIVERSITY OF CALGARY

tions, crop yield could be improved by at least 20 per cent."

Samuel's research in canola hinges on a process known as protein farnesylation.

Essentially, a lipid or fatty acid modification of a specific enzyme or protein mole-

cule, called CYP85A2, is required for brassinosteroid production.

The loss of either the specific enzyme, or the lipid modification of the enzyme, can reduce brassinolide hormone accumulation and clear the way for improved ABA-

induced responses.

The trick is to reduce brassinosteroid levels without significantly impacting plant growth.

"We figured out the mechanism behind this molecular pathway and how this operates, and how this can be translated into canola," Samuel said.

"Drought is a major problem (in areas)... where most canola depends on rainfall rather than irrigation."

Canola, which produces oil for human consumption and meal for livestock feed, is Canada's most valuable crop, worth about \$20 billion annually.

Samuel's research is funded by the Natural Sciences and Engineering Research Council of Canada.

The work is also supported by Alberta Crop Industry Development Fund Ltd.

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Hollywood film director James Cameron is among the prairie pulse industry's newest investors. Cameron and his wife are part of an investment group that spearheaded construction of a new pea fractionation facility near Vanscoy, Sask. At full capacity, the plant will process 160,000 tonnes of peas per year.

# PULSE PROCESSING CAPACITY CONTINUES TO GROW

## SPECIAL TO SASKSEED

Prairie pea producers are on the verge of seeing a massive new market materialize in their own backyard.

If all the proposed pea fractionation and ethanol plants are built over the next couple of years, it will create 750,000 tonnes of new demand for the crop.

Carl Potts, executive director of Saskatchewan Pulse Growers, said that would be the third biggest market for the crop behind India and China.

India bought 1.33 million tonnes of peas in 2016, while China bought one million tonnes. The next biggest customer was Bangladesh at 290,878 tonnes.

Pulse ingredient processing facilities are suddenly all the rage on the Canadian Prairies.

In September, Academy Award winning film director James Cameron unveiled his Verdient Foods Inc. fractionation plant in Vanscoy, Sask. The plant is already operating and will process 160,000 tonnes of yellow peas once at full capacity.

That is the latest in a growing list of projects that is reminiscent of the start of the canola crushing renaissance.

Roquette, a French plant-based ingredient maker, is building the world's largest pea protein factory in Portage la Prairie, Man. The \$400 million facility will use up to 250,000 tonnes of peas a

year starting in 2019.

A German company called Canadian Protein Innovation plans to build a \$75 million pea fractionation plant in Moose Jaw, Sask., which will process 100,000 tonnes of peas a year into starch, protein and fibre.

W.A. Grain and Pulse Solutions is building a \$15 million addition to its processing plant in Bowden, Alta., which will have a flour mill, dry and wet fractionation lines and eventually a pet food ingredients plant. The first phase is expected to be operational next year. The plant will consume 100,000 tonnes of peas and lentils once at full capacity.

Prairie Green Renewable Energy intends to build a \$325 million ethanol plant

in Clavet, Sask., which will use feed barley and feed peas to produce 196 million litres of the fuel annually. The plant would use 136,000 tonnes of peas a year starting in 2020.

The proposed plants, if all built, would create a new domestic market for 746,000 tonnes of pulses a year, with the vast majority of that being yellow peas.

"It's very significant," said Potts. He said the proposed plants would go a long way toward meeting Pulse Canada's goal of creating new demand for 25 percent of annual pulse production by 2025.

The domestic demand is materializing at a time when Canada is facing stiff competition from the Black Sea region, where pulse production is rising.

Potts said the demand is coming from food companies that are eager to incorporate

plant-based protein into products to create healthier and more sustainable food.

It is no longer a matter of having to convince them about the health and environmental benefits of using pulses.

"They say, 'we're there. How do we get them into our products and what's the available supply?'"

Potts said all of the proposed plants may not come to fruition but others are likely in the pipeline, and that's a good thing.

"That will be helpful in furthering market development because companies may be more interested in making the switch and inclusion if they know there are multiple suppliers," he said.

Adding 750,000 tonnes of domestic demand could help stabilize pea markets because it would be more consistent and less price sensitive than what exists in ex-

port markets, said Potts.

As well, it eliminates the logistical risk factor of getting product to the West Coast for export.

He thinks the food ingredient plants could be paying a premium for peas because they are being used to create a high-value product, and if that's the case it could result in a surge in pea acres.

Most of the proposed projects will use yellow peas as the raw material primarily because they are the cheapest pulse, but Potts believes fababeans will be another popular ingredient once farmers grow enough acres because they produce more protein per acre than peas.

*This story was written by Sean Pratt. It originally appeared in The Western Producer.*



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## DIGITAL TECHNOLOGY THE NEXT FRONTIER IN FARMING

### SPECIAL TO SASKSEED

When folk music icon Bob Dylan professed to the world a few decades ago that 'the times they are a changing,' he wasn't singing about Canadian agriculture.

But there's little doubt that today's farms are not the farms that our parents and grandparents knew.

Today's modern farms are cutting edge, digitally connected and increasingly dependent on new technologies.

Optimal productivity is a new key word on today's farms.

And data-based precision agriculture platforms have emerged as a critically important tool in the Brave New World of agricultural production.

"Precision ag today is different that what it was even 10 years ago," said Wade Barnes, president and chief executive officer of Farmers Edge.

"Ten years ago ... it was focused around GPS technology, driving the tractor straight, gathering data. But I think today, precision agriculture has really morphed into what I would call decision agriculture or digital ag."

"It's about taking all of this data and information that we've been logging and putting it to use finally, to actually help a farmer make a decision that impacts his bottom line."

Precision agriculture is still a relatively new industry but it's evolving quickly.

The market for digital products — from variable rate mapping systems to cloud-based data analytics — is attracting a lot of attention from product developers, big and small.

In late 2017, Farms.com, a web-based ag information provider, hosted its first-ever Western Canadian Precision Agriculture Conference in Saskatoon.

The event attracted hundreds of precision ag disciplines and showcased the products of dozens of digital agriculture companies, from local start-ups to global powerhouses such as Monsanto and Microsoft.

Canadian farmers now have access to a wide-range of services and technologies that collect and analyze field data and ap-



Farmers have been collecting field data for decades but advancements in digital data collection technologies and applications are presenting new opportunities. The key, say observers, is to determine which technologies have the greatest potential to improve farm profitability and provide the greatest return on investments. | PHOTO COURTESY OF JOHN DEERE

ply it in products that help farmers make informed management decisions.

However, with so many new products coming on the market, the task of assessing their relevance and applicability can be a daunting one.

Monsanto's acquisition of Climate Corp., a few years ago was a milestone event for the industry, Barnes added.

Since then, many new entrants have been crowding into the space, hoping to secure market share in an industry that has huge growth potential in Canada and around the world.

As the market matures, there will be mergers, consolidations and new innovators, Barnes added.

But ultimately, it will be the users —

farmers, agronomists and grassroots decision makers with boots in the field — that determine which companies prosper and which ones falter.

"The space has changed very quickly with Monsanto acquiring Climate Corp., (which came) with this a huge billion dollar number so what you saw after that was this real drive toward innovation ... with a lot of tech companies jumping into agriculture," Barnes said.

"I don't think farmers are overwhelmed by (digital ag)," he continued.

"To be honest, I think they've been waiting for it ..."

"They're saying 'Look, I'm in the business

continued on page 64 >>

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continued from page 62 >>

of farming. I want this tool to tell me what to do and when to do it and I want to be able to trust that it's accurate."

Data integration will be critically important as the market matures, he added.

"You might have five companies offering five different services and each one of them might be very important on its own. But the farmer has to be the one that sort of marshals it all together and he may not have time for that (type of management).

"I think... the companies that can be fully integrated... are the ones that are going to be successful," he continued.

"There's not many like that in the industry right now and... it will take deep pockets so I think what you might see is that movement toward consolidation... where the bigger companies with deeper pock-

ets are the ones that are going to be able to build those fully integrated platforms."

Joe Dales, the founder and senior vice-president of Farms.com, said western Canada's farmers are no strangers to using digital technologies.

However, adoption and utilization is still in the early stages.

"There's a lot of new technology hitting the market today so I think it's just a really dynamic time for technology in the agricultural marketplace," said Dales, whose company organized the Saskatoon event.

"It can be a bit intimidating and confusing for farmers so we just wanted to get everybody together so we could talk about what's out there..."

Dales said the adoption of digital technologies on the farm has advanced significantly since Farms.com hosted its first Precision Agriculture Conference five years ago.

He said farmers in western Canada are eager to embrace technologies that can increase yields and boost profitability.

However, farmers and product developers have yet to understand the full potential of the technologies that are currently available, let alone those that are yet to come.

"Today, we have access to data and tools and technologies that we've never had before, so I think there's some tremendous potential, especially in Western Canada," Dales said.

"We've got great scale, we've got wonderful farmers, we've got productive soil and I think we all know we can get more productivity out of our operations. It's just a question of how."

"The analogy that I like to use is that it feels like we're in the fourth inning of a nine inning ball game. We've started to (recognize the potential of this)... but there's still a long way to go."

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# 2018

**canola**  
PERFORMANCE TRIALS

**INFORMED  
SEEDING  
DECISIONS**



# TOOLS TO HELP YOU MAKE BETTER CHOICES

Canola Performance Trials (CPT) include both small plot and large field scale trials. Results are based on 10 small plot trials and 46 field scale trials across the Prairies, including 26 standard trials, 12 straight cut trials and eight clubroot-resistant variety trials and is based on provincial seeded acres. The small plot system ensures that:

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

Field scale comparisons add extra perspective for assessing consistency in variety performance. Comparisons are based on harvested strips of 0.5 to 1.5 acres each. Field scale data is not necessarily replicated in all cases, but the data has been audited to make sure it complies with CPT protocols.

Audits of field scale projects give growers the confidence that the protocol was conducted in a scientifically sound manner and that comparisons are appropriate. Qualified professionals with extensive background in conducting field scale research trials perform the audits.

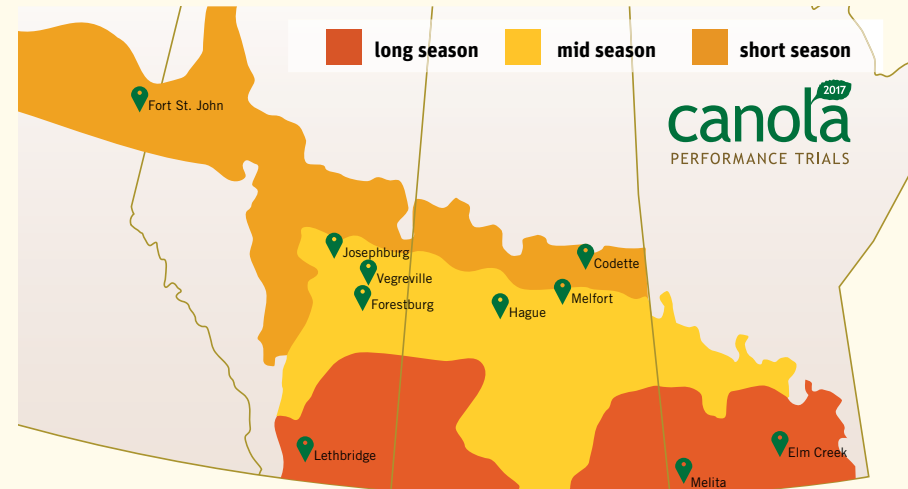
CV – For coefficient of variation (CV), the lower the CV value, the more reliable the test. For

example, if comparing results from two test locations, one with a CV of 4% and the other with a CV of 8%, the test with the CV of 4% can be considered more reliable. There is always variability in research trials. The key is designing and managing experiments so CVs stay within a reasonable range. For the CPT, experience has shown that CVs below 15% indicate good test reliability.

LSD – The least significant difference (LSD at a 5% level of statistical significance) for each dataset indicates whether differences between varieties are statistically meaningful. Varieties should only be considered different in yield performance if the numerical difference

between them is greater than the LSD value. Using the sample table below, if the LSD is 5.0, varieties A and B are not statistically different, B and C are not statistically different, but A and C are statistically different. In the yield graphs for each season zone, LSD for each variety group is given on the left.

Variety	Yield (bu./ac.)
A	52
B	54
C	58
LSD	5.0



## USING THE TABLES

Results are organized by short, medium and long season zones. CPT uses the Western Canada Canola/Rapeseed Recommending Committee (WCC/RRC) season zones, which are based on typical frost free days, growing degree days and soil type. Grey wooded soils, for example, are in the short season zone. See Table A for specific numbers for each zone.

Small plot and field scale data are presented separately in the following tables. For more detailed performance results, growing conditions and production details for specific trial sites, use the online CPT database at canolaperformancetrials.ca.

The tables include yield, days to maturity, height and lodging scores for each variety. Lodging scores are between 1 and 5, with 1 being no lodging and 5 being completely lodged.

Gross revenue is based on yield multiplied by \$11.45/bu. This is based on \$503.60 per tonne, the March 2018 futures close on September 29, 2017 and a 50-pound bushel weight. Premiums are included in the calculations for specialty market varieties.

In the tables, varieties are listed numerically and alphabetically, starting with Clearfield (CL) varieties, followed by Liberty Link (LL) and Roundup Ready (RR).

Each zone and small plot location is identified on the map. Use the map to identify your growing season zone and trial locations closest to your farm.

To evaluate yield potential, look at all small plot and field scale locations in your growing season zone and the average yield for your zone. Consider other information such as maturity, lodging resistance and cost.

Season	Frost Free Days	Growing Degree Days (Base 5°C)*
Short	75–95	1,100–1,450
Medium	95–115	1,450–1,700
Long	115+	1,700+

\*On a base 5°C scale, growing degree days only accumulate on days when highs are above 5°C.

## Canola performance trials 2017 results: average results by season zone (small plot data)

Variety	Long Season Zone (2 trials)					Mid Season Zone (9 trials)					Short Season Zone (2 trials)					Short Season Zone (2 trials)					Disease Tolerance <sup>3</sup>	Distributor
	Yield (bu./acre)	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (inches)	Yield (bu./acre)	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (inches)	Yield (bu./acre)	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (inches)	Yield (bu./acre)	Yield (% 5440)	Maturity (days)	Lodging (1-5)	Height (inches)		
<b>Clearfield</b>																						
5545 CL	58	89	97.3	1.3	49.7	65	96	97.2	1.7	42.4	64	106	98.8	1.0	52.2	63	96	98	1.5	46.6	BL	BrettYoung
CS2200 CL	58	90	98.1	1.1	50.6	59	89	99.8	1.6	42.2	58	96	100.8	1.0	49.5	59	90	100	1.4	46.2	BL	Canterra Seeds
PV 200 CL	60	92	97.6	1.2	50.4	62	93	98.4	1.7	43.3	58	97	98.6	1.0	51.1	61	94	98	1.4	47.0	BL	Proven Seed/CPS
46H75	61	94	99.9	1.2	50.8	65	96	99.8	1.6	42.8	58	96	98.6	1.0	49.6	62	96	100	1.4	46.6	BL	DuPont Pioneer
LSD	9	14				9	13				7	12			9	13						
<b>Liberty Link</b>																						
5440	66	100	96.5	1.0	50.0	67	100	96.3	1.3	43.5	60	100	100.3	1.0	50.0	65	100	97	1.2	46.7	BL	Bayer Cropscience
L252	70	106	98.1	1.1	47.8	70	105	95.9	1.4	43.2	62	104	102.0	1.0	49.8	68	105	98	1.3	45.9	BL	Bayer Cropscience
L241C	64	97	95.9	1.0	48.2	65	97	95.8	1.3	42.0	60	100	97.9	1.0	48.5	64	98	96	1.2	45.1	BL/CR	Bayer Cropscience
LSD	5	8				9	14				5	8			7	11						
<b>Roundup Ready</b>																						
6074 RR	62	95	96.0	1.0	50.6	67	99	99.8	1.7	40.1	63	104	101.0	1.0	45.5	64	99	99	1.4	44.3	BL/S	BrettYoung
6076 RR	61	94	98.0	1.0	53.1	63	95	97.9	1.5	44.0	60	99	99.3	1.0	51.3	62	95	98	1.3	48.2	BL/CR/S	BrettYoung
6080 RR	58	89	97.4	1.1	48.5	61	91	96.6	1.5	38.3	57	93	99.1	1.0	48.4	59	91	97	1.3	43.4	BL	BrettYoung
CS2000	60	92	96.1	1.0	51.0	63	94	97.6	1.7	41.4	59	98	98.5	1.0	51.5	61	94	97	1.4	46.3	BL/CR	Canterra Seeds
CS2100	58	90	97.3	1.8	47.4	64	97	96.9	1.8	40.0	59	99	98.3	1.0	46.9	62	95	97	1.6	43.6	BL	Canterra Seeds
V12-11	63	96	96.6	1.5	48.6	63	95	96.1	1.6	40.9	57	93	98.9	1.0	46.5	62	95	97	1.4	44.4	BL	Cargill – Victory Hybrid Canola
PV 540 G	65	99	97.0	1.1	48.8	62	94	96.4	1.6	39.7	59	97	97.0	1.0	47.9	62	96	97	1.3	44.1	BL	Proven Seed/CPS
PV 581 GC	60	93	97.1	1.3	52.9	64	97	99.0	1.5	43.2	58	95	101.5	1.0	52.1	62	95	99	1.3	47.9	BL	Proven Seed/CPS
74-44 BL	58	89	96.5	1.0	45.9	58	87	94.9	1.7	38.8	60	99	97.5	1.0	45.7	58	90	96	1.4	42.3	BL	DeKalb
CS2300	65	100	97.5	1.3	53.9	69	103	98.2	1.5	42.4	60	100	100.5	1.0	50.9	66	101	99	1.3	47.5	BL	Canterra Seeds
6090 RR3	62	95	95.5	1.3	53.9	68	101	99.1	1.5	45.1	60	100	99.4	1.0	52.1	64	99	98	1.4	49.2	BL/CR	BrettYoung
DL1634 RR	60	92	98.6	1.0	54.7	64	96	99.9	1.5	43.4	61	101	101.5	1.0	51.3	62	96	100	1.3	48.4	BL/CR	DI Seeds
45H33	64	97	96.1	1.4	54.7	67	100	94.8	1.7	42.0	60	99	97.0	1.0	50.7	64	99	96	1.5	47.6	BL/CR	DuPont Pioneer
45M35	66	100	96.5	1.5	48.3	69	103	96.9	1.5	40.9	62	104	98.3	1.0	50.8	67	102	97	1.4	45.1	BL	DuPont Pioneer
4187 RR4	62	95	96.3	1.1	53.1	65	97	98.7	1.4	42.9	59	98	102.1	1.0	49.5	63	97	99	1.3	47.3	BL/CR	BrettYoung
LSD	7	11				7	10				4	7			6	10						

(1) Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details. (2) Indicates varieties that have been supported for registration. (3) Indicates genetic resistance with an "R" or resistant rating to specific disease affecting canola, BL = Blackleg, CR = Clubroot.



\* NOTE: Only two sites from the short season zone qualified for the 2017 CPT small plot dataset, which is not sufficient to reliably represent variety performance. Therefore summary data for the short season zone is not included in a graph, but is included in the table on page 21. Please refer to the searchable database at [canolaperformancetrials.ca](http://canolaperformancetrials.ca) for more short season zone data and to generate multi-year short season zone graphs.



## LONG SEASON ZONE | Small plot results by location

Variety	ELM CREEK, MB						MELITA, MB						LETHBRIDGE, AB						Distributor
	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	
<b>Clearfield</b>																			
5545 CL	52	71	\$601		1.7	45.0	58	102	\$665	101.8	1.0	52.0	63	95	\$719	92.8		52.2	BrettYoung
CS2200 CL	47	63	\$533		1.3	47.4	62	108	\$706	102.8	1.0	50.8	65	99	\$750	93.5		53.6	Canterra Seeds
PV 200 CL	62	84	\$708		1.3	49.3	54	95	\$618	101.0	1.0	52.5	66	99	\$752	94.3		49.4	Proven Seed/CPS
46H75	61	82	\$693		1.3	46.9	54	94	\$614	102.8	1.0	51.9	70	106	\$800	97.0		53.7	DuPont Pioneer
LSD	11						11					6							
<b>Liberty Link</b>																			
5440	74	100	\$846		1.1	49.7	57	100	\$653	100.3	1.0	51.6	66	100	\$758	92.8		48.8	Bayer CropScience
L252	75	101	\$858		1.3	46.5	58	102	\$668	101.8	1.0	48.8	76	114	\$865	94.5		48.0	Bayer CropScience
L241C	68	91	\$774		1.0	46.4	58	101	\$658	100.0	1.0	48.2	66	100	\$755	91.8		50.0	Bayer CropScience
LSD	11						5					5							
<b>Roundup Ready</b>																			
6074 RR	64	86	\$729		1.0	47.5	59	104	\$678	101.0	1.0	50.5	63	95	\$724	91.0		53.6	BrettYoung
6076 RR	65	88	\$746		1.1	50.9	58	101	\$659	101.8	1.0	53.7	61	92	\$700	94.3		54.8	BrettYoung
6080 RR	62	84	\$707		1.3	46.9	55	97	\$632	100.8	1.0	49.0	58	87	\$661	94.0		49.5	BrettYoung
CS2000	64	87	\$733		1.0	48.7	62	108	\$707	100.5	1.0	52.5	53	80	\$605	91.8		51.7	Canterra Seeds
CS2100	58	78	\$660		2.5	44.5	59	103	\$671	101.8	1.0	49.7	59	89	\$676	92.8		48.1	Canterra Seeds
V12-1*	68	93	\$869		2.0	47.2	58	101	\$731	100.5	1.0	49.9	63	95	\$801	92.8		48.8	Cargill
PV 540 G	63	86	\$725		1.3	46.9	60	105	\$686	101.0	1.0	48.9	71	108	\$816	93.0		50.8	Proven Seed/CPS
PV 581 GC	65	87	\$740		1.6	52.8	58	102	\$665	101.8	1.0	53.3	59	89	\$672	92.5		52.7	Proven Seed/CPS
74-44 BL	55	74	\$626		1.0	44.3	58	102	\$668	100.8	1.0	49.4	61	92	\$697	92.3		43.9	DeKalb
CS2300	68	93	\$783		1.7	52.7	60	104	\$682	101.8	1.0	55.2	68	102	\$777	93.3		53.7	Canterra Seeds
6090 RR	62	84	\$708		1.5	54.1	55	96	\$624	100.8	1.0	55.6	70	106	\$800	90.3		52.0	BrettYoung
DL1634 RR	61	82	\$697		1.0	52.3	54	95	\$622	102.0	1.0	55.1	66	100	\$755	95.3		56.8	DI Seeds
45H33	69	93	\$789		1.8	50.1	58	101	\$661	100.0	1.0	52.4	65	98	\$740	92.3		61.8	DuPont Pioneer
45M35	71	96	\$815		1.9	46.4	59	104	\$681	100.0	1.0	51.4	66	100	\$756	93.0		47.0	DuPont Pioneer
4187 RR	62	84	\$707		1.3	50.1	58	102	\$665	101.0	1.0	55.1	67	101	\$767	91.5		54.0	BrettYoung
LSD	8						5					9							
<b>CV</b>	9.3						8.5					9.2							

\*Variety supported for registration by the Western Canadian Canola/Rapeseed Recommending Committee (WCC/RRC). \*\*Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details.

## MID SEASON ZONE | Small plot results by location

Variety	HAGUE, SK						MELFORT, SK						FORESTBURG, AB						Distributor
	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu./acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	
<b>Clearfield</b>																			
5545 CL	56	94	\$638	85.3	2.3	45.8	69	108	\$785	99.3		1.3	48.1	38	73	\$433	1.3	34.8	BrettYoung
CS2200 CL	51	87	\$584	90.5	2.0	45.1	62	98	\$709	98.8		1.3	59.8	43	83	\$493	1.2	26.2	Canterra Seeds
PV 200 CL	58	98	\$660	89.0	2.3	47.8	67	105	\$763	95.8		1.5	50.5	37	72	\$427	1.5	35.4	Proven Seed/CPS
46H75	57	97	\$655	88.5	1.8	46.3	63	99	\$722	101.5		1.3	49.3	41	80	\$474	1.3	35.2	DuPont Pioneer
LSD	7						5						8						
<b>Liberty Link</b>																			
5440	59	100	\$675	87.3	1.3	47.1	63	100	\$727	98.0		1.0	49.1	52	100	\$591	1.0	38.3	Bayer CropScience
L252	65	110	\$740	86.8	1.8	48.4	66	103	\$750	98.8		1.0	49.3	51	100	\$589	1.1	37.2	Bayer CropScience
L241C	55	94	\$632	86.3	1.3	46.8	67	106	\$771	100.3		1.0	47.5	46	89	\$525	1.0	36.8	Bayer CropScience
LSD	5						6						7						
<b>Roundup Ready</b>																			
6074 RR	57	97	\$657	88.8	2.3	42.6	61	97	\$702	102.3		2.0	46.4	45	87	\$517	1.0	33.2	BrettYoung
6076 RR	59	99	\$671	89.5	1.5	45.9	57	90	\$656	98.0		1.8	50.9	46	89	\$524	1.1	38.7	BrettYoung
6080 RR	56	96	\$647	87.8	1.8	41.8	57	90	\$651	97.5		1.3	46.6	44	86	\$507	1.5	24.0	BrettYoung
CS2000	59	100	\$677	88.5	2.0	46.3	60	95	\$693	95.8		1.8	49.6	45	88	\$518	1.4	27.8	Canterra Seeds
CS2100	61	103	\$694	88.5	2.0	41.5	60	94	\$686	97.3		2.0	45.1	46	89	\$525	1.6	33.7	Canterra Seeds
V12-1*	58	99	\$738	88.0	1.8	43.3	57	89	\$721	95.8		1.8	45.4	49	95	\$620	1.3	35.1	Cargill
PV 540 G	54	92	\$623	86.8	1.8	40.6	63	99	\$722	97.0		1.5	45.6	47	91	\$537	1.4	32.5	Proven Seed/CPS
PV 581 GC	58	98	\$660	90.0	1.5	45.1	59	94	\$680	98.0		1.8	49.8	51	99	\$585	1.1	36.3	Proven Seed/CPS
74-44 BL	51	86	\$584	90.0	1.8	40.1	62	98	\$709	95.5		2.0	45.0	43	82	\$488	1.6	32.7	DeKalb
CS2300	61	103	\$698	89.5	1.8	44.8	63	100	\$726	99.3		1.5	49.5	49	94	\$557	1.0	36.1	Canterra Seeds
6090 RR	60	103	\$693	90.0	1.8	48.5	59	93	\$677	98.3		1.3	52.6	48	93	\$551	1.5	37.4	BrettYoung
DL1634 RR	59	99	\$671	90.5	1.8	46.4	62	97	\$706	103.0		1.5	51.4	46	88	\$523	1.0	36.1	DI Seeds
45H33	63	107	\$720	86.3	1.8	44.8	62	98	\$711	96.0		1.8	47.7	47	91	\$535	1.8	36.1	DuPont Pioneer
45M35	62	104	\$704	90.0	1.5	44.9	63	100	\$725	97.3		1.3	46.7	51	98	\$579	1.5	34.5	DuPont Pioneer
4187 RR	62	105	\$712	90.3	1.8	46.7	59	93	\$675	100.3		1.3	48.6	45	88	\$520	1.0	37.3	BrettYoung
LSD	6						5						5						
<b>CV</b>	6.9						7.1						10.5						

\*Variety supported for registration by the Western Canadian Canola/Rapeseed Recommending Committee (WCC/RRC). \*\*Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details.



## MID SEASON ZONE | Small plot results by location

Variety	JOSEPHBURG, AB						VEGREVILLE, AB						Distributor
	Yield (bu/acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu/acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	
<b>Clearfield</b>													
5545 CL	79	100	\$908	104.5	2.0	43.1	83	105	\$954	99.8	1.6	40.3	BrettYoung
CS2200 CL	74	94	\$852	107.0	2.0	43.0	67	85	\$766	102.8	1.6	37.2	Canterra Seeds
PV 200 CL	78	98	\$893	105.0	2.0	43.6	71	90	\$811	104.0	1.5	39.2	Proven Seed/CPS
46H75	77	97	\$881	105.0	2.0	44.4	85	108	\$975	104.0	1.6	39.0	DuPont Pioneer
LSD	9						11						
<b>Liberty Link</b>													
5440	79	100	\$909	99.8	2.0	43.1	79	100	\$906	100.3	1.2	39.7	Bayer CropScience
L252	82	103	\$940	98.0	2.0	42.1	86	109	\$985	100.3	1.2	39.0	Bayer CropScience
L241C	80	100	\$910	97.3	2.0	39.4	77	97	\$882	99.3	1.2	39.3	Bayer CropScience
LSD	16						12						
<b>Roundup Ready</b>													
6074 RR	83	105	\$953	105.5	2.0	41.8	85	108	\$979	102.5	1.2	36.6	BrettYoung
6076 RR	79	100	\$906	102.5	2.0	44.8	75	95	\$863	101.5	1.2	39.5	BrettYoung
6080 RR	78	98	\$892	101.5	2.0	41.0	68	86	\$779	99.8	1.2	38.0	BrettYoung
CS2000	80	101	\$918	105.8	2.0	45.9	70	88	\$798	100.5	1.2	37.5	Canterra Seeds
CS2100	82	104	\$943	102.5	2.0	41.6	73	93	\$841	99.3	1.2	38.1	Canterra Seeds
V12-1*	77	97	\$974	101.0	2.0	42.3	76	97	\$970	99.8	1.2	38.5	Cargill
PV 540 G	76	96	\$876	101.5	2.0	40.6	71	89	\$810	100.5	1.2	39.2	Proven Seed/CPS
PV 581 GC	81	102	\$928	106.0	2.0	45.3	72	91	\$824	102.0	1.2	39.6	Proven Seed/CPS
74-44 BL	71	89	\$810	96.8	2.0	39.3	64	81	\$736	97.5	1.2	36.7	DeKalb
CS2300	85	107	\$971	102.0	2.0	43.3	86	108	\$981	102.0	1.2	38.2	Canterra Seeds
6090 RR	83	105	\$954	105.5	2.0	47.0	87	110	\$993	102.5	1.2	40.1	BrettYoung
DL1634 RR	73	92	\$839	104.3	2.0	43.0	80	102	\$921	102.0	1.2	39.9	DI Seeds
45H33	82	103	\$937	97.5	2.0	42.5	79	100	\$908	99.3	1.2	39.0	DuPont Pioneer
45M35	89	112	\$1,019	101.0	2.0	40.7	81	102	\$923	99.5	1.2	37.7	DuPont Pioneer
4187 RR	76	96	\$870	102.3	2.0	43.1	83	105	\$948	102.0	1.2	38.8	BrettYoung
LSD	8						10						
<b>CV</b>	8.1						10.3						

\*Variety supported for registration by the Western Canadian Canola/Rapeseed Recommending Committee (WCC/RRC). \*\*Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details.

## SHORT SEASON ZONE | Small plot results by location

Variety	CODETTE, SK						FORT ST. JOHN, BC						Distributor
	Yield (bu/acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	Yield (bu/acre)	Yield (% 5440)	Gross Revenue/ac.	Days to Maturity	Lodging	Height (in.)	
<b>Clearfield</b>													
5545 CL	78	104	\$898	97.0	1.0	52.9	49	107	\$560	100.5	1.0	51.6	BrettYoung
CS2200 CL	71	95	\$817	95.5	1.0	48.3	45	98	\$510	106.0	1.0	50.7	Canterra Seeds
PV 200 CL	72	96	\$825	94.0	1.0	53.0	45	98	\$510	103.3	1.0	49.2	Proven Seed/CPS
46H75	72	96	\$826	94.3	1.0	50.7	44	97	\$505	103.0	1.0	48.4	DuPont Pioneer
LSD	7						3						
<b>Liberty Link</b>													
5440	75	100	\$860	96.0	1.0	51.3	45	100	\$521	104.5	1.0	48.8	Bayer CropScience
L252	77	102	\$881	97.0	1.0	51.2	48	105	\$548	107.0	1.0	48.4	Bayer CropScience
L241C	72	95	\$820	94.0	1.0	50.2	48	105	\$549	101.8	1.0	46.9	Bayer CropScience
LSD	5						3						
<b>Roundup Ready</b>													
6074 RR	76	102	\$875	95.3	1.0	48.7	49	107	\$557	106.8	1.0	42.3	BrettYoung
6076 RR	77	102	\$878	95.8	1.0	52.1	44	96	\$502	102.8	1.0	50.4	BrettYoung
6080 RR	72	96	\$829	93.5	1.0	47.0	41	90	\$469	104.8	1.0	49.7	BrettYoung
CS2000	73	97	\$832	94.3	1.0	51.9	45	100	\$520	102.8	1.0	51.1	Canterra Seeds
CS2100	73	97	\$832	94.0	1.0	47.6	46	101	\$526	102.5	1.0	46.2	Canterra Seeds
V12-1*	74	98	\$936	96.3	1.0	49.3	40	87	\$503	101.5	1.0	43.8	Cargill
PV 540 G	75	100	\$857	93.5	1.0	46.4	43	95	\$493	100.5	1.0	49.4	Proven Seed/CPS
PV 581 GC	72	96	\$830	99.0	1.0	52.2	43	94	\$490	104.0	1.0	52.0	Proven Seed/CPS
74-44 BL	75	100	\$862	91.3	1.0	45.5	44	97	\$506	103.8	1.0	46.0	Dekalb
CS2300	73	97	\$838	98.8	1.0	51.6	47	103	\$534	102.3	1.0	50.2	Canterra Seeds
6090 RR	77	102	\$882	94.5	1.0	53.0	44	97	\$503	104.3	1.0	51.2	BrettYoung
DL1634 RR	77	102	\$881	100.0	1.0	50.9	45	100	\$521	103.0	1.0	51.7	DI Seeds
45H33	75	100	\$857	93.0	1.0	50.8	45	99	\$517	101.0	1.0	50.6	DuPont Pioneer
45M35	76	101	\$868	93.8	1.0	50.6	49	107	\$559	102.8	1.0	51.0	DuPont Pioneer
4187 RR	73	98	\$841	98.5	1.0	51.7	44	98	\$509	105.8	1.0	47.2	BrettYoung
LSD	4						4						
<b>CV</b>	4.5						7.5						

\*Variety supported for registration by the Western Canadian Canola/Rapeseed Recommending Committee (WCC/RRC). \*\*Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details.



## FIELD SCALE TRIAL YIELD RESULTS

Field scale trials are managed by growers using their typical production practices. Trials are planted, swathed, harvested and, when necessary, sprayed by growers using the respective herbicide systems according to established protocols. Individual plots range from 0.5 to 1.5 acres.

When comparing average results between varieties, consider the number of test sites for each variety. Field scale trials occasionally produce data that is above or below the expected range. If agronomic observations cannot explain these outliers, then they are checked against the statistical limits of deviation established by the CPT Technical Committee. If the data falls outside the limits, it is removed.

For more details on individual trials and for interactive search and comparison tools on all final datasets since 2011, visit [canolaperformancetrials.ca](http://canolaperformancetrials.ca).

2017 Standard Yield Results (bu./acre)		
Location	Roundup Ready	Liberty Link
	45H33	L252
<b>Long Season Zone</b>	55.9	61.2*
Coaldale, AB	64.5	70.8
Deloraine, MB	56.5	57.6
Holland, MB	49.5	60.8
Indian Head, SK	60.6	65.8
Regina, SK	38.4	45.3
St. Adolphe, MB	59.5	62.7
Starbuck, MB	62.0	65.5
<b>Mid Season Zone</b>	53.3	56.9*
Carbon, AB	56.2	62.7
Dauphin, MB	52.1	58.0
Fulda, SK	58.9	59.0
High River, AB	35.4	46.9
Kinistino, SK	54.2	55.6
Maskwacis, AB	67.9	66.5
Minnedosa, MB	50.2	55.0
Norquay, SK	65.5	65.3
Porcupine Plain, SK	44.9	51.3
Provost, AB	53.8	51.5
Trochu, AB	62.3	68.8
Unity, SK	47.4	48.9

2017 Standard Yield Results (bu./acre)		
Location	Roundup Ready	Liberty Link
	45H33	L252
Vanscoy, SK	45.3	49.2
Yorkton, SK	51.7	58.4
<b>Short Season Zone</b>	49.6	53.2*
Athabasca, AB	68.0	66.9
Fairview, AB	38.5	43.9
Hawk Hills, AB	37.0	41.8
Nampa, AB	51.3	58.1
Swan River, MB	53.0	55.4
<b>Total (all locations)</b>	53.3	57.4*

2017 Clubroot-Resistant Yield Results (bu./acre)		
Location	Roundup Ready	Liberty Link
	CS2000	L241C
Athabasca, AB	65.1	66.4
Bentley, AB	59.8	53.7
Maskwacis, AB	66.2	67.4
Namao, AB	77.5	75.5
Provost, AB	46.3	49.5
Trochu, AB	66.9	65.4
Wetaskiwin, AB	52.8	58.1
<b>Total (all locations)</b>	62.1	62.5 ns

\*L252 yield was statistically higher than 45H33 (at a 5% confidence level).

\*\*L140P yield was statistically higher than 45M35 and 75-65RR (at a 5% confidence level) while the yields of 45M35 and 75-65RR were not statistically different.

ns = not significant

Please note that L140P and 75-65 RR are only shown in the field scale trial results (and not the standard small plot trial results) because they were only entered in the small plot trials with the straight cut protocol, which were not included here.

## STRAIGHT-CUT PROTOCOLS

A new straight cut (SC) protocol was utilized in 2017 to evaluate varieties recommended for straight cutting. The SC protocol requires that varieties are straight cut at ~12% moisture. For more details, see the CPT protocols at: [canolaperformancetrials.ca/trial-protocol](http://canolaperformancetrials.ca/trial-protocol). As the first year with this SC protocol, eight CPT small plot sites were planted with varieties recommended for straight cutting. Throughout the growing season and the CPT Technical Committee review process, most of these sites were recommended for canceling or removal from the dataset, so in the end only one small plot SC trial site was approved for publishing. However, since one site isn't a sufficient number to accurately represent varieties, the data from this site is not included here.

2017 Straight Cut Yield Results (bu./acre)			
Location	Roundup Ready	Roundup Ready	Liberty Link
	45M35	75-65 RR	L140P
<b>Long Season Zone</b>	42.9	42.6	44.7**
Arcola, SK	42.9	46.2	48.7
Estevan, SK	44.1	40.8	45.1
Milestone, SK	41.4	38.0	41.2
Neville, SK	28.0	27.3	26.9
Regina, SK	33.8	39.4	41.4
Rosser, MB	60.6	60.2	60.8
Russell, MB	53.0	50.9	55.3
St. Adolphe, MB	53.3	51.8	57.1
Swift Current, SK	29.2	28.9	26.3
<b>Mid Season Zone</b>	60.4	61.9	63.0 ns
Carbon, AB	53.8	55.1	61.1
Eyebrow, SK	47.5	48.0	49.2
Kyle, SK	79.9	82.6	78.7
<b>Total (all locations)</b>	47.3	47.4	49.3**

### About this program:

The three Prairie canola grower groups – Alberta Canola Producers Commission (Alberta Canola), the Saskatchewan Canola Development Commission (SaskCanola) and the Manitoba Canola Growers Association – funded the 2017 program. The provincial oilseed specialists and industry scientists provide expertise. The Canola Council of Canada delivers the program. The B.C. Grain Producers Association conducted trials in the Peace region as its means of participation.

Haplotech (led by Dr. Rale Gjuric) coordinates the trials under the guidance of the CPT Governance Committee that oversees approval of varieties, protocol design, data collection, analysis and reporting, and financial management.

CPT Governance Committee members include: representatives from Alberta Canola, SaskCanola, the Manitoba Canola Growers Association and the B.C. Grain Producers Association; provincial oilseed specialists from Manitoba, Saskatchewan and Alberta; three commercial Canadian Seed Trade Association representatives; and the Canola Council of Canada (CCC). The CCC delivers the program on their behalf. The CCC agronomy specialists provide guidance and assist with quality assurance.

Commercial canola varieties tested in small plot trials had seed provided by Bayer CropScience, BrettYoung Seeds, CANTERRA SEEDS, Cargill, DL Seeds, Proven Seed/CPS, DEKALB, Syngenta and DuPont Pioneer.

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## A GUIDE TO BIG RYE

### SPECIAL TO SASKSEED

With a proven potential of 200 bushels per acre in prairie conditions, treating hybrid rye the same as conventional open rye varieties or winter wheat will guarantee you a disappointing harvest.

“We’ve seen 200 bushels an acre in Western Canada. That was at Indian Head. It was just kissing 200 bushels in research plots,” says Ken Greer owner of Western Ag Labs in Saskatoon. He adds that it’s an expensive crop to grow and there’s no room for cutting corners.

Lee Moats of Riceton, Sask., has been a grower of fall-seeded crops for decades, so it’s no surprise he tried Brasetto in 2015.

Unfortunately, it was a year when weather messed up everybody’s trials in southern Saskatchewan.

The old Winter Wheat Production Manual is obsolete when it comes to achieving the high yield potential of the new hybrid rye varieties, says Moats.

“Bushels require nitrogen. You can’t grow 100 plus bushels of anything with the nitrogen you once put down to grow 70 bushels,” states Moats.

“There are similarities between the new hybrid rye and our other fall-seeded crops, but nitrogen requirement is a huge difference. What we’re trying to find out is how hard we can push these new crops to take full advantage of the genetic potential available to us. We know we’ve got to push them hard.

“Rye is more competitive with weeds than wheat, but we don’t want to risk an investment of \$60 per acre in seed by letting weeds get out of control. You want to make sure you’ve taken care of your winter annuals.”

As for staging the nitrogen applications, keep in mind that the crop will wake up in early spring and it will be hungry. Moats says it’s best to put down some nitrogen in the fall just to make sure the plants have it come springtime. To hit those high yields, it’s important that the crop is never nitrogen deficient, not even for a day.

“So you want to get nitrogen on early in the spring, but do you put it all on at once in April or do you plan a split application. Right now, I don’t think we know enough



about the crop to say for sure. My feeling is do it all at once.

“But that brings up the obvious question of what rate. Western Ag Labs is working on nutrient requirements of hybridized rye. They have a model and they have a particular philosophy about hybrids that’s appealing to me.

“Hybrid rye has a unique ability to extract nutrients from the soil and Western Ag factors that into any recommendation. The ability to scavenge nutrients is better than for wheat, so you need to account for it.”

Moats says he doesn’t have an exact number, but it could be that hybrid rye scavenges nitrogen from the soil 20 percent more efficiently compared to wheat. He explains that Western Ag’s nitrogen recommendations for hybrid rye are still based on assumptions for prairie conditions rather than actual prairie experience.

Here’s another question. If hybrid rye really is that much better at extracting nutrients from the soil, will it leave your field in a state of nutrient depletion the following year?

“We don’t have an answer to that either. We’re still learning how to manage these hybrids in Western Canada. I think the information we’re getting from Europe is important, but our conditions are different.

“We’re much colder in winter. In some of the areas where they grow rye in Europe, they barely even have frozen soil. We have hard frozen soil every winter and it’s for long periods of time.

“Cold tolerance must be considered. It looks like hybridised ryes have cold tolerance more similar to our winter wheat here. So right now, we’re still just a little speculative as to exactly what we should be doing.”

When winter wheat growers inspect their crop in early spring, it often looks pretty scruffy. Rule of thumb says ignore it and go do something else so you don’t dwell on it and then do something foolish. If left alone, the crop usually revives itself and turns out to be pretty decent.

Moats says winter cereals in general are very resilient. The have a great ability to come back. He thinks the same applies to hybridized rye, but he’s not certain. As a crop update, he reports that the mild winter in the Riceton area was kind to his fall rye.

“The Brasetto and Bono crops on lentil stubble survived quite well. That’s very intriguing. If they can survive on lentil stubble every year, that opens up a whole new production potential.”

continued on page 94 >>



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CANADIAN FOOD INSPECTION AGENCY

# VARIETY REGISTRATION REPORT

The list below contains the names and details of crop varieties registered by the Canadian Food Inspection's Variety Registration Office (VRO) between Nov. 1, 2016 and Nov. 15, 2017.

CROP KIND	VARIETY NAME	EXPERIMENTAL NUMBER	PNT	CANADIAN REPRESENTATIVE	STATUS	REGISTRATION DATE	EXPIRY DATE
ALFALFA	ACAPELLA	CW 105023	no	Quality Seeds	National	12/09/16	
	AMINA	CW 104015	no	La Coop Federée	National	12/09/16	
	CONQUEST	FG 410A176	no	DLF Pickseed Canada	National	02/17/17	
	DIGEST HD	LS 904, L-455HD	no	General Seed Company	National	02/17/17	
	INTEGRITY HVXRR	FG RRL43Q109	yes	Gold Medal Seeds (Forage Genetics International)	National	11/18/16	
BARLEY	ALTORADO	TR13740, BZ509-601	no	Cps Canada Crop Development	National	01/27/17	
	LOWE	TR13609, FB450	no	Field Crop Development Center, U Of Saskatchewan	National	11/30/16	
	SIRISH	TR14928, SY411-292	no	Syngenta Seeds Canada	Interim	02/03/17	02/03/20
BARLEY, SIX-ROW, SPRING	BADEN	C814-030, SC16-026RB	no	Dow AgroSciences Canada	National	04/13/17	
BARLEY, TWO-ROW, SPRING	CDC GOLDSTAR	TR13812, SM105054	no	University Of Saskatchewan	National	03/24/17	
	DUNDEE	T574-045, SC16-012RB	no	Dow AgroSciences Canada	National	04/13/17	
	MARDEN	C785-003, SC016-016RB	no	Dow AgroSciences Canada	National	04/13/17	
BIRD'S-FOOT TREFOIL	LOTANOVA		no	DLF Pickseed Canada	National	01/27/17	
CANARYGRASS	CDC CIBO	C05041	no	University Of Saskatchewan	National	03/31/17	
CANOLA	H4250	16RH4250	yes	Cargill Limited	Interim	03/10/17	03/10/20
CANOLA BRASSICA NAPUS, HYBRID	45CM36	15GG0834R	no	Pioneer Hi-Bred	National	04/07/17	
	1024 RR	G5428584H, 5428584	yes	Dow AgroSciences Canada	National	04/28/17	
	1026 RR	G6667223H, 6667223, EXP RR	yes	Dow AgroSciences Canada	Interim	04/07/17	04/07/20
	2024 CL	CL3701975H, 3701975H, 3701975	yes	Dow AgroSciences Canada	Interim	06/30/17	
	2026 CL	CL6665383H, 6665383, EXP CL	yes	Dow AgroSciences Canada	Interim	04/28/17	04/28/20
	45H37	14CG1217R	yes	Pioneer Hi-Bred	National	04/21/17	
	45M38	15GG0241R	yes	Pioneer Hi-Bred	National	04/21/17	
	6090 RR	DL1630RR	yes	DI Seeds	Interim	05/18/17	05/18/20
	C5507	CXP15507	yes	CIBUS Canada	National	05/05/17	
	CS2300	DL1512RR	yes	DI Seeds	National	06/23/17	
L255PC	6CNO122	yes	Bayer Cropscience	Interim	05/18/17	05/18/20	
CLOVER	SILVESTER	DP 85-9573	no	DLF Pickseed Canada	National	01/27/17	
FESCUE	DURAMAX	IS-FTF 27, IS-FTF 31	no	DLF Pickseed Canada	National	12/09/16	

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CROP KIND	VARIETY NAME	EXPERIMENTAL NUMBER	PNT	CANADIAN REPRESENTATIVE	STATUS	REGISTRATION DATE	EXPIRY DATE
FIELD BEAN	AAC ARGOSY	ACUG 14-3	no	Agriculture Canada	National	05/18/17	
	AAC CHROME	P0520-116	no	Agriculture Canada	National	05/05/17	
	AAC SHOCK	ACUG 14-1	no	Agriculture Canada	National	05/18/17	
	BELLAGIO	C06808	no	Hensall District Cooperative	National	04/07/17	
	BELUGA	K9092	no	Adm-Seedwest	National	04/28/17	
	BIG RED	9351	no	Scoular	National	06/16/17	
	CDC CANARY	CDC 3360-7	no	University Of Saskatchewan	National	03/31/17	
	CDC FOREST	CDC 3422-8	no	University Of Saskatchewan	National	03/31/17	
	FLOYD	ROG 312R	no	ADM-Seedwest	National	04/28/17	
	LA PAZ	99236	no	ADM-Seedwest	National	04/21/17	
	MONTERREY	6185	no	ADM-Seedwest	National	04/21/17	
	OAC ROSITO	ACUG 13-SR1	no	University Of Guelph	National	05/05/17	
	VERTIGO	VERTIGO	no	DI Seeds	National	03/31/17	
	VIBRANT	11258	no	ADM-Seedwest	National	04/21/17	
FLAX, OILSEED	CDC DORADO	FP2432	no	University Of Saskatchewan	National	06/23/17	
	TOPAZ	FP2457, 08-88-F7-109	no	CPS Canada Crop Development	National	06/16/17	
OAT	ADELE	PGR-N10-31	no	Cereal	National	01/20/17	
OAT	ORE3541M	OT6008	no	Oat Advantage	National	02/10/17	
	ORE3542M	OT6009	no	Oat Advantage	National	02/10/17	
OAT, SPRING	CDC ARBORG	OT3085, SA112243	no	University Of Saskatchewan	National	04/21/17	
	ORE6251M	OT6007	no	Oat Advantage	National	04/07/17	
ORCHARDGRASS	HARVESTAR	RAD - LCF23	no	Fraser Seeds	National	05/05/17	
POTATO	AAC ALTA CRISP	AAC CV02321-1 (AR2011-05)	no	Agriculture Canada	National	06/23/17	
	AAC CINDERELLA	F06053 AR2012-06	no	Office Of Intellectual Property And Commercialization (AAFC)	National	01/27/17	
	AAC WESCHIP	AR2010-03_F05020	no	Agriculture Canada	National	05/05/17	
	AMAROSA	POR01PG22-1	no	Global Agri Service	National	01/27/17	
	BABY ROSE	HZ-99-482	no	Hzpc Americas Corp.	National	02/03/17	
	BORDEAUX	SM 04-83-01R	no	Solanum International	National	03/10/17	
	DAKOTA RUSSET	ND8229-3	no	Global Agri Services	National	12/09/16	
	FENWAY RED	HZC 07-6040	no	Hzpc Americas Corp.	National	02/03/17	
	GIOCONDA	VDZ 99-188	no	Hzpc Americas Corp.	National	02/03/17	
	INVIGORATE	V11; Inn Snowden 1.0	no	Robert Pottter Consulting (Simplot)	National	11/18/16	
	JENNIFER	BIE 02-1612	no	Hzpc Americas Corp.	National	05/05/17	
	PRINCE OF ORANGE	HZC 04-6037	no	Hzpc Americas Corp.	National	02/03/17	
	RANDE'S GOLDEN GEM	RANDY'S GOLDEN GEM	no	Solanum International	National	02/03/17	
	RED EMMALIE	DE-NI-30000 ELEN	no	Solanum International	National	03/10/17	
	VIOLETTA	DE-NI-20000 ELEN	no	Solanum International	National	03/10/17	
	VOLARE	AR 00-1001	no	Parkland Seed Potatoes	National	03/24/17	
WHITNEY	HZC 06-6117	no	Hzpc Americas Corp.	National	02/03/17		
RYEGRASS	FIRKIN	IS-LMT 15	no	Dif Pickseed Canada	National	11/30/16	
RYEGRASS, ANNUAL	CRUSADER	PG 203	no	Union Forage	National	03/24/17	
SOYBEAN	22-61RY	MKZ915A1-COYNN, 1062049	yes	Monsanto Canada	National	02/10/17	
	AJICO	C4M15027	no	La Coop Federée	National	04/07/17	
	AZALEA	SVX15T1S1	yes	Sevita International	National	06/30/17	
	Camino R2	X2R0266, AR1410821	yes	Semence Prograin	National	01/27/17	
	CF07LL	ML0563N, 15M-05LL	yes	Country Farm Seeds	National	12/09/16	
	CL1463369	CL1463369, XD2R2151	yes	Syngenta Canada	National	02/03/17	
	CL1463523	CL1463523, XD2R2957	yes	Syngenta Seeds Canada	National	02/03/17	
	DKB003-29	FLZ615A3-CODNN, 1064184	yes	Monsanto Canada	National	06/30/17	
	DKB006-29	FLZ215A2-CODNN, 1064198	yes	Monsanto Canada	National	06/30/17	
	DKB03-95	FL0315A3-DODNN, 1064112	yes	Monsanto Canada	National	06/30/17	
	DKB06-43	FL0515B2-CODNN, 1064508	yes	Monsanto Canada	National	06/30/17	
	DKB10-54	FL0815A7-CODNN, 1064515	yes	Monsanto Canada	National	06/30/17	
	DKB12-57	MK0815A1-DODNN, 1064172	yes	Monsanto Canada	National	06/30/17	
	DKB17-34	JW1715A3-CODNN, 1064525	yes	Monsanto Canada	National	06/30/17	
	DKB20-14	RM1915B7-CODNN, 1064539	yes	Monsanto Canada	National	06/30/17	

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CROP KIND	VARIETY NAME	EXPERIMENTAL NUMBER	PNT	CANADIAN REPRESENTATIVE	STATUS	REGISTRATION DATE	EXPIRY DATE
SOYBEAN	DKB22-31	RM2114A8-C3DNN, 1064327	yes	Monsanto Canada	National	06/30/17	
	DKB24-97	BN2315F3-DODNN, 1064144	yes	Monsanto Canada	National	06/30/17	
	DKB33-54	BN3215C6-CODNN, 1063944	yes	Monsanto Canada	National	06/30/17	
	DOFINO R2X	MK0815A2-CODNN, 1064516	yes	Monsanto Canada	National	06/30/17	
	DS0099B1	00G16B2	yes	Dow AgroSciences Canada	National	04/13/17	
	DS031M1	05G16A9	yes	Dow AgroSciences Canada	National	04/13/17	
	DS095D1	09G16D5	yes	Dow AgroSciences Canada	National	04/13/17	
	DS198T1	21G16G8	yes	Dow AgroSciences Canada	National	04/13/17	
	DS250H1	25G16L1, CL21924838	yes	Dow AgroSciences Canada	National	04/13/17	
	DUGALDO R2X	CBZ714A1-CODNN	no	Monsanto Canada	National	02/10/17	
	DYLANO R2X	CBZ414A2-CODNN	yes	Monsanto Canada	National	02/10/17	
	EXECUTIVE R2X	JW2215A4-DODNN, 1064143	yes	Monsanto Canada	National	06/30/17	
	Foote R2	X2R00564, CW1410185	yes	Secan Association	National	01/27/17	
	LS MISTRAL	FLZ515A5-COYNN, 1062055	yes	Monsanto Canada	National	02/10/17	
	LS SOLAIRE	MKZ715A1-COYNN, 1062052	yes	Monsanto Canada	National	02/10/17	
	LS TRI9R2Y	AR1215867-2, GS000967	yes	Syngenta Seeds Canada	National	04/13/17	
	MANI R2X	FLZ515B2-CODNN, 1064187	yes	Monsanto Canada	National	06/30/17	
	NIAGARA	SVX14TOS10	no	Sevita International	National	05/18/17	
	NOCOMAR2	C4M15028R2, CFS17.1.03R2	yes	La Coop Federée	National	06/30/17	
	NSC GREENRIDGE RR2Y	X2R00763, CW1510064	yes	Syngenta Seeds	National	02/10/17	
	NSC JORDAN RR2Y	MKZ615A1-COYNN, 106253	yes	Monsanto Canada	National	02/10/17	
	NSC RIVERSIDE RR2X	FLZ415A4-CODNN, 1064189	yes	Monsanto Canada	National	06/30/17	
	P0007A43R	P0007A43R	yes	Pioneer Hi-Bred	National	03/31/17	
	P000A87R	P000A87R	yes	Pioneer Hi-Bred	National	03/31/17	
	P002A19X	P002A19X	yes	Pioneer Hi-Bred	National	03/31/17	
	P002A63R	P002A63R	yes	Pioneer Hi-Bred	National	03/31/17	
	P005A27X	P005A27X	yes	Pioneer Hi-Bred	National	03/31/17	
	P007A90R	P007A90R	yes	Pioneer Hi-Bred	National	03/31/17	
	P04A60R	P04A60R	yes	Pioneer Hi-Bred	National	03/31/17	
	P05A40X	P05A40X	yes	Pioneer Hi-Bred	National	03/31/17	
	P06A13R	P06A13R	yes	Pioneer Hi-Bred	National	03/31/17	
	P09A53X	P09A53X	yes	Pioneer Hi-Bred	National	03/31/17	
	P11A67	XB11D16	yes	Pioneer Hi-Bred	National	04/21/17	
	P13T06L	S150097	yes	Pioneer Hi-Bred	National	05/05/17	
	P15A63X	P15A63X	yes	Pioneer Hi-Bred	National	03/31/17	
	P19A14X	P19A14X	yes	Pioneer Hi-Bred	National	03/31/17	
	P21A28X	P21A28X	yes	Pioneer Hi-Bred	National	03/31/17	
	P24A80X	P24A80X	yes	Pioneer Hi-Bred	National	03/31/17	
	P25A65R	P25A65R	yes	Pioneer Hi-Bred	National	03/31/17	
	P26T07L	S140157	yes	Pioneer Hi-Bred	National	05/05/17	
	P31A22X	P31A22X	yes	Pioneer Hi-Bred	National	03/31/17	
	P31T02L	S150103	yes	Pioneer Hi-Bred	National	05/05/17	
	PRO 03X74	XD2R0362, CL1463739, GS0339X	yes	Syngenta Canada	National	05/26/17	
	PRO 2735R2C	X2R0668, AR1310229	no	Sevita International	National	01/27/17	
	PS 00095 R2	MKZ915A2-COYNN, 1062050	yes	Monsanto Canada	National	02/10/17	
	PS 1710 NLL	EXP1717NLL, ML1763N	yes	Agreliant Genetics	National	01/27/17	
	PV 10S005 RR2	FLZ115A3-COYNN, 1062066	yes	Monsanto Canada	National	02/10/17	

continued on next page >>

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CROP KIND	VARIETY NAME	EXPERIMENTAL NUMBER	PNT	CANADIAN REPRESENTATIVE	STATUS	REGISTRATION DATE	EXPIRY DATE
SOYBEAN	PV 11S001 RR2	X2R000861, CW1410054	yes	Syngenta Seeds	National	02/10/17	
	RX ACRON	FLZ715A5-CODNN, 1064486	yes	Monsanto Canada	National	06/30/17	
	RX REGATTA	JW2615B7-CODNN, 1064401	yes	Monsanto Canada	National	06/30/17	
	RX RESPONSE	XD2R0968, CL1561726, GS1026X	yes	Syngenta Canada	National	06/02/17	
	RX VORTEX	XD2R1261, CL1563225, GS1325X	yes	Syngenta Canada	National	05/26/17	
	S0009-D6	AR1215867-1, X2R00151	no	Syngenta Canada	National	01/20/17	
	S008-N2	AR121542, X2R00865	yes	Syngenta Seeds Canada	National	01/20/17	
	S01-C4X	CL1463761, XD2R0161	yes	Syngenta Seeds Canada	National	02/10/17	
	S05-F9	AR1319046, X2R0367	yes	Syngenta Canada	National	01/20/17	
	S07-K5X	CL1463812, XD2R0867	yes	Syngenta Seeds Canada	National	02/10/17	
	S09-C3X	CL1563238, XD2R0766	yes	Syngenta Seeds Canada	National	02/10/17	
	S10-R2	AR1205108, XC1062	no	Syngenta Seeds Canada	National	01/13/17	
	S14-B2X	CL1463914, XD2R1463	yes	Syngenta Seeds	National	02/10/17	
	S18-G4X	CL1463057, XD2R1955	yes	Syngenta Seeds	National	02/03/17	
	S20-L8X	CL1463332, XD2R2162	yes	Syngenta Seeds Canada	National	02/10/17	
	S22-J4X	CL1460479, XD2R2265	yes	Syngenta Seeds Canada	National	02/10/17	
	S25-B6X	CL1460725, XD2R2560	yes	Syngenta Seeds Canada	National	02/10/17	
	S27-M8X	CL1460643, XD2R2764	yes	Syngenta Seeds Canada	National	02/10/17	
	S31-Y2X	CL1460745, XD2R3264	yes	Syngenta Seeds Canada	National	02/10/17	
	SAGA R2X	FLO915B2-CODNN, 1064258	yes	Monsanto Canada	National	06/30/17	
TALA	SVX15T0S7	yes	Sevita International	National	06/30/17		
TH 37004 R2Y	FLZ514A1-COYNN, 1057517	yes	Monsanto Canada	National	02/10/17		
TH 88005R2XN	MKZ115A5-DODNN, 1064108	yes	Monsanto Canada	National	06/30/17		
TH 88007R2X	FLZ315B5-CODNN, 1064491	yes	Monsanto Canada	National	06/30/17		
Volcano R2	X2R1462, AR1318947	yes	Semence Prograin	National	01/27/17		
SUNFLOWER	8H288CLDM	E88321CLDM	yes	Dow Agosciences Canada	National	12/22/16	
	N4HM354	NHK12M054	yes	Hildebrand, Phillip	National	04/13/17	
TIMOTHY	AAC MAYA	SFF 202	no	Office Of Intellectual Property And Commercialization (Aafc)	National	01/20/17	

# AGRICULTURE CANADA 2017 VARIETY REQUEST FOR PROPOSALS

Agriculture and Agri-Food Canada (AAFC) would like to thank the companies that submitted proposals to commercialize pedigreed seed of AAFC varieties under the 2017 Request for Proposal. Based upon marketing and production strategies, marketing experience, and financial offer our evaluation committee has selected the following proposals:

Variety	Company (Awarded License Rights)
BW1025 Canada Western Red Spring Wheat	SeCan Association
CRS-1001 Alfalfa	Quality Seeds Ltd.
DT871 Canada Western Amber Durum Wheat	FP Genetics Inc.
Glenview Sainfoin	Monarch Feeders Ltd.
HS5617-11 Six-Row Barley	La Coop fédérée
HW388 Canada Western Hard White Wheat	FP Genetics Inc.
OA1395-1 Oat	Advantage Seed Growers Inc.
P0521-109 Field Pea	Legume Logic
P0750-02 Field Pea	SeedNet Inc.

**No proposals were received/accepted for the following lines:**

Varieties marked with an asterisk will be offered again through the 2018 RFP process.

ACUG 14-3 Navy Bean

BW1013 Canada Western Red Spring Wheat

BW1016 Canada Western Red Spring Wheat

CR312-8 Cranberry Bean

DT863 Canada Western Amber Durum

\*FP2461 Flax

\*FP2484 Flax

\*OT12-06 Natto Soybean

OT13-11 Edamame Soybean

\*OT13-15 Natto Soybean

OT14-08 Soybean

\*OT15-02 Soybean

\*OT15-03 Soybean

\*OT15-04 Soybean

OX-151 Tofu Soybean

OX-152 Tofu Soybean

\*OX-161 Tofu Soybean

\*OX-162 Tofu Soybean

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# SECAN, SEEDNET TO DISTRIBUTE CDC PULSE VARIETIES OUTSIDE SASKATCHEWAN

## SPECIAL TO SASKSEED

Pulse growers in Alberta and Manitoba will no longer be receiving royalty-free access to Crop Development Centre varieties.

Saskatchewan Pulse Growers has licensed the distribution rights for select CDC varieties in provinces outside Saskatchewan to SeCan and SeedNet for 10 years.

Saskatchewan farmers spend about \$4 million a year on the CDC's breeding program. Growers from Alberta and Manitoba made much smaller contributions to the program, amounting to less than \$100,000 each.

Those contributions allowed SPG to commercialize CDC varieties royalty free in the neighboring provinces. However, Alberta pulled its funding in 2016 when the agreement came up for renewal.

SPG executive director Carl Potts received a lot of calls from seed growers and commercial farmers in Alberta who didn't want to lose access to CDC varieties.

SPG considered a lot of options but settled on licensing the distribution rights to seed companies operating in the two provinces.

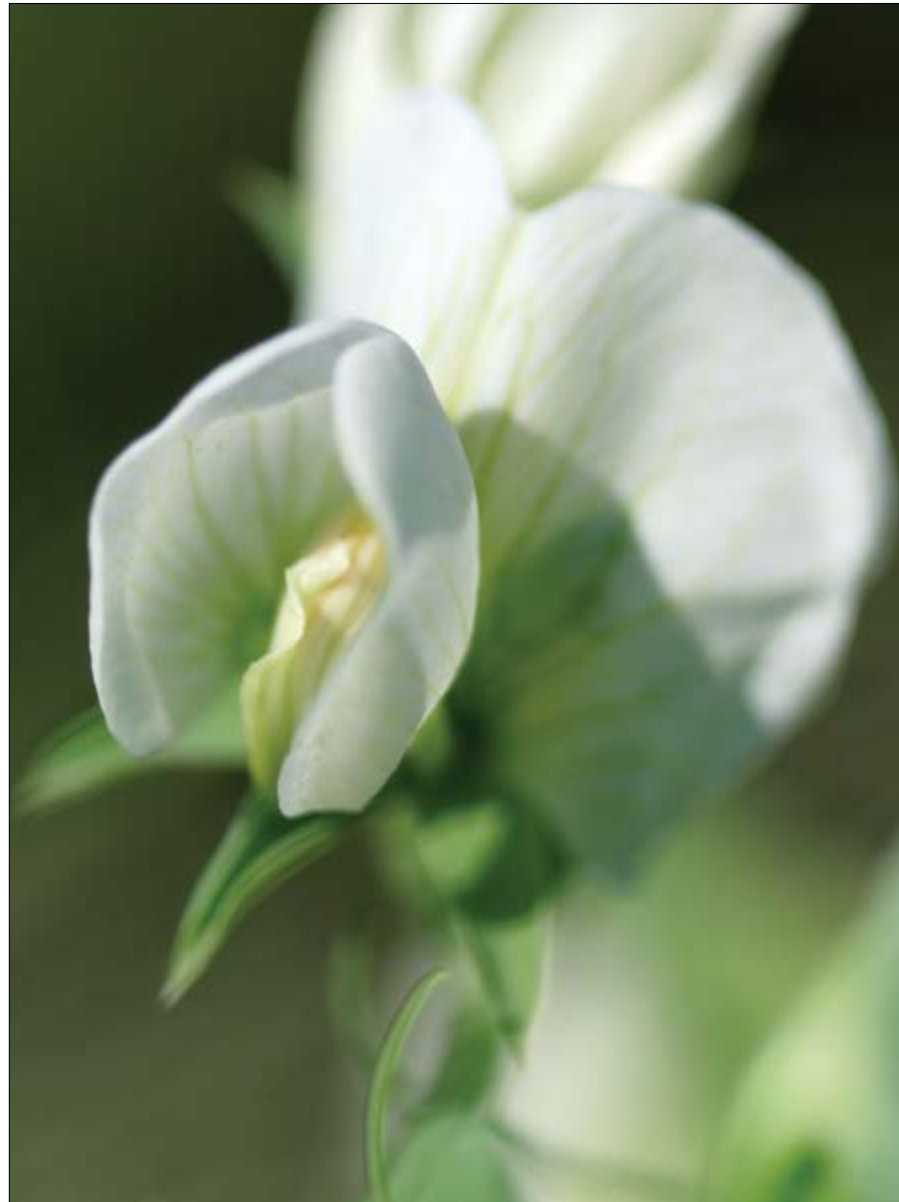
The organization ran a request for proposals in the summer and selected SeCan and SeedNet as its commercialization partners.

"SeCan members have grown CDC varieties in the past, and we felt it was critical to ensure that our members continued to have access to the varieties," Todd Hyra, western Canadian business manager for SeCan, said in a news release.

Added Elizabeth Tokariuk, general manager for SeedNet, added in the same release: "SeedNet wants to provide growers with the best genetics to satisfy the increasing demand for pulse crops in Alberta, Manitoba and the B.C. Peace"

Potts doesn't believe CDC varieties will lose market share outside Saskatchewan now that growers will be paying certified seed royalties.

He said CDC varieties account for 90 percent of Alberta's pea acres because they are strong performers in terms of yield and agronomy.



Pulse crop varieties developed at the University of Saskatchewan's Crop Development Centre account for the majority of pulse crop acres planted in Saskatchewan each year. Now, Saskatchewan Pulse Growers has negotiated an agreement that will allow SeCan and SeedNet to distribute CDC varieties to pulse growers in other parts of Canada.

"I'm not expecting a lot of changes or reduction in market share because of this," said Potts.

D'Arcy Hilgartner, chair of Alberta Pulse Growers, said the board made the decision to stop funding the CDC's variety re-

lease program to level the playing field with other breeding programs.

The board decided to focus on the pre-commercialization stage of breeding, such as germplasm testing and variety trials, and to let the market decide what varieties to commercialize.

It also wanted more of an Alberta focus on its research and development expenditures.

"We tried to look at encouraging more varieties to come to market, maybe some more suitable and related to Alberta growing conditions as opposed to maybe just the Saskatchewan growing conditions," said Hilgartner.

He said the new arrangement is similar to what growers see with other crops, and he believes the relationship with SeCan and SeedNet will result in better promotion and marketing of pulse varieties than when they were distributed directly to the

SeedNet wants to provide growers with the best genetics to satisfy the increasing demand for pulse crops.

ELIZABETH TOKARIUK | SEEDNET GENERAL MANAGER

province's seed growers.

Hilgartner agreed CDC varieties will continue to thrive in Alberta but now they will be on a level playing field with other varieties such as Agriculture Canada's Lambe peas.

Potts said the licensing agreement could be a significant new source of revenue for

SPG, depending on market share and how quickly new varieties are adopted.

The new distribution arrangement created challenges with issues such as inter-provincial trade rules because the varieties are released royalty-free in one province but not in the others. However, those challenges have been overcome.



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# Prairie Grain Development Committee

The Prairie Grain Development Committee (PGDC) facilitates the exchange of information relevant to the development of improved cultivars of grain crops for the Canadian prairies. In 2017, the committee recommended the following lines for registration:

## BARLEY

**SR14501** — Six row forage barley line. Breeding Institution, Proposer or Canadian Representative: Joseph Nyachiro, Alberta Agriculture and Rural Development. Supported for registration in 2017.

**SR14507** — Barley line. Breeding Institution, Proposer or Canadian Representative: Details unavailable. Supported for registration in 2017.

**TR10214** — Two row malting barley with improved resistance to fusarium headblight. Breeding Institution, Proposer or Canadian Representative: Details unavailable. Supported for registration in 2017.

**TR14150** — Barley line. Breeding Institution, Proposer or Canadian Representative: Details unavailable. Supported for registration in 2017.

**TR14617** — Barley line. Breeding Institution, Proposer or Canadian Representative: Details unavailable. Supported for registration in 2017.

**TR14928** — Barley line. Breeding Institution, Proposer or Canadian Representative: Details unavailable. Supported for registration in 2017.

## BEANS

**L12CB004** — This is a high yielding, early maturing cranberry bean line with a determinate, upright bush (Type 1) growth habit and a large seed size. This line is suitable for production across southern Alberta and Saskatchewan. Developed by Agriculture and Agri-Food Canada Lethbridge Research and Development Centre, Lethbridge, Alta.

**09351** — This is a high yielding light red kidney bean line with an upright, determinate bush (Type 2b) growth that holds

most of its pods off the ground, promoting good aeration of the plant throughout the growing season. 09351 is suited for production in Manitoba, North Dakota, Minnesota, Colorado, Nebraska, Michigan and Idaho. Developed by Trinidad Benham Corporation, Denver, Colorado.

**ROG 312R** — This is a high yielding pink bean line with indeterminate, prostrate vine (Type 3b) growth habit and a large seed size. ROG 312R (Floyd) is a well-established variety with acceptable canning and processing attributes in the United States. It is suitable for production across Manitoba, and is the dominant pink bean variety in North Dakota and Minnesota. Developed by ADM-Seedwest, Exeter, Ontario.

**06185** — This is an excellent yielding, upright, semi-indeterminate (Type IIIb) pinto bean line that holds most of its pods off the ground promoting good aeration of the plant throughout the growing season, resulting in excellent direct harvest capability. Tests have shown that 06185 (Monterrey) has resistance to the NL8 strain of bean common mosaic virus and resistance to rust strains commonly found in the Nebraska and Colorado growing regions. Developed by ADM-Seedwest, Exeter, Ontario.

**11258** — This is a good yielding upright, semi indeterminate (Type IIIb) slow darkening pinto bean line that holds most of its pods off the ground promoting good aeration of the plant throughout the growing season. This line is suited for production in Manitoba, North Dakota, Minnesota, Colorado, Nebraska, Michigan and Idaho. Developed by ADM-Seedwest, Exeter, Ont.

**06185** — This is an excellent yielding, upright, semi-indeterminate (Type IIb) pinto bean line that holds most of its pods off the ground, promoting good aeration of the plant throughout the growing season and providing excellent direct harvest

capability. 06185 is adapted for production in Manitoba, North Dakota, Minnesota, Colorado, Nebraska, Michigan and Idaho. Developed by ADM Seedwest, Exeter, Ontario.

**99236** — This is an excellent yielding upright, semi-indeterminate (Type IIb) pinto bean line that holds most of its pods off the ground, promoting good aeration of the plant throughout the growing season and results in excellent direct harvest capability. 99236 is adapted for production in Manitoba, North Dakota, Minnesota, Colorado, Nebraska, Michigan and Idaho. Developed by ADM Seedwest, Exeter, Ont.

**CDC 3850-1** — This is a high yielding, determinate yellow bean line, with maturity that is a couple of days earlier than the check variety, CDC Sol. This line would be well suited to the Saskatchewan and Manitoba growing environments. Developed by Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan.

## FABABEAN

**LGFN14943** — This is a tannin containing fababean line that yields as high as, or higher than the check varieties. This line has a larger seed size, which is preferred for export to southeast Europe. Developed by Limagrains Nederland BV, The Netherlands.

**RODEO** — This is a tannin containing fababean line. Rodeo has shown to have a significant larger seed size than both checks, which is preferred for export to southeast Europe. Developed by Limagrains Nederland BV, The Netherlands.

## FLAX

**FP2513** — Brown flaxseed line. Breeding Institution or Canadian Representative: Helen Booker, Crop Development Centre,

University of Saskatchewan, Saskatoon, Sask. Supported for registration in 2017.

## LENTILS

**IBC 978** — This is an extra small red lentil. This line is tolerant to imidazolinone herbicide. Developed by Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan.

**IBC 929** — This is a Spanish brown lentil line. This line is tolerant to imidazolinone herbicides. Developed by Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan.

## MUSTARD

**B1630DH182** — Brown mustard line. Breeding Institution or Canadian Representative: Bifang Cheng, Agriculture and

Agri-Food Canada (AAFC). Supported for registration in 2017.

**O123DH25** — Oriental mustard line. Breeding Institution or Canadian Representative: Bifang Cheng, Agriculture and Agri-Food Canada (AAFC). Supported for registration in 2017.

## OATS

**OT3087** — Milling oat variety. Breeding Institution, Proposer or Canadian Representative: A.D. Beattie, B.G. Rossnagel and T. Zatorski, Crop Development Centre, University of Saskatchewan, Saskatoon, Sask. Description: OT3087 is a high beta glucan, high oil line that offers good groat percentage, high kernel weight, very good plumpness, low thins, excellent yield potential and very good lodging resistance. The line demonstrated moderate resistance to crown rust.

Supported for registration in 2017.

**OT6016** — Spring oat line with high yield potential and good lodging resistance. Breeding Institution, Proposer or Canadian Representative: Details not available.

**OT8006** — Milling oat aimed at organic milling markets. Offers very high yield potential, high oil content and good standability. Breeding Institution, Proposer or Canadian Representative: Agriculture and Agri-Food Canada.

## PEAS

**CDC 4499-1** — This is a green cotyledon, semi-leafless field pea variety with improved yield. Developed by Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan.

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## PGDC VARIETY REGISTRATION RECOMMENDATIONS (CON'T)

**P0750-02** — This is a yellow cotyledon field pea line with improved yield. Developed by Agriculture and Agri-Food Canada Lacombe Research Centre, Lacombe, Alberta.

**LGPN4903** — This is a yellow cotyledon field pea line. Developed by Limagrain Nederland BV, The Netherlands.

**LRP 1424** — This is a green cotyledon semi-leafless line developed from a cross in France in 2007. It was trialed internally in Canada in 2014 and selected based on its resistance to powdery mildew and other agronomic characters. Develop by DLseeds Inc., Morden, Manitoba.

**HYLINE** — This is a yellow cotyledon pea

line resulting from a cross made by Svalof Weibull and a selection made by Legume Logic in 2012. This line was increased in New Zealand in 2014 and in North Dakota in 2015 and 2016. Developed by Legume Logic, Crosby, North Dakota.

### RYE

**RT225 (Registered as KWS Daniello)** — Fall rye line. Breeding Institution or Canadian Representative: KWS Lochow GMBH. Supported for registration in 2017.

**RT227 (Registered as KWS Gatano)** — Fall rye line. Breeding Institution or Canadian Representative: KWS Lochow GMBH. Supported for registration in 2017.

### SPELT

**11SPELT11** — Spelt line. Breeding Institution or Canadian Representative: Crop Development Centre, University of Saskatchewan, Saskatoon, Sask. Supported for registration in 2017.

### WHEAT

**ACS58062** — Canada Western Special Purpose (CWSP) wheat line. Breeding Institution or Canadian Representative: Seed Link, Inc. Supported for registration in 2017.

**BW1025** — Canada Western Red Spring (CWRS) line. Contains midge tolerant Sm1 gene. Breeding Institution or Canadian Representative: Agriculture and Agri-Food Canada (AAFC), Brandon, Man. Supported for registration in 2017.

**BW1028** — Canada Western Red Spring (CWRS) line. Breeding Institution or Canadian Representative: Syngenta Canada Inc. Supported for registration in 2017.

**BW5005** — Canada Western Red Spring (CWRS) line. Breeding Institution or Canadian Representative: Syngenta Canada Inc. Supported for registration in 2017.



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## PGDC VARIETY REGISTRATION RECOMMENDATIONS (CON'T)

**BW5007** — Canada Western Red Spring (CWRS) line. Breeding Institution or Canadian Representative: Syngenta Canada Inc. Supported for registration in 2017.

**BW942** — Canada Northern Hard Red (CNHR) wheat line. Breeding Institution or Canadian Representative: Crop Development Centre, University of Sas-

katchewan, Saskatoon, Sask. Supported for registration in 2017.

**BW980** — Canada Western Red Spring (CWRS) line. Contains midge tolerant Sm1 gene. Breeding Institution or Canadian Representative: Agriculture and Agri-Food Canada (AAFC), Swift Current, Sask. Supported for registration in 2017.

**DT587** — Canada Western Amber Durum (CWAD) wheat line. Breeding Institution or Canadian Representative: Crop Development Centre, University of Saskatchewan, Saskatoon, Sask. Supported for registration in 2017.

**DT871** — Canada Western Amber Durum (CWAD) wheat line. Breeding Institution or Canadian Representative: Agriculture and Agri-Food Canada (AAFC), Swift Current, Sask. Supported for registration in 2017.

**GP202** — Canada Western Special Purpose (CWSP) wheat line. Breeding Institution or Canadian Representative: Limagrain Cereals Canada. Supported for registration in 2017.

**GP205** — Canada Western Special Purpose (CWSP) wheat line. Breeding Institution or Canadian Representative: Western Feed Grains Development Co-op Ltd. Supported for registration in 2017.

**GP206** — Canada Western Special Purpose (CWSP) wheat line. Breeding Institution or Canadian Representative: Western Feed Grains Development Co-op Ltd. Supported for registration in 2017.

**HW338** — Canada Western Hard White (CWHW) wheat line. Breeding Institution or Canadian Representative: Agriculture and Agri-Food Canada (AAFC), Swift Current, Sask. Supported for registration in 2017.

**HY2021** — Canada Prairie Spring (CPS) wheat line. Breeding Institution or Canadian Representative: Agriculture and Agri-Food Canada (AAFC), Lethbridge, Alta. Supported for registration in 2017.

**KWS Alderon** — Canada Western Special Purpose (CWSP) wheat line. Breeding Institution or Canadian Representative: Se-Can. Supported for registration in 2017.



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“The rye is already green and growing (April 5) so that’s encouraging.”

Edgar Hammermeister farms in southeast Saskatchewan and is an agrologist with Western Ag Labs. He is working with Moats and other producers to develop prairie-relevant nutrient recommendations for KWS hybrid rye varieties.

Moats owns a Green Seeker leaf monitoring system along with a good collection of algorithms, and has used it on most crops he grows. However, Hammermeister explains, the device is of no value in their quest for better nutrient management information because there are no algorithms for hybrid rye in western Canada.

“Rye has a very aggressive rooting system. That includes conventional open-pollinated varieties and hybrids. Relative to spring wheat, there’s a two X (two times) ability of rye to obtain nutrients from the soil,” says Hammermeister, explaining that winter crops always scavenge better than spring crops.

“Looking at our new generation of high output spring wheat, there’s a nitrogen supply rate of 24 pounds. That’s the amount of nitrogen the roots extract from the soil.

“For winter wheat it’s 34 pounds. CDC Ptarmigan soft white winter wheat is 41 pounds. And for hybrid fall rye, it’s such a new crop that we don’t have a finalized model, but it looks like 48 pounds of nitrogen supply scavenged from the soil.”

Hammermeister emphasizes the point that the new hybrid ryes can extract twice as much nitrogen from the soil compared to the best new generation spring wheat varieties. The advantage of any winter crop is they can do so much growing, first in the fall then in the April, May, June window when the moisture is almost always available. But if there’s a winter/spring drought, these crops really take a beating because they expect the moisture to be there for them.

“I’ve had that happen on my own farm. We had a bit of a dry fall. The winter wheat did get going, but then we had drought after the spring thaw. For fall-seeded crops, a drought in the spring is the same as a summer drought for spring seeded crops. But it doesn’t usually happen.

“For this growing season, I think there’s enough moisture in the ground in Manitoba and Saskatchewan and most of Al-



berta. There may be some parts of Alberta where there’s a concern.

“To make sure those fall-seeded crops get the start in life they need, you’ve got to make sure there’s enough phosphate and potassium, especially phosphate to help build the crown.”

Contrary to what many people have expressed about winter hardiness of the new hybrids, Hammermeister says the work they’ve done at Western Ag indicates they’re not as winter hardy as conventional open-pollinated rye. Their winter hardiness is closer to that of winter wheat.

“Those old fall ryes, you could really abuse them. You could put them on summer fallow and they’d come through the winter just fine. That was some hard core genetics at play. The hybrid rye needs a lot more TLC. You need to seed into stubble and catch some snow cover.”

He says that come spring, you’ve got to get nitrogen on before all those other spring seeding tasks take over. A nitrogen release inhibitor is a good idea to protect the nitrogen for ten to 14 days. But whether you put it all on at once or do a split, is a matter of logistics on each individual farm.

“With fall rye, you’re aiming for high yield. Protein is secondary. Guy Lafond did some work with the GreenSeeker and

found split nitrogen can still influence yield in cereals up to the six leaf stage. Guy said nitrogen after the six leaf stage influences protein.

“The first issue is you don’t want to put on the extra nitrogen unless you’re pretty sure it’s going to rain. The second issue is equipment and manpower. Top dressing generally comes at a time when you’re still spraying.

“Winter crops set their tillers and their yield potential according to the fertility they sense in the soil. Later, if there are stress factors, that’s when they decide how many of those tillers they want to support and keep alive.”

Hammermeister reminds growers that millers hate ergot and hybrid rye is vulnerable to ergot. The longer flowering window opens up the ergot gate. The assumption that the earlier flowering period should beat the normal ergot season is wrong. Even with a tighter, shorter flowering stage, flowering happens at the exact same time as for many of the grasses. He says KWS plant breeders have tried to tighten up the flowering window to minimize the opportunity for ergot, but they still have a way to go.

How well the crop resists ergot depends to a great degree on how well it comes through winter, which is why snow cover, fall potassium and phosphate are critical. He says good fall fertility also helps the crop go through its growth stages uniformly and quickly.

Ken Greer is the owner of Western Ag Labs, says there is a direct correlation between winter survival and ergot. Good winter survival results in lower ergot. He says that if the crop looks patchy and scruffy in the spring, the ergot load is going to be high.

“The crop won’t be suitable for high end buyers who require zero ergot. That means you won’t get the price you want. It’s best to plow it under and seed a spring crop to make good use of the fertility you’ve already put into that field.”

Greer says a crappy looking crop with high ergot potential is not likely to have good falling numbers. While higher falling numbers are a major sales point for hybrid rye, he adds that falling numbers do

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not create high protein.

“Falling numbers are higher in hybrids regardless of nitrogen or management. It’s in their genetics,” says Greer, adding that more nitrogen builds more yield if it’s on early, but hybrid rye grain actually has lower protein in most cases.”

“Distillers want low protein rye. High

protein causes dis-coloring in the liquor and a lot of frothing. Distillers want a lot of starch and low protein. Some protein’s okay for cattle, but you really don’t want too much there either because it can cause bloating.

“Millers love hybrid rye because the falling numbers are so good, and again the

protein doesn’t need to be high. The KWS ryes are bred in Germany where they want good quality for those dark rye breads. So really, you don’t need protein for any rye market, but you do need to get a balanced fertility package on early to capitalize on the yield potential.”

He says falling numbers in an open polinated rye would typically be low if the crop got rain during harvest. The seeds start to sprout and when that happens, falling numbers fall dramatically, as happens with any cereal crop.

But going head to head, even in wet conditions, Greer says falling numbers of the KWS hybrids will always be better than population rye. It’s not as if the KWS varieties are rain-proof, but they genetically have better falling numbers regardless of conditions.

“We’ve built a crop forecaster simulation model for hybrid rye. If you handle it like cowboy rye, you’re going to be disappointed. You’re going to have an ergoty mess and it’ll be less profitable than if you’d seeded population rye.”

Greer explains that the yield potential is determined by water, so the key is to match nitrogen to water availability if possible. He recommends getting enough nitrogen on in the spring so you can stay away from split applications.

“Our number one rule with these hybrids is don’t plant them unless you have a market. Keep in mind it’s an expensive crop to grow. Seed is \$60 per acre and you’ll need to spend a bunch on fertility. Make sure it pencils out before you decide because you’ll fill your bins so quickly.

“You’re going to bushel out, there’s no question. You could hit 200 bushels an acre. It’s possible. We’ve seen it on research plots.”

*This story was written by Ron Lyseng. It originally appeared in the Western Producer.*

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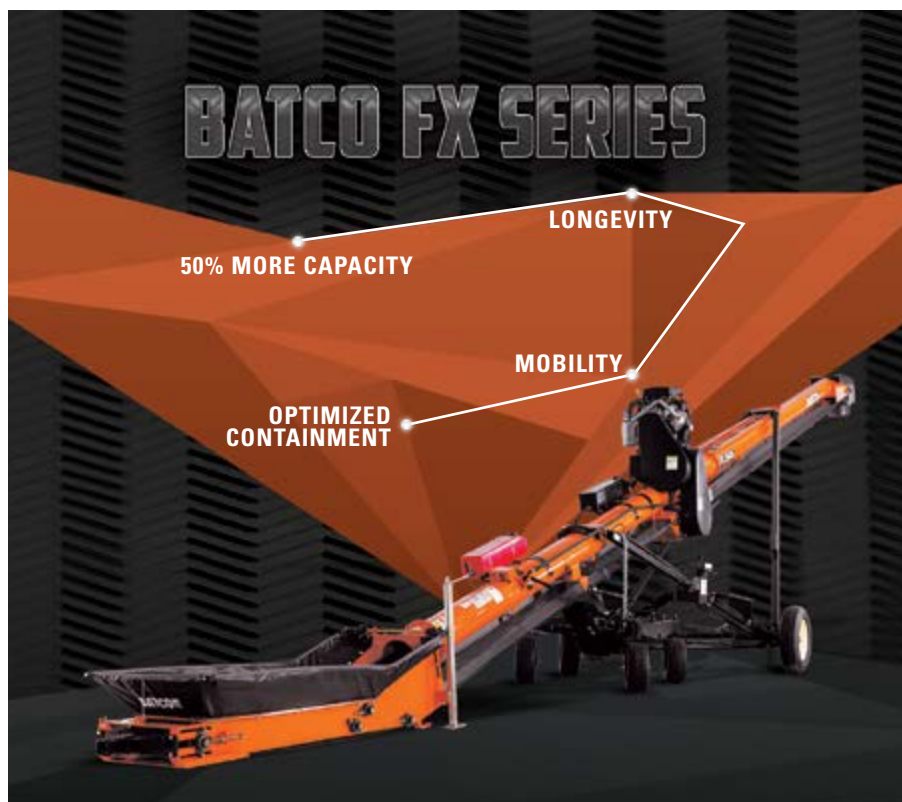
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## MIDGE TOLERANT WHEAT STEWARDSHIP GOES ONLINE

BY KAREN LEWIS  
SPECIAL TO SASKSEED

Growers of midge tolerant wheat are accustomed to signing a stewardship agreement with their seed retailers every year.

All of that changes in 2018 with the launch of an on-line digital platform and evergreen agreement.

The Midge Tolerant Wheat Stewardship Assurance Site (MTWSAS) is a secure, web-based tool designed to document the movement of certified midge tolerant wheat seed.

It makes it possible for users to create electronically signed stewardship agreements and to post sales transactions involving midge tolerant seed varieties.

The site is intended for use by seed distributors, seed retailers and seed growers.

"This new system creates a state of the art means of managing midge tolerant wheat stewardship while also making the process very efficient for everyone who utilizes this valuable technology," says Rod Merryweather, chief executive officer of FP Genetics, one of the six official distributors of midge tolerant wheat in Western Canada.

"It is a big step forward in protecting this valuable trait so resistance does not develop." Currently in Canada, midge tolerant wheat is sold to farmers under an agreement in order to ensure proper stewardship of the technology.

The agreement stipulates that the use of farm-saved midge tolerant seed must be limited to one generation past certified seed.

With MTWSAS, the stewardship principles do not change, but the process becomes a lot easier, according to Mike

Espeseth, communications manager for the Western Grains Research Foundation (WGRF) and co-chair of the Midge Tolerant Wheat Stewardship Committee.

"This online agreement replaces the paper-based version and manual process that we've used since the launch of midge tolerant wheat in 2009," said Espeseth.

"The online stewardship agreements are evergreen, which really simplifies things for everyone. Agreements are now signed digitally and farmers will only need to sign once, no matter where they buy their seed."

Stewardship agreements have been a vital part of protecting midge tolerant wheat technology for the past eight years.

During that time, paper-based agreements worked well, however Espeseth and the team knew that the process could be improved.

Ed Mazurkewich, a Business Development Consultant with AgCall said the new on-line system represents a significant improvement.

AgCall is the developer and host of the new retailer-driven platform.

"The new MTWSAS is simple and technologically advanced," said Mazurkewich.

"All wholesale and retail movement of certified midge tolerant wheat seed is posted to the MTWSAS by seed growers and retailers with a user-friendly interface."

Merryweather said he anticipates that the new process will save time and money for retailers.

It will eliminate the nuisance of duplicate agreements and add report-generating capabilities for their specific varieties.

"MTWSAS enables them to

manage their customer base and create reports that will help them to manage current and future sales of products," he said.

"It will also eliminate the onerous task of accumulating data for each farmer."

Distributors can expect to benefit as well, he said.

"We will have access to complete information on the sale of all of our products along with the absolute confidentiality we need in our business and for our farm and seed grower customers," Merryweather said.

An added bonus of the new system is that it serves as a good reminder to growers and retailers on the vital need for stewardship.

According to a survey conducted in the spring of 2017, more than 91 percent of Saskatchewan growers agreed that "it is critical to have a stewardship program in place to ensure that the effective life of the midge tolerance gene is protected."

The survey, which involved more than 1,000 wheat growers in Western Canada, also found that more than 92 of respondents were familiar with the stewardship agreement for midge tolerant wheat.

However, results showed that new growers are less familiar with the agreement than existing growers.

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2017-18 VARIETY LISTING

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**Small Red Lentils:** CDC Proclaim

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## PROPOSED LIST OF VARIETY REGISTRATION CANCELLATIONS

The Canadian Food Inspection Agency (CFIA) in consultation with the Canadian Grain Commission (CGC) has adopted a protocol for the cancellation of variety registrations upon request of the variety's Canadian representative and breeder.

Under this new, extended protocol, a 90-day notification of cancellation period will apply to varieties of all crop kinds except hybrid canola and rapeseed. Hybrid canola and rapeseed will require a one year notification period.

This timeline enables the Canadian representative and breeder to ensure that seed stocks of the variety have been cleared from

the market and that growers have been duly notified, well in advance, in order to clear seed stocks in farmers' operations.

This will help farmers to plan for the future and minimize any financial risk to their businesses. Notifications will be posted August 1st in each calendar year and the notification period is from that date forward.

The CFIA and CGC are committed to communicating to farmers well before varieties are cancelled.

Standardizing the period of cancellation will help to prevent financial risk to farmers by avoiding the planting of varieties

of field crops, which will no longer be registered for sale in Canada.

Variety registration cancellation for cause, such as non-compliance, fraud or loss of varietal integrity, is not part of this policy and remains an enforcement tool available to the registrar of the CFIA's Variety Registration Office.

The CFIA publishes the Proposed List of Variety Registration Cancellations with the date of cancellation. The list is revised annually on Aug. 1, and released by the VRO. The CGC revises their Variety Designation Lists throughout the year as changes occur.

Crop Kind	Variety	Reg. #	Date Registered	Date Posted	Date of Cancellation
Field green pea	Nitouche	4900	1999-04-14	2015-08-01	2018-08-01
Red Mexican type field bean	AC Scarlet	5217	2000-11-30	2015-08-01	2018-08-01
Pinto type field bean	AC Pintoba	4668	1998-01-16	2015-08-01	2018-08-01
Black type field bean	Carmen Black	6886	2010-09-23	2015-08-01	2018-08-01
Yellow field pea	AC Melfort	4861	1999-02-10	2015-08-01	2018-08-01
Spring Oat	AC Rebel	4705	1998-03-09	2015-08-01	2018-08-01
Two-Row Spring Barley	AC Bountiful	5028	1999-12-07	2015-08-01	2018-08-01
Potato	Morning Gold	4525	1997-03-21	2016-08-01	2019-08-01
Potato	Concurrent	4814	1998-10-06	2016-08-01	2019-08-01
Potato	Obelix	4815	1998-10-06	2016-08-01	2019-08-01
Potato	Van Gogh	4959	1999-07-23	2016-08-01	2019-08-01
Oilseed soybean	Olexrr *	5469	2002-04-29	2016-08-01	2019-08-01
Oilseed soybean	Vistarr *	5482	2002-05-14	2016-08-01	2019-08-01
Oilseed soybean	Riotrr *	5584	2003-01-31	2016-08-01	2019-08-01
Oilseed soybean	Toreorr *	5594	2003-03-06	2016-08-01	2019-08-01
Oilseed soybean	Lynxrr *	5759	2004-03-18	2016-08-01	2019-08-01
Oilseed soybean	Drakorr *	5813	2004-05-12	2016-08-01	2019-08-01
Oilseed soybean	PS 0027 RR *	6548	2009-02-24	2016-08-01	2019-08-01
Oilseed soybean	Hyperion *	6569	2009-03-16	2016-08-01	2019-08-01
Oilseed soybean	Fulgorarr *	6570	2009-03-16	2016-08-01	2019-08-01
Faba bean	Florent	6567	2009-03-16	2016-08-01	2019-08-01
Oilseed soybean	Isisrr *	6576	2009-03-26	2016-08-01	2019-08-01
Two-row spring barley	Hector	1433	1973-02-06	2017-08-01	2020-08-01
Hulless spring oat	Tibor	2534	1985-05-06	2017-08-01	2020-08-01
Hulless spring oat	AC Lotta	3414	1991-04-08	2017-08-01	2020-08-01
Oilseed soybean	9132	4166	1995-08-14	2017-08-01	2020-08-01



Crop Kind	Variety	Reg. #	Date Registered	Date Posted	Date of Cancellation
Hulless spring oat	AC Fregeau	4381	1996-08-09	2017-08-01	2020-08-01
Spring oat	AC Rebel	4705	1998-03-09	2017-08-01	2020-08-01
Two-row spring barley	AC Queens	4765	1998-06-02	2017-08-01	2020-08-01
Six-row spring barley	AC Westech	4769	1998-06-03	2017-08-01	2020-08-01
Six-row spring barley	AC Malone	4910	1999-04-30	2017-08-01	2020-08-01
Potato	NL10-RBK *	4928	1999-05-06	2017-08-01	2020-08-01
Potato	NL10-SUP *	4929	1999-05-06	2017-08-01	2020-08-01
Spring oat	Goslin	5157	2000-06-23	2017-08-01	2020-08-01
Spring oat	AC Vermont	5249	2001-02-21	2017-08-01	2020-08-01
Six-row spring barley	AC Vision	5323	2001-05-10	2017-08-01	2020-08-01
Two-row spring barley	Calder	5490	2002-05-24	2017-08-01	2020-08-01
Potato	NL30-RBK-82*	5501	2002-06-13	2017-08-01	2020-08-01
Potato	NL20-SHE *	5502	2002-06-13	2017-08-01	2020-08-01
Spring oat	Sherwood	5846	2004-08-04	2017-08-01	2020-08-01
Hulless two-row spring barley	Millhouse	6137	2006-05-19	2017-08-01	2020-08-01
Yellow field pea	Sorento	6303	2007-06-27	2017-08-01	2020-08-01
Spring oat	Stainless	6422	2008-04-07	2017-08-01	2020-08-01
Oilseed flax	Shape	6477	2008-06-27	2017-08-01	2020-08-01
Two-row spring barley	Norman	6534	2009-02-02	2017-08-01	2020-08-01

\* Plant with novel trait or derived from plant with novel trait.

Objections to any of the above proposed cancellations must be submitted in writing before the proposed cancellation date to the Variety Registration Office, Canadian Food Inspection Agency, 59 Camelot Drive, Ottawa, Ontario, K1A 0Y9, or by facsimile to 613-773-7115.

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“The new system enables us to identify any grower that may be out of compliance so we can follow up,” said Merryweather.

“The key is we have the tools to protect this valuable technology and to keep it working for farmers for many years to come.”

Mazurkewich said distributors, retailers and seed growers will require a new authorized retailer number in order to access the new system.

This number is obtained by successfully passing the updated retailer training located at [midgetolerantwheat.ca](http://midgetolerantwheat.ca) and by signing a new retailer stewardship agreement at [MTWSA.ca](http://MTWSA.ca).

“New processes incur new actions and perhaps new ques-

“The key is we have the tools to protect this valuable technology and to keep it working for farmers for many years to come.”

ROD MERRYWEATHER | FP GENETICS

tions,” said Mazurkewich, adding that AgCall is committed to providing ongoing support.

“Users will have access to four videos outlining how to use MTWSAS once they receive

their login information.”

Merryweather said midge tolerant wheat continues to deliver \$36 per acre of value to those who use it each and every year.

MTWSAS is administered and managed by AgCall with oversight by the Canadian Plant Technology Agency to ensure privacy and confidentiality.

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# SASKATCHEWAN PEDIGREED SEED GROWERS

## DIRECTORY OF CROP VARIETIES

This list was prepared by the Canadian Seed Growers Association. It includes varieties eligible for sale in Canada and seed crops issued certificates as of Nov. 22, 2017. CSGA assumes no responsibility for errors or omissions. Varieties followed by an asterisk include reconstituted flax varieties and midge tolerant wheat varieties that are subject to additional certification requirements, ACRs, such as post harvest testing. For all varieties in this list, the pedigreed class code is listed after the grower's phone number. S = Select, F = Foundation, R = Registered, C = Certified.

ALFALFA				
<b>2010</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932	F	C
<b>3010</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
Marchildon, Vince & Daniel	Zenon Park	306-767-2455		C
<b>4010BR</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>4020MF</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>4030</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932	F	C
<b>54Q14</b>				
Kushniruk, David	Melville	306-728-5835		C
<b>ABLE</b>				
Pickseed Canada Inc.	Winnipeg	204-633-0088		C
<b>AC CARIBOU</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>ALGONQUIN</b>				
Aitken, Robert	Eyebrow	306-759-2700		C
Le Bras, Mart & Evan	Arborfield	306-769-8506		C
Marchildon, Joel	Zenon Park	306-812-8419		C
Marchildon, Vince & Daniel	Zenon Park	306-767-2455		C
Weighill, Ron	Carrot River	306-768-3560		C
Wildeman, Maurice Don	Lanigan	306-365-4395		C
<b>DOMINATOR</b>				
Marchildon, Joel	Zenon Park	306-812-8419		C
<b>HORNET (USA = MAGNUM V)</b>				
Alforex Seeds	Homedale	208-337-4693		C
<b>LEGENDAIRY XHD</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>MATRIX</b>				
Interlake Forage Seeds Ltd.	Fisher Branch	204-372-6920		C
<b>OPTIMUS</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>PHABULOUS</b>				
Ag-Vision Seeds Ltd.	Carrot River	306-768-3335		C
<b>PICKSEED 2065MF</b>				
Pickseed Canada Inc.	Winnipeg	204-633-0088		C
<b>SHOCKWAVE-BR</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>SURVIVOR</b>				
Brett-Young Seeds Limited	St. Norbert	204-261-7932		C
<b>BARLEY</b>				
<b>AAC CONNECT</b>				
Cay, Randy D.	Kinistino	306-864-3696		R
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S	R
Mayerle, Erwin D.	Tisdale	306-873-4261		R
Wylie, Leslie Dale	Biggar	306-948-2807	F	R
<b>AAC SYNERGY</b>				
Cay, Randy D.	Kinistino	306-864-3696		C
Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337		C

Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785		C
Gerry, Greg	Creelman	306-457-2220		C
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516		C
Hyndman, Neil S.	Balcarres	306-331-8168		C
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315		R
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn & Darryl & Bolt, Glen A.	Wynyard	306-554-2078		R
McDougall, Ken & Craig	Moose Jaw	306-693-3649		R C
Smith, Wayne D.	Limerick	306-263-4944		C
Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397	S	F R
Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397	S	F R
<b>AC HARPER</b>				
Seed Increase Unit, Research Farm	Indian Head	306-695-5266	S	
<b>AC METCALFE</b>				
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602		R
Beuker, Allan Daniel & Wilbur A.	Melfort	306-752-4810		C
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058		C
Boyd, Clare W. & Dale A.	Melfort	306-752-2564		C
Boyes, Douglas John	Kelvington	306-327-4980		C
Edmunds, Greg & Glen	Tisdale	306-873-4780		C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438		R
Fraser, Scott & Shawn	Pambrun	306-741-0475	F	R
Frederick, Blaine	Watson	306-287-3977		R C
Gaertner, Lyle	Tisdale	306-873-4936		C
Heavin, G. Harvey & G. Ryan	Melfort	306-752-4171		R
Heavin, Milton Russell	Melfort	306-752-4071		C
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694		R C
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn & Darryl & Bolt, Glen A.	Wynyard	306-554-2078	S	F R
Lung Seeds Ltd.	Lake Lenore	306-368-2414		C
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991		C
Novak, Orrin	Kuroki	306-338-2021		C
Novak, Roy	Wadena	306-338-2608		C
Olynick, Marlon	Quill Lake	306-383-2920		C
Ostafie, Robert	Canora	306-563-6244		R
Pratchler, Leander	Muenster	306-682-3317		C
Rempel, Blair Allan	Nipawin	306-862-3573		R
Seed Source Inc.	Archerwill	306-323-4402		R C
Seidle, Edward, Brett, Cameron J. & Mervyn Anthony	Medstead	306-342-4377	S	R C
South, Winston, Richard & Bradley	Melfort	306-752-9840		F C
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	S	F R C
Wiens, Brennan R.	Herschel	306-377-2002		C
Woroschuk, Andrew	Calder	306-742-4682		C
Youzwa, Donald	Nipawin	306-862-5690		C
Zwingli, James Trent & Shelley	Melfort	306-752-4224		R
<b>AC RANGER</b>				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F R
<b>AC ROSSER</b>				
Kerber, Greg	Rosthern	306-232-4474		C
Pogu, Jean	Duck Lake	306-467-4903		C
<b>CDC ASCENT</b>				
Tomtene, Steven & Brad	Birch Hills	306-749-3447		C

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CDC AUSTENSON				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F
Buziak, Ronald Charles	Mayfair	306-445-6556		C
Ennis, Garnet, Neil & Schmidt, Jordan	Glenavon	306-429-2793		C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		C
Girodat, Gerald	Shaunavon	306-297-2563		C
Goossen, Mathew	Stenen	306-547-7432		C
Ostafie, Robert	Canora	306-563-6244	S	F
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917		C
Pogu, Jean	Duck Lake	306-467-4903		C
Sayers, Charlie Joseph	Delmas	306-445-6522		C
Seidle, Edward, Brett, Cameron J. & Mervyn Anthony	Medstead	306-342-4377		C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	F
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811		C
Woroschuk, Andrew	Calder	306-742-4682		C
<b>CDC BOW</b>				
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058		C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		R
Hanley, Erwin & Priscilla	Regina	306-586-4509		C
Heavin, Milton Russell	Melfort	306-752-4071	S	F
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.	Wynyard	306-554-2078	S	F
Tomtene, Steven & Brad	Birch Hills	306-749-3447		F R
<b>CDC CARTER</b>				
Pender, Joseph M.	Saskatoon	306-374-4933	S	C
<b>CDC CLEAR</b>				
Tomtene, Steven & Brad	Birch Hills	306-749-3447		F
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	F
<b>CDC COPELAND</b>				
Ackerman, Patrick	Chamberlain	306-638-3177		F
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415		R
Beausoleil, Michael	Delmas	306-445-9106		C
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S	R C
Beuker, Allan Daniel & Wilbur A.	Melfort	306-752-4810		C
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963		C
Daviduk, Philip	Wadena	306-630-9034		C
Denis, Michel P. & Marc	St. Denis	306-258-2219		C
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis	306-528-2140		R
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		C
Filarczuk, Peter	Ituna	306-795-2871		C
Frederick, Blaine	Watson	306-287-3977		R C
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785		C
Fritzler, Baine A. & Adam A.	Govan	306-484-2010		C
Gerry, Greg	Creelman	306-457-2220		C
Girodat, Gerald	Shaunavon	306-297-2563		C
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516		F R
Heavin, G. Harvey & G. Ryan	Melfort	306-752-4171		F
Heavin, Larry N. & L. Warren	Melfort	306-752-4020	S	
Heggie, Robert Thomas	Leross	306-675-4920		C
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694		C
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315		C
Laforge, Troy	Swift Current	306-773-0924		C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433		C
Mayerle, Erwin D.	Tisdale	306-873-4261		C
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991		C
Novak, Orrin	Kuroki	306-338-2021		C
Rude, Stanley	Naicam	306-874-2359		C
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638	S	F
Schultz, Bernard J	Kuroki	306-338-2082		C
Seed Source Inc.	Archerwill	306-323-4402		F R
Seidle, Edward, Brett & Cameron J. & Mervyn Anthony	Medstead	306-342-4377		R
Smysniuk, Delon	Ituna	306-795-7691		C
Toman, Rick & Randy	Guernsey	306-365-8386		C
Trawn Seeds	Melfort	306-752-4060		C

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Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	S	F	R	C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	F	R	C
Wiens, Brennan R.	Herschel	306-377-2002				C
Wiens, Steven & Shammy	Wymark	306-773-9547				C
Wylie, Leslie Dale	Biggar	306-948-2807				C
Zauck, Kevin Rodney	Govan	306-484-4555				C
Zwingli, James Trent & Shelley	Melfort	306-752-4224				C
<b>CDC FIBAR</b>						
Tomtene, Steven & Brad	Birch Hills	306-749-3447				C
<b>CDC FRASER</b>						
Lung Seeds Ltd.	Lake Lenore	306-368-2414		F		
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991	S	F		
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638			R	
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley	306-778-2344	S			
Thompson, Jan Harris	Naicam	306-874-7138	S	F		
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	S	F		
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S			
Yauck, Kevin Rodney	Govan	306-484-4555	S			
<b>CDC GOLDSTAR</b>						
Tomtene, Steven & Brad	Birch Hills	306-749-3447	S			
<b>CDC KINDERSLEY</b>						
Woroschuk, Andrew	Calder	306-742-4682				C
<b>CDC MAVERICK</b>						
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F		C
Hicks, Dale & Barry	Mossbank	306-867-8674				C
Trawin Seeds	Melfort	306-752-4060				C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	F		C
<b>CDC MCGWIRE</b>						
Pender, Joseph M.	Saskatoon	306-374-4933				C
Pender, Richard Joseph	Saskatoon	306-651-4680	S			
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377			R	
<b>CDC PLATINUM STAR</b>						
Mayerle, Erwin D.	Tisdale	306-873-4261				C
Tomtene, Steven & Brad	Birch Hills	306-749-3447			R	
Wylie, Leslie Dale	Biggar	306-948-2807				C
<b>CDC POLAR STAR</b>						
Wiens, Brennan R.	Herschel	306-377-2002			R	
<b>CDC RATTAN</b>						
Hetland, Ronald	Spalding	306-872-4617	S	F	R	
Tomtene, Steven & Brad	Birch Hills	306-749-3447	S			
<b>CLAYMORE</b>						
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011				C
Stokke, Shane T.	Watrous	306-946-4044				C
<b>CONLON</b>						
Kerber, Greg	Rosthern	306-232-4474				C
<b>LEGACY</b>						
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602				C
Cay, Randy D.	Kinistino	306-864-3696				C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438			R	
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694			R	
Latrace, Bill	Caronport	306-693-2626				C
Ostafie, Robert	Canora	306-563-6244			R	
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377			R	
<b>LOWE</b>						
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516	S			
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S			
<b>MAJOR</b>						
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377				
<b>SIRISH</b>						
Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397		F		
<b>BEAN</b>						
<b>CDC MARMOT</b>						
Gizen, Jason	Prelate	306-628-8127		F		
<b>CDC WM-2</b>						
Walker, Wes & David	Outlook	306-873-7733				C

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Ag-Vision Seeds Ltd.	Carrot River	306-768-3335				C
<b>AC ROCKET</b>						
Pliska, Ricky	Dorintosh	306-236-3329				C
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011				C
<b>AC SUCCESS</b>						
Pickseed Canada Inc.	Winnipeg	204-633-0088		F		C
<b>ARMADA</b>						
Trawin Seeds	Melfort	306-752-4060		F		C
<b>CARLTON</b>						
Hochbaum, Jack	Wilkie	306-843-2054				C
<b>MBA</b>						
Pickseed Canada Inc.	Winnipeg	204-633-0088				C
<b>SIGNAL</b>						
Ag-Vision Seeds Ltd.	Carrot River	306-768-3335				C
<b>CANARYGRASS</b>						
<b>CDC CIBO</b>						
Clancy, Kenneth	Carrot River	306-768-2902		F	R	
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785			R	
Herle, Gregory & Andrew E.	Wilkie	306-843-2934		F		
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694	S	F	R	
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315		F		
Lung Seeds Ltd.	Lake Lenore	306-368-2414		F		
Mayerle, Kris	Tisdale	306-873-4261		R		
Simpson, Jamie P.	Moose Jaw	306-693-9402		F		
Wiens, Brennan R.	Herschel	306-377-2002			R	
<b>CANTATE</b>						
Hansen, James S.	Yellow Grass	306-465-2525				C
<b>CDC CALVI</b>						
Fast, Walter J. & Linda	Kindersley	306-463-3626			R	
Gizen, Jason	Prelate	306-628-8127				C
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315				C
Klym, Roy	Regina	306-543-5052				C
Mayerle, Kris	Tisdale	306-873-4261				C
Wiens, Brennan R.	Herschel	306-377-2002				C
<b>CHICKPEA</b>						
<b>CDC CONSUL</b>						
Gizen, Jason	Prelate	306-628-8127	S			
<b>CDC LEADER</b>						
Reisner, Cecil & Barry	Limerick	306-263-2139		F	R	
Simpson, Trevor W.	Moose Jaw	306-693-9402			R	
Watson, Wayne Donald & Calvin & Mark	Avonlea	306-868-4402				C
<b>CDC ORION</b>						
Reisner, Cecil & Barry	Limerick	306-263-2139		F	R	
<b>CDC PALMER</b>						
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	S	F	R	
<b>CLOVER</b>						
<b>ALTASWEDE</b>						
Pickseed Canada Inc.	Winnipeg	204-633-0088				C
<b>AURORA</b>						
Ag-Vision Seeds Ltd.	Carrot River	306-768-3335				C
Pickseed Canada Inc.	Winnipeg	204-633-0088				C
<b>BELLE</b>						
Pickseed Canada Inc.	Winnipeg	204-633-0088		F		
<b>DAWN</b>						
Pickseed Canada Inc.	Winnipeg	204-633-0088				C
<b>FABA BEAN</b>						
<b>CDC SNOWDROP</b>						
Cay, Randy D.	Kinistino	306-864-3696				C
Forer, Tim & Denise	Avonlea	306-868-4433		S		
Herle, Gregory & Andrew E.	Wilkie	306-843-2934				C

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FABA BEANS	Noble, Garry	Mossbank	306-354-2679	S			
	Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917			C	
	Reisner, Cecil & Barry	Limerick	306-263-2139		R		
	Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800	F		C	
	<b>SNOWBIRD</b>						
	Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602		R		
	Cay, Randy D.	Kinistino	306-864-3696			C	
	Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337			C	
	Lung Seeds Ltd.	Lake Lenore	306-368-2414			C	
	Mayerle, Erwin D.	Tisdale	306-873-4261			C	
Trawin Seeds	Melfort	306-752-4060	S		C		
<b>TABASCO</b>							
Crosson, Lorne & Will & Lee & Glen	Welwyn	306-645-3337			C		
FESCUE	<b>FESCUE</b>						
	<b>SW MINTO</b>						
	Ag-Vision Seeds Ltd.	Carrot River	306-768-3335			C	
	<b>FLAX</b>						
	<b>AAC BRAVO</b>						
	Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963			C	
	Hyndman, Neil S.	Balcarres	306-331-8168			C	
	Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730		R		
	<b>AAC BRIGHT</b>						
	Amos, K. Wayne	Oxbow	306-483-2963	S			
Boldt, Garry	Osler	306-239-2071		R			
Fraser, Scott & Shawn	Pambrun	306-741-0475		R			
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785		R			
Hanley, Erwin & Priscilla	Regina	306-586-4509		R			
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409		R			
Ostafie, Robert	Canora	306-563-6244	S	R			
Reisner, Cecil & Barry	Limerick	306-263-2139	S	R			
Tauber, Clayton & Lori	Stewart Valley	306-773-7907		R			
Tomtene, Steven & Brad	Birch Hills	306-749-3447		R			
Trawin Seeds	Melfort	306-752-4060	S	R			
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	R			
<b>AAC MARVELOUS</b>							
Smith, Ron T.W. & Barb A.	Limerick	306-263-4944	S				
Trowell, Leslie	Saltcoats	306-744-2684	S				
<b>AAC PRAIRIE SUNSHINE</b>							
Trowell, Leslie	Saltcoats	306-744-2684		F			
<b>CDC BETHUNE</b>							
Allan, Raymond N. & Ruth	Corning	306-224-4666			C		
Amos, K. Wayne	Oxbow	306-483-2963		R			
Beuker, Allan Daniel & Wilbur A.	Melfort	306-752-4810			C		
Fraser, Scott & Shawn	Pambrun	306-741-0475			C		
Fritzler, Baine A. & Adam A.	Govan	306-484-2010		R			
Lung Seeds Ltd.	Lake Lenore	306-368-2414		R			
Sandercock, Eric M.	Balcarres	306-334-2958			C		
<b>CDC BURYU</b>							
Hanley, Erwin & Priscilla	Regina	306-586-4509		F			
Reisner, Cecil & Barry	Limerick	306-263-2139	S	R			
Stirton, Brian James	Moose Jaw	306-693-2310	S				
Trowell, Leslie	Saltcoats	306-744-2684		F			
<b>CDC GLAS</b>							
Allan, John Richard	Corning	306-457-7310	S				
Beausoleil, Michael	Delmas	306-445-9106		R			
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S		C		
Beuker, Allan Daniel & Wilbur A.	Melfort	306-752-4810		R			
Bodnaryk, John E. & Ian & Vangen, Stacy	Rhein	306-273-4263		R			
Dutton, David H. & George	Paynton	306-441-6799			C		
Fritzler, Baine A. & Adam A.	Govan	306-484-2010		R	C		
Gaertner, Lyle	Tisdale	306-873-4936		R			
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516			C		
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Ostafie, Robert	Canora	306-563-6244			C	
Seed Source Inc.	Archerwill	306-323-4402		R		
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800			C	
Stokke, Shane T.	Watrous	306-946-4044			C	
<b>CDC NEELA</b>						
Mayerle, Erwin D.	Tisdale	306-873-4261			C	
Simpson, Jamie P.	Moose Jaw	306-693-9402			C	
<b>CDC PLAVA</b>						
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235			R	
Mayerle, Garry D.	Tisdale	306-873-5993		F		
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638		F		
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687			R	
Yauck, Kevin Rodney	Govan	306-484-4555	S	F	R	
<b>CDC SANCTUARY</b>						
Fraser, Scott & Shawn	Pambrun	306-741-0475			C	
Gilmour, Ronald W.	Craik	306-734-7727			R	
Noble, Garry	Mossbank	306-354-2679		F	C	
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917			C	
Schmeling, Donald H.	Riceton	306-530-1052			R	
<b>CDC SORREL</b>						
Allan, J. Garth	Corning	306-457-2729			C	
Allan, John Richard	Corning	306-457-7310			C	
Altwasser, Rodney, Allen R. & Dean	Yellow Grass	306-465-2727			C	
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602			C	
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	S	F	R	
Reisner, Cecil & Barry	Limerick	306-263-2139			C	
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638	S	F	R	
Trawin Seeds	Melfort	306-752-4060			R	
<b>OMEGA</b>						
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785			C	
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Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S	F	C	
<b>WESTLIN 72</b>						
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011			R	
Sayers, Charlie Joseph	Delmas	306-445-6522			R	
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<b>CFX-1</b>						
Genetics International Inc.	Saskatoon	604-882-4936			R	
<b>CFX-2</b>						
Hemp Genetics International Inc.	Saskatoon	604-882-4936			C	
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	
<b>FINOLA</b>						
Fresh Hemp Foods Ltd. (FHF)	Ste. Agathe	204-882-2480		F	R	
Mayerle, Kris	Tisdale	306-873-4261			C	
Silcox, James	Nipawin	306-768-7710			C	
Trowell, Leslie	Saltcoats	306-744-2684		F		
<b>GRANDI</b>						
Aberhart, Terry	Langenburg	306-743-7657			C	
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	
<b>HEMPNUT</b>						
Benson, Thomas	Regina	306-586-3293			C	
Campbell, Hugh	Qu'appelle	306-699-2967			R	
Terramax Holdings Corp.	Qu'appelle				C	
<b>KATANI</b>						
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	
Vandenbergh, Albert Dr.	Saskatoon	306-242-4099			C	
<b>PICOLO</b>						
Adema, Nathan	Outlook	519-718-2116			R	
Hemp Genetics International Inc.	Saskatoon	604-882-4936			R	

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<b>CDC GREENLAND</b>			
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley	306-778-2344	R
<b>CDC GREENSTAR</b>			
Blumer, Brad & Doug	Dinsmore	306-846-2124	C
Fraser, Scott & Shawn	Pambrun	306-741-0475	S R C
Klym, Roy	Regina	306-543-5052	S F R
Laforge, Troy	Swift Current	306-773-0924	C
Mattus, Ronald	Chaplin	306-395-2652	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	S F R C
Moen, Jim	Cabri	306-587-2214	S R
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	R
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	C
Reisner, Cecil & Barry	Limerick	306-263-2139	R C
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley	306-778-2344	S
Simpson, Jamie P.	Moose Jaw	306-693-9402	S F C
Wiens, Brennan R.	Herschel	306-377-2002	C
Wiens, Steven & Shammy	Wymark	306-773-9547	C
Wylie, Leslie Dale	Biggar	306-948-2807	C
<b>CDC IMPOWER</b>			
Garratt, Lyle C. & K.C.	Milestone	306-436-2178	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	R C
Wiens, Brennan R.	Herschel	306-377-2002	R
<b>CDC IMPROVE</b>			
Schmeling, Donald H.	Riceton	306-530-1052	S F C
<b>CDC IMPULSE</b>			
Amos, K. Wayne	Oxbow	306-483-2963	R
Benson, Cory	Central Butte	306-891-6885	C
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	F
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236	F C
Denis, Michel P. & Marc	St. Denis	306-258-2219	C
Fowler, Edith	Central Butte	306-796-4652	C
Fraser, Scott & Shawn	Pambrun	306-741-0475	C
Girodat, Gerald	Shaunavon	306-297-2563	C
Gizen, Jason	Prelate	306-628-8127	C
Hansen, James S.	Yellow Grass	306-465-2525	R C
Heenan, Thomas Dale & Deb	Regina	306-522-9375	S
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	S F R C
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917	C
Reisner, Cecil & Barry	Limerick	306-263-2139	C
Riviere, Paul	Radville	306-869-7629	C
Schmeling, Donald H.	Riceton	306-530-1052	S F
Sopatky, Jeffery & Patti	Saskatoon	306-227-7867	R
Straub, Lorne A.	Pense	306-345-2390	R
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	C
Wiens, Brennan R.	Herschel	306-377-2002	C
Wiens, Steven & Shammy	Wymark	306-773-9547	C
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Day, Ryan	Rouleau	306-596-0262	R
Garratt, Lyle C. & K.C.	Milestone	306-436-2178	C
Stirton, Brian James	Moose Jaw	306-693-2310	C
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	C
<b>CDC KERMIT</b>			
Day, Ryan	Rouleau	306-596-0262	C
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785	C
Heenan, Thomas Dale & Deb	Regina	306-522-9375	S
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	C
Simpson, Jamie P.	Moose Jaw	306-693-9402	C
Wiens, Steven & Shammy	Wymark	306-773-9547	C
<b>CDC MARBLE</b>			
Greenshields, Grant, Thomas & Callie	Semans	306-524-4339	C
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Fraser, Scott & Shawn	Pambrun	306-741-0475	C
Keyser, Robert Sean	Cupar	306-723-4949	C
Schmeling, Donald H.	Riceton	306-530-1052	C
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	C
Wiens, Brennan R.	Herschel	306-377-2002	C
Wiens, Steven & Shammy	Wymark	306-773-9547	C
<b>CDC PERIDOT</b>			
Yauck, Kevin Rodney	Govan	306-484-4555	S
<b>CDC PROCLAIM</b>			
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	C
Blumer, Brad & Doug	Dinsmore	306-846-2124	C
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	C
Crone, Vaughn & Tammie	Moose Jaw	306-691-5284	C
Fast, Walter J. & Linda	Kindersley	306-463-3626	C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	S
Fox, Myles & Trena	Gravelbourg	306-648-2800	C
Fraser, Scott & Shawn	Pambrun	306-741-0475	S
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785	C
Fritzler, Baine A. & Adam A.	Govan	306-484-2010	C
Huber, Daniel & Rebecca	Landis	306-658-4200	C
Keyser, Robert Sean	Cupar	306-723-4949	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	R C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	R
Sand, Evan	Limerick	306-263-4944	R
Simpson, Trevor W.	Moose Jaw	306-693-9402	S F C
Smith, Ron T.W. & Barb A.	Limerick	306-263-4944	R
Stauber, Clayton & Lori	Stewart Valley	306-773-7907	C
Wiens, Brennan R.	Herschel	306-377-2002	C
Wylie, Leslie Dale	Biggar	306-948-2807	C
<b>CDC QG-2</b>			
Klym, Roy	Regina	306-543-5052	C
<b>CDC REDCLIFF</b>			
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236	R
<b>CDC REDMOON</b>			
Ackerman, Patrick	Chamberlain	306-638-3177	F
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	F R
Fraser, Scott & Shawn	Pambrun	306-741-0475	S R
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785	C
<b>INDIAN HEAD</b>			
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<b>MUSTARD</b>			
<b>AAC ADAGIO</b>			
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<b>AAC ORIENTAL 200</b>			
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<b>AC VULCAN</b>			
Fraser, Scott & Shawn	Pambrun	306-741-0475	C
<b>ANDANTE</b>			
Fraser, Scott & Shawn	Pambrun	306-741-0475	F C
<b>CENTENNIAL</b>			
Fritzler, Baine A. & Adam A.	Govan	306-484-2010	C
<b>OATS</b>			
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Fedoruk, Michael J.	Kamsack	306-542-4235	R C
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Rempel, Blair Allan	Nipawin	306-862-3573		C
Seidle, Edward, Brett, Cameron J. & Mervyn Anthony	Medstead	306-342-4377	R	C
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	R	C
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R	C
<b>CDC ARBORG</b>				
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S	
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<b>CDC BALER</b>				
Lueke, Dennis	Humboldt	306-682-5170	R	
<b>CDC DANCER</b>				
Jones, Bradley, Wanda, Tennille & Jennifer	Wadena	306-338-2381	S	F R C
<b>CDC HAYMAKER</b>				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F C
Axten, Derek	Minton	306-969-2110		C
Hicks, Dale & Barry	Mossbank	306-867-8674		C
Kerber, Greg	Rosthern	306-232-4474		C
<b>CDC MINSTREL</b>				
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Jones, Bradley, Wanda, Tennille & Jennifer	Wadena	306-338-2381	S	F R
Klym, Roy	Regina	306-543-5052		C
Littman, Larry W. & Allan Blake & L. Robert & Adam	Saltcoats	306-783-2512		R
Ostafie, Robert	Canora	306-563-6244		C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984		R
<b>CDC MORRISON</b>				
Seed Source Inc.	Archerwill	306-323-4402	S	R
<b>CDC NASSER</b>				
Trowell, Leslie	Saltcoats	306-744-2684	F	R
<b>CDC NORSEMAN</b>				
Dear, Jonathon	Saskatoon	306-947-4740		C
Latrace, Bill	Caronport	306-693-2626		R
Ostafie, Robert	Canora	306-563-6244		C
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687		R
<b>CDC RUFFIAN</b>				
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Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	S	F R
Frederick, Blaine	Watson	306-287-3977		C
Heggie, Robert Thomas	Leross	306-675-4920		C
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694		C
Jones, Bradley, Wanda, Tennille & Jennifer	Wadena	306-338-2381		R
Lueke, Dennis	Humboldt	306-682-5170		R
Mayerle, Kris	Tisdale	306-873-4261		C
McDougall, Ken & Craig	Moose Jaw	306-693-3649		C
Seed Source Inc.	Archerwill	306-323-4402	S	F C
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<b>CDC SO-I</b>				
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Winterhalt, Tim	Unity	306-228-3170		C
Wohlgemuth, John & Candace	Bredenbury	306-898-2006		C
<b>CS CAMDEN</b>				
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602		R
Bohun, Randy	Richard	306-481-5252		R
Fedoruk, Michael J.	Kamsack	306-542-4235		C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	F	C
Frederick, Blaine	Watson	306-287-3977		C
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694		C
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315		C
Lung Seeds Ltd.	Lake Lenore	306-368-2414		R

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Mayerle, Kris	Tisdale	306-873-4261		C
Novak, Orrin	Kuroki	306-338-2021		R
Seed Source Inc.	Archerwill	306-323-4402		C
South, Winston, Richard & Bradley	Melfort	306-752-9840	F	R
Trawin Seeds	Melfort	306-752-4060		C
Trowell, Leslie	Saltcoats	306-744-2684	F	R
<b>GEHL</b>				
Seed Increase Unit, Research Farm	Indian Head	306-695-5266	S	
<b>LEGGETT</b>				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	F	
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438		R
<b>ORE3541M</b>				
Ostafie, Robert	Canora	306-563-6244	S	
<b>ORE3542M</b>				
Larsen, Lyle L.	Aylsham	306-862-7333	S	
Ostafie, Robert	Canora	306-563-6244	S	
Rempel, Blair Allan	Nipawin	306-862-3573	S	
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	S	
<b>SOURIS</b>				
Bodnaryk, John E., Ian & Vangen, Stacy	Rhein	306-273-4263		C
<b>SUMMIT</b>				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F R
Beuker, Allan Daniel & Wilbur A.	Melfort	306-752-4810		C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		R
Frederick, Blaine	Watson	306-287-3977		C
Ostafie, Robert	Canora	306-563-6244		C
Sayers, Charlie Joseph	Delmas	306-445-6522		R
Shwaga, Jeff W.	Wroxton	306-742-4590		C
Trowell, Leslie	Saltcoats	306-744-2684		R
<b>TRIACTOR</b>				
Mayerle, Kris	Tisdale	306-873-4261		C
<b>PEAS</b>				
<b>AAC ARDILL</b>				
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S	F R
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939		R
Hanley, Erwin & Priscilla	Regina	306-586-4509		R
Hicks, Dale & Barry	Mossbank	306-867-8674		R
McDougall, Ken & Craig	Moose Jaw	306-693-3649		R C
Trowell, Leslie	Saltcoats	306-744-2684	S	
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811		R
Winterhalt, Tim	Unity	306-228-3170		C
Wylie, Leslie Dale	Biggar	306-948-2807		R
<b>AAC CARVER</b>				
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058		R
Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337	S	
Dowdeswell, Donald D.	Pennant	306-626-3388		C
Fedoruk, Michael J.	Kamsack	306-542-4235	F	
Herle, Gregory & Andrew E.	Wilkie	306-843-2934		C
Hyndman, Glen	Balcarres	306-331-8168		R C
Johnson, Oscar Stuart & Lee Stuart	Margo	306-324-4315		R C
Kemper, Russell & Donna	Fulda	306-682-4929	F	R
Klym, Roy	Regina	306-543-5052		R C
Mayerle, Erwin D.	Tisdale	306-873-4261		R
Trowell, Leslie	Saltcoats	306-744-2684	F	
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714		R
Winterhalt, Tim	Unity	306-228-3170		R C
Wylie, Leslie Dale	Biggar	306-948-2807		C
<b>AAC CHROME</b>				
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S	
Trowell, Leslie	Saltcoats	306-744-2684	S	
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	S	
Woods, Dale Arthur	Rocanville	306-645-4423	S	
<b>AAC COMFORT</b>				
Pfeifer, Robert G.	Lemberg	306-335-2532	F	

OATS

PEAS







PEAS

Mcarthur, Brennan	Watrous	306-230-9853	R
Moens, Brant	Stewart Valley	306-773-9059	C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	R
Ostafie, Brendan	Canora	306-563-6244	S F R
Reisner, Cecil & Barry	Limerick	306-263-2139	S F R
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638	S F R
Shymanski, Ronald Albert	Choiceland	306-428-2405	S
Smith, Kyle	Limerick	306-263-4944	R
Smith, Wayne D.	Limerick	306-263-4944	R
Sopatyk, Jeffery & Patti	Saskatoon	306-227-7867	S R
Thompson, Jan Harris	Naicam	306-874-7138	F R
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	R
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	S F R
Yauck, Kevin Rodney	Govan	306-484-4555	S F R
<b>CDC JASPER</b>			
Trawin Seeds	Melfort	306-752-4060	S
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S
<b>CDC LIMERICK</b>			
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	R
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058	C
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516	F C
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	C
<b>CDC MEADOW</b>			
Floberg, Barry, Delana, Devin & Brandon	Shaunavon	306-297-2087	C
Kondratowicz, Frank	Unity	306-228-3684	C
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917	C
Trawin Seeds	Melfort	306-752-4060	C
<b>CDC MOSAIC</b>			
Greenshields, Grant & Thomas & Callie	Semans	306-524-4339	C
<b>CDC RAEZER</b>			
Amos, K. Wayne	Oxbow	306-483-2963	C
Fraser, Edward H., Glen & Dale	Yarbo	306-745-3830	C
Jones, Bradley, Wanda, Tennille & Jennifer	Wadena	306-338-2381	C
Rude, Stanley	Naicam	306-874-2359	C
Simpson, Trevor W.	Moose Jaw	306-693-9402	R
<b>CDC SAFFRON</b>			
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058	C
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.	Wynyard	306-554-2078	R C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800	C
Woods, Dale Arthur	Rocanville	306-645-4423	C
<b>CDC SPECTRUM</b>			
Amos, K. Wayne	Oxbow	306-483-2963	S
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S F
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S F
Bryant, Lee, Phyl, Vern & Carol	Battleford	306-937-3565	F
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	R
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	S
Denis, Michel P. & Marc	St. Denis	306-258-2219	F
Dutton, David H. & George	Paynton	306-441-6799	F
Fast, Walter J. & Linda	Kindersley	306-463-3626	F
Fedoruk, Michael J.	Kamsack	306-542-4235	F
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	S F
Greenshields, Grant, Thomas & Callie	Semans	306-524-4339	S
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	R
Kemper, Russell & Donna	Fulda	306-682-4929	F
Klemmer, Richard	Nipawin	306-862-3874	F
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.	Wynyard	306-554-2078	S F
Littman, Larry W. & Allan Blake & L. Robert & Adam	Saltcoats	306-783-2512	S F
Mattus, Ronald	Chaplin	306-395-2652	F
McDougall, Ken & Craig	Moose Jaw	306-693-3649	S F
Moens, Jim	Cabri	306-587-2214	S F

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**BARLEY:** CDC Austenson. **GREEN LENTILS:** CDC Greenland.  
**RED LENTILS:** CDC Impala, CDC Impulse.  
**PEAS:** CDC Patrick Green, CDC Meadow Yellow. **FABA BEANS:** CDC Snowdrop.





EMAIL: [moe.anita@sasktel.net](mailto:moe.anita@sasktel.net)  
PHONE: 306.472.7824 FAX: 306.472.3799

PEAS

Peifer, Denton M.	Nipawin	306-862-3437	R
Reisner, Cecil & Barry	Limerick	306-263-2139	S F
Seed Source Inc.	Archerwill	306-323-4402	S F
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley	306-778-2344	R
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800	S F
Shymanski, Ronald Albert	Choiceland	306-428-2405	S
Sopatyk, Jeffery & Patti	Saskatoon	306-227-7867	F
Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730	F
Trawin Seeds	Melfort	306-752-4060	S
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	F
Veikle, Lynne, Marshall & Jason	Cut Knife	306-398-2923	F
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984	S
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	S F
Youzwa, Donald	Nipawin	306-862-5690	S F
<b>CDC SPRUCE</b>			
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S F
Dutton, David H. & George	Paynton	306-441-6799	F
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516	S F
Klemmer, Richard	Nipawin	306-862-3874	F
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991	F
Rude, Stanley	Naicam	306-874-2359	S F
Veikle, Lynne, Marshall & Jason	Cut Knife	306-398-2923	F
Youzwa, Donald	Nipawin	306-862-5690	S F
<b>CDC TUCKER</b>			
Trowell, Leslie	Saltcoats	306-744-2684	S F R
<b>REDBAT 88</b>			
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	S C
<b>RAPE</b>			
<b>RED RIVER 1861</b>			
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	C
<b>SYNERGY</b>			
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	C
<b>RYE</b>			
<b>BRASSETTO</b>			
FP Genetics	Regina	306-791-1045	C
<b>GAZELLE</b>			
Moroz, Troy	Pelly	306-595-4622	R
Trawin Seeds	Melfort	306-752-4060	R
<b>HAZLET</b>			
Bailey, Roy G.	Milden	306-935-4702	C
Tanner, David A. & Hazel	Regina	306-757-7012	C
<b>KWS BONO</b>			
FP Genetics	Regina	306-791-1045	C
FP Genetics	Regina	306-791-1045	C
<b>RYEGRASS</b>			
<b>JAMES</b>			
Ag-Vision Seeds Ltd.	Carrot River	306-768-3335	C
<b>SOYBEANS</b>			
<b>AAC EDWARD</b>			
Amos, K. Wayne	Oxbow	306-483-2963	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	R
<b>BARRON R2X</b>			
Ackerman, Patrick	Chamberlain	306-638-3177	C
Dangstorp, Brian & Perry	Redvers	306-452-3443	C
Dear, Jonathon	Saskatoon	306-947-4740	C
Elmy, Robert W., Kevin & Christina	Saltcoats	306-744-2779	S F
Gerry, Greg	Creelman	306-457-2220	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	C
<b>BISHOP R2</b>			
Hyndman, Glen	Balcarres	306-331-8168	R
<b>DARIO R2X</b>			
Klym, Roy	Regina	306-543-5052	R
Quarry Seed Ltd.	Stonewall	204-467-8877	S F R C

<b>DYLANO R2X</b>			
Quarry Seed Ltd.	Stonewall	204-467-8877	R
<b>FOOTE R2</b>			
Ackerman, Patrick	Chamberlain	306-638-3177	R
Gerry, Greg	Creelman	306-457-2220	R
Wohlgemuth, Mark	Bredenbury	306-898-2022	R
<b>MAHONY R2</b>			
Ackerman, Patrick	Chamberlain	306-638-3177	R
Dear, Jonathon	Saskatoon	306-947-4740	C
Elmy, Robert W., Kevin & Christina	Saltcoats	306-744-2779	S C
Gerry, Greg	Creelman	306-457-2220	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	F
<b>MCLEOD R2</b>			
Gerry, Greg	Creelman	306-457-2220	C
Keyser, Robert Sean	Cupar	306-723-4949	C
Latrace, Bill	Caronport	306-693-2626	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	C
<b>NOTUS R2</b>			
Brett-Young Seeds Limited	St. Norbert	204-261-7932	S R
<b>NSC LEROY</b>			
Northstar Genetics,	Winnipeg	204-262-2421	C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	C
Woods, Dale Arthur	Rocanville	306-645-4423	C
<b>NSC STARCITY RR2X</b>			
Fraser, Scott & Shawn	Pambrun	306-741-0475	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	C
<b>NSC WATSON RR2Y</b>			
FP Genetics	Regina	306-791-1045	C
Woods, Dale Arthur	Rocanville	306-645-4423	C
<b>PS 00095 R2</b>			
Pride Seeds (Agriant Genetics Inc.)	Chatham	519-354-3210	S R C
<b>S0009-M2</b>			
Chute, Evan	Moose Jaw	306-692-1732	R
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236	R
Hanmer, Ronald F., Kent, Brad & Dallas	Govan	306-484-4327	R C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	R
Syngenta Canada, Inc. (Soybeans)	Guelph	519-836-5665	F R C
<b>S12-H2</b>			
Terramax Holdings Corp.	Qu'appelle	306-699-7368	R
<b>TH 37004 R2Y</b>			
Thunder Seeds, Inc.	Dilworth	218-422-9011	R
<b>TH 87000 R2X</b>			
Thunder Seeds, Inc.	Dilworth	218-422-9011	R C
<b>TH33003R2Y</b>			
Thunder Seeds, Inc.	Dilworth	218-422-9011	S R C
<b>TORRO R2</b>			
Klym, Roy	Regina	306-543-5052	R
Quarry Seed Ltd.	Stonewall	204-467-8877	S R
<b>TIMOTHY</b>			
<b>AC ALLIANCE</b>			
Pickseed Canada Inc.	Winnipeg	204-633-0088	C
<b>BARPENTA</b>			
Ag-Vision Seeds Ltd.	Carrot River	306-768-3335	C
<b>BASHO</b>			
Chun Hua, Cao	Carrot River	306-768-2843	C
<b>CLIMAX</b>			
Baxter, Kent R	Codette	306-862-4555	C
Donkers, Aaron	Nipawin	306-276-8029	C
Willis, Fred	Saltcoats	306-744-2934	C
<b>COMER</b>			
Pickseed Canada Inc.	Winnipeg	204-633-0088	C
<b>COMTAL</b>			
Pickseed Canada Inc.	Winnipeg	204-633-0088	C
<b>DOLINA</b>			
Pickseed Canada Inc.	Winnipeg	204-633-0088	C

SOYBEANS


TIMOTHY



TIMOTHY	<b>RICHMOND</b>			
	Pickseed Canada Inc.	Winnipeg	204-633-0088	C
	<b>SUMMERGRAZE</b>			
	Pickseed Canada Inc.	Winnipeg	204-633-0088	C
	<b>TILLER</b>			
	Pickseed Canada Inc.	Winnipeg	204-633-0088	C
	<b>TRYGGVE</b>			
	Ag-Vision Seeds Ltd.	Carrot River	306-768-3335	C
	<b>WINNETOU</b>			
	Pickseed Canada Inc.	Winnipeg	204-633-0088	C
TRITICALE	<b>TRITICALE</b>			
	<b>AAC DELIGHT</b>			
	Elmy, Robert W., Kevin & Christina	Saltcoats	306-744-2779	S F
	<b>BUNKER</b>			
	Trawin Seeds	Melfort	306-752-4060	R
	<b>FRIDGE</b>			
	Trawin Seeds	Melfort	306-752-4060	R
	<b>TAZA</b>			
	Girodat, Gerald	Shaunavon	306-297-2563	C
	WHEAT	<b>WHEAT</b>		
<b>5605HR-CL</b>				
Pavo, Keith		Saskatoon	306-227-8537	C
Proven Seed/Crop Production Services (Canada) Inc.		High River	403-603-6011	R C
<b>AAC ALIDA</b>				
Secan Association		Kanata	613-592-8600	S
Trowell, Leslie		Saltcoats	306-744-2684	S
<b>AAC AWESOME</b>				
Veikle, Carl E., G. & Brennan		Cut Knife	306-398-4714	S
<b>AAC BRANDON</b>				
Ackerman, Patrick		Chamberlain	306-638-3177	R
Allan, Raymond N. & Ruth		Corning	306-224-4666	C
Altwasser, Rodney, Allen R. & Dean		Yellow Grass	306-465-2727	C
Amos, K. Wayne		Oxbow	306-483-2963	S R
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua		Vanscoy	306-668-4415	S F C
Berscheid, K.N., B., E.K., S., C. & Y.		Lake Lenore	306-368-2602	C
Beuker, Allan Daniel & Wilbur A.		Melfort	306-752-4810	C
Blenkin, Darren		Sintaluta	306-727-2222	C
Boyes, Douglas John		Kelvington	306-327-4980	C
Buziak, Ronald Charles		Mayfair	306-445-6556	R C
Charabin, Dale Kenneth, Ryan, Neil & Eric		North Battleford	306-445-2939	R
Cresswell, Gordon B., Bryan & Mark		Tisdale	306-873-5360	C
Crosson, Lorne, Will, Lee & Glen		Welwyn	306-645-3337	R
Dangstorp, Brian & Perry		Redvers	306-452-3443	C
Dutton, David H. & George		Paynton	306-441-6799	C
Edmunds, Greg & Glen		Tisdale	306-873-4780	C
Edwards, Lawrence R., Donna, Jeff & Mike		Nokomis	306-528-2140	R C
Fedoruk, Michael J.		Kamsack	306-542-4235	R C
Fowler, Edith		Central Butte	306-796-4652	C
Frederick, Blaine		Watson	306-287-3977	R C
Friesen, Greg & Brea; Leavins, Brent & Betty Mae		Elrose	306-378-7785	C
Fritzler, Baine A. & Adam A.		Govan	306-484-2010	C
Gerry, Greg		Creelman	306-457-2220	C
Goossen, Mathew		Stenen	306-547-7432	R C
Greenshields, Grant, Thomas & Callie		Semans	306-524-4339	C
Gregoire, Denis, Rory & Brandon		North Battleford	306-445-5516	C
Heavin, G. Harvey & G. Ryan		Melfort	306-752-4171	R
Heavin, Larry N. & L. Warren		Melfort	306-752-4020	S F R
Heavin, Milton Russell		Melfort	306-752-4071	R
Heggie, Kyle Robert		Leross	306-675-4920	C
Hetland, Bill & Bohachewski, Joe		Naicam	306-874-5694	C
Huber, Daniel & Rebecca		Landis	306-658-4200	C
Keyser, Robert Sean		Cupar	306-723-4949	C
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.		Wynyard	306-554-2078	R

Lepp, Milton & Elden; & Neufeld, M.	Hepburn	306-254-4243	C
Lung Seeds Ltd.	Lake Lenore	306-368-2414	R C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	C
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991	C
Megli, Wayne	Carrot River	306-768-2991	C
Moroz, Troy	Pelly	306-595-4622	C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	C
Needham, Reginald R.	Oxbow	306-483-5052	R C
Ostafie, Robert	Canora	306-563-6244	S F R
Pavo, Keith	Saskatoon	306-227-8537	C
Rempel, Blair Allan	Nipawin	306-862-3573	R C
Rude, Stanley	Naicam	306-874-2359	R C
Sandercock, Eric M.	Balcarres	306-334-2958	C
Sayers, Charlie Joseph	Delmas	306-445-6522	R C
Seed Source Inc.	Archerwill	306-323-4402	C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800	R C
Simpson, Trevor W.	Moose Jaw	306-693-9402	C
Smysniuk, Delon	Ituna	306-795-7691	C
Sopatyk, Jeffery & Patti	Saskatoon	306-227-7867	C
South, Winston, Richard & Bradley	Melfort	306-752-9840	F R C
Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730	C
Toman, Rick & Randy	Guernsey	306-365-8386	C
Trowell, Kenneth, Larry & Nathan	Saltcoats	306-744-2687	S F C
Wiens, Brennan R.	Herschel	306-377-2002	C
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R
Winterhalt, Tim	Unity	306-228-3170	C
Woods, Dale Arthur	Rocanville	306-645-4423	C
Woroschuk, Andrew	Calder	306-742-4682	R
Yauck, Kevin Rodney	Govan	306-484-4555	C
<b>AAC CABRI</b>			
Girodat, Gerald	Shaunavon	306-297-2563	R
Wiens, Steven & Shammy	Wymark	306-773-9547	R
<b>AAC CAMERON - CARBERRY</b>			
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S R C
Buziak, Ronald Charles	Mayfair	306-445-6556	C
Cay, Randy D.	Kinistino	306-864-3696	S F R
Denis, Michel P. & Marc	St. Denis	306-258-2219	R
Frederick, Blaine	Watson	306-287-3977	R C
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694	R
Lung Seeds Ltd.	Lake Lenore	306-368-2414	C
Mayerle, Erwin D.	Tisdale	306-873-4261	F R C
Seed Source Inc.	Archerwill	306-323-4402	C
Straub, Lorne A.	Pense	306-345-2390	S
Tomtene, Steven & Brad	Birch Hills	306-749-3447	C
Trawin Seeds	Melfort	306-752-4060	C
Wylie, Leslie Dale	Biggar	306-948-2807	R
Yauck, Kevin Rodney	Govan	306-484-4555	R
<b>AAC CONGRESS</b>			
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785	R
Peter, Bradley	Assiniboia	306-642-4217	R
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	S F R
Simpson, Trevor W.	Moose Jaw	306-693-9402	S F
<b>AAC CONNERY</b>			
Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337	R
Hyndman, Glen	Balcarres	306-331-8168	C
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	C
<b>AAC ELEVATE</b>			
Axten, Derek	Minton	306-969-2110	R
<b>AAC ELIE</b>			
Blenkin, Darren	Sintaluta	306-727-2222	C
Bodnaryk, John E., Ian & Vangen, Stacy	Rhein	306-273-4263	C
Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337	C
Danielson, Lionel & Bonnie	Norquay	306-594-2173	C
Dutton, David H. & George	Paynton	306-441-6799	C
Frederick, Blaine	Watson	306-287-3977	R C
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516	C
Kasko, F. John	Prince Albert	306-764-2875	C


WHEAT



**VARIETIES**

- AAC Brandon Wheat
- CDC Landmark VB Wheat
- Pasteur Wheat
- Conquer VB Wheat
- AC Sadash Wheat
- CDC Copeland Barley
- CDC S0-1 Oats

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Stokke, Shane T.	Watrous	306-946-4044	C
Wiens, Steven & Shammy	Wymark	306-773-9547	C
Winterhalt, Tim	Unity	306-228-3170	C
Wylie, Leslie Dale	Biggar	306-948-2807	C
<b>AAC FORAY - AAC PENHOLD</b>			
Beausoleil, Michael	Delmas	306-445-9106	C
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	C
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R C
<b>AAC GOLDRUSH</b>			
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S
McDougall, Craig & Thoroughgood, Paul	Moose Jaw	306-693-3649	S
McDougall, Ken & Craig	Moose Jaw	306-693-3649	S
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	S
<b>AAC INNOVA</b>			
Winterhalt, Tim	Unity	306-228-3170	C
<b>AAC JATHARIA - CARBERRY</b>			
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	R C
Blumer, Brad & Doug	Dinsmore	306-846-2124	C
Boldt, Garry	Osler	306-239-2071	R
Cresswell, Gordon B., Bryan & Mark	Tisdale	306-873-5360	C
Goossen, Mathew	Stenen	306-547-7432	C
Greenshields, Grant, Thomas & Callie	Semans	306-524-4339	C
Kondratowicz, Frank	Unity	306-228-3684	C
Labrecque, Roger	Saskatoon	306-373-9379	C
Lawrence, Jim	Colonsay	306-255-2723	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	C
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991	R
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917	C
Pavo, Keith	Saskatoon	306-227-8537	C
Reisner, Cecil & Barry	Limerick	306-263-2139	C
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638	R
Schultz, Bernard J	Kuroki	306-338-2082	C
Seed Source Inc.	Archerwill	306-323-4402	C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800	R C
Sopel, Calvin & Arlene	Ituna	306-795-3617	C
Tomtene, Steven & Brad	Birch Hills	306-749-3447	R
<b>AAC PARAMOUNT</b>			
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	R
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984	S R
<b>AAC PENHOLD</b>			
Dear, Jonathon	Saskatoon	306-947-4740	C
Fritzler, Baine A. & Adam A.	Govan	306-484-2010	S R
Rude, Stanley	Naicam	306-874-2359	C
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R
<b>AAC PREVAIL - CDC PLENTIFUL</b>			
Barlow, Bradley L.	Griffin	306-861-6110	C
Bodnaryk, John E., Ian & Vangen, Stacy	Rhein	306-273-4263	R C
Bryant, Lee, Phyl, Vern & Carol	Battleford	306-937-3565	C
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	C
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	C
Kondratowicz, Frank	Unity	306-228-3684	C
Seed Source Inc.	Archerwill	306-323-4402	S
Sopatyk, Jeffery	Saskatoon	306-955-2516	C
Sopatyk, Jeffery & Patti	Saskatoon	306-227-7867	S R C
Tanner, David A. & Hazel	Regina	306-757-7012	C
Wiens, Brennan R.	Herschel	306-377-2002	C
Yauck, Kevin Rodney	Govan	306-484-4555	C
<b>AAC RAYMORE</b>			
Cote, Nickolaus	Cadillac	306-625-7919	C
Garratt, Lyle C. & K.C.	Milestone	306-436-2178	R
Hicks, Dale & Barry	Mossbank	306-867-8674	R
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917	C
<b>AAC REDBERRY</b>			
Blenkin, Darren	Sintaluta	306-727-2222	R
Boyd, Clare W. & Dale A.	Melfort	306-752-2564	C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	F C

WHEAT



WHEAT

AAC REDWATER			
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn	306-342-2058	C
Goossen, Mathew	Stenen	306-547-7432	C
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	F R
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R
AAC SPITFIRE			
Altwasser, Rodney, Allen R. & Dean	Yellow Grass	306-465-2727	R C
Bews, W. Kenneth & Brent W.	Eatonia	306-967-2440	C
Blumer, Brad & Doug	Dinsmore	306-846-2124	C
Dowdeswell, Donald D.	Pennant	306-626-3388	R
Fast, Walter J. & Linda	Kindersley	306-463-3626	R
Fox, Myles & Trena	Gravelbourg	306-648-2800	C
Fraser, Scott & Shawn	Pambrun	306-741-0475	S F C
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785	C
Girodat, Gerald	Shaunavon	306-297-2563	C
Gizen, Jason	Prelate	306-628-8127	C
Klym, Dustin	Regina	306-543-5052	C
Klym, Tyler	Regina	306-543-5052	C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433	C
McDougall, Ken & Craig	Moose Jaw	306-693-3649	C
Miller, Sean	Avonlea	306-868-7822	C
Moen, Jim	Cabri	306-587-2214	S F
Needham, Reginald R.	Oxbow	306-483-5052	R
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917	C
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	S F R C
Printz, Gerald & Kurt	Gravelbourg	306-648-3511	C
Reisner, Cecil & Barry	Limerick	306-263-2139	C
Riviere, Paul	Radville	306-869-7629	C
Stauber, Clayton & Lori	Stewart Valley	306-773-7907	C
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	S R C
Wiens, Brennan R.	Herschel	306-377-2002	R
Wiens, Steven & Shabby	Wymark	306-773-9547	C
AAC STRONGHOLD			
Fraser, Scott & Shawn	Pambrun	306-741-0475	S F
AAC SUCCEED - CDC ALLOY			
Fraser, Scott & Shawn	Pambrun	306-741-0475	S
Klym, Roy	Regina	306-543-5052	S
AAC TISDALE			
Greenshields, Grant, Thomas & Callie	Semans	306-524-4339	R
Heavin, G. Harvey & G. Ryan	Melfort	306-752-4171	S R
Kerber, Greg	Rosthern	306-232-4474	R
Rugg, Robert B., John Barry & Brian R.	Elstow	306-257-3638	S
Tomtene, Steven & Brad	Birch Hills	306-749-3447	R
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S
AAC VIEWFIELD			
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	F R
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	F
Dangstorp, Brian & Perry	Redvers	306-452-3443	R
Etter, James Raymond	Richardson	306-536-0380	R
Fedoruk, Michael J.	Kamsack	306-542-4235	S F R C
Frederick, Blaine	Watson	306-287-3977	R
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	F
Hyndman, Neil S.	Balcarres	306-331-8168	R
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.	Wynyard	306-554-2078	S F
Littman, Larry W. & Allan Blake & L. Robert & Adam	Saltcoats	306-783-2512	F
McDougall, Ken & Craig	Moose Jaw	306-693-3649	R
Shwaga, Jeff W.	Wroxton	306-742-4590	C
Trowell, Leslie	Saltcoats	306-744-2684	S
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984	S F R
Woods, Dale Arthur	Rocanville	306-645-4423	S R
AAC W1876			
Reisner, Cecil & Barry	Limerick	306-263-2139	F C
Yauck, Kevin Rodney	Govan	306-484-4555	C

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<b>CPS</b> AAC Penhold AAC Foray	<b>Triticale</b> Bunker Fridge (winter)	<b>Fababean</b> Snowbird
<b>Winter Wheat</b> AC Emerson	<b>Rye</b> AC Hazlet (winter) Gazelle (spring)	<b>Silage Blends</b> SiloBuster Blend Triple Cereal Blend Pea Triticage 5050
<b>Barley Malt</b> CDC Copeland AC Metcalfe Legacy	<b>Flax</b> CDC Sorrel NEW CDC Glas	<b>Feed/Forage</b> CDC Austenson CDC Maverick

AAC WHITEFOX			
McDougall, Ken & Craig	Moose Jaw	306-693-3649	F
AAC WILDFIRE			
Amos, K. Wayne	Oxbow	306-483-2963	F
Dear, Jonathon	Saskatoon	306-947-4740	R
Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730	F R
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	F R
AC ANDREW			
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	R C
Dutton, David H. & George	Paynton	306-441-6799	F
Herle, Gregory & Andrew E.	Wilkie	306-843-2934	F R C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	S F C
Straub, Lorne A.	Pense	306-345-2390	C
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714	R C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984	S F
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	R C
AC DOMAIN			
Danielson, Lionel & Bonnie	Norquay	306-594-2173	R
Terramax Holdings Corp.	Qu'appelle	306-699-7368	C
AC INTREPID			
Illingworth, Hazel V., Todd Douglas & Caden	North Battleford	306-445-5630	C
AC NAVIGATOR			
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	C
BRIGADE			
Laforge, Troy	Swift Current	306-773-0924	C
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	S R C
CARBERRY			
Amos, K. Wayne	Oxbow	306-483-2963	R
Ennis, Garnet, Neil & Schmidt, Jordan	Glenavon	306-429-2793	C
Heavin, G. Harvey & G. Ryan	Melfort	306-752-4171	C
Heavin, Larry N. & L. Warren	Melfort	306-752-4020	C
Lung Seeds Ltd.	Lake Lenore	306-368-2414	R
Medernach, Louis J., Kim L. & Kyle	Cudworth	306-256-3991	C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409	C
Ostapovitch, F.G. & Glen	Theodore	306-647-2205	C
Schmeling, Donald H.	Riceton	306-530-1052	R
CARDALE			
Amos, K. Wayne	Oxbow	306-483-2963	C
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415	R
Fedoruk, Michael J.	Kamsack	306-542-4235	C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	C
Frederick, Blaine	Watson	306-287-3977	C
Hicks, Dale & Barry	Mossbank	306-867-8674	C
Klemmer, Richard	Nipawin	306-862-3874	R C
Lueke, Dennis	Humboldt	306-682-5170	C
Mayerle, Kris	Tisdale	306-873-4261	C
Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730	R
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	C
Yauck, Kevin Rodney	Govan	306-484-4555	C
CDC ADAMANT - CDC BRADWELL			
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963	R
Reisner, Cecil & Barry	Limerick	306-263-2139	S F
Smith, Wayne D.	Limerick	306-263-4944	F
Yauck, Kevin Rodney	Govan	306-484-4555	R
CDC ALLOY			
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236	S F R C
Dowdeswell, Donald D.	Pennant	306-626-3388	R
Dowdeswell, Keaton, L	Pennant	306-626-3331	R
Etter, James Raymond	Richardson	306-536-0380	R
Fraser, Scott & Shawn	Pambrun	306-741-0475	S F R C
Fritzler, Baine A. & Adam A.	Govan	306-484-2010	F R
Girodat, Gerald	Shaunavon	306-297-2563	R

WHEAT



WHEAT

Gizen, Jason	Prelate	306-628-8127			C
Klym, Roy	Regina	306-543-5052	S		C
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294		R	
Printz, Gerald & Kurt	Gravelbourg	306-648-3511		R	
Reisner, Cecil & Barry	Limerick	306-263-2139	F	R	
Smith, Ron T.W. & Barb A.	Limerick	306-263-4944	F	R	C
Straub, Lorne A.	Pense	306-345-2390			C
<b>CDC BRADWELL</b>					
Dear, Jonathon	Saskatoon	306-947-4740		R	
Huber, Daniel & Rebecca	Landis	306-658-4200			C
Smith, Wayne D.	Limerick	306-263-4944	F		
<b>CDC CARBIDE - CDC VIVID</b>					
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	S	F	C
<b>CDC CREDECE</b>					
Bews, W. Kenneth & Brent W.	Eatonia	306-967-2440	S		
Canterra Seeds Ltd.	Winnipeg	204-988-9750	S		
Klym, Roy	Regina	306-543-5052	S		
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	S	F	
Pfeifer, Robert G.	Lemberg	306-335-2532	S		
Simpson, Trevor W.	Moose Jaw	306-693-9402	S		
Wiens, Brennan R.	Herschel	306-377-2002	S		
<b>CDC FORTITUDE</b>					
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	S	R	C
<b>CDC HUGHES - CARDALE</b>					
Buziak, Ronald Charles	Mayfair	306-445-6556		R	
Dear, Jonathon	Saskatoon	306-947-4740		R	
Lung Seeds Ltd.	Lake Lenore	306-368-2414		R	
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011		R	
Zwingli, James Trent & Shelley	Melfort	306-752-4224		R	
<b>CDC LANDMARK - AAC VIEWFIELD</b>					
Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua	Vanscoy	306-668-4415		R	
Berschaid, K.N., B., E.K., S., C. & Y.	Lake Lenore	306-368-2602	S	R	
Boyd, Clare W. & Dale A.	Melfort	306-752-2564		R	
Buziak, Ronald Charles	Mayfair	306-445-6556		R	
Cay, Randy D.	Kinistino	306-864-3696	S	F	R
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	S	F	R
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963		R	
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236		R	
Danielson, Lionel & Bonnie	Norquay	306-594-2173		R	C
Denis, Michel P. & Marc	St. Denis	306-258-2219		R	
Etter, James Raymond	Richardson	306-536-0380		R	
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235	S	F	R
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	S	F	R
Fraser, Edward H. & Glen & Dale	Yarbo	306-745-3830		R	
Frederick, Blaine	Watson	306-287-3977		R	
Heggie, Kyle Robert	Leross	306-675-4920		R	
Herle, Gregory & Andrew E.	Wilkie	306-843-2934		R	
Hetland, Bill & Bohachewski, Joe	Naicam	306-874-5694	S	F	R
Hyndman, Glen	Balcarres	306-331-8168		R	C
Kerber, Greg	Rosthern	306-232-4474		R	
Klym, Roy	Regina	306-543-5052		R	
Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl & Bolt, Glen A.	Wynyard	306-554-2078	S	F	R
Littman, Larry W. & Allan Blake & L. Robert & Adam	Saltcoats	306-783-2512	S		C
Mayerle, Kris	Tisdale	306-873-4261		R	
McCarthy, Brent	Corning	306-224-4848		R	
McDougall, Ken & Craig	Moose Jaw	306-693-3649		R	
Ostafie, Robert	Canora	306-563-6244	S	F	
Palmer, Maurice, Jason & Anita	Laflèche	306-472-5917		R	
Printz, Gerald & Kurt	Gravelbourg	306-648-3511		R	
Sayers, Charlie Joseph	Delmas	306-445-6522		R	
Seed Source Inc.	Archerwill	306-323-4402	S	F	R
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake	306-497-2800		R	

**VEIKLE SEEDS LTD.**  
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 \*AGRO INC. (chem)  
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 www.veikleseeds.com email: veikle.seeds@sasktel.net

**YELLOW PEAS:** Abarth, Amarillo, Carver, Inca, Spectrum. **GREEN PEAS:** Limerick, Raezer, Greenwater. **RED LENTILS:** Maxim. **HARD RED WHEAT:** Connery, Landmark, Utmost, Plentiful. **SOFT WHITE WHEAT:** Andrew, Sadash.

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\*Wheat - CDC Landmark VB, AAC Jatharia VB, AAC Cameron VB, AAC Brandon  
 \*Barley - CDC Bow, AAC Synergy

**STEVE TOMTENE** dan@tomteneseeds.ca  
**DAN SLIND** dan@tomteneseeds.ca  
 306-749-3447  
 www.tomteneseeds.ca

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**ATTENTION GRAIN GROWERS**

**2018 Varieties For Sale**

**HRS WHEAT** - CDC Landmark VB  
 - AAC Viewfield  
 - AAC Brandon

**BARLEY** - AC Metcalfe  
 - AAC Synergy  
 - CBC Bow

**FLAX** - AAC Bravo

**PEAS** - CDC Saffron  
 - Common Marrowfat  
 - CDC Inca  
 - CDC Spectrum

**LENTILS** - CDC Maxim

**SeCan** **FPGenetics**

Box 1660, Wynyard, SK S0A 4T0 Canada  
**Phone 306-554-2078**  
**Fax 306-554-2867**  
**lakesideseeds@gmail.com**

LAKESIDE SEEDS

**SeCan Yauck Seed Farm Ltd.**  
 Govan, SK

**Wheat:** AAC Cameron VB, Cardale, Shaw, AAC Brandon, AAC Prevail VB  
**Durum:** CDC Precision **Barley:** CDC Copeland  
**Flax:** CDC Plava, CDC Sorrel  
**Canola:** Canterra Varieties  
**Lentils:** CDC Marble (Fr, Gr), CDC Peridot (Fr, Gr)  
**Peas:** CDC Inca

Phone Kevin at 306-484-4555 Home  
 Ph: 306-484-4643 Fax: 306-484-2189 Email: yauckseedfarm@sasktel.net

FPGenetics CANTERRA SEEDS

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 Pedigree Seed

**Brennan & Cara Wiens**

Box 10 Herschel, SK S0L 1L0  
 Ph: (306) 377-2002  
 Fx: (306) 377-2003  
 Cl: (306) 831-6352  
 www.wiensseedfarm.com  
 brennan@wiensseedfarm.com

Always look for the CDC when choosing your seed!!

UNIVERSITY OF SASKATCHEWAN  
 Crop Development Centre  
 COLLEGE OF AGRICULTURE AND BIOSOURCES  
 AGROUSASK.CA

Shwaga, Jeff W.	Wroxton	306-742-4590			R
Sopatyk, Jeffery & Patti	Saskatoon	306-227-7867	S		R
Tebbutt, Gregg & Blake D.	Nipawin	306-862-9730		R	
Toman, Rick & Randy	Guernsey	306-365-8386		R	
Tomtene, Steven & Brad	Birch Hills	306-749-3447		F	R
Trawn Seeds	Melfort	306-752-4060	S	R	
Trowell, Leslie	Saltcoats	306-744-2684	S		
Van Burck, Hans, Marianne & Mira	Star City	306-863-4377	S	F	R
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984	S	F	R
Wiens, Brennan R.	Herschel	306-377-2002	S	F	R
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	S		R
Woods, Dale Arthur	Rocanville	306-645-4423	S		R
Wylie, Leslie Dale	Biggar	306-948-2807			R
<b>CDC PLENTIFUL</b>					
Buziak, Ronald Charles	Mayfair	306-445-6556			C
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939			C
Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236		R	
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		R	
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438		R	
Fritzler, Baine A. & Adam A.	Govan	306-484-2010		R	
McCarthy, Brent	Corning	306-224-4848			C
McDougall, Ken & Craig	Moose Jaw	306-693-3649			C
Ostafie, Robert	Canora	306-563-6244			R
Smith, Ron T.W. & Barb A.	Limerick	306-263-4944			C
<b>CDC PRECISION</b>					
Anderson, Trevor Ward	Frontier	306-296-2104		R	
Barlow, Bradley L.	Griffin	306-861-6110			C
Bews, W. Kenneth & Brent W.	Eatonia	306-967-2440			C
Carefoot, Lorne R.	Swift Current	306-773-6970		R	
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown	306-831-8963		R	C
Ellert, David & Christopher	Rockglen	306-476-7623		R	C
Etter, James Raymond	Richardson	306-536-0380		R	
Fast, Walter J. & Linda	Kindersley	306-463-3626		R	C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon	306-297-2087		R	
Fraser, Scott & Shawn	Pambrun	306-741-0475	S	R	C
Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785		R	C
Gizen, Jason	Prelate	306-628-8127		R	C
Heenan, Thomas Dale & Deb	Regina	306-522-9375		R	
Lueke, Dennis	Humboldt	306-682-5170		R	
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433		R	C
Mayell, Calvin J.	Assiniboia	306-642-3120		F	
McDougall, Ken & Craig	Moose Jaw	306-693-3649		R	
Moen, Jim	Cabri	306-587-2214	S	F	C
Printz, Gerald & Kurt	Gravelbourg	306-648-3511		F	R
Reisner, Cecil & Barry	Limerick	306-263-2139		F	R
Rennick, Joe R. & William J.	Milestone	306-436-4353	S	F	C
Riviere, Paul	Radville	306-869-7629		R	C
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley	306-778-2344		F	R
Stauber, Clayton & Lori	Stewart Valley	306-773-7907		R	
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	S	F	R
Wiens, Steven & Shabby	Wymark	306-773-9547		R	C
Yauck, Kevin Rodney	Govan	306-484-4555		R	
<b>CDC STANLEY</b>					
Roven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011	S	F	R
<b>CDC TERRAIN</b>					
Wilfing, Raymond John & Ryan John	Meadow Lake	306-236-6811	S	F	
<b>CDC TITANIUM - STETTLER</b>					
Blenkin, Darren	Sinaluta	306-727-2222			C
Buziak, Ronald Charles	Mayfair	306-445-6556			R
Proven Seed/Crop Production Services (Canada) Inc.	High River	403-603-6011			C
Sayers, Charlie Joseph	Delmas	306-445-6522			C
Zwingli, James Trent & Shelley	Melfort	306-752-4224			C

WHEAT





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WHEAT

**CDC UTMOST - HARVEST**

Buziak, Ronald Charles	Mayfair	306-445-6556		C
Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	R	C
Fedoruk, Rod M. & Cathy	Kamsack	306-542-4235		C
Kerber, Greg	Rosthern	306-232-4474		C
Littman, Larry W. & Allan Blake & L. Robert & Adam	Saltcoats	306-783-2512		C
Ostafie, Robert	Canora	306-563-6244	R	C
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917		C
Sand, Evan	Limerick	306-263-4944		C
Seed Source Inc.	Archerwill	306-323-4402	R	C
Shwaga, Jeff W.	Wroxton	306-742-4590		C
Smith, Wayne D.	Limerick	306-263-4944		C
Veikle, Carl E., G. & Brennan	Cut Knife	306-398-4714		C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984		C
Wilfng, Raymond John & Ryan John	Meadow Lake	306-236-6811		C

**CDC VERONA**

Heenan, Thomas Dale & Deb	Regina	306-522-9375	R	
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402	R	C

**ELGIN ND**

Fritzler, Baine A. & Adam A.	Govan	306-484-2010		C
McDougall, Ken & Craig	Moose Jaw	306-693-3649		C
Wylie, Leslie Dale	Biggar	306-948-2807		C

**EMERSON**

Friesen, Greg & Brea; Leavins, Brent & Betty Mae	Elrose	306-378-7785		C
Petruic, Cameron L., Judy & Nick	Avonlea	306-868-2294	S F	C

**FALLER**

Blenkin, Darren	Sintaluta	306-727-2222		C
Hicks, Dale & Barry	Mossbank	306-867-8674		C
Lutzer, Albert & Latrace, Jim	Lumsden	306-530-8433		C

**GLENN**

Blenkin, Darren	Sintaluta	306-727-2222		C
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**GOODEVE - AC INTREPID**

Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939		C
Fenton, Gerald A. & Robin Paul	Tisdale	306-873-5438	R	
Gaertner, Lyle	Tisdale	306-873-4936		C
Klemmer, Richard	Nipawin	306-862-3874		C

**MOATS**

Amos, K. Wayne	Oxbow	306-483-2963		C
McDougall, Craig & Thoroughgood, Paul	Moose Jaw	306-693-3649	F	
McDougall, Ken & Craig	Moose Jaw	306-693-3649	R	
Watson, Wayne Donald, Calvin & Mark	Avonlea	306-868-4402		C

**PASTEUR**

Toman, Rick & Randy	Guernsey	306-365-8386		C
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**SADASH**

Charabin, Dale Kenneth, Ryan, Neil & Eric	North Battleford	306-445-2939	S F	
Fritzler, Baine A. & Adam A.	Govan	306-484-2010	R	C
Robinson, Oren A., Marlene & Wade	Landis	306-658-4755	S	
Wakefield, Kristopher, Laurie G. & Monica	Maidstone	306-893-2984		C

**SHAW - AC DOMAIN**

Denis, Michel P. & Marc	St. Denis	306-258-2219		C
Huber, Daniel & Rebecca	Landis	306-658-4200		C
Pratchler, Leander	Muenster	306-682-3317		C
Rempel, Blair Allan	Nipawin	306-862-3573		C
Woroschuk, Andrew	Calder	306-742-4682		C
Yauck, Kevin Rodney	Govan	306-484-4555		C

**SPARROW - CHARING**

Hanley, Erwin & Priscilla	Regina	306-586-4509	F	
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**SETTLER**

Dutton, David H. & George	Paynton	306-441-6799		C
Robinson, Oren A., Marlene & Wade	Landis	306-658-4755		C

**STRONGFIELD**

Fritzler, Baine A. & Adam A.	Govan	306-484-2010		C
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**SY ROWYN**

Bryant, Lee, Phyl, Vern & Carol	Battleford	306-937-3565		C
Crosson, Lorne, Will, Lee & Glen	Welwyn	306-645-3337	S F	R
Dangstorp, Brian & Perry	Redvers	306-452-3443		R
Fedoruk, Michael J.	Kamsack	306-542-4235		F R
Gregoire, Denis, Rory & Brandon	North Battleford	306-445-5516		C
Klemmer, Richard	Nipawin	306-862-3874		C
Lueke, Dennis	Humboldt	306-682-5170		R
Mayerle, Kris	Tisdale	306-873-4261		R
Rude, Stanley	Naicam	306-874-2359		R
Stokke, Shane T.	Watrous	306-946-4044		R
Winterhalt, Tim	Unity	306-228-3170		
Wylie, Leslie Dale	Biggar	306-948-2807		C

**SY SLATE**

Fedoruk, Michael J.	Kamsack	306-542-4235		R
Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397	S F	

**SY SOVITE**

Richardson International Ltd.	Winnipeg	204-934-5994		R
Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397		F
Thiessen, Thomas	Winnipeg	204-934-5994		R

**SY087**

Syngenta Canada Inc. (Cereals)	Melfort	306-752-5397		F
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**TRANSCEND**

Craswell, Raymond W., Kevin A. & David M.	Strasbourg	306-725-3236		R C
Dowdeswell, Keaton, L	Pennant	306-626-3331		R C
Dowdeswell, Riley	Pennant	306-774-3903		C
Etter, James Raymond	Richardson	306-536-0380		C
Fraser, Scott & Shawn	Pambrun	306-741-0475	S F	R
Gellner, Clayton S.	Southey	306-726-4323		C
Girodat, Gerald	Shaunavon	306-297-2563		R C
Herle, Gregory & Andrew E.	Wilkie	306-843-2934		C
Klym, Roy	Regina	306-543-5052		R C
McCarthy, Brent	Corning	306-224-4848		C
Palmier, Maurice, Jason & Anita	Lafleche	306-472-5917		C
Printz, Gerald & Kurt	Gravelbourg	306-648-3511		C
Reisner, Cecil & Barry	Limerick	306-263-2139		C
Sand, Evan	Limerick	306-263-4944		C
Simpson, Trevor W.	Moose Jaw	306-693-9402		C
Smith, Kyle	Limerick	306-263-4944		C
Smith, Ron T.W. & Barb A.	Limerick	306-263-4944		C
Smith, Wayne D.	Limerick	306-263-4944		C
Straub, Lorne A.	Pense	306-345-2390		C
Wiens, Brennan R.	Herschel	306-377-2002		R

**VESPER - WASKADA**

Gerry, Greg	Creelman	306-457-2220		R C
Woroschuk, Andrew	Calder	306-742-4682		C

**WASKADA**

Allan, J. Garth	Corning	306-457-2729		C
Allan, John Richard	Corning	306-457-7310		R C
Nakonechny, Donald, Coral & Lance	Ruthilda	306-932-4409		R

**WHEATGRASS**

**AC GOLIATH**

Scowen, Troy	Nipawin	306-812-8797		F
Trawn Seeds	Melfort	306-752-4060		F C

**CHIEF**

Pickseed Canada Inc.	Winnipeg	204-633-0088		C
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**FAIRWAY**

Pickseed Canada Inc.	Winnipeg	204-633-0088		C
Silcox, James	Nipawin	306-768-7710		C

**KIRK**

Ag-Vision Seeds Ltd.	Carrot River	306-768-3335		C
Hochbaum, Jack	Wilkie	306-843-2054		C
Pickseed Canada Inc.	Winnipeg	204-633-0088		C
Rempel, Blair Allan	Nipawin	306-862-3573		C

WHEATGRASS



# Varieties of Grain Crops 2018

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## 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

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### Accessing Public Release Varieties

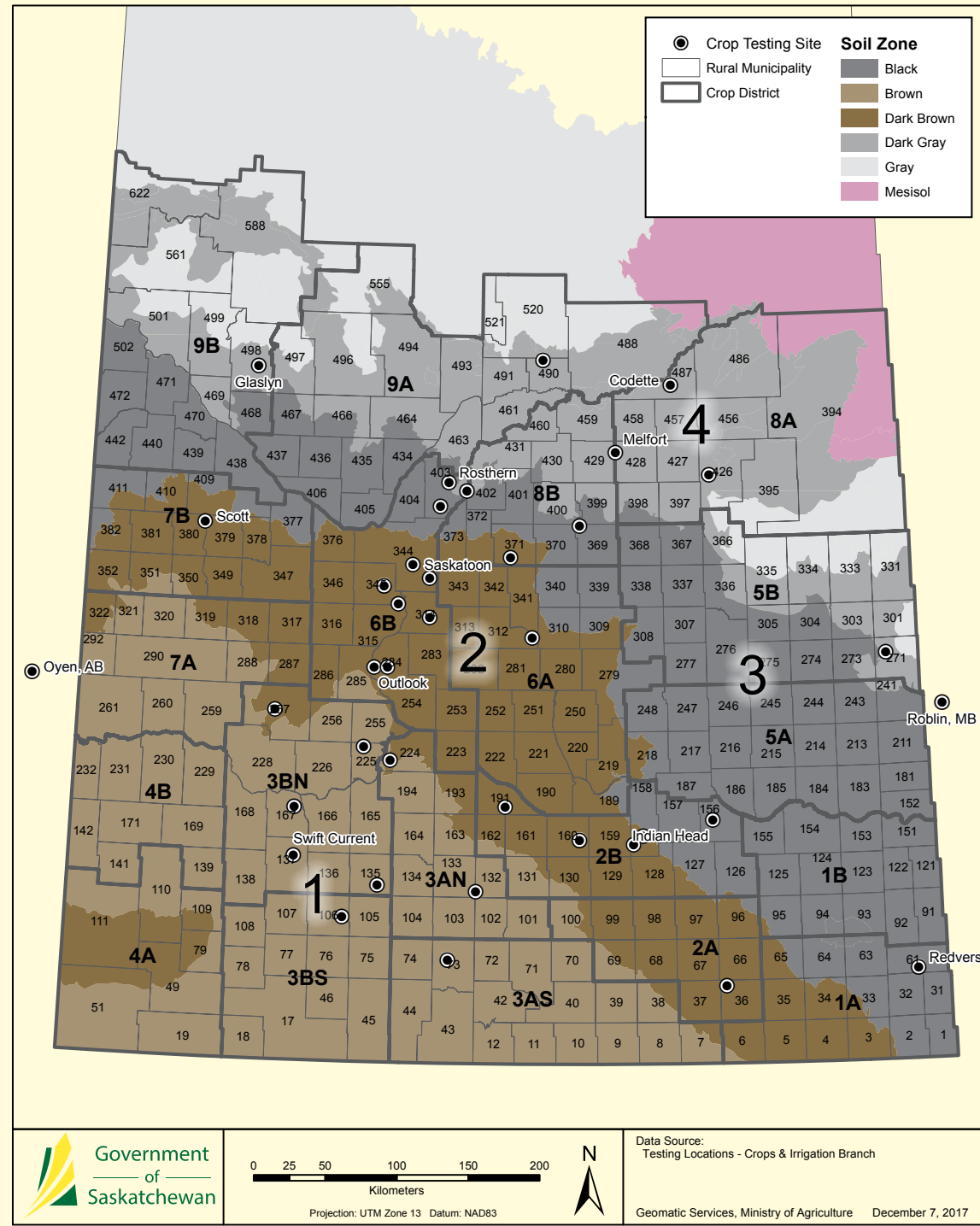
Breeder seed of public release varieties is available to anyone (including farmers and seed growers) for multiplication, increase and marketing. There are no royalties or seed marketing agency fees attached to use or sale of seed produced from Breeder seed of public release varieties. While subsequent 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

This guide is for informational purposes only. The information presented is based on aggregated data and observations, but significant individual variations may occur due to conditions such as farm management practices, climate, soil type and geographical location. While reasonable care was exercised in the preparation of the guide, no guarantees or warranties regarding the accuracy, reliability or completeness of the information are given. This guide may not reflect the newest information available and may not be regularly updated. It is the sole responsibility of the user to evaluate the accuracy and appropriateness of the information.



# 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:



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 Sask-Flax 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.

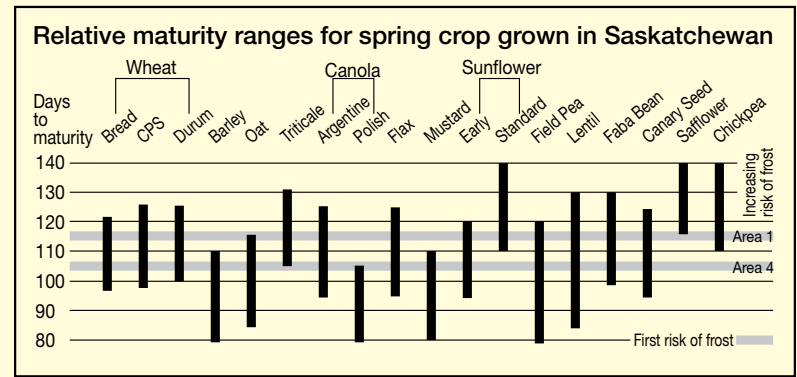
Some of the tables in this booklet express the relative maturity in days while others use a five-category scale: VE, E, M, L and VL (very early, early, medium, late, very late). The limits for each category can vary from crop to crop. In barley, for example, AC Metcalfe would be M, with L and E varieties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

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.

gation purposes is prohibited by law without the written permission of the breeder or their agent.

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



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



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](http://www.pbrfacts.ca) or contact the PBR Office at 613-773-7188.

# 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), *Anthracoise*, *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.

## 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](http://keepingitclean.ca).

PROTECT YOUR EXPORTS BY  
MANAGING YOUR MAXIMUM  
RESIDUE LEVELS (MRLs)



Talk to your grain buyer before using a new registered product to ensure you understand any export restrictions.



# CEREAL CROPS

## Wheat

### Main Characteristics of Varieties

Category and Variety	Years Tested	Yield (%)			Pro-tein	Resistance To <sup>2</sup>							Head Awned-ness	Rel. Ma-turity (days)	Seed Weight (mg)	Volume Wt. <sup>3</sup> (kg/hL)	Ht. (cm)		
		Area 1 & 2	Area 3 & 4	Irriga-tion		Lodg-ing	Sprout-ing	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt						Leaf Spot	FHB
<b>CWRS<sup>1</sup></b>	--- 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
<b>CWRS or CPS moving to CNHR August 1, 2018<sup>1</sup></b>																			
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 (%)			Pro-tein	Resistance To <sup>2</sup>							Head Awned-ness	Rel. Ma-turity (days)	Seed Weight (mg)	Volume Wt. <sup>3</sup> (kg/hL)	Ht. (cm)		
		Area 1 & 2	Area 3 & 4	Irriga-tion		Lodg-ing	Sprout-ing	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt						Leaf Spot	FHB
<b>CPSR<sup>1</sup></b>	--- 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
<b>CNHR<sup>1</sup></b>																			
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
<b>CWSWS<sup>1</sup></b>																			
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
<b>CWSP<sup>1</sup></b>																			
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																	



# Durum Wheat

Category and Variety	Years Tested	Yield (%)			Protein	Resistance To <sup>1</sup>							Head Awakeness	Rel. Maturity (days)	Seed Weight (mg)	Volume Wt. <sup>2</sup> (kg/hL)	Ht. (cm)		
		Area 1 & 2	Area 3 & 4	Irrigation		Lodging	Sprouting	Stem Rust	Leaf Rust	Stripe Rust	Loose Smut	Bunt						Leaf Spot	FHB
<b>CWAD</b>	--- 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	-1.0	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

<sup>1</sup>Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.

<sup>2</sup> 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](http://www.inspection.gc.ca) and the Canadian Grains Commission's Variety Designation Lists [www.grain-scandata.gc.ca](http://www.grain-scandata.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](http://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.grain-scandata.gc.ca](http://www.grain-scandata.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](http://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 (%)		Protein (%)	Winter Survival	Resistance To <sup>2</sup>					Head Awned-ness	Relative Maturity	Seed Weight (mg)	Volume Wt. <sup>3</sup> (kg/hL)	Height (cm)	
		Area 1 & 2	Area 3 & 4			Lodg-ing	Stem Rust	Leaf Rust	Stripe Rust	Bunt						FHB
CWRW <sup>1</sup> -- 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 <sup>1</sup>																
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

<sup>1</sup> Includes direct and indirect comparisons with CDC Buteo

<sup>2</sup> Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.

<sup>3</sup> 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 Bio-type 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 (%)		Protein (%)	Resistance To <sup>1</sup>				Heading Date (days) <sup>2</sup>	Maturity (days) <sup>3</sup>	Seed Weight (mg)	Volume Weight (kg/hL) <sup>4</sup>	Height (cm)	Falling Number (seconds)
		Area 1 & 2	Area 3 & 4		Winter Survival	Lodging	Shattering	Ergot						
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

<sup>1</sup> Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.

<sup>2</sup> Average heading date relative to **Hazlet**. Flowering typically occurs 7-14 days after heading, depending on weather conditions.

<sup>3</sup> Average maturity date relative to **Hazlet**. Wet and cool conditions can prolong maturity beyond these dates.

<sup>4</sup> 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 (%)		Test Weight (kg/hL)	Seed Weight (mg)	Height (cm)	Maturity	Resistance To <sup>1</sup>						
		Area 1 & 2	Area 3					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	---	---	---	---	---	---

<sup>1</sup> 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 <sup>1</sup> and Variety	Years Tested	2 or 6 Row	Awns <sup>2</sup>	Yield		Relative Maturity <sup>3</sup>	Resistance To <sup>4</sup>									
				(% AC Metcalfe) Area 1 & 2	(% AC Metcalfe) Area 3 & 4		Lodg- ing	Netted Net Blotch <sup>5</sup>	Spotted Net Blotch <sup>5</sup>	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	FHB
<b>Malting Acceptance: Recommended</b>																
AC Metcalfe	11	2	R	100	100	M	G	S	I	I	MS	R	I	I	MR	I
CDC Bow <sup>6</sup>	6	2	R	113	111	M	VG	S	MR	I	MS	S	I	MS	MR	MS
AAC Connect <sup>7</sup>	3	2	R	103	113	M	G	I	MR	MR	S	S	R	MS	MR	MR
CDC Copeland <sup>8</sup>	8	2	R	107	108	M	G	I	I	S	MS	MS	I	I	MR	I
AAC Synergy <sup>9</sup>	7	2	R	118	118	M	G	MR	R	R	S	S	I	I	MR	MS
Celebration <sup>10</sup>	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
<b>Malting Acceptance: In Development or Limited Demand</b>																
Bentley <sup>11</sup>	7	2	R	113	112	L	G	MS	R	I	MS	MS	MR	I	MR	MS
CDC Fraser <sup>12</sup>	5	2	R	112	115	M	G	MR	R	MR	MS	R	R	MS	MR	I
CDC Kindersley <sup>13</sup>	7	2	R	105	107	E	G	MS	MR	I	S	S	R	I	MR	I
Lowe <sup>14</sup>	4	2	R	109	109	L	G	I	MR	I	MR	R	R	---	S	MR
Newdale <sup>15</sup>	6	2	R	112	113	M	G	I	MR	I	MS	S	MR	MR	MR	I
CDC PolarStar <sup>7</sup>	7	2	R	104	99	M	F	S	MR	MS	S	S	R	MS	S	MR
CDC PlatinumStar <sup>7</sup>	6	2	R	104	104	M	F	I	MR	S	S	S	R	S	I	MR
<b>Other<sup>9</sup></b>																
Cerveza <sup>16</sup> §	7	2	R	113	117	M	G	MS	MR	R	S	R	R	I	MR	I
CDC Goldstar <sup>7</sup> §	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 <sup>17</sup> §	7	2	R	109	109	M	G	I	R	I	S	S	MR	MS	MR	MR
Major <sup>18</sup> §	7	2	R	112	115	M	G	I	MR	MR	S	R	MR	MS	MR	I
CDC Meredith <sup>19</sup> §	7	2	R	114	112	L	G	MS	R	MS	MS	R	MR	I	MR	I
Merit 57 <sup>20</sup> §	7	2	R	109	107	L	G	MS	R	MS	I	S	I	MR	I	MS
Sirish <sup>21</sup>	4	2	R	99	103	M	VG	MS	MS	MS	MR	S	R	---	S	MS
CDC Anderson <sup>22</sup> §	7	6	R	107	108	M	G	MS	MR	R	MS	MR	R	I	I	I
CDC Battleford <sup>23</sup> §	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

<sup>1</sup> These categories are established annually by the Canadian Malting Barley Technical Centre (Call 204-984-4399 for more information).

<sup>2</sup> R=Rough, S=Smooth

<sup>3</sup> Relative maturity: The relative maturity of the check, **AC Metcalfe**, is M (on average, 91 days from seeding to swathing ripeness).

<sup>4</sup> Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate; MS = Moderately Susceptible; S = Susceptible.

<sup>5</sup> 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.

<sup>6</sup> Although not on the CMBTC list, a malting barley market may exist for these varieties.

<sup>7</sup> **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 <sup>1</sup>	Established Demand
AC Metcalfe <sup>1</sup>	Established Demand
AAC Synergy <sup>4</sup>	Growing Demand
AAC Connect <sup>2</sup>	Under Commercial Market Development
CDC Bow <sup>1</sup>	Under Commercial Market Development

**Note:** **CDC PlatinumStar<sub>2</sub>** and **CDC PolarStar<sub>2</sub>** are currently closed-loop varieties. For contracting opportunities contact Prairie Malt - Cargill Biggar. Marketing opportunities remain for the varieties **Bentley<sub>2</sub>** and **Newdale<sub>3</sub>** and **CDC Kindersley<sub>1</sub>**, 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 <sup>3</sup>	Limited Demand
Tradition <sup>3</sup>	Limited Demand
Celebration <sup>2</sup>	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 <sup>1</sup>	Two-Row - Undergoing seed propagation
Lowe <sup>1</sup>	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](http://cmbtc.com)

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# Feed and Food Barley

## Main Characteristics of Varieties

Category and Variety	Years Tested	2 or 6 Row	Awns <sup>1</sup>	Yield		Relative Maturity <sup>2</sup>	Resistance To <sup>3</sup>									
				(% AC Metcalfe) Area 1 & 2	Area 3 & 4		Lodging	Netted Blotch <sup>4</sup>	Spotted Net Blotch <sup>4</sup>	Spot Blotch	Scald	Loose Smut	Other Smuts	Root Rot	Stem Rust	FHB
<b>Hulled</b>																
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
<b>Hulless</b>																
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

<sup>1</sup> R = Rough, S = Smooth, SS = Semi-Smooth

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

<sup>3</sup> Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate; MS = Moderately Susceptible; S = Susceptible.

<sup>4</sup> 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		Test Weight (g/0.5L)	% Hull	Hull Colour	% Plump	Relative Maturity <sup>1</sup>	Height (cm)	Resistance To <sup>2</sup>			
		(% CDC Dancer) Area 1 & 2	Area 3 & 4							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	---	---	---

<sup>1</sup> Maturity Rating M = 96 days.

<sup>2</sup> 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 nota-

bly 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 <sup>1</sup> (%)	Days to Heading	Days to Maturity	Height (cm)	Test Weight (kg/hL) <sup>3</sup>	Seed Weight (g/1000)
CDC Bastia	glabrous	54	100	56	98	102	70.8	8.0
CDC Calvi <sup>2</sup> ☹	glabrous	40	106	2	3	4	0.7	0.3
CDC Cibo <sup>2</sup> ☼	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

<sup>1</sup> Yield data not collected by Area

<sup>2</sup> 2011-2017 yield data; other varieties 2007 -2017, except CDC Togo (2007-2016)

<sup>3</sup> 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	Herbi- cide Toler- ance <sup>1</sup>	Years Tested <sup>2</sup>	Yield		Height (cm)	Days to Flower	Maturity Rating <sup>3</sup>	Resistance To <sup>4</sup>		Seed Coat Colour	Coty- ledon Colour	Seed Weight (g/1000)	
				(% CDC Maxim) Area 1 & 2	(% CDC Maxim) Area 3 & 4				Asco- chyta Blight	Anthrac- nose Race 1				
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	
CDC KR-1			10	110	92	37	52	M	MR	MR	gray	red	56	
Small Green	CDC KR-2 ☹	CL	7	102	90	37	52	M	MR	MR	gray	red	55	
	CDC Invincible	CL	11	92	80	33	49	E	MR	MR	green	yellow	34	
Extra Small Green	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	
Medium Green	CDC Asterix §		9	96	93	30	48	E	MR	I	green	yellow	26	
	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	
Large Green	CDC Richlea		6	93	80	35	50	M	S	S	green	yellow	51	
	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	

<sup>1</sup> CL indicates Clearfield® tolerant variety.

<sup>2</sup> Co-op and Regional Trials in Saskatchewan since 2006. Comparisons to the check variety, small red lentil **CDC Maxim**.

<sup>3</sup> 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 Test- ed <sup>1</sup>	Yield			Leaf Type <sup>2</sup>	Rel- ative Matu- rity	Lodg- ing <sup>3</sup> (1-9)	Vine Length (cm)	Resistance To							Seed Weight (g/1000)	Protein vs. CDC Amarillo
		(% CDC Amarillo) 1, 2 & South 3	North 3 & 4	Irriga- tion					MB <sup>4</sup>	Powdery Mildew	Fusari- um Wilt	SCB <sup>5</sup>	Bleach- ing	SCD <sup>6</sup>	Green- ness <sup>7</sup>		
<b>Yellow</b>																	
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
Earlstar	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
<b>Green</b>																	
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
<b>Red</b>																	
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
<b>Maple</b>																	
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	---
<b>Dun</b>																	
CDC Dakota	8	103	99	95	SL	M	3.5	85	4.5	R	---	G	n/a	VG	n/a	205	1.7
<b>Forage<sup>8</sup></b>																	
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

<sup>1</sup> Co-op and regional trials in Saskatchewan

<sup>2</sup> N = normal leaf type; SL = semi-leafless

<sup>3</sup> Lodging score (1-9) where 1 = completely upright, 9 = completely lodged

<sup>4</sup> Mycosphaerella blight score (1-9) 1=no disease, 9=completely blighted



## 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 <sup>1</sup>	Type <sup>2</sup>	Hilium Colour <sup>3</sup>	Years Tested	Yield (% TH 33003R2Y) <sup>4</sup>		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

<sup>1</sup> 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

<sup>2</sup> All varieties in this table are either Roundup Ready 1 or Genuity Roundup Ready 2 Yield™

<sup>3</sup> Hilium is the point where a seed attaches to the pod. BR-Brown, Y-Yellow, IY-Imperfect Yellow, BL-Black, IB Imperfect Black

<sup>4</sup> 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 <sup>2</sup>	Height (cm)	Days to Flower	Maturity	Seed Weight (g/1000)	Seed Shape <sup>3</sup>	Seed or Seed Coat Colour <sup>4</sup>
			Area 1 <sup>1</sup>	Area 2 <sup>1</sup>							
<b>Kabuli</b>	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
<b>Desi</b>	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

<sup>1</sup> Area 1: Brown soil zone; Area 2: Dark Brown soil zone; see map on page 2.

<sup>2</sup> 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).

<sup>3</sup> Seed shape: Ro = Round; RH = Ram-head; P = plump; A = angular

<sup>4</sup> 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 Pro-*

*duction Manual* published by the Saskatchewan Pulse Growers ([www.saskpulse.com](http://www.saskpulse.com)).

## Dry Bean

### Main Characteristics of Varieties

Type	Variety	Years Tested <sup>1</sup>	Yield --- (% CDC Pintium) ---		Days to Flower	Maturity Rating <sup>2</sup>	% Pod Clearance <sup>3</sup>	Seed Weight (g/1000)	Growth Habit <sup>4</sup>
			Irrigation	Dryland					
<b>Pinto</b>	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
<b>Navy</b>	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
	<b>Small Red</b>	AC Redbond	8	98	100	51	M	65	290
<b>Black</b>	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
<b>Shiny Black</b>	AC Black Diamond	7	102	94	54	M	70	250	II
	<b>flor de junio</b>	CDC Ray ☀	6	146	127	56	L	70	300
<b>Yellow</b>	CDC Sol ☹	10	104	95	55	L	78	399	I

<sup>1</sup> Co-op and regional trials grown in narrow rows. Direct comparisons to **CDC Pintium** since 2002.

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

<sup>3</sup> Pod clearance: percentage of pods that completely clear the cutterbar at time of swathing (~4 cm).

<sup>4</sup> 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 <sup>1</sup> (1-9)	Maturity (days)	Seed Weight (g/1000)
<b>Coloured Flower (normal tannin)</b>						
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
<b>White Flower (zero tannin)</b>						
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

<sup>1</sup> 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 custom-

er 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:

$$\text{Seeding rate (kg/ha)} = (\text{target plant population/m}^2) \times (\text{TKW in grams}) \div (\text{expected seedling survival in per cent})$$

Crop	Target Plant Population (per m <sup>2</sup> )	Target Plant Population (per ft <sup>2</sup> )	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 <sup>1</sup> (% CDC Bethune)			Relative Maturity <sup>2</sup>	Seed Size <sup>3</sup>	Resistance To		
		Area 1 & 2	Area 3 & 4	Irrigation			Lodging	Powdery Mildew <sup>4</sup>	Fusarium Wilt <sup>4</sup>
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

<sup>1</sup> Data from Regional and Coop yield trials.

<sup>2</sup> Relative maturity: The relative maturity of the check, **CDC Bethune**, is L (on average 101 days from seeding to swathing ripeness).

<sup>3</sup> Seed size: S = Small, M = Medium, L = Large.

<sup>4</sup> 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 black-leg 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 publi-

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

<sup>1</sup> Yield data not collected by area.

<sup>2</sup> Mucilage in yellow mustard is a measurement of viscosity of aqueous extracts from seed.

<sup>3</sup> Varieties are rated S (Susceptible) or R (Resistant) to White Rust strains.

<sup>4</sup> 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.

<sup>5</sup> Data from 2009-2012 Co-operative Mustard Test (29 station years).

<sup>6</sup> Data from 2008-2010 Co-operative Mustard Test (21 station years).

<sup>7</sup> Data from 2012 yield test and 2013-2015 Co-operative Mustard Test (21 station years).

<sup>8</sup> 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 significantly 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-infested 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](http://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 ( <i>B. napus</i> )	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)
<b>Liberty Link</b>													
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(%) <sup>3</sup>						11				13			
<b>Clearfield</b>													
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 (%) <sup>3</sup>						14				12			
<b>Roundup Ready</b>													
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 <sup>2</sup>	Brett Young	26	100	R	---	95	92	1.0	128	99	100	1.7	102
6076 CR <sup>2</sup>	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 <sup>1</sup>	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(%) <sup>3</sup>						11				10			

<sup>1</sup> Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit [www.canolaperformancetrials.ca](http://www.canolaperformancetrials.ca) for more details.

<sup>2</sup> Indicates Improved Tolerance (IT) to sclerotinia stem rot based on data submitted to & approved by CFIA by distributor, using the WCC/RRC-approved protocol.

<sup>3</sup> 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](http://www.canolaperformancetrials.ca).

Insufficient data was collected to publish Short Season Zone results. Individual location results are available at [www.canolaperformancetrials.ca](http://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](http://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 (%)
<b>Oilseed EM (Early Maturing)</b>					
63A21 §		8	100	110	17.9
Honeycomb NS		4	114	107	13.0
AC Sierra		8	68	106	15.5
<b>Oilseed (Full Season)</b>					
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](mailto: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
<b>WHEAT</b>		
<b>Canada Western Red Spring</b>		
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
<b>Canada Western Special Purpose</b>		
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
<b>Canada Western Amber Durum</b>		
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 Sucedee 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
<b>WHEAT (CONT'D)</b>		
<b>CWRS or CPSR moving to CNHR - August 1, 2018</b>		
Conquer VB 🌱	AAFC (Winnipeg)	CANTERRA SEEDS
Harvest 🌱	AAFC (Winnipeg)	FP Genetics
Lillian 🌱	AAFC (Swift Current)	SeCan Members
Unity VB 🌱	AAFC (Winnipeg)	SeCan Members
<b>Canada Prairie Spring Red</b>		
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
<b>Canada Northern Hard Red</b>		
AAC Concord 🌱	AAFC (Swift Current)	CANTERRA SEEDS
Elgin ND 🌱	NDSU	FP Genetics
Faller	NDSU	Seed Depot
Prosper 🌱	NDSU	Seed Depot
<b>Canada Western Hard White Spring</b>		
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
<b>Canada Western Soft White Spring</b>		
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
<b>WINTER WHEAT</b>		
<b>Canada Western Red Winter</b>		
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
<b>Canada Western Experimental</b>		
AAC Icefield 🌱	AAFC (Lethbridge)	FP Genetics
<b>Canada Western Special Purpose</b>		
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
<b>TRITICALE</b>		
<b>Spring Habit</b>		
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
<b>Winter Habit</b>		
Luoma	FCDC (Lacombe)	Corns Brothers Farms
Metzger 🌱	FCDC (Lacombe)	Haney Farm Ltd.
Pika	FCDC (Lacombe)	Progressive Seeds

Crop Kind, Class & Variety	Breeding Institution	Distributor
<b>BARLEY</b>		
<b>Malting Two-Row</b>		
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
<b>Malting Six-Row</b>		
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
<b>Hulled - Feed Two-Row</b>		
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
<b>Hulled - Feed Six-Row</b>		
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
<b>Hulless - Food, Malting, Feed</b>		
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	SeCan Members
CDC Hilose 🌱	U of S - CDC	SeCan Members
CDC McGwire 🌱	U of S - CDC	SeCan Members
CDC Rattan 🌱	U of S - CDC	SeCan Members
Roseland	AAFC (Brandon)	Wayfinder Farms
Taylor 🌱	AAFC (Brandon)	Alliance Seed
<b>Forage</b>		
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
<b>CANARYSEED</b>		
CDC Bastia	U of S - CDC	Public release U of S - CDC
CDC Calvi 🌱	U of S - CDC	CANTERRA SEEDS
Canitate	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
<b>RYE</b>		
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
<b>OAT</b>		
<b>Hulled</b>		
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
<b>Hulless</b>		
AC Gwen	AAFC (Winnipeg)	SeCan Members
<b>Forage</b>		
CDC Baler	U of S - CDC	FP Genetics
CDC Haymaker 🌱	U of S - CDC	SeCan Members
Murphy 🌱	AAFC (Lacombe)	SeCan Members
<b>FLAX</b>		
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
<b>MUSTARD</b>		
<b>Brown</b>		
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	---
<b>Oriental</b>		
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.
<b>Yellow</b>		
AAC Adagio 🌱	AAFC (Saskatoon)	Mustard 21 Canada Inc.
Andante	AAFC (Saskatoon)	Canadian Mustard Assoc.
AC Pennant	AAFC (Saskatoon)	Canadian Mustard Assoc.
<b>SAFFLOWER</b>		
Saffire	AAFC (Lethbridge)	Jerry Kubic (AB)



Crop Kind, Class & Variety	Breeding Institution	Distributor
<b>LENTIL</b>		
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

<b>SUNFLOWER</b>		
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

<b>CHICKPEA</b>		
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**

<b>CAMELINA</b>		
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

<b>Abbreviations Used in this List</b>	
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
<b>FIELD PEA</b>		
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 Homet	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

<b>DRY BEAN</b>		
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

<b>FABA BEAN</b>		
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





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**PROTECTOR**



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