



2019 Guide **SaskSeed**

Saskatchewan Seed Growers Association



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Which variety is best for you? | P. 101

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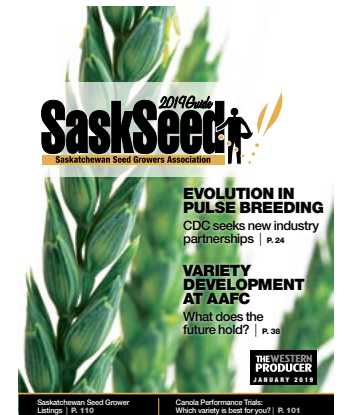
What does the future hold for plant breeding and variety development programs at Agriculture Canada?

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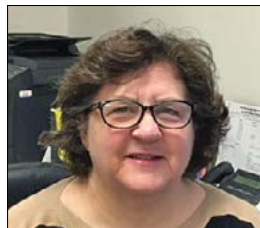
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CATHY FEDORUK
SSGA PRESIDENT

Change is an inevitable part of the seed industry. In the last five years as seed growers, we have already experienced substantial changes to how we do business.

The way we report our pedigreed seeded acreage has been transformed - over 95 percent of applications are now done online.

The way we get our crops inspected has transitioned from CFIA to private inspection companies.

Seed breeding, with newer techniques and technologies, is bringing varieties and novel traits to the market much quicker than in the past.

Our smart phones and tablets have changed the way we do business and will continue to advance our capability to communicate with our customers, colleagues and industry partners.

What's next? Seed Synergy will find us working more closely with our partners in the seed industry - achieving the long sought-after goal of reducing redundancies in our reporting procedures, accom-

plishing a single window data entry system, advocating with one strong voice for our industry, as it comes under the scrutiny of public perception, social license, and reduced government spending.

Our royalty capture system will certainly change.

As the federal government continues to reduce research funding, we require more producer investment to ensure our breeding institutions can continue to provide us with varieties tailored to our requirements.

An improved system of 'value capture' is necessary to ensure that all are paying for advancements in the industry from which they derive benefit.

With only 20 percent certified seed usage, the lion's share of research dollars are being generated by a few.

Check-offs and the current royalty collection system are not enough to ensure public breeders can operate their programs.

We are involved in a unique time where our input is being sought out. I hope you have

taken the time to participate in the process.

What won't change? Seed growers' commitment to quality and service to our farmer community.

We will continue to be the local expert for all things "seed."

The consumer and end-product user will continue to demand traceability and accountability from agriculture and we need to position ourselves to be industry leaders.

Our quality assurance systems and third party verification requirements will ensure these demands are met.

If you find yourself longing for simpler times, you are not alone.

Remember, we are remodeling our industry to position ourselves for the future, to attract much needed investment and technology.

We are competing on a global stage and if we don't embrace change, we will get left behind!

These days, change seems to be the only constant.

C Fedoruk



As the federal government continues to reduce research funding, we require more producer investment to ensure our breeding institutions can continue to provide us with varieties tailored to our requirements.



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SEED GROWERS REFLECT ON 2018, LOOK AHEAD TO 2019

BY SHIRLEY BYERS | SPECIAL TO SASKSEED

A perfect production year is something that's rarely experienced by every grower in Saskatchewan. And 2018 was certainly no exception.

In early November, Saskatchewan Agriculture reported that approximately one percent of an average to above average crop was still in the field.

As usual, crop quality and harvest progress varied significantly from one area to the next.

In some regions, wet weather triggered some sprouting, bleaching and staining.

In other areas, quality was good, depending on how early the crops reached maturity and how quickly they were harvested.

Across the province, yields were variable, depending on moisture. Overall, provincial yields were hitting the 10-year average. However, some growers in southern and central areas were "significantly affected" by insufficient moisture, particularly in areas where growers were coping with their second consecutive year of drought conditions.

With the crop in the bin, SaskSeed spoke to four Saskatchewan pedigreed seed growers about some of the issues they'll be dealing with in the coming months.

SASKSEED: Are farmers buying more certified seed now than they were a few years ago? Why or why not?

"I think it's almost level," said Cathy Fedoruk, a pedigreed seed grower from Kamsack, Sask., who also serves as president of the Saskatchewan Seed Growers Association (SSGA).

"I think in our business, it has increased but not exponentially. It's more like a steady increase. We've hit a plateau. Now we're waiting for the next best thing (and) then it will jump again."

Mike Shewchuk, a pedigreed seed grower and SSGA director from Blaine Lake, Sask., said certified seed sales have increased at his farm.

He attributes sales growth to the new genetics and new varieties that are available.

"Semi-dwarf, midge tolerant, is a big driver for wheat sales," Shewchuk said.

At Lafleche, in southwestern Saskatchewan, SSGA director Anita Palmier said



Saskatchewan pedigreed seed growers had another productive year in 2018, despite harvest challenges in many areas. Demand has been variable, with some crops types seeing reduced uptake due to weakness in grain markets. | SASKSEED FILE PHOTO

sales have been down the last couple of years and will likely continue to be down.

"This is durum country," Palmier said. Other pedigreed seed growers in the area have reported sales declining by as much as 50 percent, she added.

And at Avonlea, Sask., Mark Watson said some commercial grain growers see pedigreed seed "as something they can save money on," when margins are tight.

At the same time, some people seem willing to travel a long way to obtain certified seed. Two years ago, Watson had calls from growers in Alberta, Manitoba and as far south as Nebraska.

SASKSEED: Are markets for certified seed getting tighter as farmers face higher production costs in other areas such as machinery, land rentals, land purchases, fertilizer, fuel and farm labour?

Shewchuk doesn't think so. "I think it drives more investment because the place you start is with your

seed," he said.

"The first thing you're going to do is put a seed in the ground and you want that seed to be the best that it can be. It's like buying a high definition TV but not subscribing to hi-def satellite. If you're watching black and white, what's the point?"

"There would definitely be some guys who are pretty price sensitive," added Watson.

"They look at the cost of certified seed but don't look at all the costs behind it. They just see the price difference."

SASKSEED: What about market conditions for crops like lentils, peas and durum? Are certified seed sales flatter as a result of low market prices for these crops?

"None of us is exempt from the backlash of commodity prices...," said Palmier.

"In recent years, farmers have relied on lentils to help them pay their input bills

continued on page 10 >>

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but lentil prices have flattened too. (They're) now less than \$10 a bushel. And we've had drought down here."

"I think we did see a drop in sales for yellow peas," added Shewchuk. "I think that was partly due to the decline in commercial prices. But ... (customers still) want the latest genetics," he added.

Shewchuk said the decline in malt barley prices hasn't affected barley seed sales. He attributes that to a strong feed market.

"Farmers (like the fact) that there's a foundation to fall back on if they don't make malt."

Fedoruk said the situation in India has pushed back all pulse sales but there is still a market for the larger pea varieties with better standability.

Peas are a good rotational choice so they will continue to be in demand, she added.

"In Saskatchewan people are finally realizing that clubroot is an issue."

"I think guys are looking for an alternative to the wheat-canola rotation, and peas are such a good fit for our area."

Malting barley is a hard sell in Fedoruk's area, mostly because Kamsack is far away from malting facilities. But feed barley varieties are moving — especially high-yielding varieties like Austenson.

SASKSEED: When it comes to certified seed, what varieties will be in high demand in late 2018 and early 2019 and what products, if any, will be in short supply?

Palmier said growers in her area will be looking for spring wheat, plus yellow and green peas. She doesn't see a lot of chickpeas going into the ground unless prices go up.

"I think we will see an increase in spring wheat sales unless the price of durum comes up by spring," she said.

"Durum will still go in, and if the price is close to spring wheat, we'll see still a lot of durum going in."

Fedoruk said growers in the Kamsack area are seeing very good yields and returns from some of the newer wheat varieties such as Redberry and Landmark. Those varieties could be in short supply.

Demand could also be strong for milling oat varieties such as CDC Ruffian and CS Camden.

Larger pea varieties such as Spectre, Chrome and Carver will also be popular, she said.

"I think breeding for the last five years or so has really read the market."

Flax is another crop to watch, she said. Demand was strong last year and it could be a sleeper crop. Soybeans are also worth watching.

"I'm thinking soybeans are going to take off," she said.

From Watson's perspective, commercial growers are taking a wait-and-see approach.

"(They're) waiting for the market to do something before they make up their mind," he said.

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SEED GROWERS, GRAIN FARMERS WATCHING MARKET SIGNALS

SPECIAL TO SASKSEED

Canada's seed growers had more than 1.335 million acres of pedigreed seed production inspected in 2018, down slightly from 1.353 million acres in 2017.

The previous five-year average, from 2013 to 2017 inclusive, is 1.299 million acres nationally.

On the Canadian Prairies, pedigreed seed acreage in 2018 was down slightly in Manitoba and Saskatchewan but up slightly in Alberta.

Saskatchewan's pedigreed acreage was listed at approximately 324,000 acres last year, compared to 330,000 acres in 2017.

Manitoba acreage was listed at roughly 380,000 acres, down from 391,000 acres a year earlier.

Alberta's acreage was 349,000, compared to 346,000 in 2017.

All told, seed growers in the prairie provinces had 1.053 million pedigreed acres inspected last year.

That accounts for nearly 79 percent of Canada's total pedigreed seed production.

In Saskatchewan, SSGA president Cathy Fedoruk said provincial acreage was down marginally in 2018 but in line with what's normally expected.

"It seems to go up a little bit every year or down a little bit, but overall we're in the same ball park," she said.

Certified seed demand for some crop types has softened due to weakness in commercial grain markets, she added.

"If you look at the (commercial grain) markets for a crop like durum, for example, the market signals aren't very strong right now so I'm not sure what certified seed sales will be like unless something changes before spring," she said.

Weakness in lentil markets, caused by the well-publicized implementation of import tariffs by India, could also affect certified lentil seed sales.

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SASKATCHEWAN PEDIGREED SEED ACREAGE

| CROP KIND | 2014 | 2015 | 2016 | 2017 | 2018 |
|-------------------|----------------|----------------|----------------|----------------|----------------|
| Alfalfa | 15,628 | 18,307 | 18,877 | 16,401 | 14,008 |
| Barley | 23,732 | 34,687 | 41,241 | 30,047 | 31,794 |
| Beans | 340 | 205 | 250 | 887 | 329 |
| Birdsfoot Trefoil | 225 | -- | 100 | 100 | 100 |
| Bromegrass | 1,202 | 2,169 | 2,720 | 3,358 | 2,454 |
| Canarygrass | 275 | 195 | 550 | 1,509 | 2,115 |
| Chickpeas | 2,728 | 956 | 1,966 | 1,388 | 2,583 |
| Clover | 665 | 3,851 | 3,657 | 2,018 | 2,755 |
| Fababean | 4,345 | 6,705 | 3,625 | 4,540 | 1,884 |
| Fescue | 220 | 531 | 626 | 456 | 1,155 |
| Flax | 24,685 | 23,552 | 11,103 | 12,622 | 12,630 |
| Hemp | 3,195 | 2,662 | 2,459 | 4,051 | 1,727 |
| Canola (hybrid) | 16 | 8 | -- | 240 | 18 |
| Lentil | 21,259 | 27,315 | 39,503 | 29,767 | 21,389 |
| Mustard | 425 | 1,023 | 382 | 494 | 1,595 |
| Oats | 9,955 | 13,858 | 11,882 | 14,088 | 10,756 |
| Peas | 34,082 | 35,532 | 42,032 | 37,668 | 42,401 |
| Rape | 85 | 13 | 280 | -- | -- |
| Rye | 203 | 785 | 770 | 440 | 196 |
| Ryegrass | 840 | 1,770 | 2,485 | 1,065 | 1,970 |
| Soybeans | 9,818 | 5,843 | 4,420 | 17,454 | 17,138 |
| Timothy | 4,924 | 4,780 | 4,438 | 4,355 | 3,545 |
| Triticale | 666 | 1,057 | 780 | 335 | 997 |
| Wheat | 114,616 | 144,410 | 128,440 | 144,338 | 149,181 |
| Wheatgrass | 1,570 | 1,090 | 1,675 | 1,270 | 1,470 |
| Minor crops | 613 | 1,990 | 3,217 | 1,633 | 94 |
| Total | 276,312 | 333,294 | 327,478 | 330,524 | 324,284 |

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CANADIAN PEDIGREED SEED ACREAGE IN 2018 (BY CROP TYPE & PROVINCE)

| CROP KIND | QUE. | ONT. | MAN. | SASK. | ALTA. | B.C. |
|---------------------|--------|---------|---------|---------|---------|-------|
| Alfalfa | -- | -- | 12,028 | 14,008 | 43,614 | -- |
| Barley | 8,075 | 3,918 | 8,119 | 31,794 | 44,657 | 341 |
| Bean | -- | 2,500 | 607 | 329 | -- | -- |
| Birdsfoot trefoil | -- | -- | 2,237 | 100 | -- | -- |
| Bromegrass | -- | -- | 498 | 2,454 | 3,995 | 478 |
| Buckwheat | 453 | -- | 414 | -- | -- | -- |
| Canarygrass | -- | -- | -- | 2,115 | 35 | -- |
| Chickpea | -- | -- | -- | 2,583 | 2,626 | -- |
| Clover | -- | -- | 920 | 2,755 | 921 | -- |
| Hybrid corn | -- | 15,247 | 50 | -- | -- | -- |
| Fababean | -- | 64 | 448 | 1,884 | 2,028 | -- |
| Fescue | -- | -- | 5,277 | 1,155 | 6,725 | 300 |
| Flax | 15 | -- | 3,467 | 12,630 | 5,014 | 74 |
| Hemp | 133 | 475 | 1,085 | 1,727 | 1,736 | -- |
| Canola | -- | 257 | 55 | 18 | 66,190 | 93 |
| Lentil | -- | -- | -- | 21,389 | 2,388 | -- |
| Mustard | -- | -- | 9 | 1,595 | 2,644 | -- |
| Oats | 11,661 | 3,170 | 15,081 | 10,756 | 7,368 | 414 |
| Peas | 217 | -- | 6,029 | 42,401 | 41,989 | 965 |
| Rye | 159 | 53 | 760 | 196 | 1,568 | -- |
| Ryegrass | -- | -- | 13,259 | 1,970 | 875 | -- |
| Soybeans | 49,190 | 128,345 | 204,250 | 17,138 | 765 | -- |
| Timothy | -- | -- | 13,847 | 3,545 | 7,096 | 1,796 |
| Triticale | 221 | 152 | -- | 997 | 1,970 | -- |
| Wheat | 16,624 | 20,548 | 91,312 | 149,181 | 99,504 | 537 |
| Wheatgrass | -- | -- | -- | 1,470 | 4,646 | 30 |
| Minor crops | -- | 1 | 389 | 94 | 985 | 42 |
| All crop types 2018 | 86,749 | 174,728 | 380,139 | 324,284 | 349,340 | 5,070 |
| All crop types 2017 | 87,139 | 178,398 | 390,982 | 330,473 | 345,766 | 6,874 |
| All crop types 2016 | 93,684 | 181,200 | 357,791 | 327,480 | 345,216 | 5,655 |
| All crop types 2015 | 99,692 | 193,732 | 380,131 | 333,293 | 304,971 | 6,426 |
| All crop types 2014 | 94,596 | 184,924 | 311,190 | 276,310 | 279,331 | 7,094 |

continued from page 12 >>

But there are positive signals as well. Demand for certified pea seed is expected to be relatively strong, especially in areas where peas are the pulse crop of choice among commercial growers.

"In our area particularly, we've seen quite a bit of interest in the newer pea varieties ... because rotation is starting to hit us in the face," Fedoruk said.

"Not too far away from us, there's been clubroot found in a few fields so I think some farmers are looking for ways to extend their rotations."

Demand for wheat seed has also shown some strength as newer varieties that offer improved disease and pest resistance continue to generate interest.

Certified seed demand for feed barley is also strong in some areas, perhaps because markets for feed barley are relatively good

but also because interest in malt barley is waning, at least among some farmers.

Some growers are less inclined to grow malting barley because it's becoming more difficult to get a production contract and meet contract specs.

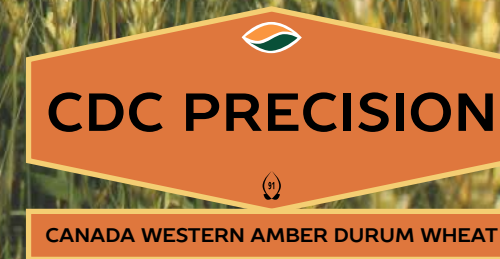
Fedoruk said it's difficult to say what pedigreed seed growers and commercial grain farmers will put in the ground in 2019, but wheat and peas are looking like

popular choices.

"Wheat has always been kind of a go-to crop and I think some of the newer varieties have people a bit excited. They're looking forward to growing them," Fedoruk said.

"But I think we need to see some stronger prices in durum and lentil markets to get people excited about growing those crops."

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SPECIAL TO SASKSEED

AAC Brandon's reign as the most popular Canada Western Red Spring (CWRS) wheat variety in Western Canada seems unlikely to end any time soon, according to data collected by provincial crop insurance programs and published by the Canadian Grain Commission (CGC).

In 2018, Brandon was planted on more than 4.1 million insured acres across the West, making it the most widely-grown wheat variety on the Canadian Prairies.

Brandon has enjoyed a meteoric rise in popularity since making its debut in commercial grain fields in 2015.

That year, Brandon's total insured acreage across the Prairies was listed at 325,000 acres, ranking it the 19th most popular CWRS variety grown in the West.

In 2016, total prairie acreage sky-rocket-

ed to more than 1.16 million acres, propelling the high-yielding SeCan variety to first place overall.

And in 2017, insured Brandon acreage nearly doubled again to 2.28 million acres.

With more than 4.1 million insured acres planted in 2018, AAC Brandon accounted for approximately 36 percent of all insured CWRS acres on the Prairies, a remarkable accomplishment for a variety that has only been on the market for four years.

Todd Hyra, SeCan's business manager for Western Canada, said Brandon's strong performance over a wide range of growing conditions since 2015 has caught the attention of prairie farmers.

The variety was a solid performer in 2015 and 2016 under relatively wet conditions, Hyra said.

It also did well in 2017, a growing season marked by above average temperatures

and limited moisture.

"The variety has done very well in a wide range of growing conditions," Hyra told SaskSeed. "The short strong straw, the MR rating for fusarium — all of the features that this variety was selected for really showed what it can do."

Hyra said a rigorous selection process led by former Agriculture and Agri-Food Canada (AAFC) wheat breeder Ron DePauw is what helped to set Brandon apart.

AAC Brandon was developed at AAFC's Semi-Arid Prairie Agricultural Research Centre (SPARC) at Swift Current, Sask.

Although it was developed and selected in the relatively dry growing conditions of southern Saskatchewan, it is well-adapted to a broad range of conditions across the Prairies, he added.

An MR rating for fusarium has also spurred sales, particularly after 2016

when fusarium damage was common across much of Western Canada.

"It's really hard to say how high it (Brandon's acreage) could go," Hyra added.

"Right now, there's not a big reason for people to switch.... There's some good, newer products coming, but I see those new products having to prove themselves against Brandon as they come into the market."

Among the new products expected to command significant CWRS acres in the future is CDC Landmark VB, a midge tolerant varietal blend, developed at the University of Saskatchewan's Crop Development Centre and distributed through the FP Genetics network.

Landmark is touted as the first semi-dwarf, midge-tolerant CWRS variety available to commercial growers.

In addition to midge tolerance, it is known for its shorter straw, improved standability, good harvestability and high yield potential relative to Carberry, the CWRS check. The variety's relatively short



New varieties of CWRS wheat offer higher yields, improved resistance to disease and insects, and shorter straw. | SASKSEED FILE PHOTO BY WILLIAM DEKAY

stature is a big hit with growers who are looking for a fast, trouble-free harvest.

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mechanical stress and downtime. In regional trials administered by the

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DEVELOPMENT COMMISSION

continued from page 17 >>

Saskatchewan Variety Performance Group, Landmark outyielded Carberry by 14 percent in Saskatchewan test areas 3 and 4 (see map on page VR2) and by 11 percent in Saskatchewan test areas 1 & 2, based on three years of testing in 2017 performance trials.

In 2017, CDC Landmark was planted on roughly 6,000 acres of insured Saskatchewan cropland. That year, it was ranked as the 41st most popular CWRS variety grown in the province.

But in 2018, insured Landmark acreage took an enormous jump forward, surpassing 250,000 acres.

Rod Merryweather, chief executive officer with FP Genetics, said the combination of shorter straw, good yield potential, midge tolerance and good harvestability has considerable appeal with CWRS producers, particularly in areas where midge pressure is routinely high.

"I think that combination is really propelling interest in Landmark," Merryweather said.

"It's clearly taking the pace of many of the older varietal blends."

Merryweather said uptake in Landmark has been strongest in areas east and north of a line that runs between Regina and Rosetown, Sask.

Midge pressure in those areas is typically higher than it is in southern Saskatchewan.

Farmers are happy with Landmark's harvestability, he added.

The variety is four to five inches shorter than Utmost, another high-yielding CWRS in the FP Genetics portfolio.

If Landmark has one weakness, it may be its susceptibility to fusarium.

The variety is rated as intermediate to fusarium headblight.

As of early 2018, the only CWRS varietal blend that offered an MR rating to fusarium was CDC Titanium VB.

Merryweather said growers in areas where fusarium pressure is high will likely be managing the disease regardless of whether their CWRS varieties are rated intermediate or moderately resistant.

"Even with an MR variety, you'll still need to use a fungicide," he said.

An MR rating is not a silver bullet, he added. "It's better than an intermediate (I) rating, but it still needs to be managed."

FP Genetics also has high expectations for another CWRS offering, AAC Viewfield. Viewfield is also a shorter, high-yielding va-

SASKATCHEWAN'S TOP INSURED CWRS VARIETIES

| VARIETY | DISTRIBUTOR | 2016 RANK | 2016 ACRES | 2017 RANK | 2017 ACRES | 2018 ACRES |
|-----------------|--------------|-----------|------------|-----------|------------|------------|
| AAC Brandon | SeCan | 4 | 252,123 | 1 | 814,524 | 1,602,675 |
| CDC Utmost VB | FP Genetics | 1 | 602,034 | 2 | 513,980 | 425,693 |
| CDC Plentiful | FP Genetics | 5 | 230,736 | 4 | 328,867 | 354,832 |
| Cardale | Seed Depot | 2 | 346,641 | 3 | 331,902 | 308,330 |
| CDC Landmark VB | FP Genetics | - | - | 41 | 6,114 | 252,686 |
| Carberry | SeCan | 3 | 332,951 | 5 | 262,048 | 225,862 |
| CDC Titanium | Proven / CPS | 21 | 96,487 | 7 | 178,732 | 206,760 |
| AAC Elie | Alliance | 29 | 35,125 | 10 | 106,262 | 206,736 |
| CDC Stanley | Proven / CPS | 7 | 193,510 | 8 | 170,232 | 137,801 |
| Shaw | SeCan | 6 | 207,875 | 6 | 196,148 | 127,589 |
| AAC Jatharia | SeCan | 61 | 1,428 | 17 | 47,087 | 119,045 |
| AAC Cameron | Canterra | 55 | 2,957 | 18 | 41,928 | 110,155 |
| Glenn | Canterra | 19 | 114,627 | 11 | 106,022 | 108,095 |
| Vesper | SeCan | 8 | 162,983 | 9 | 114,915 | 87,869 |
| CDC VR Morris | Proven / CPS | 20 | 97,328 | 12 | 85,362 | 74,298 |
| Muchmore | Alliance | 22 | 71,274 | 16 | 56,524 | 53,885 |
| Goodeve | FP Genetics | 12 | 124,869 | 15 | 75,664 | 43,894 |
| CDC Hughes VB | Proven / CPS | - | - | 61 | 615 | 38,375 |
| Stettler | SeCan | 28 | 37,000 | 20 | 34,521 | 36,184 |
| AAC Prevail | Alliance | - | - | 29 | 17,875 | 35,057 |
| 5605 HR CL | Proven / CPS | 39 | 10,778 | 24 | 27,478 | 33,356 |
| AAC Viewfield | FP Genetics | - | - | 58 | 1,241 | 33,321 |
| Waskada | SeCan | 26 | 38,377 | 25 | 26,831 | 29,231 |
| AC Barrie | | 27 | 37,233 | 21 | 31,469 | 23,119 |
| AAC Connery | Canterra | - | - | 39 | 6,619 | 22,836 |

riety. Although it doesn't contain the midge tolerant gene, it's considered a good fit for CWRS growers in the southern grainbelt, where midge pressure is comparatively low.

With global markets for Canadian durum showing some uncertainty, it is likely that more commercial grain growers in southern Saskatchewan will be looking for a solid CWRS performer.

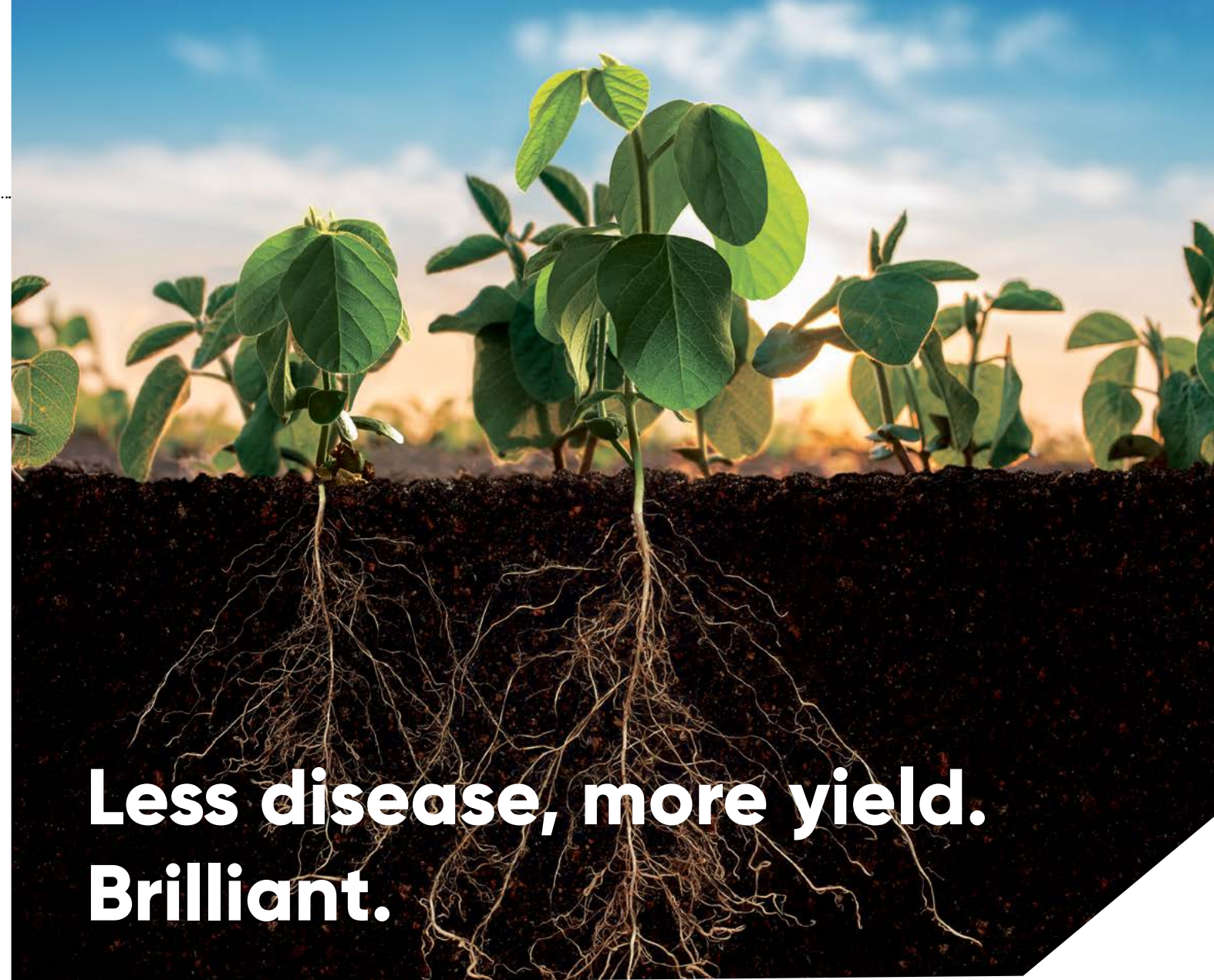
Merryweather said there is still some reluctance among CWRS growers to use varietal blends, particularly in areas where midge populations are relatively low.

That said, the growth in CDC Landmark's acreage would suggest that growers are becoming more comfortable with signing stewardship agreements that are mandatory with a varietal blend.

Any variety that harvests well and requires less scouting and fewer passes with the sprayer is likely to appeal to busy grain farmers, Merryweather added.

Other big movers in the CWRS class were:

- **AAC Jatharia**, planted on 119,000 insured Saskatchewan acres in 2018 (11th), compared to 47,000 acres in 2017 (17th);
- **AAC Cameron**, planted on 110,000 insured acres in 2018 (12th), compared to 42,000 acres in 2017 (18th);
- **CDC Hughes**, planted on 38,000 insured acres in 2018 (18th), compared to 615 acres in 2017 (61st), and;
- **AAC Viewfield**, planted on 33,000 insured acres in 2018 (22nd), compared to 1,241 acres in 2017 (58th).



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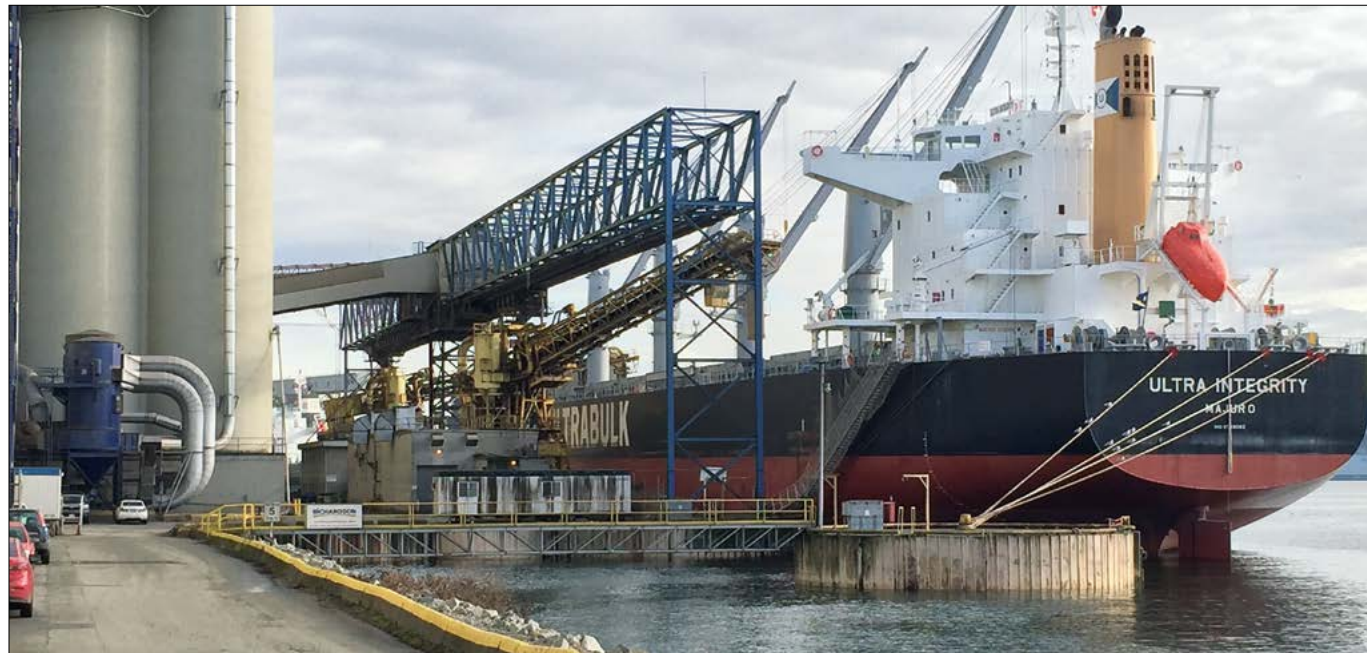
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The Canadian wheat industry says reclassifying some Canada Western Red Spring wheat varieties to the Canada Northern Hard Red class will result in CWRS wheat exports that offer a more consistent range of gluten strengths, in line with what buyers of top-quality Canadian wheat are demanding. | SASKSEED FILE PHOTO BY BRIAN CROSS

FIVE MORE VARIETIES HEADED FOR CNHR CLASS

SPECIAL TO SASKSEED

Following what it calls a comprehensive two-year testing program, the Canadian Grain Commission announced in 2018 that five additional Canada Western Red Spring (CWRS) wheat varieties will be reclassified into the lower valued CNHR wheat class as of mid-2021.

CGC officials confirmed in April of last year that the gluten strengths of CWRS varieties AAC Redwater, AC Domain, Muchmore, Vesper and 5605 HR CL are too low to meet the quality expectations of foreign and domestic buyers of CWRS wheat.

Allowing the five varieties to remain in the CWRS class would reduce the overall quality of the Canada Western Red Spring class, the CGC added.

As a result, the varieties will be reassigned effective Aug. 1, 2021 to the Canada Northern Hard Red wheat class — a class that sells at a significant discount to CWRS.

In a news release announcing the reclassification, CGC officials said the commission will provide three year's notice before

the changes take effect.

The three-year notification period is intended to give commercial grain growers, pedigreed seed growers and grain handling companies ample time to clear the varieties from existing grain and seed inventories.

Commercial growers will be permitted to market the varieties as CWRS grain between now and July 31, 2021.

After that, they will be required to declare the varieties as CNHR cultivars at the point of sale.

For pedigreed seed growers, the reclassification is expected to come at a significant cost.

That's because seed growers who have grown the five varieties as pedigreed seed may now have few alternatives but to sell their seed supplies as commercial grain.

Delivery opportunities for CNHR wheat varieties have been limited or non-existent, depending on sales programs in different areas of Western Canada.

In addition, CNHR wheat varieties are typically sold at a discount to higher quality CWRS varieties.

In a recent interview with SaskSeed, CGC research scientist Dave Hatcher said the decision to reassign the five varieties was based on a thorough evaluation of data collected from trials across the three prairie provinces.

Hatcher said all of the varieties identified for reassignment in 2021, along with a handful of others, were assessed for gluten strength relative to established benchmarks in the Canada Western Red Spring wheat class.

Based on those assessments, it was determined that these varieties do not meet the necessary quality parameters to remain in their current class.

The acceptable range for gluten strength within the CWRS class is not expressed as a numerical value.

Instead, the gluten strength of a CWRS variety is expected to fall within a comparative range where CWRS variety Carberry represents the lowest acceptable value and CWRS variety Glenn represents the highest acceptable value.

continued on page 22 >>



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continued from page 20 >>

Using this comparative range rather than a static numerical value allows for some flexibility within the class.

That flexibility is needed because environmental factors during the growing season can cause the gluten strength of all varieties to fluctuate to some degree.

“The five varieties were found to not meet the strength requirements that are required in the CWRS class,” said Hatcher.

“We gave (the owners of these varieties) three years notification that we would be transitioning them out... as of Aug. 1, 2021, they will no longer be CWRS....”

Hatcher described the assessment process as fair, transparent and openly communicated with stakeholders in the CWRS wheat class.

The five latest varieties scheduled for reclassification will join 25 other former CWRS varieties that were demoted on Aug. 1, 2018.

According to Hatcher, AAC Redwater, AC Domain, Muchmore, Vesper and 5605 HRCL were part of a small group of CWRS varieties whose gluten strength was not known to CGC’s grain quality lab.

When the varieties were registered in Canada, gluten strength analysis was not a requirement of the variety registration process. Because of that, comparative variety trials were conducted over a two-year period, comparing the gluten strength of AAC Redwater, AC Domain, Muchmore, Vesper and 5605 HRCL against the gluten strength of Carberry—the minimum gluten strength check—and Glenn, the maximum check.

Trial sites were located across Western Canada with each variety required to be grown in at least six different test sites each year.

Harvested grain from each year was sent to the CGC quality lab, analyzed and compared to the checks.

Hatcher said the trials and comparative analysis were necessary to ensure consistency within the CWRS class, Canada’s most valuable.

“We wanted to ensure consistency within the class, for our export markets and our domestic market,” he said.

Companies that held commercial distribution rights were understandably disappointed with the CGC’s findings, Hatcher added. But he commended all stakeholders for their co-operation and their participation in the process.

“Different owners reacted slightly differently ... but I commend them all because ... they recognized the importance of keeping the class moving forward and meeting the quality requirements of our customers, both domestic and international.”

Hatcher said the analysis and reclassification of CWRS varieties based on gluten strength is now complete, with no further testing anticipated.

Gluten strength analysis has now been established as a requirement of the CWRS varietal registration process.



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AN EVOLUTION IN PULSE BREEDING

Crop Development Centre looks for new funding partners

BY SARAH HOFFMANN | SPECIAL TO SASKSEED

A 21-year partnership that bolstered the western Canadian pulse industry will be taking a new form come 2020.

Since 1997, the Saskatchewan Pulse Growers (SPG) have provided exclusive funding for variety development at the Crop Development Centre (CDC) in Saskatoon.

In return, the CDC has released lentil, pea, chickpea and dry bean varieties royalty free to farmers in Saskatchewan.

But according to an advertisement placed in industry publications, the CDC pulse breeding program is seeking to “diversify partnerships in order to leverage sufficient financial and technological resources to remain competitive and deliver value to stakeholders.”

In other words, they are looking for new partners, in addition to SPG, to fund breeding programs and share in the returns that improved genetics bring to the pulse industry value chain.

Kofi Agblor, the CDC’s managing director, said the change to the funding model is a natural business evolution.

“Most people would agree that in the long term — for any type of business relationship — having only one source of funding and distribution may not be the best in the long term,” said Agblor, who has been at the CDC for seven years and was formerly the director of research at SPG.

“You grow and things change. You can never remain with the status quo.”

The CDC requested expressions of interest to be submitted by the end of November 2018.

Selected partners will be invited to submit full applications by January 31, 2019.

Successful applicants would begin funding CDC pulse breeding programs by Oct. 1, 2020, to coincide with the conclusion of the current SPG-CDC agreement.

Eligible collaborators, according to the CDC, include producer organizations, processors and exporters, plant breeding organizations, developers of traits, and seed companies.

For their part, SPG will remain involved



Over the years, the Crop Development Centre at the University of Saskatchewan in Saskatoon has produced dozens of productive pulse crop varieties that helped to establish a stable and lucrative industry in Western Canada. Now, the CDC is looking for a new way to fund its pulse breeding work. | SASKSEED FILE PHOTO BY WILLIAM DEKAY

with the CDC, although the exact nature of that partnership has yet to be determined.

Corey Loessin farms at Radisson, Sask., and is the current chair of SPG.

He said SPG is committed to ensuring that pulse producers continue to have access to improved varieties and a better range of crop choices.

“If there is a new funding structure post-2020, it is not likely to generate significant resources right away and therefore some kind of transition period funding would have to be worked out,” said Loessin.

Neither Loessin nor Agblor would characterize the new SPG-CDC relationship as a divorce.

Perhaps a better metaphor would be to say that the pulse industry is growing up.

“There has been considerable maturation of the pulse crop industry since the last SPG-CDC funding agreement 15 years ago,” said Loessin.

“An updated agreement may be funded differently and may include more partners.”

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The CDC's long-standing funding arrangement with the Saskatchewan Pulse Growers is due to expire in 2020. CDC officials are looking for new partnerships to remain competitive. | SASKSEED FILE PHOTO BY WILLIAM DEKAY

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Industry analysts would also characterize CDC pulse breeding as a win for farmers in western Canada.

"They're doing a terrific job, and they're doing a job no one else would do in a lot of cases," said Ron Pidskalny, a consultant who has studied variety development and funding models for both private and public entities.

In the early years of pulse production on the Prairies, the acres were too small to warrant investment by individual plant breeding businesses.

Collective funding was necessary to bring new varieties with improved yield and agronomic traits to farmers.

Today, both Pidskalny and Loessin believe public and producer funding will continue to be the main funding source for small crops like chickpeas and fababeans.

"The small acreage crops need collective

support if they're going to be developed into significant acreage crops in the future," said Loessin.

Field pea variety development, on the other hand, may be able to thrive in a more free-market situation.

Agblor hopes that processors looking to develop or enhance specific market traits may partner with CDC.

One example would be a pulse fractionation plant that wants a higher protein pea or fababean.

Of course, these varieties would have to be protected in a closed loop system — from breeder, to farmer, to processor — otherwise the investment a processor makes at CDC could go on to benefit their competitors.

Other potential partners could be genetic trait developers who have access to diverse technology in the rapidly expanding sphere of gene editing.

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continued from page 26 >>

“You either work with the right people in the processing space, in the tech space to deliver just-in-time product or technology or someone else will do it in a lab somewhere and bring it here and you are out of business,” said Agblor.

He believes CDC can work with private plant breeding businesses that might also be competitors because shared resources lead to greater advancements than any one entity can achieve alone.

“Whether they come in as a partner or a competitor, it is all good for the industry because you are always leveraging additional germplasm,” explained Agblor.

“Every program has a gem. Typically, we keep that in the black box, but if you’re a partner, then you open your black box so it benefits the two organizations.”

In the background of the CDC’s evolution are larger discussions about how to better capture value for plant breeders of all non-hybrid crops in western Canada.



KOFI AGBLOR
CROP DEVELOPMENT CENTRE MANAGING DIRECTOR

A farm-saved seed royalty or an end point royalty are options being discussed, but nothing has been determined yet.

Even with the best value capture mechanism for plant breeders, crops such as field peas, lentils and chickpeas remain relatively small acre, low-yield crops.

Pidskalny cautions that the food industry looks for extremely specific traits that they can access cheaply. Usually, that means incorporating specific, value-added traits into higher-yielding, broadly grown crops.

“In the food industry everything is based on functionality of ingredients. Even if you came up with some value-added trait in pulse crops, why would you put that into peas at 35 bushels per acre instead of corn at 350 bushels per acre?” said Pidskalny.

“Any trait of interest would have to be available specifically in pulse crops, and no other higher yielding crop in order to optimize value for both the plant breeder and the producer.”

Some players in the pulse industry are considering a role in CDC’s new model, while others are watching on the side.

SeCan, the company that commercialized the CDC’s first lentil varieties, currently has a working relationship with SPG as the licensee for certain CDC pulse varieties outside of Saskatchewan.

Todd Hyra, SeCan’s western business manager indicated that they are a potential partner with CDC.

“Pulses fit SeCan’s model nicely, so re-

gardless of the release model, SeCan would be interested,” said Hyra.

“I hope there’s a mechanism that allows independent seedsmen to participate.”

Until recently, the Alberta Pulse Growers’ (APG) had an agreement with CDC where they contributed about \$70,000 annually to the CDC.

In exchange, Alberta farmers could access CDC varieties royalty free. APG ended this agreement in 2015.

D’Arcy Hilgartner, chair of APG and a farmer near Camrose, Alta., said his organization is not looking to fund plant breeding at the CDC or anywhere else in the near future.

“We don’t want to be in the business of picking the winners and losers,” he said.

Hilgartner said APG supports variety development for the CDC and other breeding organizations by funding the screening of germplasm from around the world for suitability in Western Canada.

“We’re quite comfortable with the posi-



You either work with the right people in the processing space, in the tech space to deliver just-in-time product or technology or someone else will do it in a lab somewhere and bring it here and you are out of business.

KOFI AGBLOR | CROP DEVELOPMENT CENTRE MANAGING DIRECTOR

tion of supporting pre-commercialization because we feel that is a good place to support plant genetics without going with one specific company,” he said.

The question of “what else is out there” remains heavy on the mind of Agblor as he looks at the current pulse industry in Can-

ada and imagines the future.

“If you don’t have diversified interest, how do you know that what you are bringing out the door is the best?” he asked.

“Can I tell you that what we are bringing to the marketplace is the best anyone can do? I can’t because we are our own measure.”



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Sask. pulse industry has matured: CDC

SPECIAL TO SASKSEED

Pulse variety development at the Crop Development Centre in Saskatoon began in 1972 when Alfred Slinkard started breeding lentils and paved the way for a new crop in Saskatchewan.

Laird and Eston, the first two lentil varieties released by the program, were commercialized by SeCan.

In the pulse industry's infancy, royalties were collected only on certified seed, but because acres were small and

farmers could save their seed, the system did not generate enough revenue to sustain the breeding program.

"The CDC pulse breeders proposed to Saskatchewan Pulse Growers (SPG) that if you give us upfront funding, we will then release the varieties royalty free," explained CDC's managing director Kofi Agblor. This allowed farmers to adopt new varieties with lower up-front costs. It also meant that the CDC could count on reliable source of funding.

Because the producer levy that SPG collects on sale of pulses is non-refundable, they could commit to supporting the breeding program.

In effect, this was an end-point royalty on pulse varieties.

Since the agreement's inception, around \$44 million has flowed from Saskatchewan farmers to the CDC via SPG levies. According to a 2016 report on the economic impact of plant breeding at the CDC, nearly 98 percent of all lentil acres sown in Saskatchewan in 2015 were planted with CDC varieties.

In addition, 95 percent of field pea acres and 90 percent of chickpea acres were also sown with CDC varieties.

Since 1991, lentils growers have captured an additional \$4.8 million in annual profit as a result of CDC's plant breeding efforts while pea growers have earned an additional \$5.3 million per year.

The impact of pulse breeding is felt not only in Saskatche-

wan but across the Prairies.

Data from Alberta crop insurance shows that 87 percent of field peas and 100 percent of lentils sown in Alberta were planted to CDC varieties.

Although the prevalence of CDC varieties tells a success story, it also tells a story of market distortion.

Agblor believes the CDC has become a barrier to entry for other plant breeding organizations that may bring value to prairie farmers.

SPG collects levy on all pulses sold in the province regardless of the variety, but the funds collected only support CDC pulse breeding programs.

Because of this, plant breeders outside the CDC have argued that they cannot compete.

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Aphanomyces seems to be everywhere. If you've grown pulses in the past five years, your soil is probably harbouring this pathogen. In 2016, 60 - 70% of pea and lentil fields tested positive for the disease in Alberta and Saskatchewan.¹

Pythium root rot has multiple hosts and can also be found across the prairies. The pathogen is able to survive in the soil over a wide temperature range, waiting for the ideal weather and soil conditions to attack soybean seeds as soon as 90 minutes after planting.

Phytophthora root rot is hosted by soybeans, endemic in prairie soil and four races have been identified in Manitoba alone. Phytophthora is the number one disease impacting soybean yields around the world.



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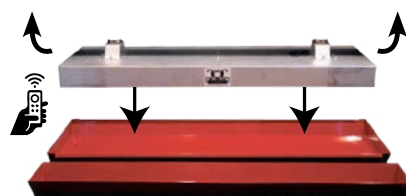
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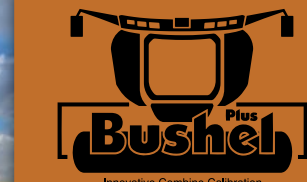
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SEED ROYALTY DISCUSSIONS GAIN MOMENTUM

SPECIAL TO SASKSEED

Unless you've been living under a rock, you've probably heard by now that the Canadian seed industry is approaching a critical juncture — a fork in the road that will shape the industry's future for decades to come.

Over the past few months, the federal government has been holding stakeholder consultation sessions across Canada, a series of meetings seeking feedback on a proposal to generate more revenue from the sale and use of certified seed.

In some circles, the concept of generating more revenue from seed is known as "value creation."

Stakeholders who oppose the concept say value creation is nothing more than an attempt to boost corporate profits at the expense of farmers — another drain on the profitability of Canada's commercial grain farms.

Stakeholders who support the concept say it's necessary step — a move that's absolutely needed to encourage investment in Canadian plant breeding and ensure that Canadian farmers have access to the newest and most innovative seed varieties possible.

"What I see now in terms of Canadian breeding is not bad, but we can deliver even more, even faster," said a cereal breeder from Limagrain Cereal Development Canada, one of a handful of international seed companies that has already established a Canadian cereal breeding program.

"But for us to (deliver innovative products), we need some support and investment from industry, through the implementation of a value creation system."

Any way you dice it, it looks like there are big changes on the horizon.

It also appears that those changes could have a lasting impact on all players in the Canadian pedigreed seed and cereal grains sectors.

Here's some context.

A few years ago, groups involved in the Canadian seed and commercial grain industries initiated a conversation based on the premise that more investment is needed in Canadian cereal breeding programs.



New investments in Canadian cereal breeding are critically needed, according to many stakeholders in the commercial grain and pedigreed seed industries. The federal government is currently seeking feedback on a proposal to implement royalties on the use of farm-saved seed. | SASKSEED FILE PHOTO BY WILLIAM DEKAY

Existing seed developers and plant breeding operations were not being adequately compensated for the new varieties that they bring to market, according to some observers.

The investment climate must be improved to ensure that private sector cereal breeding companies see Canada as an attractive country in which to set up shop.

Without an improved investment climate, private sector seed companies will focus their efforts elsewhere and Canadian farmers will be left out in the cold, with fewer innovative seed varieties to choose from.

Ultimately, the competitiveness of the Canadian grains sector and Canadian farmers themselves hinges on a robust and profitable cereal breeding industry.

Adding a further sense to urgency to the debate is an expectation that Agri-

culture and Agri-Food Canada (AAFC) will eventually move away from developing and commercializing new cereal grain varieties.

Officials at Agriculture Canada have not indicated when AAFC will stop producing AAC wheat varieties.

With a pipeline of promising germplasm already in place, some say AAFC may still be commercializing AAC wheat and barley varieties 10 or 20 years down the road.

But suffice it to say that AAFC's role in developing and commercializing wheat varieties will diminish over time.

Instead, Agriculture Canada scientists will be more focused on upstream or discovery science, a space where transformative technologies are explored, developed and made available to seed industry partners, including private sector seed companies.

At a recent consultation meeting in Saskatoon, stakeholders from all parts of the wheat industry were updated on two "value-creation" options that are currently being considered — trailing contracts on farm-saved seed and end point royalties (EPRs).

Here's how each option would work.

Under a trailing royalty system, commercial grain growers would — at their discretion — buy certified supplies of their preferred seed variety.

If the variety being purchased was registered as a PRB protected UPOV-91 variety, the growers could be required to sign a trailing contract or Seed Variety Use Agreement (SVUA).

Similar to TUAs that are currently used in the canola industry, an SVUA would serve as a contractual agreement between the farmer and the seed developer, placing certain conditions or restrictions on the use of farm saved seed.

Among other things, the contracts could stipulate that farmers who save

harvested seed and use it for replanting in subsequent crop years would be obliged to pay to additional royalties on farm saved seed.

It has yet to be determined how the trailing royalties on farm-saved seed would be applied, but it is widely assumed that the royalties would be applied on a per pound, per tonne or per acre basis.

Seed companies would have the latitude to set their own royalty rates.

Presumably, those rates would depend on the value of the traits contained in different seed varieties.

In theory, the trailing contracts could also impose other restrictions, such as limitations on how many years farmers could replant a variety, after the initial certified seed purchase.

The second value creation option being considered — the end point royalty — is slightly different.

Under an EPR system, commercial growers would purchase certified seed of a preferred variety.

After the seed is planted and the crop is harvested, growers would be obligated to pay an end-point royalty on each tonne of commercial grain that is produced or sold.

Farmers who choose to save seed and replant it in subsequent production years would continue to pay the end point royalty every time they sell the harvested crop as commercial grain.

Similar to the first option, seed companies would have the authority to set their own EPR royalty rates.

In Australia, where end-point royalties have been in place since the mid-1990s, EPR rates currently range from around \$1 per tonne up to \$4 per tonne on the newest and most valued varieties.

Under both options, it should be noted that only newer Canadian varieties — those registered since February 2015 and protected under Plant Breeders Rights legislation under the UPOV-91 framework — would be considered "eligible."

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In other words, older UPOV-78 seed varieties — those registered in Canada before February 2015 — would not be subject to royalty collection, post-purchase.

To no one's surprise, opinions expressed on "value-creation" have varied significantly.

In general, but not in all cases, those who oppose the notion of value creation see EPRs and trailing royalties as an infringement on their right to save and replant seed on a royalty-free basis.

Even supporters of the idea concede that before either option is endorsed, more details are needed about royalty rates, royalty collections mechanisms, enforcement costs and the infrastructure that is needed to administer the proposed systems.

Those who are generally in favour of value creation include seed companies, seed breeders, seed trait developers, seed retailers and pedigreed seed growers.

Among the most visible supporters of value creation is a coalition of seed industry groups known as the Seed Synergy Partnership, which includes the Canadian Seed Trade Association (CSTA), the Canadian Seed Growers Association (CSGA), the Canadian Plant Technology Agency (CPTA), the Canadian Seed Institute (CSI), the Commercial Seed Analysts Association of Canada (CSAAC) and CropLife Canada.

In Saskatchewan, Saskatchewan Seed Growers Association president Cathy Fedoruk said SSGA members can expect a thorough discussion about value creation at the organization's annual general meeting in January.

"Talking to our members ... the odd one has had a concern about how we're going to talk to our producers about this and whether we're going to be losing sales," Fedoruk said.

"But we intend to have a very thorough and complete discussion with our membership."

Fedoruk said she is personally concerned that a failure to attract more private sector companies into the Canadian cereals breeding business could have a negative impact on both seed growers and prairie grain farmers.

"I believe we need it because we're in a situation where we're trying to attract new investment into our seed industry," said Fedoruk, a seed grower from Kamsack, Sask.

If someone (buys an innovative certified seed variety) and continues to benefit from that innovation year after year ... should a contribution be given back, first of all to reward that innovation but also, to create a climate that's going to stimulate more innovation? That's really the fundamental question.

ANTHONY PARKER | CFIA PLANT BREEDERS' RIGHTS COMMISSIONER

"If we want to progress and keep up with the world, we're going to have to have some new money coming in."

Some opposition to new seed royalties is to be expected, given that royalties represent an additional cost for commercial producers, she added.

"When there's change and when it seems like people are going to be charged more money (for a product) ... of course there will be some pushback," she said.

"But I think once growers understand that this is what's going to carry the industry forward and bring us the new technologies that we want, I think they will ... support it."

"Once they realize that this is how they're going to get access to new technologies... I think the uptake will be there."

Anthony Parker, a leading authority on plant breeders rights and intellectual property protection in the Canadian seed sector, said the fundamental question underpinning the value creation discussion is whether the Canadian grain industry is willing to pay more for innovative seed products.

By some estimates, only 20 percent of the cereal grain crops planted annually in Western Canada are sown with certified seed.

The remaining 80 percent — in the order of 18 million acres per year — is sown royalty free, with farm-saved seed.

Parker said commercial grain growers would retain the right to save and re-use older UPOV-78 seed varieties — those registered before February 2015 — on a royalty free basis. As long as those products

remain registered for commercial production in Canada, growers would have royalty free access.

"What we're proposing under this regime is not to challenge anyone's ability to save and re-use seed, to stock, to store, condition or to re-use in subsequent years," he said.

"What we're asking is ... do we have the ... right balance?"

"If someone (buys an innovative certified seed variety) and continues to benefit from that innovation year after year ... should a contribution be given back, first of all to reward that innovation but also, to create a climate that's going to stimulate more innovation? That's really the fundamental question."

The federal consultation process is expected to continue in 2019 with additional meetings and opportunities for stakeholder feedback.

Federal regulatory changes that are required prior to implementation a new royalty collection system could come as early as 2020.

Regulatory changes would require federal ministerial approval.

Questions relating to the implementation of seed royalties can be directed to Carla St. Croix at the strategic policy branch of Agriculture and Agri-Food Canada, or to Anthony Parker at the Plant Breeders' Rights Office of the Canadian Food Inspection Agency.

StCroix's email address is carla.stcroix@canada.ca and Parker's email address is anthony.parker@canada.ca.

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Canola acreage across the Prairies has been increasing steadily, along with canola seed costs. How will a new royalty collection mechanism on cereal grains — and the development of more productive cereal grain varieties — affect the producer's bottom line? | SASKSEED FILE PHOTO BY WILLIAM DEKAY

FEDERAL DOCUMENT ESTIMATES ROYALTY COSTS

SPECIAL TO SASKSEED

For commercial grain farmers, one of the most troubling elements of a farm-saved seed royalty is cost.

Throughout the federal consultation process on value creation in the Canadian seed sector, many commercial grain growers have indicated that they are unwilling to sign off on any royalty collection system until more detail is known.

Specifically, they want to know who will set the royalty rates, how royalties will be collected and how much will royalties ultimately cost Western Canadian growers.

"We're not really clear on how much money this is going to generate for plant breeders ... and there are a lot of concerns that it's going to be a cash grab from producers," said one grain grower.

"There needs to be some sort of accountability process here so we don't simply sign a cheque ... pay more and not necessarily get the results that we want," added another.

In reality, it's difficult to accurately estimate how much a new royalty on farm-saved seed would cost farmers.

That's because seed developers and seed companies themselves would have the ability to set royalty rates, presumably at levels that would generate acceptable monetary returns without discouraging certified seed sales.

At a recent consultation meeting in Saskatoon, federal officials presented several scenarios aimed at putting the pressing question of royalty costs into perspective.

The scenarios presented assumed that trailing royalties

on farm-saved seed would be applied to individual farms on either a per-seeded-acre basis or a per-tonne basis.

Federal officials acknowledged that there are a number of factors that would ultimately determine a farmers' total annual royalty costs.

Those factors would include royalty rates, seeded acreage and the proportion of royalty-eligible varieties (ie UPOV-91 varieties) that are used as farm-saved seed.

For illustration purposes, estimates presented were based on royalty rates set at \$1.00 per tonne or \$1.30 per seeded acre on the low end of the range, up to \$3.00 per tonne or \$3.90 per seeded acre on the high end of the range.

If every acre of non-durum wheat planted in the Prairie provinces in 2018 were planted with farm-saved, royalty-eligible UPOV-91 seed varieties, the total annual revenues raised through farm saved seed royalties would range from \$17.79 million up to \$53.38 million, based on rates ranging from \$1.30 per acre up to \$3.90 per acre.

If durum acres were included in the calculation, total revenues would increase to a range of \$23.58 million annually, up to \$70.73 million annually, again assuming that every acre planted was sown with royalty-eligible UPOV-91 seed.

It should be noted that a relatively small proportion of commercial acres currently planted are planted with UPOV-91 seed.

In 2017, for example, the proportion of acres seeded with UPOV-91 seed varieties was estimated at 19.2 percent for oats, 1.5 percent for barley and 8.9 percent for wheat.

WHEAT CLASSES LOOK ALIKE, BUT PERFORM DIFFERENTLY

SPECIAL TO SASKSEED

How much Canada Northern Hard Red (CNHR) wheat is being bought and sold as Canada Western Red Spring (CWRS)?

The answer is none, of course. But then again, would anyone know if it was?

In a recent interview with SaskSeed, Canadian Grain Commission officials acknowledged that it could be difficult to differentiate between higher value CWRS varieties and lower valued CNHR varieties.

That's because the majority of wheat varieties in both classes have the same visual characteristics. At least 25 of the varieties in the CNHR class were previously classified as CWRS so their visual characteristics are indistinguishable.

There are ways to ensure that there is no "unintentional commingling" between the classes.

For starters, farmers delivering wheat are legally required to declare the class of grain that is being sold.

In addition, cargoes of CWRS wheat are monitored for the presence of CNHR grain. However, commission officials conceded that testing for commingling between the two classes is not currently a "high-priority" activity.

There is no reason to assume that grain companies are attempting to pass off lower-value CNHR grain as a higher-value CWRS product, CGC said.

"We trust them to declare honestly."

DNA testing programs can also be used to differentiate between varieties. But it's unclear how much DNA testing is being done.

According to the CGC's 2017 Grain Varieties by Acreage Insured report, prairie farmers insured nearly 250,000 acres of high-yielding CNHR wheat through pro-

vincial crop insurance programs.

At an estimated yield of 1.5 tonnes an acre — approximately 55 bushels per acre — that would suggest an estimated harvest of nearly 13.5 million CNHR bushels in the 2017-18 crop year, or roughly 370,000 tonnes.

According to CGC data on 2017-18 wheat exports by class and grade, only 6,000 tonnes of CNHR grain had been exported as of July 31, 2018. Another 2.88 million tonnes was exported as "other" classes.

CGC officials said wheat exported under the "other" category includes grain that is shipped by specification (SBS).

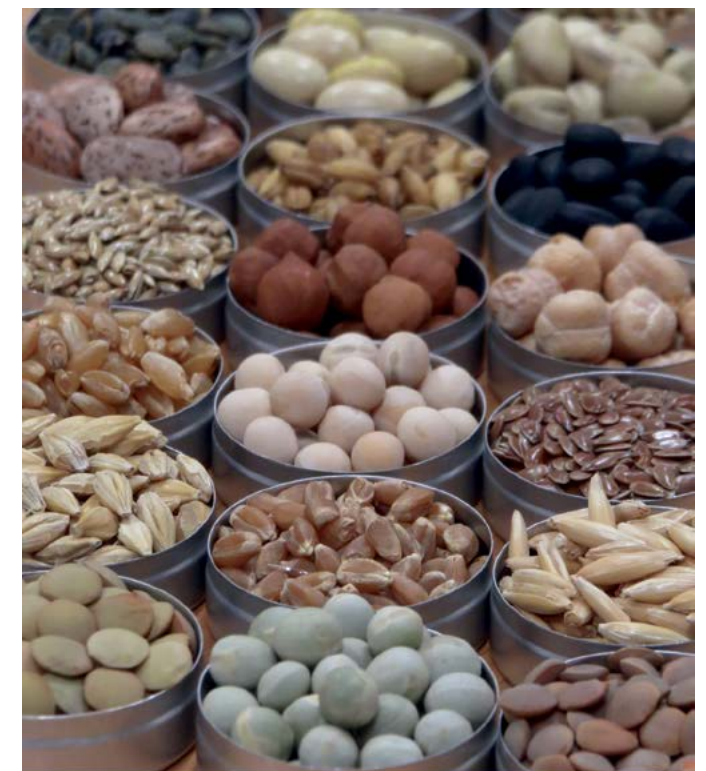
SBS shipments allow blending and commingling to the point where it is not possible to tell what class or classes of grain are contained in the shipment. A typical SBS sales contract might specify that as much of 90 percent of the grain in a shipment comes from multiple or unspecified wheat classes.

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AG CANADA MAPS ITS FUTURE IN DISCOVERY SCIENCE, INDUSTRY PARTNERSHIPS

SPECIAL TO SASKSEED

Agriculture Canada plant breeders hold a special place in the hearts of Western Canadian grain farmers.

For decades, AAFC cereal, pulse, oilseed and minor crop breeders have produced some of the most popular and productive seed varieties available to commercial growers.

In any given year, varieties of wheat, barley, oats, peas, flax and mustard that carry the recognizable AC or AAC prefixes account for a significant proportion of the commercial grain acres planted in the West.

In 2018, for example, the most widely grown CWRS wheat variety in the West — AAC Brandon — was planted on more than four million acres across the Prairies, including 1.6 million acres in Saskatche-

wan alone.

In short, AC and AAC seed products have earned a reputation as reliable and productive products that offer the latest agronomic and end-use quality improvements.

They are products that Canadian farmers want and need.

But recently, there has been much discussion about future role of Agriculture and Agri-Food Canada plant breeders.

At recent industry meetings on cereal seed royalties, numerous stakeholders referred to Agriculture Canada's "diminishing research role" in the Canadian wheat industry.

Some suggested that Agriculture Canada will gradually reduce its capacity as a developer of market-ready seed varieties.

But is that expectation accurate? And if

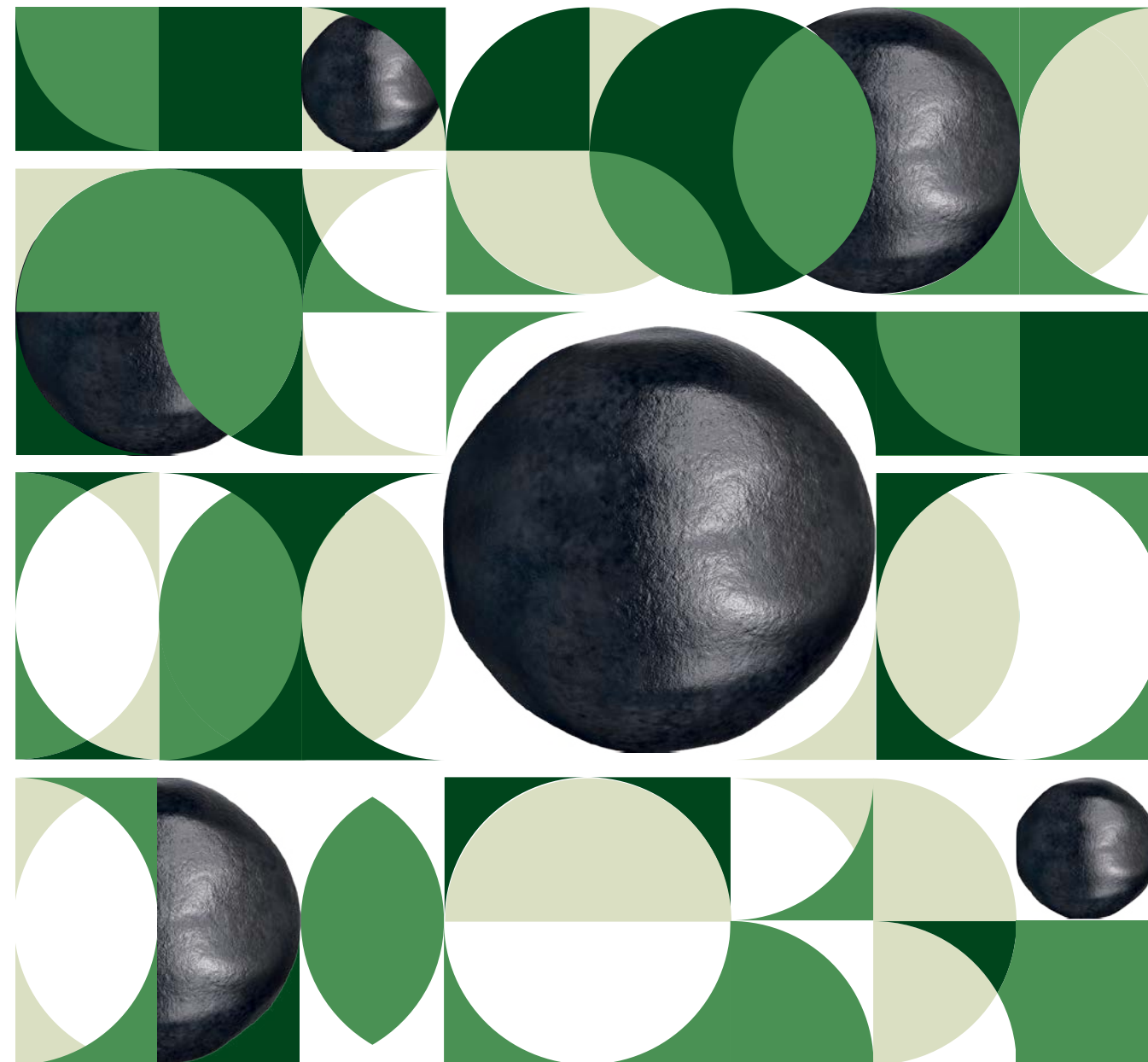
so, does it place an added sense of urgency on efforts to attract private sector seed companies into the Canadian cereal breeding business?

In a recent interview, SaskSeed asked Jason Fradette, manager of science partnerships at AAFC's science and technology branch in Saskatoon, to provide some clarity.

"The future role of Ag Canada will be to continue to ... do what we can to see that farmers have choice of varieties (and) that the improvements that we can find from science make their way into the (seed) varieties that farmers use," Fradette said.

"We want to see farmers having choice and our global customers having the quality and the range of products that they expect."

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Fradette said much of the research that Agriculture and Agri-Food Canada is currently involved in focuses on upstream or discover research.

“Ag Canada does a lot of fundamental and discovery science that ultimately finds its way into varieties in the form of resistance to disease ... work on fusarium headblight ... the effects of DON on the quality of wheat, the agronomic choices that farmers may be able to make to reduce the impacts of FHB and genetic resistance,” he said.

“All of that type of work I would see continuing into the future without any reduction,” he continued.

“Right now, the intention would be to maintain the investment in those types of (projects) at the level it’s currently at.”

But how about development and commercialization of AAFC seed varieties themselves?

Will the number seed varieties that carry the AAC or AC prefixes gradually diminish over time?

The answer is maybe, depending on the crop type, the partnerships that AAFC develops within seed industry, and the capacity of other seed companies — including private sector companies — to adequately finish, develop and commercialize top-quality seed products.

“Right now, we already work with other organizations — depending on the class of wheat, depending on the crop — to get a variety into farmers’ hands,” Fradette said.

“Some (varieties) are released directly through Agriculture Canada ... and some of them are handled with other organizations that will market them or at least help us do some of the final work on adaptation testing ... understanding which regions of Canada the crops might fit into ... and advising us on which lines we should take forward...”

“For wheat, I would expect that would be the model that we encourage in the future,” he continued.

“We want to make sure that the advice comes to us so that we understand which lines to forward in our programs, which ones go for testing and which ones ultimately get to market I would expect that we would look for more partnerships (like that) moving into the future.”

Fradette said new, yet-to-be registered



AAFC scientists may scale back on developing field-ready crop varieties as new partnerships are established. | SASKSEED FILE PHOTO BY BARB GLEN

wheat varieties that carry the AAC prefix will still be reaching the market for years to come.

“There is material in the pipeline right now that may be hitting the market in 10 years,” he said.

“It’s a 10- to 15-year window (for wheat breeding) so I would expect that that material is going to come to market in a similar situation (to what we see now).”

“But in the future, I think there would be an opportunity for others ... that could possibly bring capacity in moving these products to market.”

If there was an opportunity for some lines “to be marketed in a different way, under a different brand, that could be a possibility.”

Regardless what marketing partnerships are developed, Agriculture Canada scientists will continue to work on discovery science.

AAFC scientists will continue to identify and develop knowledge and resources that benefit farmers and they will continue making initial crosses that ultimately find their way into farmers’ fields in the form of new seed varieties.

MAINTAINING MIDGE TOLERANCE IS UP TO EVERYONE

SPECIAL TO SASKSEED

In Canada’s largest wheat-producing province, staying on top of midge issues is paramount to success.

With parts of Saskatchewan dealing with the orange blossom wheat midge, it is crucial that retailers and growers alike use midge tolerant wheat varieties in a responsible manner and abide by stewardship requirements to preserve the life of the one and only tolerance gene.

“I tell everyone to embrace it and comply with all requirements,” says Ken McDougall, a pedigreed seed grower east of Moose Jaw, Sask.

“We all want to have a thriving seed business, and this is another way to offer something that is beneficial to farmers.”

In recent years, midge pressure has diminished overall, according to McDougall.

But there is still good reason for farmers to include midge tolerant wheat varieties in their crop plans, he says.

McDougall has grown varietal blends of midge tolerant wheat on his 6,400-acre operation for the past 10 years.

He said there are a few major reasons why midge tolerant varietal blends are preferred by growers.

“For the most part, farmers are not even scouting for midge anymore,” he said.

“They’re not having to spray and there’s that assurance they don’t have to worry about it.”

Midge tolerant wheat varieties contain the Sm1 gene, which provides built-in tolerance. Growers who use the varieties must first sign a stewardship agreement and commit to limit the use of farm-saved seed to one generation past certified.

This helps to ensure everyone will be able to benefit from the technology for generations.

Due to its importance in sustainable wheat production, McDougall considers the stewardship agreement as “absolutely necessary.”

Once he educates his customers about



Alaina Stoesz, a senior sales agronomist with Richardson Pioneer, says midge-tolerant products allow farmers to reduce their pesticide applications and increase returns. In areas where midge pressure is high, growers who plant midge-tolerant blends no longer scout for the insect. | SASKSEED PHOTO COURTESY OF MIDGE TOLERANT WHEAT STEWARDSHIP COMMITTEE

the agreement, there’s never an issue.

“A lot of farmers are into a three-year rotation of buying new seed per crop type, anyway,” he says.

“After two crops, they should be considering a new variety or refresh. For those folks, it’s a perfect way to maintain their system and their genetics,” he adds.

“As a seed retail, we’ll make sure they understand that we only have one crack at this one gene and if it’s gone, it’s gone forever.”

The stewardship agreement, which has

been in place since the launch of midge tolerant wheat, went online for the 2018 growing season.

The first year of tracking the movement of certified midge tolerant wheat seed using a web-based system has proven to be a success.

The Midge Tolerant Wheat Stewardship Assurance Site (MTWSAS) is used by seed distributors, seed retailers and seed growers to create electronically signed stewardship agreements and to post sales transactions.

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In order to sell midge tolerant wheat seed, retailers must complete an online training program, which takes about 20 minutes, and sign a retailer agreement.

They must also make sure the grower they are selling to have signed an agreement and understand their responsibilities.

Limiting the use of farm-saved seed to one generation past certified ensures that the refuge stays at an effective rate.

The refuge in farm-saved seed can change substantially over multiple generations and if refuge levels fluctuate too much, the varieties may not provide adequate protection.

By adhering to the refuge system, research scientists estimate it will take between 90 and 100 years for resistance to break down.

On the MTWSAS site, agreements for both retailers and growers are digital and evergreen, meaning a person must

only sign once.

That allows them to purchase midge tolerant wheat varieties now and in the future, without going through paperwork every time.

In addition, retailers can track sales online through the site. As an added benefit, retailer training is approved for CEU credits by Certified Crop Advisors.

Alaina Stoesz, a senior sales agronomist with Richardson Pioneer near Martensville, Sask., says her company became involved with midge tolerant wheat back in 2010 because of its benefits.

"Farmers are obviously reducing their applications, these varieties reduce costs to grower and increase their return on investment," she says.

"They're maintaining their quality and grade, and also yield. Optimal grade allows for ease of marketing for the grower and allows us to buy quality grain. It's helping us both."

With "definite pockets" of midge risk in

Saskatchewan over the last few years, Stoesz says there's no legitimate reason for growers not to grow midge tolerant wheat and sign the stewardship agreement if they have midge concerns.

"It's super easy to register and the website has all the information," she says.

"Now with smartphones, I can be walking in a field with a grower and go right to the website and have them sign a stewardship agreement in a matter of seconds and minutes, not hours and days," she adds.

What she likes best about the midge tolerant wheat stewardship agreement is the collective industry efforts that have gone into preserving the Sml gene and educating growers about its benefits and importance.

For more information about midge tolerance and the stewardship agreement, visit midgetolerantwheat.ca.

This article was prepared for SaskSeed by members of the Midge Tolerant Wheat Stewardship Committee.



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BARLEY GROWERS MOVING TOWARD SYNERGY

SPECIAL TO SASKSEED

The Canadian Malting Barley Technical Centre (CMBTC) in Winnipeg has been helping Western Canada's malt barley producers make the right varietal choices for decades.

Each year, the CMBTC publishes an annual list of malting barley varieties that hold the most promise for producers in terms of performance, quality and marketability.

In late November, the CMBTC released its list for 2019-20. The list can be viewed on page VR19.

Leading the list, once again, are CDC Copeland and AC Metcalfe.

The two varieties have been at the top of the CMBTC list for more than a decade.

But a third variety, AAC Synergy, made impressive gains in 2018 and is likely to expand its acreage again in 2019, said Peter Watts, managing director at the CMBTC.

"Synergy's seeded area in 2018 was up at almost 11 percent so we've definitely seen a steady increase with Synergy in the last couple of years," Watts said.

"We've seen it become more available commercially and used by the domestic malting industry," he continued.

"We've even seen some purchases (of Synergy) from China, so it's going in the right direction for sure."

Watts described Synergy's brewing characteristics as similar to Copeland's with a medium or mid-range protein and enzyme package.

By comparison, Metcalfe's protein and enzyme level tend to be a bit on the higher side.

At home, producer feedback on Synergy has been quite positive in terms of yield and management, he added.



For more than a decade, malting barley growers in Saskatchewan have faithfully produced brewing industry favorites such as AC Metcalfe and CDC Copeland. But new varieties, led by AAC Synergy, suggest that a changing of the guard is underway. | SASKSEED FILE PHOTO BY D'ARCE MACMILLAN

continued on page 46 >>



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continued from page 44 >>

“Producers are pretty pleased with the results and the yield so I would expect it to continue to grow,” Watts said.

A pair of other varieties — AAC Connect and CDC Bow — are still in commercial development but are showing considerable promise as potential favorites among growers and brewers alike.

The purpose of the annual CMBTC list is to help producers choose malting barley varieties with the greatest potential to be selected for malt.

The list includes varieties that have been pilotscale tested by the CMBTC and which exhibit good malting and brewing characteristics, Watts said.

Varietal recommendations are based on input from grain companies, domestic and international maltsters and brewers, grower associations and seed companies.

Canada is recognized by the global malting and brewing industries as a provider of high-quality barley varieties such as AC Metcalfe and CDC Copeland.

AAC Synergy, distributed by Syngenta, saw its Western Canadian plantings increase to nearly 250,000 acres in 2018, up from 150,000 acres in 2017.

CDC Bow (SeCan) and AAC Connect (Canterra) are experiencing growing demand from maltsters and brewers.

New varieties in development, such as CDC Fraser and Lowe, also show promise and are currently being multiplied by SeCan members.

Before choosing any variety, growers should talk with their grain company representative, local elevator operators, malting companies, or the representative seed company about opportunities to grow and market two-row and six-row malting barley varieties.

Growers should also use certified seed to ensure varietal purity, reduce disease incidence and increase the likelihood of selection for malt.

In addition to industry favourites such as Copeland, Metcalfe and Synergy, marketing opportunities remain in certain regions for Newdale (FP Genetics) and Bentley (Canterra).

SASKATCHEWAN'S TOP MALTING BARLEY VARIETIES

| VARIETY | DISTRIBUTER | 2016 RANK | 2016 ACRES | 2017 RANK | 2017 ACRES | 2018 ACRES |
|-------------------|----------------------|-----------|------------|-----------|------------|------------|
| CDC Copeland | SeCan | 2 | 462,446 | 1 | 436,896 | 501,344 |
| AC Metcalfe | SeCan | 1 | 515,744 | 2 | 442,188 | 453,494 |
| AAC Synergy | Syngenta | 4 | 52,774 | 4 | 53,067 | 84,721 |
| Legacy | FP Genetics | 3 | 66,325 | 3 | 54,398 | 59,894 |
| Newdale | FP Genetics | 5 | 20,809 | 5 | 16,391 | 20,464 |
| CDC Platinum Star | Canterra | - | - | 7 | 7,478 | 14,946 |
| CDC Meredith | SeCan | 6 | 20,627 | 9 | 4,660 | 6,414 |
| Bentley | Canterra | 8 | 8,471 | 8 | 6,372 | 5,189 |
| Celebration | Canterra | 10 | 4,654 | 10 | 3,893 | 4,970 |
| CDC Kindersley | SeCan | 9 | 6,017 | 11 | 2,593 | 3,669 |
| CDC Bow | SeCan | - | - | 13 | 970 | 3,614 |
| AAC Connect | Canterra | - | - | - | - | 3,507 |
| CDC Polarstar | Canterra | 7 | 19,055 | 6 | 8,274 | 3,228 |
| CDC Clear | SeCan | - | - | - | - | 3,131 |
| Tradition | Proven / FP Genetics | 11 | 3,505 | 12 | 1,661 | 748 |

Producers interested in growing those varieties should contact Canada Malting in Calgary for contracting opportunities.

CDC Platinum Star (Canterra) is a closed-loop variety grown under contract. Growers should call Prairie Malt in Biggar, Sask., for contracting details.

Demand for six-row malting barley is limited, CMBTC said.

Growers seeking information on contract opportunities for Legacy (FP Genetics) should contact Viterra in Regina.

For information on contract opportunities for Tradition (FP Genetics) and Celebration (Canterra), contact Malteurop in Winnipeg.

Varieties that are included on CMBTC's annual list offer excellent malting quality and improved agronomics, including higher yields and better disease resistance.

Growing varieties on the list will ultimately improve Canada's competitiveness in global malt barley markets and increase producer returns.

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

In 2017-18 Canada exported approximately 1.5 million tonnes of bulk malting barley worth \$500 million and 600,000 tonnes of processed malt at a

value of \$440 million.

The domestic brewing industry in Canada uses 300,000 tonnes of malting barley per year to make roughly 420 million gallons of beer.

Watts said Canadian exports of malting barley have benefited from challenging growing conditions in Australia during the past two years.

Drought conditions in some of Australia's key growing regions has reduced supplies of top-quality Australian barley and has “boosted prospects for Canadian malting barley in China,” Watts said.

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.

CMBTC facilities in Winnipeg include a 100 kilogram pilot malt plant and three hectolitre pilot brewery. The CMBTC also operates the Malt Academy education program providing instruction in malting and brewing.

For more information on CMBTC programs, visit their website at cmbtc.com.

Varietal recommendations are based on input from grain companies, domestic and international maltsters and brewers, grower associations and seed companies.



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MALT BARLEY DEMAND EXPECTED TO RISE

BY PHIL FRANZ-WARKENTIN
COMMODITY NEWS SERVICE CANADA

The rising North American craft beer sector and strong demand out of China are both good news stories for Canada's malt barley sector.

However, those two customers have different needs which can also create some challenges, said industry officials who spoke at the annual Grain World conference in Winnipeg late last year.

Lorelle Selinger, North American supply chain manager with Cargill Malt, and Peter Watts, managing director of the Canadian Malting Barley Technical Centre, gave a joint presentation highlighting two key trends in the global malt industry.

China, the world's largest beer maker, is seeing a shift from low-quality beer to higher-quality beer.

This also necessitates a shift to higher-quality barley, which is good news for Canadian barley growers.

At the same time, North America is seeing an explosion in the craft beer sector.

Craft beer represents only a small portion of the total beer sold in North America. But craft beers typically use three to four times more malt per unit.

"Our single largest export market for malt barley is China," said Watts.

China imported about 1.3 million tonnes of Canadian malt barley in 2017-18 and is expected to increase Canadian imports going forward.

Brewers serving the Chinese market "are seeing a shift to more premium beers," he added.

"China is a very important customer, and we have to keep them happy and make sure our varieties meet their needs," added Selinger.

The preferred protein levels for most North American maltsters are in the range of 11 to 11.5 percent range, Selinger said.

In contrast, Chinese brewers and maltsters are looking for protein

in the range of 12.8 to 13 percent.

"For farmers, that's a good thing," said Selinger.

"It allows selections of malt barley in a much wider range of protein increments and allows us to adapt on a year-to-year basis.

With a vast growing region, Canada can supply both the Chinese and North American craft markets and deliver specifications to meet both demands, the speakers said.

But as usual, Canada's newer malting barley varieties face challenges to gain acceptance from end users.

"Brewers can be pretty conservative," said Watts, noting it can take a while to transition to new varieties.

Looking ahead to 2020, Watts showed data forecasting relatively steady beer production in the U.S. compared to 2015, with craft beer rising from 29.1 million hectolitres to 39 million hl.

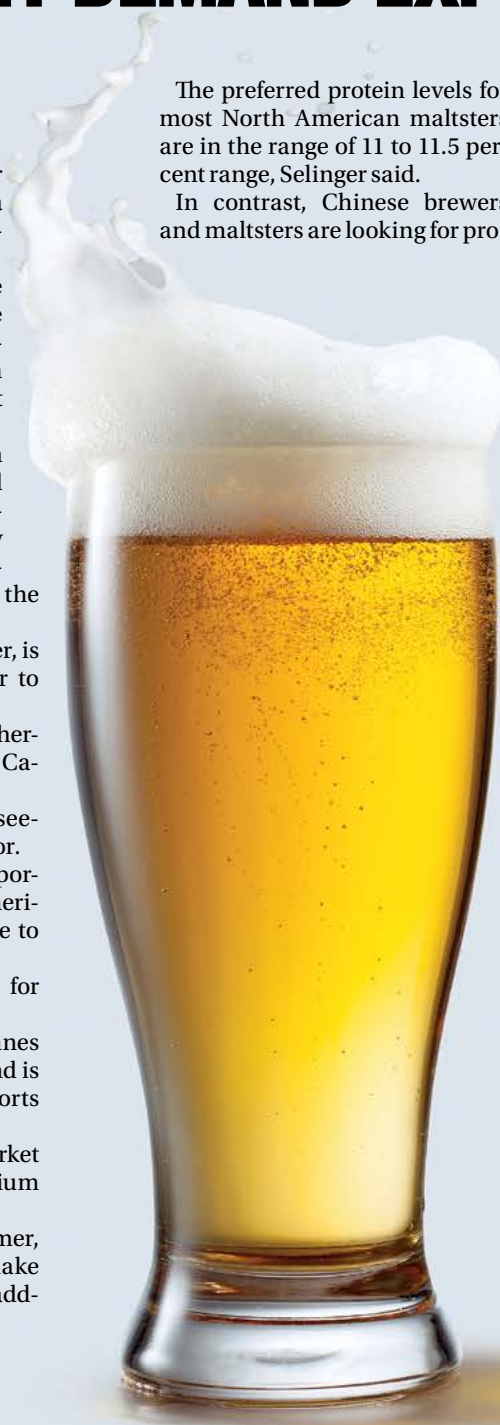
Over the same period, production of non-craft beer is projected to decline slightly, dropping to 183.9 million hectolitres from 194.5 million.

Due to the higher levels of malt usage in craft beer production, total malt demand in the U.S. is projected to grow to 2.211 million tonnes in 2020, from 2.014 million tonnes in 2015.

North Americans may not be drinking more beer, but "the value of the industry continues to rise," said Watts.

"Even though the total beer consumption in North America hasn't been increasing, the total amount of malting barley needed has," said Selinger.

Phil Franz-Warkentin writes for Commodity News Service Canada, a Glacier FarmMedia company specializing in grain and commodity market reporting. Follow him at @PhilFW on Twitter.



SEED VARIETY USE AGREEMENT

Value. Transparency. Choice.

What is the Seed Variety Use Agreement (SVUA)?

The SVUA is a proposed value creation model and a made in Canada solution that will drive plant breeding investment and benefit everyone in the seed value chain, starting with producers.

Why is it needed?

The SVUA addresses the serious need for increased investment in plant breeding to support Canada's cereal, pulse and specialty crop producers. Variety development research for these crops is significantly under-resourced.

In cereals, for example, we are missing out on the potential to generate \$170M in annual benefits for producers that could result from increased research investment. Canada risks falling behind without an effective value creation model.

How was it developed?

The SVUA concept was developed using three guiding principles:

Value: Canadian producers will benefit from improved seed genetics that are essential to remain competitive globally.

Transparency: The seed industry is committed to transparency around how the system will work to fund critical public and private plant breeding research.

Choice: Canadian producers must have choice – in the seed varieties they use and in their participation in a new system.

What next?

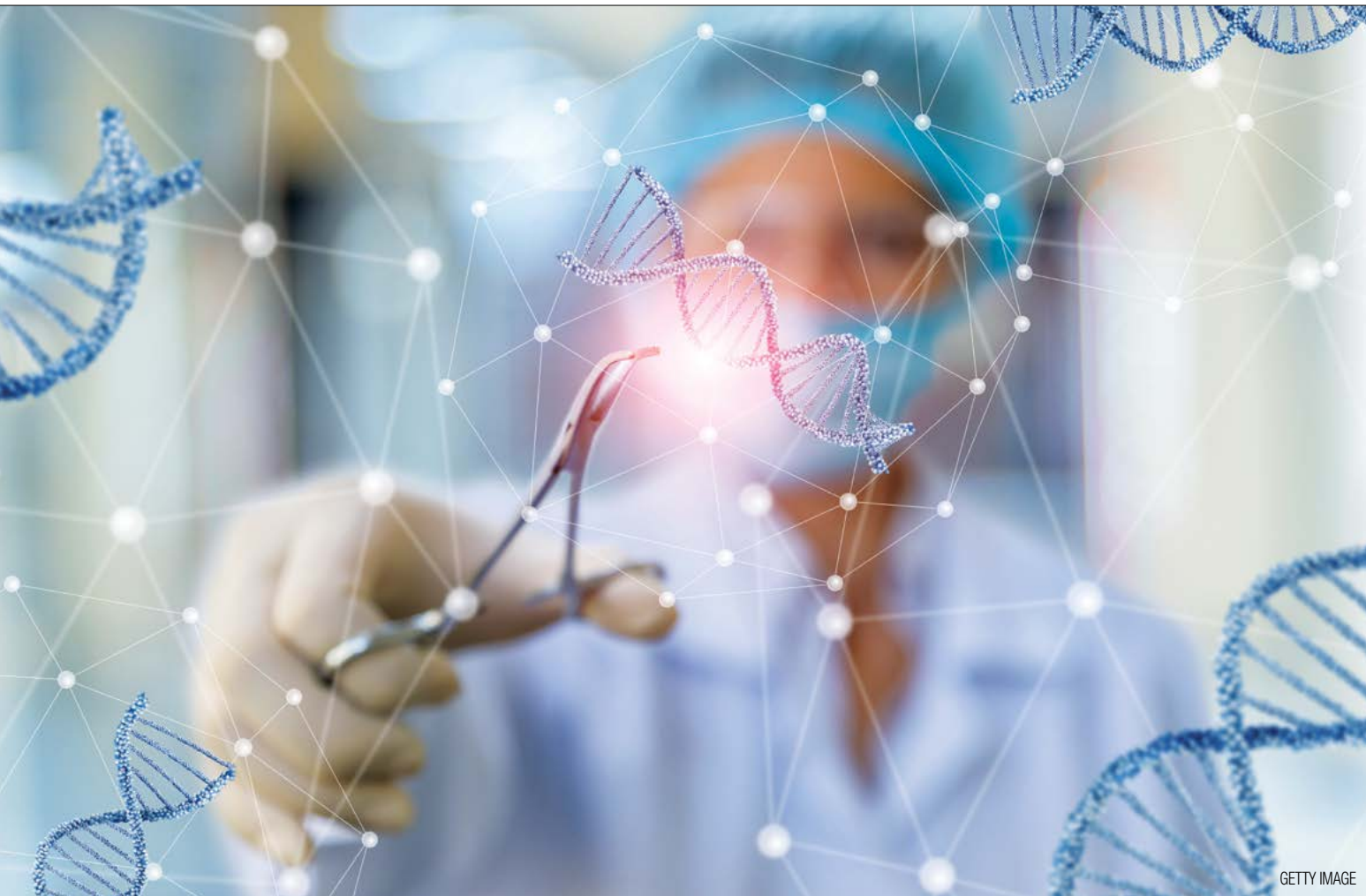
Discussions about the SVUA and other value creation models are currently in a consultation phase organized by Agriculture and Agri-Food Canada.

Have more questions?

Visit seedvaluecreation.ca

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GETTY IMAGE

CANADA JOINS SUPPORT FOR GLOBAL GENE EDITING

SPECIAL TO SASKSEED

The federal government has come out in favour of gene editing.

Or, more accurately, the Government of Canada believes gene edited crops can help farmers produce “safe and affordable food, feed, fibres, and energy in the 21st century.”

The quote comes from a statement released in November 2018 and delivered during a World Trade Organization meeting.

The United States and 12 other nations — Argentina, Australia, Brazil, Canada, Colombia, the Dominican Republic, Guatemala, Honduras, Jordan, Paraguay, Uruguay, and Vietnam — issued a joint statement on agricultural applications of precision biotechnology.

“Agricultural innovation has played an essential role in increasing yields and productivity in support of growing, prosperous civilizations,” the opening line of the statement says.

“Innovations in precision biotechnology, such as gene editing, have brought the promise of major improvements in terms of the ease and precision of introducing desirable traits into agricultural organisms, as compared to other breeding methods.”

Gene editing, using a technique called CRISPR, has been touted for several years as the next big thing in plant science. It allows researchers to precisely delete or insert genes in a plant’s DNA.

In a news release announcing a licens-

ing agreement with a gene editing company, Monsanto described the technique as the “biological equivalent to the ‘search and replace’ function in computer word processors.”

“Monsanto believes gene editing technologies have the potential to improve a number of crops within our current research portfolio, which includes corn, cotton, soybeans, canola, wheat and fruits and vegetable crops,” said Camille Scott, who does scientific communications for Monsanto.

In the WTO statement, the 13 countries urged other nations to adopt consistent and reliable rules for gene edited crops.

continued on page 52 >>

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continued from page 50 >>

“Due consideration should be exercised by governments to avoid arbitrary and unjustifiable distinctions between end products (crop traits) derived from precision biotechnology and similar end products, obtained through other production methods.”

That’s a wordy way of saying: make decisions based on facts and science, not feelings.

The European Union wasn’t mentioned in the two-page statement, but it clearly was a rebuke of European policies on biotechnology.

Last summer, Europe’s highest court ruled that gene edited crops should be regulated the same way as genetically modified plants.

Many academics and biotech associations condemned the court’s decision.



Gene editing technologies are advancing quickly and hold significant potential for future plant breeding work in Canada and around the world. | SASKSEED FILE PHOTO

continued on page 54 >>



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NOTIFICATION OF PUBLICATION

Sustainable Production of Durum Wheat in Canada

Available online from Saskatchewan Wheat Development Commission
www.saskwheat.ca

The purpose of the Durum Production Manual is to promote sustainable production of durum wheat on the Canadian Prairies, enabling Canada to provide a consistent and increased supply of durum wheat with high quality to international and domestic markets.

This manual has been written by agronomists, breeders, cereal chemists, pathologists, entomologists, market analysts, and others.

Thanks to the following for support in developing the content.



Cereals Canada



Most experts believe that gene editing is a precise form of mutagenesis, in which plant breeders use chemicals to create random mutations that generate new and useful plant traits. Biotech firms believe gene editing should be treated the same as mutagenesis, meaning it should be classified as a modern form of conventional plant breeding.

continued from page 52 >>

Most experts believe that gene editing is a precise form of mutagenesis, in which plant breeders use chemicals to create random mutations that generate new and useful plant traits.

Most regulators, such as Health Canada, treat mutagenesis as conventional plant breeding, so the regulatory and approval costs are much lower than genetically modified crops.

Biotech firms believe gene editing should be treated the same as mutagenesis, mean-

ing it should be classified as a modern form of conventional plant breeding.

The American Seed Trade Association did mention Europe in a news release, saying the regulation of gene editing should be based on science.

"The American seed industry is founded on innovation, and plant scientists have been successfully developing and improving crop varieties for hundreds of years," said ASTA president Andrew LaVigne.

"In light of the recent disappointing decision by the European Court of Justice, ef-

orts such as this international statement are more important than ever in working toward the goal of global alignment on policies around agricultural innovation."

Canada is not bound by the words in the joint statement. The federal government can take a different approach on gene editing and new plant breeding methods if it chooses.

Editor's Note: This article, written by Western Producer reporter Robert Arnason, initially appeared in the Nov. 15, 2018 edition of the Western Producer.

IMPORTANT NOTICE

Canadian Grain Commission / Commission canadienne des grains

Grain producers: Changes to wheat variety designations

This variety will move to the Canada Northern Hard Red wheat class. It will remain in its current class for the 2018 harvest.

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As of August 1, 2021

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SYNGENTA TO REFOCUS HYBRID WHEAT EFFORTS IN EUROPE



SPECIAL TO SASKSEED

Syngenta is putting the brakes on its hybrid wheat breeding program in Canada.

The seed company announced in late 2018 that it is continuing to invest in hybrid wheat but is reallocating its global resources.

“We are prioritizing our (research and development) investments for hybrid wheat in Europe, where our program is most advanced and where we are closest to being able to successfully commercialize this innovation,” said an email from Chris Davison, head of corporate affairs with Syngenta Canada.

“We will look to transfer our experience in Europe to North America when ready. In the meantime, in North America, we will continue to invest in R & D for our varietal portfolio to ensure growers have access to strong, competitive varieties, something we have been doing in Canada for over 40 years.”

Many wheat growers have been eagerly awaiting the arrival of hybrid wheat.

It was widely assumed that hybrid wheat varieties would deliver a significant yield increase for wheat growers, perhaps in the neighbourhood of 10 to 20 percent.

Syngenta is one of the leaders in hybrid wheat development. It had repeatedly stated that it was on track to commercially launch a product in North America by the end of this decade.

The company’s decision to scale back on hybrid wheat development in Canada was not received as welcome news.

“It’s a huge blow to profitability on our farms,” said Stephen Vandervalk, an Alberta wheat grower who also serves as

Syngenta’s plans to bring hybrid wheat varieties to the Canadian marketplace have been put on hold. The company will continue to invest in developing new cereal varieties for the North American market but efforts to commercialize hybrid varieties will be focused on Europe. | SASKSEED FILE PHOTO

The company’s decision to scale back on hybrid wheat development in Canada was not welcome news.

vice-president of the Western Canadian Wheat Growers Association.

Syngenta was one of a handful of seed companies pursuing hybrid wheat varieties for the North American market.

Bayer is also working on developing the first commercial wheat hybrids for the Canadian market.

Bayer established a breeding facility near Pike Lake, Sask. a few years ago and stated in 2017 that its first hybrid wheat could be commercialized as early as 2023.

— with files from Sean Pratt



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ALTERNATIVE SERVICE DELIVERY MARKS FIVE YEARS

BY SHIRLEY BYERS | SPECIAL TO SASKSEED

Five years have passed since the inspection of pedigreed seed crops was switched from the Canadian Food Inspection Agency to private industry.

And in general, the move to alternative service delivery has been fairly smooth, according to members of the Saskatchewan Seed Growers Association (SSGA).

At Saltcoats, Sask., seed grower Les Trowell is no longer with the inspection company he started out with. But he's pleased with the services of his current provider.

Seed grower Gerald Girodat from Shaunavon is satisfied with his seed inspection service, as are seed growers Laurie Wakefield at Maidstone, Sask., and Joe

Rennick at Milestone, Sask.

"Over the last four years it's sorted itself out and you've got some reliable companies doing the inspections," said Rennick. "They're all private enterprise and the market dictated the prices."

SSGA members contacted by SaskSeed said inspection prices vary from company to company but average prices are anywhere from \$2.25 to \$3 per acre.

"Price-wise, it's a little hard to say (if it's comparable) because CFIA was in the process of increasing rates too ... so you're not comparing apples to apples," said Girodat.

"It has cost us quite a bit more than it did prior to the privatization," added Wakefield. "However, we're pretty confident that it's costing us less than it would have been had it not been privatized. CFIA was

going to end up with a significant increase."

For the most part, the four growers seemed happy with alternative service delivery.

Wakefield said he didn't really find any differences in service since privatization.

"We had a good working relationship with our regional CFIA office. We were satisfied with their services as well, prior to the privatization," he said.

"For us there was little change other than the pricing."

"We are aware that some seed growers didn't experience that," he added.

"There was, in some cases, improvement in service levels and in some cases, there were some issues with service levels but because there were multiple companies

offering their services - it was just a contractual arrangement - if you contract with one service provider and you're not satisfied you can go with somebody else the next year."

Trowell said he would like to see some changes in the check inspection procedures.

Presently, CFIA conducts check inspection within a few days of a crop inspection.

"There are a couple problems with that," he said. "The check inspection doesn't see the same thing as the original inspector."

"(And) if the private inspector is making mistakes (in the field), there is no way of correcting them until (later in the year)."

Trowell would like to see the inspector and the CFIA check inspector in the crop at the same time.

"If the inspector is doing something wrong, it's corrected right there."

Girodat said he would like to revisit the idea of seed grower doing more of their own inspections.

"It would bring costs down," he said.

"(But) that's a big topic and it's been talked about before."

Rennick says inspectors have been asking for more training through an associa-

tion they've recently formed.

As it stands now, there are only a couple of opportunities for training each year and they often involve long distances.

One inspector, for example, lived in Fort St. John, B.C., and the nearest place where he could get more training was a one day session in Winnipeg.

And how about scrapping visual inspection services altogether and opting for a post harvest DNA-based varietal testing protocol? Do growers see any merit in that suggestion?

"No. I couldn't support that," says Wakefield.

"A field inspection is going to give you a better picture of what's out there because the inspectors are able to see a significant percentage of the actual field, whereas if you start dealing with a DNA sample post harvest, now you're dealing with a very small volume relative to the total production."

"I don't think we want to go there yet," agreed Girodat.

"There are things out in the field that you couldn't judge by looking at a sample. How would you know one variety of spring

wheat from another unless you were out in the field and saw it? I think we still have to have inspection whether third party or something different down the road."

Trowell agreed.

"They only use a few kernels. You could have 100,000 bushels and they would use a few kernels so if something is in the field it may or may not end up in the DNA sample and if you did have something in the field in a very low presence and it ended up in the DNA sample it would show up as a very high presence. I would still go for the visual inspections for the time being."

"DNA is an exact science," added Rennick. "If they had a spring wheat like AC Barrie and you did a DNA sequence, you might find Red Fife and Marquis and all the hurley gurley ones because it's such an exact science," he said.

"Don't go there. Just stay with visual inspection."

But another form of new technology - drones - might be worth considering, Rennick said.

"Instead of walking out in the hot sun for hours, put the drone up with camera and do a grid of the field. That might be coming."



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| HYBRID | KEY FEATURES | YIELD | GROWING ZONES | STANDABILITY | AGRONOMIC TRAITS |
|---------------------------|---|---|----------------------------|-----------------------|--|
| InVigor L233P | <ul style="list-style-type: none"> #1 grown canola hybrid in Western Canada in 2018* Winner of the 2017 Canola 100 at 85.88 bu./ac. Excellent yield performance Very early maturing Pod Shatter Reduction | 108.8% of checks (InVigor 5440 and Pioneer® 45H29) in 2014-2015 WCC/RRC trials | All growing zones | Strong | Pod Shatter Reduction Blackleg Resistance LibertyLink® system |
| InVigor L140P | <ul style="list-style-type: none"> First hybrid to feature Pod Shatter Reduction trait Medium height Available in limited quantities for 2019 | 100% of checks (InVigor 5440 and Pioneer® 45H29) in 2011-2012 WCC/RRC trials | All growing zones | Strong | Pod Shatter Reduction Blackleg Resistance LibertyLink system |
| NEW InVigor L234PC | <ul style="list-style-type: none"> Pod Shatter Reduction NEW 2nd generation multi-genetic clubroot resistant** traits Excellent yield performance Early maturity Medium height | 104% of checks (InVigor 5440 and Pioneer® 45H29) in 2017 WCC/RRC trials | All growing zones | Strong | Pod Shatter Reduction 2 nd Generation Multi-Genetic Clubroot Resistance Blackleg Resistance LibertyLink system |
| InVigor L255PC | <ul style="list-style-type: none"> Pod Shatter Reduction & Clubroot Resistance™ Top yield performer Harvest flexibility Medium height | 109% of checks (InVigor 5440 and Pioneer® 45H29) in 2016 WCC/RRC trials | Mid- to long-growing zones | Very Strong | Pod Shatter Reduction Clubroot Resistance Blackleg Resistance LibertyLink system |
| InVigor L241C | <ul style="list-style-type: none"> Clubroot Resistance™ Winner of the 2016 Canola 100 at 81.43 bu./ac. Strong yield performance Mid maturity Medium height | 102% of checks (InVigor 5440 and Pioneer® 45H29) in 2012-2013 WCC/RRC trials | All growing zones | Very Strong | Clubroot Resistance Blackleg Resistance LibertyLink system |
| InVigor L135C | <ul style="list-style-type: none"> Clubroot Resistance** Solid performance Early maturity Medium height Available in Alberta only | 138% of checks (Pioneer® 46A65 and Q2) in 2010 WCC/RRC trials | All growing zones | Strong | Clubroot Resistance Blackleg Resistance LibertyLink system |
| InVigor L252 | <ul style="list-style-type: none"> #1 hybrid canola grown in Canada in 2016 & 2017*** Winner of the 2017 Canola Performance Trials (CPTs) for the 5th straight year (average of all growing zones) Top yield performance Medium height | 110% of checks (InVigor 5440 and Pioneer® 45H29) in 2011-2012 WCC/RRC trials | All growing zones | Strong to Very Strong | Blackleg Resistance LibertyLink system |
| InVigor L230 | <ul style="list-style-type: none"> Strong yield performance Early maturing Medium height | 103.9% of checks (InVigor 5440 and Pioneer® 45H29) in 2014-2015 WCC/RRC trials | All growing zones | Strong to Very Strong | Blackleg Resistance LibertyLink system |

THE PROOF IS IN THE BIN

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*2018 BPI (Business Planning Information) Data

**To predominant clubroot pathotypes identified in Canada at the time of product registration. NEW InVigor L234PC has the same resistance profile as InVigor L255PC, InVigor L135C and InVigor L241C, plus it contains 2nd generation multi-genetic clubroot resistance to additional clubroot pathotypes to help combat evolving clubroot pathotypes

***2016 & 2017 BPI Data

Always read and follow label directions.

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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.

Its 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 producers 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 licenced 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 often spend much of their time roguing ped-

igreed 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.

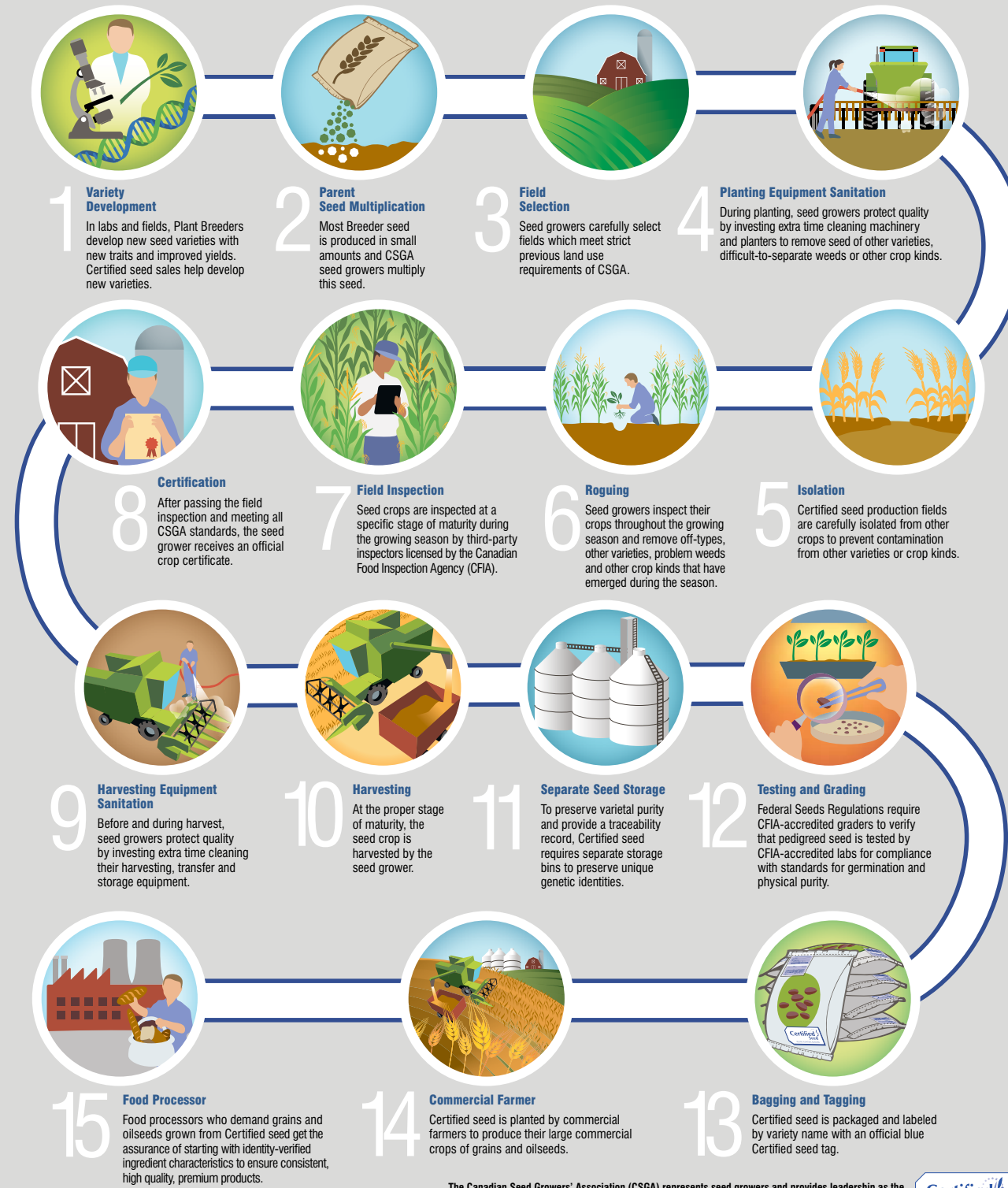
Certified seed is not guaranteed to be free of weed seeds although reputable seed growers will make every effort to ensure the seed they are selling is clean and free of impurities.

continued on page 64 >>



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 62 >>

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 pedigree 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 reflects 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 pedigree 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, pedigree 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.

How is Certified Seed Produced?



| | |
|---|--|
| <p>1 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.</p> | <p>9 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.</p> |
| <p>2 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.</p> | <p>10 Harvesting At the proper stage of maturity, the Certified seed crop is harvested by the seed grower.</p> |
| <p>3 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.</p> | <p>11 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.</p> |
| <p>4 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.</p> | <p>12 Testing and Grading Federal Seeds Regulations require pedigree 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.</p> |
| <p>5 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.</p> | <p>13 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.</p> |
| <p>6 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.</p> | <p>14 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.</p> |
| <p>7 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.</p> | <p>15 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.</p> |
| <p>8 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.</p> | |

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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.

| | | |
|--|---|---|
| |  |  Progress through Research |
| 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 Act. These varieties carry the original PBR symbol. |
| Breeders' rights | | |
| What are breeders' rights? | Breeders' rights are now expanded under the new PBR Act. 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 breeders 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 farmers 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 farmers clean grain from PBR-protected varieties for use as seed on their farm? | Yes | Yes |
| Can farmers sell or advertise for sale seed they have produced from grain of PBR-protected varieties? | No | No |
| Can farmers exchange seed they have produced from grain of PBR-protected varieties? | No | No |

Seed conditioners' and Grain buyers' responsibilities

| | | |
|---|---|-----|
| Can seed conditioners 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 seed conditioners 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 grain buyers 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

Prairie Grain Development Committee

The Prairie Grain Development Committee (PGDC) facilitates the exchange of information relevant to the development and commercialization of improved cultivars of grain crops for the Canadian prairies. In 2018, the committee recommended the following lines for registration:

BARLEY

SR16511 — This is a six-row feed/forage barley line developed by Dr. J. Nyachiro, Dr. P. Juskiw, J.H. Helm, K. Xi, K.T. Turkington, Y.A. Kabeta, L. Oatway and F. Capettini at the Alberta Field Crop Development Centre in Lacombe, Alta. SR16511 is smooth-awned, hulled barley suitable for feed grain and forage production. It has plump seed and a high test weight.

TR15155 — This is a two-row malting barley line developed by A.D. Beattie and B.G. Rossnagel at the University of Saskatchewan, Crop Development Centre in Saskatoon, Sask. TR15155 is a hulled malt barley line with good adaptability across Western Canada.

TR15245 — This is a two-row hulled malting barley line developed by A. Badea, J.R. Tucker, and W.G. Legge at Agriculture and Agri-Food Canada's Brandon Research and Development Centre in Brandon, Man. This line carries the phytate reducing lpa1-1 barley mutation and could potentially be considered a novel feed source. It was recommended for interim registration in February 2018 by the Prairie Recommending Committee for Oats and Barley (PRCOB).

TR15405 — This malting barley line was recommended for full registration by the Prairie Recommending Committee for Oats and Barley (PRCOB). It was proposed for registration by Joshua Butler of Busch Agricultural Resources, LLC in Fort Collins, Colorado. Also known as ABI Growler, TR15405 has high levels of enzymes, a-amylase and diastatic power.

TR16742 — This general purpose barley line offers above-average combination of disease reactions. It is resistant to the net form of net blotch as well as surface borne smuts and stem rust. The developer, breeder or proposer of this line is Jim Anderson of CPS Research, Development & Innovation in Calgary, Alta.

TR17408 — Also known as Morovian 165, this is a high yielding, two-row, hulled malt barley line with good adaptability to the western United States and Alberta. It was recommended for interim registration by the by the Prairie Recommending Committee for Oats and Barley (PRCOB). The developer, breeder or proposer of this line is Bob Brunick with the Malting Barley Variety Development Center at Burley, Idaho.

TR17409 — Also known as Bill Coors 100, TR17409 is a high yielding, semi-dwarf, two-row, hulled malt barley line with good adaptability. It was developed for irrigated production conditions and was recommended for interim registration. The developer, breeder or proposer of this line is Bob Brunick with the Malting Barley Variety Development Center at Burley, Idaho.

BEANS

3568-1 — This is a carioca bean line. The developer, breeder or proposer of this line is Kirstin Bett at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

4510-3-1 — This is a yellow bean line. The developer, breeder or proposer of this line is Kirstin Bett at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

LI3PS389 — This is a pinto bean line. The developer, breeder or proposer of this line is Parthiba Balasubramanian at Agriculture and Agri-Food Canada in Lethbridge, Alta.

NN11-2 — This is a pinto bean line. The developer, breeder or proposer of this line is Kirstin Bett at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

YE4607 — This is a yellow bean line. The developer, breeder or proposer of this line is Anfu Hou at Agriculture and Agri-Food Canada in Morden, Man.

BUCKWHEAT

DF-03 — This is a buckwheat line. The developer, breeder or proposer of this line is Lorne Kyle of Mancan Genetics in Morden, Manitoba.

FABABEANS

219-16 — This is a zero tannin fababea line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

BOXER — This is a tannin type fababea. The developer, breeder or proposer of this line is Cody Roland at Legume Logic, North Dakota, U.S.A.

LAURA — This is a tannin type fababea line. The developer, breeder or proposer of this line is Cody Roland at Legume Logic, North Dakota, U.S.A.

NPZ 14.7310 — This is a zero tannin fababea line. The developer, breeder or proposer of this line is Glen Hawkins at DL Seeds Inc., at Edmonton, Alta.

NPZ 14.7330 — This is a zero tannin fababea line. The developer, breeder or proposer of this line is Glen Hawkins at DL Seeds Inc., at Edmonton, Alta.

NPZ 14.7340 — This is a zero tannin fababea line. The developer, breeder or proposer of this line is Glen Hawkins at DL Seeds Inc., at Edmonton, Alta.

TIFFANY — This is a tannin-containing fababea line. The developer, breeder or proposer of this line is Glen Hawkins at DL Seeds Inc., at Edmonton, Alta.

TRUMPET — This is a tannin-containing fababea line. The developer, breeder or proposer of this line is Glen Hawkins at DL Seeds Inc., at Edmonton, Alta.

LENTILS

3674-15 — This is a small red lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

4317-4 — This is a small red lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

IBC 929R — This is a small red lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

IBC 839 — This is a French green lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

IBC 937 — This is a large green lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

IBC 975 — This is a small red lentil line developed by Bert Vandenberg at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

MUSTARD

B3318 — This is a hybrid brown mustard line developed by Bifang Cheng from Agriculture and Agri-Food Canada, Saskatoon. This is the first hybrid mustard line recommended for registration and is noted for its significantly higher yield potential. Limited quantities of seed may be available in 2019.

OATS

OT3097 — This is a spring milling oat line developed by A.D. Beattie and B.G. Rossnagel at the University of Saskatchewan's Crop Development Centre (CDC) in Saskatoon, Sask. OT3097 is a high beta-glucan, moderate oil oat line.

OT3098 — This is a spring milling oat line developed by A.D. Beattie and B.G. Rossnagel at the University of Saskatchewan's Crop Development Centre (CDC) in Saskatoon, Sask. OT3098 is a high beta-glucan, higher oil oat line with good groat percentage.

OT6021 — This is a spring milling oat line developed by Jim Dyck of Oat Advantage, Saskatoon, Sask. OT6021 is a medium maturing, strong yielding, high-quality milling oat with good lodging resistance. Suitable across western Canada.

continued on next page >>

Celebrate your
family's place in
history!

If your family has continuously farmed the same land in Saskatchewan for 100 years or more, apply today for an ISC Century Family Farm Award.

ISC proudly presents this annual program, recognizing the family legacies that have shaped the province.

Apply by March 31, 2019 to be included in this year's program. Applications received after the deadline will be considered for the 2020 program.

For more information about the ISC Century Family Farm Award program and how to apply, please visit www.isc.ca/cffa or call 1-866-275-4721.



Information in the right hands.

PGDC VARIETY REGISTRATION RECOMMENDATIONS (CON'T)

PEAS

CDC 4639-8 — This is a green pea line developed by Tom Warkentin at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask.

LGPN1904 — This is a green pea line. The developer, breeder or proposer of this line is Ton Wouda at Limagrain, The Netherlands.

MP1907 — This is a yellow pea line developed by D.J. Bing at Agriculture and Agri-Food Canada, Lacombe, Alta.

P0730-118 — This is a yellow pea line developed by D.J. Bing at Agriculture and Agri-Food Canada, Lacombe, Alta.

RYE

KWS Gatano — This is a fall rye line proposed by Andres Gordillo. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

TRITICALE

T256 — This is a spring triticale line proposed for registration by Mazen Aljarrah. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

T257 — This is a spring triticale line proposed for registration by Mazen Aljarrah. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

WT0010 — This is a winter triticale line proposed for registration by Mazen Aljarrah. It was endorsed for winter registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

WHEAT

BW1041 — This is a spring wheat line proposed for registration by Dr. Francis Kirigwi. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW1045 — Registered as AAC Magnet, this is a spring wheat line proposed for registration by Santosh Kumar, Agriculture and Agri-Food Canada (AAFC) in Brandon. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW1048 — This is a spring wheat line proposed for registration by Santosh Kumar, Agriculture and Agri-Food Canada (AAFC) in Brandon. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW1049 — Registered as AAC LeRoy VB, this is a midge-tolerant spring wheat proposed for registration by Santosh Kumar, Agriculture and Agri-Food Canada (AAFC) in Brandon. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW5011 — Registered as AAC Starbuck VB, this is a midge tolerant spring wheat developed by Richard Cuthbert, Agriculture and Agri-Food Canada (AAFC) in Swift Current, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW5013 — Registered as AAC Wheatland VB, this is a midge tolerant spring wheat developed by Richard Cuthbert, Agriculture and Agri-Food Canada (AAFC) in Swift Current, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

BW5022 — This is a spring wheat line proposed for registration by Dr. Francis Kirigwi. It was endorsed for registration

by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

DT591 — This is a durum wheat line developed by Dr. Curtis Pozniak at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

DT878 — This is a durum wheat line developed by Dr. Ruan Yuefeng, Agriculture and Agri-Food Canada (AAFC) in Swift Current, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

DT881 — This is a durum wheat line developed by Dr. Ruan Yuefeng, Agriculture and Agri-Food Canada (AAFC) in Swift Current, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

GP190 — This is a general purpose spring wheat line proposed for registration by Dr. Pierre Hucl at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

KWS ALDERON — This is a spring wheat line proposed for registration by Jim Downey at SeCan. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

NH004 — This is a spring wheat line proposed for registration by Dr. Dean Spaner at the faculty of Agricultural, Life & Environmental Sciences at the University of Alberta in Edmonton, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT485 — This is a spring wheat line proposed for registration by Dr. Andrew Burt. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT596 — This is a spring wheat line proposed for registration by Dr. Pierre Hucl at the University of Saskatchewan's Crop Development Centre in Saskatoon, Sask. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT650 — This is a spring wheat line proposed for registration by Dr. Francis Kirigwi. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT782 — This is a spring wheat line proposed for registration by Dr. Dean Spaner at the faculty of Agricultural, Life & Envi-

ronmental Sciences at the University of Alberta in Edmonton, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT783 — This is a spring wheat line proposed for registration by Dr. Dean Spaner at the faculty of Agricultural, Life & Environmental Sciences at the University of Alberta in Edmonton, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT784 — This is a spring wheat line proposed for registration by Dr. Dean Spaner at the faculty of Agricultural, Life & Environmental Sciences at the University of Alberta in Edmonton, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

PT785 — This is a spring wheat line proposed for registration by Dr. Dean Spaner at the faculty of Agricultural, Life & Environmental Sciences at the University of Alberta in Edmonton, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat Rye and Triticale (PRCWRT) in February 2018.

W530 — This is a winter wheat line developed by Dr. Rob Graf, Agriculture and Agri-Food Canada (AAFC) in Lethbridge, Alta. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

W563 — This is a winter wheat line developed by Dr. Anita Brulé-Babel at the University of Manitoba. It was endorsed for registration by the Prairie Recommending Committee for Wheat, Rye and Triticale (PRCWRT) in February 2018.

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CANADIAN FOOD INSPECTION AGENCY

VARIETY REGISTRATION REPORT

The list below contains the names and details of crop varieties registered and de-registered by the Canadian Food Inspection Agency's Variety Registration Office (VRO) between Nov. 16, 2017 and Nov. 15, 2018.

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|--------------|------------------------|----------------|--------------------------------|-----------|---------|-----------------|-------------------|
| Alfalfa | | AAC Trueman | CRS-1001 | National | | 2018-09-14 | |
| | | Cronus | FG 410M367 | National | | 2018-04-06 | |
| | | Isabella | FG 412A122 | National | | 2018-06-04 | |
| | | Pegase | FG 410A179 | National | | 2018-04-27 | |
| | | PV Parlour HG | CW 104014 | National | | 2018-04-13 | |
| | | Revolution MD | LS 206 | National | | 2018-08-31 | |
| | | Sidewinder | CW 082009 | National | | 2018-07-13 | |
| | | Slingshot | FG 59W205 | National | | 2018-02-02 | |
| Barley | | Surge HG | CW A113005 | National | | 2018-08-10 | |
| | | WL 375HVX.RR | FG H0515A3140 | National | | 2018-02-23 | |
| | Six-Row | AAC Bloomfield | H55617-11, C2M17220 | National | | 2018-02-23 | |
| | Six-Row | AB Cattlelac | SR14501, H02061002, FB455 | National | | 2017-12-15 | |
| | Six-Row, Forage | AB Advantage | FCDC H06111004, SR16511, FB473 | National | | 2018-09-14 | |
| | Two-Row | AAC Bell | CH2714-4 | National | | 2018-09-28 | |
| | Two-Row | AAC Goldman | TR10124, BM0270D-214-0 | National | | 2018-03-14 | |
| | Two-Row | AAC Ling | CH2720-5 | National | | 2018-09-28 | |
| | Two-Row | AC Bountiful | TR243, WM871-58 | Cancelled | | 1999-12-07 | 2018-08-01 |
| | Two-Row | Bill Coors 100 | POP08-150-031, MORAVIAN 150 | Interim | | 2018-07-06 | |
| Beans, field | Two-Row | CDC Copper | TR14150, SM110530 | National | | 2018-03-23 | |
| | Two-Row | Moravian 165 | POP08-150-034, | Interim | | 2018-07-06 | |
| | Two-Row | Sirish | TR14928, SY411-292 | National | | 2017-12-08 | |
| | Black | Carmen Black | BK05-009 | Cancelled | | 2010-09-23 | 2018-08-01 |
| | Black | Zenith | B10244 | National | | 2018-04-13 | |
| | Cranberry | AAC Cranford | L12CB004 | National | | 2018-06-29 | |
| | Flor De Junio | CDC Ray | MAR-20 | National | | 2017-11-24 | |
| | Pea (Navy) | Blizzard | 8072 | National | | 2018-02-02 | |
| | Pinto | AAC Expedition | L13PS389 | National | | 2018-06-29 | |
| | Pinto | AC Pintoba | HR55-1608 | Cancelled | | 1998-01-16 | 2018-08-01 |
| Bromegrass | Red Mexican | AC Scarlet | L96D114 | Cancelled | | 2000-11-30 | 2018-08-01 |
| | Meadow | Arsenal | BAR BCF 1FRRL, DRYLAND MB | National | | 2018-04-27 | |
| | Smooth | Artillery | BAR BIF1 GRL, STSB1 | National | | 2018-04-27 | |
| Canola | Brassica Napus | PV 585 GC | PS-FCA 15-4001 | Interim | | 2018-01-05 | |
| | Brassica Napus, Hybrid | 1026 RR | G6667223H, 6667223, EXP RR | National | | 2018-03-29 | |
| | Brassica Napus, Hybrid | 1028 RR | G8023282H, 8023282 | Interim | | 2018-03-02 | |
| | Brassica Napus, Hybrid | 16GG0337L | 16GG0337L | National | | 2018-11-02 | |
| | Brassica Napus, Hybrid | 2026 CL | CL6665383H, 6665383, EXP CL | National | | 2018-03-29 | |
| | Brassica Napus, Hybrid | 2028 CL | CL7991184H, 7991184 | Interim | | 2018-04-20 | |
| | Brassica Napus, Hybrid | 45CM39 | 16GG0736R | National | | 2018-04-06 | |
| | Brassica Napus, Hybrid | 6086 CR | DL1513 RR | National | | 2018-05-04 | |
| | Brassica Napus, Hybrid | 6090 RR | DL1630RR | National | | 2018-05-04 | |
| | Brassica Napus, Hybrid | 918-31 RR | G42437 | National | | 2018-08-31 | |
| | Brassica Napus, Hybrid | B3010M | 16GN0453L | National | | 2018-11-02 | |
| | Brassica Napus, Hybrid | CS2400 | DL1623RR | National | | 2018-05-04 | |
| | Brassica Napus, Hybrid | DKLL 81 BL | H32418G3 | Interim | | 2018-06-07 | |
| | Brassica Napus, Hybrid | DKTF 92 SC | X15E9018N3 | National | | 2018-06-01 | |
| | Brassica Napus, Hybrid | DKTF 94 CR | X49604G1 | National | | 2018-06-01 | |

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|------------------------|----------------------------|-----------------------|--------------------------------------|-----------|------------|-----------------|-------------------|
| Canola | Brassica Napus, Hybrid | DL1752RR | DL1752RR | Interim | | 2018-06-29 | |
| | Brassica Napus, Hybrid | L234PC | 7CN0298 | Interim | | 2018-06-01 | |
| | Brassica Napus, Hybrid | L255PC | 6CN0122 | National | | 2018-05-18 | |
| | Brassica Napus, Hybrid | L258HPC | 7CN0425 | Interim | | 2018-06-01 | |
| | Brassica Napus, Hybrid | P501L | 16GG0344L | National | | 2018-11-02 | |
| | Brassica Napus, Hybrid | PV 591 GCS | 15GG0993R | National | | 2018-04-20 | |
| | Brassica Napus, Hybrid | V33-1CL | 17MH2622 | Interim | | 2018-08-31 | |
| | Brassica Napus, Hybrid | X37965G1 | X37965G1 | National | | 2018-02-23 | |
| Brassica Napus, Hybrid | X49732G1 | X49732G1 | National | | 2018-02-23 | | |
| Clover | Red, Double Cut | Blizard | NONE | National | | 2018-04-20 | |
| Fababeans | | DL Rico | NPZ 14.7340 | National | | 2018-06-01 | |
| | | DL Tesoro | NPZ 14.7310 | National | | 2018-06-01 | |
| Fescue | Meadow Forage | Merifest | PB483 | National | | 2018-05-18 | |
| | Tall Forage | Bardoux | 8FA 14 | National | | 2018-09-21 | |
| | Tall Forage | Swaj | SW VS4509 | National | | 2018-03-16 | |
| Flax | | CDC Rowland | FP2513, HY1239 | National | | 2018-04-20 | |
| | | CDC Carmine | 3674-15 | National | | 2018-10-19 | |
| Lentils | | CDC Coral | APR-71 | National | | 2018-10-19 | |
| | | CDC Imp | IBC 978 | National | | 2018-10-19 | |
| | | CDC Lima | IBC 937 | National | | 2018-10-19 | |
| | | CDC Nimble | IBC 975 | National | | 2018-10-19 | |
| | | CDC QG-4 | IBC 839 | National | | 2018-10-19 | |
| | | CDC SB-4 | IBC 929 | National | | 2018-10-19 | |
| Mustard | Brassica Juncea L., Indian | AAC Brown 18 | B3318 | National | | 2018-08-31 | |
| | | | | | | | |
| Oats | Spring | AAC Kongsore | OT8006, 08P14-0A23 | National | | 2018-03-02 | |
| | Spring | AAC Torrent | 0A1395-1 | National | | 2018-03-02 | |
| | Spring | AC Rebel | OT 277 | Cancelled | | 1998-03-09 | 2018-08-01 |
| | Spring, Hulless | Marechal | C3M16085, CFA1405, X99M4-03N-06-L036 | National | | 2018-02-23 | |
| Orchardgrass | | AAC Greenview | OG426, L4682 | National | | 2018-02-09 | |
| | | Blizzard | OG0604WH | National | | 2018-04-20 | |
| Peas, Field | Green | Blueman | LRP 1424 | National | | 2018-06-01 | |
| | Green | Nitouche | DP 1059 | Cancelled | | 1999-04-14 | 2018-08-01 |
| | Yellow | AAC Asher | P0521-109 | National | | 2018-01-29 | |
| | Yellow | AAC Delhi | P0750-02 | National | | 2018-01-29 | |
| | Yellow | AC Melfort | MP1373 | Cancelled | | 1999-02-10 | 2018-08-01 |
| | Yellow | CDC Lewochko | CDC 4061-4 | National | | 2018-02-02 | |
| Potato | | 401-1 | 401-1 | National | | 2018-09-07 | |
| | | AAC Brookville | CV01238-3 (AR2010-01) | National | | 2018-06-07 | |
| | | AAC Canada Gold-Dorée | F10082, AR2015-11 | National | | 2018-02-02 | |
| | | AAC Confederation | F07060, AR2012-12 | National | | 2018-02-02 | |
| | | AAC Valley Crisp | F08011_(AR2013-02) | National | | 2018-02-02 | |
| | | Actrice | DAR 99-9 | National | | 2018-01-19 | |
| | | Anouk | AR 03-3410 | National | | 2017-11-24 | |
| | | Austin | ISP 18-6-06 | National | | 2018-11-23 | |
| | | Basin Russet | AR 04-3781 | National | | 2017-11-24 | |
| | | Bellanita | AR 05-1251 | National | | 2017-11-24 | |
| | | Cerata | KS 06-125 | National | | 2018-06-07 | |
| | | Ciklamen | | National | | 2018-02-23 | |
| | | Constance | SA 02-0020 | National | | 2017-11-24 | |
| | | Cristina | T3747/13 | National | | 2018-02-02 | |
| | | Du Mont | F83081 | National | | 2018-08-07 | |
| | Electra | T2704/1 | National | | 2018-02-02 | | |
| | Encore | HZC 07-6039 | National | | 2018-04-20 | | |

VARIETY REGISTRATION REPORT (CONTINUED)

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|----------|-------------------|---------------------|--------------------------------------|----------|------------|-----------------|-------------------|
| Potato | | Harmony | 5-92 | National | | 2018-04-06 | |
| | | Huckleberry Gold | A99326-1PY | National | | 2018-04-20 | |
| | | Laperla | YP99-153 | National | | 2018-04-27 | |
| | | Manistee | MSL292-A | National | | 2018-04-20 | |
| | | Marcy | NY 112 | National | | 2018-03-09 | |
| | | Maritiama | ARD767 | National | | 2018-06-07 | |
| | | Merida | E99/89/130 | National | | 2018-07-06 | |
| | | Merlin | 12 RE 86 | National | | 2018-04-06 | |
| | | Mountain Gem Russet | A03158-2TE | National | | 2018-01-19 | |
| | | Nectar | T1903/48 | National | | 2018-02-02 | |
| | | Noblesse | HZD 03-388 | National | | 2018-02-23 | |
| | | Owyhee Russet | A096160-3 | National | | 2018-04-27 | |
| | | Payette Russet | A02507-2LB | National | | 2018-01-19 | |
| | | Pomerelle Russet | A02062-1TE | National | | 2018-01-19 | |
| | | Primabelle | VDZ 00-119 | National | | 2018-02-23 | |
| | | Princess Alexia | BH 98 44 | National | | 2018-06-07 | |
| | | Reba | F24-12, NY87 | National | | 2018-06-25 | |
| | | Rickey Russet | HZC 04-6029 | National | | 2018-04-20 | |
| | | Salinero | STT 03-2632 | National | | 2018-02-23 | |
| | | Smilin Eyes | POR02PG26-5 | National | | 2018-04-27 | |
| | Targhee Russet | A01010-1 | National | | 2018-01-19 | | |
| | Teton Russet | A0008-1TE | National | | 2018-06-29 | | |
| | TT-08-024/2010-06 | TT-08-024/2010-06 | National | | 2018-09-07 | | |
| | TT-08-024/2010-12 | TT-08-024/2010-12 | National | | 2018-04-13 | | |
| | TT-10-014/2011-12 | TT-10-014/2011-12 | National | | 2018-09-07 | | |
| Rapeseed | | Evolve | 130H76 | Contract | | 2018-02-23 | |
| Rye | Winter, Hybrid | KWS Gatano | RT227 | National | | 2018-05-18 | |
| Soybeans | | Absent | SVX17T0S31 | National | | 2018-11-09 | |
| | | Angelica | CM16-6058 | National | | 2018-05-18 | |
| | | B0040L1 | 004G17N1, GF33939808 | National | | 2018-10-19 | |
| | | B120L1 | 12G17G2, MN34249955 | National | | 2018-10-19 | |
| | | Bennie | C4M16157 CONV., T1601-3 | National | | 2018-11-09 | |
| | | Bourke R2X | FLZ416B9-CODNN, 01068158 | National | | 2018-03-29 | |
| | | Cascade | SVX17T0S28 | National | | 2018-11-09 | |
| | | CF07X9 | MK0316A3-DODNN, 01068058 | National | | 2018-04-06 | |
| | | CF09X9 | FL0716B8-DODNN, 01068065 | National | | 2018-04-20 | |
| | | CF13X9 | RM1316A5-DODNN, 01068891 | National | | 2018-04-20 | |
| | | CF19X9 | RM1816A1-CODNN, 01068223 | National | | 2018-04-20 | |
| | | Chiba | C4M17228 CONV., CFS18.2.02, T1603-2. | National | | 2018-11-09 | |
| | | Cypress | SVX16TT0G4 | National | | 2018-10-26 | |
| | | Dayo R2X | FLT117A4-CODNN, 01073421 | National | | 2018-04-06 | |
| | | Denzo R2X | XD2R0623X, CL1560023 | National | | 2018-02-16 | |
| | | Devo R2X | CBZ916B2-CODNN | National | | 2018-10-12 | |
| | | Diego R2X | MK0616A9-CODNN, 01068186 | National | | 2018-04-06 | |
| | | Dinero R2X | CBZ916A2-CODNN | National | | 2018-10-12 | |
| | | DKB0005-44 | FLT217A4-CODNN, 01073418 | National | | 2018-03-29 | |
| | | DKB0009-89 | FLT017A4-CODNN, 01073433 | National | | 2018-03-29 | |
| | | DKB006-99 | FLZ416C1-CODNN, 01068157 | National | | 2018-03-29 | |
| | | DKB007-67 | FLZ316A8-CODNN, 01068163 | National | | 2018-03-29 | |
| | | DKB02-04 | MK0116B7-CODNN, 01068485 | National | | 2018-03-29 | |

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|----------|--------------|-------------------------------|--------------------------------|----------|------------|-----------------|-------------------|
| Soybeans | | DKB06-28 | FL0616B7-CODNN, 01068187 | National | | 2018-03-29 | |
| | | DKB10-20 | RM1115A1-C1DNN, 01068207 | National | | 2018-04-27 | |
| | | DKB12-16 | RM1316A2-CODNN, 01068213 | National | | 2018-03-29 | |
| | | DKB15-54 | RM1616A3-CODNN, 01068087 | National | | 2018-03-29 | |
| | | DKB29-42 | BN3016D9-CODNN, 01068433 | National | | 2018-03-23 | |
| | | Donaldo R2X | XD2R0171X, CL1561938, GS0238X | National | | 2018-02-09 | |
| | | Draco R2X | FL0716C1-CODNN, 01068189 | National | | 2018-04-06 | |
| | | Exact R2X | XD2R22164, CL1562251, GS 2251X | National | | 2018-02-09 | |
| | | Expand R2X | XD2R0776X, CL1560184, GS0784X | National | | 2018-02-16 | |
| | | Expert R2X | RM0916A2-CODNN, 01068206 | National | | 2018-03-29 | |
| | | Extent R2X | MK0616B3-CODNN, 01068494 | National | | 2018-03-29 | |
| | | Extra R2X | RM2116A4-CODNN, 01068916 | National | | 2018-03-29 | |
| | | Ezra | PR9048340 | National | | 2018-06-04 | |
| | | Fisher R2X | FLT017A7-CODNN, 01073427 | National | | 2018-03-29 | |
| | | Karpo R2 | C4M17221 R2, R1601-12 | National | | 2018-11-09 | |
| | | Lassa R2X | MKT017A8-CODNN, 01073426 | National | | 2018-04-06 | |
| | | LS 001XT | FLT017A3-CODNN, 01073430 | National | | 2018-04-20 | |
| | | LS 007XT | MKZ116C2-CODNN, 01068479 | National | | 2018-04-06 | |
| | | LS TR18XT | MKT217A5-CODNN, 01073419 | National | | 2018-04-06 | |
| | | Maris R2X | FL1016A8-DODNN, 01068134 | National | | 2018-04-06 | |
| | | NSC Melfort RR2X | MKT217A2-CODNN, 01073420 | National | | 2018-03-29 | |
| | | NSC Redvers RR2X | FLT017A2-CODNN, 01073432 | National | | 2018-03-29 | |
| | | NSC Sperling RR2Y | X2R00671, CW1510074 | National | | 2018-02-23 | |
| | | NSC Winkler RR2X | MKZ116A8-CODNN, 01068168 | National | | 2018-05-11 | |
| | | P0007A65R | 5PHFW50, XB0008C17R | National | | 2018-05-25 | |
| | | P006A37X | 5PLMK17, XB006K17X | National | | 2018-05-25 | |
| | | P00A49X | 5PMFH81, XB00A17X | National | | 2018-05-25 | |
| | | P01A84X | 5PLU060, XB02U1YX | National | | 2018-05-25 | |
| | | P06A51X | 5PDNA83, XB06U17X | National | | 2018-05-25 | |
| | | P09A62X | 5PBWQ36, XB10E17X | National | | 2018-05-25 | |
| | | P14A23L | 5PHKH06, XB14K17L | National | | 2018-05-25 | |
| | | P16A13X | 5PUDE31, XB16R17X | National | | 2018-05-25 | |
| | | P18A98X | 5PWAV53, XB19B17X | National | | 2018-05-25 | |
| | | P21A81L | 5PZGK37, XB22X17L | National | | 2018-05-25 | |
| | | P23A15X | 5PRZQ77, XB22Y17X | National | | 2018-05-25 | |
| | | P23A32X | 5PLSB92, XB23Q17X | National | | 2018-05-25 | |
| | | P25A54X | 5PVGJ25, XB26AA17X | National | | 2018-05-25 | |
| | | P25A82L | 5PSGM88, XB24H17L | National | | 2018-05-25 | |
| | | P27A17X | 5PMNG47, XB27J17X | National | | 2018-05-25 | |
| | | P28A94X | 5PSUP67, XB29K17X | National | | 2018-05-25 | |
| | P29A25X | 5PAMV57, XB30E17X | National | | 2018-05-25 | | |
| | P29A85L | 5PNZG27, XB28E17L | National | | 2018-05-25 | | |
| | Prince R2X | FLT017A1-CODNN, 01073431 | National | | 2018-03-29 | | |
| | Pro 08X36N | XD2R0775X, CL1463825, GS0825X | National | | 2018-02-16 | | |
| | Pro 09X236N | FL0716C4-DODNN, 01068066 | National | | 2018-04-06 | | |
| | Pro 10X06N | FL0916B4-CODNN, 01068204 | National | | 2018-04-13 | | |
| | Pro 12X236N | MK1216A9-CODNN, 01068210 | National | | 2018-04-13 | | |
| | Pro 16X346N | XD2R1678X, CL1562109, GS1609X | National | | 2018-02-09 | | |
| | PS 00078 XRN | MKT017A9-CODNN, 01073425 | National | | 2018-03-29 | | |
| | PS 0068 XR | FLZ416B2-CODNN, 01068151 | National | | 2018-03-29 | | |
| | PS 0098 XR | MKZ116C4-CODNN, 01068175 | National | | 2018-03-29 | | |

VARIETY REGISTRATION REPORT (CONTINUED)

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|-----------|-------------------|----------------------------|--------------------------------|----------|--------------------------------|-----------------|-------------------|
| Soybeans | | PS 1338 XRN | RM1416A6-DODNN, 01068085 | National | | 2018-05-11 | |
| | | PS 2410 NLL | EXP2418NLL, MS2465N | National | | 2018-05-04 | |
| | | PV 14S008 RR2 | X2R00773, CW1410004, GS00804 | National | | 2018-02-16 | |
| | | PV 15S0009 R2X | MKT117A1-CODNN, 01073423 | National | | 2018-04-13 | |
| | | PV 16S004 R2X | MKZ416B7-CODNN, 01068162 | National | | 2018-04-13 | |
| | | PV 17S0007 R2X | FLT117A3-CODNN, 01073422 | National | | 2018-04-20 | |
| | | RX Cedo | CBZ916B6-CODNN | National | | 2018-07-27 | |
| | | RX Ignite | XD2R0473, CL1562168 | National | | 2018-02-09 | |
| | | RX Laser | XD2R1273X, EE1660540, GS1340X | National | | 2018-02-09 | |
| | | RX Mirus | RM2316B6-CODNN, 01068285 | National | | 2018-03-23 | |
| | | RX Spiro | RM1916A8-CODNN, 01068244 | National | | 2018-03-23 | |
| | | RX Torque | BN2516C7-CODNN, 01068905 | National | | 2018-03-23 | |
| | | RX Ultra | MK0316A5-CODNN, 01068177 | National | | 2018-03-23 | |
| | | RX000918 | FLZ917A4-CODNN, 01072712 | National | | 2018-04-13 | |
| | | RX00218 | CBT116A3-CODNN | National | | 2018-06-04 | |
| | | RX1018 | RM0716A1-CODNN, 01068194 | National | | 2018-04-20 | |
| | | RX1518 | RM1516A4-CODNN, 01068219 | National | | 2018-04-20 | |
| | | RX1818 | RM1816A8-DODNN, 01068892 | National | | 2018-04-20 | |
| | | S0007-B7X | XD2R000771, CW1660237 | National | | 2018-02-23 | |
| | | S006-M4X | XD2R00572, CW1660042 | National | | 2018-02-16 | |
| | | S09-R8X | XD2R0977, EE1660699 | National | | 2018-02-09 | |
| | | S12-P3X | XD2R1375, EW1660267 | National | | 2018-02-09 | |
| | | S14-T7X | XD2R1477, EC1661076 | National | | 2018-02-16 | |
| | | S18-H3X | XD2R1871, CL1562543 | National | | 2018-02-23 | |
| | | S19-T5X | XD2R1972, CL1562319 | National | | 2018-02-16 | |
| | | S27-C9X | XD2R2873, CL1460639 | National | | 2018-02-16 | |
| | | S27-U2X | XD2R2874, CL1560457 | National | | 2018-02-16 | |
| | | S29-R5X | XD2R3071, CL1560517 | National | | 2018-02-16 | |
| | S31-M1X | XD2R2977, CS1660005 | National | | 2018-02-16 | | |
| | Siberia | PR110524Z023 | National | | 2018-10-12 | | |
| | Sunna R2X | FLZ416C2-CODNN, 01068156 | National | | 2018-04-13 | | |
| | TH 88008 R2X | 11KA71078-27-29, CX 00802N | National | | 2018-07-20 | | |
| | TH890005 R2XN | FLT317A3-CODNN, 01073416 | National | | 2018-04-20 | | |
| | Vidar R2X | MKZ116B9-CODNN, 01068482 | National | | 2018-04-13 | | |
| | Woden R2X | MK0116B3-CODNN, 01068483 | National | | 2018-04-20 | | |
| Sunflower | Hybrid, Oilseed | 8H27OCL | MY8H27OCL, 8H27OCLDM | National | | 2018-01-12 | |
| | Hybrid, Oilseed | P63HE60 | | National | | 2018-04-27 | |
| Timothy | | Dawn | TM9704 | National | | 2018-01-05 | |
| | | Sahara DT | TM0704DT | National | | 2018-04-27 | |
| | | Zenyatta | TN0401 | National | | 2018-04-06 | |
| Tobacco | Flue-Cured Hybrid | CTH144 | CTH144 | National | | 2018-08-17 | |
| Wheat | Spelt | CDC Evolve | 11SPELT11 | Regional | MB, SK, AB, BC | 2018-03-29 | |
| | Spring | AAC Castle | HY2021, 11W3497 | Regional | MB, SK, AB, BC | 2018-08-17 | |
| | Spring | AAC Cirrus | HW388, H0815-EL03 | Regional | MB, SK, AB, BC, NL, PE, NS, NB | 2018-02-23 | |
| | Spring | AAC Leroy | BW1049, BH11A-NP-162-NPNG-13-N | Regional | MB, SK, AB, BC | 2018-06-22 | |
| | Spring | AAC Magnet | BW 1045, BJ14*A0135 | Regional | MB, SK, AB, BC | 2018-06-22 | |
| | Spring | AAC Starbuck | BW5011 | Regional | MB, SK, AB, BC | 2018-11-09 | |
| | Spring | AAC Warman | BW1025, BG48A0-3-3-16 | Regional | MB, SK, AB, BC, ON | 2018-03-16 | |
| | Spring | AAC Wheatland | BW5013 | Regional | MB, SK, AB, BC | 2018-09-21 | |
| | Spring | Alderion | W185, 3702-4044 | Regional | MB, SK, AB, BC | 2018-05-04 | |
| | Spring | Aube | BS12-429 | Regional | NL, PE, NS, NB, MB, SK, AB, BC | 2018-02-23 | |

| CROP | VARIETY TYPE | VARIETY NAME | EXPERIMENTAL NUMBER | STATUS | REGIONS | REGISTERED DATE | CANCELLATION DATE |
|-------|--------------|-------------------|---|----------|------------------------------------|-----------------|-------------------|
| Wheat | Spring | CDC Cordon CLPLUS | HY2003, PT589, IR10072 | Regional | MB, SK, AB, BC | 2018-11-09 | |
| | Spring | Ellerslie | PT784, UAW113 * 008, ENTRY 13 PARKLAND B 2014 | Regional | MB, SK, AB, BC | 2018-11-23 | |
| | Spring | Faller | ND 805, HY 2015 | Regional | MB, SK, AB, BC, NL, PE, NS, NB, ON | 2018-04-06 | |
| | Spring | Jake | PT782, UAW1002 * F6MBK05, ENTRY 9 PARKLAND B 2015 | Regional | MB, SK, AB, BC | 2018-11-23 | |
| | Spring | Maida | BS10-759, C1M17174 | Regional | QC | 2018-01-05 | |
| | Spring | Minot | BS10-422, C1M16149 | Regional | QC, NL, PE, NS, NB | 2018-01-05 | |
| | Spring | Prosper | ND 808, HY 2016 | Regional | MB, SK, AB, BC, NL, PE, NS, NB | 2018-04-06 | |
| | Spring | Raven | ACS12638 | Regional | ON, NL, PE, NS, NB, ON | 2018-05-18 | |
| | Spring | Rednet | PT783, UAW1149 * 064, ENTRY 19 PARKLAND B 2014 | Regional | MB, SK, AB, BC | 2018-11-23 | |
| | Spring | SY Chert | BW5005, 09S2116-22 | Regional | MB, SK, AB, BC | 2017-12-15 | |
| | Spring | SY Obsidian | BW5007, 09S2033-17 | Regional | MB, SK, AB, BC | 2017-12-15 | |
| | Spring | Tracker | PT785, UAW1133 * 009, ENTRY 14 PARKLAND B 2014 | Regional | MB, SK, AB, BC | 2018-11-23 | |
| | Winter | 25W38 | W030195L, YW12Q, XW12Q | Regional | ON | 2018-03-09 | |
| | Winter | AAC Icefield | W530, LF1706W | Regional | MB, SK, AB, BC | 2018-05-04 | |
| | Winter | Measure | UGRC GL 96 | Regional | ON, NL, PE, NS, NB | 2018-06-22 | |
| | Winter | Montcalm | 04SH09B.13 | Regional | QC, ON | 2018-03-23 | |
| | Winter | UGRC GL164 | UGRC GL164 | Regional | ON, NL, PE, NS, NB | 2018-02-02 | |

AGRICULTURE CANADA 2018 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 2018 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) |
|--|----------------------------------|
| BW1045 Canada Western Red Spring Wheat | FP Genetics Inc. |
| BW1049 Canada Western Red Spring Wheat | Alliance Seed |
| DT878 Canada Western Amber Durum Wheat | SeCan Association |
| OA1436-1 Oat | Semican Inc. |
| OT15-07 Natto Soybean | Huron Commodities Inc. |
| OX-171 Tofu Soybean | Southwest Seeds Inc. |
| P0730-118 Yellow Pea | Alliance Seed |
| S9356M Hybrid Bromegrass | BrettYoung |

No proposals were received/accepted for the following lines:

Varieties marked with an asterisk will be offered again through the 2019 Results of Request for Proposals (RFP) process.

- *BW1048 Canada Western Red Spring Wheat
- *DT881 Canada Western Amber Durum Wheat
- FP2461 Flax
- FP2484 Flax
- OT12-06 Natto Soybean
- OT13-15 Natto Soybean
- OT15-02 Soybean
- OT15-03 Soybean
- OT15-04 Soybean
- OX-161 Tofu Soybean
- OX-162 Tofu Soybean
- *P0846-13 Maple Pea
- *PT485 Canada Western Red Spring Wheat
- *TR15245 Two-Row Barley
- *YE4607 Yellow Bean

PROPOSED LIST OF VARIETY REGISTRATION CANCELLATIONS

The Canadian Food Inspection Agency, in consultation with the Canadian Grain Commission, 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 three-year 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 Aug. 1 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 |
|---------------------------------|--------------|--------|-----------------|-------------|----------------------|
| Barley - Six-Row Spring | AC Malone | 4910 | 1999-04-30 | 2017-08-01 | 2020-08-01 |
| Barley - Six-Row Spring | AC Vision | 5323 | 2001-05-10 | 2017-08-01 | 2020-08-01 |
| Barley - Six-Row Spring | AC Westech | 4769 | 1998-06-03 | 2017-08-01 | 2020-08-01 |
| Barley - Two-Row Spring | AC Queens | 4765 | 1998-06-02 | 2017-08-01 | 2020-08-01 |
| Barley - Two-Row Spring | Calder | 5490 | 2002-05-24 | 2017-08-01 | 2020-08-01 |
| Barley - Two-Row Spring | Hector | 1433 | 1973-02-06 | 2017-08-01 | 2020-08-01 |
| Barley - Two-Row Spring | Norman | 6534 | 2009-02-02 | 2017-08-01 | 2020-08-01 |
| Barley - Two-Row Spring | AC Bountiful | 5028 | 1999-12-07 | 2015-08-01 | 2018-08-01 |
| Barley - Two-Row Spring Hulless | Millhouse | 6137 | 2006-05-19 | 2017-08-01 | 2020-08-01 |
| Bean - Black | Carmen Black | 6886 | 2010-09-23 | 2015-08-01 | 2018-08-01 |
| Bean - Pinto | AC Pintoba | 4668 | 1998-01-16 | 2015-08-01 | 2018-08-01 |
| Bean - Red Mexican | AC Scarlet | 5217 | 2000-11-30 | 2015-08-01 | 2018-08-01 |
| Fababean | Florent | 6567 | 2009-03-16 | 2016-08-01 | 2019-08-01 |
| Flax - Oilseed | AC Carnduff | 4713 | 1998-03-13 | 2018-08-01 | 2021-08-01 |
| Flax - Oilseed | AC Watson | 4441 | 1997-01-07 | 2018-08-01 | 2021-08-01 |
| Flax - Oilseed | Shape | 6477 | 2008-06-27 | 2017-08-01 | 2020-08-01 |
| Oat - Spring | AC Francis | 4382 | 1996-08-09 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | AC Hunter | 3587 | 1992-04-21 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | AC Rebel | 4705 | 1998-03-09 | 2015-08-01 | 2018-08-01 |
| Oat - Spring | AC Stewart | 3384 | 1991-03-05 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | AC Vermont | 5249 | 2001-02-21 | 2017-08-01 | 2020-08-01 |
| Oat - Spring | Athabasca | 1834 | 1978-04-14 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Capital | 2848 | 1987-06-03 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Cascade | 1920 | 1979-04-09 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Condesa | 3017 | 1988-12-09 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Dumont | 2250 | 1982-05-20 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Goslin | 5157 | 2000-06-23 | 2017-08-01 | 2020-08-01 |

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|----------------------|--------------|--------|-----------------|-------------|----------------------|
| Oat - Spring | Kaufmann | 5373 | 2001-11-22 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Manic | 1942 | 1979-10-10 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Marion | 2544 | 1985-06-05 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Riel | 2535 | 1985-05-10 | 2018-08-01 | 2021-08-01 |
| Oat - Spring | Sherwood | 5846 | 2004-08-04 | 2017-08-01 | 2020-08-01 |
| Oat - Spring | Stainless | 6422 | 2008-04-07 | 2017-08-01 | 2020-08-01 |
| Oat - Spring Hulless | AC Baton | 3963 | 1994-06-01 | 2018-08-01 | 2021-08-01 |
| Oat - Spring Hulless | AC Belmont | 3649 | 1992-08-14 | 2018-08-01 | 2021-08-01 |
| Oat - Spring Hulless | AC Fregeau | 4381 | 1996-08-09 | 2017-08-01 | 2020-08-01 |
| Oat - Spring Hulless | AC Lotta | 3414 | 1991-04-08 | 2017-08-01 | 2020-08-01 |
| Oat - Spring Hulless | Tibor | 2534 | 1985-05-06 | 2017-08-01 | 2020-08-01 |
| Pea - Green | Nitouche | 4900 | 1999-04-14 | 2015-08-01 | 2018-08-01 |
| Pea - Yellow | AC Melfort | 4861 | 1999-02-10 | 2015-08-01 | 2018-08-01 |
| Pea - Yellow | Sorento | 6303 | 2007-06-27 | 2017-08-01 | 2020-08-01 |
| Potato | Concurrent | 4814 | 1998-10-06 | 2016-08-01 | 2019-08-01 |
| Potato | Morning Gold | 4525 | 1997-03-21 | 2016-08-01 | 2019-08-01 |
| 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 |
| Potato | NL20-SHE* | 5502 | 2002-06-13 | 2017-08-01 | 2020-08-01 |
| Potato | NL30-RBK-82* | 5501 | 2002-06-13 | 2017-08-01 | 2020-08-01 |
| 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 |
| Ryegrass - Perennial | Rosalin | 4606 | 1997-06-12 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 9132 | 4166 | 1995-08-14 | 2017-08-01 | 2020-08-01 |
| Soybean - Oilseed | York | 4321 | 1996-04-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 004R21* | 7137 | 2012-02-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 22-61RY* | 8183 | 2017-02-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 23-10RY* | 7110 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-11RY* | 7642 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-12RY* | 7882 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-51R* | 6014 | 2005-11-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-52R* | 6557 | 2009-03-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-60RY* | 6909 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 24-61RY* | 7262 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 25-02R* | 5526 | 2002-07-23 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 25-03R* | 5613 | 2003-03-31 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 25-04R* | 5790 | 2004-04-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 25-11RY* | 7883 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 25-52R* | 6143 | 2006-05-24 | 2018-08-01 | 2021-08-01 |

* Varieties marked with an asterisk denotes plant with novel trait or derived from plant with novel trait. Objections to 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.

continued on next page >>

PROPOSED LIST OF VARIETY REGISTRATION CANCELLATIONS (CONTINUED)

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|----------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | 25-60RY* | 6911 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-02R* | 5612 | 2003-03-31 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-12RY* | 7289 | 2012-12-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-54R* | 6129 | 2006-05-15 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-55R | 6382 | 2008-02-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-61RY* | 7109 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26-62RY* | 7263 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 2601R* | 4770 | 1998-06-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 26R* | 5106 | 2000-05-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-06R* | 5791 | 2004-04-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-07R* | 6130 | 2006-05-15 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-10RY* | 6914 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-51R* | 5913 | 2005-03-07 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-52R* | 6587 | 2009-04-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 27-60RY* | 6722 | 2010-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 2701R* | 4771 | 1998-06-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 2702R* | 4882 | 1999-03-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-03R | 6144 | 2006-05-26 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-12RY* | 7122 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-14RY* | 7643 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-51R* | 5923 | 2005-03-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-52R* | 5924 | 2005-03-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 28-61RY* | 6723 | 2010-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 2801R* | 4772 | 1998-06-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 2802R* | 5173 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-02R* | 5619 | 2003-04-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-10RY* | 6735 | 2010-02-08 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-11RY* | 7123 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-52R | 6381 | 2008-02-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-60RY* | 6725 | 2010-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 29-62RY* | 7886 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-04R* | 5617 | 2003-04-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-06R* | 5806 | 2004-05-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-07R* | 5917 | 2005-03-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-08 VR | 6377 | 2008-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-10RY* | 6918 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-11RY* | 6935 | 2011-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-12RY* | 7662 | 2015-02-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 30-61RY* | 6936 | 2011-01-13 | 2018-08-01 | 2021-08-01 |

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|-----------------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | 31-03R* | 5618 | 2003-04-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-04R* | 5809 | 2004-05-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-10RY* | 6539 | 2009-02-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-11RY* | 6726 | 2010-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-12RY* | 7650 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-14RY* | 7887 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-53R* | 6385 | 2008-02-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-60RY* | 6919 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 31-61RY* | 7471 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 3102R* | 5174 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-03R* | 5616 | 2003-04-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-04R* | 6004 | 2005-11-08 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-05R* | 6383 | 2008-02-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-11RY* | 7108 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-12RY* | 7646 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-51R* | 5918 | 2005-03-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-52R* | 6017 | 2005-11-28 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-54VR | 6376 | 2008-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-55VR* | 6551 | 2009-02-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-60RY* | 6537 | 2009-02-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-61RY* | 6920 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 32-62RY* | 7888 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 3201R* | 4755 | 1998-05-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | 5201RR2Y* | 6538 | 2009-02-02 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | ADV Runaway RR* | 5705 | 2003-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | AG2101* | 4788 | 1998-07-08 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | AG2703* | 5175 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Arctic* | 5513 | 2002-07-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Aspen RR* | 7117 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | B2111RR* | 5229 | 2001-01-03 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Breeze* | 5614 | 2003-03-31 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Cairns R2* | 7894 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Camaro R2* | 7464 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Carda R2* | 7661 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF11GR* | 6915 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF13GR* | 7305 | 2013-01-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF14GR* | 7470 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF21GR* | 6898 | 2010-11-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF23GR* | 7264 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF30GR* | 6736 | 2010-02-08 | 2018-08-01 | 2021-08-01 |

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PROPOSED LIST OF VARIETY REGISTRATION CANCELLATIONS (CONTINUED)

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|---------------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | CF41GR* | 6921 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF43GR* | 7261 | 2012-11-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF51GR* | 6824 | 2010-05-14 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF52GR* | 7111 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF61GR* | 6941 | 2011-01-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | CF65GR* | 7638 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Chadburn R2* | 7013 | 2011-05-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Chinook* | 5699 | 2003-11-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Corvette R2* | 7474 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Currie R2* | 7112 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Cyrano RR* | 5973 | 2005-07-18 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | D601R* | 5335 | 2001-06-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Dart RR* | 6825 | 2010-05-14 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB00-65 | 5270 | 2001-03-19 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB00-99* | 4918 | 1999-05-03 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB005-51* | 5497 | 2002-06-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB06-52* | 5527 | 2002-07-23 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB06-61* | 7806 | 2015-10-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB07-51* | 4919 | 1999-05-03 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB07-75 | 5269 | 2001-03-19 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB10-01* | 8016 | 2016-05-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB10-54T* | 8284 | 2017-06-30 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB13-51* | 5176 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB20-01* | 7809 | 2015-10-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB20-10* | 4996 | 1999-10-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB23-51* | 5177 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB24-41* | 7811 | 2015-10-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB26-51* | 5178 | 2000-08-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | DKB26-52* | 5182 | 2000-09-08 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Drakorr* | 5813 | 2004-05-12 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Endurance R2* | 6917 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Fulgorarr* | 6570 | 2009-03-16 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Fury RR* | 6897 | 2010-11-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Geryon RR* | 6692 | 2009-12-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 03RY11* | 6835 | 2010-06-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 09RYS12* | 6933 | 2011-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 16RY04* | 6751 | 2010-02-26 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 24RYS01* | 6541 | 2009-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 24RYS15* | 6922 | 2010-12-21 | 2018-08-01 | 2021-08-01 |

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|--------------------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | HS 26RYS16* | 6823 | 2010-05-14 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | HS 28RYS28* | 7081 | 2011-11-18 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Hyperion* | 6569 | 2009-03-16 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Imana R2* | 7269 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Isisrr* | 6576 | 2009-03-26 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Jade | 5760 | 2004-03-23 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Laka R2* | 6999 | 2011-04-11 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 002R23* | 7270 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 003R22* | 7164 | 2012-03-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 004R25* | 7660 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 005R24* | 7481 | 2014-02-11 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 006R21* | 6992 | 2011-04-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS 007R22* | 7074 | 2011-10-19 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | LS Northwester* | 7657 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Lynxrr* | 5759 | 2004-03-18 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Maheo R2* | 7000 | 2011-04-11 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Malibu R2* | 7463 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Mirada RR* | 7116 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Monaco RR* | 7041 | 2011-07-14 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Montero R2* | 7216 | 2012-06-07 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Murano R2* | 6961 | 2011-02-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Nanook R2* | 7476 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | NSC Anola RR2Y* | 7087 | 2011-12-01 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | NSC Argyle RR* | 6693 | 2009-12-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | NSC Balmoral RR2Y* | 7023 | 2011-05-16 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | NSC Elie RR2Y* | 7124 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Olexrr* | 5469 | 2002-04-29 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Opto R2* | 7113 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Pekko R2* | 7100 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Polar | 5604 | 2003-03-25 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2615R | 6131 | 2006-05-15 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2635R2* | 6934 | 2011-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2725R2* | 7115 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2775 R2* | 7468 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2790R* | 5370 | 2001-10-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2825R2C* | 6924 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2835R2* | 6724 | 2010-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 285 | 4588 | 1997-05-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2915R* | 6146 | 2006-05-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 2935R2C* | 6925 | 2010-12-21 | 2018-08-01 | 2021-08-01 |

PROPOSED LIST OF VARIETY REGISTRATION CANCELLATIONS (CONTINUED)

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|--------------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | PRO 3090R | 5369 | 2001-10-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 315 | 4646 | 1997-11-05 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 3190R* | 5766 | 2004-03-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 3195R* | 5812 | 2004-05-12 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO 3215R2C* | 6834 | 2010-06-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO2900R2* | 7897 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO3175R2* | 7895 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PRO3225R2X* | 7819 | 2015-10-09 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 0027 RR* | 6548 | 2009-02-24 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | PS 0044 XRN* | 8306 | 2017-07-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 0083 R2* | 7104 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 0088 R2* | 7893 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 0753 R2* | 7033 | 2011-07-07 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 1315NR2* | 7640 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 1563 R2* | 7085 | 2011-12-01 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 1614 NR2* | 7274 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2014 NR2* | 7283 | 2012-12-12 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2314 NR2* | 7290 | 2012-12-17 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2335 NR2* | 7649 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2393 NR2* | 7086 | 2011-12-01 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2797 NR2* | 6752 | 2010-02-26 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 2945 NR2* | 7473 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | PS 3092NR2* | 6985 | 2011-03-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C0992* | 7275 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C1782* | 7276 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C2000* | 6946 | 2011-01-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C2351* | 7101 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C2754* | 7648 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C2861* | 7103 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2C3011* | 6969 | 2011-03-03 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2T0221* | 7106 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2T0510* | 6926 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2T0980* | 6927 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | R2T1741* | 7102 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RC 2723* | 6018 | 2005-11-28 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RC 2906* | 6073 | 2006-04-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RC3125* | 6003 | 2005-11-28 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Riotrr* | 5584 | 2003-01-31 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | RR Robust* | 4917 | 1999-05-03 | 2018-08-01 | 2021-08-01 |

| Crop Kind | Variety | Reg. # | Date Registered | Date Posted | Date of Cancellation |
|-------------------|---------------|--------|-----------------|-------------|----------------------|
| Soybean - Oilseed | RR2 Capella* | 7891 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Dynamite* | 7092 | 2011-12-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Fusion* | 7277 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Gold* | 6944 | 2011-01-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Gravity* | 6947 | 2011-01-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Impact* | 7093 | 2011-12-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Optic* | 7890 | 2016-01-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Platinum* | 7094 | 2011-12-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RR2 Tungsten* | 6832 | 2010-03-31 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RT 2533* | 6074 | 2006-04-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RT0087* | 6019 | 2005-11-28 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RT0395* | 6016 | 2005-11-28 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | RT2442* | 6132 | 2006-05-15 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S00-T9* | 7260 | 2012-11-29 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S01-K8* | 6912 | 2010-12-21 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S05-A7* | 7089 | 2011-12-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S05-B3* | 6954 | 2011-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S16-J4* | 6955 | 2011-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S25-W4* | 6956 | 2011-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S28-M1* | 6957 | 2011-02-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | S31-L7* | 7017 | 2011-05-10 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Sampsa R2* | 7125 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Sanopi R2* | 7465 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Santo R2* | 7459 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Smith R2* | 7655 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Sono R2* | 7118 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Stealth R2* | 7278 | 2012-12-04 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | TH 33008R2Y* | 7215 | 2012-06-07 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | TH 35002 R2Y* | 7636 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Theo R2* | 7119 | 2011-12-20 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Thesan R2* | 7040 | 2011-07-14 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Toreorr* | 5594 | 2003-03-06 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Torino R2* | 7472 | 2014-01-13 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Twister RR* | 6945 | 2011-01-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Valiant RR* | 6943 | 2011-01-24 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Venture R2* | 7654 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Vistarr* | 5482 | 2002-05-14 | 2016-08-01 | 2019-08-01 |
| Soybean - Oilseed | Volt R2* | 7641 | 2015-02-06 | 2018-08-01 | 2021-08-01 |
| Soybean - Oilseed | Wizard | 4709 | 1998-03-11 | 2018-08-01 | 2021-08-01 |

2018 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 CROP TYPE:

TOTAL INSURED COMMERCIAL ACRES

| SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|--------------|---------------|-----------|-------------------|-----------|-------------------|-----------|------------------|-----------|-------------------|-----------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Canola | -- | -- | 5,033,244 | 10 | 9,910,110 | 19 | 3,258,323 | 6 | 18,201,677 | 36 |
| Wheat | 57,361 | -- | 4,828,612 | 9 | 6,000,784 | 12 | 2,801,608 | 5 | 13,688,365 | 27 |
| Amber durum | -- | -- | 692,600 | 1 | 3,753,223 | 7 | 2,569 | -- | 4,448,392 | 9 |
| Barley | 22,143 | -- | 1,956,125 | 4 | 1,646,429 | 3 | 257,482 | 1 | 3,882,179 | 8 |
| Lentils | -- | -- | 228,367 | -- | 2,540,784 | 5 | 1,684 | -- | 2,770,835 | 5 |
| Peas | -- | -- | 1,168,743 | 2 | 1,487,508 | 3 | 78,440 | -- | 2,734,691 | 5 |
| Soybeans | -- | -- | -- | -- | 284,308 | 1 | 1,778,556 | 3 | 2,062,864 | 4 |
| Oats | -- | -- | 188,471 | -- | 662,166 | 1 | 429,294 | 1 | 1,279,931 | 3 |
| Flaxseed | -- | -- | 59,085 | -- | 457,188 | 1 | 32,356 | -- | 548,629 | 1 |
| Corn | -- | -- | 13,130 | -- | 10,151 | -- | 380,823 | 1 | 404,104 | 1 |
| Chickpeas | -- | -- | 66,272 | -- | 266,142 | 1 | 110 | -- | 332,524 | 1 |
| Mustard | -- | -- | 73,938 | -- | 236,231 | -- | 4,662 | -- | 314,831 | 1 |
| Beans | -- | -- | 56,181 | -- | 3,179 | -- | 101,209 | -- | 160,569 | -- |
| Canary seed | -- | -- | 904 | -- | 146,115 | -- | 1,578 | -- | 148,597 | -- |
| Rye | -- | -- | 13,159 | -- | 11,538 | -- | 41,925 | -- | 66,622 | -- |
| Fababeans | -- | -- | 25,469 | -- | 26,803 | -- | 5,826 | -- | 58,098 | -- |
| Sunflower | -- | -- | 2,779 | -- | 5,828 | -- | 49,367 | -- | 57,974 | -- |
| Triticale | -- | -- | 14,190 | -- | 7,788 | -- | 1,370 | -- | 23,348 | -- |
| Total | 79,504 | -- | 14,421,268 | -- | 27,456,275 | -- | 9,227,182 | -- | 51,184,229 | -- |

WHEAT, BY CLASS:

INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| WHEAT SEED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-----------------|---------------|-----------|------------------|-----------|------------------|-----------|------------------|-----------|-------------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CWRS | 36,535 | -- | 4,080,861 | 24 | 4,920,567 | 29 | 2,512,408 | 15 | 11,550,371 | 68 |
| CWAD | -- | -- | 692,600 | 4 | 3,330,880 | 20 | 2,569 | -- | 4,026,049 | 24 |
| CPS | 1,550 | -- | 500,716 | 3 | 95,691 | 1 | 48,728 | -- | 646,685 | 4 |
| CNHR | 130 | -- | 51,267 | -- | 83,478 | -- | 167,057 | 1 | 301,932 | 2 |
| CWSWS | -- | -- | 122,419 | 1 | 137,138 | 1 | 285 | -- | 259,842 | 2 |
| CWRW | 1,375 | -- | 44,536 | -- | 23,088 | -- | 60,097 | -- | 129,096 | 1 |
| CWSP | 1,224 | -- | 21,173 | -- | 96,614 | 1 | 8,740 | -- | 127,751 | 1 |
| CWHWS | -- | -- | 3,947 | -- | 5,273 | -- | 258 | -- | 9,478 | -- |
| CWES | -- | -- | 145 | -- | -- | -- | 380 | -- | 525 | -- |
| Total | 40,814 | -- | 5,517,664 | 32 | 8,692,729 | 51 | 2,800,522 | 16 | 17,051,729 | 100 |

CWAD DURUM:

INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CWAD SEED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|----------------|----------------|-----------|------------------|-----------|--------------|-----------|------------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Transcend | 251,719 | 6 | 1,603,973 | 40 | 240 | -- | 1,855,932 | 46 |
| Brigade | 86,556 | 2 | 422,683 | 11 | -- | -- | 509,239 | 13 |
| Strongfield | 105,062 | 3 | 336,299 | 8 | 276 | -- | 441,637 | 11 |
| AAC Spitfire | 72,950 | 2 | 270,185 | 7 | -- | -- | 343,135 | 9 |
| CDC Fortitude | 45,517 | 1 | 102,008 | 3 | 280 | -- | 147,805 | 4 |
| CDC Precision | 22,982 | 1 | 120,663 | 3 | 1,348 | -- | 144,993 | 4 |
| CDC Verona | 17,668 | -- | 125,652 | 3 | -- | -- | 143,320 | 4 |
| AAC Raymore | 46,410 | 1 | 26,511 | 1 | 425 | -- | 73,346 | 2 |
| Eurostar | 607 | -- | 71,072 | 2 | -- | -- | 71,679 | 2 |
| Enterprise | 10,144 | -- | 39,054 | 1 | -- | -- | 49,198 | 1 |
| CDC Alloy | 5,290 | -- | 32,867 | 1 | -- | -- | 38,157 | 1 |
| AC Navigator | 3,168 | -- | 33,018 | 1 | -- | -- | 36,186 | 1 |
| Kyle | 2,161 | -- | 33,959 | 1 | -- | -- | 36,120 | 1 |
| AAC Current | 2,406 | -- | 27,371 | 1 | -- | -- | 29,777 | 1 |
| AAC Marchwell | -- | -- | 22,819 | 1 | -- | -- | 22,819 | 1 |
| CDC Vivid | 6,545 | -- | 12,039 | -- | -- | -- | 18,584 | -- |
| CDC Carbide | 438 | -- | 17,378 | -- | -- | -- | 17,816 | -- |
| Commander | -- | -- | 13,669 | -- | -- | -- | 13,669 | -- |
| AC Avonlea | 3,872 | -- | 8,730 | -- | -- | -- | 12,602 | -- |
| AAC Congress | 3,243 | -- | 6,214 | -- | -- | -- | 9,457 | -- |
| AAC Stronghold | 5,403 | -- | 886 | -- | -- | -- | 6,289 | -- |
| Napoleon | -- | -- | 2,502 | -- | -- | -- | 2,502 | -- |
| CDC Dynamic | 260 | -- | 538 | -- | -- | -- | 798 | -- |
| AAC Cabri | -- | -- | 790 | -- | -- | -- | 790 | -- |
| AC Morse | 80 | -- | -- | -- | -- | -- | 80 | -- |
| AAC Succeed | 65 | -- | -- | -- | -- | -- | 65 | -- |
| CDC Credence | 54 | -- | -- | -- | -- | -- | 54 | -- |
| Total | 692,600 | 17 | 3,330,880 | 83 | 2,569 | -- | 4,026,049 | 100 |

CWSP WHEAT:

INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CWSP SEED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|----------------|--------------|----------|---------------|-----------|---------------|-----------|--------------|----------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Pasteur | 699 | 1 | 14,028 | 11 | 93,686 | 73 | 1,802 | 1 | 110,215 | 86 |
| Pintail | 525 | -- | 4,057 | 3 | 2,078 | 2 | -- | -- | 6,660 | 5 |
| CDC Falcon | -- | -- | -- | -- | -- | -- | 5,504 | 4 | 5,504 | 4 |
| CDC NRG003 | -- | -- | 2,836 | 2 | -- | -- | -- | -- | 2,836 | 2 |
| SY087 | -- | -- | -- | -- | -- | -- | 1,215 | 1 | 1,215 | 1 |
| AAC Innova | -- | -- | -- | -- | 850 | 1 | -- | -- | 850 | 1 |
| Peregrine | -- | -- | -- | -- | -- | -- | 219 | -- | 219 | -- |
| Charing | -- | -- | 112 | -- | -- | -- | -- | -- | 112 | -- |
| Alderon | -- | -- | 100 | -- | -- | -- | -- | -- | 100 | -- |
| AAC Awesome | -- | -- | 40 | -- | -- | -- | -- | -- | 40 | -- |
| Total | 1,224 | 1 | 21,173 | 17 | 96,614 | 76 | 8,740 | 7 | 127,751 | 100 |

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

CWRS WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CWRS SEED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|----------------|--------|----|---------|----|-----------|----|-----------|----|-----------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| AAC Brandon | 2,555 | -- | 862,080 | 7 | 1,602,675 | 14 | 1,636,187 | 14 | 4,103,497 | 36 |
| AAC Elie | 621 | -- | 355,294 | 3 | 206,736 | 2 | 215,870 | 2 | 778,521 | 7 |
| Stettler | 4,646 | -- | 592,964 | 5 | 36,184 | -- | 5,607 | -- | 639,401 | 6 |
| CDC Plentiful | -- | -- | 186,945 | 2 | 354,832 | 3 | 36,757 | -- | 578,534 | 5 |
| CDC Utmost | -- | -- | 125,469 | 1 | 425,693 | 4 | 2,596 | -- | 553,758 | 5 |
| Cardale | -- | -- | 22,013 | -- | 308,330 | 3 | 179,837 | 2 | 510,180 | 4 |
| CDC GO | 10,609 | -- | 408,933 | 4 | 16,365 | -- | 5,210 | -- | 441,117 | 4 |
| Muchmore | -- | -- | 363,415 | 3 | 53,885 | -- | 9,961 | -- | 427,261 | 4 |
| Carberry | -- | -- | 122,056 | 1 | 225,862 | 2 | 51,917 | -- | 399,835 | 3 |
| CDC Stanley | 657 | -- | 177,986 | 2 | 137,801 | 1 | 13,205 | -- | 329,649 | 3 |
| CDC Landmark | -- | -- | 23,428 | -- | 252,686 | 2 | 38,782 | -- | 314,896 | 3 |
| AAC Redwater | 10,457 | -- | 180,850 | 2 | 22,239 | -- | 33,080 | -- | 246,626 | 2 |
| CDC Titanium | 976 | -- | 21,012 | -- | 206,760 | 2 | 6,490 | -- | 235,238 | 2 |
| CDC Abound | 150 | -- | 189,931 | 2 | 9,643 | -- | -- | -- | 199,724 | 2 |
| Glenn | -- | -- | 27,136 | -- | 108,095 | 1 | 47,327 | -- | 182,558 | 2 |
| AAC Viewfield | -- | -- | 46,528 | -- | 33,321 | -- | 90,017 | 1 | 169,866 | 1 |
| Shaw | -- | -- | 28,415 | -- | 127,589 | 1 | 223 | -- | 156,227 | 1 |
| AAC Cameron | -- | -- | 8,111 | -- | 110,155 | 1 | 16,536 | -- | 134,802 | 1 |
| AAC Connery | 565 | -- | 96,451 | 1 | 22,836 | -- | 10,696 | -- | 130,548 | 1 |
| AAC Jatharia | -- | -- | -- | -- | 119,045 | 1 | -- | -- | 119,045 | 1 |
| CDC VR Morris | -- | -- | 27,049 | -- | 74,298 | 1 | 6,422 | -- | 107,769 | 1 |
| Vesper | -- | -- | -- | -- | 87,869 | 1 | -- | -- | 87,869 | 1 |
| 5605HR CL | -- | -- | 14,043 | -- | 33,356 | -- | 16,734 | -- | 64,133 | 1 |
| Superb | 417 | -- | 36,778 | -- | 13,974 | -- | 72 | -- | 51,241 | -- |
| Goodeve | -- | -- | 5,088 | -- | 43,894 | -- | 1,265 | -- | 50,247 | -- |
| CDC Hughes | -- | -- | 7,207 | -- | 38,375 | -- | 739 | -- | 46,321 | -- |
| AC Domain | -- | -- | 91 | -- | 9,985 | -- | 33,477 | -- | 43,553 | -- |
| AAC Prevail | -- | -- | -- | -- | 35,057 | -- | 70 | -- | 35,127 | -- |
| 5604HR CL | -- | -- | 11,336 | -- | 18,213 | -- | 3,796 | -- | 33,345 | -- |
| AAC Redberry | -- | -- | 9,985 | -- | 11,792 | -- | 10,990 | -- | 32,767 | -- |
| Thorsby | 973 | -- | 31,703 | -- | -- | -- | -- | -- | 32,676 | -- |
| AC Splendor | 115 | -- | 8,600 | -- | 19,967 | -- | 2,195 | -- | 30,877 | -- |
| Waskada | -- | -- | 681 | -- | 29,231 | -- | 562 | -- | 30,474 | -- |
| AC Barrie | -- | -- | 4,440 | -- | 23,119 | -- | 2,333 | -- | 29,892 | -- |

CPSR WHEAT:

INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CPSR SEED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|----------------|-------|----|---------|----|--------|---|--------|---|---------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| AAC Penhold | 465 | -- | 356,201 | 55 | 39,639 | 6 | 20,657 | 3 | 416,962 | 65 |
| SY Rowyn | -- | -- | 25,418 | | | | | | | |

2018 INSURED COMMERCIAL ACRES (CONTINUED)

BARLEY: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| BARLEY SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|--------------------|-------|----|---------|----|---------|----|--------|----|-----------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Copeland | 3,358 | -- | 483,871 | 22 | 501,344 | 23 | 23,031 | 1 | 1,011,604 | 46 |
| AC Metcalfe | 3,657 | -- | 169,157 | 8 | 453,494 | 21 | 24,446 | 1 | 650,754 | 30 |
| AAC Synergy | -- | -- | 138,377 | 6 | 84,721 | 4 | 21,947 | 1 | 245,045 | 11 |
| Legacy | -- | -- | 7,713 | -- | 59,894 | 3 | 2,048 | -- | 69,655 | 3 |
| Newdale | -- | -- | 13,712 | 1 | 20,464 | 1 | 13,567 | 1 | 47,743 | 2 |
| Bentley | -- | -- | 22,108 | 1 | 5,189 | -- | 3,579 | -- | 30,876 | 1 |
| CDC Bow | -- | -- | 16,149 | 1 | 3,614 | -- | 208 | -- | 19,971 | 1 |
| Celebration | -- | -- | -- | -- | 4,970 | -- | 13,625 | 1 | 18,595 | 1 |
| AAC Connect | -- | -- | 10,033 | -- | 3,507 | -- | 3,195 | -- | 16,735 | 1 |
| CDC Meredith | 2,439 | -- | 6,837 | -- | 6,414 | -- | 508 | -- | 16,198 | 1 |
| CDC Platinum Star | -- | -- | -- | -- | 14,946 | 1 | -- | -- | 14,946 | 1 |
| CDC Kindersley | -- | -- | 3,663 | -- | 3,669 | -- | 859 | -- | 8,191 | -- |
| Tradition | -- | -- | -- | -- | 748 | -- | 6,921 | -- | 7,669 | -- |
| CDC Clear | -- | -- | 45 | -- | 3,131 | -- | 492 | -- | 3,668 | -- |
| CDC Polarstar | -- | -- | 152 | -- | 3,228 | -- | -- | -- | 3,380 | -- |
| Merit 57 | -- | -- | 1,766 | -- | -- | -- | -- | -- | 1,766 | -- |
| Major | -- | -- | 877 | -- | 632 | -- | -- | -- | 1,509 | -- |
| Stellar-ND | -- | -- | -- | -- | -- | -- | 1,419 | -- | 1,419 | -- |
| Harrington | 55 | -- | 608 | -- | 627 | -- | -- | -- | 1,290 | -- |
| Robust | -- | -- | 442 | -- | -- | -- | 834 | -- | 1,276 | -- |
| AC Oxbow | -- | -- | 980 | -- | -- | -- | -- | -- | 980 | -- |

| BARLEY SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|--------------------|--------------|----|----------------|-----------|------------------|-----------|----------------|----------|------------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Stratus | -- | -- | 980 | -- | -- | -- | -- | -- | 980 | -- |
| Manley | -- | -- | 933 | -- | -- | -- | -- | -- | 933 | -- |
| CDC Battleford | -- | -- | 832 | -- | -- | -- | -- | -- | 832 | -- |
| Lacey | -- | -- | 251 | -- | -- | -- | 542 | -- | 793 | -- |
| CDC Fraser | -- | -- | 702 | -- | -- | -- | -- | -- | 702 | -- |
| CDC Yorkton | -- | -- | 471 | -- | -- | -- | 210 | -- | 681 | -- |
| Cerveza | -- | -- | 661 | -- | -- | -- | -- | -- | 661 | -- |
| Merit 16 | -- | -- | 600 | -- | -- | -- | -- | -- | 600 | -- |
| Sirish | -- | -- | 429 | -- | -- | -- | -- | -- | 429 | -- |
| Lowe | -- | -- | 312 | -- | -- | -- | -- | -- | 312 | -- |
| CDC Anderson | -- | -- | 312 | -- | -- | -- | -- | -- | 312 | -- |
| CDC Copper | -- | -- | 290 | -- | -- | -- | -- | -- | 290 | -- |
| Excel | -- | -- | 229 | -- | -- | -- | -- | -- | 229 | -- |
| CDC Goldstar | -- | -- | 112 | -- | -- | -- | -- | -- | 112 | -- |
| CDC Clyde | -- | -- | 96 | -- | -- | -- | -- | -- | 96 | -- |
| CDC Mayfair | -- | -- | 87 | -- | -- | -- | -- | -- | 87 | -- |
| CDC Aurora Nijo | -- | -- | 82 | -- | -- | -- | -- | -- | 82 | -- |
| CDC Kendall | -- | -- | 80 | -- | -- | -- | -- | -- | 80 | -- |
| AC Bountiful | -- | -- | -- | -- | -- | -- | 76 | -- | 76 | -- |
| Total | 9,509 | | 883,949 | 41 | 1,170,592 | 54 | 117,507 | 5 | 2,181,557 | 100 |

BEANS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| BEANS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-------------------|--------|----|-------|----|--------|----|--------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Windbreaker | | | | | 26,812 | 26 | 26,812 | 17 |
| Eclipse | 260 | | | | 23,302 | 23 | 23,562 | 15 |
| Island | 17,392 | 31 | 640 | 20 | 273 | | 18,305 | 11 |
| Resolute | 9,550 | 17 | | | | | 9,550 | 6 |
| Vibrant | | | | | 8,917 | 9 | 8,917 | 6 |
| Monterrey | | | | | 6,990 | 7 | 6,990 | 4 |
| Not Specified | 930 | 2 | 1,586 | 50 | 4,148 | 4 | 6,664 | 4 |
| AAC Tundra | 5,740 | 10 | | | | | 5,740 | 4 |
| AAC Whitehorse | 4,231 | 8 | | | | | 4,231 | 3 |
| AAC Explorer | 4,022 | 7 | | | | | 4,022 | 3 |
| Etna | | | | | 3,614 | 4 | 3,614 | 2 |
| Pink Panther | | | | | 3,609 | 4 | 3,609 | 2 |
| Chianti | | | | | 3,457 | 3 | 3,457 | 2 |
| AC Black Diamond | 3,417 | 6 | | | | | 3,417 | 2 |
| Dynasty | | | | | 3,097 | 3 | 3,097 | 2 |
| AC Redbond | 2,801 | 5 | | | | | 2,801 | 2 |
| SV6533GR | | | | | 2,765 | 3 | 2,765 | 2 |
| AAC Y012 | 2,269 | 4 | | | | | 2,269 | 1 |
| Beryl | 200 | | | | 1,821 | 2 | 2,021 | 1 |
| CDC Blackstrap | | | | | 2,021 | 2 | 2,021 | 1 |
| AAC Y015 | 1,998 | 4 | | | | | 1,998 | 1 |
| Red Hawk | | | | | 1,423 | 1 | 1,423 | 1 |
| Hime | | | | | 1,399 | 1 | 1,399 | 1 |
| Zenith | | | | | 1,005 | 1 | 1,005 | 1 |
| Otebo | | | 953 | 30 | | | 953 | 1 |
| Medicine Hat | 946 | 2 | | | | | 946 | 1 |

| BEANS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|---------------------|---------------|------------|--------------|------------|----------------|------------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Montcalm | | | | | 900 | 1 | 900 | 1 |
| Crimson | | | | | 857 | 1 | 857 | 1 |
| Merlot | | | | | 769 | 1 | 769 | |
| Cabernet | | | | | 740 | 1 | 740 | |
| CDC Jet | | | | | 735 | 1 | 735 | |
| Staybright | | | | | 596 | 1 | 596 | |
| Myasi | 495 | 1 | | | | | 495 | |
| Floyd | | | | | 447 | | 447 | |
| Aries | 390 | 1 | | | | | 390 | |
| CDC Superjet | | | | | 385 | | 385 | |
| Zorro | 263 | | | | 102 | | 365 | |
| AAC Burdett | 355 | 1 | | | | | 355 | |
| Bellagio | | | | | 298 | | 298 | |
| AAC Black Diamond 2 | 263 | | | | | | 263 | |
| Bolt | 254 | | | | | | 254 | |
| AC Pintoba | | | | | 164 | | 164 | |
| Rosetta | | | | | 150 | | 150 | |
| Pinray | 145 | | | | | | 145 | |
| CDC White Mountain | 140 | | | | | | 140 | |
| Sundance | | | | | 136 | | 136 | |
| Big Red | 120 | | | | | | 120 | |
| CDC Sol | | | | | 90 | | 90 | |
| Maverick | | | | | 80 | | 80 | |
| AC Harblack | | | | | 60 | | 60 | |
| SV6139GR | | | | | 47 | | 47 | |
| Total | 56,181 | 100 | 3,179 | 100 | 101,209 | 100 | 160,569 | 100 |

BARLEY: INSURED COMMERCIAL ACRES, NON-DESIGNATED VARIETIES

| BARLEY SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|--------------------|-------|---|---------|----|---------|----|--------|---|---------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Austenson | 2,625 | | 362,045 | 21 | 146,971 | 9 | 57,907 | 3 | 569,548 | 33 |
| Not Specified | 6,803 | | 2,657 | | 192,880 | 11 | 3,652 | | 205,992 | 12 |
| Xena | | | 150,695 | 9 | 5,428 | | | | 156,123 | 9 |
| Champion | | | 106,901 | 6 | 32,135 | 2 | 6,301 | | 145,337 | 9 |
| Brahma | | | 141,969 | 8 | 2,043 | | 75 | | 144,087 | 8 |
| CDC Coalition | 305 | | 67,915 | 4 | 2,395 | | 123 | | 70,738 | 4 |
| Canmore | | | 59,975 | 4 | | | 9,412 | 1 | 69,387 | 4 |
| Conlon | | | 9,086 | 1 | 6,601 | | 51,824 | 3 | 67,511 | 4 |
| CDC Cowboy | | | 25,784 | 2 | 20,675 | 1 | 2,257 | | 48,716 | 3 |
| CDC Maverick | 150 | | 19,665 | 1 | 22,615 | 1 | 2,636 | | 45,066 | 3 |
| Claymore | | | 11,952 | 1 | 14,874 | 1 | 1,274 | | 28,100 | 2 |
| CDC Thompson | | | 12,763 | 1 | | | | | 12,763 | 1 |
| Seebe | | | 12,118 | 1 | 412 | | | | 12,530 | 1 |
| Sundre | 300 | | 8,073 | | 3,448 | | | | 11,821 | 1 |
| Amisk | | | 10,740 | 1 | | | | | 10,740 | 1 |
| Ponoka | 603 | | 9,241 | 1 | | | | | 9,844 | 1 |
| Oreana | | | 6,330 | | | | | | 6,330 | |
| AC Rosser | | | 1,903 | | 4,076 | | 113 | | 6,092 | |
| CDC Mcgwire | | | 40 | | 5,047 | | 628 | | 5,715 | |
| Busby | | | 5,618 | | | | 70 | | 5,688 | |
| Gadsby | | | 5,588 | | | | | | 5,588 | |
| Trochu | | | 5,576 | | | | | | 5,576 | |
| CDC Trey | | | 4,302 | | 1,161 | | | | 5,463 | |
| AC Ranger | | | 973 | | 3,279 | | 778 | | 5,030 | |
| Vivar | | | 5,004 | | | | | | 5,004 | |
| Falcon | | | 3,207 | | 483 | | | | 3,690 | |
| CDC Rattan | | | | | 3,370 | | | | 3,370 | |
| CDC Carter | | | | | 3,349 | | | | 3,349 | |
| Stander | | | 2,198 | | | | | | 2,198 | |
| Chigwell | | | 2,085 | | | | | | 2,085 | |
| CDC Dolly | | | 1,435 | | 623 | | | | 2,058 | |
| AC Albright | 1,359 | | 669 | | | | | | 2,028 | |
| CDC Helgason | | | 2,004 | | | | | | 2,004 | |
| CDC Fibar | | | 26 | | 1,753 | | | | 1,779 | |
| AC Lacombe | | | 1,479 | | | | 57 | | 1,536 | |
| Stetson | | | | | 1,369 | | | | 1,369 | |
| Muskwa | | | 1,325 | | | | | | 1,325 | |
| Otal | 489 | | 768 | | | | | | 1,257 | |

| BARLEY SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|--------------------|-------|---|-------|---|-------|---|-------|---|-------|---|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Breton | | | 1,168 | | | | | | 1,168 | |
| Desperado | | | | | | | 1,166 | | 1,166 | |
| BC 100 | | | 1,063 | | | | | | 1,063 | |
| Bonanza | | | 822 | | | | 45 | | 867 | |
| Bridge | | | 759 | | | | | | 759 | |
| Olli | | | 752 | | | | | | 752 | |
| CDC Bold | | | 746 | | | | | | 746 | |
| AC Harper | | | 710 | | | | | | 710 | |
| Conrad | | | 600 | | | | | | 600 | |
| Duke | | | 175 | | | | 382 | | 557 | |
| Ascension | | | | | | | 551 | | 551 | |
| Conquest | | | | | | | 480 | | 480 | |
| Stockford | | | | | 445 | | | | 445 | |
| CDC Marlina | | | | | 405 | | 1 | | 405 | |
| Abee | | | 400 | | | | | | 400 | |
| Formosa | | | 345 | | | | | | 345 | |
| CDC Mindon | | | 300 | | | | | | 300 | |
| Alston | | | 274 | | | | | | 274 | |
| CDC Earl | | | 266 | | | | | | 266 | |
| SR 14501 | | | 254 | | | | | | 254 | |
| Fairfield | | | 225 | | | | | | 225 | |
| Calder | | | 215 | | | | 9 | | 224 | |
| Phoenix | | | 180 | | | | | | 180 | |
| Bedford | | | | | | | 155 | | 155 | |
| CDC Hilose | | | 146 | | | | | | 146 | |
| Winthrop | | | 142 | | | | | | 142 | |
| Niobe | | | 128 | | | | | | 128 | |
| Johnston | | | 93 | | | | | | 93 | |
| McLeod | | | 80 | | | | | | 80 | |
| Virten | | | </ | | | | | | | |

2018 INSURED COMMERCIAL ACRES (CONTINUED)

TRITICALE: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| TRITICALE SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-----------------------|---------------|-----------|--------------|-----------|--------------|----------|---------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Not Specified | 803 | 3 | 6,121 | 26 | 613 | 3 | 7,537 | 32 |
| Bunker | 2,843 | 12 | 606 | 3 | -- | -- | 3,449 | 15 |
| Pronghorn | 1,893 | 8 | 473 | 2 | -- | -- | 2,366 | 10 |
| Sunray | 1,665 | 7 | -- | -- | -- | -- | 1,665 | 7 |
| Tyndal | 903 | 4 | 588 | 3 | -- | -- | 1,491 | 6 |
| Brevis | 1,127 | 5 | -- | -- | 312 | 1 | 1,439 | 6 |
| Taza | 1,397 | 6 | -- | -- | -- | -- | 1,397 | 6 |
| AC Ultima | 915 | 4 | -- | -- | -- | -- | 915 | 4 |
| AAC Delight | 572 | 2 | -- | -- | -- | -- | 572 | 2 |
| Fridge | 227 | 1 | -- | -- | 170 | 1 | 397 | 2 |
| Luoma | 358 | 2 | -- | -- | -- | -- | 358 | 2 |
| Bumper | 325 | 1 | -- | -- | -- | -- | 325 | 1 |
| AC Alta | 302 | 1 | -- | -- | -- | -- | 302 | 1 |
| Elevator | -- | -- | -- | -- | 275 | 1 | 275 | 1 |
| Metzger | 215 | 1 | -- | -- | -- | -- | 215 | 1 |
| Bobcat | 205 | 1 | -- | -- | -- | -- | 205 | 1 |
| Wapiti | 152 | 1 | -- | -- | -- | -- | 152 | 1 |
| Banjo | 135 | 1 | -- | -- | -- | -- | 135 | 1 |
| Pika | 65 | -- | -- | -- | -- | -- | 65 | -- |
| AC Certa | 60 | -- | -- | -- | -- | -- | 60 | -- |
| AC Copia | 28 | -- | -- | -- | -- | -- | 28 | -- |
| Total | 14,190 | 61 | 7,788 | 33 | 1,370 | 6 | 23,348 | 100 |

CNHR WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CNHR SEEDED AREA | B.C. | | ALTA. | | SASK. | | MAN. | | TOTAL | |
|------------------|------------|-----------|---------------|-----------|---------------|-----------|----------------|-----------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Faller | -- | -- | 207 | -- | 12,106 | 4 | 131,154 | 43 | 143,467 | 48 |
| Prosper | -- | -- | -- | -- | 1,538 | 1 | 31,294 | 10 | 32,832 | 11 |
| Lillian | -- | -- | 13,223 | 4 | 15,183 | 5 | -- | -- | 28,406 | 9 |
| AC Foremost | -- | -- | 17,524 | 6 | 2,604 | 1 | 110 | -- | 20,238 | 7 |
| Elgin ND | -- | -- | -- | -- | 13,357 | 4 | 1,391 | -- | 14,748 | 5 |
| Harvest | -- | -- | 5,658 | 2 | 5,643 | 2 | 1,857 | 1 | 13,158 | 4 |
| Unity | -- | -- | -- | -- | 12,845 | 4 | -- | -- | 12,845 | 4 |
| Conquer | -- | -- | 4,069 | 1 | 6,067 | 2 | -- | -- | 10,136 | 3 |
| Mckenzie | -- | -- | 173 | -- | 7,513 | 2 | -- | -- | 7,686 | 3 |
| Katepwa | -- | -- | 2,310 | 1 | 1,459 | -- | -- | -- | 3,769 | 1 |
| Oslo | -- | -- | 3,520 | 1 | -- | -- | -- | -- | 3,520 | 1 |
| 5603HR | -- | -- | -- | -- | 2,119 | 1 | -- | -- | 2,119 | 1 |
| Columbus | -- | -- | 85 | -- | 1,767 | 1 | 183 | -- | 2,035 | 1 |
| AC Eatonia | -- | -- | 1,753 | 1 | -- | -- | -- | -- | 1,753 | 1 |
| Alvena | -- | -- | 305 | -- | 859 | -- | -- | -- | 1,164 | -- |
| Kane | -- | -- | 198 | -- | -- | -- | 961 | -- | 1,159 | -- |
| CDC Makwa | -- | -- | 230 | -- | 418 | -- | -- | -- | 648 | -- |
| Park | -- | -- | 570 | -- | -- | -- | -- | -- | 570 | -- |
| AC Taber | -- | -- | 462 | -- | -- | -- | 107 | -- | 569 | -- |
| Alikat | -- | -- | 480 | -- | -- | -- | -- | -- | 480 | -- |
| AC Majestic | -- | -- | 205 | -- | -- | -- | -- | -- | 205 | -- |
| AAC Concord | -- | -- | 195 | -- | -- | -- | -- | -- | 195 | -- |
| CDC Osler | 130 | -- | -- | -- | -- | -- | -- | -- | 130 | -- |
| Conway | -- | -- | 100 | -- | -- | -- | -- | -- | 100 | -- |
| Total | 130 | -- | 51,267 | 17 | 83,478 | 28 | 167,057 | 55 | 301,932 | 100 |

LENTILS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| LENTILS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|---------------------|--------|----|---------|----|-------|----|---------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Maxim | 93,018 | 41 | 743,726 | 29 | 405 | 24 | 837,149 | 30 |
| Not Specified | 2,597 | 1 | 443,307 | 17 | 685 | 41 | 446,589 | 16 |
| CDC Greenstar | 26,492 | 12 | 219,761 | 9 | -- | -- | 246,253 | 9 |
| CDC Greenland | 180 | -- | 223,581 | 9 | -- | -- | 223,761 | 8 |
| CDC Invincible CL | -- | -- | 197,539 | 8 | -- | -- | 197,539 | 7 |
| CDC Dazil | 17,330 | 8 | 149,531 | 6 | -- | -- | 166,861 | 6 |
| CDC Impower CL | -- | -- | 148,170 | 6 | -- | -- | 148,170 | 5 |
| CDC Proclaim | 14,787 | 6 | 129,431 | 5 | -- | -- | 144,218 | 5 |
| CDC Improve | 30,307 | 13 | 63,341 | 2 | -- | -- | 93,648 | 3 |
| CDC Impulse | 12,027 | 5 | 75,886 | 3 | -- | -- | 87,913 | 3 |
| CDC Imax | 11,066 | 5 | 24,016 | 1 | -- | -- | 35,082 | 1 |
| CDC Kermit | -- | -- | 19,016 | 1 | -- | -- | 19,016 | 1 |
| CDC Viceroy | -- | -- | 18,933 | 1 | -- | -- | 18,933 | 1 |
| CDC Peridot CL | -- | -- | 16,009 | 1 | -- | -- | 16,009 | 1 |
| CDC Impower | 12,569 | 6 | -- | -- | -- | -- | 12,569 | -- |
| CDC Impact | 1,848 | 1 | 9,081 | -- | -- | -- | 10,929 | -- |
| Beluga | -- | -- | 8,965 | -- | -- | -- | 8,965 | -- |
| CDC Impress | -- | -- | 7,511 | -- | -- | -- | 7,511 | -- |
| CDC Marble | 410 | -- | 6,917 | -- | -- | -- | 7,327 | -- |
| CDC Richlea | 3,220 | 1 | 1,272 | -- | -- | -- | 4,492 | -- |
| CDC Plato | -- | -- | 4,142 | -- | -- | -- | 4,142 | -- |

| LENTILS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|---------------------|----------------|------------|------------------|------------|--------------|------------|------------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Redmoon | -- | -- | 3,887 | -- | -- | -- | 3,887 | -- |
| Indianhead | -- | -- | 3,743 | -- | -- | -- | 3,743 | -- |
| CDC Iberina | -- | -- | 3,388 | -- | -- | -- | 3,388 | -- |
| CDC Imigreen CL | -- | -- | 3,361 | -- | -- | -- | 3,361 | -- |
| CDC Sovereign | -- | -- | 2,314 | -- | -- | -- | 2,314 | -- |
| CDC Blaze | -- | -- | 2,127 | -- | -- | -- | 2,127 | -- |
| CDC Imperial | 743 | -- | 1,288 | -- | -- | -- | 2,031 | -- |
| CDC Rouleau | -- | -- | 1,944 | -- | -- | -- | 1,944 | -- |
| CDC Glamis | -- | -- | 1,920 | -- | -- | -- | 1,920 | -- |
| CDC SB-3 | -- | -- | 1,555 | -- | -- | -- | 1,555 | -- |
| CDC Impala | 145 | -- | 1,166 | -- | -- | -- | 1,311 | -- |
| CDC KR-2 | -- | -- | 1,306 | -- | -- | -- | 1,306 | -- |
| CDC Red Rider | -- | -- | 1,235 | -- | -- | -- | 1,235 | -- |
| CDC Grandora | -- | -- | 935 | -- | -- | -- | 935 | -- |
| CDC Invincible | 574 | -- | -- | -- | 277 | 16 | 851 | -- |
| CDC Peridot | 242 | -- | -- | -- | 317 | 19 | 559 | -- |
| CDC Redwing | -- | -- | 480 | -- | -- | -- | 480 | -- |
| Lentils - Red | 344 | -- | -- | -- | -- | -- | 344 | -- |
| CDC QG-1 | 308 | -- | -- | -- | -- | -- | 308 | -- |
| Lentils | 160 | -- | -- | -- | -- | -- | 160 | -- |
| Total | 228,367 | 100 | 2,540,784 | 100 | 1,684 | 100 | 2,770,835 | 100 |

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

NOT ONE BUT TWO STAND-UP WHEATS!



NOW YOU'RE GOING PLACES.

Leading standability, ultra high yields and strong disease resistance will give you the highest ROI in the industry. And more profit means more time for other things - like fishing with the family.

TWO NEW CWRS WHEATS THAT HAVE IT ALL

CDC LANDMARK VB

- Top of class standability
- Top in class yield (113%)
- Wheat midge tolerant

AAC VIEWFIELD

- Top of class standability
- Very high yielding (109%)
- High protein, good sprouting resistance



The Cereal Seed Experts

FPGENETICS.CA

2018 INSURED COMMERCIAL ACRES (CONTINUED)

OATS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| OATS SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|-------------|----|-------------|----|------------|----|-------------|----|
| Camden CS | 12,266 | 1 | 168,703 | 13 | 166,732 | 13 | 347,701 | 27 |
| AC Morgan | 105,215 | 8 | 118,910 | 9 | 4,066 | -- | 228,191 | 18 |
| Summit | 666 | -- | 45,836 | 4 | 154,236 | 12 | 200,738 | 16 |
| Not Specified | 1,393 | -- | 93,488 | 7 | 10,774 | 1 | 105,655 | 8 |
| Souris | 47 | -- | 27,165 | 2 | 40,139 | 3 | 67,351 | 5 |
| Triactor | 35 | -- | 61,682 | 5 | 1,019 | -- | 62,736 | 5 |
| CDC Ruffian | 2,466 | -- | 23,601 | 2 | 300 | -- | 26,367 | 2 |
| AC Mustang | 20,349 | 2 | 3,605 | -- | -- | -- | 23,954 | 2 |
| Derby | 10,686 | 1 | 10,222 | 1 | 583 | -- | 21,491 | 2 |
| CDC Dancer | -- | -- | 17,727 | 1 | 2,710 | -- | 20,437 | 2 |
| Pinnacle | -- | -- | 8,919 | 1 | 8,082 | 1 | 17,001 | 1 |
| CDC SO-I | 4,327 | -- | 9,063 | 1 | 2,021 | -- | 15,411 | 1 |
| Leggett | -- | -- | 10,980 | 1 | 4,328 | -- | 15,308 | 1 |
| CDC Minstrel | -- | -- | 14,761 | 1 | -- | -- | 14,761 | 1 |
| CDC Orrin | 203 | -- | 14,141 | 1 | -- | -- | 14,344 | 1 |
| CDC Baler | 6,582 | 1 | 4,639 | -- | 1,575 | -- | 12,796 | 1 |
| CDC Nasser | 7,983 | 1 | 4,001 | -- | 584 | -- | 12,568 | 1 |
| CDC Haymaker | 3,671 | -- | 6,142 | -- | 2,356 | -- | 12,169 | 1 |
| CDC Morrison | -- | -- | 5,470 | -- | 1,830 | -- | 7,300 | 1 |
| Furlong | -- | -- | -- | -- | 4,845 | -- | 4,845 | -- |
| Calibre | 2,688 | -- | 2,011 | -- | -- | -- | 4,699 | -- |
| CDC Big Brown | -- | -- | 748 | -- | 3,907 | -- | 4,655 | -- |
| Ronald | 70 | -- | 889 | -- | 2,924 | -- | 3,883 | -- |
| SW Betania | -- | -- | 3,688 | -- | -- | -- | 3,688 | -- |
| Triple Crown | -- | -- | -- | -- | 3,118 | -- | 3,118 | -- |
| AAC Justice | -- | -- | -- | -- | 2,619 | -- | 2,619 | -- |
| Waldern | 2,580 | -- | -- | -- | -- | -- | 2,580 | -- |
| Gehl | 180 | -- | 953 | -- | 1,153 | -- | 2,286 | -- |
| Stride | 56 | -- | -- | -- | 1,605 | -- | 1,661 | -- |
| CDC Boyer | 59 | -- | 1,475 | -- | -- | -- | 1,534 | -- |
| CDC Seabiscuit | 1,371 | -- | -- | -- | -- | -- | 1,371 | -- |
| Riel | -- | -- | -- | -- | 1,293 | -- | 1,293 | -- |
| Canmore | 1,072 | -- | -- | -- | 181 | -- | 1,253 | -- |
| Cascade | 756 | -- | 487 | -- | -- | -- | 1,243 | -- |

| OATS SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|----------------|-----------|----------------|-----------|----------------|-----------|------------------|------------|
| CDC Weaver | -- | -- | 1,144 | -- | -- | -- | 1,144 | -- |
| CDC Norseman | -- | -- | 821 | -- | 202 | -- | 1,023 | -- |
| AC Assiniboia | -- | -- | -- | -- | 925 | -- | 925 | -- |
| Grizzly | 896 | -- | -- | -- | -- | -- | 896 | -- |
| Harmon | 352 | -- | 490 | -- | 10 | -- | 852 | -- |
| ORE3542M | 283 | -- | -- | -- | 553 | -- | 836 | -- |
| Dumont | -- | -- | -- | -- | 810 | -- | 810 | -- |
| Jordan | -- | -- | -- | -- | 708 | -- | 708 | -- |
| Haywire | -- | -- | -- | -- | 703 | -- | 703 | -- |
| Robert | -- | -- | -- | -- | 609 | -- | 609 | -- |
| Douglas | -- | -- | -- | -- | 528 | -- | 528 | -- |
| Foothill | 515 | -- | -- | -- | -- | -- | 515 | -- |
| AC Baton | -- | -- | 405 | -- | 10 | -- | 415 | -- |
| AC Juniper | 375 | -- | -- | -- | -- | -- | 375 | -- |
| 7600M | 367 | -- | -- | -- | -- | -- | 367 | -- |
| Robust | -- | -- | -- | -- | 352 | -- | 352 | -- |
| AC Medallion | 121 | -- | -- | -- | 230 | -- | 351 | -- |
| ORE3541M | -- | -- | -- | -- | 267 | -- | 267 | -- |
| Murphy | 225 | -- | -- | -- | -- | -- | 225 | -- |
| Victory | 154 | -- | -- | -- | -- | -- | 154 | -- |
| Drummond | -- | -- | -- | -- | 130 | -- | 130 | -- |
| Athabasca | 127 | -- | -- | -- | -- | -- | 127 | -- |
| AC Gwen | -- | -- | -- | -- | 120 | -- | 120 | -- |
| Rodney | 108 | -- | -- | -- | -- | -- | 108 | -- |
| Jasper | 93 | -- | -- | -- | -- | -- | 93 | -- |
| Lu | 92 | -- | -- | -- | -- | -- | 92 | -- |
| Buff | -- | -- | -- | -- | 75 | -- | 75 | -- |
| Forage | -- | -- | -- | -- | 55 | -- | 55 | -- |
| Random | 37 | -- | -- | -- | -- | -- | 37 | -- |
| AAC Oravena | -- | -- | -- | -- | 18 | -- | 18 | -- |
| Jerry | -- | -- | -- | -- | 9 | -- | 9 | -- |
| CDC Arborg | 5 | -- | -- | -- | -- | -- | 5 | -- |
| Total | 188,471 | 15 | 662,166 | 52 | 429,294 | 34 | 1,279,931 | 100 |

CWRW WHEAT: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CWRW SEEDED AREA | B.C. ACRES | % | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|--------------|----------|---------------|-----------|---------------|-----------|---------------|-----------|----------------|------------|
| Emerson | -- | -- | 5,011 | 4 | 7,711 | 6 | 32,432 | 25 | 45,154 | 35 |
| AAC Gateway | -- | -- | 16,395 | 13 | -- | -- | 22,003 | 17 | 38,398 | 30 |
| Moats | -- | -- | 6,896 | 5 | 5,497 | 4 | 1,225 | 1 | 13,618 | 11 |
| Radiant | 1,375 | 1 | 8,349 | 6 | -- | -- | -- | -- | 9,724 | 8 |
| Flourish | -- | -- | 1,094 | 1 | 5,353 | 4 | 445 | -- | 6,892 | 5 |
| CDC Buteo | -- | -- | 257 | -- | 4,026 | 3 | 1,408 | 1 | 5,691 | 4 |
| AAC Elevate | -- | -- | 3,405 | 3 | -- | -- | 1,524 | 1 | 4,929 | 4 |
| McClintock | -- | -- | -- | -- | 501 | -- | 1,060 | 1 | 1,561 | 1 |
| AAC Wildfire | -- | -- | 1,497 | 1 | -- | -- | -- | -- | 1,497 | 1 |
| CDC Osprey | -- | -- | 843 | 1 | -- | -- | -- | -- | 843 | 1 |
| AC Tempest | -- | -- | 381 | -- | -- | -- | -- | -- | 381 | -- |
| AC Readymade | -- | -- | 315 | -- | -- | -- | -- | -- | 315 | -- |
| AAC Goldrush | -- | -- | 93 | -- | -- | -- | -- | -- | 93 | -- |
| Total | 1,375 | 1 | 44,536 | 35 | 23,088 | 18 | 60,097 | 47 | 129,096 | 100 |

CANARYSEED: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CANARYSEED SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------------|-------------|------------|----------------|------------|--------------|------------|----------------|------------|
| Not Specified | -- | -- | 42,434 | 29 | 130 | 8 | 42,564 | 29 |
| Keet | 566 | 63 | 30,526 | 21 | 553 | 35 | 31,645 | 21 |
| Cantate | -- | -- | 26,501 | 18 | -- | -- | 26,501 | 18 |
| CDC Calvi | 30 | 3 | 19,605 | 13 | -- | -- | 19,635 | 13 |
| CDC Togo | -- | -- | 12,638 | 9 | -- | -- | 12,638 | 9 |
| CDC Bastia | 153 | 17 | 9,796 | 7 | -- | -- | 9,949 | 7 |
| CDC Cibo | 155 | 17 | 3,545 | 2 | -- | -- | 3,700 | 2 |
| CDC Maria | -- | -- | 1,070 | 1 | 128 | 8 | 1,198 | 1 |
| Elias | -- | -- | -- | -- | 767 | 49 | 767 | 1 |
| Total | 904 | 100 | 146,115 | 100 | 1,578 | 100 | 148,597 | 100 |

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

CANOLA: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|----|-------------|----|------------|----|-------------|----|
| L233P | 699,960 | 14 | 2,343,250 | 24 | 1,239,848 | 38 | 4,283,058 | 24 |
| L252 | 456,328 | 9 | 1,288,729 | 13 | 560,281 | 17 | 2,305,338 | 13 |
| Not Specified | 46,872 | 1 | 1,298,772 | 13 | 7,852 | -- | 1,353,496 | 7 |
| L230 | 239,366 | 5 | 590,221 | 6 | 176,945 | 5 | 1,006,532 | 6 |
| L140P | 98,622 | 2 | 511,280 | 5 | 190,561 | 6 | 800,463 | 4 |
| 75-65 RR | 201,022 | 4 | 351,702 | 4 | 79,333 | 2 | 632,057 | 3 |
| L241C | 559,863 | 11 | 19,035 | -- | 27,813 | 1 | 606,711 | 3 |
| L255 PC | 303,567 | 6 | 129,733 | 1 | 136,810 | 4 | 570,110 | 3 |
| 74-44 BL | 199,627 | 4 | 231,388 | 2 | 53,893 | 2 | 484,908 | 3 |
| 45H33 | 152,087 | 3 | 202,714 | 2 | 48,662 | 1 | 403,463 | 2 |
| PV 540 G | 61,450 | 1 | 269,268 | 3 | 39,262 | 1 | 369,980 | 2 |
| 45M35 | 68,848 | 1 | 252,890 | 3 | 34,938 | 1 | 356,676 | 2 |
| 45CS40 | 140,542 | 3 | 198,331 | 2 | 13,255 | -- | 352,128 | 2 |
| 75-42 CR | 319,033 | 6 | 11,743 | -- | 921 | -- | 331,697 | 2 |
| 6074 RR | 21,444 | -- | 219,696 | 2 | 51,029 | 2 | 292,169 | 2 |
| 75-45 RR | 146,736 | 3 | 127,477 | 1 | 16,452 | 1 | 290,665 | 2 |
| L157H | 29,538 | 1 | 170,967 | 2 | 26,854 | 1 | 227,359 | 1 |
| PV 581 GC | 194,152 | 4 | -- | -- | 1,715 | -- | 195,867 | 1 |
| 46H75 | 11,758 | -- | 102,940 | 1 | 71,051 | 2 | 185,749 | 1 |
| 1022 RR | 12,437 | -- | 81,634 | 1 | 74,689 | 2 | 168,760 | 1 |
| CS2000 | 131,064 | 3 | 27,868 | -- | 4,617 | -- | 163,549 | 1 |
| 1024 RR | 41,990 | 1 | 79,676 | 1 | 33,558 | 1 | 155,224 | 1 |
| L135C | 140,598 | 3 | 2,593 | -- | -- | -- | 143,191 | 1 |
| V14-1 | 24,549 | -- | 110,637 | 1 | 20 | -- | 135,206 | 1 |
| 1012 RR | 21,737 | -- | 83,156 | 1 | 25,910 | 1 | 130,803 | 1 |
| 45CM36 | 48,975 | 1 | 47,474 | -- | 13,576 | -- | 110,025 | 1 |
| 1026 RR | 25,974 | 1 | 51,408 | 1 | 15,880 | -- | 93,262 | 1 |
| V12-1 | 6,924 | -- | 76,659 | 1 | -- | -- | 83,583 | -- |
| V12-3 | 26,464 | 1 | 49,715 | 1 | 297 | -- | 76,476 | -- |
| PV 200 CL | 6,193 | -- | 43,110 | -- | 26,287 | 1 | 75,590 | -- |
| 45M38 | 17,268 | -- | 44,159 | -- | 13,600 | -- | 75,027 | -- |
| CS2100 | 42,429 | 1 | 23,044 | -- | 9,187 | -- | 74,660 | -- |
| 1020 RR | 18,377 | -- | 41,777 | -- | 8,924 | -- | 69,078 | -- |
| 2024 CL | 3,635 | -- | 34,659 | -- | 26,092 | 1 | 64,386 | -- |
| 45H31 | 5,140 | -- | 53,823 | 1 | 3,492 | -- | 62,455 | -- |
| 45H76 | 10,659 | -- | 36,418 | -- | 15,239 | -- | 62,316 | -- |
| PV 560 GM | 16,884 | -- | 37,481 | -- | 5,533 | -- | 59,898 | -- |
| Hyhear3 | -- | -- | 51,254 | 1 | -- | -- | 51,254 | -- |
| D3155C | 28,457 | 1 | 19,485 | -- | 1,673 | -- | 49,615 | -- |
| 5545 CL | 5,351 | -- | 39,102 | -- | 4,394 | -- | 48,847 | -- |
| L130 | 12,623 | -- | 32,186 | -- | 3,672 | -- | 48,481 | -- |
| CS2300 | 3,880 | -- | 32,345 | -- | 9,446 | -- | 45,671 | -- |
| 2026 CL | 1,302 | -- | 19,896 | -- | 19,661 | 1 | 40,859 | -- |
| 6090 RR | 16,333 | -- | 24,367 | -- | -- | -- | 40,700 | -- |
| 45H37 | 33,804 | 1 | 4,119 | -- | 1,429 | -- | 39,352 | -- |
| PV 533 G | 19,006 | -- | 17,153 | -- | 2,676 | -- | 38,835 | -- |
| 6080 RR | 5,020 | -- | 25,773 | -- | 7,022 | -- | 37,815 | -- |
| 6076 CR | 32,698 | 1 | -- | -- | 2,709 | -- | 35,407 | -- |
| 46M34 | 5,935 | -- | 23,230 | -- | 5,143 | -- | 34,308 | -- |
| 2020 CL | 11,359 | -- | 16,529 | -- | 5,984 | -- | 33,872 | -- |
| PV 530 G | 16,649 | -- | 15,759 | -- | 1,305 | -- | 33,713 | -- |
| 2022 CL | 2,034 | -- | 10,564 | -- | 18,606 | 1 | 31,204 | -- |
| V22-1 | -- | -- | 12,984 | -- | 17,199 | 1 | 30,183 | -- |
| 5440 | 5,875 | -- | 19,093 | -- | 2,970 | -- | 27,938 | -- |
| 45H29 | 6,964 | -- | 17,481 | -- | 1,211 | -- | 25,656 | -- |
| 45H75 | -- | -- | 24,679 | -- | -- | -- | 24,679 | -- |
| 6086 CR | 23,009 | -- | -- | -- | 155 | -- | 23,164 | -- |
| 73-15 RR | 18,923 | -- | 1,194 | -- | 665 | -- | 20,782 | -- |
| VR 9562 GC | 19,543 | -- | 998 | -- | -- | -- | 20,541 | -- |

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|---|-------------|---|------------|---|-------------|---|
| Hyhear 3 | 16,699 | | | | | | | |

CANOLA (CONTINUED): INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|----|-------------|----|------------|----|-------------|----|
| 45A76 | -- | -- | 1,516 | -- | 1,022 | -- | 2,538 | -- |
| V12-2 | -- | -- | 1,658 | -- | 588 | -- | 2,246 | -- |
| 45A51 | 410 | -- | -- | -- | 1,811 | -- | 2,221 | -- |
| 72-55 RR | 2,105 | -- | -- | -- | 25 | -- | 2,130 | -- |
| L261 | 265 | -- | 1,669 | -- | 111 | -- | 2,045 | -- |
| 36 NR | -- | -- | 1,948 | -- | -- | -- | 1,948 | -- |
| 5525 CL | 248 | -- | 1,548 | -- | 126 | -- | 1,922 | -- |
| Red River 1861 | -- | -- | 1,904 | -- | -- | -- | 1,904 | -- |
| 73-65 RR | 405 | -- | -- | -- | 1,491 | -- | 1,896 | -- |
| 45A54 | 158 | -- | 1,727 | -- | -- | -- | 1,885 | -- |
| 45S54 | -- | -- | 1,871 | -- | -- | -- | 1,871 | -- |
| CS2500 | -- | -- | -- | -- | 1,789 | -- | 1,789 | -- |
| 75-43 RR | 1,763 | -- | -- | -- | -- | -- | 1,763 | -- |
| Rugby | -- | -- | 1,755 | -- | -- | -- | 1,755 | -- |
| 46A65 | 120 | -- | 1,585 | -- | 40 | -- | 1,745 | -- |
| 43 E03 RR | -- | -- | -- | -- | 1,740 | -- | 1,740 | -- |
| 2563 | -- | -- | 1,725 | -- | -- | -- | 1,725 | -- |
| 45CM39 | 105 | -- | 1,410 | -- | 195 | -- | 1,710 | -- |
| 45H21 | 444 | -- | 1,217 | -- | 20 | -- | 1,681 | -- |
| SW Wizzard | 205 | -- | 610 | -- | 783 | -- | 1,598 | -- |
| SY4166 | -- | -- | -- | -- | 1,557 | -- | 1,557 | -- |
| 4424 RR | 1,520 | -- | -- | -- | -- | -- | 1,520 | -- |
| 46H73 | -- | -- | 1,505 | -- | -- | -- | 1,505 | -- |
| Red River 1862 | -- | -- | 1,474 | -- | -- | -- | 1,474 | -- |

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|----|-------------|----|------------|----|-------------|----|
| 45H72 | 1,468 | -- | -- | -- | -- | -- | 1,468 | -- |
| 1134 CA | -- | -- | -- | -- | 1,458 | -- | 1,458 | -- |
| 73-35 RR | 1,095 | -- | -- | -- | 325 | -- | 1,420 | -- |
| UA Alfagold | 547 | -- | 835 | -- | -- | -- | 1,382 | -- |
| 5020 | -- | -- | 1,168 | -- | 140 | -- | 1,308 | -- |
| L160S | 53 | -- | 770 | -- | 458 | -- | 1,281 | -- |
| SW Spirit River | 1,260 | -- | -- | -- | -- | -- | 1,260 | -- |
| D32-35 KL | -- | -- | 1,229 | -- | -- | -- | 1,229 | -- |
| Synergy | 465 | -- | 715 | -- | -- | -- | 1,180 | -- |
| 35-85 | -- | -- | 1,178 | -- | -- | -- | 1,178 | -- |
| 45H24 | 218 | -- | 948 | -- | -- | -- | 1,166 | -- |
| 45S53 | -- | -- | 1,105 | -- | 50 | -- | 1,155 | -- |
| 45A55 | 355 | -- | 633 | -- | 160 | -- | 1,148 | -- |
| 45A71 | 565 | -- | 532 | -- | -- | -- | 1,097 | -- |
| VR 9559 G | 650 | -- | 422 | -- | -- | -- | 1,072 | -- |
| 35-25 | -- | -- | 1,055 | -- | -- | -- | 1,055 | -- |
| PV 591 GCS | 1,046 | -- | -- | -- | -- | -- | 1,046 | -- |
| 8571 | 1,035 | -- | -- | -- | -- | -- | 1,035 | -- |
| 2463 | -- | -- | 1,030 | -- | -- | -- | 1,030 | -- |
| UA Bountygold | 1,025 | -- | -- | -- | -- | -- | 1,025 | -- |
| 580PV GC | -- | -- | 946 | -- | -- | -- | 946 | -- |
| 6064 RR | 623 | -- | -- | -- | 315 | -- | 938 | -- |
| NX4 104RR | -- | -- | 905 | -- | -- | -- | 905 | -- |
| 6045 CL | -- | -- | 902 | -- | -- | -- | 902 | -- |
| VR 9560 CL | 469 | -- | -- | -- | 431 | -- | 900 | -- |

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2018 INSURED COMMERCIAL ACRES (CONTINUED)

CANOLA (CONTINUED): INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|----|-------------|-----|------------|----|-------------|----|
| 45H26 | 240 | -- | -- | -- | 640 | -- | 880 | -- |
| PV 580 GC | 835 | -- | -- | -- | -- | -- | 835 | -- |
| 30-55 | 591 | -- | -- | 238 | -- | -- | 829 | -- |
| 5030 | -- | -- | -- | -- | 785 | -- | 785 | -- |
| 45A56 | -- | -- | 770 | -- | -- | -- | 770 | -- |
| 3303 LL | 690 | -- | -- | -- | -- | -- | 690 | -- |
| 45S52 | 100 | -- | -- | -- | 585 | -- | 685 | -- |
| 1839 V | 680 | -- | -- | -- | -- | -- | 680 | -- |
| 45S51 | -- | -- | 677 | -- | -- | -- | 677 | -- |
| D3151 | -- | -- | 661 | -- | -- | -- | 661 | -- |
| 5070 | 617 | -- | -- | -- | -- | -- | 617 | -- |
| 2153 | 310 | -- | -- | -- | 280 | -- | 590 | -- |
| V1010 | -- | -- | -- | -- | 589 | -- | 589 | -- |
| 46A74 | -- | -- | 580 | -- | -- | -- | 580 | -- |
| 9551 | -- | -- | -- | -- | 574 | -- | 574 | -- |
| 2016 CL | 495 | -- | -- | -- | -- | -- | 495 | -- |
| 1145 | 460 | -- | -- | -- | -- | -- | 460 | -- |
| 220 | 448 | -- | -- | -- | -- | -- | 448 | -- |
| Café | 430 | -- | -- | -- | -- | -- | 430 | -- |
| 34-55 | 428 | -- | -- | -- | -- | -- | 428 | -- |
| 45H25 | 281 | -- | -- | -- | 142 | -- | 423 | -- |
| 1492 | -- | -- | -- | -- | 417 | -- | 417 | -- |
| 74-01 RR | 402 | -- | -- | -- | -- | -- | 402 | -- |
| 243 CL | 395 | -- | -- | -- | -- | -- | 395 | -- |
| 829 RR | 385 | -- | -- | -- | -- | -- | 385 | -- |
| X122 CL | 369 | -- | -- | -- | -- | -- | 369 | -- |
| 45H32 | 365 | -- | -- | -- | -- | -- | 365 | -- |
| 6020 RR | 94 | -- | -- | 270 | -- | -- | 364 | -- |
| 73-55 RR | 348 | -- | -- | -- | -- | -- | 348 | -- |
| Hyhear Evolve | 346 | -- | -- | -- | -- | -- | 346 | -- |
| 1144 | -- | -- | -- | -- | 345 | -- | 345 | -- |
| 72-35 RR | 143 | -- | -- | -- | 193 | -- | 336 | -- |
| 71-45 RR | 330 | -- | -- | -- | -- | -- | 330 | -- |
| 454 RR | -- | -- | -- | -- | 320 | -- | 320 | -- |
| 2673 | 320 | -- | -- | -- | -- | -- | 320 | -- |
| 1014 RR | 305 | -- | -- | -- | -- | -- | 305 | -- |
| 74-02 RR | 304 | -- | -- | -- | -- | -- | 304 | -- |
| 9550 | 288 | -- | -- | -- | -- | -- | 288 | -- |
| AC Excel | 286 | -- | -- | -- | -- | -- | 286 | -- |
| 1768 S | 285 | -- | -- | -- | -- | -- | 285 | -- |
| NX4-101 RR | 285 | -- | -- | -- | -- | -- | 285 | -- |
| 75-57 | -- | -- | -- | -- | 275 | -- | 275 | -- |
| LBD 561RR | 274 | -- | -- | -- | -- | -- | 274 | -- |
| 45H22 | 260 | -- | -- | -- | -- | -- | 260 | -- |

| CANOLA SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|------------------|------------|------------------|------------|------------------|------------|-------------------|------------|
| 223 RR | -- | -- | -- | -- | 255 | -- | 255 | -- |
| SY4114 | 253 | -- | -- | -- | -- | -- | 253 | -- |
| 4166 RR | 220 | -- | -- | -- | -- | -- | 220 | -- |
| 1847 V | 215 | -- | -- | -- | -- | -- | 215 | -- |
| 811 RR | 201 | -- | -- | -- | -- | -- | 201 | -- |
| 8440 | 160 | -- | -- | -- | -- | -- | 160 | -- |
| 2573 | -- | -- | -- | -- | 160 | -- | 160 | -- |
| NX4-106 RR | 158 | -- | -- | -- | -- | -- | 158 | -- |
| Nex 500 | 150 | -- | -- | -- | -- | -- | 150 | -- |
| IMC 106 RR | 150 | -- | -- | -- | -- | -- | 150 | -- |
| 821 RR | 150 | -- | -- | -- | -- | -- | 150 | -- |
| 74P00 LL | 150 | -- | -- | -- | -- | -- | 150 | -- |
| 1960 | -- | -- | -- | -- | 145 | -- | 145 | -- |
| 4362 RR | 143 | -- | -- | -- | -- | -- | 143 | -- |
| 44A04 | 142 | -- | -- | -- | -- | -- | 142 | -- |
| ACS-C29 | 140 | -- | -- | -- | -- | -- | 140 | -- |
| 75-57 RR | 137 | -- | -- | -- | -- | -- | 137 | -- |
| 43H57 | 133 | -- | -- | -- | -- | -- | 133 | -- |
| VR 9553 G | 70 | -- | -- | -- | 61 | -- | 131 | -- |
| Impulse | 131 | -- | -- | -- | -- | -- | 131 | -- |
| 3235 | -- | -- | -- | -- | 128 | -- | 128 | -- |
| L170S | 127 | -- | -- | -- | -- | -- | 127 | -- |
| 41P55 | 126 | -- | -- | -- | -- | -- | 126 | -- |
| 43 E02 | 121 | -- | -- | -- | -- | -- | 121 | -- |
| 5003 | -- | -- | -- | -- | 88 | -- | 88 | -- |
| NEX 720 | 87 | -- | -- | -- | -- | -- | 87 | -- |
| V2045 | -- | -- | -- | -- | 85 | -- | 85 | -- |
| 1896 RR | -- | -- | -- | -- | 76 | -- | 76 | -- |
| 2163 | -- | -- | -- | -- | 75 | -- | 75 | -- |
| 1818 RR | -- | -- | -- | -- | 75 | -- | 75 | -- |
| 519 RR | 72 | -- | -- | -- | -- | -- | 72 | -- |
| 45H74 | 65 | -- | -- | -- | -- | -- | 65 | -- |
| VT 520 G | -- | -- | -- | -- | 60 | -- | 60 | -- |
| 1604 | -- | -- | -- | -- | 60 | -- | 60 | -- |
| NX4-205 CL | -- | -- | -- | -- | 52 | -- | 52 | -- |
| 1851 H | 49 | -- | -- | -- | -- | -- | 49 | -- |
| SP 451RR | 42 | -- | -- | -- | -- | -- | 42 | -- |
| 5770 | 40 | -- | -- | -- | -- | -- | 40 | -- |
| 46S53 | -- | -- | -- | -- | 19 | -- | 19 | -- |
| 34-65 | -- | -- | -- | -- | 16 | -- | 16 | -- |
| 9554 | 15 | -- | -- | -- | -- | -- | 15 | -- |
| Total | 5,033,244 | 100 | 9,910,110 | 100 | 3,258,323 | 100 | 18,201,677 | 100 |

CORN: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CORN SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|-------------|-----|-------------|----|------------|----|-------------|----|
| P7527AM | -- | -- | 568 | 6 | 69,217 | 18 | 69,785 | 17 |
| DKC33-78RIB | -- | -- | -- | -- | 56,825 | 15 | 56,825 | 14 |
| P7211HR | -- | -- | 3,949 | 39 | 38,842 | 10 | 42,791 | 11 |
| P7958AM | -- | -- | -- | -- | 34,764 | 9 | 34,764 | 9 |
| P7632AM | -- | -- | -- | -- | 28,580 | 8 | 28,580 | 7 |
| TH 7578 VT2P RIB | -- | -- | -- | -- | 15,104 | 4 | 15,104 | 4 |
| Not Specified | 13,130 | 100 | -- | -- | 1,909 | 1 | 15,039 | 4 |

| CORN SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|-------------|----|-------------|----|------------|---|-------------|---|
| P7227R | -- | -- | -- | -- | 14,201 | 4 | 14,201 | 4 |
| DKC26-40 | -- | -- | -- | -- | 10,408 | 3 | 10,408 | 3 |
| 39V09AM | -- | -- | -- | -- | 9,698 | 3 | 9,698 | 2 |
| A4939G2 RIB | -- | -- | -- | -- | 8,752 | 2 | 8,752 | 2 |
| P7202AM | -- | -- | -- | -- | 8,339 | 2 | 8,339 | 2 |
| 39V05 | -- | -- | -- | -- | 6,505 | 2 | 6,505 | 2 |
| DKC35-88RIB | -- | -- | -- | -- | 5,707 | 2 | 5,707 | 1 |

CORN (CONTINUED): INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CORN SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|--------------------|-------------|----|-------------|----|------------|----|-------------|----|
| DKC 32-12 RIB | -- | -- | -- | -- | 5,639 | 1 | 5,639 | 1 |
| DKC27-55 RIB | -- | -- | -- | -- | 4,423 | 1 | 4,423 | 1 |
| P8387AM | -- | -- | -- | -- | 4,377 | 1 | 4,377 | 1 |
| P7005YHR | -- | -- | 4,269 | 42 | -- | -- | 4,269 | 1 |
| P7332R | -- | -- | -- | -- | 3,641 | 1 | 3,641 | 1 |
| DKC 23-17 RIB | -- | -- | -- | -- | 3,096 | 1 | 3,096 | 1 |
| P7958YHR | -- | -- | -- | -- | 2,806 | 1 | 2,806 | 1 |
| DKC 26-28 RIB | -- | -- | -- | -- | 2,670 | 1 | 2,670 | 1 |
| MZ 1633DBR | -- | -- | -- | -- | 2,190 | 1 | 2,190 | 1 |
| TH 7673 | -- | -- | -- | -- | 1,957 | 1 | 1,957 | -- |
| P7632HR | -- | -- | -- | -- | 1,952 | 1 | 1,952 | -- |
| TH 7677 VT2P RIB | -- | -- | -- | -- | 1,950 | 1 | 1,950 | -- |
| PS 2210VT2P RIB | -- | -- | -- | -- | 1,690 | -- | 1,690 | -- |
| A4199G2 RIB | -- | -- | -- | -- | 1,623 | -- | 1,623 | -- |
| P7410HR | -- | -- | -- | -- | 1,552 | -- | 1,552 | -- |
| LR 9676VT2P RIB | -- | -- | -- | -- | 1,408 | -- | 1,408 | -- |
| P7005AM | -- | -- | -- | -- | 1,362 | -- | 1,362 | -- |
| DKC 30-07 | -- | -- | -- | -- | 1,334 | -- | 1,334 | -- |
| MZ 1624DBR | -- | -- | -- | -- | 1,188 | -- | 1,188 | -- |
| P8210HR | -- | -- | -- | -- | 1,164 | -- | 1,164 | -- |
| TH 7681 VT2P | -- | -- | -- | -- | 1,039 | -- | 1,039 | -- |
| TH 6875 VT2P | -- | -- | -- | -- | 1,020 | -- | 1,020 | -- |
| 2123 VT2P RIB | -- | -- | -- | -- | 966 | -- | 966 | -- |
| P7213R | -- | -- | 680 | 7 | 282 | -- | 962 | -- |
| QS 1878 GT | -- | -- | -- | -- | 931 | -- | 931 | -- |
| MZ 1340DBR | -- | -- | -- | -- | 923 | -- | 923 | -- |
| PV60075 RIB RR | -- | -- | -- | -- | 841 | -- | 841 | -- |
| NS 72-521 VT2P RIB | -- | -- | -- | -- | 835 | -- | 835 | -- |
| TH 7574 VT2P RIB | -- | -- | -- | -- | 805 | -- | 805 | -- |
| DKC27-25 | -- | -- | -- | -- | 770 | -- | 770 | -- |
| LR 9874RR VT2P RIB | -- | -- | -- | -- | 749 | -- | 749 | -- |
| DKC23-17 RIB | -- | -- | 685 | 7 | -- | -- | 685 | -- |
| 9474 | -- | -- | -- | -- | 670 | -- | 670 | -- |
| NK 7837 | -- | -- | -- | -- | 655 | -- | 655 | -- |
| 39B90 | -- | -- | -- | -- | 585 | -- | 585 | -- |
| P7535HR | -- | -- | -- | -- | 585 | -- | 585 | -- |
| HZ 1885 | -- | -- | -- | -- | 575 | -- | 575 | -- |
| P8542AM | -- | -- | -- | -- | 553 | -- | 553 | -- |
| LR 9573VT2P RIB | -- | -- | -- | -- | 541 | -- | 541 | -- |
| LR 9473 RR | -- | -- | -- | -- | 511 | -- | 511 | -- |
| DKC 30-19 RIB | -- | -- | -- | -- | 494 | -- | 494 | -- |
| P7455R | -- | -- | -- | -- | 470 | -- | 470 | -- |
| DKC 30-07 RIB | -- | -- | -- | -- | 450 | -- | 450 | -- |
| P8210 | -- | -- | -- | -- | 420 | -- | 420 | -- |
| 1756 VT2P RIB | -- | -- | -- | -- | 416 | -- | 416 | -- |
| 39V07 | -- | -- | -- | -- | 383 | -- | 383 | -- |
| DL 800 | -- | -- | -- | -- | 380 | -- | 380 | -- |
| P8581R | -- | -- | -- | -- | 367 | -- | 367 | -- |
| NK 7701 | -- | -- | -- | -- | 310 | -- | 310 | -- |
| TH 4578 RR | -- | -- | -- | -- | 305 | -- | 305 | -- |
| DL 777 | -- | -- | -- | -- | 285 | -- | 285 | -- |
| DKC 23-21 RR2 | -- | -- | -- | -- | 283 | -- | 283 | -- |
| A4415G2 RIB | -- | -- | -- | -- | 260 | -- | 260 | -- |
| AS1047RR EDF | -- | -- | -- | -- | 258 | -- | 258 | -- |
| DS81R65 | -- | -- | -- | -- | 258 | -- | 258 | -- |
| DKC 27-54 | -- | -- | -- | -- | 248 | -- | 248 | -- |
| LR 9474 VT2PRIIB | -- | -- | -- | -- | 240 | -- | 240 | -- |
| DS 79C56 | -- | -- | -- | -- | 228 | -- | 228 | -- |

| CORN SEEDED AREA | ALTA. ACRES | % | SASK. ACRES | % | MAN. ACRES | % | TOTAL ACRES | % |
|------------------|-------------|----|-------------|----|------------|----|-------------|----|
| A4631G2 RIB | -- | -- | -- | -- | 220 | -- | 220 | -- |
| 39K72 | -- | -- | -- | -- | 213 | -- | 213 | -- |
| PS 2320RR | -- | -- | -- | -- | 210 | -- | 210 | -- |
| 4093 | -- | -- | -- | -- | 203 | -- | 203 | -- |
| HZ 1550 | -- | -- | -- | -- | 200 | -- | 200 | -- |
| PS 2444VT2P RIB | -- | -- | -- | -- | 192 | -- | 192 | -- |
| PS 2263VT2P RIB | -- | -- | -- | -- | 184 | -- | 184 | -- |
| E47A17 R | -- | -- | -- | -- | 160 | -- | 160 | -- |
| P3997 | -- | -- | -- | -- | 160 | -- | 160 | -- |
| P3995 | -- | -- | -- | -- | 160 | -- | 160 | -- |
| A5095G2 RIB | -- | -- | -- | -- | 155 | -- | 155 | -- |
| 39M27 | -- | -- | -- | -- | 155 | -- | 155 | -- |
| DL 2202 | -- | -- | -- | -- | 154 | -- | 154 | -- |
| HZ 1451 | -- | -- | -- | -- | 150 | -- | 150 | -- |
| E47A12 R | -- | -- | -- | -- | 150 | -- | 150 | -- |
| QS 1881 GT | -- | -- | -- | -- | 150 | -- | 150 | -- |
| A5092 | -- | -- | -- | -- | 145 | -- | 145 | -- |
| TH 20131 | -- | -- | -- | -- | 140 | -- | 140 | -- |
| P8673XR | -- | -- | | | | | | |

2018 INSURED COMMERCIAL ACRES (CONTINUED)

FLAX: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| FLAX SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|----------------------|---------------|------------|----------------|------------|---------------|------------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Sorrel | 6,598 | 11 | 102,595 | 22 | 6,402 | 20 | 115,595 | 21 |
| CDC Bethune | 2,411 | 4 | 101,515 | 22 | 6,929 | 21 | 110,855 | 20 |
| CDC Glas | 27,141 | 46 | 62,482 | 14 | 7,483 | 23 | 97,106 | 18 |
| Not Specified | -- | -- | 81,808 | 18 | 230 | 1 | 82,038 | 15 |
| AAC Bravo | 3,132 | 5 | 18,289 | 4 | 2,018 | 6 | 23,439 | 4 |
| CDC Sanctuary | 3,263 | 6 | 14,817 | 3 | -- | -- | 18,080 | 3 |
| CDC Neela | 45 | -- | 12,176 | 3 | 1,990 | 6 | 14,211 | 3 |
| Omega | 1,170 | 2 | 12,806 | 3 | 105 | -- | 14,081 | 3 |
| Prairie Sapphire | 5,971 | 10 | 4,562 | 1 | 478 | 1 | 11,011 | 2 |
| Westlin 72 | 2,321 | 4 | 6,943 | 2 | 1,124 | 3 | 10,388 | 2 |
| Vimy | -- | -- | 10,013 | 2 | -- | -- | 10,013 | 2 |
| VT50 | 315 | 1 | 9,132 | 2 | 488 | 2 | 9,935 | 2 |
| Westlin 71 | 579 | 1 | 8,058 | 2 | 243 | 1 | 8,880 | 2 |
| Westlin 70 | 1,989 | 3 | 4,486 | 1 | 326 | 1 | 6,801 | 1 |
| Hanley | 1,174 | 2 | -- | -- | 1,638 | 5 | 2,812 | 1 |
| CDC Plava | 562 | 1 | 1,843 | -- | 125 | -- | 2,530 | -- |
| Prairie Blue | -- | -- | 2,421 | 1 | -- | -- | 2,421 | -- |
| Somme | -- | -- | 1,642 | -- | -- | -- | 1,642 | -- |
| Taurus | -- | -- | 1,600 | -- | -- | -- | 1,600 | -- |
| Lightning | -- | -- | -- | -- | 1,477 | 5 | 1,477 | -- |
| Prairie Grande | 1,198 | 2 | -- | -- | -- | -- | 1,198 | -- |
| Westlin 60 | 499 | 1 | -- | -- | -- | -- | 499 | -- |
| CDC Normandy | -- | -- | -- | -- | 326 | 1 | 326 | -- |
| Golden | -- | -- | -- | -- | 315 | 1 | 315 | -- |
| AC Emerson | -- | -- | -- | -- | 291 | 1 | 291 | -- |
| Topaz | 55 | -- | -- | -- | 218 | 1 | 273 | -- |
| CDC Dorado | 265 | -- | -- | -- | -- | -- | 265 | -- |
| AC Watson | 125 | -- | -- | -- | -- | -- | 125 | -- |
| Westlin 60 | -- | -- | -- | -- | 110 | -- | 110 | -- |
| Mcgregor | 91 | -- | -- | -- | -- | -- | 91 | -- |
| AAC Prairie Sunshine | 68 | -- | -- | -- | -- | -- | 68 | -- |
| Flanders | 58 | -- | -- | -- | -- | -- | 58 | -- |
| AC McDuff | 50 | -- | -- | -- | -- | -- | 50 | -- |
| CDC Melyn | -- | -- | -- | -- | 40 | -- | 40 | -- |
| AAC Marvelous | 5 | -- | -- | -- | -- | -- | 5 | -- |
| Total | 59,085 | 100 | 457,188 | 100 | 32,356 | 100 | 548,629 | 100 |

CHICKPEAS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CHICKPEAS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-----------------------|---------------|------------|----------------|------------|------------|------------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| CDC Orion | 59,891 | 90 | 93,437 | 35 | -- | -- | 153,328 | 46 |
| CDC Leader | 3,561 | 5 | 98,785 | 37 | -- | -- | 102,346 | 31 |
| Not Specified | 65 | -- | 48,298 | 18 | 110 | 100 | 48,473 | 15 |
| Amit (B 90) | 1,428 | 2 | 16,913 | 6 | -- | -- | 18,341 | 6 |
| CDC Frontier | 504 | 1 | 7,857 | 3 | -- | -- | 8,361 | 3 |
| CDC Luna | -- | -- | 852 | -- | -- | -- | 852 | -- |
| CDC Chico | 581 | 1 | -- | -- | -- | -- | 581 | -- |
| CDC Diva | 242 | -- | -- | -- | -- | -- | 242 | -- |
| Total | 66,272 | 100 | 266,142 | 100 | 110 | 100 | 332,524 | 100 |

FABABEANS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| FABABEANS SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-----------------------|---------------|------------|---------------|------------|--------------|------------|---------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Snowbird | 22,754 | 89 | 19,960 | 74 | 1,264 | 22 | 43,978 | 76 |
| CDC Snowdrop | 2,625 | 10 | 4,244 | 16 | 468 | 8 | 7,337 | 13 |
| Tabasco | 60 | -- | -- | -- | 2,872 | 49 | 2,932 | 5 |
| Not Specified | -- | -- | 2,599 | 10 | 186 | 3 | 2,785 | 5 |
| Taboar | -- | -- | -- | -- | 1,036 | 18 | 1,036 | 2 |
| Malik | 30 | -- | -- | -- | -- | -- | 30 | -- |
| Total | 25,469 | 100 | 26,803 | 100 | 5,826 | 100 | 58,098 | 100 |

MUSTARD: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| MUSTARD SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|---------------------|---------------|------------|----------------|------------|--------------|------------|----------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Andante | 36,479 | 49 | 54,981 | 23 | 3,105 | 67 | 94,565 | 30 |
| Not Specified | 420 | 1 | 72,224 | 31 | 905 | 19 | 73,549 | 23 |
| Centennial Brown | 10,791 | 15 | 51,961 | 22 | 336 | 7 | 63,088 | 20 |
| Cutlass | 326 | -- | 26,401 | 11 | -- | -- | 26,727 | 8 |
| Forge | 4,230 | 6 | 15,879 | 7 | -- | -- | 20,109 | 6 |
| Adante | 13,894 | 19 | -- | -- | -- | -- | 13,894 | 4 |
| AC Pennant | 7,199 | 10 | 4,967 | 2 | -- | -- | 12,166 | 4 |
| AC Vulcan | -- | -- | 3,196 | 1 | -- | -- | 3,196 | 1 |
| Duchess | -- | -- | 3,131 | 1 | -- | -- | 3,131 | 1 |
| Ace | -- | -- | 2,326 | 1 | -- | -- | 2,326 | 1 |
| AAC Adagio | 80 | -- | 1,165 | -- | 316 | 7 | 1,561 | 1 |
| AC Base | 519 | 1 | -- | -- | -- | -- | 519 | -- |
| Total | 73,938 | 100 | 236,231 | 100 | 4,662 | 100 | 314,831 | 100 |

RYE: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| RYE SEEDED AREA | ALTA. | | SASK. | | MAN. | | TOTAL | |
|-----------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|------------|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % |
| Hazlet | 3,631 | 5 | 5,315 | 8 | 17,748 | 27 | 26,694 | 40 |
| KWS Bono | 2,217 | 3 | -- | -- | 10,947 | 16 | 13,164 | 20 |
| Guttino | 3,382 | 5 | -- | -- | 3,037 | 5 | 6,419 | 10 |
| Not Specified | 383 | 1 | 2,734 | 4 | 2,595 | 4 | 5,712 | 9 |
| Prima | 1,226 | 2 | 764 | 1 | 3,246 | 5 | 5,236 | 8 |
| Brasetto | 113 | -- | -- | -- | 1,724 | 3 | 1,837 | 3 |
| Bono | -- | -- | 1,763 | 3 | -- | -- | 1,763 | 3 |
| Danko | -- | -- | -- | -- | 1,596 | 2 | 1,596 | 2 |
| Dakota | 1,062 | 2 | -- | -- | -- | -- | 1,062 | 2 |
| AC Remington | 381 | 1 | -- | -- | 660 | 1 | 1,041 | 2 |
| Gazelle | 55 | -- | 962 | 1 | -- | -- | 1,017 | 2 |
| Russian Dwarf | -- | -- | -- | -- | 235 | -- | 235 | -- |
| Musketeer | 195 | -- | -- | -- | -- | -- | 195 | -- |
| Puma | 177 | -- | -- | -- | -- | -- | 177 | -- |
| Dakold | -- | -- | -- | -- | 137 | -- | 137 | -- |
| KWS Daniello | 130 | -- | -- | -- | -- | -- | 130 | -- |
| AC Rifle | 112 | -- | -- | -- | -- | -- | 112 | -- |
| Kodiak | 95 | -- | -- | -- | -- | -- | 95 | -- |
| Total | 13,159 | 20 | 11,538 | 17 | 41,925 | 63 | 66,622 | 100 |

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2018 INSURED COMMERCIAL ACRES (CONTINUED)

PEAS: INSURED COMMERCIAL ACRES, DESIGNATED VARIETIES

| CROP NAME SEEDING AREA | ALTA. | | SASK. | | MAN. | | TOTAL | | |
|---------------------------|------------------|------------|------------------|------------|---------------|------------|------------------|------------|----|
| | ACRES | % | ACRES | % | ACRES | % | ACRES | % | |
| CDC Meadow | 654,916 | 56 | 446,382 | 30 | 14,510 | 19 | 1,115,808 | 41 | |
| CDC Amarillo | 94,040 | 8 | 280,199 | 19 | 19,610 | 25 | 393,849 | 14 | |
| Not Specified | 22,018 | 2 | 243,157 | 16 | 1,907 | 2 | 267,082 | 10 | |
| CDC Saffron | 137,548 | 12 | 72,982 | 5 | 2,310 | 3 | 212,840 | 8 | |
| AAC Lacombe | 90,104 | 8 | 4,260 | -- | 5,323 | 7 | 99,687 | 4 | |
| CDC Raezer | 18,835 | 2 | 53,601 | 4 | 1,501 | 2 | 73,937 | 3 | |
| CDC Golden | 3,387 | -- | 67,161 | 5 | -- | -- | 70,548 | 3 | |
| CDC Striker | 14,485 | 1 | 54,507 | 4 | 1,411 | 2 | 70,403 | 3 | |
| AAC Ardill | 4,345 | -- | 50,559 | 3 | 498 | 1 | 55,402 | 2 | |
| Abarth | 11,340 | 1 | 32,034 | 2 | 10,613 | 14 | 53,987 | 2 | |
| AAC Carver | 16,969 | 1 | 19,451 | 1 | 9,632 | 12 | 46,052 | 2 | |
| CDC Limerick | 21,727 | 2 | 21,700 | 1 | 280 | -- | 43,707 | 2 | |
| CDC Inca | 12,996 | 1 | 27,087 | 2 | 590 | 1 | 40,673 | 1 | |
| CDC Greenwater | 1,693 | -- | 21,886 | 1 | 642 | 1 | 24,221 | 1 | |
| CDC Mosaic | 4,271 | -- | 12,324 | 1 | -- | -- | 16,595 | 1 | |
| CDC Treasure | 285 | -- | 15,066 | 1 | -- | -- | 15,351 | 1 | |
| CDC Acer | 6,859 | 1 | 7,936 | 1 | 380 | -- | 15,175 | 1 | |
| SW Midas | 10,392 | 1 | -- | -- | -- | -- | 10,392 | -- | |
| DS-Admiral | 615 | -- | 8,263 | 1 | -- | -- | 8,878 | -- | |
| CDC Spectrum | 503 | -- | 6,444 | -- | 292 | -- | 7,239 | -- | |
| 4010 | 1,333 | -- | 2,559 | -- | 3,333 | 4 | 7,225 | -- | |
| CDC Dakota | 1,393 | -- | 5,509 | -- | -- | -- | 6,902 | -- | |
| CDC Patrick | 1,073 | -- | 5,657 | -- | -- | -- | 6,730 | -- | |
| Agassiz | 267 | -- | 1,181 | -- | 3,566 | 5 | 5,014 | -- | |
| AAC Peace River | 4,922 | -- | -- | -- | -- | -- | 4,922 | -- | |
| Eclipse | 1,758 | -- | 2,546 | -- | -- | -- | 4,304 | -- | |
| CDC Bronco | 633 | -- | 3,193 | -- | -- | -- | 3,826 | -- | |
| CDC Sage | -- | -- | 3,706 | -- | -- | -- | 3,706 | -- | |
| CDC Tetris | 590 | -- | 2,851 | -- | -- | -- | 3,441 | -- | |
| Delta | 1,650 | -- | 1,760 | -- | -- | -- | 3,410 | -- | |
| CDC Hornet | 1,515 | -- | 1,554 | -- | -- | -- | 3,069 | -- | |
| CDC Centennial | 3,063 | -- | -- | -- | -- | -- | 3,063 | -- | |
| LN4228 | 2,935 | -- | -- | -- | -- | -- | 2,935 | -- | |
| Sorento | 2,797 | -- | -- | -- | -- | -- | 2,797 | -- | |
| CDC Blazer | 379 | -- | 2,289 | -- | -- | -- | 2,668 | -- | |
| CDC Spruce | 210 | -- | 2,138 | -- | -- | -- | 2,348 | -- | |
| Cooper | 1,841 | -- | -- | -- | 280 | -- | 2,121 | -- | |
| Garde | 1,882 | -- | -- | -- | -- | -- | 1,882 | -- | |
| CDC Mozart | -- | -- | 1,727 | -- | -- | -- | 1,727 | -- | |
| SW Marquee | -- | -- | -- | -- | 1,581 | -- | -- | 1,581 | -- |
| AAC Barrhead | 1,517 | -- | -- | -- | -- | -- | -- | 1,517 | -- |
| SW Salute | 1,503 | -- | -- | -- | -- | -- | -- | 1,503 | -- |
| Yellowhead | 651 | -- | 735 | -- | 52 | -- | 1,438 | -- | |
| Livioletta | -- | -- | -- | -- | -- | 1,320 | 2 | 1,320 | -- |
| Espace | 1,274 | -- | -- | -- | -- | -- | -- | 1,274 | -- |
| Scuba | -- | -- | 1,213 | -- | -- | -- | -- | 1,213 | -- |
| Stratus | 1,040 | -- | -- | -- | -- | -- | -- | 1,040 | -- |
| CDC Emerald | -- | -- | 1,029 | -- | -- | -- | -- | 1,029 | -- |
| Peas, Field | 1,020 | -- | -- | -- | -- | -- | -- | 1,020 | -- |
| Earlystar | -- | -- | 812 | -- | -- | -- | -- | 812 | -- |
| Canstar | 789 | -- | -- | -- | -- | -- | -- | 789 | -- |
| AAC Liscard Maple | 667 | -- | -- | -- | -- | -- | -- | 667 | -- |
| Cutlass | 646 | -- | -- | -- | -- | -- | -- | 646 | -- |
| Carneval | 486 | -- | -- | -- | -- | -- | -- | 486 | -- |
| Rocket | -- | -- | 469 | -- | -- | -- | -- | 469 | -- |
| AAC Chrome | 454 | -- | -- | -- | -- | -- | -- | 454 | -- |
| Bibao | 420 | -- | -- | -- | -- | -- | -- | 420 | -- |
| AAC Comfort | 409 | -- | -- | -- | -- | -- | -- | 409 | -- |
| Rhino | 385 | -- | -- | -- | -- | -- | -- | 385 | -- |
| Astina | 330 | -- | -- | -- | -- | -- | -- | 330 | -- |
| AC Melfort | 320 | -- | -- | -- | -- | -- | -- | 320 | -- |
| Eiffel | -- | -- | -- | -- | -- | 310 | -- | 310 | -- |
| SW Capri | 300 | -- | -- | -- | -- | -- | -- | 300 | -- |
| CDC Pluto | 284 | -- | -- | -- | -- | -- | -- | 284 | -- |
| Patriot | 155 | -- | -- | -- | -- | -- | -- | 155 | -- |
| CDC Minuet | 150 | -- | -- | -- | -- | -- | -- | 150 | -- |
| Toledo | 130 | -- | -- | -- | -- | -- | -- | 130 | -- |
| CDC Jasper | -- | -- | -- | -- | 80 | -- | -- | 80 | -- |
| Profi | 70 | -- | -- | -- | -- | -- | -- | 70 | -- |
| CDC Leroy | 55 | -- | -- | -- | -- | -- | -- | 55 | -- |
| CDC Montero | 50 | -- | -- | -- | -- | -- | -- | 50 | -- |
| Polstead | 46 | -- | -- | -- | -- | -- | -- | 46 | -- |
| LRP 1424 | 10 | -- | -- | -- | -- | -- | -- | 10 | -- |
| AAC Delhi | 7 | -- | -- | -- | -- | -- | -- | 7 | -- |
| CDC Forest | 5 | -- | -- | -- | -- | -- | -- | 5 | -- |
| CDC Athabasca | 2 | -- | -- | -- | -- | -- | -- | 2 | -- |
| Total | 1,168,743 | 100 | 1,487,508 | 100 | 78,440 | 100 | 2,734,691 | 100 | |

2018

canola
PERFORMANCE TRIALS

INFORMED
SEEDING
DECISIONS

FUNDED BY
GROWERS,
FOR GROWERS

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 BASF, Bayer CropScience, BrettYoung Seeds, Brevant, Canterra Seeds, Cargill, DL Seeds, Proven Seed/Nutrien Ag Solutions, DEKALB, Syngenta and Pioneer.

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TOOLS TO HELP YOU MAKE BETTER CHOICES

Canola Performance Trials (CPT) include both small plot and large field scale trials. Results are based on 42 field scale trials across the Prairies, including 13 standard trials, 20 straight cut trials and nine 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.

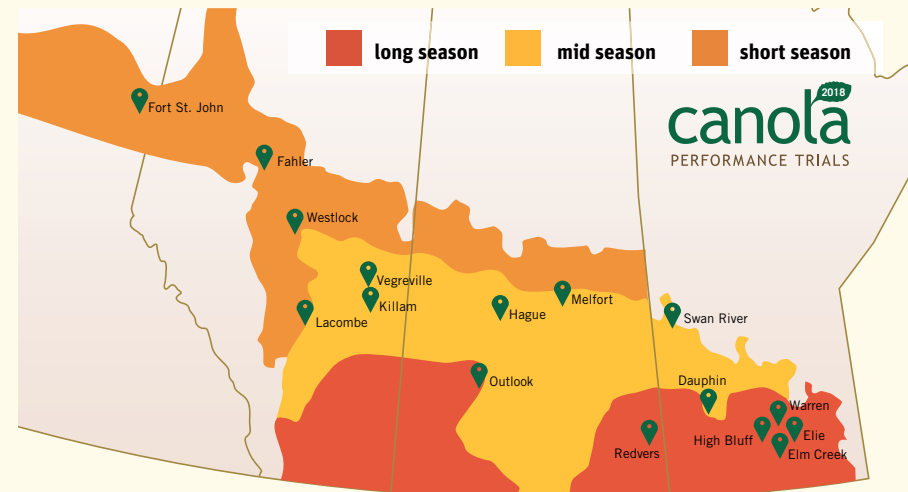
CV – For coefficient of variation (CV), the lower the CV value, the more reliable the test. For example, if comparing results from two test

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 average, seasonal pricing and 50-lb. bushel weight. Producers are encouraged to seek their own regional pricing. 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.

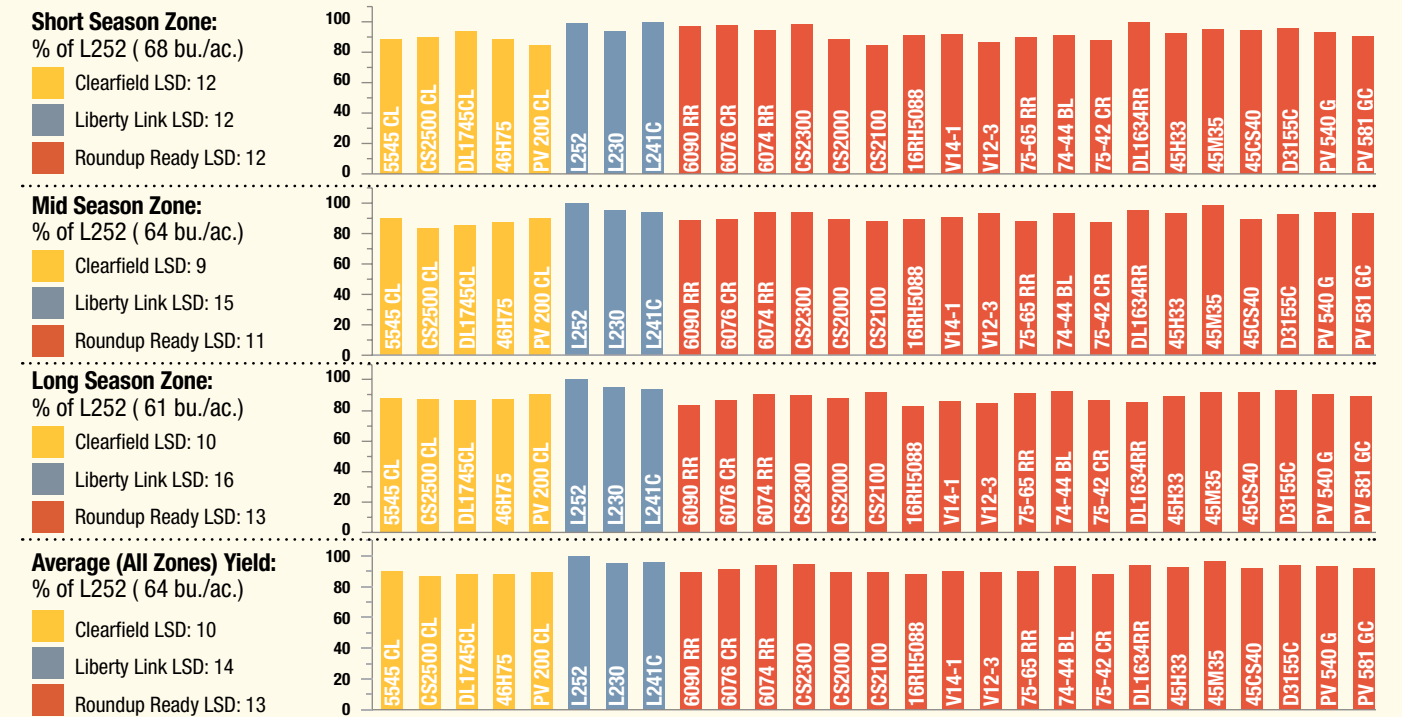
| Table A: Season Zones | | |
|-----------------------|-----------------|---------------------------------|
| Season | Frost Free Days | Growing Degree Days (Base 5°C)* |
| Short | 75–95 | 1,100–1,450 |
| Medium | 95–115 | 1,450–1,700 |
| Long | 115+ | 1,700+ |

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

Canola performance trials 2018 results: average results by season zone (small plot data)

| Variety | Long Season Zone (6 locations) | | | | Mid Season Zone (8 locations) | | | | Short Season Zone (4 locations) | | | | Overall average (all zones) | | | | Disease tolerance (4) | | | Distributor |
|----------------------|--------------------------------|----------------|-----------------|-----------------|-------------------------------|----------------|-----------------|-----------------|---------------------------------|----------------|-----------------|-----------------|-----------------------------|----------------|-----------------|-----------------|-------------------------|---------------------|------------------------|-----------------------------|
| | Yield (bu./acre) | Yield (% 5440) | Maturity (days) | Height (inches) | Yield (bu./acre) | Yield (% 5440) | Maturity (days) | Height (inches) | Yield (bu./acre) | Yield (% 5440) | Maturity (days) | Height (inches) | Yield (bu./acre) | Yield (% 5440) | Maturity (days) | Height (inches) | Blackleg resistance (5) | Clubroot resistance | Sclerotinia resistance | |
| Clearfield | | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 54 | 88 | 86 | 47 | 59 | 90 | 91 | 48 | 61 | 90 | 107 | 52 | 58 | 90 | 92 | 49 | BL (R - CE1) | | | BrettYoung |
| CS2500 CL | 53 | 88 | 86 | 47 | 54 | 84 | 90 | 47 | 61 | 91 | 108 | 52 | 55 | 87 | 92 | 48 | BL (R-C) | | | Canterra Seeds |
| DL1745CL | 52 | 87 | 88 | 48 | 55 | 86 | 93 | 49 | 64 | 95 | 108 | 52 | 56 | 88 | 94 | 49 | BL (R) | | | DL Seeds |
| 46H75 | 53 | 87 | 87 | 46 | 56 | 88 | 94 | 47 | 62 | 92 | 107 | 53 | 57 | 89 | 94 | 48 | BL (R) | | | Pioneer |
| PV 200 CL | 55 | 91 | 85 | 46 | 57 | 90 | 91 | 46 | 58 | 86 | 106 | 49 | 57 | 89 | 92 | 47 | BL (R) | | | Proven/Nutrien Ag Solutions |
| LSD | 6 | 10 | | | 6 | 9 | | | 8 | 12 | | | 7 | 10 | | | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | | |
| L252 | 61 | 100 | 85 | 45 | 64 | 100 | 91 | 46 | 68 | 100 | 108 | 50 | 64 | 100 | 92 | 47 | BL (R) | | | BASF - InVigor |
| L230 | 57 | 95 | 84 | 45 | 61 | 95 | 89 | 44 | 64 | 95 | 103 | 50 | 60 | 95 | 90 | 46 | BL (R) | | | BASF - InVigor |
| L241C | 57 | 94 | 85 | 45 | 59 | 94 | 90 | 45 | 68 | 101 | 105 | 51 | 60 | 96 | 91 | 46 | BL (R) | R | | BASF - InVigor |
| LSD | 10 | 16 | | | 9 | 15 | | | 8 | 12 | | | 9 | 14 | | | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 51 | 84 | 89 | 51 | 57 | 89 | 93 | 51 | 66 | 98 | 107 | 58 | 57 | 89 | 94 | 53 | BL (R - CE1) | R | | BrettYoung |
| 6076 CR | 52 | 87 | 87 | 48 | 58 | 90 | 92 | 48 | 67 | 99 | 108 | 54 | 58 | 91 | 93 | 49 | BL (R - CE1) | R | * | BrettYoung |
| 6074 RR | 55 | 91 | 86 | 45 | 60 | 94 | 92 | 45 | 65 | 96 | 109 | 51 | 59 | 93 | 93 | 46 | BL (R - C) | | | BrettYoung |
| CS23002 | 55 | 90 | 86 | 48 | 60 | 94 | 93 | 49 | 67 | 100 | 109 | 55 | 60 | 94 | 93 | 50 | BL (R-C) | | | Canterra Seeds |
| CS2000 | 53 | 88 | 85 | 45 | 57 | 90 | 90 | 46 | 60 | 90 | 106 | 52 | 57 | 89 | 91 | 47 | BL (R - CE1) | R | | Canterra Seeds |
| CS2100 | 55 | 92 | 86 | 44 | 56 | 88 | 93 | 44 | 58 | 86 | 110 | 51 | 56 | 89 | 94 | 46 | BL (R - ACG) | | | Canterra Seeds |
| 16RH5088 | 50 | 83 | 87 | 46 | 57 | 90 | 93 | 49 | 62 | 93 | 110 | 53 | 56 | 88 | 94 | 49 | BL (R) | R | | Cargill - VICTORY |
| V14-11 | 53 | 86 | 87 | 47 | 58 | 91 | 92 | 47 | 63 | 93 | 112 | 51 | 57 | 90 | 94 | 48 | BL (R) | R | | Cargill - VICTORY |
| V12-31 | 52 | 85 | 85 | 44 | 59 | 93 | 91 | 44 | 59 | 88 | 107 | 48 | 56 | 89 | 92 | 45 | BL (R) | R | | Cargill - VICTORY |
| 75-65 RR | 55 | 92 | 83 | 43 | 56 | 88 | 89 | 44 | 61 | 91 | 107 | 51 | 57 | 90 | 90 | 45 | BL (R-C) | | | DeKalb |
| 74-44 BL | 56 | 92 | 84 | 43 | 59 | 94 | 90 | 44 | 62 | 92 | 108 | 50 | 59 | 93 | 91 | 45 | BL (R-ACG) | | | DeKalb |
| 75-42 CR | 52 | 87 | 85 | 44 | 56 | 88 | 90 | 45 | 60 | 89 | 106 | 51 | 56 | 88 | 91 | 46 | BL (R-AC) | R | | DeKalb |
| DL1634RR | 52 | 86 | 88 | 49 | 62 | 96 | 93 | 50 | 68 | 101 | 110 | 55 | 60 | 93 | 95 | 51 | BL (R) | | | DL Seeds |
| 45H33 | 54 | 89 | 85 | 45 | 59 | 93 | 91 | 49 | 63 | 94 | 105 | 53 | 58 | 92 | 91 | 49 | BL (R) | R | | Pioneer |
| 45M35 | 56 | 92 | 84 | 44 | 63 | 99 | 91 | 45 | 65 | 96 | 107 | 50 | 61 | 96 | 91 | 46 | BL (MR) | | | Pioneer |
| 45CS40 | 55 | 92 | 85 | 47 | 58 | 90 | 91 | 48 | 64 | 96 | 106 | 54 | 58 | 92 | 91 | 49 | BL (R) | R | * | Pioneer |
| D3155C | 56 | 93 | 85 | 46 | 60 | 93 | 91 | 49 | 65 | 97 | 106 | 54 | 60 | 94 | 92 | 49 | BL (R) | R | | Brevant |
| PV 540 G | 55 | 91 | 86 | 44 | 61 | 94 | 92 | 46 | 63 | 94 | 108 | 52 | 59 | 93 | 93 | 46 | BL (R) | | | Proven/Nutrien Ag Solutions |
| PV 581 GC | 54 | 89 | 87 | 46 | 60 | 94 | 93 | 48 | 62 | 91 | 108 | 53 | 58 | 92 | 93 | 49 | BL (R) | | | Proven/Nutrien Ag Solutions |
| LSD | 8 | 13 | | | 7 | 11 | | | 8 | 12 | | | 8 | 13 | | | | | | |

NOTES: (1) Indicates varieties with specialty oil profiles and premiums associated with pricing. (2) Previously was DL1512RR, developed by DL Seeds. (3) Previously was DL1630RR, developed by DL Seeds. (4) An "R" or "(R)" resistant rating indicates genetic disease resistance to blackleg (BL) or clubroot and "MR" indicates moderate genetic disease resistance. *Indicates an improved tolerance to sclerotinia, as based on variety descriptions submitted to CFIA. (5) See bit.ly/brlabel for a description of the new, two-part blackleg resistance labelling system, which explains the descriptive letters (A,C,E1,G) included in the BL (R) ratings.



LONG SEASON ZONE | Small plot results by location

| Variety | ELIE, MB | | | | | | ELM CREEK, MB | | | | | | HIGH BLUFF, MB | | | | | | 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.) | |
| Clearfield | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 63 | 92 | \$702 | 83.0 | 1.0 | 52.9 | 62 | 96 | \$693 | 83.0 | 1.3 | 44.3 | 50 | 90 | \$554 | 83.5 | 2.8 | 54.6 | BrettYoung |
| CS2500 CL | 64 | 93 | \$711 | 84.5 | 1.0 | 53.9 | 61 | 94 | \$679 | 83.0 | 1.3 | 49.6 | 48 | 87 | \$538 | 83.5 | 1.8 | 52.7 | Canterra Seeds |
| DL1745CL | 57 | 83 | \$630 | 85.0 | 1.0 | 50.5 | 61 | 93 | \$678 | 85.0 | 1.8 | 46.8 | 51 | 93 | \$572 | 86.3 | 2.0 | 57.1 | DL Seeds |
| 46H75 | 59 | 87 | \$663 | 83.0 | 1.0 | 50.5 | 68 | 105 | \$763 | 85.0 | 1.8 | 47.0 | 51 | 92 | \$565 | 85.3 | 2.0 | 51.7 | Pioneer |
| PV 200 CL | 61 | 89 | \$677 | 83.8 | 1.0 | 53.9 | 64 | 98 | \$714 | 83.0 | 1.0 | 39.6 | 49 | 89 | \$549 | 83.3 | 2.3 | 55.6 | Proven/Nutrien Ag Solutions |
| LSD | 6 | 8 | | | | | 6 | 9 | | | | | 6 | 10 | | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | |
| L252 | 68 | 100 | \$762 | 82.5 | 1.0 | 51.4 | 65 | 100 | \$726 | 83.0 | 1.0 | 44.9 | 55 | 100 | \$617 | 83.3 | 1.8 | 50.7 | BASF - Invigor |
| L230 | 65 | 96 | \$728 | 84.8 | 1.0 | 51.9 | 62 | 96 | \$694 | 83.0 | 1.0 | 41.2 | 53 | 96 | \$591 | 77.8 | 2.0 | 54.1 | BASF - Invigor |
| L241C | 63 | 92 | \$702 | 86.0 | 1.0 | 50.5 | 66 | 102 | \$737 | 83.0 | 1.3 | 46.0 | 52 | 94 | \$579 | 79.8 | 1.5 | 51.2 | BASF - Invigor |
| LSD | 10 | 15 | | | | | 12 | 18 | | | | | 2 | 3 | | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 60 | 88 | \$668 | 87.5 | 1.3 | 54.2 | 55 | 85 | \$614 | 87.0 | 1.0 | 54.1 | 48 | 86 | \$533 | 83.8 | 2.0 | 56.6 | BrettYoung |
| 6076 CR | 66 | 96 | \$731 | 87.3 | 1.0 | 49.9 | 53 | 81 | \$589 | 85.0 | 1.5 | 44.8 | 51 | 92 | \$570 | 81.8 | 2.0 | 55.6 | BrettYoung |
| 6074 RR | 69 | 100 | \$764 | 81.8 | 1.0 | 49.5 | 54 | 83 | \$603 | 85.0 | 1.5 | 46.1 | 51 | 92 | \$569 | 80.8 | 1.5 | 50.7 | BrettYoung |
| CS23002 | 65 | 95 | \$724 | 84.8 | 1.0 | 54.6 | 58 | 89 | \$647 | 83.0 | 1.3 | 48.2 | 46 | 82 | \$508 | 83.3 | 2.0 | 54.1 | Canterra Seeds |
| CS2000 | 62 | 90 | \$686 | 85.0 | 1.3 | 50.7 | 57 | 87 | \$631 | 85.0 | 1.8 | 40.8 | 52 | 93 | \$574 | 77.5 | 2.5 | 51.2 | Canterra Seeds |
| CS2100 | 68 | 99 | \$752 | 87.0 | 1.3 | 53.3 | 61 | 93 | \$676 | 83.0 | 1.0 | 37.1 | 50 | 91 | \$559 | 84.5 | 2.0 | 51.2 | Canterra Seeds |
| 16RH5088 | 50 | 73 | \$555 | 86.8 | 1.0 | 50.0 | 55 | 84 | \$610 | 85.0 | 1.0 | 46.8 | 46 | 82 | \$507 | 84.5 | 1.5 | 52.2 | Cargill - Victory |
| V14-11 | 62 | 91 | \$765 | 86.3 | 1.0 | 52.3 | 59 | 90 | \$720 | 83.0 | 1.0 | 45.7 | 46 | 82 | \$561 | 82.0 | 1.5 | 51.2 | Cargill - Victory |
| V12-31 | 58 | 84 | \$706 | 87.0 | 1.3 | 50.8 | 55 | 84 | \$673 | 85.0 | 1.5 | 39.9 | 48 | 87 | \$589 | 80.3 | 2.0 | 51.7 | Cargill - Victory |
| 75-65 RR | 69 | 101 | \$772 | 86.5 | 1.3 | 49.9 | 58 | 89 | \$644 | 83.0 | 1.0 | 39.6 | 46 | 83 | \$512 | 77.8 | 2.0 | 48.7 | DeKalb |
| 74-44 BL | 62 | 90 | \$687 | 81.8 | 1.3 | 47.9 | 66 | 101 | \$734 | 83.0 | 1.3 | 44.0 | 45 | 81 | \$500 | 78.5 | 1.3 | 48.7 | DeKalb |
| 75-42 CR | 61 | 89 | \$680 | 88.8 | 1.0 | 51.3 | 55 | 84 | \$613 | 83.0 | 1.3 | 42.0 | 47 | 85 | \$527 | 80.8 | 1.5 | 50.2 | DeKalb |
| DL1634RR | 62 | 90 | \$688 | 84.5 | 1.3 | 53.3 | 51 | 78 | \$567 | 87.0 | 1.0 | 52.7 | 53 | 95 | \$588 | 85.0 | 1.3 | 54.6 | DL Seeds |
| 45H33 | 63 | 92 | \$702 | 88.3 | 1.0 | 50.3 | 59 | 91 | \$657 | 83.0 | 1.5 | 41.5 | 47 | 86 | \$528 | 77.5 | 2.8 | 51.2 | Pioneer |
| 45M35 | 67 | 98 | \$749 | 84.8 | 1.3 | 49.6 | 58 | 90 | \$650 | 83.0 | 1.5 | 40.6 | 48 | 87 | \$534 | 78.5 | 2.5 | 48.7 | Pioneer |
| 45CS40 | 60 | 88 | \$668 | 85.0 | 1.5 | 54.4 | 63 | 96 | \$700 | 83.0 | 1.3 | 45.5 | 51 | 93 | \$570 | 78.5 | 2.5 | 53.6 | Pioneer |
| D3155C | 68 | 99 | \$755 | 88.5 | 1.5 | 51.5 | 60 | 92 | \$666 | 83.0 | 1.0 | 38.4 | 50 | 91 | \$558 | 78.5 | 3.0 | 54.1 | Brevant |
| PV 540 G | 67 | 98 | \$746 | 84.3 | 1.3 | 48.3 | 61 | 94 | \$682 | 83.0 | 1.3 | 40.4 | 51 | 93 | \$572 | 81.0 | 1.8 | 50.7 | Proven/Nutrien Ag Solutions |
| PV 581 GC | 62 | 90 | \$686 | 86.5 | 1.0 | 52.7 | 60 | 92 | \$668 | 83.0 | 1.0 | 45.9 | 51 | 93 | \$572 | 82.0 | 2.3 | 51.2 | Proven/Nutrien Ag Solutions |
| LSD | 13 | 19 | | | | | 7 | 11 | | | | | 6 | 11 | | | | | |
| CV | 13.1 | | | | | | 8.2 | | | | | | 8.0 | | | | | | |

(1) Indicates varieties with specialty oil profiles and premiums associated with pricing. (2) Previously was DL1512RR, developed by DL Seeds. (3) Previously was DL1630RR, developed by DL Seeds.

| Variety | WARREN, MB | | | | | | OUTLOOK, SK | | | | | | REDVERS, SK | | | | | | 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.) | |
| Clearfield | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 35 | 85 | \$390 | 85.0 | 1.5 | 35.6 | 74 | 86 | \$824 | 87.0 | 1.8 | 43.4 | 39 | 82 | \$436 | 92.3 | 1.3 | 50.6 | Cargill - Victory |
| CS2500 CL | 36 | 87 | \$402 | 84.0 | 1.0 | 35.2 | 67 | 78 | \$745 | 88.3 | 1.5 | 41.6 | 41 | 86 | \$457 | 92.0 | 1.3 | 49.1 | CANTERRA SEEDS |
| DL1745CL | 34 | 83 | \$382 | 90.5 | 1.5 | 35.6 | 66 | 77 | \$738 | 87.5 | 1.8 | 45.8 | 44 | 91 | \$487 | 93.8 | 1.3 | 49.8 | DL Seeds |
| 46H75 | 33 | 81 | \$372 | 87.0 | 1.5 | 34.3 | 68 | 79 | \$754 | 87.0 | 1.3 | 43.3 | 39 | 81 | \$434 | 93.0 | 1.0 | 50.0 | Pioneer |
| PV 200 CL | 38 | 93 | \$429 | 85.5 | 1.0 | 35.0 | 69 | 81 | \$773 | 85.8 | 2.5 | 43.9 | 45 | 94 | \$503 | 90.0 | 1.3 | 47.2 | Proven/Nutrien Ag Solutions |
| LSD | 4 | 10 | | | | | 11 | 13 | | | | | 5 | 10 | | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | |
| L252 | 41 | 100 | \$460 | 81.5 | 1.0 | 34.4 | 86 | 100 | \$958 | 89.5 | 2.0 | 41.0 | 48 | 100 | \$533 | 91.5 | 1.4 | 50.1 | BASF - InVigor |
| L230 | 41 | 99 | \$456 | 80.5 | 1.5 | 35.2 | 72 | 84 | \$805 | 87.3 | 2.0 | 41.0 | 48 | 100 | \$532 | 90.3 | 1.0 | 47.2 | BASF - InVigor |
| L241C | 36 | 87 | \$400 | 82.0 | 1.0 | 33.9 | 78 | 90 | \$865 | 88.5 | 1.5 | 41.3 | 48 | 99 | \$529 | 92.0 | 1.1 | 48.3 | BASF - InVigor |
| LSD | 11 | 28 | | | | | 15 | 17 | | | | | 9 | 19 | | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 33 | 79 | \$365 | 91.5 | 1.5 | 38.0 | 76 | 88 | \$847 | 89.8 | 2.3 | 50.1 | 36 | 76 | \$404 | 93.0 | 1.9 | 55.0 | BrettYoung |
| 6076 CR | 38 | 93 | \$429 | 85.5 | 1.0 | 36.4 | 66 | 77 | \$735 | 90.0 | 1.5 | 47.3 | 39 | 82 | \$439 | 92.5 | 1.3 | 51.6 | BrettYoung |
| 6074 RR | 39 | 94 | \$430 | 86.0 | 1.0 | 33.3 | 78 | 91 | \$872 | 88.8 | 2.0 | 40.4 | 41 | 85 | \$452 | 93.0 | 1.1 | 48.5 | BrettYoung |
| CS23002 | 35 | 85 | \$389 | 86.0 | 1.5 | 35.4 | 77 | 90 | \$858 | 88.0 | 1.5 | 43.4 | 48 | 101 | \$539 | 93.8 | 1.1 | 53.6 | Canterra Seeds |
| CS2000 | 37 | 90 | \$412 | 83.5 | 1.5 | 37.8 | 70 | 82 | \$781 | 87.0 | 2.8 | 42.5 | 42 | 88 | \$467 | 91.3 | 1.9 | 47.5 | Canterra Seeds |
| CS2100 | 40 | 97 | \$446 | 81.5 | 1.5 | 34.1 | 66 | 77 | \$735 | 88.8 | 1.8 | 40.8 | 45 | 94 | \$503 | 91.5 | 1.1 | 49.1 | Canterra Seeds |
| 16RH5088 | 33 | 79 | \$363 | 85.5 | 1.0 | 33.1 | 71 | 83 | \$791 | 88.5 | 1.0 | 46.2 | 45 | 95 | \$504 | 92.8 | 1.1 | 49.2 | Cargill - Victory |
| V14-11 | 32 | 78 | \$395 | 86.0 | 1.0 | 33.5 | 73 | 84 | \$892 | 89.0 | 1.0 | 46.2 | 44 | 91 | \$536 | 93.3 | 1.1 | 51.8 | Cargill - Victory |
| V12-31 | 35 | 84 | \$426 | 81.0 | 1.0 | 33.1 | 73 | 84 | \$891 | 86.0 | 2.5 | 40.9 | 42 | 87 | \$510 | 91.8 | 1.1 | 48.2 | Cargill - Victory |
| 75-65 RR | 41 | 100 | \$459 | 79.0 | 1.0 | 34.1 | 66 | 77 | \$740 | 85.0 | 2.0 | 38.1 | 48 | 99 | \$530 | 89.5 | 1.3 | 47.9 | DEKALB |
| 74-44 BL | 39 | 96 | \$440 | 82.0 | 1.0 | 33.1 | 73 | 85 | \$810 | 87.8 | 2.3 | 39.2 | 49 | 102 | \$543 | 90.3 | 1.1 | 46.5 | DEKALB |
| 75-42 CR | 37 | 89 | \$408 | 81.5 | 1.0 | 32.5 | 67 | 77 | \$742 | 86.0 | 2.0 | 39.4 | 46 | 96 | \$512 | 91.0 | 1.0 | 46.9 | DEKALB |
| DL1634RR | 35 | 84 | \$388 | 91.0 | 1.0 | 36.4 | 75 | 87 | \$836 | 90.0 | 1.3 | 45.0 | 37 | 78 | \$415 | 93.0 | 1.1 | 53.5 | DL Seeds |
| 45H33 | 38 | 93 | \$429 | 82.5 | 1.0 | 35.8 | 68 | 79 | \$761 | 86.3 | 2.5 | 41.9 | 46 | 95 | \$507 | 91.0 | 1.4 | 48.8 | Pioneer |
| 45M35 | 39 | 93 | \$429 | 81.5 | 1.0 | 35.6 | 81 | 94 | \$903 | 85.5 | 2.3 | 39.8 | 43 | 90 | \$478 | 91.3 | 1.1 | 48.6 | Pioneer |
| 45CS40 | 42 | 102 | \$469 | 84.0 | 1.0 | 39.2 | 70 | 81 | \$780 | 88.0 | 1.8 | 41.5 | 44 | 92 | \$488 | 90.5 | 1.8 | 49.2 | Pioneer |
| D3155C | 40 | 96 | \$443 | 80.5 | 1.0 | 38.2 | 72 | 83 | \$797 | 86.8 | 3.0 | 42.8 | 46 | 97 | \$516 | 91.3 | 1.8 | 50.3 | Brevant |
| PV 540 G | 40 | 98 | \$449 | 85.5 | 1.0 | 35.4 | 68 | 79 | \$761 | 87.5 | 2.0 | 40.6 | 39 | 82 | \$437 | 92.0 | 1.0 | 47.8 | Proven/Nutrien Ag Solutions |
| PV 581 GC | 38 | 93 | \$426 | 88.5 | 1.0 | 36.4 | 69 | 80 | \$764 | 87.5 | 2.3 | 41.8 | 42 | 87 | \$466 | 92.3 | 1.0 | 50.4 | Proven/Nutrien Ag Solutions |
| LSD | 7 | 18 | | | | | 8 | 9 | | | | | 6 | 13 | | | | | |
| CV | 10.1 | | | | | | 9.1 | | | | | | 9.9 | | | | | | |

(1) Indicates varieties with specialty oil profiles and premiums associated with pricing. (2) Previously was DL1512RR, developed by DL Seeds. (3) Previously was DL1630RR, developed by DL Seeds.

MID SEASON ZONE | Small plot results by location

| Variety | DAUPHIN, MB | | | | | | SWAN RIVER, MB | | | | | | ALVENA, SK | | | | | | HAGUE, SK | | | | | | 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.) | Yield (bu/acre) | Yield (% 5440) | Gross Revenue/ac. | Days to Maturity | Lodging | Height (in.) | |
| Clearfield | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 64 | 88 | \$709 | 91.0 | 2.5 | 53.1 | 79 | 98 | \$877 | 91.3 | 2.9 | 49.3 | 57 | 96 | \$634 | 86.0 | 1.0 | 45.6 | 18 | 71 | \$196 | 85.7 | 1.0 | 41.1 | BrettYoung |
| CS2500 CL | 59 | 82 | \$659 | 91.3 | 2.0 | 53.0 | 68 | 84 | \$752 | 89.0 | 4.5 | 48.3 | 53 | 90 | \$591 | 83.5 | 1.0 | 42.1 | 19 | 77 | \$212 | 87.0 | 1.3 | 42.1 | Canterra Seeds |
| DL1745CL | 60 | 83 | \$669 | 93.5 | 2.0 | 53.3 | 71 | 88 | \$789 | 91.3 | 4.3 | 48.8 | 59 | 99 | \$652 | 87.0 | 1.0 | 47.1 | 19 | 75 | \$209 | 87.0 | 1.7 | 41.3 | DL Seeds |
| 46H75 | 66 | 92 | \$740 | 94.3 | 2.0 | 51.6 | 82 | 102 | \$916 | 96.3 | 4.1 | 48.5 | 53 | 90 | \$595 | 86.3 | 1.0 | 42.8 | 19 | 77 | \$214 | 87.0 | 1.3 | 41.7 | Pioneer |
| PV 200 CL | 66 | 92 | \$740 | 89.0 | 2.8 | 49.8 | 82 | 102 | \$908 | 91.0 | 2.9 | 47.3 | 58 | 99 | \$650 | 85.8 | 1.3 | 43.3 | 21 | 83 | \$230 | 87.0 | 1.3 | 41.1 | Proven/Nutrien Ag Solutions |
| LSD | 6 | 9 | | | | 10 | 12 | | | | | 1 | 2 | | | | | 3 | 13 | | | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | | | | | | | |
| L252 | 73 | 100 | \$808 | 89.8 | 2.0 | 51.0 | 80 | 100 | \$895 | 95.8 | 4.5 | 45.1 | 59 | 100 | \$659 | 86.0 | 1.0 | 42.0 | 25 | 100 | \$277 | 87.0 | 1.3 | 39.4 | BASF - InVigor |
| L230 | 67 | 92 | \$743 | 88.3 | 2.0 | 50.0 | 78 | 97 | \$865 | 91.8 | 4.9 | 42.6 | 52 | 89 | \$584 | 82.5 | 1.0 | 38.5 | 23 | 92 | \$256 | 85.7 | 1.7 | 39.5 | BASF - InVigor |
| L241C | 67 | 92 | \$746 | 89.0 | 2.3 | 50.0 | 68 | 85 | \$758 | 88.0 | 5.0 | 43.4 | 56 | 95 | \$625 | 85.5 | 1.0 | 44.0 | 27 | 109 | \$303 | 87.0 | 1.7 | 39.5 | BASF - InVigor |
| LSD | 7 | 10 | | | | 8 | 9 | | | | | 4 | 6 | | | | | 10 | 40 | | | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 64 | 88 | \$713 | 91.0 | 2.0 | 56.7 | 84 | 105 | \$936 | 92.8 | 4.0 | 54.2 | 56 | 95 | \$627 | 85.0 | 1.0 | 50.5 | 18 | 74 | \$204 | 87.0 | 1.3 | 44.8 | BrettYoung |
| 6076 CR | 66 | 91 | \$739 | 89.5 | 2.0 | 51.6 | 76 | 95 | \$851 | 91.3 | 3.5 | 48.4 | 56 | 94 | \$620 | 85.0 | 1.0 | 44.9 | 18 | 73 | \$202 | 87.0 | 1.3 | 41.7 | BrettYoung |
| 6074 RR | 70 | 96 | \$777 | 91.3 | 2.0 | 49.6 | 85 | 106 | \$952 | 93.8 | 3.8 | 46.5 | 59 | 100 | \$657 | 85.0 | 1.0 | 40.5 | 21 | 86 | \$237 | 87.0 | 1.3 | 37.9 | BrettYoung |
| CS23002 | 69 | 95 | \$767 | 90.5 | 2.0 | 53.1 | 85 | 106 | \$949 | 94.3 | 4.0 | 50.0 | 65 | 110 | \$724 | 84.8 | 1.0 | 48.4 | 21 | 86 | \$237 | 87.0 | 1.3 | 44.4 | Canterra Seeds |
| CS2000 | 62 | 85 | \$689 | 89.8 | 2.8 | 51.2 | 83 | 103 | \$924 | 90.8 | 2.8 | 49.2 | 57 | 96 | \$635 | 83.5 | 1.3 | 39.5 | 21 | 84 | \$232 | 85.7 | 1.3 | 39.6 | Canterra Seeds |
| CS2100 | 66 | 92 | \$740 | 91.0 | 2.3 | 49.2 | 82 | 102 | \$912 | 96.3 | 3.5 | 46.5 | 56 | 95 | \$628 | 87.0 | 1.0 | 41.2 | 20 | 80 | \$222 | 87.0 | 1.7 | 40.7 | Canterra Seeds |
| 16RH5088 | 62 | 85 | \$688 | 90.3 | 2.0 | 51.6 | 76 | 95 | \$849 | 94.3 | 5.0 | 49.5 | 60 | 102 | \$672 | 86.8 | 1.0 | 49.4 | 21 | 86 | \$237 | 87.0 | 1.3 | 39.5 | Cargill - Victory |
| V14-11 | 68 | 94 | \$836 | 90.3 | 2.0 | 52.8 | 79 | 99 | \$973 | 92.8 | 5.0 | 45.8 | 55 | 93 | \$677 | 87.3 | 1.0 | 44.7 | 21 | 86 | \$263 | 87.0 | 1.7 | 40.9 | Cargill - Victory |
| V12-31 | 65 | 90 | \$798 | 90.0 | 2.0 | 49.2 | 83 | 103 | \$1,020 | 91.3 | 4.3 | 45.9 | 58 | 97 | \$706 | 86.0 | 1.0 | 41.5 | 25 | 99 | \$302 | 85.7 | 1.3 | 39.1 | Cargill - Victory |
| 75-65 RR | 62 | 86 | \$692 | 86.5 | 3.0 | 43.9 | 78 | 97 | \$864 | 90.5 | 3.8 | 45.6 | 56 | 95 | \$625 | 85.0 | 1.3 | 39.2 | 22 | 89 | \$247 | 84.3 | 1.7 | 39.0 | DEKALB |
| 74-44 BL | 67 | 92 | \$746 | 89.3 | 2.0 | 45.9 | 80 | 99 | \$888 | 92.0 | 3.8 | 44.7 | 57 | 96 | \$629 | 85.3 | 1.0 | 38.5 | 24 | 96 | \$265 | 83.0 | 1.3 | 39.6 | DEKALB |
| 75-42 CR | 65 | 90 | \$729 | 87.5 | 2.0 | 46.5 | 73 | 91 | \$814 | 91.5 | 4.0 | 45.8 | 53 | 90 | \$594 | 85.3 | 1.0 | 41.1 | 19 | 76 | \$210 | 84.3 | 1.3 | 38.6 | DEKALB |
| DL1634RR | 70 | 96 | \$776 | 91.5 | 2.0 | 55.1 | 88 | 110 | \$982 | 92.0 | 3.9 | 50.7 | 62 | 104 | \$687 | 86.5 | 1.0 | 45.5 | 20 | 79 | \$220 | 87.0 | 1.7 | 41.2 | DL Seeds |
| 45H33 | 65 | 90 | \$728 | 87.8 | 2.3 | 50.2 | 84 | 104 | \$933 | 94.0 | 4.8 | 50.9 | 59 | 100 | \$656 | 84.5 | 1.0 | 46.6 | 21 | 86 | \$237 | 83.0 | 1.0 | 42.4 | Pioneer |
| 45M35 | 65 | 90 | \$727 | 90.0 | 2.8 | 47.8 | 88 | 110 | \$985 | 94.8 | 3.3 | 45.6 | 61 | 103 | \$679 | 84.8 | 1.3 | 42.4 | 21 | 86 | \$238 | 84.3 | 1.7 | 37.7 | Pioneer |
| 45CS40 | 64 | 88 | \$709 | 89.5 | 2.5 | 51.2 | 80 | 100 | \$895 | 91.3 | 4.8 | 48.8 | 53 | 90 | \$596 | 84.8 | 1.0 | 47.2 | 19 | 77 | \$212 | 85.7 | 1.0 | 41.6 | Pioneer |
| D3155C | 64 | 88 | \$707 | 90.8 | 2.8 | 53.3 | 86 | 107 | \$958 | 94.0 | 3.1 | 50.8 | 56 | 94 | \$618 | 83.3 | 1.3 | 44.0 | 18 | 74 | \$206 | 85.7 | 1.0 | 42.1 | Brevant |
| PV 540 G | 68 | 94 | \$757 | 88.3 | 2.3 | 47.4 | 84 | 105 | \$940 | 93.3 | 4.5 | 47.0 | 59 | 100 | \$657 | 85.5 | 1.0 | 43.3 | 20 | 80 | \$221 | 87.0 | 1.0 | 39.4 | Proven/Nutrien Ag Solutions |
| PV 581 GC | 67 | 93 | \$751 | 90.3 | 2.3 | 52.2 | 85 | 106 | \$948 | 96.5 | 4.3 | 49.0 | 56 | 95 | \$624 | 86.8 | 1.0 | 45.4 | 22 | 87 | \$241 | 85.7 | 1.3 | 40.7 | Proven/Nutrien Ag Solutions |
| LSD | 5 | 7 | | | | 9 | 12 | | | | | 5.2 | 9 | | | | | 3 | 12 | | | | | | |
| CV | 6.0 | | | | | 8.7 | | | | | | 5.9 | | | | | | 10.8 | | | | | | | |

(1) Indicates varieties with specialty oil profiles and premiums associated with pricing. (2) Previously was DL1512RR, developed by DL Seeds. (3) Previously was DL1630RR, developed by DL Seeds.

MID SEASON ZONE | Small plot results by location

| Variety | MELFORT, SK | | | | | | PIKE LAKE, SK | | | | | | KILLAM, AB | | | | | | HAGUE, SK | | | | | | 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.) | Yield (bu/acre) | Yield (% 5440) | Gross Revenue/ac. | Days to Maturity | Lodging | Height (in.) | |
| Clearfield | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 57 | 92 | \$631 | 98.7 | 1.7 | | 52 | 93 | \$582 | 91.7 | 1.0 | 44.6 | 60 | 86 | \$663 | 94.3 | 2.8 | 47.7 | 85 | 99 | \$945 | | 1.0 | 54.1 | BrettYoung |
| CS2500 CL | 58 | 93 | \$644 | 97.0 | 2.0 | | 44 | 77 | \$485 | 89.7 | 1.0 | 43.3 | 59 | 86 | \$659 | 95.5 | 2.5 | 46.3 | 70 | 82 | \$782 | | 1.0 | 52.1 | Canterra Seeds |
| DL1745CL | 57 | 91 | \$630 | 102.3 | 1.7 | | 51 | 90 | \$564 | 92.3 | 1.0 | 47.2 | 60 | 87 | \$666 | 95.5 | 1.8 | 51.7 | 63 | 73 | \$696 | | 1.0 | 52.9 | DL Seeds |
| 46H75 | 62 | 101 | \$695 | 105.0 | 2.0 | | 50 | 88 | \$555 | 89.7 | 1.0 | 43.7 | 58 | 84 | \$643 | 96.8 | 2.3 | 48.7 | 59 | 69 | \$656 | | 1.0 | 53.4 | Pioneer |
| PV 200 CL | 63 | 102 | \$705 | 98.0 | 2.7 | | 48 | 86 | \$540 | 91.0 | 1.0 | 41.3 | 62 | 89 | \$685 | 95.0 | 2.8 | 47.7 | 59 | 68 | \$653 | | 1.0 | 53.1 | Proven/Nutrien Ag Solutions |
| LSD | 5 | 7 | | | | | 10 | 18 | | | | 5 | 8 | | | | | 8 | 9 | | | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | | | | | | | |
| L252 | 62 | 100 | \$689 | 97.3 | 1.7 | | 56 | 100 | \$628 | 90.3 | 1.0 | 45.1 | 69 | 100 | \$769 | 94.0 | 2.0 | 47.7 | 86 | 100 | \$956 | | 1.0 | 52.2 | BASF - InVigor |
| L230 | 61 | 99 | \$682 | 94.7 | 2.0 | | 58 | 103 | \$647 | 87.7 | 1.0 | 38.9 | 63 | 91 | \$696 | 91.3 | 1.5 | 46.3 | 86 | 100 | \$960 | | 1.0 | 53.9 | BASF - InVigor |
| L241C | 60 | 97 | \$668 | 99.3 | 1.3 | | 53 | 94 | \$588 | 90.3 | 1.0 | 42.4 | 65 | 95 | \$729 | 93.0 | 2.0 | 47.7 | 72 | 84 | \$802 | | 1.0 | 49.9 | BASF - InVigor |
| LSD | 9 | 15 | | | | | 5 | 8 | | | | 6 | 9 | | | | | 26 | 31 | | | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 54 | 91 | \$596 | 104.0 | 2.0 | | 44 | 78 | \$493 | 92.3 | 1.0 | 49.9 | 62 | 90 | \$692 | 95.5 | 2.3 | 53.6 | 76 | 89 | \$847 | | 1.0 | 49.7 | BrettYoung |
| 6076 CR | 58 | 99 | \$651 | 102.3 | 2.0 | | 49 | 86 | \$541 | 92.3 | 1.0 | 44.8 | 64 | 93 | \$714 | 96.5 | 3.0 | 51.2 | 73 | 86 | \$818 | | 1.0 | 51.8 | BrettYoung |
| 6074 RR | 66 | 112 | \$739 | 104.7 | 2.0 | | 49 | 88 | \$551 | 91.0 | 1.0 | 40.7 | 63 | 91 | \$703 | 93.5 | 2.8 | 48.2 | 64 | 74 | \$707 | | 1.0 | 52.8 | BrettYoung |
| CS23002 | 62 | 105 | \$691 | 102.3 | 2.0 | | 44 | 79 | \$495 | 91.7 | 1.0 | 40.0 | 65 | 93 | \$718 | 97.5 | 2.5 | 51.7 | 68 | 79 | \$757 | | 1.0 | 54.9 | Canterra Seeds |
| CS2000 | 60 | 101 | \$665 | 97.3 | 3.0 | | 48 | 86 | \$539 | 91.7 | 1.0 | 45.3 | 59 | 86 | \$659 | 94.3 | 3.8 | 46.8 | 66 | 77 | \$739 | | 1.0 | 52.9 | Canterra Seeds |
| CS2100 | 59 | 101 | \$662 | 102.7 | 2.7 | | 42 | 75 | \$473 | 89.7 | 1.0 | 35.4 | 59 | 85 | \$653 | 97.0 | 3.0 | 48.7 | 66 | 77 | \$733 | | 1.0 | 49.0 | Canterra Seeds |
| 16RH5088 | 54 | 91 | \$597 | 100.3 | 2.0 | | 46 | 81 | \$511 | 91.7 | 1.0 | 43.7 | 64 | 93 | \$713 | 98.0 | 2.0 | 51.2 | 74 | 86 | \$826 | | 1.0 | 54.7 | Cargill - Victory |
| V14-11 | 59 | 99 | \$720 | 101.7 | 2.0 | | | | | | | | | | | | | | | | | | | | |

SHORT SEASON ZONE | Small plot results by location

| Variety | FALHER, AB | | | | | | LACOMBE, AB | | | | | | WESTLOCK, AB | | | | | | FT. SAINT 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.) | 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.) | |
| Clearfield | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5545 CL | 66 | 95 | \$740 | | | 48.8 | 65 | 85 | \$721 | 99.0 | 1.3 | 52.2 | 49 | 87 | \$545 | 104.8 | 1.0 | 50.4 | 64 | 93 | \$715 | 117.8 | | 56.1 | BrettYoung |
| CS2500 CL | 62 | 89 | \$694 | | | 47.6 | 58 | 76 | \$647 | 97.0 | 1.3 | 50.7 | 52 | 93 | \$584 | 108.0 | 1.0 | 50.6 | 73 | 105 | \$809 | 119.0 | | 59.5 | Canterra Seeds |
| DL1745CL | 64 | 91 | \$716 | | | 49.4 | 62 | 82 | \$695 | 100.8 | 1.8 | 50.7 | 62 | 110 | \$691 | 107.3 | 1.0 | 49.9 | 67 | 97 | \$743 | 116.8 | | 58.1 | DL Seeds |
| 46H75 | 68 | 96 | \$752 | | | 48.1 | 59 | 78 | \$661 | 102.0 | 1.0 | 52.7 | 59 | 104 | \$657 | 106.5 | 1.0 | 50.5 | 63 | 91 | \$701 | 113.3 | | 59.1 | Pioneer |
| PV 200 CL | 56 | 80 | \$628 | | | 46.1 | 66 | 87 | \$735 | 97.8 | 2.3 | 48.2 | 55 | 97 | \$608 | 106.0 | 1.0 | 48.4 | 56 | 81 | \$620 | 115.0 | | 54.6 | Proven/Nutrien Ag Solutions |
| LSD | 6 | 9 | | | | | 5 | 6 | | | | | 11 | 19 | | | | | | 12 | 17 | | | | |
| Liberty Link | | | | | | | | | | | | | | | | | | | | | | | | | |
| L252 | 70 | 100 | \$784 | | | 46.9 | 76 | 100 | \$849 | 101.5 | 1.0 | 52.7 | 57 | 100 | \$630 | 105.0 | 1.0 | 44.3 | 69 | 100 | \$767 | 117.0 | | 54.6 | BASF - InVigor |
| L230 | 61 | 87 | \$678 | | | 47.7 | 69 | 90 | \$763 | 91.8 | 1.0 | 51.7 | 60 | 105 | \$664 | 103.5 | 1.0 | 46.0 | 67 | 98 | \$752 | 114.8 | | 55.1 | BASF - InVigor |
| L241C | 65 | 92 | \$723 | | | 45.8 | 65 | 85 | \$723 | 94.3 | 1.0 | 52.7 | 71 | 125 | \$789 | 105.8 | 1.0 | 47.1 | 71 | 103 | \$788 | 114.8 | | 56.6 | BASF - InVigor |
| LSD | 6 | | | | | | 4 | 5 | | | | | 12 | 21 | | | | | | 11 | 16 | | | | |
| Roundup Ready | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6090 RR3 | 65 | 93 | \$729 | | | 52.5 | 71 | 93 | \$794 | 99.0 | 1.0 | 59.1 | 67 | 118 | \$745 | 105.3 | 1.0 | 57.2 | 60 | 88 | \$673 | 116.5 | | 62.5 | BrettYoung |
| 6076 CR | 61 | 86 | \$677 | | | 48.5 | 71 | 93 | \$787 | 99.5 | 1.8 | 55.1 | 66 | 116 | \$733 | 107.3 | 1.0 | 55.0 | 70 | 101 | \$777 | 117.0 | | 56.6 | BrettYoung |
| 6074 RR | 67 | 95 | \$745 | | | 44.4 | 73 | 96 | \$814 | 102.3 | 1.0 | 52.2 | 62 | 109 | \$685 | 105.0 | 1.0 | 48.7 | 58 | 84 | \$642 | 118.5 | | 57.1 | BrettYoung |
| CS23002 | 70 | 100 | \$784 | | | 51.4 | 72 | 95 | \$805 | 99.5 | 1.0 | 56.1 | 65 | 115 | \$722 | 105.8 | 1.0 | 52.6 | 62 | 90 | \$690 | 121.5 | | 58.6 | Canterra Seeds |
| CS2000 | 58 | 82 | \$643 | | | 46.5 | 67 | 88 | \$746 | 95.8 | 1.5 | 52.2 | 63 | 111 | \$696 | 105.0 | 1.0 | 53.7 | 55 | 79 | \$607 | 118.5 | | 55.6 | Canterra Seeds |
| CS2100 | 60 | 86 | \$672 | | | 47.2 | 69 | 90 | \$765 | 102.3 | 1.8 | 53.1 | 57 | 100 | \$632 | 106.5 | 1.0 | 48.8 | 45 | 66 | \$506 | 121.8 | | 53.6 | Canterra Seeds |
| 16RH5088 | 61 | 86 | \$677 | | | 48.1 | 70 | 92 | \$777 | 101.5 | 1.0 | 54.6 | 64 | 113 | \$710 | 108.0 | 1.0 | 54.6 | 55 | 80 | \$610 | 121.8 | | 55.1 | Cargill - Victory |
| V14-11 | 62 | 88 | \$690 | | | 44.1 | 70 | 92 | \$856 | 101.3 | 1.0 | 52.7 | 63 | 112 | \$777 | 106.5 | 1.0 | 50.6 | 55 | 80 | \$615 | 128.3 | | 55.1 | Cargill - Victory |
| V12-31 | 61 | 87 | \$682 | | | 43.5 | 64 | 83 | \$781 | 99.5 | 1.3 | 50.2 | 56 | 99 | \$687 | 104.5 | 1.0 | 48.1 | 56 | 81 | \$623 | 117.3 | | 51.2 | Cargill - Victory |
| 75-65 RR | 65 | 92 | \$723 | | | 48.4 | 67 | 88 | \$750 | 92.8 | 1.5 | 53.1 | 56 | 99 | \$626 | 104.5 | 1.0 | 48.4 | 58 | 84 | \$641 | 123.5 | | 52.2 | DEKALB |
| 74-44 BL | 63 | 89 | \$701 | | | 45.8 | 64 | 83 | \$708 | 98.3 | 1.0 | 49.7 | 62 | 109 | \$685 | 104.5 | 1.0 | 51.8 | 61 | 88 | \$679 | 120.0 | | 54.1 | DEKALB |
| 75-42 CR | 57 | 81 | \$635 | | | 45.2 | 68 | 89 | \$756 | 99.0 | 1.0 | 51.7 | 60 | 106 | \$670 | 103.5 | 1.0 | 50.2 | 56 | 81 | \$618 | 116.8 | | 56.1 | DEKALB |
| DL1634RR | 57 | 81 | \$636 | | | 49.2 | 73 | 96 | \$815 | 100.5 | 1.0 | 53.6 | 67 | 119 | \$751 | 106.5 | 1.0 | 54.4 | 75 | 108 | \$832 | 124.0 | | 62.0 | DL Seeds |
| 45H33 | 60 | 85 | \$667 | | | 49.6 | 67 | 87 | \$741 | 95.8 | 2.3 | 53.1 | 62 | 110 | \$693 | 104.5 | 1.0 | 53.4 | 64 | 93 | \$712 | 113.3 | | 57.1 | Pioneer |
| 45M35 | 64 | 91 | \$712 | | | 46.1 | 70 | 92 | \$781 | 99.3 | 2.0 | 51.2 | 65 | 114 | \$721 | 105.8 | 1.0 | 48.7 | 61 | 88 | \$674 | 116.3 | | 55.6 | Pioneer |
| 45CS40 | 63 | 89 | \$700 | | | 49.1 | 67 | 87 | \$741 | 95.3 | 1.3 | 55.6 | 67 | 119 | \$751 | 106.0 | 1.0 | 56.1 | 60 | 87 | \$666 | 118.0 | | 57.1 | Pioneer |
| D3155C | 67 | 95 | \$748 | | | 51.8 | 69 | 91 | \$774 | 94.8 | 1.5 | 55.1 | 65 | 116 | \$729 | 105.0 | 1.0 | 53.3 | 59 | 85 | \$653 | 118.8 | | 57.1 | Brevant |
| PV 540 G | 65 | 92 | \$721 | | | 48.4 | 65 | 85 | \$723 | 99.8 | 1.0 | 49.7 | 62 | 110 | \$693 | 105.8 | 1.0 | 50.2 | 61 | 89 | \$682 | 119.8 | | 59.1 | Proven/Nutrien Ag Solutions |
| PV 581 GC | 59 | 84 | \$660 | | | 48.0 | 67 | 88 | \$743 | 100.5 | 1.0 | 53.1 | 61 | 107 | \$675 | 105.3 | 1.0 | 54.6 | 60 | 87 | \$667 | 119.5 | | 57.6 | Proven/Nutrien Ag Solutions |
| LSD | 10 | 15 | | | | | 6 | 8 | | | | | 7 | 13 | | | | | | 10 | 14 | | | | |
| CV | 10.9 | | | | | 5.9 | | | | | | | 8.6 | | | | | | | 11.1 | | | | | |

(1) Indicates varieties with specialty oil profiles and premiums associated with pricing. (2) Previously was DL1512RR, developed by DL Seeds. (3) Previously was DL1630RR, developed by DL Seeds.

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.

| 2018 Straight Cut Trials - Yield as % of L233P | | | | |
|--|---------------|----------|--------------|-----------------|
| Location | Roundup Ready | | Liberty Link | |
| | 45M35 | 75-65 RR | L255PC | L233P (bu./ac.) |
| Long Season Zone | 98 | 96* | 97* | 100 (55.4) |
| Estevan, SK | 99 | 100 | 96 | 100 (53.2) |
| Gladstone, MB | 96 | 91 | 97 | 100 (45.0) |
| Langbank, SK | 99 | 96 | 98 | 100 (53.9) |
| Petersfield, MB | 97 | 95 | 100 | 100 (55.5) |
| Pilot Mound, MB | 94 | 91 | 94 | 100 (60.3) |
| St. Adolphe, MB | 102 | 100 | 99 | 100 (51.1) |
| St. Claude, MB | 98 | 96 | 95 | 100 (69.2) |
| Mid Season Zone | 97 | 96* | 99 | 100 (54.5) |
| Carbon, AB | 97 | 89 | 86 | 100 (36.9) |
| Clavet, SK | 88 | 96 | 102 | 100 (56.6) |
| Dauphin, MB | 100 | 97 | 101 | 100 (63.4) |
| High River, AB | 101 | 93 | 92 | 100 (39.6) |
| Indian Head, SK | 98 | 96 | 97 | 100 (73.0) |
| Kamsack, SK | 102 | 99 | 102 | 100 (72.0) |
| Regina, SK | 109 | 105 | 108 | 100 (54.5) |
| Ruddell, SK | 86 | 89 | 87 | 100 (57.9) |
| Strathmore, AB | 96 | 95 | 102 | 100 (62.2) |
| Swan River, MB | 91 | 89 | 100 | 100 (57.8) |
| Trochu, AB | 101 | 104 | 102 | 100 (47.5) |
| Vulcan, AB | 97 | 100 | 117 | 100 (23.9) |
| Yorkton, SK | 95 | 90 | 92 | 100 (64.0) |
| Total (all locations) | 97* | 96** | 98 | 100 (54.8)t |

*Indicates 95% confidence that the season zone average or the total average value for that variety is significantly different from the check variety (L233P).
 **Indicates 99% confidence that the season zone average or the total average value for that variety is significantly different from the check variety (L233P).

| 2018 Standard Harvest Trials - Yield as % of L252 | | | |
|---|---------------|--------------|----------------|
| Location | Roundup Ready | Liberty Link | |
| | 75-65 RR | L230 | L252 (bu./ac.) |
| Long Season Zone | 95 | 92 | 100 (47.3) |
| Gladstone, MB | 100 | 93 | 100 (47.7) |
| Lethbridge, AB | 87 | 84 | 100 (43.1) |
| St. Adolphe, MB | 96 | 97 | 100 (51.2) |
| Mid Season Zone | 95* | 94** | 100 (57.9) |
| Clavet, SK | 94 | 91 | 100 (55.8) |
| Dauphin, MB | 90 | 94 | 100 (68.8) |
| Foam Lake, SK | 92 | 90 | 100 (59.0) |
| High River, AB | 87 | 83 | 100 (41.8) |
| Mikado, SK | 103 | 96 | 100 (59.4) |
| Nipawin, SK | 96 | 104 | 100 (57.0) |
| Regina, SK | 92 | 96 | 100 (65.5) |
| Ruddell, SK | 93 | 98 | 100 (52.9) |
| Yorkton, SK | 103 | 93 | 100 (60.9) |
| Short Season Zone | 97 | 97 | 100 (50.4) |
| Crossfield, AB | 97 | 97 | 100 (50.4) |
| Total (all locations) | 95** | 94** | 100 (54.9)t |

*Indicates 95% confidence that the season zone average or the total average value for that variety is significantly different from the check variety (L252).
 **Indicates 99% confidence that the season zone average or the total average value for that variety is significantly different from the check variety (L252).

| 2018 Clubroot-Resistant Yield Results as % of L241C | | |
|---|---------------|--------------|
| Location | Roundup Ready | Liberty Link |
| | 75-42 CR | L241C |
| Mid Season Zone | 97 | 100 (57.2) |
| Bruderheim, AB | 107 | 100 (64.6) |
| Camrose, AB | 93 | 100 (56.5) |
| Lavoy, AB | 93 | 100 (62.5) |
| Mannville, AB | 97 | 100 (54.2) |
| Maskwacis, AB | 92 | 100 (48.2) |
| Short Season Zone | 99 | 100 (59.6) |
| Guy, AB | 105 | 100 (65.3) |
| Legal, AB | 101 | 100 (65.6) |
| Pickardville, AB | 103 | 100 (56.2) |
| Red Deer, AB | 86 | 100 (51.2) |
| Total (all locations) | 98 | 100 (58.2) |

Note – no standard checks could have been used in the clubroot field scale trials, therefore trial reported in a separate table.

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. 15, 2018. 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. Varieties followed by two asterisks denote carry-over seed that was issued a crop certificate in 2017. 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 | | | |
|--|--------------|--------------|---|
| 4030 | | | |
| Wiebe, Cameron | Langenburg | 306-742-4611 | C |
| 4010BR | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | C |
| Wecker, Joe | Sedley | 306-531-4867 | C |
| 4020MF | | | |
| Sorgard, Graham | Churchbridge | 306-896-2236 | C |
| 54Q14 | | | |
| Kushniruk, David | Melville | 306-728-8525 | C |
| ABLE | | | |
| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | C |
| ALGONQUIN | | | |
| Le Bras, Mart & Evan | Arborfield | 306-812-8414 | C |
| Marchildon, Joel | Zenon Park | 306-812-8419 | C |
| Marchildon, Vince & Daniel | Zenon Park | 306-767-2455 | C |
| Schappert, Roland | Langenburg | 306-743-5474 | C |
| Stewart, Ryan | Carrot River | 306-768-2259 | C |
| Weighill, Ron | Carrot River | 306-768-3560 | C |
| ALTHEA | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | C |
| DAKOTA | | | |
| Northstar Seed Ltd. | Neepawa | 204-476-5241 | C |
| DOMINATOR | | | |
| Marchildon, Joel | Zenon Park | 306-812-8419 | C |
| HALO | | | |
| Nutrien Ag Solutions(Canada) (Forages) | Carrot River | 306-768-3335 | C |
| INSTINCT | | | |
| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | C |
| LEGENDAIRY XHD | | | |
| Elder, Stewart | Simpson | 306-270-8594 | C |
| OCTANE | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | C |
| OPTIMUS | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | C |
| Eggerman, Percy A. | Watson | 306-287-3780 | C |
| PICKSEED 2065MF | | | |
| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | C |
| SHOCKWAVE-BR | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | F |
| Gullacher, Kelly | Imperial | 306-963-7471 | F |
| STOCKPILE | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | C |
| SURVIVOR | | | |
| Gourley, Bruce D. | Watson | 306-287-3127 | C |
| TH2 | | | |
| Northstar Seed Ltd. | Neepawa | 204-476-5241 | C |
| BARLEY | | | |
| AAC CONNECT | | | |
| Cay, Randy D. | Kinistino | 306-864-3696 | C |
| Crosson, Lorne & Will & Lee & Glen | Welwyn | 306-645-3337 | C |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | F |
| Frederick Seeds | Watson | 306-287-3977 | R |

| | | | |
|---|------------------|--------------|-----|
| Johnson, Oscar Stuart & Lee Stuart | Margo | 306-324-4315 | R |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | R |
| Mayerle, Erwin D. | Tisdale | 306-873-4261 | C |
| Wylie, Leslie Dale | Biggar | 306-948-2807 | C |
| AAC SYNERGY | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | R |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | R |
| Cay, Randy D. | Kinistino | 306-864-3696 | R |
| Friesen, Greg & Brea; Leavins, Brent & Betty Mae | Elrose | 306-378-7785 | C |
| Girodat, Gerald | Shaunavon | 306-297-2563 | R |
| Gregoire, Denis & Rory & Brandon | North Battleford | 306-445-5516 | R |
| Hanmer, Ronald F., Kent, Brad & Dallas | Govan | 306-484-4327 | R |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | C |
| Lutzer, Albert, Thiessen Trevor & Latrace, Jackson & Jim | Lumsden | 306-530-8433 | R |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | C |
| Smith, Wayne D. | Limerick | 306-263-4944 | R |
| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | R |
| AB CATTLELAC | | | |
| Kerber, Greg | Rosthern | 306-232-4474 | R |
| AC METCALFE | | | |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | R |
| Beuker, Allan Daniel | 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 | R |
| Boyes, Douglas John | Kelvington | 306-327-4980 | C |
| Dear, Jonathon | Saskatoon | 306-947-4740 | R |
| Edmunds, Greg & Glen | Tisdale | 306-873-4780 | C |
| Edwards, Lawrence R. & Donna & Jeff & Mike | Nokomis | 306-528-2140 | R |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | R |
| Frederick Seeds | Watson | 306-287-3977 | C |
| Heavin, Larry N. & L. Warren | Melfort | 306-752-4020 | C |
| Hetland, Bill & Bohachewski, Joe | Naicam | 306-874-5694 | C |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | F |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | C |
| Novak, Orrin | Kuroki | 306-338-2021 | R |
| Pratchler, Leander | Muenster | 306-682-3317 | C |
| Seed Source Inc. | Archerwill | 306-323-4402 | C |
| Seidle, Edward & Brett & Cameron J. & Mervyn Anthony | Medstead | 306-342-4377 | F |
| Trowell, Kenneth & Larry & Nathan | Saltcoats | 306-744-2687 | R |
| Wiens, Brennan R. | Herschel | 306-377-2002 | C** |
| Youzwa, Donald | Nipawin | 306-862-5690 | C |
| AC RANGER | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | C |
| AC ROSSER | | | |
| Kerber, Greg | Rosthern | 306-232-4474 | C |
| CDC AUSTENSON | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S |

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Barley: CDC Copeland, AC Metcalfe
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SR Lentils: CDC Impulse, CDC Proclaim, CDC Maxim
Canaryseed: CDC Cibo, CDC Calvi

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| | | | |
|--|------------------|--------------|---|
| Buziak, Ronald Charles | Mayfair | 306-445-6556 | R |
| Dutton, David H. & George | Paynton | 306-441-6799 | C |
| Ennis, Garnet, Neil & Schmidt, Jordan | Glenavon | 306-429-2793 | C |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | C |
| Frederick Seeds | Watson | 306-287-3977 | R |
| Girodat, Gerald | Shaunavon | 306-297-2563 | R |
| Goossen, Mathew | Stenen | 306-547-7432 | C |
| Kerber, Greg | Rosthern | 306-232-4474 | C |
| Larsen, Lyle L. | Aylsham | 306-862-7333 | R |
| Marcotte, Raymond W. | Kinistino | 306-864-2948 | C |
| Ostafie, Robert | Canora | 306-563-6244 | R |
| Palmier, Maurice, Jason & Anita | Lafleche | 306-472-7824 | C |
| Sayers, Charlie Joseph | Delmas | 306-445-6522 | C |
| Seidle, Edward & Brett & Cameron J. & Mervyn Anthony | Medstead | 306-342-4377 | R |
| Trawin Seeds | Melfort | 306-752-4060 | R |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | S |
| Wiens, Steven & Shammy | Wymark | 306-773-9547 | F |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | R |
| Woroschuk, Andrew | Calder | 306-742-4682 | C |
| CDC BOW | | | |
| Heavin, Larry N. & L. Warren | Melfort | 306-752-4020 | R |
| Heavin, Milton Russell | Melfort | 306-752-4071 | S |
| Hetland, Bill & Bohachewski, Joe | Naicam | 306-874-5694 | R |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | R |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | F |
| Sopel, Calvin & Arlene | Ituna | 306-795-3617 | C |
| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | R |
| Wakefield, Kristopher & Laurie G. & Monica | Maidstone | 306-893-2984 | S |
| CDC CARTER | | | |
| Pender, Joseph M. | Saskatoon | 306-374-4933 | F |
| CDC CLEAR | | | |
| Kushniruk, Will | Tisdale | 306-873-2347 | R |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | R |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | S |
| CDC COPELAND | | | |
| Beausoleil, Michael | Delmas | 306-445-9106 | R |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | F |
| Boyd, Clare W. & Dale A. | Melfort | 306-752-2564 | R |
| Denis, Michel P. & Marc | St. Denis | 306-258-2219 | C |
| Edmunds, Greg & Glen | Tisdale | 306-873-4780 | R |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | C |
| Fedoruk, Rod M. & Cathy | Kamsack | 306-542-4235 | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S |
| Frederick Seeds | Watson | 306-287-3977 | C |
| Friesen, Greg & Brea; Leavins, Brent & Betty Mae | Elrose | 306-378-7785 | C |
| Gregoire, Denis & Rory & Brandon | North Battleford | 306-445-5516 | R |
| Hanmer, Ronald F., Kent, Brad & Dallas | Govan | 306-484-4327 | C |
| Heggie, Robert Thomas | Leros | 306-675-4920 | C |
| Johnson, Oscar Stuart & Lee Stuart | Margo | 306-324-4315 | C |
| Kennett, Brian Guy | Manor | 306-448-4813 | R |
| Lutzer, Albert, Thiessen Trevor & Latrace, Jackson & Jim | Lumsden | 306-530-8433 | C |
| Mayerle, Kris | Tisdale | 306-873-4261 | C |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | C |
| Novak, Orrin | Kuroki | 306-338-2021 | C |
| Ostafie, Robert | Canora | 306-563-6244 | C |
| Pavo, Keith | Birsay | 306-227-8537 | C |
| Rempel, Blair Allan | Nipawin | 306-862-3573 | R |
| Rude, Stanley | Naicam | 306-874-2359 | F |
| Rugg, Robert B., John Barry & Brian R. | Elstow | 306-257-3638 | R |
| Sandercock, Eric M. | Balcarres | 306-334-2958 | R |
| Seed Source Inc. | Archerwill | 306-323-4402 | C |
| Seidle, Edward & Brett & Cameron J. & Mervyn Anthony | Medstead | 306-342-4377 | S |
| Sopatky, Jeffery & Patti | Saskatoon | 306-227-7867 | C |
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| BARLEY | Name | Address | Phone | S | F | R | C | C** |
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| Trawin Seeds | Melfort | 306-752-4060 | S | F | | | C | |
| Trowell, Kenneth & Larry & Nathan | Saltcoats | 306-744-2687 | | | R | | | |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | F | R | | | | |
| Wakefield, Kristopher & Laurie G. & Monica | Maidstone | 306-893-2984 | | | R | | | |
| Wiens, Brennan R. | Herschel | 306-377-2002 | | | | | C** | |
| Wiens, Steven & Shammy | Wymark | 306-773-9547 | | | | | C | |
| CDC COPPER | | | | | | | | |
| Trowell, Leslie | Saltcoats | 306-744-2684 | S | | | | | |
| CDC FIBAR | | | | | | | | |
| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | | | | C | | |
| CDC FRASER | | | | | | | | |
| Boyes, Douglas John | Kelvington | 306-327-4980 | | | | C | | |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | | | R | | | |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | F | | | | | |
| Rude, Stanley | Naicam | 306-874-2359 | | | R | | | |
| Rugg, Robert B., John Barry & Brian R. | Elstow | 306-257-3638 | | | | C | | |
| Seymour, Glen Patrick, Donne, Kyle, & Kelly | Stewart Valley | 306-778-2344 | F | | | | | |
| Thompson, Jan Harris | Naicam | 306-874-7138 | S | R | | C | | |
| Trowell, Kenneth & Larry & Nathan | Saltcoats | 306-744-2687 | F | R | | | | |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | F | | | | | |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | | | R | | | |
| Yauck, Kevin Rodney | Govan | 306-484-4555 | S | F | | | | |
| CDC GOLDSTAR | | | | | | | | |
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| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | S | F | | | | |
| CDC MARLINA | | | | | | | | |
| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | | | R | | | |
| CDC MAVERICK | | | | | | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S | F | R | C | | |
| Axten, Derek | Minton | 306-969-2110 | | | | C | | |
| Cote, Nickolaus | Cadillac | 306-625-7919 | | | R | | | |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | | | | C | | |
| Hicks, Dale & Barry | Outlook | 306-229-9517 | | | | C | | |
| Kerber, Greg | Rosthern | 306-232-4474 | | | | C | | |
| Trawin Seeds | Melfort | 306-752-4060 | | | R | | | |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | F | R | | | | |
| CDC MCGWIRE | | | | | | | | |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | | | | C | | |
| Pender, Richard Joseph | Saskatoon | 306-651-4680 | S | F | | | | |
| CDC PLATINUM STAR | | | | | | | | |
| Mayerle, Erwin D. | Tisdale | 306-873-4261 | S | | R | C | | |
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| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | | | R | | | |
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| Latrace, Bill | Caronport | 306-693-2626 | | | R | | | |
| Ostafie, Robert | Canora | 306-563-6244 | | | | C | | |
| Toman, Rick & Randy | Guernsey | 306-365-8386 | | | | C | | |
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| Larsen, Lyle L. | Aylsham | 306-862-7333 | S | | | | | |
| Peifer, Denton M. | Nipawin | 306-862-3437 | | | F | | | |
| Robertson, Albert James | Saskatoon | 306-373-9140 | | | F | | | |
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| Walker, Wes & David | Outlook | 306-873-7733 | | | | R | | |
| CDC WM-2 | | | | | | | | |
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| LEO | | | | | | | | |
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| Enns, Marcel | Carrot River | 306-768-2172 | | | | | C | |
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| Trawin Seeds | Melfort | 306-752-4060 | | | | | C | |
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| CANARYGRASS | | | | | | | | |
| CDC BASTIA | | | | | | | | |
| Nakonechny, Donald , Coral & Lance | Ruthilda | 306-932-4409 | | | F | | | |
| CDC CIBO | | | | | | | | |
| Friesen, Greg & Brea; Leavins, Brent & Betty Mae | Elrose | 306-378-7785 | | | | | C | |
| Gizen, Jason | Prelate | 306-628-8127 | | | | R | | |
| Herle, Gregory & Andrew E. | Wilkie | 306-843-2934 | | | F | R | | |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | | | | R | | |
| Mayerle, Erwin D. | Tisdale | 306-873-4261 | | | | | C | |
| Simpson, Jamie P. | Moose Jaw | 306-693-9402 | | | | R | | |
| Wiens, Brennan R. | Herschel | 306-377-2002 | | | | | R** | |
| CANARYSEED | | | | | | | | |
| CANTATE | | | | | | | | |
| Hansen, James S. | Yellow Grass | 306-465-2525 | | | | | C | |
| CDC CALVI | | | | | | | | |
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| CHICKPEAS | | | | | | | | |
| CDC CONSUL (DESI) | | | | | | | | |
| Forer, Tim & Denise | Avonlea | 306-868-4433 | | | | | C | |
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| CDC LEADER | | | | | | | | |
| Bews, W. Kenneth & Brent W. | Eatonia | 306-967-2440 | S | | | | | |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S | | | | | |
| Reisner, Cecil & Barry | Limerick | 306-263-2139 | | | | | C | |
| Simpson, Trevor W. | Moose Jaw | 306-693-9402 | | | | | C | |
| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | | | | | C | |
| CDC ORION | | | | | | | | |
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| Riviere, Paul | Radville | 306-869-7629 | | | | | C | |
| CDC PALMER | | | | | | | | |
| Petruic, Joe, Cameron L., Judy & Nick | Avonlea | 306-868-2294 | S | | | | | |
| Simpson, Jamie P. | Moose Jaw | 306-693-9402 | S | | | | | |
| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | S | F | R | C | | |
| CLOVER | | | | | | | | |
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| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | | | F | | C | |
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| SNOWBIRD | | | | | |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | | C | |
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| Crosson, Lorne & Will & Lee & Glen | Welwyn | 306-645-3337 | | C | |
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| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | | C | |
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| Hetland, Bill & Bohachewski, Joe | Naicam | 306-874-5694 | | R |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | | C |
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| Moen, Jim | Cabri | 306-587-2214 | | C |
| Ostafe, Robert | Canora | 306-563-6244 | S | |
| Sand, Evan | Limerick | 306-263-4944 | | C |
| Seed Source Inc. | Archerwill | 306-323-4402 | | C |
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| Novak, Orrin | Kuroki | 306-338-2021 | | C |
| Rugg, Robert B., John Barry & Brian R. | Elstow | 306-257-3638 | | R |
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| Benson, Thomas | Regina | 306-586-3293 | | C |
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| CDC GREENLAND | | | | |
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| Willner, Brady E. | Davidson | 306-567-4613 | | C |
| CDC GREENSTAR | | | | |
| Blumer, Brad & Doug | Dinsmore | 306-846-2124 | | C |
| Condie Seed | Regina | 306-543-5052 | R | C |
| Ellert, David & Christopher | Rockglen | 306-476-7623 | | C |

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| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S | F | C |
| Klym, Roy | Regina | 306-543-5052 | S | F | R |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S | F | R |
| Moen, Jim | Cabri | 306-587-2214 | | | C |
| Nakonechny; Donald , Coral & Lance | Ruthilda | 306-932-4409 | | | C |
| Petruic, Joe, Cameron L., Judy & Nick | Avonlea | 306-868-2294 | | | C |
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| Wiens, Brennan R. | Herschel | 306-377-2002 | | | C |
| Wiens, Steven & Shammy | Wymark | 306-773-9547 | | | C |
| CDC IMPALA | | | | | |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | | | C** |
| CDC IMPOWER | | | | | |
| Garratt, Lyle C. & K.c. | Milestone | 306-436-2178 | | | R |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | | | C |
| Wiens, Brennan R. | Herschel | 306-377-2002 | | | C |
| CDC IMPROVE | | | | | |
| Schmeling, Donald H. | Riceton | 306-530-1052 | | | R |
| CDC IMPULSE (SMALL RED) | | | | | |
| Amos, K. Wayne | Oxbow | 306-483-2963 | | | C |
| Clark, Shaun & Gilchrist, Armand & Gibbings, Neil | Rosetown | 306-831-8963 | | | R |
| Condie Seed | Regina | 306-543-5052 | | | C |
| Craswell, Raymond W., Kevin A. & David M. | Strasbourg | 306-725-3236 | | | R |
| Denis, Michel P. & Marc | St. Denis | 306-258-2219 | | | C |
| Edwards, Lawrence R. & Donna & Jeff & Mike | Nokomis | 306-528-2140 | | | R |
| Fox, Myles & Trena | Gravelbourg | 306-648-2800 | | | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S | | C |
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| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | R | | C |
| Nakonechny; Donald , Coral & Lance | Ruthilda | 306-932-4409 | S | R | C |
| Nutrien Ag Solutions (Canada) (Cereals & Soybeans) | High River | 403-603-6011 | | | C |
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| Wiens, Brennan R. | Herschel | 306-377-2002 | | | R |
| Willner, Brady E. | Davidson | 306-567-4613 | | | C |
| Willner, Lorne E. | Davidson | 306-567-4613 | S | | C |
| CDC INVINCIBLE | | | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | | | C |
| Day, Ryan | Rouleau | 306-596-0262 | | | C |
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| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | | | C |
| CDC KERMIT | | | | | |
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| Condie Seed | Regina | 306-543-5052 | S | | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S | | C |
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| Hansen, James S. | Yellow Grass | 306-465-2525 | S | | C |
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| Mattus , Ronald | Central Buttle | 306-395-2652 | S | | C |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S | | C |
| Nakonechny; Donald , Coral & Lance | Ruthilda | 306-932-4409 | S | | C |
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- CDC PROCLAIM







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Barley: CDC Copeland

Durum: CDC Alloy

Flax: CDC Bethune, CDC Glas

Wheat: AC Shaw, AC Brandon, CDC Plentiful, Elgin ND, AC Penhold, AC Andrew, AC Sadash, CDC Landmark, AC Viewfield

Yellow Peas: CDC Inca

Small Red Lentils: CDC Proclaim

Canary Seed: CDC Bastia

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| Smith, Ron T.W. & Barb A. | Limerick | 306-263-4944 | S | | C |
| Sopatyk, Jeffery & Patti | Saskatoon | 306-227-7867 | S | F | C |
| Stirton, Brian James | Moose Jaw | 306-693-2310 | S | | C |
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| Wiens, Brennan R. | Herschel | 306-377-2002 | S | F | C |
| CDC MARBLE | | | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | | | R |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | S | | C |
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| Yauck, Kevin Rodney | Govan | 306-484-4555 | S | | R |
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| Craswell, Raymond W., Kevin A. & David M. | Strasbourg | 306-725-3236 | | | C |
| Wiens, Brennan R. | Herschel | 306-377-2002 | | | C** |
| CDC PERIDOT | | | | | |
| Nakonechny; Donald , Coral & Lance | Ruthilda | 306-932-4409 | S | | C |
| Yauck, Kevin Rodney | Govan | 306-484-4555 | S | F | C |
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| Fritzler, Baine A. & Adam A. | Govan | 306-484-2010 | S | | C |
| Hanmer, Ronald F., Kent, Brad & Dallas | Govan | 306-484-4327 | | | C |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | | | C |
| Smith, Ron T.w. & Barb A. | Limerick | 306-263-4944 | | | C |
| Wiens, Brennan R. | Herschel | 306-377-2002 | | | C** |
| Wohlgenuth, Mark | Bredenbury | 306-898-2022 | | | C |
| CDC QG-2 | | | | | |
| Condie Seed | Regina | 306-543-5052 | | | C |
| CDC REDMOON | | | | | |
| Blumer, Brad & Doug | Dinsmore | 306-846-2124 | | | R |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | S | F | C |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S | F | R |
| Printz, Gerald & Kurt | Gravelbourg | 306-648-3511 | | | C |
| Veikle, Carl E. , G. & Brennan | Cut Knife | 306-398-4714 | S | | C |
| Willner, Brady E. | Davidson | 306-567-4613 | | | R |
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| CDC SB-4 | | | | | |
| Simpson, Jamie P. | Moose Jaw | 306-693-9402 | S | F | C |
| INDIAN HEAD | | | | | |
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| Simpson, Trevor W. | Moose Jaw | 306-693-9402 | | | C |
| Yauck, Kevin Rodney | Govan | 306-484-4555 | S | | C |
| MUSTARD | | | | | |
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| AAC ORIENTAL 200 (YELLOW) | | | | | |
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| ANDANTE (YELLOW) | | | | | |
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| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | | | C |
| CENTENNIAL (BROWN) | | | | | |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | F | | C |
| Fritzler, Baine A. & Adam A. | Govan | 306-484-2010 | F | | C |
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| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | | | C |
| Wohlgemuth, Mark | Bredenbury | 306-898-2022 | | | C |
| CDC ARBORG | | | | | |
| Fedoruk, Rod M. & Cathy | Kamsack | 306-542-4235 | S | F | |
| Seed Source Inc. | Archerwill | 306-323-4402 | S | F | R |
| CDC BALER | | | | | |
| Frederick Seeds | Watson | 306-287-3977 | | | C |
| Trawin Seeds | Melfort | 306-752-4060 | S | | C |
| CDC BOYER | | | | | |
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| Jones, Bradley, Wanda, Tennille & Jennifer | Wadena | 306-338-2381 | | | R |
| CDC HAYMAKER | | | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S | F | R |
| Dear, Jonathon | Saskatoon | 306-947-4740 | | | R |
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| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | | | R |
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| Fedoruk, Michael J. | Kamsack | 306-542-4235 | | | R | |
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| AAC CHROME (YELLOW) | | | | | | |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | | | F | |
| Herle, Gregory & Andrew E. | Wilkie | 306-843-2934 | | | S | F |
| Klym, Roy | Regina | 306-543-5052 | | | S | F |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | | | S | |
| McCarthy, Brent | Corning | 306-224-4848 | | | F | |
| Straub, Lorne A. | Pense | 306-345-2390 | | | S | |
| Trowell, Leslie | Saltcoats | 306-744-2684 | S | F | | |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | S | F | | |
| Woods, Dale Arthur | Rocanville | 306-645-4423 | S | F | | |
| AAC COMFORT (GREEN) | | | | | | |
| Pfeifer, Robert G. | Lemberg | 306-335-2532 | | | R | |
| AAC LACOMBE (YELLOW) | | | | | | |
| Anderson, Skyler | Hazlet | 306-678-2233 | | | | C |
| Bodnaryk, John E., Ian & Vangen, Stacy | Rhein | 306-273-4263 | | | R | |
| Klym, Dustin | Regina | 306-543-5052 | | | | C |
| Klym, Tyler | Regina | 306-543-5052 | | | | C |
| AAC LISCARD (MAPLE) | | | | | | |
| Heggie, Kyle Robert | Leross | 306-675-4920 | | | R | C |
| Herle, Gregory & Andrew E. | Wilkie | 306-843-2934 | | | | C |

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| ABARTH (YELLOW) | | | |
| Herle, Gregory & Andrew E. | Wilkie | 306-843-2934 | R |
| CDC ACER (MAPLE) | | | |
| Ellert, David & Christopher | Rockglen | 306-476-7623 | C |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | S F R |
| CDC AMARILLO (YELLOW) | | | |
| Allan, John Garth | Corning | 306-457-2629 | S F R C |
| Allan, John Richard | Corning | 306-457-7310 | C |
| Allan, Raymond N. & Ruth | Corning | 306-224-4666 | C |
| Blenkin, Darren | Sintaluta | 306-727-2222 | C |
| Booy, Jerry N. & Murray T. & Darcy K. | Glaslyn | 306-342-2058 | C |
| Edwards, Lawrence R. & Donna & Jeff & Mike | Nokomis | 306-528-2140 | R |
| Fast, Walter J. & Linda | Kindersley | 306-463-3626 | C |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | R** |
| Goossen, Mathew | Stenen | 306-547-7432 | C |
| Hetland, Bill & Bohachewski, Joe | Naicam | 306-874-5694 | C |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | S |
| Mayerle, Kris | Tisdale | 306-873-4261 | R C |
| Mc Carthy, Brent | Corning | 306-224-4848 | C |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | C |
| Novak, Orrin | Kuroki | 306-338-2021 | R |
| Ostafie, Brendan | Canora | 306-563-6244 | C |
| Rempel, Blair Allan | Nipawin | 306-862-3573 | R |
| Robinson, Oren A., Marlene & Wade | Landis | 306-658-4755 | S |
| Rude, Stanley | Naicam | 306-874-2359 | C |
| Straub, Lorne A. | Pense | 306-345-2390 | R |
| Wakefield, Kristopher & Laurie G. & Monica | Maidstone | 306-893-2984 | C |
| Wohlgemuth, Mark | Bredenbury | 306-898-2022 | C |
| CDC ATHABASCA (YELLOW) | | | |
| Bryant, Lee & Phyl & Vern & Carol | Battleford | 306-937-3565 | R |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | R |
| Klym, Roy | Regina | 306-543-5052 | S F |
| Woods, Dale Arthur | Rocanville | 306-645-4423 | R |
| CDC BLAZER (MAPLE) | | | |
| Blumer, Brad & Doug | Dinsmore | 306-846-2124 | R |
| Boldt, Garry | Osler | 306-239-2071 | R |
| Friesen, Greg & Brea; Leavins, Brent & Betty Mae | Elrose | 306-378-7785 | R |
| Kerber, Greg | Rosthern | 306-232-4474 | R |
| Lutzer, Albert, Thiessen Trevor & Latrace, Jackson & Jim | Lumsden | 306-530-8433 | S |
| Ostafie, Brendan | Canora | 306-563-6244 | S |
| CDC CANARY (YELLOW) | | | |
| Rugg, Robert B., John Barry & Brian R. | Elstow | 306-257-3638 | S F |
| Tebbutt, Gregg & Blake D. | Nipawin | 306-862-9730 | S F |
| Tomtene, Steven & Brad | Birch Hills | 306-749-3447 | F |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | S F |
| Youzwa, Donald | Nipawin | 306-862-5690 | S F |
| CDC FOREST (GREEN) | | | |
| Ackerman, Patrick | Chamberlain | 306-638-3177 | F |
| 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 |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | F |
| Gregoire, Denis & Rory & Brandon | North Battleford | 306-445-5516 | S F |
| Hetland, Ronald | Spalding | 306-872-4617 | S |
| Lutzer, Albert, Thiessen Trevor & Latrace, Jackson & Jim | Lumsden | 306-530-8433 | F |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S |
| Seidle, Edward & Brett & Cameron J. & Mervyn Anthony | Medstead | 306-342-4377 | S |
| Veikle, Carl E., G. & Brennan | Cut Knife | 306-398-4714 | S |
| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | S |
| CDC GREENWATER | | | |
| Beuker, Allan Daniel | Melfort | 306-752-4810 | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | C |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | C |
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 AC Andrew CWSWS
 AAC Goldrush CWRW
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| Nakonechny; Donald, Coral & Lance | Ruthilda | 306-932-4409 | F R |
| Sayers, Charlie Joseph | Delmas | 306-445-6522 | C |
| Smith, Kyle | Limerick | 306-263-4944 | C |
| Smysniuk, Delon | Ituna | 306-795-7691 | C |
| Sopel, Calvin & Arlene | Ituna | 306-795-3617 | C |
| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | S F C |
| CDC INCA (YELLOW) | | | |
| Allan, Raymond N. & Ruth | Corning | 306-224-4666 | C |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S F R |
| Barlow, Bradley L. | Griffin | 306-861-6110 | R |
| Blenkin, Darren | Sintaluta | 306-727-2222 | C |
| Cay, Randy D. | Kinistino | 306-864-3696 | C |
| Clark, Shaun & Gilchrist, Armand & Gibbings, Neil | Rosetown | 306-831-8963 | R |
| Condie Seed | Regina | 306-543-5052 | R |
| Crosson, Lorne & Will & Lee & Glen | Welwyn | 306-645-3337 | C |
| Dangstorp, Brian & Perry | Redvers | 306-452-3443 | R C |
| Dear, Jonathon | Saskatoon | 306-947-4740 | C |
| Fraser, Scott & Shawn | Pambrun | 306-741-0475 | R C |
| Fritzler, Baine A. & Adam A. | Govan | 306-484-2010 | C |
| Girodat, Gerald | Shaunavon | 306-297-2563 | C |
| Gizen, Jason | Prelate | 306-628-8127 | C |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | C |
| Hammer, Ronald F., Kent, Brad & Dallas | Govan | 306-484-4327 | C |
| Huber, Daniel & Rebecca | Landis | 306-658-4200 | C |
| Klym, Roy | Regina | 306-543-5052 | S F R |
| Kondratowicz, Frank | Unity | 306-228-3684 | C |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S F R C |
| Mcarthur, Brennan | Watrous | 306-230-9853 | C |
| Ostafie, Brendan | Canora | 306-563-6244 | C |
| Pavo, Keith | Birsay | 306-227-8537 | C |
| Reisner, Cecil & Barry | Limerick | 306-263-2139 | R C |
| Riviere, Paul | Radville | 306-869-7629 | R |
| Rugg, Robert B., John Barry & Brian R. | Elstow | 306-257-3638 | C |
| Shymanski, Tyler | Chociceland | 306-276-8741 | R |
| Thompson, Jan Harris | Naicam | 306-874-7138 | R |
| Veikle, Carl E., G. & Brennan | Cut Knife | 306-398-4714 | C |
| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | S F R C |
| Wiens, Brennan R. | Herschel | 306-377-2002 | R C |
| Wiens, Steven & Shabby | Wymark | 306-773-9547 | C |
| Yauck, Kevin Rodney | Govan | 306-484-4555 | F R C |
| CDC JASPER (YELLOW FORAGE) | | | |
| Trawin Seeds | Melfort | 306-752-4060 | F |
| CDC LEWOCHKO (YELLOW) | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | S |
| Charabin, Dale Kenneth & Ryan & Neil & Eric | North Battleford | 306-445-2939 | S |
| Clark, Shaun & Gilchrist, Armand & Gibbings, Neil | Rosetown | 306-831-8963 | S |
| Crosson, Lorne & Will & Lee & Glen | Welwyn | 306-645-3337 | S |
| Denis, Michel P. & Marc | St. Denis | 306-258-2219 | S |
| Edwards, Lawrence R. & Donna & Jeff & Mike | Nokomis | 306-528-2140 | S |
| Fritzler, Baine A. & Adam A. | Govan | 306-484-2010 | S |
| Girodat, Gerald | Shaunavon | 306-297-2563 | S |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | S |
| Littman, Larry W. & Allan Blake & L. Robert & Adam | Saltcoats | 306-744-2554 | S |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | S |
| Nakonechny; Donald, Coral & Lance | Ruthilda | 306-932-4409 | S |
| Peifer, Sheldon M. | Nipawin | 306-862-9470 | S |
| Robinson, Oren A., Marlene & Wade | Landis | 306-658-4755 | S |
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| Watson, Wayne Donald & Calvin & Mark | Avonlea | 306-868-7781 | S | |
| CDC LIMERICK (GREEN) | | | | |
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| Johnson, Oscar Stuart & Lee Stuart | Margo | 306-324-4315 | | C |
| Petruic, Joe, Cameron L., Judy & Nick | Avonlea | 306-868-2294 | | C |
| Veikle, Carl E., G. & Brennan | Cut Knife | 306-398-4714 | | C |
| CDC MEADOW (YELLOW) | | | | |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | R** | |
| CDC MOSAIC (MAPLE) | | | | |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | | C |
| CDC RAEZER (GREEN) | | | | |
| Amos, K. Wayne | Oxbow | 306-483-2963 | | C |
| Jones, Bradley, Wanda, Tennille & Jennifer | Wadena | 306-338-2381 | R | C |
| Ostafie, Brendan | Canora | 306-563-6244 | | C |
| Simpson, Trevor W. | Moose Jaw | 306-693-9402 | | C |
| CDC SPECTRUM (YELLOW) | | | | |
| Amos, K. Wayne | Oxbow | 306-483-2963 | F | R |
| 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 | F | R |
| Bryant, Lee & Phyl & Vern & Carol | Battleford | 306-937-3565 | | R |
| Cay, Randy D. | Kinistino | 306-864-3696 | | R |
| Charabin, Dale Kenneth & Ryan & Neil & Eric | North Battleford | 306-445-2939 | R | C |
| Clark, Shaun & Gilchrist, Armand & Gibbings, Neil | Rosetown | 306-831-8963 | F | |
| Cote, Nickolaus | Cadillac | 306-625-7919 | R | C |
| Dear, Jonathon | Saskatoon | 306-947-4740 | F | |
| Denis, Michel P. & Marc | St. Denis | 306-258-2219 | | R |
| Dutton, David H. & George | Paynton | 306-441-6799 | | R |
| Fast, Walter J. & Linda | Kindersley | 306-463-3626 | | R |
| Fedoruk, Michael J. | Kamsack | 306-542-4235 | | R |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | S | F |
| Friesen, Kevin G. | Laird | 604-882-4936 | | R |
| Goossen, Mathew | Stenen | 306-547-7432 | | R |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | F | |
| Hanley, Erwin & Priscilla | Regina | 306-586-4509 | | R |
| Huber, Daniel & Rebecca | Landis | 306-658-4200 | | R |
| Kemper, Russell & Donna | Fulda | 306-682-4929 | | R |
| Klemmer, Richard | Nipawin | 306-862-3874 | | R |
| Laxdal, Glen M. & Blyth, Danny, Richard, Quinn, Darryl | Wynyard | 306-554-2078 | S | F |
| Littman, Larry W. & Allan Blake & L. Robert & Adam | Saltcoats | 306-744-2554 | F | R |
| Lung Seeds Ltd. | Lake Lenore | 306-368-2414 | | R |
| Mattus, Ronald | Central Buttle | 306-395-2652 | | R |
| Mc Dougall, Ken & Craig | Moose Jaw | 306-693-3649 | S | F |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | | R |
| Moen, Jim | Cabri | 306-587-2214 | | R |
| Moroz, Troy | Pelly | 306-595-4622 | | R |
| Reisner, Cecil & Barry | Limerick | 306-263-2139 | | R |
| S.S. Johnson Seeds Limited | Arborg | 204-376-5228 | | R |
| Sayers, Charlie Joseph | Delmas | 306-445-6522 | | R |
| Seed Source Inc. | Archerwill | 306-323-4402 | S | F |
| Shewchuk, Stan & Lorne & Terry & Adam & Michael | Blaine Lake | 306-497-2800 | F | R |
| Shymanski, Ronald Albert | Choiceland | 306-428-2405 | | F |
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| Trawin Seeds | Melfort | 306-752-4060 | F | R |
| Veikle, Carl E., G. & Brennan | Cut Knife | 306-398-4714 | | R |
| Veikle, Lynne, Marshall & Jason | Cut Knife | 306-398-2923 | | R |
| Wakefield, Kristopher & Laurie G. & Monica | Maidstone | 306-893-2984 | S | F |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | F | R |
| Willner, Lorne E. | Davidson | 306-567-4613 | S | |
| Woods, Dale Arthur | Rocanville | 306-645-4423 | | R |
| Youzwa, Donald | Nipawin | 306-862-5690 | | R |

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| CDC SPRUCE (GREEN) | | | | |
| Baxter, Kent R | Codette | 306-862-4555 | | R |
| Berscheid, K.N. & B. & E.K. & S. & C. & Y. | Lake Lenore | 306-368-2602 | F | |
| Blumer, Brad & Doug | Dinsmore | 306-846-2124 | | R |
| Dutton, David H. & George | Paynton | 306-441-6799 | | R |
| Medernach, Louis J., Kim L. & Kyle | Cudworth | 306-256-3991 | | R |
| Rude, Stanley | Naicam | 306-874-2359 | S | F |
| Veikle, Lynne, Marshall & Jason | Cut Knife | 306-398-2923 | | R |
| Youzwa, Donald | Nipawin | 306-862-5690 | | R |
| DL DELICIOUS (FORAGE) | | | | |
| Van Burck, Hans, Marianne & Mira | Star City | 306-863-4377 | S | |
| REDBAT 88 | | | | |
| Ardell, Terrence, Michael, Joanne, Theresa & Ives, Joshua | Vanscoy | 306-668-4415 | S | F |
| RAPE | | | | |
| SYNERGY | | | | |
| Fenton, Gerald A. & Robin Paul | Tisdale | 306-873-5438 | | C** |
| Trawin Seeds | Melfort | 306-752-4060 | | C |
| RYE | | | | |
| GAZELLE | | | | |
| Moroz, Troy | Pelly | 306-595-4622 | | R |
| Trawin Seeds | Melfort | 306-752-4060 | | R |
| HAZLET | | | | |
| Trawin Seeds | Melfort | 306-752-4060 | S | |
| SOYBEANS | | | | |
| 22-60 RY | | | | |
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| BARRON R2X | | | | |
| Dangstorp, Brian & Perry | Redvers | 306-452-3443 | | C |
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| FOOTE R2 | | | | |
| Gerry, Greg | Creelman | 306-457-2220 | | C |
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| Quarry Seed Ltd. | Stonewall | 204-467-8877 | S | C |
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| Gerry, Greg | Creelman | 306-457-2220 | | R |
| Lutzer, Albert, Thiessen Trevor & Latrace, Jackson & Jim | Lumsden | 306-530-8433 | | R |
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| Quarry Seed Ltd. | Stonewall | 204-467-8877 | | C |
| NOCOMA R2 | | | | |
| Brett-Young Seeds Limited | St. Norbert | 204-261-7932 | S | F |
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| Woods, Dale Arthur | Rocanville | 306-645-4423 | | C |
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| Fedoruk, Michael J. | Kamsack | 306-542-4235 | | C |
| Northstar Genetics, | Winnipeg | 204-262-2421 | | C |
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| Woods, Dale Arthur | Rocanville | 306-645-4423 | | C |
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| Amos, K. Wayne | Oxbow | 306-483-2963 | S | C |
| PRINCE R2X | | | | |
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| Gerry, Greg | Creelman | 306-457-2220 | | R |
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| Rempel, Blair Allan | Nipawin | 306-862-3573 | S | |
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| PS 00095 R2 | | | | |
| Pride Seeds (Agregiant Genetics Inc.) | Chatham | 519-354-3210 | | R |
| PV 1750007 R2X | | | | |
| Nutrien Ag Solutions (Canada) (Cereals & Soybeans) | High River | 403-603-6011 | S | F |
| S0009-D6 | | | | |
| Condie Seed | Regina | 306-543-5052 | | R |
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| Printz, Gerald & Kurt | Gravelbourg | 306-648-3511 | F | |
| AAC SUCCEED - CDC ALLOY (DURUM) | | | | |
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| Klym, Roy | Regina | 306-543-5052 | S* | |
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| AAC TISDALE | | | | |
| Greenshields, Grant & Thomas & Callie | Semans | 306-524-4339 | R | C |
| Heavin, G. Harvey & G. Ryan | Melfort | 306-752-4171 | S | F |
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| Gregoire, Denis & Rory & Brandon | N. Battleford | 306-445-5516 | R |
| Rude, Stanley | Naicam | 306-874-2359 | C |
| Stokke, Shane T. | Watrous | 306-946-4044 | C |
| Wilfing, Ryan John | Meadow Lake | 306-236-6811 | C |
| Wylie, Leslie Dale | Biggar | 306-948-2807 | R |
| SY SOVITE | | | |
| Blenkin, Darren | Sintaluta | 306-727-2222 | C |
| Richardson International Ltd. | Winnipeg | 204-934-5994 | R C |
| TRANSCEND (DURUM) | | | |
| Condie Seed | Regina | 306-543-5052 | R C |
| Craswell, Raymond W., Kevin A. & David M. | Strasbourg | 306-725-3236 | R C |
| Dowdeswell, Riley | Pennant | 306-774-3903 | C |
| Girodat, Gerald | Shaunavon | 306-297-2563 | C |
| McCarthy, Brent | Corning | 306-224-4848 | C |
| Palmier, Maurice, Jason & Anita | Lafleche | 306-472-7824 | R C |
| Printz, Gerald & Kurt | Gravelbourg | 306-648-3511 | C** |
| Reisner, Cecil & Barry | Limerick | 306-263-2139 | C |
| Sand, Evan | 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 | C |
| WASKADA | | | |
| Allan, John Garth | Corning | 306-457-2629 | C |
| Allan, John Richard | Corning | 306-457-7310 | C |

WHEATGRASS

| | | | |
|--|--------------|--------------|---|
| WHEATGRASS | | | |
| AC GOLIATH (CRESTED) | | | |
| Nutrien Ag Solutions(Canada) (Forages) | Carrot River | 306-768-3335 | F |
| Trawin Seeds | Melfort | 306-752-4060 | C |
| CHIEF (INTERMEDIATE) | | | |
| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | C |
| FAIRWAY (CRESTED) | | | |
| Pickseed Canada Inc. | Winnipeg | 204-633-0088 | C |
| Scowen, Troy | Nipawin | 306-812-8797 | C |
| Silcox, James | Nipawin | 306-768-7710 | C |
| KIRK (CRESTED) | | | |
| Hochbaum, Jack | Wilkie | 306-843-2054 | C |
| Nutrien Ag Solutions(Canada) (Forages) | Carrot River | 306-768-3335 | F |
| Rempel, Blair Allan | Nipawin | 306-862-3573 | C |
| REVENUE (SLENDER) | | | |
| Nutrien Ag Solutions(Canada) (Forages) | Carrot River | 306-768-3335 | C |

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| LENTILS CDC Proclaim CDC Marble CDC Invincible | BARLEY CDC Copeland AAC Synergy CDC Maverick CDC Austenson AC Ranger | CANOLA DuPont Pioneer Invigor |

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| | | |
|--|---|--|
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|--|---|--|

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Varieties of Grain Crops 2019

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Symbols and Abbreviations Used:

- § Variety may not be described in 2020
- 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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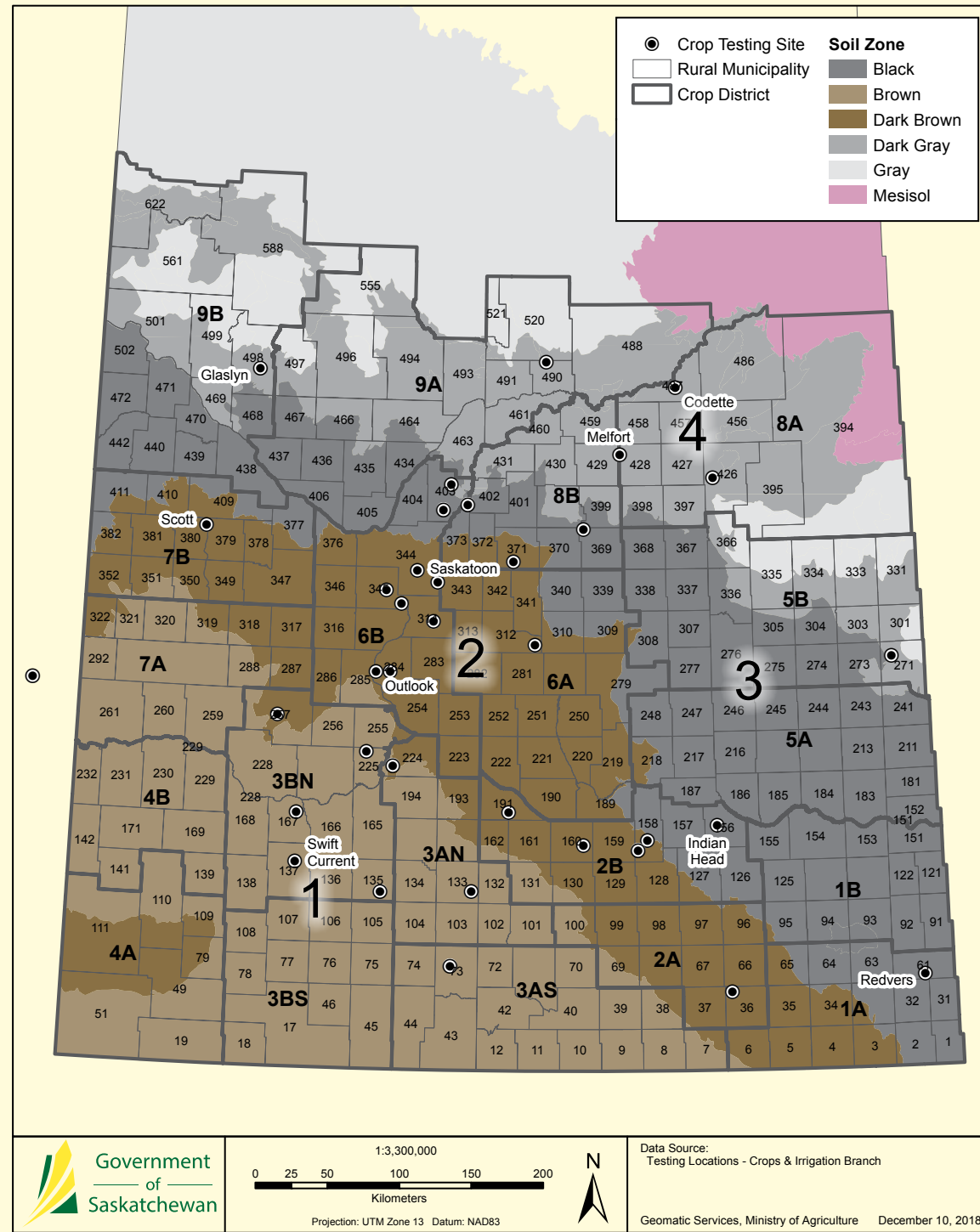
Accessing Public Release Varieties

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 38-40.

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



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



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.

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. Many funders contribute to variety testing in Saskatchewan.

The Saskatchewan Ministry of Agriculture provides \$100,000 toward a testing program that is based on industry-government partnership. 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 *2019 SaskSeed Guide*.

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. 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 \$79,900 to the core program. Supplementary funds enhance the core program.

Saskatchewan Pulse Growers (SPG) funds

Grower dollars are at work testing varieties of grain crops across Saskatchewan. Variety results are reviewed and approved by SACGC to ensure the information published is based on sound scientific principles.

the pulse and soybean regional variety trials for Saskatchewan growers. For 2018 trials, SPG provided approximately \$373,000 for pulse regional variety trials and \$121,000 for soybean regional variety trials. Canadian marketing agents that distribute soybean varieties in Saskatchewan pay an entry fee that covers a portion of the cost of having their varieties tested. SPG collaborates with researchers at several locations to conduct the trials, including the Crop Development Centre at the University of Saskatchewan, Agriculture and Agri-Food Canada research stations, provincial AgriARM sites, and the Canada-Saskatchewan Irrigation Diversification Centre.

Canola Performance Trials (CPT) represent the next generation in variety evaluation for Western Canadian canola growers. The three Prairie canola grower groups – Alberta Canola Producers Commission, Saskatchewan Canola Development Commission (SaskCanola) and the Manitoba Canola Growers Association – fund the program. The Canola Council of Canada delivers the program on their behalf.

The results from all variety trials of all crop kinds tested 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.

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.

Considerations For New Variety Selection

There are various factors to consider when selecting a new variety and it all depends on what your main priority is. Some factors to consider include:

- Market – Identify your target market and make sure the variety selected matches the specifications and quality expected by your buyers, such as seed size, colour, functionality, and other attributes.
- Maturity – Identify realistic expectations on maturity needed to achieve optimum yield and quality in your region.
- Disease resistance – Select varieties with better resistance for high risk areas or fields. Resistance is a tool that helps with disease management, but may or may not reduce the reliance on fungicide application.
- Herbicide tolerance – Consider the weeds or volunteers that may be present in the field to determine if herbicide tolerant options are a good choice.
- Seed size – If seed size does not affect the market choice, then consider the seeding costs of the variety. Smaller seeded varieties are usually cheaper to seed and have fewer production issues with plugging seeding equipment and other operations. Fab beans are a good example where seed size may be an important consideration.
- Crop growth habit and other physiological factors – Factors such as growth habit (determinate or indeterminate), plant height, standability, harvest management, and quality parameters such as resistance to sprouting, seed coat breakage and bleaching.
- Yield – This is often the highest priority as it directly relates to the ultimate goal of net return. In some cases, the advantages and higher performance of new varieties may not necessarily translate into higher yield, due to environment or management practices. If all other factors have been considered, then use yield potential as the deciding factor.

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-

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

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

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

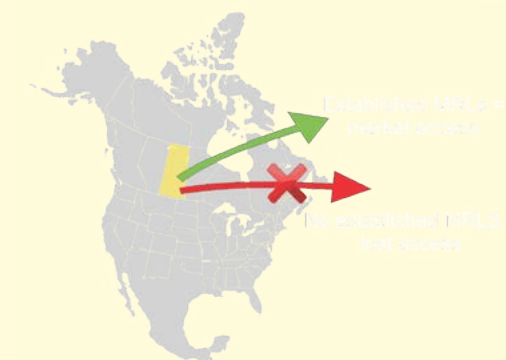
Maximum Residue Limits

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

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

For more information, visit keepingitclean.ca.

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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. Plant population sets the stage for the yield potential of a crop. Research has shown that each crop has an optimum plant density range that producers should target when seeding their crop. Rates may be adjusted depending on the conditions in the field, date of seeding, weed pressure, seed placed fertilizer, and other pressures that may affect emergence or plant stand.

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 and influence seeding rates for that seed lot. 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. TKW provides the seed size which is vital when calculating seeding rates to target optimum plant populations. Average TKW for varieties are listed in the Seed Guide but individual seed lots can vary tremendously. Having the actual TKW for the seed lot being grown is important for the accuracy of seeding rates.

There are upcoming changes in the canola seed industry that might require you to pay closer attention to seeding rates, or to change how you approach seeding. At least one company will begin selling seed based on categories of seed size, represented by thousand seed weight (TSW) by 2020.

| Crop | Target Plant Population (per m ²) | Target Plant Population (per ft ²) | TKW (grams) |
|----------------------------|---|--|-------------|
| Wheat – hard red spring | 250 | 24 | 31 – 38 |
| Wheat – CPS | 250 | 24 | 39 – 50 |
| Durum | 210 – 250 | 20 – 24 | 41 – 45 |
| Wheat – SWS | 210 – 250 | 20 – 24 | 34 – 36 |
| Barley – 2 row | 210 – 250 | 20 – 24 | 40 – 50 |
| Barley – 6 row | 210 – 250 | 20 – 24 | 30 – 45 |
| Oat | 350 | 35 | 30 – 45 |
| Triticale – spring | 310 | 29 | 42 – 48 |
| Brown and Oriental Mustard | 70 - 120 | 7 – 11 | 2 – 3 |
| Yellow Mustard | 70 - 120 | 7 – 11 | 5 – 6.5 |
| Canola | 60 - 100 | 6 – 9 | 2.5 – 7.5 |
| Flax | 300 – 400 | 30 – 40 | 5 – 6.5 |
| Pea | 85 | 8 | 125 – 300 |
| Fababean | 45 | 4 | 350 – 425 |
| Lentil | 130 | 12 | 30 – 80 |
| Chickpea | 44 | 4 | 220 – 450 |
| Soybean ¹ | 44 – 57 | 4 – 5 | n/a |
| Canaryseed ² | n/a | n/a | 6 – 7 |
| Camelina | 210 | 20 | 1.3 |
| Hemp (green) | 100 – 125 | 10 – 12 | 12 – 18 |
| Hemp (fibre) | 300 – 375 | 30 – 35 | 12 – 18 |
| Quinoa ² | n/a | n/a | 2.8 |

¹ Soybeans are seeded based on seeds per acre and it is recommended to target 200,000 seeds per acre with air drills and 180,000 seeds per acre with planters. The soybean emergence rates are higher with planters than air drills due to airflow causing some damage to sensitive seeds.

² Target plant stands are not well established for canaryseed and quinoa. Canaryseed target 35 – 45 kg/ha (500 – 750 seeds/m²). Quinoa target 10 kg/ha (10 lbs/acre).

The majority of canola seed today falls into a TSW range of 4.0 – 5.9g. The TSW is currently found listed on a bag, but each bag is equal weight and price; thus, the number of seeds between bags with different TSWs might be inconsistent. With upcoming changes, bag weights will differ between each TSW category but the number of seeds per bag will be

much more consistent across TSWs listed on the bags; germination and vigour will not differ. Pricing should remain consistent as well, regardless of bag weight. The important consideration to note is that seeding rate must be adjusted accordingly to achieve consistent establishment (and plant stand density) across any of the TSWs.

Calculating Seeding Rates

TKW, germination rate and target plant populations are needed when calculating the seeding rate. Crops and varieties can vary significantly in seed size, especially pulses, and not knowing your thousand kernel weight (TKW) could mean seeding too heavy and spending more on seed than needed, or seeding too light and limiting yield potential. Emergence rate is more difficult to estimate as it is dependent on germination and environmental conditions.

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 seed quality and 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. The formula below should be used to determine the target seeding rate:

$$\text{Seeding Rate kilograms per hectare (kg/ha)} = \frac{(\text{target population per square metre} \times \text{TKW}^* \text{ in grams})}{\% \text{ field emergence or survival (in whole number, i.e. 85)}}$$

To convert to pounds per acre, multiply the seeding rate (in kg/ha) by 0.89

*TKW = Thousand Kernel Weight

For example: With **CDC Amarillo** yellow peas the target plant population is 85 plants/m². A seed lot with TKW of 235 grams and germination at 98% under good emergence conditions (using 88% emergence which is 10% less than the germination rate) would have a target seeding rate of: 85 x 235 / 88 = 227 kg/ha or 202 lbs/acre or 3.4 bu/acre.

Interpreting Seed Test Results

By Jason Danielson, Discovery Seed Labs

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 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.

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), *Anthraco*se, *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.

Soil Germination Test

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.

Seed Samples

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.

Seed-Borne and Seedling Disease Management

By Saskatchewan Ministry of Agriculture

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.

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.

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 Saskatchewan Agriculture publication *Seed-Borne Diseases of Pulse Crops*.

Handle delicate seeds (i.e. pulses) with care as seed coats are susceptible to damage – run augers full and slow, and watch fan speeds on airseeders. Use a seed treatment if seed has a high level of disease, seeds show signs of mechanical damage, or the forecast is for wet, cool environmental conditions that may delay emergence. Kabuli chickpeas must have seed treatment or reduced emergence will occur.

Root rots can include a complex of pathogens such as *Fusarium spp.*, *Rhizoctonia solani*, or *Pythium spp.* and more recently *Aphanomyces euteiches*. There is no indication of differences in susceptibility between varieties or crops for most of the root rot pathogens with the exception of *Aphanomyces*. Currently all pea and lentil varieties are susceptible to *Aphanomyces* root rot. Current faba bean and chickpea varieties have partial resistance and could be considered another nitrogen fixing crop that has resistance to *Aphanomyces*.

With soybeans the best management practices for *Phytophthora* stem rot include selecting varieties with genetic resistance as well as using a seed treatment that is labeled for control.

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).

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

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

Wireworms that attack all grain crops, pea leaf weevil in pea and faba beans, and flea beetles that attack canola and mustard, can be controlled by seed treatments containing insecticides.

The degree of control with seed treatments depends on five factors:

1. active ingredients
2. rate of application
3. seed- and soil-borne fungal diseases or insects present
4. environmental conditions
5. quality of seed coverage

Check individual product labels for specifics.

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.

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.

Adequate coverage is important to ensure each seed is protected and the seeds are completely covered (especially important with contact type seed treatments).

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.

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.

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*.

Seed-Borne and Seedling Diseases and Actions to Minimize Impact

| Crop | Disease Pathogen | Economic Threshold | Action If Over Threshold |
|------------------------------------|---|-------------------------------|---|
| Field Peas Lentils | Root Rot: <i>Aphanomyces euteiches</i> | Soil-borne only | Consider seed treatment if disease history |
| Field Peas | <i>Ascochyta complex</i> | 10% on seed | Use seed treatment |
| | <i>Ascochyta lentis</i> | 5% on seed | Use seed treatment |
| Lentils | | 10% on seed | Do not use seed |
| | Stemphylium blight | May be detected on seed tests | Unknown |
| | Anthracnose | May be detected on seed tests | Not considered high risk of seed to seedling transmission |
| Chickpeas | <i>Ascochyta rabiei</i> | 0.3% on seed | Do not use seed |
| Faba Beans | Anthracnose | Unknown | Consider seed treatment if disease history |
| | Seed rot/damping off: <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> | Unknown | Consider seed treatment if disease history |
| Soybeans | Seed rot/damping off: <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Phamapsis</i> , <i>Phytophythora</i> | Unknown | Consider seed treatment if disease history |
| | Seed rot/seedling blight (pathogens unspecified) | Unknown | Use seed treatment |
| Field Peas Chickpeas Lentils | Seed rot/damping off: <i>Botrytis</i> + <i>Fusarium</i> | 10% on seed | Use seed treatment |
| | Seed rot/damping off: <i>Rhizoctonia</i> , <i>Botrytis</i> , <i>Fusarium</i> , <i>Pythium</i> | Soil-borne only | Consider seed treatment if disease history and/or will be seeding under cool, moist soil conditions |

Source: Guideline for Seed-Borne Diseases of Pulse Crops, Saskatchewan Ministry of Agriculture

Relative Maturity

By Saskatchewan Ministry of Agriculture

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.

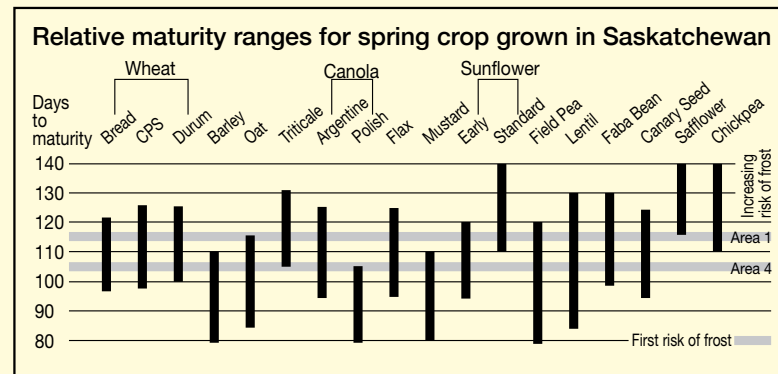
The table below compares the relative maturity ranges for crops grown in Saskatchewan. Within each crop there are early and late maturing varieties. Whether a crop matures before the first killing frost depends on seeding date, management practices and environmental factors. Not all crops have a wide area of adaptation.

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

Understanding Soybean Maturity Ratings

Soybean maturity ratings are currently based on three approaches: corn heat units, maturity groupings, and days to maturity. The preferred ways to measure soybean maturities are through maturity group classifications or days to maturity. The maturity group (MG) rating system classifies soybean varieties from MG 000 in northern areas to MG IX in southern areas of North America, based on latitude ranges and photoperiod sensitivity. Each MG region covers one or two degrees of latitude, or about 200 to 300 kilometres from north to south. For Saskatchewan, soybeans are most suited with 00 and 000 MG. Each MG can have subgroupings with a 0 to 9 decimal number following the group

(or zone) number and these decimal places equate to slight increases in maturity. In the 00 maturity ratings, a subgroup of 00.1 would be earlier maturing than 00.9. Note that these MG ratings are not entirely standardized between seed companies. Check with your seed supplier to better understand MG ratings. Days to maturity is a direct measure of the days each variety takes to reach physiological maturity and is averaged across locations. The lower the number the earlier maturing the variety was across the sites tested. This value is obtained through the Regional Variety Testing Program and is an independent rating. Growers are advised to use all maturity information available to choose appropriate varieties for their area.



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.

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.

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*.

| Crop | Recommended Minimum Average Soil Temperature at Seeding Depth (°C) | Estimated Seeding Dates for Saskatchewan | Recommended Seeding Depth in Inches (cm) |
|------------|--|--|--|
| Peas | 5° | Mid-april – Mid-May | 3 – 8 cm (1.2 – 3.2") |
| Lentils | 5° | Mid-April – May | 2.5 – 7.5 cm (1 – 3") |
| Chickpeas | 7° (kabuli) 10° (desi) | Prior to May 25 | 3.5 – 6 cm (1.5 – 2.5") |
| Faba Beans | 3° - 5° | Mid-April - Mid-May | 5.1 – 7.6 cm (2 – 3") |
| Dry Beans | 12° | May 25 - June 5 | 5 – 6 cm (2 – 2.5") |
| Soybeans | 10° | May 10 - May 25 | 1.9 – 3.8 cm (.75 – 1.5") |

Source: Saskatchewan Ministry of Agriculture

Safe Rates of Seed-Placed Fertilizer

Phosphorus (P) is an important plant nutrient. Phosphorus promotes the development of extensive root systems and vigorous seedlings. Encouraging vigorous root growth is an important step in promoting good nodule development and nitrogen fixation for all legumes and growth of all crops. It also plays an important role in promoting earlier and more uniform maturity in all crops. Maximum safe rates of actual seed-placed phosphate fertilizer vary by crop and are based on monoammonium phosphate (11-52-0) which has a relatively low salt index and should not be used for other fertilizers. The table to the

right summarizes the maximum safe rates of seed-placed phosphorus (P₂O₅) fertilizer in narrow row systems based on knife openers with a one-inch spread, nine-inch row spacing and good to excellent soil moisture. Wider row spacing and/or narrower seed spread openers would have reduced tolerance and safe rates should be adjusted lower.

| Crop | Actual P ₂ O ₅ (lbs/acre) |
|------------|---|
| Cereals | 50 |
| Canola | 25 |
| Canaryseed | 30 |
| Flax | 15 |
| Pea | 15 |
| Faba Bean | 40 |
| Lentil | 20 |
| Mustard | 20 |
| Chickpea | 20 |
| Soybean | 20 |
| Dry Bean | 30 |

* Source: Guidelines for Safe Rates of Fertilizer, Saskatchewan Ministry of Agriculture

CEREAL CROPS

Wheat

Main Characteristics of Varieties

| Category and Variety | Years Tested | Yield (%) | | | Pro-tein | Resistance To ² | | | | | | | Head Awned-ness | Rel. Ma-turity (days) | Seed Weight (mg) | Volume Wt. ³ (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 |
| CWRS¹ --- Relative to Carberry --- | | | | | | | | | | | | | | | | | | | |
| Carberry | 6 | 100 | 100 | 100 | 14.6 | VG | F | MR | R | MR | MR | R | MS | MR | Y | 99 | 35.7 | 80.3 | 83 |
| CDC Adamant VB | 3 | 108 | 114 | --- | 0.0 | P | F | R | I | MS | S | S | MS | I | Y | -2 | -1.7 | 0.0 | +3 |
| AAC Alida VB | 2 | 105 | 108 | --- | +0.1 | VG | VG | R | R | MR | R | I | MS | MR | Y | -1 | +1.9 | +0.3 | +7 |
| CDC Bradwell | 5 | 101 | 108 | --- | 0.0 | VG | F | MR | R | MS | MR | R | MS | I | Y | 0 | -2.0 | +0.6 | +8 |
| AAC Brandon | 5 | 106 | 106 | --- | -0.4 | G | P | R | R | MR | MR | S | I | MR | Y | 0 | +0.1 | 0.0 | -1 |
| AAC Cameron VB | 5 | 108 | 118 | --- | -0.6 | F | F | MR | MR | S | S | R | I | I | Y | -2 | +3.0 | -0.4 | +17 |
| Cardale | 5 | 99 | 101 | --- | -0.1 | F | G | R | R | S | I | MR | MS | MR | Y | 0 | -1.3 | -1.2 | +3 |
| SY Chert VB | 2 | 100 | 106 | --- | -0.3 | F | F | R | R | R | R | R | MS | I | Y | -1 | -0.4 | -0.7 | +7 |
| Coleman | 5 | 96 | 96 | --- | -0.2 | VP | P | MR | R | MR | S | S | MS | MR | Y | -3 | -2.8 | +0.4 | +16 |
| AAC Connery | 5 | 101 | 100 | --- | +0.3 | G | G | R | MR | R | MR | I | I | MR | N | -2 | 0.0 | -0.8 | +4 |
| AAC Elie | 5 | 105 | 105 | --- | -0.2 | G | F | R | R | MR | I | I | I | I | Y | 0 | -0.1 | 0.0 | -2 |
| Glenn | 6 | 99 | 102 | 102 | -0.4 | F | F | R | R | MR | I | I | I | I | Y | -1 | -0.9 | +2.6 | +9 |
| 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 | 5 | 96 | 102 | --- | +0.4 | P | VP | MR | MR | I | MS | MR | S | I | Y | -4 | 0.0 | -2.3 | +15 |
| Goodeve VB | 6 | 101 | 107 | 100 | 0.0 | G | G | MR | MR | I | MR | S | MS | S | N | -4 | +0.1 | -1.7 | +9 |
| CDC Hughes VB | 4 | 100 | 110 | --- | -0.1 | F | G | R | MR | I | MR | MS | I | I | Y | -1 | +2.1 | +0.3 | +3 |
| 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 | 5 | 108 | 114 | --- | -0.2 | F | G | I | R | I | S | MS | I | I | Y | -1 | +0.8 | +0.8 | +15 |
| CDC Landmark VB | 4 | 109 | 112 | --- | -0.2 | G | G | R | MS | MR | MR | MS | I | I | Y | -1 | +1.2 | +0.8 | +4 |
| CDC VR Morris | 5 | 108 | 106 | --- | -0.2 | F | P | MR | R | --- | I | I | I | MR | N | -1 | -0.5 | -0.6 | +11 |
| SY Obsidian | 2 | 99 | 105 | --- | -0.3 | VG | F | MR | R | MR | R | MS | I | MS | Y | -2 | +1.2 | 0.0 | +4 |
| Parata | 2 | 98 | 106 | --- | +0.3 | F | F | R | MR | MR | MR | S | I | I | Y | -2 | -2.0 | -0.1 | +11 |
| CDC Plentiful | 5 | 105 | 104 | --- | -0.2 | G | P | R | R | MR | R | I | I | MR | N | -2 | -1.9 | -0.4 | +9 |
| AAC Prevail VB | 5 | 110 | 108 | --- | -0.5 | F | G | MR | R | R | S | S | MS | I | N | -1 | -0.5 | -1.0 | +19 |
| AAC Redberry | 4 | 105 | 108 | --- | -0.2 | F | G | R | R | R | R | I | MS | I | Y | -3 | -0.9 | +0.8 | +6 |
| Shaw VB | 6 | 112 | 114 | 103 | -0.7 | F | G | R | MR | I | S | MR | MS | MS | N | -1 | +0.5 | -0.5 | +18 |
| SY Slate | 4 | 102 | 107 | --- | +0.4 | P | P | MR | R | MR | MS | S | MS | I | Y | -2 | -0.1 | -0.8 | +7 |
| SY Sovite | 3 | 98 | 104 | --- | 0.0 | F | F | MR | R | R | R | MS | MR | MR | Y | 0 | +2.1 | -0.2 | +7 |
| CDC Stanley | 6 | 102 | 105 | 100 | -0.1 | G | VG | R | MR | I | MR | S | I | MS | N | -1 | -2.5 | -1.7 | +11 |
| AAC Starbuck VB | 1 | 113 | 117 | --- | -0.3 | G | F | I | MR | MR | MR | S | S | MR | Y | -1 | +0.7 | 0.0 | +3 |
| Stettler | 6 | 105 | 107 | 100 | +0.2 | F | G | MR | MS | MR | R | MR | MS | MS | Y | -1 | -0.6 | -0.4 | +8 |
| Thorsby | 5 | 102 | 102 | --- | 0.0 | F | F | MR | R | R | I | S | MS | I | N | -3 | +0.5 | -0.8 | +13 |
| AAC Tisdale | 3 | 100 | 109 | --- | +0.7 | F | F | R | R | S | MR | MR | MS | MR | Y | -2 | +0.8 | -0.3 | +8 |
| CDC Titanium VB | 5 | 106 | 110 | --- | +0.6 | P | P | I | R | R | MS | I | MS | MR | Y | -2 | +1.1 | -0.2 | +10 |
| CDC Utmost VB | 6 | 108 | 112 | 107 | -0.4 | F | G | MR | R | I | MS | S | I | MS | N | -3 | -0.8 | -1.4 | +10 |
| AAC Viewfield | 4 | 109 | 108 | --- | -0.5 | VG | G | R | MR | R | S | MR | I | I | Y | -1 | -1.7 | +0.9 | -3 |
| AAC W1876 | 5 | 98 | 101 | --- | +0.2 | F | F | MR | R | I | I | I | MS | I | Y | -1 | -0.5 | -0.8 | +3 |
| AAC Warman VB | 1 | 100 | 106 | --- | 0.0 | F | --- | R | R | MS | MR | S | I | MR | Y | -2 | -1.4 | 0.0 | +12 |
| Waskada | 6 | 108 | 107 | 101 | -0.2 | P | VG | R | I | MS | MR | R | MS | MR | Y | -1 | +0.6 | +0.8 | +16 |
| AAC Wheatland VB | 1 | 110 | 114 | --- | 0.0 | VG | G | R | R | I | R | MR | S | I | Y | -1 | +1.2 | +0.4 | +4 |
| WR859CL | 6 | 101 | 101 | 102 | -0.1 | F | G | MR | R | I | R | R | MS | MR | Y | -1 | -2.0 | -0.4 | +4 |
| SY479 VB | 5 | 91 | 100 | --- | +0.6 | G | VG | I | R | S | MS | R | MS | I | Y | -2 | -1.4 | -0.1 | +16 |
| CWRS moving to CNHR August 1, 2021¹ | | | | | | | | | | | | | | | | | | | |
| Muchmore | 6 | 102 | 98 | 102 | -0.4 | VG | G | R | R | MR | MR | R | MS | MS | Y | 0 | -0.2 | -1.0 | -4 |
| AAC Redwater | 5 | 102 | 101 | --- | +0.1 | F | VG | R | R | MR | MS | I | MS | I | Y | -3 | -3.5 | -1.3 | +8 |
| Vesper VB | 6 | 108 | 113 | 109 | -0.7 | P | F | MR | R | S | I | S | I | I | Y | -2 | +1.0 | -0.4 | +13 |
| 5605HR CL | 5 | 103 | 106 | --- | +0.1 | F | F | MS | R | MR | R | MR | MS | MR | Y | -1 | -1.0 | +0.4 | +13 |

Wheat (cont'd)

| Category and Variety | Years Tested | Yield (%) | | | Pro-tein | Resistance To ² | | | | | | | Head Awned-ness | Rel. Ma-turity (days) | Seed Weight (mg) | Volume Wt. ³ (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 |
| CPSR¹ --- Relative to Carberry --- | | | | | | | | | | | | | | | | | | | |
| AAC Crossfield | 3 | 116 | 111 | --- | -1.4 | F | P | MR | R | R | I | S | I | I | Y | -1 | +2.1 | -1.6 | 0 |
| AAC Entice | 3 | 116 | 109 | --- | -1.1 | P | P | R | R | R | MS | S | MS | I | Y | -1 | 1.0 | -2.3 | +1 |
| AAC Foray VB | 5 | 116 | 120 | 122 | -1.7 | F | P | MR | R | I | MS | I | MS | I | Y | 0 | +7.9 | -1.3 | +5 |
| AAC Goodwin | 3 | 116 | 116 | --- | -1.5 | G | G | I | R | R | MS | I | I | I | Y | -1 | +0.9 | +0.3 | +2 |
| AAC Penhold | 5 | 108 | 111 | 108 | -1.0 | VG | VG | MR | R | MR | I | R | I | MR | Y | -2 | +5.1 | -0.2 | -9 |
| SY Rowyn | 3 | 101 | 106 | --- | -0.9 | F | F | R | R | MR | I | S | I | MR | Y | 0 | -4.5 | -0.5 | -5 |
| AAC Ryley | 5 | 103 | 110 | 122 | -1.2 | P | G | R | R | S | I | R | MS | MS | Y | -1 | +6.9 | -4.3 | +2 |
| AAC Tenacious VB | 5 | 100 | 106 | 93 | -1.6 | VP | G | MR | R | R | R | MR | MS | R | Y | 0 | -0.3 | -0.2 | +20 |
| CDC Terrain | 4 | 116 | 114 | --- | -1.4 | P | G | MR | R | R | MR | MR | I | MS | Y | 0 | +4.8 | -2.1 | +3 |
| 5700PR | 5 | 107 | 113 | 106 | --- | VG | F | R | I | S | MS | R | MS | MS | Y | -1 | +5.5 | 0.0 | -4 |
| SY985 | 5 | 107 | 115 | 114 | -1.3 | P | P | R | R | --- | R | MR | I | I | Y | -1 | +5.8 | -2.1 | 0 |
| CNHR¹ | | | | | | | | | | | | | | | | | | | |
| AAC Concord | 4 | 106 | 105 | --- | -0.3 | VP | F | R | R | R | I | MR | I | MS | N | -1 | +2.9 | -1.3 | +13 |
| CDC Cordon CLPlus VB | 3 | 111 | 114 | --- | -0.8 | F | F | MR | MR | MS | MR | R | MS | I | Y | -2 | +1.1 | -2.4 | +1 |
| Elgin ND | 4 | 112 | 115 | --- | -0.7 | F | F | I | R | MR | --- | S | I | I | Y | -1 | -2.0 | -0.6 | +7 |
| Faller | 3 | 115 | 120 | --- | -1.6 | F | F | I | MR | MS | --- | I | MS | I | Y | -1 | +2.1 | -1.3 | +2 |
| Lillian | 6 | 89 | 95 | --- | +1.1 | P | G | MR | R | R | I | MR | MR | S | N | -2 | +0.7 | -1.6 | +14 |
| Prosper | 3 | 116 | 119 | --- | -1.7 | F | F | MR | MR | S | --- | I | I | I | Y | 0 | +2.6 | -1.3 | +3 |
| Unity VB | 6 | 106 | 113 | 103 | -0.6 | P | VG | MR | R | MS | MS | R | I | I | Y | -2 | -1.5 | +0.1 | +14 |
| CWSWS¹ | | | | | | | | | | | | | | | | | | | |
| 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 | 139 | -3.7 | P | VP | S | I | MR | S | S | --- | S | Y | +2 | +2.4 | -3.2 | +12 |
| AAC Indus VB* | 4 | 132 | 131 | --- | -3.9 | VG | P | S | I | R | S | MS | MS | MS | Y | +3 | +2.9 | -2.5 | +8 |
| AAC Paramount VB* | 4 | 133 | 132 | --- | -3.4 | VG | P | I | I | R | MR | S | --- | MS | Y | +1 | +2.1 | -2.3 | +7 |
| Sadash VB* | 5 | 137 | 139 | --- | --- | VG | P | MR | I | R | I | S | --- | S | Y | +3 | -1.6 | -2.3 | +5 |
| CWSP¹ | | | | | | | | | | | | | | | | | | | |
| Alderion | 3 | 140 | 133 | --- | -3.4 | VG | F | MR | R | MR | --- | MS | I | --- | N | +4 | +1.0 | -7.0 | -5 |
| AAC Awesome VB* | 3 | 136 | 134 | --- | -3.3 | F | P | R | MR | R | I | I | I | I | Y | +1 | +5.2 | -0.9 | +7 |
| Charing VB | 2 | 138 | 133 | --- | -2.9 | VG | G | --- | MR | R | --- | --- | MR | --- | N | +5 | +0.9 | -3.9 | -1 |
| AAC Innova | 5 | 128 | 132 | --- | -3.2 | G | VP | MR | R | R | S | S | I | S | Y | +2 | +0.1 | -4.5 | +5 |
| CDC Kinley | 4 | 103 | 110 | --- | -0.2 | G | P | I | MR | I | MS | MR | I | I | Y | -1 | -0.7 | +0.1 | +5 |
| CDC NRG003 | | | | | | | | | | | | | | | | | | | |

Durum Wheat

| Category and Variety | Years Tested | Yield (%) | | | Protein | Resistance To ¹ | | | | | | | | Head Awedness | Rel. Maturity (days) | Seed Weight (mg) | Volume Wt. ² (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 |
| CWAD | --- Relative to Strongfield --- | | | | | | | | | | | | | | | | -- Relative to Strongfield -- | | |
| Strongfield | 6 | 100 | 100 | 100 | 14.4 | P | F | R | R | MR | R | MR | I | S | Y | 102 | 43.3 | 79.7 | 89 |
| CDC Alloy | 4 | 108 | 109 | 109 | -0.3 | F | F | MR | R | R | I | R | MS | MS | Y | +1 | -0.5 | +0.9 | +3 |
| 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 | 5 | 105 | 104 | 103 | -0.3 | P | F | MR | R | R | MR | R | I | MS | Y | +1 | -0.8 | +0.8 | +3 |
| CDC Carbide VB | 5 | 106 | 107 | 103 | -0.1 | P | P | R | R | R | MS | R | MS | MS | Y | 0 | -1.4 | -0.1 | +2 |
| AAC Congress | 4 | 109 | 107 | 116 | -0.4 | P | F | MR | R | R | MR | R | MS | MS | Y | +1 | -1.1 | +0.4 | +2 |
| CDC Credence | 3 | 106 | 110 | 103 | -0.5 | F | F | MR | R | MR | MR | R | I | MS* | Y | +1 | -0.8 | 0.0 | +6 |
| 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 Dynamic | 4 | 105 | 106 | 113 | +0.2 | F | G | MR | R | MR | I | R | I | MS | Y | 0 | -1.4 | +0.6 | +1 |
| Enterprise | 5 | 102 | 103 | 106 | -0.3 | P | G | R | R | R | MS | MR | I | MS | Y | 0 | -3.2 | +0.6 | +2 |
| Eurostar | 5 | 100 | 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 | --- | -0.7 | F | G | R | R | R | MS | R | S | S | Y | +2 | +1.2 | -0.1 | -8 |
| CDC Precision | 4 | 108 | 111 | 111 | -0.5 | G | F | MR | R | R | MS | R | MS | MS | Y | 0 | -0.9 | +1.1 | +2 |
| 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 | 5 | 108 | 110 | 111 | -0.4 | G | F | R | R | R | MS | R | MS | S | Y | 0 | +0.3 | -0.3 | -1 |
| AAC Stronghold | 3 | 102 | 102 | 114 | -0.2 | VG | G | R | R | MR | R | I | I | MS | Y | +1 | +1.7 | +0.8 | -2 |
| AAC Succeed VB | 2 | 103 | 111 | --- | +0.1 | F | F | MR | R | I | R | R | MS | MS | Y | 0 | +2.5 | -0.4 | +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 | 102 | 107 | 103 | -0.3 | G | F | R | R | R | MS | R | MS | MS | Y | +2 | +0.1 | -0.2 | +1 |

¹Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate Resistance; MS = Moderately Susceptible; S = Susceptible.
² multiply by 0.8 = lbs per bushel.
 VB = varietal blend.

ADDITIONAL INFORMATION

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

Grain yield, protein content, time to maturity, seed weight, volume weight, and plant height of all varieties of common wheat and durum wheat are compared to **Carberry** and **Strongfield**, respectively. In 2018, the spring wheat varieties supported for registration since 2013 were grown in replicated trials at 13 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.

Varietal Blend ("VB") designated varieties possess the same "Sm1" gene, which confers tolerance to Orange Wheat Blossom Midge. 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/

CANADA WESTERN RED SPRING (CWRS)
Muchmore, AAC Redwater, Vesper VB and **5605HR CL** will be moving to the CNHR class as of August 1, 2021.

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

Seed of **SY Obsidian** and **AAC Tisdale** will be available spring 2019. Seed of new varieties **AAC Alida VB, SY Chert VB,** and **AAC Warman VB** will be available in limited quantities fall 2019. Seed of new varieties **AAC Starbuck VB** and **AAC Wheatland VB** is expected to be available in limited quantities fall 2020.

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

WHEAT ADDITIONAL INFORMATION (CONT'D)

CANADA PRAIRIE SPRING RED (CPSR)
 Seed of new varieties **AAC Crossfield, AAC Entice** and **AAC Goodwin** are available spring 2019.

CANADA NORTHERN HARD RED (CNHR) Spring
Lillian and **AAC Concord** have a solid stem which can provide protection against the wheat stem sawfly.

CDC Cordon CLPlus VB is tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX.

Seed of new variety **CDC Cordon CLPlus VB** is expected to be available in limited quantities fall 2019.

CANADA WESTERN HARD WHITE SPRING (CWHWS)
 Varieties in the Hard White market class are intended for whole wheat bread and Yellow Alkaline Noodle markets.

Seed of new variety **AAC Cirrus** will be available fall 2019.

CANADA WESTERN SOFT WHITE SPRING (CWSWS)

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.

CANADA WESTERN SPECIAL PURPOSE (CWSP) SPRING

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.

CANADA WESTERN AMBER DURUM (CWAD)
AAC Cabri, CDC Fortitude, AAC Raymore and **AAC Stronghold** have a solid stem which can provide protection against the wheat stem sawfly.

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. 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 Cre-dence** and **Transcend** generally express lower Fusarium Head Blight 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 was initiated in 2015. 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

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

classes are more consistent with customer expectations.

The wheat class review was comprehensive. The initial 29 varieties were moved out of CWRS and CPSR Aug. 1, 2018 to the Canada Northern Hard Red (CNHR) class.

As an ongoing part of the review, five additional varieties have been identified. **AC Crystal** will move out of CPSR to CNHR August 1, 2019. **AC Domain, Muchmore,**

AAC Redwater, Vesper VB and **5605HR CL** will move out of CWRS to CNHR August 1, 2021.

For farmers growing one of the varieties that will be moved to CNHR, these varieties can continue to be grown, but must be marketed in their new class after the transition date.

Winter Wheat

Main Characteristics of Varieties

| Category and Variety | Years Tested | Yield (%) | | Protein (%) | Winter Survival | Resistance To ² | | | | | | Head Awedness | Relative Maturity | Seed Weight (mg) | Volume Wt. ³ (kg/hL) | Height (cm) |
|---|--------------|------------|------------|-------------|-----------------|----------------------------|-----------|-----------|-------------|------|-----|---------------|-------------------|------------------|---------------------------------|-------------|
| | | Area 1 & 2 | Area 3 & 4 | | | Lodging | Stem Rust | Leaf Rust | Stripe Rust | Bunt | FHB | | | | | |
| CWRW ¹ -- Relative to CDC Buteo -- | | | | | | | | | | | | | | | | |
| CDC Buteo | 18 | 100 | 100 | 12.3 | VG | F | I | I | S | S | MR | Y | M | 32.8 | 81.0 | 91 |
| CDC Chase | 7 | 106 | 109 | +0.3 | F | F | R | R | MR | S | MS | Y | M | -0.5 | -0.2 | +3 |
| AAC Elevate ☪ | 8 | 109 | 102 | -0.1 | G | VG | MR | I | MS | MR | I | Y | M | +4.3 | -2.2 | -7 |
| Emerson ☪ | 7 | 98 | 93 | +0.4 | G | G | R | I | MR | S | R | Y | M | -4.1 | -0.8 | -5 |
| Flourish ☪ § | 9 | 99 | 101 | +0.3 | F | VG | I | I | I | MR | S | Y | E | +2.3 | -1.7 | -11 |
| AAC Gateway ☪ | 8 | 98 | 99 | +0.5 | F | VG | MR | I | MR | S | I | Y | M | -0.1 | -1.5 | -14 |
| AAC Goldrush ☪ | 6 | 109 | 111 | +0.2 | VG | G | MR | R | I | S | I | Y | M | +0.3 | -1.7 | -4 |
| Moats ☪ | 11 | 105 | 103 | +0.4 | G | F | R | R | MR | MS | S | Y | M | -0.3 | -0.4 | +1 |
| Radiant ☪ | 18 | 103 | 102 | -0.3 | VG | VG | S | S | MS | S | S | Y | L | +1.7 | -1.9 | 0 |
| AAC Wildfire ☪ | 7 | 114 | 117 | 0.0 | VG | G | S | I | R | MR | MR | Y | VL | +2.6 | -1.2 | -5 |
| CW Experimental | | | | | | | | | | | | | | | | |
| AAC Icefield ☪ | 6 | 100 | 99 | -0.9 | F | VG | R | MR | MR | S | I | Y | M | -1.7 | -1.5 | -10 |
| CWSP ¹ | | | | | | | | | | | | | | | | |
| CDC Falcon | 16 | 102 | 98 | -0.8 | F | VG | MR | MR | S | S | S | Y | E | -3.0 | -1.9 | -16 |
| Pintail ☪ | 6 | 107 | 112 | -1.7 | VG | F | MS | MS | MR | S | S | N | M | -4.2 | -3.4 | -3 |

¹ Includes direct and indirect comparisons with **CDC Buteo**

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

³ Multiply by 0.8 = lbs per bushel

ADDITIONAL INFORMATION

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

Winter wheat will often escape fusarium head blight and orange wheat blossom 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 elimi-

nate 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 to facilitate market research. It was granted full registration in 2018. **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. For more information

contact FP Genetics.

Radiant and **AAC Wildfire** express bronze chaff at maturity. The awnless head of **Pin-tail** may improve palatability when harvested for forage or silage.

AAC Goldrush and **AAC Icefield** will be available in 2019.

Fall Rye

Main Characteristics of Varieties

| Variety | Years Tested | Yield (%) | | Protein (%) | Resistance To ¹ | | | | Heading Date (days) ² | Maturity (days) ³ | Seed Weight (mg) | Volume Weight (kg/hL) ⁴ | Height (cm) | Falling Number (seconds) |
|--|--------------|------------|------------|-------------|----------------------------|---------|------------|-------|----------------------------------|------------------------------|------------------|------------------------------------|-------------|--------------------------|
| | | Area 1 & 2 | Area 3 & 4 | | Winter Survival | Lodging | Shattering | Ergot | | | | | | |
| Open-Pollinated ----- Relative to Hazlet ----- | | | | | | | | | | | | | | |
| Hazlet | 15 | 100 | 100 | 11.3 | VG | G | VG | MS | June 8 | August 2 | 36.7 | 73.0 | 102 | 172 |
| Prima | 15 | 83 | 94 | 0.4 | VG | F | F | MS | -1 | -3 | -4.9 | -1.1 | 11 | +56 |
| Danko | 4 | 100 | 94 | 0.6 | VG | G | --- | --- | -2 | -2 | -3.7 | +0.5 | 0 | --- |
| Hybrid Varieties | | | | | | | | | | | | | | |
| KWS Bono | 6 | 127 | 124 | -1.1 | G | VG | --- | MS | 1 | 1 | -4.8 | -0.8 | -13 | +115 |
| Brasetto | 6 | 113 | 122 | -0.9 | VG | VG | --- | MS | 0 | 1 | -3.5 | -1.7 | -10 | +107 |
| KWS Daniello | 4 | 113 | 110 | -0.6 | G | G | --- | I | 1 | 0 | -4.2 | -1.7 | -9 | +129 |
| KWS Gatano | 4 | 119 | 119 | -1.1 | G | F | --- | I | 0 | 2 | -5.6 | -0.6 | -12 | +111 |
| Guttino | 6 | 116 | 127 | -0.9 | VG | VG | --- | MS | 1 | 0 | -4.5 | -0.9 | -13 | +148 |

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

² Average heading date relative to **Hazlet**. Flowering typically occurs 7-14 days after heading, depending on weather conditions.

³ Average maturity date relative to **Hazlet**. Wet and cool conditions can prolong maturity beyond these dates.

⁴ Multiply by 0.8 = lbs per bushel.

ADDITIONAL INFORMATION

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

A major factor in marketing rye grain into the milling market is sprouting. This is generally measured using the Hagberg falling number

test and is measured in seconds. Typically, a falling number of 180 seconds or greater is preferred by the rye milling market. Falling number is heavily influenced by moisture around harvest time, and producers must make sure rye is harvested in a timely manner, similar to wheat crops. There is considerable variation in fall rye varieties for falling number;

this must be considered if the milling market is the targeted end-user for rye grain.

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

Triticale

Main Characteristics of Varieties

| Variety | Years Tested | Yield (%) | | Test Weight (kg/hL) | Seed Weight (mg) | Height (cm) | Maturity (days) | Resistance To ¹ | | | | | | |
|--|--------------|------------|--------|---------------------|------------------|-------------|-----------------|----------------------------|-----------|-----------|------|----------|-------|-----|
| | | Area 1 & 2 | Area 3 | | | | | Lodging | Stem Rust | Leaf Rust | Bunt | Root Rot | Ergot | FHB |
| Spring Habit ----- Relative to AC Ultima ----- | | | | | | | | | | | | | | |
| AC Ultima | 20 | 100 | 100 | 70.1 | 44.0 | 101 | 104 | G | R | R | R | I | MS | I |
| Brevis | 12 | 109 | 108 | 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 ☪ | 6 | 104 | 106 | 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 | 9 | 105 | 101 | -1.7 | -4.4 | -1 | 1 | G | R | R | R | --- | MR | MS |
| Taza ☪ | 7 | 104 | 97 | -0.5 | -1.9 | 6 | 2 | G | R | R | R | --- | I | S |
| Tyndal ☪ | 7 | 101 | 101 | 1.8 | -3.2 | -6 | 0 | G | R | R | R | --- | --- | MS |
| Winter Habit ----- Relative to Pika ----- | | | | | | | | | | | | | | |
| Pika | 6 | 100 | 100 | 68 | --- | 125 | E | F | --- | --- | --- | --- | --- | --- |
| Luoma ☪ | 5 | 100 | 96 | -1.0 | --- | 1 | L | F | --- | --- | --- | --- | --- | --- |
| Metzger | 5 | 96 | 101 | -1.0 | --- | -14 | E | G | --- | --- | --- | --- | --- | --- |

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

ADDITIONAL INFORMATION

Spring triticale matures 2-4 days later than **AC Andrew** CWSWS wheat; therefore it should be planted as early as possible. Newer triticale varieties yield 2 to 10% higher than **AC Andrew**. Susceptibility to fusarium head blight is at least as great in triticale as in wheat. **AC Ultima** has an improved Hagberg Falling Num-

ber. **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.

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

Malting Barley

Main Characteristics of Varieties

| Category ¹ and Variety | Years Tested | 2 or 6 Row | Awns ² | Yield (%) | | Relative Maturity ³ | Resistance To ⁴ | | | | | | | | | |
|---|-----------------|---------------|-------------------|--------------------------------|---------------|-----------------------------------|----------------------------|-----------------------------------|------------------------------------|----------------|-------|---------------|----------------|-------------|--------------|-----|
| | | | | Area 1 & 2 | Area 3 & 4 | | Lodg- ing | Netted Net Blotch ⁵ | Spotted Net Blotch ⁵ | Spot Blotch | Scald | Loose Smut | Other Smuts | Root Rot | Stem Rust | FHB |
| Malting Acceptance: Recommended | | | | Relative to AC Metcalfe | | | | | | | | | | | | |
| AC Metcalfe | 8 | 2 | R | 100 | 100 | M | F | S | I | I | MS | R | I | I | MR | I |
| CDC Bow ☹ | 7 | 2 | R | 111 | 111 | M | VG | S | MR | I | MS | S | I | MS | MR | MS |
| AAC Connect ☹ | 4 | 2 | R | 113 | 106 | M | G | I | MR | MR | S | S | R | MS | MR | MR |
| CDC Copeland ☹ | 8 | 2 | R | 107 | 108 | M | F | I | I | S | MS | MS | I | I | MR | I |
| AAC Synergy ☹ | 7 | 2 | R | 118 | 118 | M | F | MR | R | R | S | S | I | I | MR | I |
| Legacy | 6 | 6 | S | 104 | 101 | M | G | S | MR | MR | MS | I | MR | MR | MR | MS |
| Malting Acceptance: In Development or Limited Demand | | | | | | | | | | | | | | | | |
| Bentley ☹ | 7 | 2 | R | 113 | 112 | L | G | MS | R | I | MS | MS | MR | I | MR | MS |
| CDC Fraser ☹ | 6 | 2 | R | 112 | 115 | M | G | MR | R | MR | MS | R | R | MS | MR | I |
| Lowe ☹ | 5 | 2 | R | 112 | 110 | L | F | I | MR | I | MR | R | R | --- | S | MR |
| Newdale ☹ | 6 | 2 | R | 112 | 113 | M | G | I | MR | I | MS | S | MR | MR | MR | I |
| CDC PlatinumStar ⁷ ☹ | 7 | 2 | R | 104 | 106 | M | F | I | MR | S | S | S | R | S | I | MR |
| Celebration ☹ | 7 | 6 | S | 109 | 107 | M | VG | S | MR | MR | S | R | R | MS | I | MS |
| Tradition | 5 | 6 | S | 112 | 107 | M | VG | S | I | MR | MS | S | MR | MR | MR | S |
| Other⁸ | | | | | | | | | | | | | | | | |
| CDC Copper ☹ | 3 | 2 | R | 113 | 119 | M | G | MR | MR | I | MR | I | MR | --- | I | MS |
| CDC Goldstar ⁷ ☹ | 4 | 2 | R | 110 | 110 | M | G | I | MR | I | S | I | R | S | MR | MS |
| CDC Kindersley ☹ | 7 | 2 | R | 105 | 107 | E | G | MS | MR | I | S | S | R | I | MR | I |
| Major ☹ § | 7 | 2 | R | 112 | 115 | M | G | I | MR | MR | S | R | MR | MS | MR | I |
| CDC PolarStar ⁷ ☹ § | 7 | 2 | R | 104 | 99 | M | F | S | MR | MS | S | S | R | MS | S | MR |
| Sirish ☹ | 5 | 2 | R | 101 | 104 | M | VG | MS | MS | MS | MR | S | R | --- | S | MS |

¹ These categories are established annually by the Canadian Malting Barley Technical Centre (Call 204-984-4399 for more information).

² R=Rough, S=Smooth

³ Relative maturity: The relative maturity of the check, **AC Metcalfe**, is M (on average, 91 days from seeding to swathing ripeness).

⁴ Resistance ratings: R = Resistant; MR = Moderately Resistant; I = Intermediate; MS = Moderately Susceptible; S = Susceptible.

⁵ There are two forms of net blotch, netted (*Pyrenophora teres f. teres*) and spotted (*Pyrenophora teres f. maculata*). Generally, in Saskatchewan the netted form is more prevalent.

⁶ Although not on the CMBTC list, a malting barley market may exist for these varieties.

⁷ **CDC PolarStar**, **CDC PlatinumStar** and **CDC GoldStar** are available only through a closed loop Identity Preserved program offered by Prairie Malt Limited/Sapporo Breweries and their agents.

ADDITIONAL INFORMATION

Growers are reminded that the malting and brewing industry is cautious about using new varieties. Growers are cautioned that most malting varieties, especially two-row barley, are more susceptible to sprouting.

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

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.



2019-2020 RECOMMENDED MALTING BARLEY VARIETIES

The Canadian Malting Barley Technical Centre (CMBTC) recommended list is designed to provide producers with an indication of which malting barley varieties have the greatest potential for selection and marketing. Each variety on the recommended list has been pilot scale tested at the CMBTC and all exhibit good malting and brewing characteristics. All varieties on the list are registered with the Canadian Food Inspection Agency (CFIA).

RECOMMENDED VARIETIES

| VARIETY | TYPE | MARKET COMMENTS | SEED DISTRIBUTOR |
|--------------|-------|--------------------|------------------|
| CDC Copeland | 2 Row | Established Demand | SeCan |
| AC Metcalfe | 2 Row | Established Demand | SeCan |
| AAC Synergy | 2 Row | Growing Demand | Syngenta |
| AAC Connect | 2 Row | Growing Demand | CANTERRA SEEDS |
| CDC Bow | 2 Row | Growing Demand | SeCan |
| Legacy | 6 Row | Limited Demand | FP Genetics |

- Marketing opportunities remain for **Newdale** (FP Genetics) and **Bentley** (CANTERRA SEEDS) in certain regions. Contact Canada Malting in Calgary for contracting opportunities.
- CDC PlatinumStar** (CANTERRA SEEDS) is a closed-loop variety. Contact Prairie Malt/Cargill in Biggar for contracting opportunities.
- Demand for six-row malting barley is limited. Contact Viterra in Regina for **Legacy** contracting opportunities. Contact Malteurop in Winnipeg for **Tradition** (FP Genetics) and **Celebration** (CANTERRA SEEDS) contracting opportunities.
- In Eastern Canada, **AC Metcalfe**, **Newdale** and **AAC Synergy** have had the greatest success in selection in recent years.

VARIETIES IN DEVELOPMENT

| VARIETY | TYPE | MARKET COMMENTS | SEED DISTRIBUTOR |
|------------|-------|-----------------------------|------------------|
| CDC Fraser | 2 Row | Undergoing seed propagation | SeCan |
| Lowe | 2 Row | Undergoing seed propagation | SeCan |

- These newly registered varieties are undergoing seed propagation and commercial market development. Contact the seed distributor for opportunities to trial these promising new varieties.

The CMBTC and its members recommend:

- Talk with your grain company representative, local elevator operators, malting companies, or the representative seed company 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.

cmbtc.com



For inquiries please contact the CMBTC by email at cmbtc@cmbtc.com or call 204-984-4399

Feed and Food Barley

Main Characteristics of Varieties

| Category and Variety | Years Tested | 2 or 6 Row | Awns ¹ | Yield | | Relative Maturity ² | Resistance To ³ | | | | | | | | | |
|----------------------|--------------|------------|-------------------|----------------------------|------------|--------------------------------|----------------------------|----------------------------|-------------------------|-------------|-------|------------|-------------|----------|-----------|-----|
| | | | | (% AC Metcalfe) Area 1 & 2 | Area 3 & 4 | | Lodging | Netted Blotch ⁴ | Net Blotch ⁴ | Spot Blotch | Scald | Loose Smut | Other Smuts | Root Rot | Stem Rust | FHB |
| Hulled | | | | | | | | | | | | | | | | |
| Altorado ☹ | 6 | 2 | R | 117 | 114 | M | G | S | MR | S | 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 | 112 | 115 | 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 ☹ | 7 | 2 | R | 119 | 118 | 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 Maverick ☹ | 6 | 2 | S | 98 | 98 | M | F | I | MR | I | MS | S | R | I | MR | MR |
| Oreana ☹ | 7 | 2 | R | 117 | 112 | L | VG | S | MR | I | S | S | R | I | I | S |
| AB Advantage ☼ | 3 | 6 | S | 120 | 112 | VL | VG | MS | I | I | I | MR | I | --- | I | S |
| Amisk ☹ | 7 | 6 | SS | 113 | 110 | M | G | I | MR | MR | I | S | MS | MS | MR | S |
| AB Cattlelac ☼ | 2 | 6 | SS | 102 | 110 | L | VG | MS | MR | MR | I | I | R | --- | I | 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 |
| Hulless | | | | | | | | | | | | | | | | |
| CDC Ascent ☹ | 5 | 2 | R | 94 | 96 | 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 | MR |
| 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 |

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

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

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

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

ADDITIONAL INFORMATION

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

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

Forage Barley

AB Advantage, **AB Cattlelac** 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 ¹ | Height (cm) | Resistance To ² | | | |
|-----------------|--------------|---------------------------|------------|----------------------|--------|-------------|---------|--------------------------------|-------------|----------------------------|-----------|------------|------|
| | | (% 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 ☼ | 4 | 114 | 119 | 250 | 20.1 | White | 85 | M | 108 | VG | S | I | 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 |
| 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 ☹ | 6 | 101 | 94 | 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 ☹ | 7 | 109 | 107 | 241 | 20.0 | White | 81 | M | 102 | G | S | MR | MS |
| ORe3541M ☹ | 5 | 104 | 98 | 257 | 21.5 | White | 90 | L | 93 | VG | S | R | R |
| ORe3542M ☼ | 5 | 106 | 99 | 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 |
| CDC Ruffian ☹ | 7 | 114 | 110 | 247 | 20.4 | White | 88 | L | 95 | G | S | I | R |
| 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 ☹ | 4 | 114 | 111 | 242 | 22.5 | White | --- | M | 95 | G | --- | R | R |
| Kara ☹ | 4 | 116 | 112 | 247 | 23.2 | White | --- | M | 88 | G | --- | MR | MR |

¹ Maturity Rating M = 96 days.

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

ADDITIONAL INFORMATION

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

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

Feed Oat

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

Forage Oat

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

Hulless Oat

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

False Oats or Fatuoids

False wild oats, or fatuoids, are off-types within common oat fields that have an appearance similar to wild oat, most 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.

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.

Quinoa

Quinoa (*Chenopodium quinoa*) is a long season (~120 days to maturity) broadleaf pseudocereal that can be grown on a wide range of soil types. Although early season it is sensitive to excessive moisture. It also has a significant moisture requirement similar to other broadleaf crops. Quinoa is frost tolerant both as a seedling and at maturity. An earlier seeding date into a well prepared seedbed is considered best practice due to the long growing season required by the crop. Quinoa can be direct seeded at a 1.5cm (0.5”), though at least one tillage pass prior to planting is preferred for even emergence.

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

With sufficient moisture, quinoa is tolerant to high temperatures, and is resistant to lodging. Quinoa has an indeterminate growth habit. Heights will vary depending on fertility and environmental conditions, but average ~1m tall. Quinoa should be straight cut at maturity.

Quinoa is grown exclusively under total production contract, with the seed marketed as whole seed as well as ingredients and value-added markets.

NorQuin **NQ94PT**  is a golden seeded variety with high seed yield and uniform, earlier

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.

maturity. NorQuin **NQRed** is a red seeded quinoa variety with high seed yield and earlier maturity. NorQuin **NQRainbow** is a composite blend of several quinoa plant types with high seed yield and slightly later maturity.

For more information on quinoa, contact NorQuin at 306-933-9525 or www.quinoa.com

Canaryseed

Main Characteristics of Varieties

| Variety | Type | Site Years Tested | Yield ¹ (%) | Days to Heading | Days to Maturity | Height (cm) | Test Weight (kg/hL) ³ | Seed Weight (g/1000) |
|--|----------|-------------------|------------------------|-----------------|------------------|-------------|----------------------------------|----------------------|
| | | | | | | | | |
| CDC Bastia | glabrous | 59 | 100 | 56 | 98 | 102 | 70.8 | 8.0 |
| CDC Calvi ²  | glabrous | 45 | 106 | +2 | +3 | +4 | +0.7 | +0.3 |
| CDC Cibo ²  | glabrous | 45 | 106 | 0 | -1 | -9 | -0.4 | +0.2 |
| Cantate | hairy | 59 | 114 | +1 | +2 | -3 | -7.0 | +0.5 |
| Keet | hairy | 59 | 126 | +4 | +3 | +4 | -6.1 | -0.2 |

¹ Yield data not collected by Area

² 2011-2018 yield data; other varieties 2007 -2018.

³ multiply by 0.8 = lb per bushel

ADDITIONAL INFORMATION

The seed of annual canarygrass, more commonly called canaryseed, is used as food for caged and wild birds. **Keet** pedigreed seed has not been produced in recent years. Seed hulls of **CDC Bastia**, **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. 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

| Variety | Herbicide Tolerance ¹ | Years Tested ² | Yield | | Height (cm) | Days to Flower | Maturity Rating ³ | Resistance To ⁴ | | Seed Coat Colour | Cotyledon Colour | Seed Weight (g/1000) |
|--------------------------|----------------------------------|---------------------------|--------------------------|--------------------------|-------------|----------------|------------------------------|----------------------------|--------------------|------------------|------------------|----------------------|
| | | | (% CDC Maxim) Area 1 & 2 | (% CDC Maxim) Area 3 & 4 | | | | Ascochyta Blight | Anthracnose Race 1 | | | |
| Small Red | | | | | | | | | | | | |
| CDC Maxim | CL | 12 | 100 | 100 | 34 | 51 | E/M | MR | MR | gray | red | 40 |
| CDC Carmine * | | 8 | 111 | 106 | 34 | 54 | E/M | MR | MR | gray | red | 40 |
| CDC Cherie | | 5 | 109 | 106 | 32 | 51 | E/M | MR | I | gray | red | 39 |
| CDC Coral * | | 5 | 110 | 106 | 33 | 55 | E/M | MR | MR | gray | red | 37 |
| CDC Dazil | CL | 10 | 97 | 93 | 33 | 53 | E/M | MR | I | gray | red | 35 |
| CDC Imax | CL | 12 | 92 | 78 | 35 | 51 | E/M | MR | I | gray | red | 45 |
| CDC Impact | CL | 8 | 80 | 76 | 30 | 47 | E | MR | MS | gray | red | 34 |
| CDC Impulse ☹ | CL | 9 | 108 | 95 | 37 | 52 | E/M | MR | MR | gray | red | 44 |
| CDC Nimble * | CL | 5 | 108 | 108 | 35 | 52 | E/M | MR | MR | gray | red | 38 |
| CDC Proclaim ☹ | CL | 8 | 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 | | 12 | 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 | | 7 | 105 | 93 | 33 | 50 | E/M | MR | MR | gray | red | 39 |
| CDC Redmoon ☹ | | 8 | 114 | 106 | 33 | 52 | E/M | MR | MR | gray | red | 41 |
| CDC Scarlet | | 10 | 104 | 104 | 35 | 53 | E/M | MR | I | gray | red | 36 |
| Extra Small Red | | | | | | | | | | | | |
| CDC Imp * | CL | 5 | 95 | 98 | 35 | 52 | E/M | MR | MR | gray | red | 30 |
| CDC Impala | CL | 11 | 80 | 90 | 30 | 51 | E | MR | MR | gray | red | 31 |
| CDC Imperial | CL | 8 | 84 | 79 | 30 | 49 | E | MR | MR | gray | red | 30 |
| CDC Redbow | | 7 | 102 | 99 | 30 | 49 | E | MR | MR | gray | red | 32 |
| CDC Rosebud | | 7 | 100 | 99 | 30 | 50 | E | MR | MR | tan | red | 31 |
| CDC Rosie | | 8 | 92 | 90 | 33 | 52 | E/M | MR | MR | gray | red | 30 |
| CDC Roxy * | | 8 | 102 | 98 | 34 | 53 | E/M | MR | MR | gray | red | 32 |
| Large Red | | | | | | | | | | | | |
| CDC KR-1 | | 10 | 110 | 92 | 37 | 52 | M | MR | MR | gray | red | 56 |
| CDC KR-2 ☹ | CL | 8 | 102 | 90 | 37 | 52 | M | MR | MR | gray | red | 55 |
| Small Green | | | | | | | | | | | | |
| CDC Invincible | CL | 12 | 92 | 80 | 33 | 49 | E | MR | MR | green | yellow | 34 |
| CDC Kermit ☹ | | 9 | 104 | 99 | 36 | 49 | E/M | MR | MR | green | yellow | 34 |
| CDC Viceroy | | 6 | 97 | 98 | 34 | 49 | E | MR | MR | green | yellow | 33 |
| Extra Small Green | | | | | | | | | | | | |
| CDC Asterix | | 10 | 96 | 93 | 30 | 48 | E | MR | I | green | yellow | 26 |
| Medium Green | | | | | | | | | | | | |
| CDC Imigreen | CL | 11 | 78 | 71 | 44 | 50 | M | MR | S | green | yellow | 57 |
| CDC Impress | CL | 7 | 87 | 71 | 34 | 50 | M | MR | MS | green | yellow | 52 |
| CDC Meteor | | 8 | 102 | 89 | 34 | 50 | M | MR | S | green | yellow | 51 |
| CDC Richlea | | 14 | 93 | 80 | 35 | 50 | M | S | S | green | yellow | 51 |
| Large Green | | | | | | | | | | | | |
| CDC Greenland | | 19 | 89 | 70 | 38 | 52 | M/L | MR | S | green | yellow | 64 |
| CDC Greenstar | | 10 | 97 | 81 | 40 | 52 | M/L | MR | I | green | yellow | 73 |
| CDC Impower | CL | 12 | 79 | 63 | 41 | 52 | M/L | MR | S | green | yellow | 64 |
| CDC Lima * | CL | 6 | 89 | 86 | 35 | 51 | M/L | MR | S | green | yellow | 74 |
| CDC Sovereign | | 12 | 83 | 77 | 40 | 52 | L | MR | MS | green | yellow | 66 |
| French Green | | | | | | | | | | | | |
| CDC Marble | | 10 | 102 | 98 | 36 | 49 | E | MR | I | green marble | yellow | 34 |
| CDC Peridot | CL | 8 | 84 | 94 | 37 | 48 | E | I | MS | green marble | yellow | 38 |

Lentil (cont'd)

Main Characteristics of Varieties

| Variety | Herbicide Tolerance ¹ | Years Tested ² | Yield | | Height (cm) | Days to Flower | Maturity Rating ³ | Resistance To ⁴ | | Seed Coat Colour | Cotyledon Colour | Seed Weight (g/1000) |
|------------------------|----------------------------------|---------------------------|--------------------------|--------------------------|-------------|----------------|------------------------------|----------------------------|--------------------|------------------|------------------|----------------------|
| | | | (% CDC Maxim) Area 1 & 2 | (% CDC Maxim) Area 3 & 4 | | | | Ascochyta Blight | Anthracnose Race 1 | | | |
| Green Cotyledon | | | | | | | | | | | | |
| CDC QG-1 | | 6 | 80 | 65 | 42 | 51 | M | I | I | green | green | 49 |
| CDC QG-2 | | 9 | 88 | 90 | 40 | 48 | E | I | I | green marble | green | 32 |
| CDC QG-3 ☹ | CL | 8 | 73 | 63 | 38 | 53 | E/M | I | MR | green | green | 46 |
| CDC QG-4 * | CL | 6 | 91 | 91 | 36 | 53 | E/M | I | MR | green marble | green | 33 |
| Spanish Brown | | | | | | | | | | | | |
| CDC SB-3 ☹ | CL | 7 | 88 | 87 | 35 | 51 | E | I | MR | gray dotted | yellow | 38 |
| CDC SB-4 * | CL | 5 | 105 | 106 | 34 | 53 | E/M | I | MR | gray dotted | yellow | 41 |

¹ CL indicates Clearfield® tolerant variety.

² Co-op and Regional Trials in Saskatchewan since 2006. Comparisons to the check variety, small red lentil **CDC Maxim**.

³ Maturity ratings: Normal maturity range in days based on May 1 seeding is E = 100, VL = 110 but maturity can be much earlier in dry years, much later in cool wet years. See Page 10 for more information on maturity range in lentil.

ADDITIONAL INFORMATION

Seed supplies may be limited for recently released varieties such as **CDC Roxy**, **CDC Lima**, **CDC QG-4**, **CDC Carmine**, **CDC Nimble**, **CDC SB-4**, **CDC Imp** and **CDC Coral**.

Types of Lentils

Small red lentils are the most popular class grown in Saskatchewan. Large red lentils have red cotyledons with a much larger seed size compared to small red lentils.

Green lentils are classified by seed size with the small greens sometimes referred to as Eston-type and the large greens referred to as Laird-type. They have green seed coats with a yellow cotyledon. The large green types represent the highest share of green lentil acres.

French green lentils have a green marbled seed coat with yellow cotyledons. Seed size is small, most similar to small red lentils. French green lentils retain their shape better

than small reds or greens upon cooking. **CDC Marble** has a slightly lighter colour pattern than other French green varieties.

Green cotyledon lentils have a green or marbled seed coat with green cotyledons and a small-to-medium seed size.

Spanish brown lentils have a grey dotted seed coat with yellow cotyledons. This market class is sold primarily into Spain. Seed size is small, most similar to small reds.

Chickpea

Main Characteristics of Varieties

| Variety | Years Tested | Yield (% Amit) | | Ascochyta Blight ² | Height (cm) | Days to Flower | Maturity | Seed Weight (g/1000) | Seed Shape ³ | Seed or Seed Coat Colour ⁴ | Tolerance to Solo ADV (imazamox) herbicide | |
|---------------|--------------|---------------------|---------------------|-------------------------------|-------------|----------------|----------|----------------------|-------------------------|---------------------------------------|--|--|
| | | Area 1 ¹ | Area 2 ¹ | | | | | | | | | |
| Kabuli | | | | | | | | | | | | |
| Amit (B-90) ☹ | 17 | 100 | 100 | 4.3 | 47 | 56 | L | 259 | Ro | B | no | |
| CDC Alma | 10 | 92 | 93 | 6.0 | 41 | 53 | L | 366 | RH | B | yes | |
| CDC Frontier | 17 | 107 | 104 | 4.4 | 45 | 52 | L | 351 | RH | B | no | |
| CDC Leader | 13 | 107 | 107 | 4.3 | 42 | 54 | M | 392 | RH | B | no | |
| CDC Luna | 16 | 97 | 100 | 5.6 | 40 | 53 | ML | 370 | RH | B | no | |
| CDC Orion | 12 | 107 | 105 | 4.9 | 44 | 50 | L | 435 | RH | B | no | |
| CDC Palmer ☹ | 8 | 105 | 101 | 4.8 | 42 | 52 | ML | 419 | RH | B | no | |
| Desi | | | | | | | | | | | | |
| CDC Consul | 11 | 112 | 109 | 3.9 | 45 | 52 | M | 303 | P | LT | no | |
| CDC Cory | 10 | 112 | 106 | 4.2 | 47 | 56 | M | 271 | A/P | T | yes | |

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

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

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

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

ADDITIONAL INFORMATION

Please refer to *SaskSeed Guide 2019* for pedigreed seed availability.

For more details on production, consult www.saskpulse.com/growing-pulses.

Field Pea

Main Characteristics of Varieties

| Variety | Years Test-ed ¹ | Yield (%) | | Protein | Relative Maturity | Lodging ² (1-9) | Vine Length (cm) | Resistance To | | | | | | | Seed Weight (g/1000) | |
|------------------------------------|----------------------------|----------------|-------------|---------|-------------------|----------------------------|------------------|-----------------|----------------|---------------|------------------|-----------|------------------|------------------------|----------------------|-----|
| | | 1, 2 & South 3 | North 3 & 4 | | | | | MB ³ | Powdery Mildew | Fusarium Wilt | SCB ⁴ | Bleaching | SCD ⁵ | Greenness ⁶ | | |
| Yellow | | | | | | | | | | | | | | | | |
| ---- Relative to CDC Amarillo ---- | | | | | | | | | | | | | | | | |
| CDC Amarillo | 10 | 100 | 100 | 100 | 23.0 | M | 3.5 | 85 | 4.5 | R | MR | F | n/a | F | G | 230 |
| Abarth ☹ | 7 | 93 | 90 | 92 | -0.1 | E | 3.5 | 75 | 5.0 | R | I | F | n/a | F | G | 280 |
| Agassiz ☺ | 10 | 98 | 94 | 100 | -0.1 | M | 4.5 | 85 | 5.0 | R | I | G | n/a | F | G | 230 |
| AAC Ardill | 8 | 103 | 99 | 87 | -1.9 | M | 3.5 | 85 | 4.5 | R | MR | G | n/a | G | G | 230 |
| AAC Asher | 3 | 103 | 100 | --- | -0.6 | M | 4.5 | 75 | 4.5 | R | I | --- | n/a | F | G | 260 |
| CDC Athabasca ☹ | 7 | 93 | 97 | --- | +0.5 | M | 3.0 | 85 | 4.5 | R | I | F | n/a | F | G | 300 |
| CDC Canary ☹ | 6 | 97 | 98 | --- | -0.1 | E | 3.5 | 85 | 4.5 | R | I | G | n/a | F | F | 230 |
| AAC Carver ☹ | 5 | 103 | 100 | --- | -1.3 | E | 4.0 | 85 | 5.0 | R | I | G | n/a | F | G | 240 |
| AAC Chrome ☹ | 4 | 105 | 102 | --- | -1.2 | M | 4.5 | 75 | 4.5 | R | I | G | n/a | G | G | 240 |
| Earlystar ☺ § | 5 | 92 | 91 | --- | -1.1 | VE | 5.0 | 80 | 5.0 | R | I | F | n/a | G | G | 210 |
| CDC Golden | 10 | 92 | 83 | 90 | 0.7 | E | 4.5 | 75 | 5.0 | R | I | G | n/a | G | G | 230 |
| CDC Hornet § | 8 | 91 | 84 | 91 | -0.6 | M | 4.0 | 85 | 4.5 | R | I | F | n/a | G | G | 220 |
| Hyline | 4 | 94 | 95 | --- | -1.5 | E | 4.5 | 75 | 5.0 | R | I | G | n/a | G | G | 240 |
| CDC Inca ☹ | 7 | 104 | 99 | --- | -0.8 | M | 4.0 | 85 | 4.5 | R | I | G | n/a | G | F | 230 |
| AAC Lacombe ☺ | 6 | 96 | 99 | --- | -0.9 | M | 3.5 | 85 | 5.0 | R | I | F | n/a | F | F | 250 |
| CDC Lewochko ☹ | 5 | 104 | 103 | --- | +0.7 | M | 3.5 | 90 | 4.5 | R | I | G | n/a | G | G | 230 |
| CDC Meadow | 10 | 92 | 89 | 90 | -0.6 | E | 4.0 | 85 | 5.0 | R | I | G | n/a | G | G | 220 |
| AAC Profit ☺ | 3 | 101 | 110 | --- | +0.6 | M | 4.5 | 90 | --- | R | I | G | n/a | G | G | 230 |
| CDC Saffron | 10 | 98 | 92 | 91 | -0.4 | E | 4.0 | 80 | 4.5 | R | I | G | n/a | F | G | 250 |
| CDC Spectrum ☹ | 7 | 104 | 102 | --- | +0.5 | M | 3.5 | 85 | 4.5 | R | I | G | n/a | G | F | 240 |
| Thunderbird ☺ § | 6 | 89 | 83 | 91 | --- | M | 4.0 | 85 | 5.0 | R | I | G | n/a | G | F | 220 |
| CDC Treasure § | 8 | 88 | 87 | 93 | -0.4 | E | 4.0 | 80 | 5.0 | R | I | F | n/a | F | G | 210 |
| Green | | | | | | | | | | | | | | | | |
| Blueman ☼ | 3 | 91 | 88 | --- | +0.3 | M | 4.5 | 85 | 4.5 | R | I | --- | F | G | n/a | 220 |
| AAC Comfort ☹ | 4 | 90 | 99 | --- | -0.4 | M | 4.5 | 85 | 4.5 | R | I | G | G | G | n/a | 250 |
| Cooper ☺ | 8 | 89 | 80 | 85 | +0.9 | M | 4.0 | 80 | 5.0 | R | I | F | F | G | n/a | 270 |
| CDC Forest ☹ | 6 | 100 | 101 | --- | -0.2 | M | 4.0 | 85 | 4.5 | R | I | G | G | G | n/a | 230 |
| CDC Greenwater | 9 | 99 | 92 | 86 | -1.1 | M | 3.5 | 90 | 4.0 | R | MR | F | G | F | n/a | 230 |
| CDC Limerick | 10 | 95 | 90 | 90 | +2.8 | M | 3.5 | 85 | 4.0 | R | I | G | G | G | n/a | 210 |
| CDC Patrick | 10 | 87 | 86 | 87 | -1.0 | M | 4.5 | 80 | 4.5 | R | MR | G | G | G | n/a | 190 |
| CDC Pluto | 8 | 92 | 84 | 91 | -0.2 | M | 5.5 | 80 | 4.5 | R | I | G | G | G | n/a | 160 |
| AAC Radius | 6 | 77 | 77 | --- | +0.5 | M | 5.0 | 85 | 4.5 | R | I | VG | G | G | n/a | 230 |
| CDC Raezer | 10 | 81 | 80 | 94 | -0.3 | E | 3.5 | 85 | 5.0 | R | MR | G | G | G | n/a | 220 |
| AAC Royce § | 5 | 92 | 84 | --- | +0.4 | M | 5.0 | 70 | 5.0 | R | I | F | G | F | n/a | 260 |
| CDC Sage § | 5 | 73 | 71 | 73 | --- | M | 4.0 | 80 | 5.0 | R | MR | G | G | F | n/a | 220 |
| CDC Spruce ☹ | 7 | 94 | 99 | --- | +0.1 | M | 4.0 | 85 | 4.5 | R | I | F | G | F | n/a | 240 |
| CDC Striker | 10 | 81 | 80 | 84 | +2.0 | M | 3.5 | 80 | 4.5 | S | MR | VG | G | G | n/a | 240 |
| CDC Tetris | 10 | 88 | 91 | 88 | +0.4 | M | 4.0 | 85 | 4.5 | R | MR | G | F | G | n/a | 210 |
| Red | | | | | | | | | | | | | | | | |
| Redbat 8 ☹ | 6 | 92 | 85 | --- | +1.0 | M | 5.0 | 85 | 5.0 | R | --- | G | n/a | G | n/a | 200 |
| Redbat 88 ☹ | 5 | 91 | 92 | --- | +0.3 | M | 4.5 | 90 | 4.5 | R | --- | G | n/a | G | n/a | 190 |
| Maple | | | | | | | | | | | | | | | | |
| CDC Acer | 3 | 84 | 73 | --- | --- | M | 6.5 | 60 | 5.0 | R | --- | G | n/a | VG | n/a | 170 |
| CDC Blazer ☹ | 4 | 99 | 99 | --- | +1.9 | M | 5.0 | 80 | 5.0 | R | --- | G | n/a | VG | n/a | 190 |
| AAC Liscard | 5 | 89 | 89 | --- | -1.0 | M | 4.0 | 85 | 5.0 | R | --- | G | n/a | VG | n/a | 200 |
| CDC Mosaic | 4 | 81 | 74 | 58 | --- | M | 4.0 | 85 | 4.5 | R | --- | G | n/a | VG | n/a | 180 |

Field Pea (cont'd)

Main Characteristics of Varieties

| Variety | Years Test-ed ¹ | Yield (%) | | Protein | Relative Maturity | Lodging ² (1-9) | Vine Length (cm) | Resistance To | | | | | | | Seed Weight (g/1000) | |
|------------------------------------|----------------------------|----------------|-------------|---------|-------------------|----------------------------|------------------|-----------------|----------------|---------------|------------------|-----------|------------------|------------------------|----------------------|-----|
| | | 1, 2 & South 3 | North 3 & 4 | | | | | MB ³ | Powdery Mildew | Fusarium Wilt | SCB ⁴ | Bleaching | SCD ⁵ | Greenness ⁶ | | |
| Dun | | | | | | | | | | | | | | | | |
| ---- Relative to CDC Amarillo ---- | | | | | | | | | | | | | | | | |
| CDC Dakota | 9 | 101 | 98 | 95 | 1.7 | M | 3.5 | 85 | 4.5 | R | --- | G | n/a | VG | n/a | 205 |
| Forage⁷ | | | | | | | | | | | | | | | | |
| CDC Jasper ☹ | 3 | 81 | 82 | --- | 2.0 | M | 4.5 | 105 | 4.5 | R | --- | G | n/a | G | G | 180 |
| CDC Horizon | 4 | 88 | 78 | 63 | 2.2 | M | 4.0 | 100 | 4.5 | R | --- | G | n/a | G | G | 170 |

¹ Co-op and regional trials in Saskatchewan

² Lodging score (1-9) where 1 = completely upright, 9 = completely lodged

³ Mycosphaerella blight score (1-9) 1=no disease, 9=completely blighted

⁴ Seed Coat Breakage

⁵ Seed Coat Dimpling: VG = 0-5%; G = 6-20%; F = 21-50%

⁶ Greenness: Good = 0-15%; Fair = 16-40%

⁷ Forage dry matter biomass, as % of check **40-10** (100), **CDC Jasper** (111), **CDC Horizon** (108)

ADDITIONAL INFORMATION

For detailed production information, consult www.saskpulse.com/growing-pulses. The relative maturity of the check variety **CDC Amarillo** is M (Medium), which is on average 95 days from seeding to swathing ripeness.

Types of Peas Grown in Saskatchewan

Yellow peas are the most widely grown peas in Saskatchewan, followed by green peas and then specialty types such as dun, maple, marrowfat, and forage peas. Most varieties have white flowers and are suitable for human consumption or livestock feed markets. Nearly all varieties have a semi-leafless leaf type with tendrils instead of leaflets which help provide better standability.

Marrowfat varieties have large, blocky, green seeds and are used in specialty snack food markets in Asia. They have white flowers and non-pigmented seed coats.

Forage peas are grown for biomass, typically in mixture with barley, oat or triticale, which on average produce four to five tonnes per acre of forage dry matter, similar to that of forage barley, but with greater protein concentration.

Red peas have red cotyledons (inside of the seed). Market development is still underway.

Maple peas have purple flowers, pigmented seed coats with mottled pattern, and yellow cotyledons. They are sold as whole seeds mixed with millets and other seeds into domestic bird seed markets internationally. The pigmented seed coats provide natural protection to various root rot diseases, so typically maple and dun pea varieties are quick to emerge with good stand establishment.

Dun peas have purple flowers, pigmented

seed coats (without mottled pattern), and yellow cotyledons. They are dehulled and sold in human consumption markets similar to yellow pea varieties. The pigmented seed coats provide natural protection to various root rot diseases, so typically dun and maple pea varieties are quick to emerge with good stand establishment.

Lodging: How Ratings are Determined and What They Mean

Lodging ratings provide an indication of the average standability of a particular variety over years and locations. Lodging at any given location can vary from what is stated in the guide, as lodging severity is typically greater under high yielding conditions and in situations with high winds. Lodging scores are based on visual ratings with a 9-point scale where 1 = completely upright and 9 = completely lodged. Ratings are conducted near the time of crop maturity.

Seed Coat Breakage

Seed coat breakage ratings are based on an abrasive test. This rating is a test of durability of the seed coat and is not a measure of seed coat thickness.

Greenness in Yellow Peas

Yellow peas are visually rated for green colouring after harvest by an experienced person. Ratings are expressed as a percentage of the seeds in a sample that have obvious green tinge to the whole seed. The green colouring may be contained within the seed coat and/or cotyledons. Typically, a rating of Fair (F) means the variety averaged 16–40 per cent seeds with green colour, whereas a rating of Good (G) would have 0–15 per cent green tinged seeds. Greenness may be impacted by genetics, environmental conditions, and harvest dates. A later maturing variety may

show more greenness in the seed sample due to less mature seed if harvested on the same date as an earlier maturing variety. The impact of greenness is visual and does not affect germination but could affect grade. The Canadian Grain Commission has colour as one of the grading factors for peas with “good natural colour” required for top grades. Too much green colouring could downgrade the sample due to a “fair colour” rating.

Seed Coat Dimpling

Seed coat dimpling refers to tiny depressions that give the seed a golfball-like appearance. Seed coat dimpling is a result of genetics and environment. Some varieties are more prone to dimpling than others. Dimpling can be found in other pulse crops, in addition to peas. It appears to be more prevalent when cool temperatures occur during seed fill. Seed coat dimpling is a measure of the percentage of seed from a harvested sample that shows dimpling. Typically, Very Good (VG) ratings have between 0–5 per cent of seeds dimpled, Good (G) between 6–20 per cent, and Fair (F) between 21–50 per cent. Buyers prefer a smooth surface to peas and grading may be impacted. Shrivelled seed is a grading factor under the Canadian Grain Commission and includes seeds that have a severely dimpled surface.

Bleaching in Green Peas

Green peas are marketed for their uniform green cotyledon colour. The main pigment responsible for the green colour is chlorophyll. Under certain conditions the chlorophyll is degraded by enzymes which results in a lightening of the green colour which is considered bleaching. Under complete degradation of chlorophyll, the seed becomes yellow.

Soybean

Main Characteristics of Varieties

| Variety | Canadian Marketing Agent | Company Maturity Grouping ¹ | Type ² | Hilium Colour ³ | Years Tested | Yield (% TH 33003R2Y) ⁴ | | Days to Maturity ⁵ |
|-----------------|--------------------------|--|-------------------|----------------------------|--------------|------------------------------------|-------|-------------------------------|
| | | | | | | South | North | |
| TH 33003R2Y | Thunder Seeds | 00.3 | RR2 | BR | 4 | 100 | 100 | 0 |
| P0007A43R | DuPont Pioneer | 000.7 | RR1 | BR | 2 | 81 | 73 | -11 |
| NSC Leroy RR2Y | NorthStar Genetics | 000.6 | RR2 | Y | 3 | 94 | 84 | -7 |
| NSC Watson RR2Y | NorthStar Genetics | 000.8 | RR2 | IY | 4 | 95 | 99 | -6 |
| S0009-D6 | Syngenta Canada Inc. | 000.9 | RR2 | IY | 2 | 101 | 95 | -6 |
| S0009-M2 | Syngenta Canada Inc. | 000.9 | RR2 | IY | 4 | 101 | 101 | -6 |
| NocomaR2 | Brett Young/Elite Seeds | 000.8 | RR2 | IB | 2 | 105 | 92 | -6 |
| 23-60RY | DEKALB | 00.2 | RR2 | BL | 3 | 107 | 102 | -4 |
| P002T04R | DuPont Pioneer | 00.2 | RR1 | TN | 3 | 91 | 96 | -4 |
| Barron R2X | SeCan | 000.8 | RR2X | BR | 2 | 96 | 89 | -4 |
| PS 00095 R2 | PRIDE Seeds | 000.9 | RR2 | BL | 3 | 105 | 94 | -4 |
| S003-L3 | Syngenta Canada Inc. | 00.3 | RR2 | BR | 3 | 108 | 98 | -3 |
| Torro R2 | Semences Prograin | 00 | RR2 | BL | 2 | 101 | 94 | -3 |
| LS TRI7XT | Legend Seeds | 000.7 | RR2X | GR | 2 | 89 | 86 | -3 |
| LS TRI9R2Y | Legend Seeds | 000.9 | RR2 | IY | 2 | 93 | 88 | -3 |
| Dario R2X | Semences Prograin | 000 | RR2X | BR | 2 | 85 | 91 | -3 |
| TH 87000 R2X | Thunder Seeds | 000.8 | RR2X | BR | 2 | 90 | 88 | -2 |
| PV 11s001 RR2 | CPS | 00.1 | RR2 | Y | 2 | 90 | 88 | -2 |
| Bishop R2 | SeCan | 00.2 | RR2 | IY | 3 | 99 | 96 | -2 |
| S006-W5 | Syngenta Canada Inc. | 00.5 | RR2 | IY | 2 | 100 | 101 | -2 |
| P002A63R | DuPont Pioneer | 00.2 | RR1 | TN | 2 | 105 | 106 | -2 |
| 22-60RY | DEKALB | 000.9 | RR2 | BL | 4 | 103 | 101 | -2 |
| NSC Reston RR2Y | NorthStar Genetics | 00.1 | RR2 | BL | 2 | 108 | 102 | -1 |
| P006T78R | DuPont Pioneer | 00.6 | RR1 | BR | 2 | 111 | 103 | -1 |
| TH 33005R2Y | Thunder Seeds | 00.5 | RR2 | BL | 2 | 114 | 102 | -1 |
| 23-11RY | DEKALB | 000.9 | RR2 | BL | 3 | 107 | 98 | 0 |
| S007-Y4 | Syngenta Canada Inc. | 00.5 | RR2 | IY | 4 | 108 | 106 | 0 |
| TH 87003 R2X | Thunder Seeds | 00.3 | RR2X | BL | 2 | 110 | 98 | 0 |
| McLeod R2 | Secan | 00.4 | RR2 | BL | 4 | 107 | 99 | 0 |
| DKB003-29 | Monsanto | 00.3 | RR2X | BL | 2 | 111 | 97 | 0 |
| Lono R2 | Brett Young/Elite Seeds | 00.5 | RR2 | Y | 3 | 110 | 105 | +1 |
| Kosmo R2 | Semences Prograin | 00 | RR2 | IY | 2 | 93 | 91 | +1 |
| TH 35002 R2Y | Thunder Seeds | 00.2 | RR2 | BL | 2 | 101 | 102 | +1 |
| TH 32004R2Y | Thunder Seeds | 00.4 | RR2 | BL | 4 | 109 | 102 | +1 |
| Mahony R2 | Secan | 00.3 | RR2 | BL | 4 | 110 | 105 | +1 |
| LS 002R24N | Delmar Commodities | 00.2 | RR2 | BL | 3 | 112 | 98 | +1 |
| PS 0035 NR2 | PRIDE Seeds | 00.3 | RR2 | BL | 4 | 106 | 95 | +1 |
| LS NorthWester | Delmar Commodities | 00.1 | RR2 | BL | 3 | 102 | 94 | +1 |
| P006T46R | DuPont Pioneer | 00.6 | RR1 | BR | 3 | 106 | 101 | +1 |
| Akras R2 | Brett Young/Elite Seeds | 00.3 | RR2 | IB | 4 | 112 | 108 | +1 |
| TH 37004 R2Y | Thunder Seeds | 0.4 | RR2 | BL | 2 | 95 | 91 | +3 |
| HS 006RYS24 | Dow Seeds | 00.6 | RR2 | BL | 3 | 108 | 94 | +3 |
| Hero R2 | Secan | 00.4 | RR2 | BL | 2 | 120 | 101 | +4 |

¹ Maturity Groups are assigned by individual companies to assist growers select varieties suitable for their area. See page 10 for more information.

² All varieties in this table are Roundup Ready or Roundup Ready Xtend type. RR2 indicates Genuity® Roundup Ready 2 Yield® soybean variety; RR2X indicates Roundup Ready 2 Xtend® soybean variety. Other varieties are commercially available. For complete list of commercial varieties see SEED MANITOBA 2019 (www.seedmb.ca).

³ Hilium is the point where seed attaches to the pod. BR-Brown, Y-Yellow, IY-Imperfect Yellow, IB-Imperfect Black, BL-Black, GR-Grey, TN-Tan

⁴ Four year mean yield of the check variety TH 33003R2Y was 44 bushels/acre: 35.5 bu/ac in 2018; 46 bu/acre in 2017; 44 bu/acre in 2016 and 51 bu/acre in 2015.

⁵ Days to maturity indicates +/- days from seeding to 95% mature pods as compared to the 3-year mean of the check variety TH 33003R2Y (113.5 days). Only sites which reached maturity prior to a killing frost were used for calculating days to maturity. From past experience, moist growing seasons results in delayed maturity. Data is from SK sites from 2016, 2017 & 2018.

SOYBEAN ADDITIONAL INFORMATION

The soybean variety trial is coordinated by Saskatchewan Pulse Growers. Typical on-farm yields are 25 to 38 bu/acre. Soybean is not native to the Canadian Prairies and so must be inoculated with soybean inoculant that contains *Bradyrhizobium japonicum* bacteria.

Soybean Seeding Tips

Calculate soybean seeding rates based on number of seeds per acre. Soybeans are sold by units of 140,000 seeds.

To obtain the desired plant stand be aware that increased seed coat damage can occur with soybeans when seeded with drills versus planters.

Higher seeding rates with drills can assist with reaching target plant populations.

Soybeans require warm soils (10°C) for optimum germination and emergence.

Trash management to encourage some blackening of the soil can be advantageous to speed soil warming.

Soybeans are sensitive to late spring frosts once the growing point is above ground.

Delay seeding until at least May 10 or later if conditions remain cool. Soybeans are sensitive to cold water at the time of germination.

Seed when there is a warming trend in the forecast and a low risk of cold rainwater until after soybeans have germinated.

Soybeans are susceptible to several seed and seedling diseases so seed treatments

should be considered.

Soybeans are prone to iron chlorosis particularly when grown on saturated soils, soils high in calcium carbonates, or on soils with salinity problems. Choose your fields and soybean varieties accordingly.

The maximum amount of phosphate plus potassium fertilizer that can be safely placed with the seed is 20 pounds per acre (lbs/ac). Amounts higher than 20 lbs/ac should be banded.

Pre-emergence herbicides should be considered as part of the weed control program. Soybeans are poor competitors with weeds, so keeping soybean fields free of weeds from emergence through early growth may enhance yield.

Inoculants and Nitrogen Fixation with Pulses and Soybeans

Inoculants contain the nitrogen fixing *Rhizobium* species necessary to ensure nodulation and nitrogen fixation. *Rhizobium* species are specific to each pulse crop. Pea, lentil, and faba bean inoculants contain the same *Rhizobium* species but the individual strain of that species (similar to varieties of crops) may be more effective on one crop or another. Make sure to use the right inoculant for each crop.

Handling Inoculants

Inoculants are products that contain living organisms and should be handled accordingly.

Avoid exposure to direct sunlight, heat, or freeze-thaw conditions. Consider application method when using in combination with seed treatments as fungicides can impact *Rhizobia* survival. For best results, apply seed treatments first, allow the seed to dry, then apply the inoculant if using seed applied products (sequential application). Read inoculant and seed treatment labels for more information on seed compatibility.

Inoculant formulations consist of seed applied technologies such as liquids, peats, and pow-

ders, as well as granular formulations. Single inoculant applications are effective for peas, lentils, chickpeas, and faba beans. For soybeans, it is recommended to use a double inoculation strategy such as a seed applied product in combination with a granular formation, on land where soybeans are being grown for the first time. To date, no benefit of double inoculation on other pulse crops has been identified.

| Rhizobium Species Required for Effective Nodulation Pulse Crops | |
|---|---------------------------------|
| Peas, Lentils, Faba Beans | <i>Rhizobium leguminosarum</i> |
| Chickpeas | <i>Rhizobium ciceri</i> |
| Dry Beans | <i>Rhizobium phaseoli</i> |
| Soybeans | <i>Bradyrhizobium japonicum</i> |

Faba Bean

Main Characteristics of Varieties

| Variety | Years Tested | Yield (% CDC Fatima) | Height (cm) | Lodging ¹ (1-9) | Maturity (days) | Seed Weight (g/1000) |
|--|--------------|-------------------------|----------------|-------------------------------|--------------------|-------------------------|
| Coloured Flower (normal tannin) | | | | | | |
| CDC Fatima | 12 | 100 | 106 | 3.8 | 105 | 520 |
| CDC Blitz | 6 | 101 | 101 | 3.7 | 109 | 410 |
| 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 |
| Coloured Flower (normal tannin, low vicine/convicine) | | | | | | |
| Fabelle ☼ | 6 | 105 | 104 | 2.4 | 105 | 533 |
| White Flower (low tannin) | | | | | | |
| Imposa ☺ | 4 | 105 | 99 | 2.4 | 107 | 695 |
| Snowbird ☺ | 12 | 100 | 95 | 3.0 | 104 | 448 |
| CDC Snowdrop | 9 | 89 | 97 | 2.8 | 104 | 325 |
| Tabasco ☺ | 5 | 96 | 93 | 1.9 | 106 | 496 |
| DL Tesoro | 3 | 111 | 90 | 3.8 | 110 | 511 |
| White Flower (low tannin, low vicine/convicine) | | | | | | |
| DL Rico | 2 | 82 | 107 | 3.5 | 109 | 566 |

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

ADDITIONAL INFORMATION

Faba bean regional trials began in 2006 to accommodate growing interest in this crop as a nitrogen-fixing high protein food and feed grain in moist areas. White-flowered types are low tannin. All coloured flower types have seed coats that contain tannins and may be suitable for export food markets if seed size and quality match customer demand. Maturity ratings are based on days until swathing maturity but will vary depending on seeding date. Low vicine/convicine is desirable for protein extraction markets.

Plant breeders in the faba bean industry are moving rapidly to risk elimination of the antinutritional compounds vicine and convicine (vc) through the introduction of a gene in new varieties that reduces vc by 99%. Vicine-convicine causes rapid onset of anemia in a small percentage of the human population. Low vc status will become mandatory as soon as possible for faba beans that enter food and feed systems.

Faba bean is a partly outcrossing (4-84% under local conditions) through insect pollination (various bee species). Isolation from other varieties is necessary to maintain varietal purity, especially for flower colour and

most importantly, for maintaining low vc status in future. For seed production, isolations of 2 km or more are recommended at this time to maintain variety purity for low vc status and flower colour. Commercial farmers who intend to save their seed should follow similar isolation practices.

Seeding Tips for Faba Bean

Tannin and zero-tannin faba bean types should be separated by at least 500 metres and up to 2 km to prevent cross pollination.

Faba beans have a high requirement for phosphorus (P) and can tolerate up to 40 pounds per acre (lbs/ac) of seed-placed phosphorus (P₂O₅).

Seed as early as you can get in the field as faba beans have good tolerance to spring frosts and are later maturing. Seed into moisture as the large seeds require adequate moisture to germinate.

Use seed treatment with low tannin types of faba beans.

Seeding large-seeded faba beans can be difficult due to plugging, and growers may

experience difficulty reaching the targeted seeding rates. A study conducted by the Prairie Agricultural Machinery Institute has identified the following tips and tricks for seeding large seed faba beans:

- Know the thousand kernel weight of your seed and target 45 plants per metre squared when calculating seeding rates.
- To reach high seeding rates consider metering from multiple tanks or changing augers/rollers.

To minimize plugging:

- Slow down.
- Increase clearance from metering rollers or augers to the metering housings.
- Ensure there are no tight radiuses or sags in the distribution hoses.
- Eliminate flow obstructions, such as screws, in the distribution hoses.
- Ensure hose clamps are not overtightened resulting in hose restrictions.
- Use openers with large-diameter seed openings and minimal change in seed flow direction or seed tube shape.
- Avoid sharp turns with the drill.

Dry Bean

Main Characteristics of Varieties

| Variety | Years Tested ¹ | Yield --- (% CDC Pintium) --- | | Days to Flower | Maturity Rating ² | % Pod Clearance ³ | Seed Weight (g/1000) | Growth Habit ⁴ |
|----------------------|---------------------------|----------------------------------|---------|----------------|------------------------------|------------------------------|-------------------------|---------------------------|
| | | Irrigation | Dryland | | | | | |
| Pinto | | | | | | | | |
| CDC Pintium | 17 | 100 | 100 | 50 | E | 85 | 350 | I |
| Island | 11 | 122 | 111 | 55 | M | 79 | 355 | II |
| Mariah ☺ § | 5 | 114 | 103 | 55 | L | 82 | 293 | II |
| CDC Marmot | 8 | 108 | 108 | 50 | E | 80 | 367 | I |
| Medicine Hat ☺ | 5 | 141 | 115 | 58 | M | 72 | 360 | II |
| Winchester | 5 | 116 | 110 | 52 | M | 82 | 352 | II |
| CDC WM-2 ☺ | 12 | 118 | 106 | 52 | E | 79 | 365 | II |
| Navy | | | | | | | | |
| Envoy | 17 | 105 | 84 | 53 | M | 77 | 184 | I |
| Bolt | 4 | 119 | 103 | 58 | L | 82 | 190 | II |
| Lightning | 5 | 109 | 92 | 60 | L | 85 | 175 | II |
| Portage | 6 | 105 | 94 | 52 | M | 85 | 175 | II |
| Skyline ☺ | 5 | 74 | 91 | 57 | L | 80 | 163 | I |
| OAC Spark | 7 | 90 | 102 | 55 | L | 81 | 163 | I |
| AAC Shock | 2 | 103 | 100 | 51 | M | 89 | 186 | II |
| Small Red | | | | | | | | |
| AC Redbond | 9 | 98 | 100 | 51 | M | 65 | 290 | II |
| Black | | | | | | | | |
| CDC Blackstrap ☺ | 8 | 122 | 120 | 53 | M | 85 | 195 | II |
| CDC Jet | 17 | 100 | 98 | 58 | L | 85 | 170 | II |
| CDC Superjet | 7 | 125 | 108 | 58 | L | 85 | 170 | II |
| Shiny Black | | | | | | | | |
| AC Black Diamond | 7 | 102 | 94 | 54 | M | 70 | 250 | II |
| flor de junio | | | | | | | | |
| CDC Ray ☺ | 6 | 146 | 127 | 56 | L | 70 | 300 | III |
| Yellow | | | | | | | | |
| CDC Sol ☺ | 10 | 111 | 97 | 55 | L | 78 | 399 | I |

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

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

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

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

OILSEED CROPS

Flax

Main Characteristics of Varieties

| Variety | Years Tested | Yield ¹ | | | | Relative Maturity ² | Seed Size ³ | Resistance To | | |
|--------------------|--------------|--------------------|--------------|--------|------------|--------------------------------|------------------------|---------------|-----------------------------|----------------------------|
| | | (% CDC Bethune) | | | | | | Lodging | Powdery Mildew ⁴ | Fusarium Wilt ⁴ |
| | | Area 2 | Area 3 South | Area 4 | Irrigation | | | | | |
| CDC Bethune ☼ | 11 | 100 | 100 | 100 | 100 | L | M | G | MR | MR |
| AAC Bravo ☼ | 5 | 101 | 103 | 101 | 91 | L | L | G | MR | MR |
| CDC Buryu ☼ | 4 | 102 | 103 | 102 | 79 | L | M | G | | MR |
| CDC Glas ☼ | 7 | 108 | 105 | 106 | 97 | L | M | VG | MR | MR |
| CDC Neela ☼ | 5 | 104 | 104 | 105 | 94 | L | M | G | MR | MR |
| NuLin VT50 ☼ | 5 | 102 | 100 | 96 | 98 | L | S | VG | | MR |
| CDC Plava ☼ | 5 | 94 | 104 | 97 | 85 | M | M | G | | MR |
| Prairie Blue ☼ | --- | --- | --- | --- | --- | L | S | VG | MR | MR |
| Prairie Grande ☼ | 3 | 93 | 88 | 91 | 91 | M | M | VG | MR | MR |
| Prairie Sapphire ☼ | 6 | 99 | 92 | 99 | 101 | L | M | G | MR | MR |
| Prairie Thunder ☼ | 3 | 95 | 98 | 92 | 97 | M | M | VG | MR | R |
| CDC Sanctuary ☼ | 5 | 104 | 97 | 90 | 89 | L | M | F | MR | MR |
| CDC Sorrel ☼ | 4 | 99 | 102 | 92 | 92 | L | L | G | MR | MR |
| Topaz ☼ | 4 | 100 | 104 | 97 | 90 | L | M | G | MR | MR |
| Vimy § | --- | --- | --- | --- | --- | M | L | P | MS | MR |
| WESTLIN 60 ☼ | 5 | 92 | 92 | 91 | 91 | M | M | G | | MR |
| WESTLIN 71 ☼ | 5 | 95 | 104 | 94 | 96 | L | S | VG | MR | MR |
| WESTLIN 72 ☼ | 5 | 99 | 103 | 99 | 99 | L | S | VG | MR | MR |

¹ Data from Regional and Coop yield trials.

² Relative maturity: The relative maturity of the check, **CDC Bethune**, is L (on average 101 days from seeding to swathing ripeness).

³ Seed size: S = Small, M = Medium, L = Large.

⁴ Disease Resistance Scale: MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant.

ADDITIONAL INFORMATION

Flax was last tested in 2018. 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, also 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 fairly small (1.0 – 1.8 g/1000 seed) and requires shallow seeding. Reduced emergence may be expected when camelina is seeded deeper than ½ inch. Camelina plants are resistant to blackleg disease and flea beetles and possess good shatter resistance. Camelina may be straight-combined at full maturity or swathed when pods have turned colour from green to yellow. Camelina

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

SES0787LS (Cypress ☼) is a spring-type camelina cultivar that combines high seed yield, high seed oil content, resistance to downy mildew, improved shatter resistance as well as improved seed size (up to 50% larger than **MIDAS™** ☼ camelina seed). Its

natural height is medium to tall (65 – 95 cm); it flowers after about 45 days and generally reaches maturity, depending on the weather conditions, 85 – 105 days after seeding. In trials conducted from 2014 to 2017 on the Canadian Prairies, **Cypress** yielded on average just under 50 bu/acre. Expected yields in Saskatchewan are 35 – 45 bu/acre on fallow and 25 to 35 bu/acre on stubble. Certified seed of **Cypress** will be available to producers in 2019.

Mustard

Main Characteristics of Varieties

| Type and Variety | Yield ¹ | Plant Height (cm) | Hydroxylbenzyl Glucosinolate (µmol/g seed) | Allyl Glucosinolate (µmol/g seed) | Mucilage ² (cS*ml/g seed) | Resistance to White Rust ³ | | Fixed Oil (% seed) | Protein (% Seed) | Seed Weight (g/1000) | Maturity (days) |
|---|--------------------|-------------------|--|-----------------------------------|--------------------------------------|---------------------------------------|----|--------------------|------------------|----------------------|-----------------|
| | | | | | | 2a | 2v | | | | |
| Open-Pollinated Yellow (% Andante) | | | | | | | | | | | |
| Andante ⁴ | 100 | 102 | 145 | n/a | 55.7 | n/a | | 28.4 | 35.1 | 6.0 | 93 |
| AAC Adagio ⁵ ☼ | 102 | +1 | -6 | n/a | +41.1 | n/a | | +1.7 | -2.1 | -0.9 | +1 |
| AC Pennant ⁴ | 99 | -6 | +3 | n/a | -11.0 | n/a | | +1.1 | -0.8 | -0.3 | -1 |
| Open-Pollinated Brown (% Centennial Brown) | | | | | | | | | | | |
| Centennial Brown ⁴ | 100 | 117 | n/a | 10.4 | n/a | S | S | 36.3 | 30.1 | 3.1 | 92 |
| Amigo ⁶ | 93 | -8 | n/a | +3.5 | n/a | R | S | -2.1 | +0.6 | -0.4 | +6 |
| AAC Brown 120 ⁷ ☼ | 112 | +8 | n/a | +1.6 | n/a | R | R | +1.0 | -0.3 | +0.6 | +2 |
| Duchess ⁴ § | 99 | -4 | n/a | -1.0 | n/a | S | S | +1.8 | -1.4 | -0.4 | 0 |
| Hybrid Brown (% Centennial Brown) | | | | | | | | | | | |
| AAC Brown18 ⁸ | 119 | +4 | n/a | -0.5 | n/a | R | S | +2.1 | -1.5 | -0.1 | +1 |
| Open-Pollinated Oriental (% Cutlass) | | | | | | | | | | | |
| Cutlass ⁴ | 100 | 115 | n/a | 11.6 | n/a | R | S | 41.0 | 29.1 | 2.8 | 91 |
| Forge ⁴ | 97 | +10 | n/a | +0.6 | n/a | S | S | -2.1 | +0.5 | -0.2 | +1 |
| AAC Oriental 200 ⁷ ☼ | 106 | +9 | n/a | +0.1 | n/a | R | S | -4.0 | +0.9 | -0.1 | +1 |
| AC Vulcan ⁴ | 98 | +1 | n/a | +0.8 | n/a | R | S | -0.4 | +0.4 | +0.1 | 0 |

¹ Yield data not collected by area.

² Mucilage in yellow mustard is a measurement of viscosity of aqueous extracts from seed.

³ Varieties are rated S (Susceptible) or R (Resistant) to White Rust strains.

⁴ Data from 1999-2012 Co-operative Mustard Test. Yield % of check: 124 station years for yellow mustard, and 117 station years for brown and oriental mustard.

⁵ Data from 2009-2012 Co-operative Mustard Test (29 station years).

⁶ Data from 2008-2010 Co-operative Mustard Test (21 station years).

⁷ Data from 2016-2018 Co-operative Mustard Test (22 station years).

⁸ Data from 2017-2018 Co-operative Mustard Test (14 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.

A unique feature of yellow mustard is high mucilage content. Mucilage is valued by the mustard industry as a stabilizer in prepared food products.

Brown mustard is grown primarily for the Dijon mustard market. **AAC Brown 120** and **AAC Brown 18** were registered in September, 2017 and August, 2018, respectively. **AAC**

Brown 120 is not available commercially. **AAC Brown 18** is a hybrid variety. It is required to buy new seed for the hybrid variety **AAC Brown 18** every year.

Canola (Small-Scale Trials)

Main Characteristics of Varieties

| Variety (<i>B. napus</i>) | Distributor | 2013-2018 ALL Season Zones ¹ | | 2018 LONG Season Zone (6 trials) | | | 2018 MID Season Zone (8 trials) | | | Resistance Rating | | |
|--------------------------------|----------------------|--|------------------|-------------------------------------|--------------------|----------------|------------------------------------|--------------------|----------------|-----------------------|-----------------------|--|
| | | Site Years | Yield (%L252) | Yield (% L252) | Maturity (days) | Height (cm) | Yield (% L252) | Maturity (days) | Height (cm) | Blackleg ² | Clubroot ³ | |
| Liberty Link | | | | | | | | | | | | |
| L252 ⁴ | BASF - InVigor | 109 | 100 | 100 | 85 | 115 | 100 | 91 | 117 | R | --- | |
| 5440 | BASF - InVigor | 95 | 95 | --- | --- | --- | --- | --- | --- | R | --- | |
| L130P | BASF - InVigor | 56 | 92 | --- | --- | --- | --- | --- | --- | R | --- | |
| L140P | BASF - InVigor | 29 | 95 | --- | --- | --- | --- | --- | --- | R | --- | |
| L230 | BASF - InVigor | --- | --- | 95 | 84 | 115 | 95 | 89 | 112 | R | --- | |
| L241C | BASF - InVigor | 24 | 93 | 94 | 85 | 115 | 94 | 90 | 114 | R | R | |
| L261 | BASF - InVigor | 72 | 98 | --- | --- | --- | --- | --- | --- | R | --- | |
| LSD(%) ⁵ | | 18 | | | 16 | | | | | | | |
| Clearfield | | | | | | | | | | | | |
| 5545 CL | BrettYoung | 37 | 91 | 88 | 86 | 119 | 90 | 91 | 122 | R (CE ₁) | --- | |
| CS2500 CL | CANTERRA SEEDS | --- | --- | 88 | 86 | 119 | 84 | 90 | 119 | R (C) | --- | |
| DL1745CL | DL Seeds | --- | --- | 87 | 88 | 121 | 86 | 93 | 124 | R | --- | |
| PV 200 CL | Nutrien Ag Solutions | 37 | 89 | 91 | 85 | 117 | 90 | 91 | 117 | R | --- | |
| 46H75 | Pioneer Hi-Bred | 24 | 88 | 87 | 87 | 117 | 88 | 94 | 119 | R | --- | |
| LSD (%) ⁵ | | 11 | | | 10 | | | | | | | |
| Roundup Ready | | | | | | | | | | | | |
| 6074 RR ⁶ | BrettYoung | 66 | 94 | 91 | 86 | 114 | 94 | 92 | 114 | R (C) | --- | |
| 6076 CR ⁶ | BrettYoung | 37 | 89 | 87 | 87 | 121 | 90 | 92 | 122 | R (CE ₁) | R | |
| 6090 RR | BrettYoung | 24 | 89 | 84 | 89 | 130 | 89 | 93 | 130 | R (CE ₁) | R | |
| D3155C | BREVANT Seeds | --- | --- | 93 | 85 | 117 | 93 | 91 | 124 | R | --- | |
| CS2000 | CANTERRA SEEDS | 66 | 92 | 88 | 85 | 115 | 90 | 90 | 117 | R (CE ₁) | R | |
| CS2100 | CANTERRA SEEDS | 34 | 91 | 92 | 86 | 112 | 88 | 93 | 112 | R (ACG) | --- | |
| CS2300 | CANTERRA SEEDS | 24 | 93 | 90 | 86 | 122 | 94 | 93 | 124 | R (C) | --- | |
| 16RH5088 | Cargill - VICTORY | --- | --- | 83 | 87 | 117 | 90 | 93 | 124 | R | --- | |
| V12-3 ⁷ | Cargill - VICTORY | --- | --- | 85 | 85 | 112 | 93 | 91 | 112 | R | R | |
| V14-1 ⁷ | Cargill - VICTORY | --- | --- | 86 | 87 | 119 | 91 | 92 | 119 | R | R | |
| 74-44 BL | DEKALB | 80 | 89 | 92 | 84 | 110 | 94 | 90 | 112 | R (ACG) | --- | |
| 75-42 CR | DEKALB | --- | --- | 87 | 85 | 111 | 88 | 90 | 114 | R (AC) | R | |
| 75-65 RR | DEKALB | --- | --- | 92 | 83 | 109 | 88 | 89 | 112 | R (C) | --- | |
| DL1634RR | DL Seeds | --- | --- | 86 | 88 | 125 | 96 | 93 | 127 | R | R | |
| PV 540 G | Nutrien Ag Solutions | 24 | 91 | 91 | 86 | 111 | 94 | 92 | 117 | R | --- | |
| PV 581 GC | Nutrien Ag Solutions | 24 | 90 | 89 | 87 | 118 | 94 | 93 | 122 | R | R | |
| VR 9562 GC | Nutrien Ag Solutions | 56 | 94 | --- | --- | --- | --- | --- | --- | R | R | |
| 45H33 | Pioneer Hi-Bred | 37 | 92 | 89 | 85 | 114 | 93 | 91 | 124 | R | R | |
| 45M35 | Pioneer Hi-Bred | 24 | 96 | 92 | 84 | 111 | 99 | 91 | 114 | R | --- | |
| 45CS40 ⁶ | Pioneer Hi-Bred | --- | --- | 92 | 85 | 120 | 90 | 91 | 122 | R | R | |
| LSD(%) ⁵ | | 15 | | | 12 | | | | | | | |

¹ From Canola Performance Trials and grown at 10 or more sites across Prairie provinces, 2013-2018. Varieties new for 2018 do not have long-term data.

² Letters following resistance label indicate Resistance Groups as part of a new voluntary label process. Testing stubble to understand pathogen race(s) present in field is strongly recommended. See www.blackleg.ca for more information.

³ Resistance classification as substantiated through standard testing procedures outlined in the WCC/RRC guidelines and protocols.

⁴ Average yield (bu/ac) of the check L252 for long season zone and mid season zone in 2018 was 61 and 64, respectively.

⁵ LSD = least significant difference (5% level) within herbicide system.

⁶ Indicates Improved Tolerance (IT) to sclerotinia stem rot based on distributor data submitted to & approved by CFIA, using the WCC/RRC-approved protocol.

⁷ Indicates varieties with specialty oil profiles and premiums associated with pricing. Visit www.canolaperformancetrials.ca for more details.

Data presented is based on harvest data received as of November 2, 2018.

CANOLA ADDITIONAL INFORMATION

Variety descriptions summarize the performance of varieties tested in the 2018 Canola Performance Trials (CPT). Data donated by the CPT Committee. For more information visit www.canolaperformancetrials.ca.

All varieties in the previous table have a resistant (R) rating for Blackleg. Lesions and

yield loss can still occur, based on the level of inoculum and blackleg pathotype in the field, in combination with environmental conditions conducive for disease development.

Clubroot is a long-lived disease in the soil that can impact canola performance. Using clubroot resistant varieties in Rural Municipali-

ties where clubroot has been found is highly recommended as a risk mitigation tool. To know for sure if your own fields have the clubroot pathogen present, soil testing is necessary which can give an early indication of risk prior to finding galls in the fields.

Least Significant Difference

When comparing average zone yields for varieties in the small plot data, the least significant difference (LSD) is about 10 to 18 bu/ac. If variety A yielded 52 bu/ac. and variety B yielded 45 bu/ac., they would be considered statistically the same. This is based on a confidence level that significant differences would occur by chance less than 5% of the time. In the small plot design used, varieties were grouped by herbicide system, which means that the LSD shown strictly applies to comparisons between varieties of the same herbicide system.

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

Where can you get the Canola Performance Trial results?

Results are available through an online interactive tool at www.canolaperformancetrials.ca. The interactive tool allows growers to explore many agronomic factors and to search for trial data in specific geographic areas near their farming operations. Details on management, operations and environmental data for each individual site are reported online. The online tool has an economic calculator that includes the costs associated with growing the selected variety to assist growers in determining potential profitability. Data is also available in booklet form and will be distributed through various publications or can be obtained from your local agri-retailer.

Sunflower

Main Characteristics of Hybrids

| Hybrid | Herbicide Tolerance | Years Tested | Yield (% 63A21) | Average Maturity (days) | Harvest Moisture (%) |
|------------------------------------|---------------------|--------------|-----------------|-------------------------|----------------------|
| Oilseed EM (Early Maturing) | | | | | |
| 63A21 § | | 9 | 100 | 109 | 18.6 |
| Honeycomb NS | | 5 | 114 | 105 | 13.6 |
| AC Sierra | | 9 | 67 | 105 | 15.7 |
| Oilseed (Full Season) | | | | | |
| Cobalt II | Clearfield ® | 3 | 76 | 115 | 30.4 |
| Talon | ExpressSun ® | 2 | 92 | 113 | 30.1 |
| 8N 270 | Clearfield ® | 8 | 93 | 114 | 24.0 |

ADDITIONAL INFORMATION

Sunflower requires 105-125 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. Seed of **Honeycomb NS** may be limited.

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 (sherri.roberts@gov.sk.ca) (306) 848-2856.

Voluntary Changes to Labelling Blackleg Resistance

By Matthew Bernard, Saskatchewan Agriculture

Blackleg is best managed through an integrated approach which includes extended crop rotations, scouting to monitor disease levels, use of blackleg resistant canola varieties, use of disease-free certified seed and fungicides to prevent early season infection. As in any living organism – including plants and fungi – genetic diversity exists in populations of the blackleg-causing pathogen, *Leptosphaeria (L.) maculans*. This diversity can affect its ability to infect a plant. The genetic diversity in *L. maculans* is referred to as different “races.” Blackleg-resistant canola varieties can include both major gene resistance, as well as minor gene resistance (quantitative resistance). Major gene resistance can provide complete resistance when there is a match between the specific genes in the pathogen race and the major gene in the resistant canola variety. On the other hand, minor gene resistance is not race-specific and will provide the same level of protection against all races of the pathogen. This type of resistance is not complete but is a stable form of resistance that will reduce the severity of infection. When a pathogen population is exposed to the host (canola) in high frequency, higher selection pressure is put onto the pathogen population which results in shifts in the pathogen population, favouring races that can cause infection in a resistant canola variety grown in the field.

A noticeable change to the canola variety table in the *2019 SaskSeed Guide* highlights the addition of a more detailed genetic-based, voluntary labelling system for

blackleg resistance, where available. Major genes, or groups of genes, are represented by a lettering system referred to as Resistance Groups (RGs):

| Resistance Group (RG) | Major Resistance Gene(s) |
|-----------------------|--------------------------|
| R (A) | <i>Rlm1 or LepR3</i> |
| R (B) | <i>Rlm2</i> |
| R (C) | <i>Rlm3</i> |
| R (D) | <i>LepR1</i> |
| R (E ₁) | <i>Rlm4</i> |
| R (E ₂) | <i>Rlm7</i> |
| R (F) | <i>Rlm9</i> |
| R (G) | <i>RlmS</i> |
| R (H) | <i>LepR2</i> |
| R (X) | unknown |

Due to the complexity of the genetics, some hybrids might include one or several groups. Highly-similar genetics are labelled accordingly, which is why there might be sub-categories (such as R (E₁) vs. R (E₂)). Also, group names might change or new groups might be added in the future, as researchers discover more about the interactions.

Knowing the genetics and Resistance Group of the variety that you are growing is helpful in making informed variety rotation and blackleg disease management decisions, but it is only part of the tool, however. It is also important to understand the pathogen race(s) present in your field which can be accomplished by stubble testing. When

these two pieces of information are known, and other parts of an integrated management approach are being employed, the resistance in the canola plant can be “rotated” by choosing a variety in a specific Resistance Group to combat the pathogen race(s) present in your field most effectively. The “rotation” of these genetics should not be shuffled on an annual basis, but rather when there is evidence that the entire integrated approach is no longer effective (which includes extended rotations and other approaches discussed above). This can be determined through late season scouting and disease severity rating. If blackleg levels remain low that means that your resistant variety is effective. However, if blackleg disease levels increase this indicates that there may be a mismatch between the major gene resistance in your variety and the pathogen race in the field. When this occurs you can refer to the Resistance Group list to select a different blackleg resistant variety. No one tool will be a sole option for blackleg management on your farm, but being aware of, and knowing how to use all the tools available, will be the most effective way to implement an integrated pest management strategy to minimize disease severity and maximize returns. For more information, visit www.blackleg.ca.

Stubble tests to determine races present in your field can be performed at several labs, including Manitoba’s Pest Surveillance Initiative Lab (Winnipeg), Discovery Seed Labs (Saskatoon), and 20/20 Seed Labs (Winnipeg and Nisku).

Understanding Clubroot Resistance and the Classification System

By Errin Willenborg, Sask Canola

In 2018, the Ministry led an extensive clubroot survey. So far, visible clubroot symptoms have been found in 37 fields across five crop districts in Saskatchewan. 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 suscepti-

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

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

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

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

Visit www.clubroot.ca to learn more.

Breeding Institutions and Seed Distributors of Varieties Listed in this Publication

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|----------------------------------|----------------------------|----------------------------------|
| WHEAT | | |
| Canada Western Red Spring | | |
| CDC Adamant VB 🌱 | U of S - CDC | FP Genetics |
| AAC Aida 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 |
| SY Chert VB 🌱 | Syngenta Seeds Canada Inc. | Syngenta Canada |
| 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/Nutrien Ag Solutions |
| 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/Nutrien Ag Solutions |
| SY Obsidian 🌱 | Syngenta Seeds Canada Inc. | Richardson Intl |
| 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 |
| 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/Nutrien Ag Solutions |
| AAC Starbuck VB 🌱 | AAFC (Swift Current) | SeCan Members |
| 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/Nutrien Ag Solutions |
| CDC Utmost VB 🌱 | U of S - CDC | FP Genetics |
| AAC Viewfield 🌱 | AAFC (Swift Current) | FP Genetics |
| AAC W1876 🌱 | AAFC (Swift Current) | CANTERRA SEEDS |
| AAC Warman VB 🌱 | AAFC (Brandon) | SeCan Members |
| Waskada 🌱 | AAFC (Winnipeg) | SeCan Members |
| AAC Wheatland VB 🌱 | AAFC (Swift Current) | SeCan Members |
| WR859CL 🌱 | Syngenta Seeds Canada Inc. | Richardson Intl |
| SY479 VB 🌱 | Syngenta Seeds Canada Inc. | Alliance Seed |

| Canada Western Special Purpose | | |
|--------------------------------|------------------------|-----------------------------|
| Alderon | KWS-UK | SeCan Members |
| AAC Awesome VB 🌱 | AAFC (Lethbridge) | SeCan Members |
| Charing VB 🌱 | KWS-UK | SeCan Members |
| AAC Innova 🌱 | AAFC (Lethbridge) | Alliance Seed |
| CDC Kinley | U of S - CDC | Public Release U of S - CDC |
| CDC NRG003 🌱 | U of S - CDC | CANTERRA SEEDS |
| Pasteur | Wiersum Plant Breeding | SeCan Members |
| Sparrow VB | KWS-UK | SeCan Members |
| CDC Throttle 🌱 | U of S - CDC | Public Release U of S - CDC |

| Canada Western Amber Durum | | |
|----------------------------|----------------------|----------------------------------|
| CDC Alloy 🌱 | U of S - CDC | FP Genetics |
| Brigade 🌱 | AAFC (Swift Current) | Proven Seed/Nutrien Ag Solutions |
| AAC Cabri 🌱 | AAFC (Swift Current) | SeCan Members |
| CDC Carbide VB 🌱 | U of S - CDC | Proven Seed/Nutrien Ag Solutions |
| AAC Congress 🌱 | AAFC (Swift Current) | CANTERRA SEEDS |
| CDC Credence 🌱 | U of S - CDC | CANTERRA SEEDS |
| AAC Current 🌱 | AAFC (Swift Current) | Alliance Seed |
| CDC Dynamic 🌱 | U of S - CDC | Proven Seed/Nutrien Ag Solutions |
| Enterprise 🌱 | AAFC (Swift Current) | CANTERRA SEEDS |
| Eurostar 🌱 | AAFC (Swift Current) | SeCan Members |
| CDC Fortitude 🌱 | U of S - CDC | Proven Seed/Nutrien Ag Solutions |
| AAC Marchwell VB 🌱 | AAFC (Swift Current) | SeCan Members |
| AC Navigator | AAFC (Swift Current) | Proven Seed/Nutrien Ag Solutions |
| CDC Precision 🌱 | U of S - CDC | Alliance Seed |
| AAC Raymore 🌱 | AAFC (Swift Current) | SeCan Members |
| AAC Spitfire 🌱 | AAFC (Swift Current) | SeCan Members |
| Strongfield 🌱 | AAFC (Swift Current) | SeCan Members |
| AAC Stronghold 🌱 | AAFC (Swift Current) | SeCan Members |
| AAC Succeed VB 🌱 | AAFC (Swift Current) | FP Genetics |
| Transcend 🌱 | AAFC (Swift Current) | FP Genetics |
| CDC Verona 🌱 | U of S - CDC | Alliance Seed |

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|---|----------------------------|----------------------------------|
| WHEAT (CONT'D) | | |
| CWRS moving to CNHR - August 1, 2021 | | |
| Muchmore 🌱 | AAFC (Swift Current) | FP Genetics |
| AAC Redwater 🌱 | AAFC (Winnipeg) | SeCan Members |
| Vesper VB 🌱 | AAFC (Winnipeg) | SeCan Members |
| 5605HR CL 🌱 | Syngenta Seeds Canada Inc. | Proven Seed/Nutrien Ag Solutions |
| Canada Prairie Spring Red | | |
| AAC Crossfield 🌱 | AAFC (Winnipeg) | CANTERRA SEEDS |
| AAC Entice 🌱 | AAFC (Winnipeg) | Proven Seed/Nutrien Ag Solutions |
| 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/Nutrien Ag Solutions |
| Canada Northern Hard Red | | |
| AAC Concord 🌱 | AAFC (Swift Current) | CANTERRA SEEDS |
| CDC Concord CLPlus VB 🌱 | Crop Development Centre | |
| Elgin ND 🌱 | NDSU | FP Genetics |
| Faller | NDSU | Seed Depot |
| Lillian 🌱 | AAFC (Swift Current) | SeCan Members |
| Prosper 🌱 | NDSU | Seed Depot |
| Unity VB 🌱 | AAFC (Winnipeg) | SeCan Members |
| Canada Western Hard White Spring | | |
| AAC Cirrus 🌱 | AAFC (Swift Current) | FP Genetics |
| AAC Iceberg 🌱 | AAFC (Winnipeg) | Alliance Seed |
| AAC Whitefox 🌱 | AAFC (Winnipeg) | SeCan Members |
| Whitehawk 🌱 | AAFC (Winnipeg) | SeCan Members |
| CDC Whitehood | U of S - CDC | SeCan Members |
| Canada Western Soft White Spring | | |
| AC Andrew | AAFC (Lethbridge) | SeCan Members |
| AAC Chiffon VB 🌱 | AAFC (Lethbridge) | SeedNet Inc. |
| AAC Indus VB 🌱 | AAFC (Lethbridge) | SeCan Members |
| AAC Paramount VB 🌱 | AAFC (Lethbridge) | SeCan Members |
| Sadash VB 🌱 | AAFC (Lethbridge) | SeCan Members |

| WINTER WHEAT | | |
|---------------------------------------|-------------------|----------------|
| Canada Western Red Winter | | |
| CDC Buteo | U of S - CDC | SeCan Members |
| CDC Chase | U of S - CDC | CANTERRA SEEDS |
| AAC Elevate 🌱 | AAFC (Lethbridge) | SeCan Members |
| Emerson 🌱 | AAFC (Lethbridge) | CANTERRA SEEDS |
| Flourish 🌱 | AAFC (Lethbridge) | SeCan Members |
| AAC Gateway 🌱 | AAFC (Lethbridge) | Seed Depot |
| AAC Goldrush 🌱 | AAFC (Lethbridge) | FP Genetics |
| Moats 🌱 | U of S - CDC | SeCan Members |
| Radiant 🌱 | AAFC (Lethbridge) | CANTERRA SEEDS |
| AAC Wildfire 🌱 | AAFC (Lethbridge) | SeCan Members |
| Canada Western Experimental | | |
| AAC Icefield 🌱 | AAFC (Lethbridge) | FP Genetics |
| Canada Western Special Purpose | | |
| CDC Falcon | U of S - CDC | SeCan Members |
| Pintail 🌱 | FCDC (Lacombe) | Mastin Seeds |

| TRITICALE | | |
|---------------------|----------------------|-----------------------|
| Spring Habit | | |
| Brevis | AAFC (Swift Current) | Wagon Wheel Seed Corp |
| Bunker 🌱 | FCDC (Lacombe) | FP Genetics |
| AAC Delight 🌱 | AAFC (Lethbridge) | Fabian Seed Farms |
| Pronghorn | FCDC (Lacombe) | Progressive Seeds |
| Sunray | AAFC (Lethbridge) | SeedNet Inc. |
| Taza 🌱 | FCDC (Lacombe) | Solick Seeds |
| Tyndal 🌱 | FCDC (Lacombe) | SeCan Members |
| AC Ultima | AAFC (Swift Current) | FP Genetics |
| Winter Habit | | |
| Luoma 🌱 | FCDC (Lacombe) | Corns Brothers Farms |
| Metzger | FCDC (Lacombe) | Haney Farm Ltd. |
| Pika | FCDC (Lacombe) | Progressive Seeds |

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|--------------------------------------|----------------------------|----------------------------------|
| BARLEY | | |
| Malting Two-Row | | |
| Bentley 🌱 | FCDC (Lacombe) | CANTERRA SEEDS |
| CDC Bow 🌱 | U of S - CDC | SeCan Members |
| AAC Connect 🌱 | AAFC (Brandon) | CANTERRA SEEDS |
| CDC Copeland 🌱 | U of S - CDC | SeCan Members |
| CDC Copper 🌱 | U of S - CDC | FP Genetics |
| CDC Fraser 🌱 | U of S - CDC | SeCan Members |
| CDC Goldstar 🌱 | U of S - CDC/Sapporo/PML | CANTERRA SEEDS |
| CDC Kinderley 🌱 | U of S - CDC | SeCan Members |
| Lowe 🌱 | FCDC (Lacombe) | SeCan Members |
| Major 🌱 | AAFC (Brandon) | Alliance Seed |
| AC Metcalfe | AAFC (Brandon) | SeCan Members |
| Newdale | AAFC (Brandon) | FP Genetics |
| CDC PolarStar 🌱 | U of S - CDC/Sapporo/PML | CANTERRA SEEDS |
| CDC PlatinumStar 🌱 | U of S - CDC/Sapporo/PML | CANTERRA SEEDS |
| Sirish 🌱 | Syngenta Seeds Canada Inc. | Syngenta Canada |
| AAC Synergy 🌱 | AAFC (Brandon) | Syngenta Canada |
| Malting Six-Row | | |
| Celebration 🌱 | Busch Ag Res. Inc. | CANTERRA SEEDS |
| Legacy | Busch Ag Res. Inc. | Proven Seed/FP Genetics |
| Tradition | Busch Ag Res. Inc. | Proven Seed/FP Genetics |
| Hulled - Feed Two-Row | | |
| Altorado 🌱 | Highland Specialty Grains | Proven Seed/Nutrien Ag Solutions |
| CDC Austenson 🌱 | U of S - CDC | SeCan Members |
| Brahma | Highland Specialty Grains | Proven Seed/Nutrien Ag Solutions |
| Canmore 🌱 | FCDC (Lacombe) | CANTERRA SEEDS |
| Champion 🌱 | Highland Specialty Grains | Proven Seed/Nutrien Ag Solutions |
| Claymore 🌱 | Highland Specialty Grains | Proven Seed/Nutrien Ag Solutions |
| CDC Coalition 🌱 | U of S - CDC | CANTERRA SEEDS |
| CDC Cowboy 🌱 | U of S - CDC | SeCan Members |
| CDC Maverick 🌱 | U of S - CDC | SeCan Members |
| Oreana 🌱 | Highland Specialty Grains | Proven Seed/Nutrien Ag Solutions |
| Hulled - Feed Six-Row | | |
| AB Advantage 🌱 | FCDC (Lacombe) | SeCan Members |
| Amisk 🌱 | FCDC (Lacombe) | SeCan Members |
| AB Cattlelac 🌱 | FCDC (Lacombe) | Alliance Seed |
| Muskwa 🌱 | FCDC (Lacombe) | SeedNet Inc. |
| AC Rosser | AAFC (Brandon) | SeCan Members |
| Hulless - Food, Malting, Feed | | |
| CDC Ascent 🌱 | U of S - CDC | SeCan Members |
| CDC Carter | U of S - CDC | SeCan Members |
| CDC Clear 🌱 | U of S - CDC | SeCan Members |
| CDC Fibar 🌱 | U of S - CDC | Tomtene Seeds |
| CDC Hilose 🌱 | U of S - CDC | Tomtene Seeds |
| CDC McGwire 🌱 | U of S - CDC | SeCan Members |
| CDC Rattan 🌱 | U of S - CDC | Tomtene Seeds |
| Roseland | AAFC (Brandon) | Wayfinder Farms |
| Forage | | |
| CDC Cowboy 🌱 | U of S - CDC | SeCan Members |
| Desperado 🌱 | AAFC (Brandon) | Alliance Seed |
| CDC Maverick 🌱 | U of S - CDC | SeCan Members |
| AC Ranger | AAFC (Brandon) | FP Genetics |

| CANARYSEED | | |
|--------------|------------------------------|-----------------------------|
| CDC Bastia | U of S - CDC | Public release U of S - CDC |
| CDC Calvi 🌱 | U of S - CDC | CANTERRA SEEDS |
| Cantate | J. Joordans Zaadhandel BV | Hansen Seeds |
| CDC Cibo 🌱 | U of S - CDC | CANTERRA SEEDS |
| Keet | U of Minnesota; U of S - CDC | Public release U of S - CDC |
| RYE | | |
| KWS Bono | KWS Lochow GMBH | FP Genetics |
| Brasetto | KWS Lochow GMBH | FP Genetics |
| KWS Daniello | KWS Lochow GMBH | SeedNet Inc. |
| Danko | Danko Plant Breeders Ltd | FP Genetics |
| 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 |

| CAMELINA | | |
|-----------|-------------------|-------------------|
| Cypress 🌱 | Smart Earth Seeds | Smart Earth Seeds |

| CANOLA | | |
|------------------------|--|--|
| see table on page VR34 | | |

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|----------------------------|----------------------|---------------------|
| OAT | | |
| Hulled | | |
| Akina 🌱 | Lantmannen SW Seed | Elite Seeds |
| CDC Arborg 🌱 | U of S - CDC | FP Genetics |
| CDC Boyer | U of S - CDC | 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 |
| Leggett 🌱 | AAFC (Winnipeg) | FP Genetics |
| 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 |
| CDC Ruffian 🌱 | U of S - CDC | FP Genetics |
| CDC So-I 🌱 | U of S - CDC | T&L Seeds |
| Souris 🌱 | NDSU | Seed Depot |
| Stride 🌱 | AAFC (Winnipeg) | SeCan Members |
| Summit 🌱 | AAFC (Winnipeg) | FP Genetics |
| Triactor 🌱 | Lantmannen SW Seed | CANTERRA SEEDS |
| Hulless | | |
| AC Gwen | AAFC (Winnipeg) | SeCan Members |
| Forage | | |
| CDC Baler | U of S - CDC | FP Genetics |
| CDC Haymaker 🌱 | U of S - CDC | SeCan Members |
| Murphy 🌱 | AAFC (Lacombe) | SeCan Members |

| FLAX | | |
|--------------------|----------------------|----------------------------------|
| CDC Bethune 🌱 | U of S - CDC | SeCan Members |
| AAC Bravo 🌱 | AAFC (Morden) | FP Genetics |
| CDC Buryu 🌱 | U of S - CDC | SeCan Members |
| CDC Glas 🌱 | U of S - CDC | SeCan Members |
| CDC Neela 🌱 | U of S - CDC | CANTERRA SEEDS |
| Nulin VT50 🌱 | Nutrien Ag Solutions | Proven Seed/Nutrien Ag Solutions |
| 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 🌱 | Nutrien Ag Solutions | Alliance Seed |
| Vimy | U of S - CDC | SeCan Members |
| Westlin 60 🌱 | Nutrien Ag Solutions | Proven Seed/Nutrien Ag Solutions |
| Westlin 71 🌱 | Nutrien Ag Solutions | Proven Seed/Nutrien Ag Solutions |
| Westlin 72 🌱 | Nutrien Ag Solutions | Proven Seed/Nutrien Ag Solutions |

| MUSTARD | | |
|--------------------|---------------------|----------------------------------|
| Brown | | |
| Amigo | AAFC (Saskatoon) | Canadian Mustard Assoc. |
| AAC Brown 18 | AAFC (Saskatoon) | Mustard 21 Canada Inc. |
| AAC Brown 120 🌱 | AAFC (Saskatoon) | Mustard 21 Canada Inc. |
| Centennial Brown | AAFC (Saskatoon) | Canadian Mustard Assoc. |
| Duchess | Colman's of Norwich | |
| Oriental | | |
| Cutlass | AAFC (Saskatoon) | Canadian Mustard Assoc. |
| Forge | Colman's of Norwich | Proven Seed/Nutrien Ag Solutions |
| AAC Oriental 200 🌱 | AAFC (Saskatoon) | Mustard 21 Canada Inc. |
| AC Vulcan | AAFC (Saskatoon) | Canadian Mustard Assoc. |
| Yellow | | |
| AAC Adagio 🌱 | AAFC (Saskatoon) | Mustard 21 Canada Inc. |
| Andante | AAFC (Saskatoon) | Canadian Mustard Assoc. |
| AC Pennant | AAFC (Saskatoon) | Canadian Mustard Assoc. |

| SAFFLOWER | | |
|-----------|-------------------|------------------|
| Saffire | AAFC (Lethbridge) | Jerry Kubic (AB) |

| SOYBEAN | | |
|------------------------|--|--|
| see table on page VR28 | | |

| QUINOA | | |
|-----------|--|---------|
| NQRainbow | | NorQuin |
| NQRRed | | NorQuin |
| NQ94PT | | NorQuin |

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|----------------------------|----------------------|---------------------|
| LENTIL | | |
| CDC Asterix | U of S - CDC | Sask. Pulse Growers |
| CDC Carmine ☼ | U of S - CDC | Sask. Pulse Growers |
| CDC Cherie | U of S - CDC | Sask. Pulse Growers |
| CDC Coral ☼ | 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 Imp ☼ | 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 Growers |
| CDC Invincible | U of S - CDC | Sask. Pulse Growers |
| CDC Kermit ☺ | U of S - CDC | Sask. Pulse Growers |
| CDC KR-1 | U of S - CDC | AGT Foods Canada |
| CDC KR-2 ☺ | U of S - CDC | AGT Foods Canada |
| CDC Lima ☼ | U of S - CDC | Sask. Pulse Growers |
| 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 Nimble ☼ | U of S - CDC | Sask. Pulse Growers |
| CDC Peridot | U of S - CDC | Sask. Pulse Growers |
| CDC Proclaim ☺ | U of S - CDC | Sask. Pulse Growers |
| 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 QG-4 ☼ | 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 Growers |
| 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 Growers |
| CDC SB-3 ☺ | U of S - CDC | Simpson Seeds |
| CDC SB-4 ☼ | U of S - CDC | Simpson Seeds |
| CDC Scarlet | U of S - CDC | Sask. Pulse Growers |
| CDC Sovereign | U of S - CDC | Sask. Pulse Growers |
| CDC Viceroy | U of S - CDC | Sask. Pulse Growers |

| SUNFLOWER | | |
|------------------|------------------|--------------------|
| Cobalt II | Nuseed Americas | Nuseed Americas |
| Honeycomb NS | USDA | --- |
| AC Sierra | AAFC (Saskatoon) | AAFC (Indian Head) |
| Talon | Nuseed Americas | Nuseed Americas |
| 63A21 | Pioneer Hi-Bred | Pioneer Hi-Bred |
| 8N 270CL DM | Mycogen Seeds | Dow Seeds |

| CHICKPEA | | |
|-----------------|--------------------|---------------------|
| CDC Alma | U of S - CDC | Sask. Pulse Growers |
| Amit (B-90) ☺ | ARO Volcani Centre | AGT Foods Canada |
| CDC Consul | U of S - CDC | Sask. Pulse Growers |
| CDC Cory | U of S - CDC | Sask. Pulse Growers |
| CDC Frontier | U of S - CDC | Sask. Pulse Growers |
| CDC Leader | U of S - CDC | Sask. Pulse Growers |
| CDC Luna | U of S - CDC | Sask. Pulse Growers |
| CDC Orion | U of S - CDC | Sask. Pulse Growers |
| CDC Palmer ☺ | U of S - CDC | Sask. Pulse Growers |

Abbreviations Used in this List

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

The distributors listed in this table have distribution rights for the variety within Saskatchewan. Those distribution rights may be different outside of Saskatchewan and/or Western Canada. The distributors listed in this table have distribution rights for the variety within Saskatchewan. Those distribution rights may be different outside of Saskatchewan and/or Western Canada.

| Crop Kind, Class & Variety | Breeding Institution | Distributor |
|----------------------------|------------------------|------------------------|
| FIELD PEA | | |
| Abarth ☺ | Limagrain, Netherlands | FP Genetics |
| CDC Acer | U of S - CDC | Sask. Pulse Growers |
| Agassiz ☺ | AAFC (Lacombe) | CANTERRA SEEDS |
| CDC Amarillo | U of S - CDC | Sask. Pulse Growers |
| AAC Ardill | AAFC | Wagon Wheel Seed Corp. |
| AAC Asher | AAFC | Legume Logic |
| CDC Athabasca ☺ | U of S - CDC | Sask. Pulse Growers |
| CDC Blazer ☺ | U of S - CDC | Sask. Pulse Growers |
| BlueMan ☼ | DL Seeds Inc. | SeedNet Inc. |
| CDC Canary ☺ | U of S - CDC | Sask. Pulse Growers |
| 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 Growers |
| CDC Golden | U of S - CDC | Sask. Pulse Growers |
| CDC Greenwater | U of S - CDC | Sask. Pulse Growers |
| CDC Horizon | U of S - CDC | Sask. Pulse Growers |
| CDC Hornet | U of S - CDC | Sask. Pulse Growers |
| Hylline | Lantmannen SW Seed | Legume Logic |
| CDC Inca ☺ | U of S - CDC | Sask. Pulse Growers |
| CDC Jasper ☺ | U of S - CDC | Sask. Pulse Growers |
| AAC Lacombe ☺ | AAFC | SeedNet Inc. |
| CDC Lewochko ☺ | 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 |
| AAC Profit ☼ | AAFC | Legume Logic |
| 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 Growers |
| CDC Spruce ☺ | U of S - CDC | Sask. Pulse Growers |
| 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 |

| DRY BEAN | | |
|------------------|--------------------------|------------------------------|
| AC Black Diamond | AAFC (Lethbridge) | Viterra Inc. |
| CDC Blackstrap ☺ | U of S - CDC | Sask. Pulse Growers |
| Bolt | U of Guelph | --- |
| 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. |
| AAC Shock | | |
| Skyline ☺ | Globe Seeds - Netherland | Terramax |
| CDC Sol ☺ | U of S - CDC | Sask. Pulse Growers |
| OAC Spark | U of Guelph | U of Guelph |
| CDC Superjet | U of S - CDC | Sask. Pulse Growers |
| Winchester | Rogers Brothers | ADM Edible Bean Specialities |
| CDC WM - 2 ☺ | U of S - CDC | Rudy Agro |

| FABA BEAN | | |
|------------------|--------------------------|------------------------|
| CDC Blitz | U of S - CDC | Redview Farms |
| CDC Fatima | U of S - CDC | Scoular |
| Fabelle ☼ | DL Seeds Inc. | Stamp Seeds |
| FB9-4 | U of S - CDC | AGT Foods Canada |
| Imposa ☺ | Limagrain Nederland | Cyre Seed Farms |
| DL Rico | DL Seeds Inc. | Prairie Fava |
| 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. | Riddell Seed Co. |
| Taboar ☺ | Globe Seeds - Netherland | Terramax |
| DL Tesoro | DL Seeds Inc. | Riddell Seed Co. |
| Vertigo ☼ | DL Seeds Inc. | Stamp Seeds |
| 186S-11 ☺ | U of S - CDC | Sask. Pulse Growers |
| 247-13 ☺ | U of S - CDC | Sask. Pulse Growers |




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