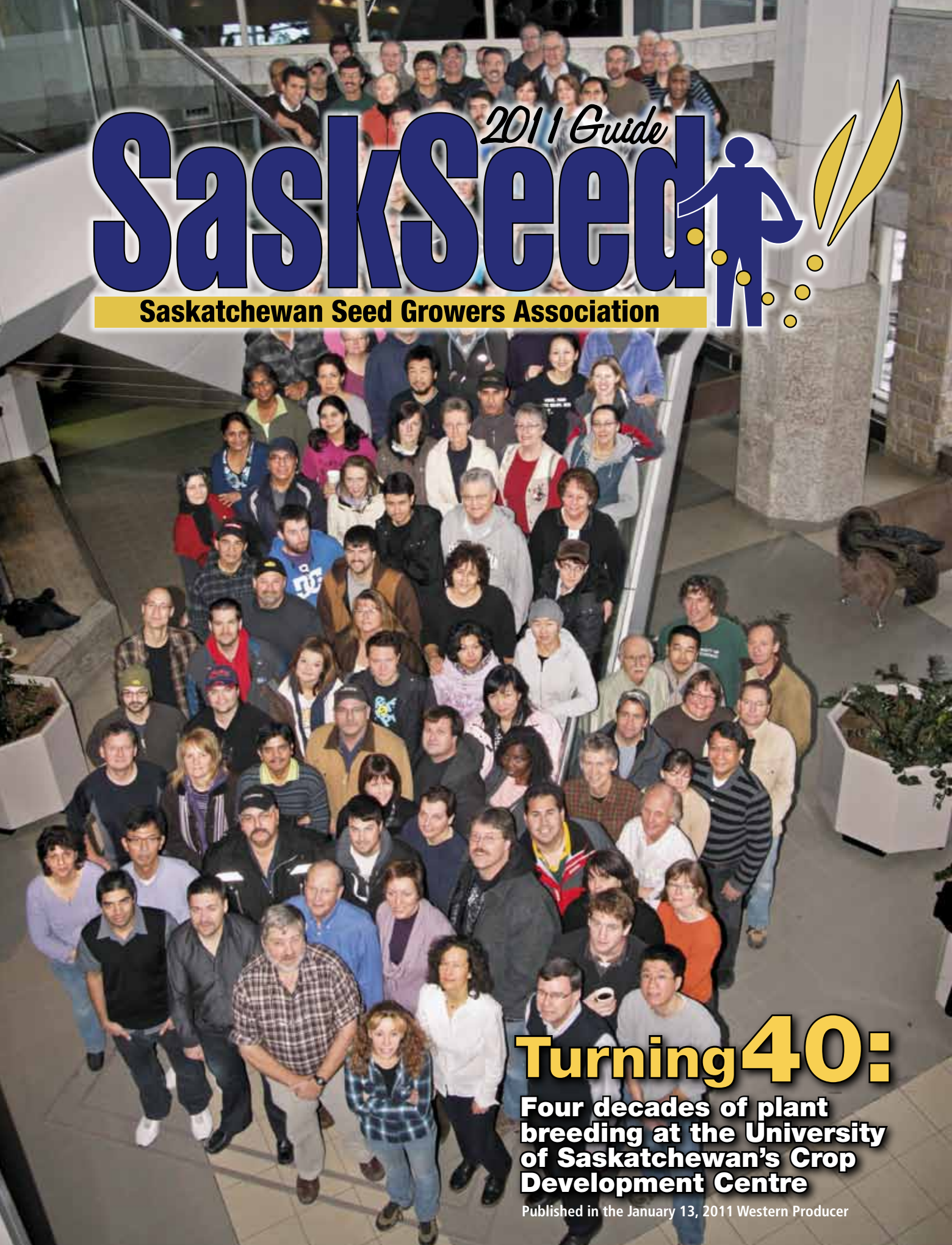

2011 Guide

SaskSeed

Saskatchewan Seed Growers Association

Turning 40:

Four decades of plant breeding at the University of Saskatchewan's Crop Development Centre

Published in the January 13, 2011 Western Producer

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2011 Guide

SaskSeed

Saskatchewan Seed Growers Association

President's Message

The 2010 season will be remembered for excess moisture across the province, unseeded acres, delayed planting challenges, missed spray application windows and working in soggy fields during harvest.

Disease was more prevalent this year. Frost affected some regions and immature kernels are being found in most crop samples. The result is that farmers will have to monitor stored grain very closely this winter to ensure quality is maintained.

However, the adverse weather in Saskatchewan and many other regions of the world has caused market prices for most commodities to rise, giving 2011 significantly more promise. Capturing the new market prices will be everyone's goal in the year ahead.

What should you be looking for, and where do you start?

The first step is securing quality seed for 2011. While many producers look for increased yield when deciding on a new variety, there's much more to consider when making your seed purchase. Improved disease packages, earlier maturity, higher oil or protein content or premium prices for identity preserved markets might have a much bigger impact on your bottom line than a yield increase.

While there are no crop varieties that can offer everything, there are several that can address some of the major problems producers are facing. Analyzing what you need for your own farm is another good starting point. Did you suffer a short growing season, uneven maturity, or did you have trouble getting on the land to apply herbicides or fungicides when the timing was right?

Your local seed grower and the data in this Seed Guide are the best sources of information to select the right seed to maximize your return. Information on current popular varieties is gathered in regional variety trials. Those trials faced the same growing conditions that your crops were subjected to this season. Did some come through the season better than others? Will they be a good fit for your farm?

Your local seed grower can also help answer that. Most seed growers either have hands-on experience with the newest varieties, or are in contact with those who have. They can tell you what works, what doesn't and what to watch for.

Purchasing certified seed also funds research to address more of the agronomic problems that western Canadian farmers face every year. That research will find the solutions to help reduce losses caused by wheat midge, saw fly, fusarium graminearum and even new strains of rust. And that's just in wheat. Varieties for other crop kinds are in development to meet a host of problems unique to those species, like clubroot, sclerotina and blackleg in canola.

There are no easy answers, and one size doesn't fit all. But sourcing the right information can go a long way toward taking out some of the guesswork.

I would like to extend the sincere thanks of the Saskatchewan Seed Growers Association to all of those who help make this publication possible, and best wishes for a safe and profitable growing season.

Lyndon Olson, President
Saskatchewan Seed Growers Association

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ON THE COVER:

Turning 40. Staff at the Crop Development Centre has grown to approximately 120 people. When the CDC was formed in 1971, staff included six scientists, three plot workers, four technicians, a maintenance worker and a stenographer. *See the story on page 14.*

WP photo by William Dekay

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Varieties of Grain Crops 2011 24-page pullout included with this guide

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DAVE SCHRITT PHOTO

Flooding caused by frequent rain was common throughout Saskatchewan in 2010. This aerial shot, taken east of Rosthern, Sask., shows the type of flooding that was typical throughout large areas of the province. Estimates for unseeded acreage varied but in October, the Saskatchewan Crop Insurance Corporation reported that insurance customers alone reported 6.8 million unseeded acres. Unseeded acreage claims cost the corporation close to $220 million in 2010.

Three years worth of rain

Pedigreed seed growers reflect on challenges of 2010

By Shirley Byers
Freelance writer

FARMERS AND PEDIGREED seed growers across Saskatchewan will remember 2010 as the year the rain wouldn't stop.

From Meadow Lake to Shaunavon, from Archerwill to Redvers and from Wilkie to Churchbridge to Central Butte, producers and seed growers battled rain in the spring, rain in the summer and yet more rain in the fall.

The result was a significant reduction in seeded acreage, a late harvest and poor grain quality.

Seed grower Lyndon Olson tallied 28 to 30 inches of rain at his farm near Archerwill. Warren Kaeding at Churchbridge recorded 36 inches and at Wilkie, Sask., Ray Herle counted 24 inches.

Even producers in the traditionally dry south and southwest were not exempt.

At Central Butte, 25 inches fell on Edith Fowler's farm and the Shaunavon area had 22 inches — what seed grower Barry Floberg described as three years worth of rain all at once.

"We stopped keeping track of rain at about 15 inches in mid-August," said Ryan Wilfing at Meadow Lake.

"We didn't add up the rain during the fall."

At Archerwill, in the province's northeast, Olson was able to seed about half the acres he'd planned to seed and diseases wiped out crops on four quarter sections.

The rain persisted after the crop was in the ground and hail caused damage in many areas.

Three hail storms in July caused damage at Fowler's Central Butte farm. Several fields were written off.

If producers thought they were going to catch a break in September, they were mistaken. More rain with the occasional killing frost wreaked havoc on crops throughout the month.

But finally the rain stopped.

The sun poked through the clouds at the end of September and shone through much of October. Growers headed back to soggy fields and by Nov. 1, the province's harvest was 99 percent complete.

"Up to Sept. 25 we had about 400 acres of 5,000 done," said Perry Dangstorp from Redvers.

"We started again on Sept. 25 and finished on Oct. 18."

Kaeding faced similar challenges at Churchbridge.

"We floundered in the mud for about a week at the beginning of harvest, maybe closer to two weeks," he said.

"I think our record for getting stuck was 19 times in one day. We finally said. ' This is enough!' We bought a grain cart. We bought another straight cut header for a combine we'd just purchased in the fall and then we put duals on everything. And it made a world of difference. … We harvested what we could reach. Some was under water."

In the end, Kaeding combined about 85 percent of the acres he planted.

With so much moisture and a late harvest, crop quality was poor.

Producers across the province reported disease, sprouting, bleaching, mildew, uneven development and frost damage.

In November, Floberg was working in his Shaunavon seed plant, separating frozen peas from unfrozen seed. He managed to reduce the proportion of frozen seed to about 10 percent from about 50 percent.

"We're having a little bit of success but it's probably not going to be enough to call it good seed," he said.

In the northeast, Olson said the quality of pedigreed seed will be variable.

"Some of the wheat is looking good. Some of the oats are looking good. The barley has challenges, as has the late wheat. There was some sprouting – the crops simply stood too long in the rain and it's uneven."

Disease was also widespread

Sclerotinia affected canola and pulse crops in many areas. Fusarium was common throughout the east and in many parts of west-central and western Saskatchewan.

Mycosphaerella and root rot decimated Olson's peas at Archerwill and root rot was also reported in the southeast.

Wheat midge also made an appearance in some areas, possibly affecting grades in the Churchbridge area, Kaeding said. He also treated seed for wireworm.

Growers in the province's southwest reported

pea weevil damage, with yields in some pea crops as low as five bushels per acre.

Across the province yields varied from farm to farm and field to field.

In some areas, wheat yields seemed to fare the best. In others, canola performed well.

"Some of the wheat yielded not bad on well drained land," said Olson.

"Barley was not good, below average. Oats were pretty decent, about average. Peas were a disaster. We wrote four quarters off due to disease. Canola was a little below average but not low enough for crop insurance purposes."

At Wilkie, Herle said overall yields were pretty good.

"The crop was there but the problem was just to get it off."

At Central Butte, Fowler said some wheat fields went 50 bu. per acre, while others yielded much less, depending on rain and hail.

In parts of the southeast, wheat did very well.

At Churchbridge, about half an hour's drive southeast of Yorkton, Kaeding's best wheat went 72 and his worst was around 40.

"(That's) actually far above our average yield and that's using total seeded acres, not factoring in the 15 percent we lost," he said.

"What was there yielded far greater than what we expected."

At Shaunavon, Floberg said yields were average to below average.

"The low areas where you expected the extra bushels were flooded out."

At Redvers, about 150 kilometres east of Weyburn, yields were decent but quality was poor, said Dangstorp.

The same was true near Meadow Lake, in the northwest.

"Our yields were average to above average, but quality was maybe down a bit," said Wilfing.

Producers in the Meadow Lake area were pleased with their first ever lentil crop.

Maxim, a small red lentil, yielded 20 to 25 bu. per acre.

Based on that performance, growers are likely to try it again.

"We might get a wreck one year but that's the chance you take every year," he said.

Fall germination tests were variable depending on the crop, the area and the date of harvest.

At Wilkie, Herle reported germination on peas in the high 90s. Some lentils tested 94 percent.

Across the province, seed growers are encouraging producers to test farm-saved seed for germination before they have it cleaned.

"The first (crops) we took off are coming back OK but I'm concerned about the later ones," Olson said. "Some of the them won't make it. Much of this year's crop has some major challenges," he added.

"Some of it is dormant, due to immature kernels. Maybe after storing it in the bin for a while it will break dormancy but right now there's a high count of dormancy.

"We're not sure of the effects of that frost."

"Sometimes it will come back and haunt us with poor vigour or a little weaker germ. It could germ maybe not so bad … (in the fall and) then just lose its germ in the winter time. It's not a mature cured stable kernel in the bin that came in at a nice harvest. It's got a lot of things against it."

Farmers concerned with reductions in germination should consider having seed tested again in the spring.

All growers should monitor stored crops closely for heating and disease, especially fusarium.

"Some varieties are far more susceptible than others (to fusarium,)" Kaeding warned.

"And it certainly depends on date of seeding and harvest and how they were stored."

With widespread concerns over seed quality, seed shortages for some varieties and crop types are likely.

"Because of the sprouting, I don't know what we'll be able to sell this year," said Fowler. "There could be shortages across the board."

In the northeast and the southeast there are concerns about supplies of pedigreed flax seed.

At Redvers, Dangstorp thought there might be a shortage of some varieties of midge tolerant wheat.

Peas, lentils and midge tolerant wheat might be in short supply in the west central area, added Herle.

In the southwest, quality lentils could be scarce.

Because seeded acreage was lower than normal last spring, carry-over supplies of pedigreed seed could be larger than normal for some crop types.

PEDIGREED SEED ACREAGE DOWN OVERALL

PEDIGREED SEED acreage in Saskatchewan dropped by more than 62,000 acres in 2010, down 18.6 percent from 2009.

The lower acreage was due primarily to excess moisture that interfered with seeding operations and hampered crop establishment.

The decline affected most crops, said Dave Akister, executive director at the Saskatchewan Seed Growers Association.

Most acres lost were in wheat, barley and peas.

Wheat acreage was down 25,000 acres (17.6 percent), barley lost almost 19,000 acres (44.5 percent) and peas were down more than 12,000 acres (28.7 percent).

Acreage was up for some crops. Pedigreed flax acreage was up 3.4 percent, faba beans gained 3.8 percent and lentil acreage increased 3.5 percent.

Triticale showed the biggest gain, up 82 percent and chickpea acres were up 55 percent.

Most areas of the province were affected by frequent rain and cool temperatures but there were also pockets where seed growers fared well.

"It's been a tough season," said Akister. "It's just so difficult to tell what's going to spin out of it."

Akister said the impact of the wet 2010 growing season will have lasting consequences.

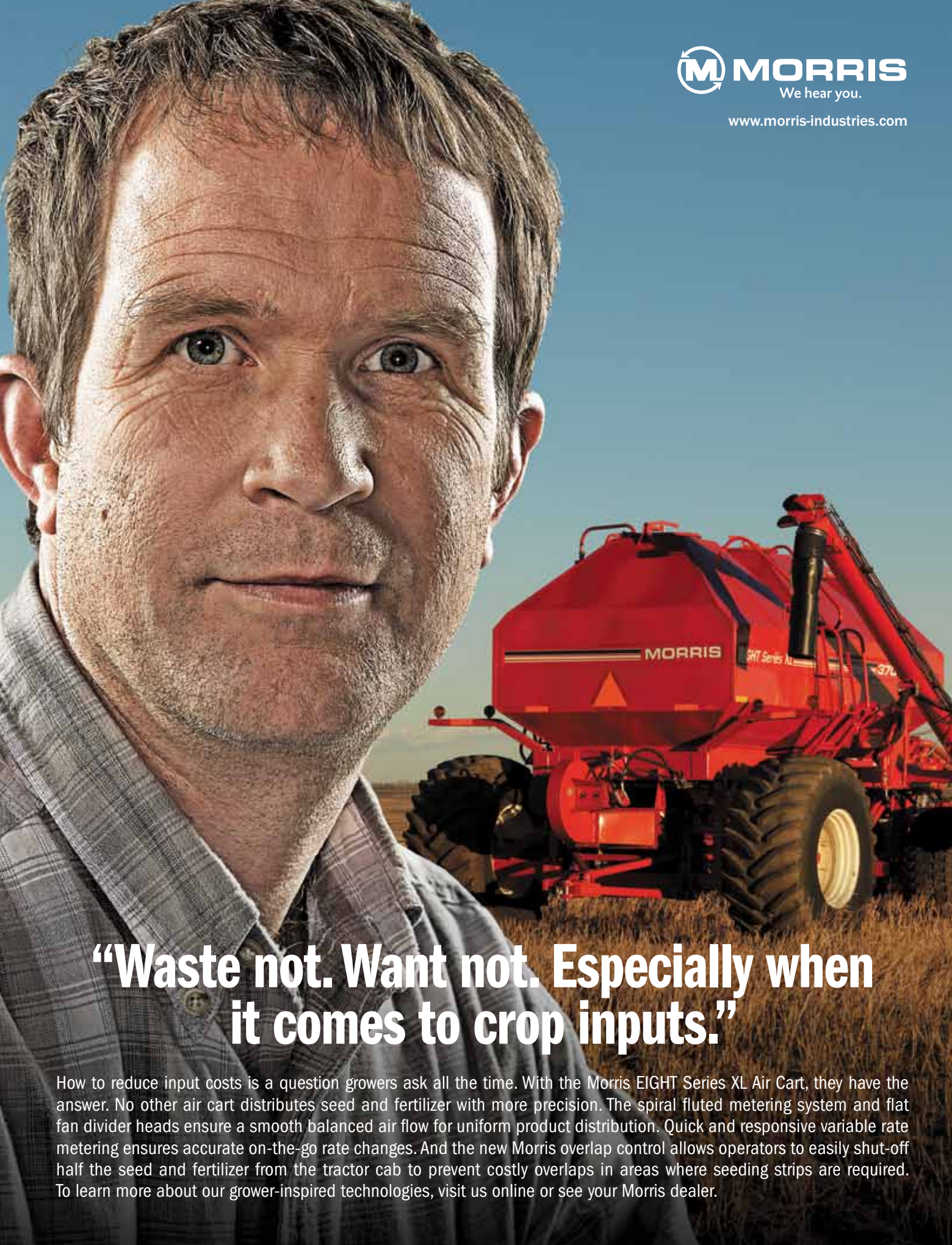
"It's not going to be a one year thing," he said.

"It's going to affect not just seed production but agriculture. I think that we survived the season as well as we did is probably the most pleasant surprise. "

—BYERS

SHIRLEY BYERS PHOTO

Pedigreed seed grower Lyndon Olson of Archerwill, Sask., said 2010 was a challenging year. Olson got half of his crop seeded last spring and much of what he planted was lost to flooding and disease.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FILE PHOTO

Farmers planning to use farm-saved or carryover seed this spring are encouraged to check seed supplies for germination and disease. Seed diseases were common in grain and seed crops harvested last fall. Treated seed from last year is likely to have reduced germination and vigour.

Testing, testing…1, 2, 3

Seed industry officials urge testing on farm-saved and carryover seed

By Darlene Polachic
Freelance writer

PRAIRIE FARMERS who found themselves with tested but unused seed last spring are strongly encouraged to retest seed supplies before using them in 2011.

The same applies to grain harvested last fall.

"We're hearing a variety of reports regarding the quality of the 2010 harvest, some good, some very bad," said Dale Adolphe, executive director of the Canadian Seed Growers Association.

"In the final analysis, only lab testing will tell if that seed will be good to sow this year."

Adolphe said germination tests are critical to ensuring viable seed.

"In regard to 2009 seed that was carried over, there is one good short answer. When you're buying or using seed carried over by yourself or by someone else, definitely have a germination analysis carried out.

"The results will be dependent on things like the condition of seed, what kind of crop it is, how well it was stored, and whether the seed was treated. Sometimes treating impacts seed vigour and germination.

"My best advice is to retest."

Adolphe said growers who buy seed that was carried over have the right under the Seed Act to see a copy of the seed germination analysis.

The analysis is supposed to reflect the condition of the seed at the time of sale.

"If the analysis is more than six months old, demand a new one. If it's less than six months, it will probably still be accurate."

Bruce Carriere, president of Discovery Seed Labs in Saskatoon, said the condition of seed is largely affected by how it is stored.

"For instance, seed carried over in a steel bin that is half full may show some deterioration because the empty head space — the top half of the bin — heats up and cools down, heats up and cools down," he said.

"This can cause the seed to spring or it may ruin the seed completely."

He said pedigreed seed tested for the 2010 planting season but not planted will probably still be good but retesting is the only way to be sure.

"Seed is a living organism," he said.

"Everything must be kept favourable for the seed or the result will be a loss of vigour and germination."

Carriere said February or March are the best times to retest carryover.

He agreed with Adolphe that any germination test done within six months should still be accurate unless the seed had a high moisture content.

"There is probably no need to repeat disease testing, but I would definitely recommend testing for germination and vigour, particularly if the seed is not prime seed."

Jim Bessel, senior agronomy specialist with the Canola Council of Canada, said if pedigreed canola seed has been treated, it would be wise to take it to a reputable seed lab for germination testing.

"(Canola)seed is affected by storage and the type of treatment it has undergone," he said.

"Each situation is different. But I believe it is good and prudent stewardship to get updated germination testing. And the closer to seeding time it is done, the better."

Bessel said carryover canola seed is most likely to maintain its quality if it is stored in cool, dark, dry conditions.

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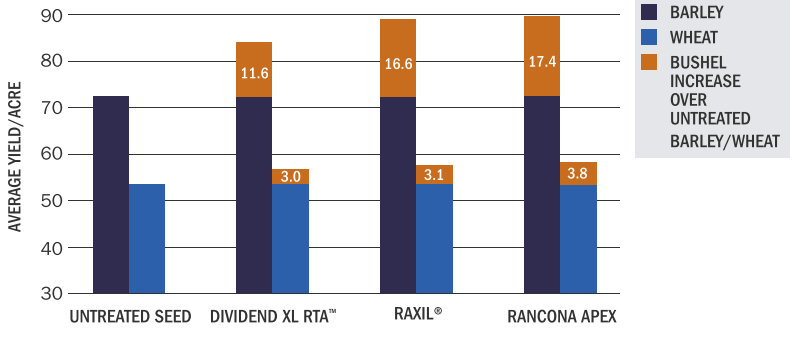

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2 Tests conducted in Alberta (N=4), Montana (N=1), Manitoba (N=2) and North Dakota (N=2). Average of 9 trials. Raxil T was formulation of Raxil used in trials.
3 Tests conducted in Alberta (N=5), Montana (N=5), Manitoba (N=2) and North Dakota (N=3). Average of 15 trials. Raxil MD was formulation of Raxil used in trials.

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Turning Forty

Four decades after its formation, Saskatchewan's Crop Development Centre continues to produce outstanding varieties for western Canadian farmers

By Brian Cross
Western Producer staff

IT'S BEEN SAID that the truest measure of success for any new venture is the positive change it creates.

When University of Saskatchewan flax breeder Gordon Rowland looks back at the changes that stemmed from the creation of the Crop Development Centre (CDC) 40 years ago, he sees a long history of success.

Not only did the crop varieties developed at the CDC change the province's agricultural landscape, they added billions of dollars to Saskatchewan's economy, improved cash receipts for farmers and helped clear the way for improved production practices such as the use of expanded crop rotations, the adoption of nitrogen fixing pulse crops and to some degree, the introduction of no-till farming.

"I don't think there's any doubt that the CDC has changed the province's agricultural landscape," says Rowland, one of six original scientists hired after the CDC was formed in 1971.

"I think it's fair to say that it's a success that could not have been imagined when the CDC began. I don't think the original proponents of the CDC could have ever imagined that Saskatchewan would have gotten to the point that we see today in terms of crop production and crop diversity."

In the early 1970s, diversifying crop production was a key objective of Saskatchewan's agriculture industry.

At the time, cereal crops accounted for the vast majority of seeded acres and summerfallow was plentiful.

Production of oilseeds was limited and pulse acreage was virtually nonexistent.

The idea of breeding new crops specifically suited to growing conditions in Saskatchewan was the central pillar upon which the CDC was built.

Rowland remembers the days before the CDC released its first new crop varieties for Saskatchewan farmers.

The changes that those varieties precipitated are significant, he said.

For example, in the 10 years that preceded the formation of the CDC, Saskatchewan's summerfallow acreage averaged nearly 17 million acres per year, according to statistics from the provincial agriculture department.

Since 2000, average summerfallow acreage has fallen to just over six million acres per year.

Saskatchewan's flax production, meanwhile, averaged less than 600,000 acres per year in the 10 years that preceded the CDC.

Since then, average flax production has increased to more than 1.3 million acres per year with the bulk of those acres seeded to CDC varieties.

"Basically, at the very beginning of the CDC … Saskatchewan was growing wheat and summerfallow," said Rowland.

"There were other cereals being grown and there were some other crops in there as well. But each year, there was this huge amount of land that did not have any production on it.

CONTINUED ON PAGE 16

CDC MILESTONES

1971
CDC established through NRC and Saskatchewan Agriculture grants

1972
Crop Science Field Lab completed

1977
Kernen Crop Research Farm donated by Fred Kernen

1978
CDC releases Laird lentil

1981
Harrington two-row malt barley

1983
Calibre oat

1986
Vimy flax

1987
Kernen Crop Research building completed

1991
College of Agriculture Building and Phytotron completed

1991
CDC Teal spring wheat

1992
CDC Kestrel winter wheat

1994
College of Ag greenhouse complex completed

1995
CDC Redwing: first red lentil variety

1997
CDC Maria hairless canaryseed

1998
CDC Bethune flax

1998
SPG land bought for CDC by Saskatchewan Pulse Growers

1999
CDC Mozart yellow pea

1999
Kernen breeder seed facility completed

2002
CDC Imagine spring wheat: first imidazolinone-tolerant wheat variety in western Canada

2003
CDC Striker green pea

2003
CDC Frontier kabuli chickpea

2003
CDC Fibar waxy hulless food barley

2005
Pulse Field Lab completed

2006
CDC Impact, CDC Imperial: first imidazolinone-tolerant lentil varieties

2006
Nasser land donated by Kay Nasser

2007
CDC Lophy-I: first low-phytate feed barley

2008
CDC Verona durum

2010
CDC Utmost VB: first CDC wheat -resistant variety

2010
Grains Innovation Laboratory completed

WILLIAM DEKAY PHOTO

ABOVE: *Staff at the Crop Development Centre has grown to approximately 120 people. When the CDC was formed in 1971, staff included six scientists, three plot workers, four technicians, a maintenance worker and a stenographer.*
TOP LEFT: *Farmers take a tour of CDC plots in the 1970s. Extension has always been a key component of the CDC's mandate.*
SECOND: *The development of new CDC flax varieties such as Vimy and CDC Bethune led to a significant increase in acreage.*
THIRD: *CDC scientists Brian Rossnagel, left, Janet Weller and Bryan Harvey examine cereals in a CDC greenhouse.*
FOURTH: *Harvey, now retired from the CDC, examines barley in a CDC growth chamber. Harvey, who developed Harrington barley along with Rossnagel and other CDC researchers, is recognized for his groundbreaking work in malting barley.*

CONTINUED FROM PAGE 14

"The idea of establishing a crop development CDC grew out of this feeling that new crops, or new uses for old crops, could be developed for Saskatchewan."

The formation of the CDC occurred at an opportune time in the province's history.

After enjoying a period of relative prosperity in the early and mid-1960s, economic conditions across the West began to worsen late in the decade. Saskatchewan's agriculture sector was particularly hard hit.

In his book entitled The West: *The History of a Region in Confederation,* author and historian John Frederick Conway refers to "a severe recession in agriculture … that plagued the Prairie economy."

"Saskatchewan was particularly hard hit as its 1969 and 1970 average per capita incomes, relative to the national average, fell to their lowest ebb since the 1959-61 recession."

Globally, the world was grinding its way through a massive oversupply of wheat, and grain prices in Canada were correspondingly low.

Against that backdrop, the idea of establishing a new CDC for plant breeding seemed unlikely to succeed.

But the CDC's proponents made a compelling argument.

At the time, most plant breeding programs in Western Canada were based at federal research centres operated by Agriculture Canada.

In Saskatchewan, Agriculture Canada scientists at Swift Current, Sask., were developing new cereal varieties — primarily wheat — but those varieties were specifically suited to the province's arid southwestern regions.

Further north, the Agriculture Canada research centre in Saskatoon was doing ground-breaking work on rapeseed and forage crops.

Agriculture Canada scientists, along with collaborative researchers at a variety of western Canadian universities, were largely responsible for the creation of canola, a crop that today accounts for roughly seven million acres per year in the province.

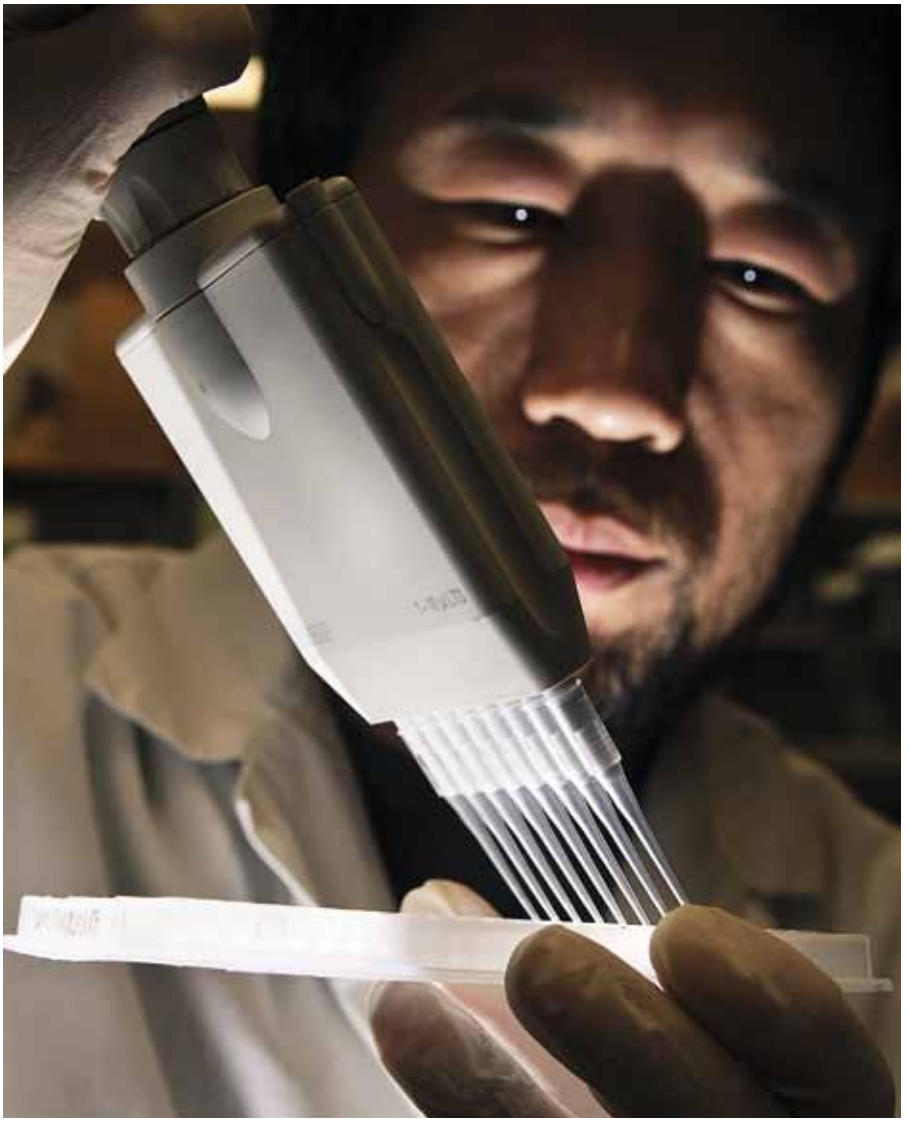
But work on other crops suited to other parts of the province was limited.

In general, agricultural stakeholders felt that investment in plant breeding was failing to meet Saskatchewan's needs and that province's potential for producing more grain and a greater diversity of agricultural crops was being overlooked.

"There was a feeling at the time that Saskatchewan had very little federal involvement in crop agriculture," said Rowland.

"Most of the plant breeding work being done at the time was centered in either Manitoba, at Morden or Winnipeg, or in Alberta, at either Lethbridge or Lacombe or up in the Peace River country at Beaverlodge.

"Saskatchewan was kind of forgotten even though it had the largest agricultural area in Canada."



WILLIAM DEKAY PHOTO

Yuefeng Ruan, a post doctoral fellow, works with DNA samples used in marker assisted screening of wheat. A tradition of excellence in plant breeding and research has helped the CDC and the plant science department to attract the best and brightest scientists and students, says CDC managing director Dorothy Murrell.

Scientists at the University of Saskatchewan's crop science department were aware of this problem and they began devising a plan to address it.

Graham Simpson, a professor emeritus at the U of S and an expert in crop physiology, was one of the people who led the push for the CDC's creation.

In the late 1960s, Simpson was serving as interim head of the university's crop science department while the department's full-time head, Doug Knott, was on sabbatical leave in Australia.

During Knott's absence, Simpson caught wind of a National Research Council initiative aimed at developing new research partnerships with Canadian universities.

Simpson investigated the NRC program and began strategizing with other members of the Crop Science Department.

The group contacted university president John Spinks to seek his support in submitting a funding proposal to the NRC.

According to Simpson, Spinks discussed the idea with faculty members and toured the department's plant breeding facilities.

"The department was in pretty poor condition in those days," Simpson recalled.

"It was the end of a period where there was very little expansion and we had very little equipment …. The department in those days was pretty much the same as it had been back in the 1930s."

"There was not very much money around anywhere in those days," he continued.

"We had a very low budget and all of the field crop work that was being done (at the university) was being done solely through university grants. There were very few if any grants from the outside at that time.

"Dr. Spinks realized that our department's facilities were in pretty poor shape and he told us: 'Go ahead, see what you can do.' So we went ahead and did it."

The initiative encountered few major obstacles. Proponents from the department pitched their idea to the College of Agriculture and the plan was endorsed.

Early the following year, the college hosted a meeting that included top officials from the NRC and federal ministry of agriculture.

"They came out to Saskatoon … and decided that yes, it would be a good idea," Simpson recalled.

"The only thing that they (suggested) … was that we should get the province involved in some way and establish some type of commitment for the future because the NRC term grants were only for three years."

When Knott returned from Australia, he threw his support behind the initiative.

As head of the Crop Science Department, Knott's name was already known in Regina.

A few years earlier, he had floated the idea of a province-wide producer checkoff that would be applied to crops grown in Saskatchewan.

Knott's intent was that funds collected through the producer checkoff funds would be used to support an expanded plant breeding program specifically for Saskatchewan.

The provincial government rejected the idea, suggesting farmers would view the levy as another form of tax.

Nonetheless, the initiative helped Knott to establish key contacts in Regina. It also put the notion of a plant breeding institute on Saskatchewan's political agenda.

Knott also had key political allies at the federal level. Among them was Otto Lang, a former dean of law at the university, who was elected in 1968 as federal member of parliament for Saskatoon-Humboldt.

Lang, a close friend of Knott's, went on to hold a variety of influential cabinet posts in the Pierre Trudeau government, including a decade-long term as minister responsible for the Canadian Wheat Board from 1969 to 1979.

"When Dr. Knott came back, he had the relationships in government and he managed to get the right commitments from the right people," Simpson said.

"Everything just seemed to fall into place."

By early 1971, the establishment of a new crop CDC looked to be a done deal.

In February, a written application for an NRC term grant was completed by faculty members at the Crop Science Department.

"The current agricultural crisis on the Prairies emphasizes the need for more agricultural research," the application stated.

"The markets for agricultural products are changing rapidly and the prairie provinces must diversify… and reduce their dependence on wheat. At the same time, the traditional crops, particularly wheat and barley, must be improved to meet world demand.

"For a variety of historical and political reasons, Saskatchewan, with about 50 percent of Canada's cereal acreage, does not have a major plant breeding CDC," it continued.

"A plant breeding centre should be established in a major crop area of Saskatchewan (and) … Saskatoon is the logical location for such a development."

The application for NRC funding estimated spending at $326,000 in the centre's inaugural year, with initial funding coming from the Saskatchewan Department of Agriculture ($200,000) and the NRC ($126,000).

Of that amount, about 62 percent was earmarked for major capital expenditures including a seed laboratory ($150,000), greenhouses and growth chambers ($40,000) and renovations to existing crop science facilities ($10,000).

The remaining 38 percent was to be spent on day-to-day operations and staff recruitment.

Staff members were to include three plot workers, four technicians, a maintenance worker, a stenographer and six scientists.

CONTINUED ON PAGE 18

RENAISSANCE MEN, WOMEN, IMPROVE PLANTS, BUILD MARKETS

The Crop Development Centre at the University of Saskatchewan has produced some of the most popular crop varieties ever grown in the province.

But according to the centre's managing director Dorothy Murrell, the CDC is not only involved in developing agronomically improved varieties of large acreage crops.

The centre's scientists also dabble in lesser known crops like spelt.

They make critical improvements to small acreage crops like canaryseed. And they keep an ear to ground for emerging niche markets in major crops like oats and barley.

"I would say most of the scientists here follow an 80-20 rule," said Murrell.

"They spend 80 percent of their time on major plant breeding projects and 20 percent of their time on minor projects …."

Murrell likened CDC scientists to Renaissance men and women, whose interests span a diverse range of topics in the broader field of plant science.

By nature, plant breeders are inquisitive, highly motivated and often unable to resist the urge to delve into small, quirky or peripheral projects.

Sometimes, the 20 percent they allocate to minor interests will simply add to their understanding of plant breeding and crop science in general.

Other times, their efforts will result in relevant discoveries that could have a significant impact on the province's farm economy.

Last April, CDC Origin, a spelt variety developed by the centre's full-time wheat breeder Pierre Hucl, was registered for commercial production by the Canadian Food Inspection Agency.

Spelt is a tall strawed, ancient cereal crop that is grown by only a handful of Saskatchewan producers each year.

For organic growers, the commercialization of new spelt varieties could have a significant impact.

Spelt is well suited to organic production because it covers the ground quickly, has an aggressive root system and competes well against weeds.

Hucl is also one of few canaryseed breeders in the world. He and CDC technicians recently developed the first variety of hairless canaryseed.

Traditional canaryseed varieties are covered in tiny hairs that can cause severe irritation and itching.

Murrell said the development of hairless varieties has revolutionized production and handling throughout the canaryseed industry.

Hucl is also working with the Canaryseed Development Commission to gain Health Canada approval for canaryseed as a human food.

"That's huge," said Murrell. "It's a small crop in the world but (the development of hairless varieties) made a huge difference for Saskatchewan growers. These are small things and yet they're very significant to a portion of our farm community."

Other CDC plant breeders have helped develop small but lucrative niche markets by making minor changes to major crops like barley and oats.

Oat and barley breeder Brian Rossnagel has dedicated part of his 20 percent sideline to the development of crops such as food barley, high beta glucan oats and low-phytate malting barley.

Beta glucan is a soluble fibre derived from oats, barley and other crops.

Food that is high in beta glucan can reduce cholesterol and lower blood sugar levels in diabetics.

The development of oat and barley varieties with elevated beta glucan levels could allow prairie producers to supply small amounts of high value grain to specialty food manufacturers that service niche markets.

Low phytate barley improves fermentation and reduces the need for mineral supplementation in the brewing process.

"It's not just about developing new varieties in the known crops but starting up new industries, opening up new markets and always trying to look ahead," Murrell said.

"The CDC's … hulless high beta glucan food barley varieties are 10 years ahead of their time.

"Now they've got a heart health claim on barley in the (United) States and we will have one in Canada very soon. His (Rossnagel's) varieties preceded that so he's provided the platform for … future markets.

"These are significant developments for Saskatchewan."

—CROSS

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WILLIAM DEKAY PHOTO

Research technician Chandra Bandara is crossing lentils to make new breeding lines for screening and potential varietal development. The release of new lentil lines by CDC lentil breeders Al Slinkard and Bert Vandenberg helped to expand Saskatchewan's lentil acreage to more than 2.3 million acres in 2009.

Among those scientists would be two plant breeders, two crop scientists, a cereal chemist and a plant physiologist.

Today, professional and technical staff at the CDC has grown to roughly 120 people and the CDC's annual budget exceeds $11 million.

Of that amount, about $2.5 million comes directly from the Saskatchewan Ministry of Agriculture as base funding for salaries and operating costs.

Dorothy Murrell, the CDC's current managing director, says at $11 million a year, the CDC provides an outstanding return on investment.

Studies done by U of S economists indicate a return on investment of between 13 and 27 percent to farmers based on their checkoff dollar investment in plant breeding.

Since the mid 1970s, the CDC has released more than 345 crop varieties, many of which went on to become dominant varieties in Saskatchewan and Western Canada.

For example, CDC flax varieties such as Vimy and CDC Bethune were largely responsible for the three-fold increase in flax acreage that occurred in Saskatchewan since the early 1970s, say sources within the industry.

Vimy, which was developed by Rowland and released in 1986, was the first flax variety developed specifically for Saskatchewan and farmers took note of its performance immediately.

In the late 1980s, when drought persisted over much of the province, Vimy fared remarkably well, impressing seed growers with its surprisingly high yields, good seed quality and outstanding drought tolerance.

"I think the large seed size allowed it to take up more moisture and it did very well under dry conditions," said Rowland.

"It seemed that it was really well adapted to Saskatchewan conditions, especially southern Saskatchewan. That was when we started to see the acreage of flax increasing in Saskatchewan."

Today, about 80 percent of Canada's flax acres are seeded in Saskatchewan and the majority of those acres are planted to CDC varieties.

Harrington barley, a CDC malting variety, is widely regarded as one of the CDC's most successful cereal varieties.

Released in 1981, Harrington quickly became recognized by growers, maltsters and brewers for its outstanding agronomics, high yield potential and exceptional brewing characteristics.

In the words of Murrell, it was a "sea change in the malting quality of prairie barley."

Within a few years of its release, Harrington took over as the dominant malting variety in Western Canada and at the height of its popularity in 1991, it was planted on 4.7 million acres across the West.

Over the past three decades, Harrington has been sown on an estimated 60 million acres, producing roughly three billion bushels at an estimated value of more than $15 billion.

Winter wheat varieties released by the CDC have likewise formed the backbone of the winter wheat industry growth.

CDC varieties including CDC Falcon and CDC Buteo continue to be grown on more than 60 percent of winter wheat acres across western Canada.

Impressive as the CDC's other accomplishments were, many have argued that its greatest impact stemmed from its ground-breaking work on pulse crops.

Throughout the 1970s, production of pulses was virtually non-existent in Saskatchewan.

According to statistics compiled by Saskatchewan Agriculture in 1976-77, chickpea acreage was too small to be recorded, lentil acreage was negligible and pea acreage was estimated at 15,000 acres.

That all started to change when CDC pulse breeder Al Slinkard began developing new pulse lines that were adapted specifically to Saskatchewan's growing conditions.

Slinkard, who is widely recognized as the founding father of Canada's billion-dollar pulse industry, was one of the first six scientists hired by the newly formed CDC.

Born in Washington and recruited from the University of Idaho, Slinkard brought a wealth of knowledge to the CDC and immediately began promoting pulse crops as a feasible cropping alternative to the province's farmers.

By the late 1970s, he had released two seminal lentil varieties, Laird and Eston.

Almost as quickly as certified seed became available, lentil acreage took off in the province, increasing from 85,000 acres in 1981, to nearly 450,000 acres a decade later.

By the early 1990s, Laird was the most widely grown and widely recognized lentil variety in the world, according to the Saskatchewan Agricultural Hall of Fame.

Slinkard's first lentil release helped Canada to surpass Turkey and the United States as the top supplier of green lentils to key markets in Latin America and the Mediterranean.

By 2009, about 30 years after Slinkard's first pulse varieties became widely available to commercial growers, Saskatchewan's lentil acreage had grown to more than 2.3 million acres.

Acreage for peas and chickpeas also showed a dramatic increase with peas reaching an estimated 3.2 million acres in 2008 and chickpea acreage peaking at 1.1 million acres in 2001.

Today, according to the Saskatchewan Pulse Growers, the province's farmers produce about 99 percent of Canada's lentils, 99 percent of chickpeas and 80 percent of peas.

In 2009, farm cash receipts generated in Canada from the sale of pulses were estimated at more than $1.7 billion.

Although the full economic impact of the CDC's work will probably never be known, Simpson agreed that its pulse program changed the face of prairie agriculture forever.

"The CDC has left its mark in all kinds of areas," Simpson said.

"Economically, the impact would be significant if you add up all the dollars and cents that have been brought into the province through different breeding efforts and different people.

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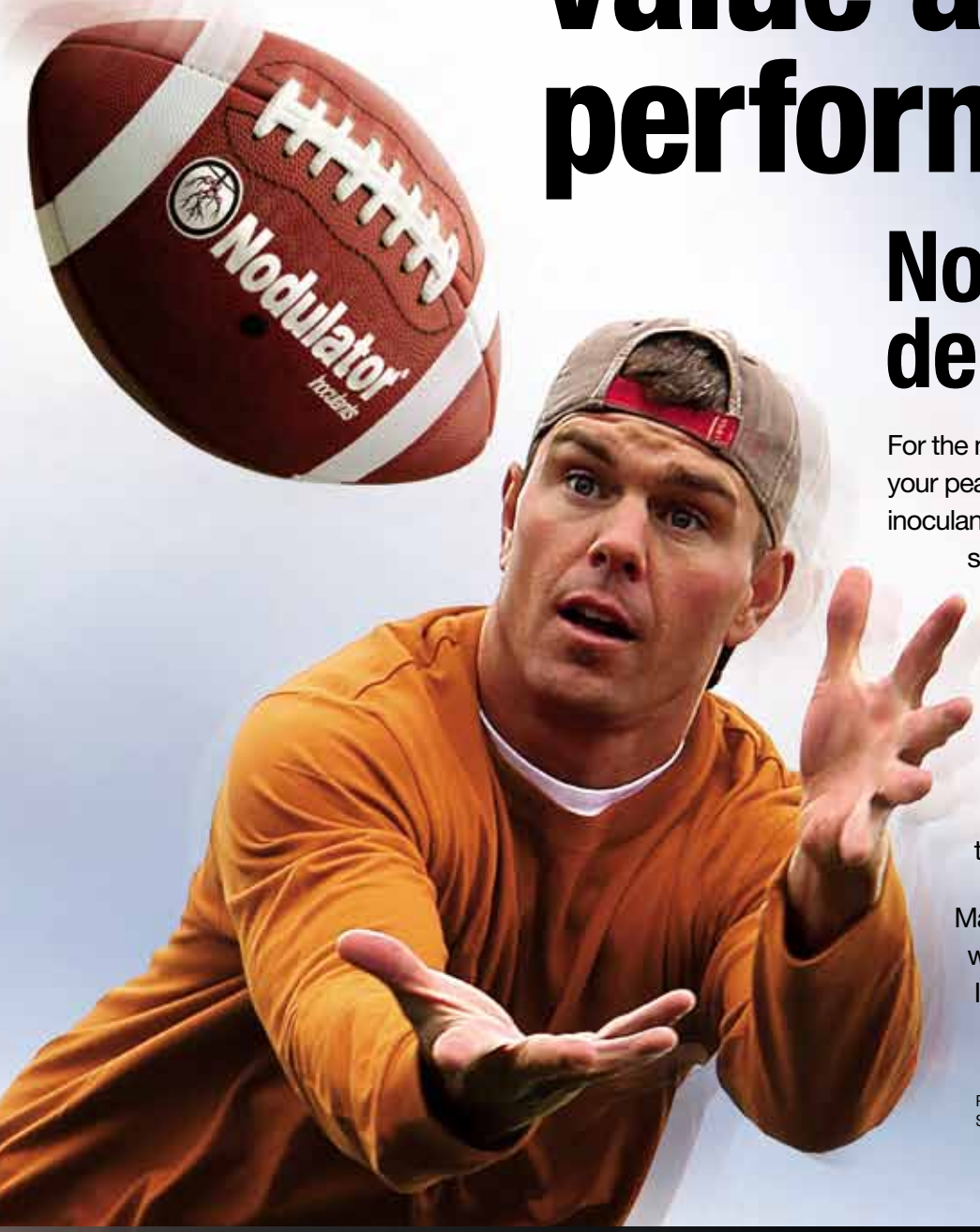

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"But in my view, Al Slinkard was the CDC's best bet," he said.

"He brought more money into the province than everyone else put together."

Brian Rossnagel, who joined the CDC as barley and oat breeder in 1977, agreed that introduction of pulses changed the province's crop sector dramatically.

Commercial production of pulses, along with the development and growth of the oilseed industry, particularly canola, afforded farmers even greater rotational flexibility.

Together, the new crops laid the groundwork for a huge reduction in summerfallow acreage and boosted farm incomes by increasing annual production and allowing producers to choose from a greater variety of crops.

"When I came to Saskatchewan … the most common crop rotation was wheat, oats, barley and summerfallow," said Rossnagel.

"Now, rotations … are oilseeds, pulses and cereals. Barley used to be a rotation crop, oats used to be a rotation crop, wheat used to be a rotation crop. Now they're not. They're a rotation group … and within that group, when the farmer sits down and does his penciling in the spring and decides what to plant … he can look at the economics of each crop within the cereal group…."

Rossnagel said the growth of the CDC over the past 40 years and the continued support it has received from growers, government and industry stands as proof that its work is widely recognized and valued.

"It's quite impressive actually, that consecutive governments, regardless of their political stripes, … have continued to support the CDC to varying degrees, since its inception," he said.

"It tells me that we're doing the right thing."

He also stressed the importance of ongoing partnerships with the province's commercial grain growers and private sector partners.

Quaker Oats, for example, has been supporting the CDC's oat breeding program for almost 40 consecutive years.

When Rossnagel arrived at the CDC in the early 1970s, Quaker's annual funding was $5,000.

Today, the company's contribution to the CDC oat breeding program has increased significantly.

Rossnagel suggested that Quaker's support and the work it financed was one of the major reasons behind the re-emergence of oats as a viable cropping option.

In the early 1970s, the farmgate value of Saskatchewan's oat crop was estimated at less than $60 million.

By 2007, sales exceeded $400 million.

Farmer contributions, through the establishment of production checkoffs, were even more significant.

The Western Grains Research Foundation, for example, has been supporting the CDC's wheat and barley breeding programs for more than 25 years.

WILLIAM DEKAY PHOTO

Connie Briggs, research officer and lab manager at the University of Saskatchewan's Grains Innovation Lab takes experimental French bread out of the oven. Before any line of CDC bread wheat is registered, Briggs mills it, bakes it and assesses bread for loaf volume, appearance and internal crumb structure.

Through WGRF checkoffs, the foundation has contributed $13.2 million over the last 16 years to CDC breeding efforts, said WGRF communications manager Mike Espeseth.

The WGRF's Endowment Fund has contributed another $4.5 million to CDC breeding programs.

Pierre Hucl, the CDC's full-time spring wheat breeder since 1990, said funding through WGRF check offs came at a time when wheat breeding initiatives across Western Canada were under considerable strain.

In the late 1980s and early 90s, breeders in the West were facing a host of new challenges related to pests such as the wheat midge and cereal diseases including fusarium head blight and new strains of stripe rust.

"Without the WGRF, I think spring wheat would have been under tremendous pressure in terms of remaining a viable crop," Hucl said.

Stable funding through the WGRF and other sources has helped the CDC's wheat program accumulate resources and build a solid infrastructure, he added.

"I think the program has reached a critical mass … that allows us to release new varieties at a fairly reasonable pace."

"We've been breeding spring wheat here (at the University of Saskatchewan) since (the 1920s) and there were probably about three varieties, maybe four varieties, released between about 1935 and 1990," he continued.

"Since 1990 we've released… (22) spring wheat varieties."

Prior to the 1970s, the federal government was the only institution involved in wheat breeding in the West.

"The federal government is still very involved in wheat and is very dominant in wheat compared to other commodities but now there are other entities, including ourselves involved, and I think that's been a positive development," Hucl said.

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"For a huge commodity like wheat to have only one entity responsible for making all the breeding decisions, I don't think that (would be an ideal scenario)."

The CDC also has a productive durum and high-yielding wheat program, with two new varieties recently released by plant breeder Curtis Pozniak.

As well, a cereals and flax pathologist is being hired.

For the province's pulse industry, the CDC's ongoing partnership with Saskatchewan Pulse Growers has been invaluable, added CDC pea breeder Tom Warkentin.

In that arrangement, the pulse growers use producer checkoff dollars to support the CDC's pulse breeding program and in return, their association receives exclusive global distribution rights for all new varieties released by the CDC.

According to Warkentin, the funding arrangement has benefited growers and the CDC alike.

When Warkentin joined the CDC in 1999, he and Bert Vandenberg shared all pulse breeding duties, with Warkentin focusing on peas and chickpeas and Vandenberg working on lentils and beans.

Since then, the pulse program has added two more breeders, Bunyamin Tar'an and Kirstin Bett, and a pulse pathologist, Sabine Banniza, and now has a breeder dedicated to each crop type.

SPG funding was the key to that expansion.

"I think it's been an excellent relationship," said Warkentin.

"They provide us with long-term funding so that we can hire enough people to run fairly large breeding programs on these crops and in exchange, we know immediately where our varieties are going.

"I think we have a very efficient system for commercializing new varieties from all of our breeding programs," said Murrell. She added that the commercial success of CDC varieties has helped it build a solid reputation among all funding partners, including the province's primary producers.

"I believe we have an excellent reputation here for output and that helps us to attract funding," she said.

"If you break down our funding from different sectors, it is about 40 percent public sector, 40 percent farm organizations and 20 percent private sector.

"Of late, grower groups have shown even more interest in working with us … and I think that's a very good sign for us … I would suggest that it shows that we are providing them good value for their investment and that our work is very important to them."

The CDC's strong track record has also borne positive results in other areas.

According to Murrell, the CDC's tradition of excellence has assisted in the recruitment of new scientists who understand the industry, recognize the needs of farmers and are committed to educating a new generation of crop scientists.

Although the CDC is primarily recognized as a plant breeding institute, Murrell said that student education and extension work with the province's farmers are critical components of the CDC's mandate.

"We are an educational institution and most of our scientists … are heavily involved in undergraduate and graduate student education … so in addition to their ongoing plant breeding and scientific work, they're also committed to developing that cadre of new plant breeders and new molecular biologists and new agronomists," she said.

"Another important parameter of the job description here for our scientists is extension work … so that direct linkage with farmers really helps to shape our program and shapes our breeding goals," she continued.

"I think it's absolutely critical that we always make sure that our breeding objectives are meeting the needs of farmers and agri-industry and that we're doing our very best to provide that genetic improvement on an ongoing basis. To that end, we are in the process of developing new genomics-based understanding to provide us a strong technical platform across all our breeding programs, which will lead to breeding efficiencies now and into the future."

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Midge resistant wheat varieties performed well in Saskatchewan in 2010 but certified seed growers say supplies could be tight in some regions. In areas where midge pressure is high, planting midge resistant wheat varieties can reduce production costs by eliminating the need to spray. In 2006, midge related losses in Western Canada were estimated at $40 million.

Prairie growers impressed with midge tolerant wheat

By Heidi Dancho
Freelance writer

Industry stresses the importance of honouring stewardship agreements

DESPITE AN UNUSUALLY tough growing season in 2010, farmers are offering positive feedback on the performance of new midge-tolerant wheat varieties that made their commercial debut across Western Canada last year.

Randy Cay, a farmer and seed grower from Kinistino, Sask., in the province's northeast, said he was pleased with the yield and quality of the midge tolerant wheat he harvested last fall.

Cay, who grows wheat, barley, canola and peas on roughly 5,500 acres, planted AC Goodeve VB on more than 800 acres last year – almost his entire wheat crop.

After dealing with high midge pressure for several years, the decision to plant a midge tolerant variety offered peace of mind and agronomic benefits.

"We've been in a bad midge area over the years, so not having to worry about the challenges of determining proper thresholds and insecticide application timing … was a definite advantage," said Cay, who sprayed almost every acre of wheat he planted for the previous three years.

In one field that wasn't sprayed a few years ago, Cay recalls losing one grade and about 10 bushels per acre to midge damage.

"This year we were very satisfied with the yield and quality – all grading No. 2," he said.

"Plus, these new varieties offer great agronomic traits, and would be good varieties of wheat to grow even if they didn't have the midge tolerance built in."

Dave Cook, another Kinistino area farmer, also embraced the midge tolerant technology.

"After spending about $50,000 on midge spray last year, we decided to grow midge tolerant wheat wall to wall (in 2010)," said Cook, who planted more than 3,000 acres to Goodeve VB.

"We're really pleased with the quality and yield of this variety. All our earlier seeded fields graded No. 1 with an average14.2 percent protein." Cook said Goodeve offers a good agronomic package, including shorter straw height and better standability.

Those traits are particularly appealing to farmers who prefer straight combining.

"The best benefit for me is that I didn't spray for midge. I didn't even look this year," Cook said.

"I had confidence in the midge tolerant technology to do the job and it did."

Development of midge tolerant wheats began in 1996 when genetic resistance was detected in a few soft winter wheat varieties.

By 2002, scientists in Winnipeg had isolated a single gene that confers resistance, Sm1.

Last year, new wheat varieties that contain the Sm1 gene were made available as certified seed to commercial grain producers in Western Canada.

Overall acreage was small but industry experts expect to see steady uptake over the next few years.

The Sm1 gene spurs the development of naturally occurring organic acids in wheat kernels.

The higher acid levels cause midge larvae to stop feeding. Eventually they starve.

To preserve the efficacy of the Sm1 gene, plant breeders are using a strategy known as an interspersed refuge system.

In such a system, midge tolerant wheat is sold as a varietal blend, which contains 90 percent midge tolerant seeds.

The remaining 10 percent, known as the refuge variety, is susceptible to midge damage.

If a midge tolerant variety was grown without a refuge variety in a pure midge-tolerant stand, most midge would perish but a few would survive.

The insects that survive would carry a mutation that would eventually be bred into other surviving insects.

Known as a virulent midge, the surviving midge population would mate, multiply and eventually build up a large virulent population.

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However, when farmers plant a the 90:10 blend, non-virulent midge will survive on the susceptible plants and mate with virulent midge.

The offspring will be non-virulent.

By employing this strategy, the life of the midge tolerant Sm1 gene can be extended by nearly 80 years.

To protect the midge tolerant technology, the wheat industry has drafted a stewardship agreement that must be honoured by all commercial growers who buy the seed.

"Maintaining the interspersed refuge system is an important part of preserving this technology," said Cay.

"The stewardship agreement is a simple, effective way to do that."

Farmers planting midge tolerant wheat in 2011 will again be required to sign a Midge Tolerant Wheat Stewardship Agreement, which limits the use of farm-saved seed to one generation past certified seed.

This is considered critical to ensuring that the refuge remains at the desired level.

The proportion of refuge seeds in farm-saved seed stocks can change substantially over multiple generations.

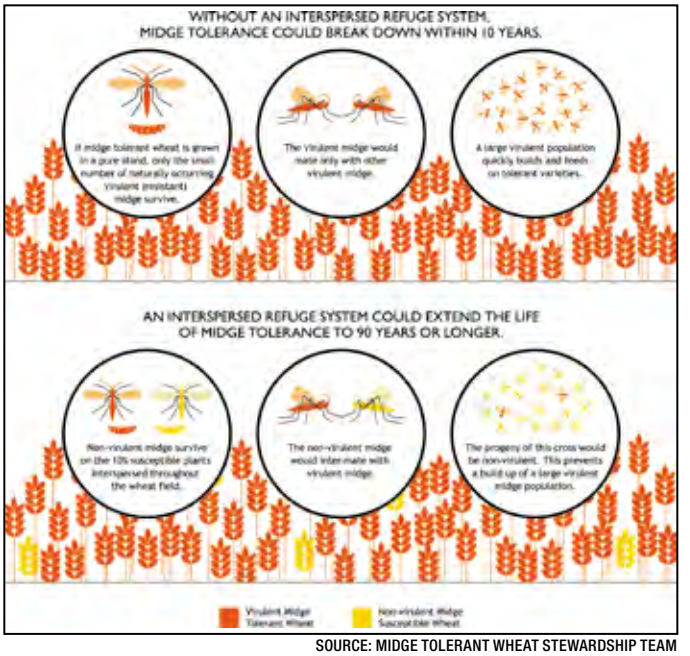
"If this is going to preserve the midge tolerant technology, then it's definitely worth it," said Cook.

Producers who plant farm-saved seed for more than one generation are subject to fines of $100 per acre for each unauthorized acre sown.

All stewardship agreements will be sent to a central office. Follow-ups may be conducted after two years and future purchases can be tracked.

Random and targeted audits can also be performed.

Farmers who want to learn more about stewardship agreements or new midge tolerant varieties can visit *www.midgetolerantwheat.ca.*



SOURCE: MIDGE TOLERANT WHEAT STEWARDSHIP TEAM

The wheat midge, a tiny six-legged fly that measures three millimetres in length, can cause significant economic losses.

In 2006, midge related losses in Western Canada were estimated at $40 million.

Insecticides can increase production costs by as much as $20 per acre.

WET SUMMER BOOSTS DISEASE LEVELS

Farmers encouraged to test farm-saved seed

UNUSUALLY WET WEATHER during the past growing season is showing up in grain samples as increased levels of fusarium, septoria, botrytis, anthracnose, ascochyta and sclerotinia.

Bruce Carriere, owner of Discovery Seed Labs in Saskatoon, says prevalence of common diseases is higher than normal in grain samples examined so far.

Fusarium levels are particularly high and have been showing up in samples from areas that are not usually prone to the disease.

"By fusarium I'm talking total fusarium, not just fusarium graminearum," said Carriere.

There are 34 different species of fusarium normally found in the western provinces.

Fusarium graminearum, the one most commonly associated with harmful vomitoxins, has been moving westward across Saskatchewan for the past seven or eight years.

This year, the disease moved west at a more rapid pace, presumably due to the unusually wet weather.

And to make matters worse, a new chemotype of fusarium graminearum is showing up in more samples and at greater levels. (Please see story on Page 30)

While the remaining 33 species of fusarium don't produce toxins, they do cause seedling blights and root rots, Carriere added.

"Those numbers of total fusarium are all highly elevated this year no matter which part of the province you go to."

In addition to elevated fusarium levels, Barry Little at 20-20 labs in Edmonton is reporting high levels of septoria leaf blotch.

Septoria causes shrivelled kernels in cereal crops. It mainly affects spring wheat but is also a concern in durum, barley and oats.

Caused by wet conditions, septoria typically shows up at low rates. This year it is much more prevalent, said Little.

Carriere described botrytis levels in pulses as "extremely high," and added that anthracnose levels are probably more prevalent this year because the disease affected crops later in the growing season.

"Levels are still under that two percent average but we're seeing it on a wider range of samples," he said.

"While sclerotinia is always sort of there, it's not usually on a level that causes any harm," Little added.

"But we're seeing much higher levels this year, especially in lentils."

Sclerotinia affects the root system of pulse crops, eventually causing the base of plant to turn brown and rotten.

Plants initially turn yellow and infected areas later become bleached and shredded.

The bases of some infected plants may have white mould growing on them.

Sclerotinia is showing up in more canola samples too.

This may be related to increased infection levels in pulses, Little said.

"When you have two crops that share a potential disease problem, then it's much harder to control with crop rotation."

Little is also seeing increased levels of ascochyta in pulse samples, up from about 40 percent of samples in a normal year to almost 90 percent of samples tested in late 2010.

He advised producers to put extra thought into seed treatments and judicious rotations in 2011. He also warned growers that not all seed treatments are created equally.

"Being a seed lab, we would like people to be testing for these diseases because certain seed treatments have a better control of certain diseases than others do"

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Foundation shapes the future of research

By Barb Grinder
Freelance writer

The Western Grains Research Foundation lists key areas for agricultural research

A NEW PROCESS for allocating research grants is in the works at the Western Grains Research Foundation.

Officials say a portion of the foundation's endowment fund earnings will be allocated under a new directed research program.

A committee comprised of WGRF board members and representatives from producer groups, research institutions and other industry stakeholders have identified six areas in which research is critically needed.

The six categories are:

- Breeding tools, including breeding methodology, processes, markers, genomics and other developments to advance the tools that breeders work with.
- Post-harvest handling of crops to address problems that affect crop quality and create market access issues.
- Identification and development of opportunities for new crop types and finding new ways to use existing crops to meet market demands for feed, health and nutritional products, biofuels and other non-food uses.
- Development of new methods and the coordination of existing activities pertaining to weather surveillance and monitoring diseases, insects and weeds.
- Enhanced testing for fusarium head blight and DON mycotoxins. This category is increasingly important, as fusarium continues to advance across the western grain belt.
- Key aspects of agronomic research, such as the use of a whole farm approach that focuses on production and profitability, the impacts of fertilizer and fungicide application, crop sequencing, and seeding rates for different agro-ecological zones in Western Canada.

Under the research program, maximum funding will be limited to $500,000 per year for a maximum of five years per proposal. Funding for individual projects could be renewed or extended based on satisfactory progress.

The funds allocated will come from interest earnings from the WGRF Endowment Fund.

Spending targets will be reviewed annually and adjusted based on those earnings. Plans are to increase the level of funding for directed research to a projected $2.5 million annually by 2015.

A small portion of the endowment fund principal may also be used if board members feel it is necessary.

FILE PHOTO

Research grants provided through the WGRF's directed research program will focus on key areas such as plant breeding, post-harvest grain handling, market expansion and crop utilization, and improved monitoring systems to assist in the management of weeds, insects and crop diseases. Plant breeders such as Jim Helm, shown here in growth rooms at Lacombe, Alta., will benefit from the WGRF funding. Helm and his colleagues have developed dozens of barley and triticale varieties at the Agriculture Canada Cereal Research Centre in Lacombe, Alta.

However, a solid base level of principal will be retained to ensure research projects can be funded for years to come.

Project reporting will be required for all initiatives. This will ensure that research results and other information can be made available to producers and industry stakeholders in a timely fashion.

Last summer, WGRF invited organizations to submit proposals for projects that address specific issues in the first three categories.

The foundation received more than 40 requests for funding.

Mike Espeseth, WGRF communications coordinator, said in late November that the foundation was hoping to announce its decisions by the end of 2010 and have the research agreements negotiated early in 2011.

He said the remaining three categories will require more investigation before requests for proposals are announced.

The foundation's current project application process will continue, he added.

Funding through existing WGRF mechanisms is expected to rise to $825,000 annually by 2015.

The WGRF was created in 1981 by several farm organizations in conjunction with Agriculture Canada.

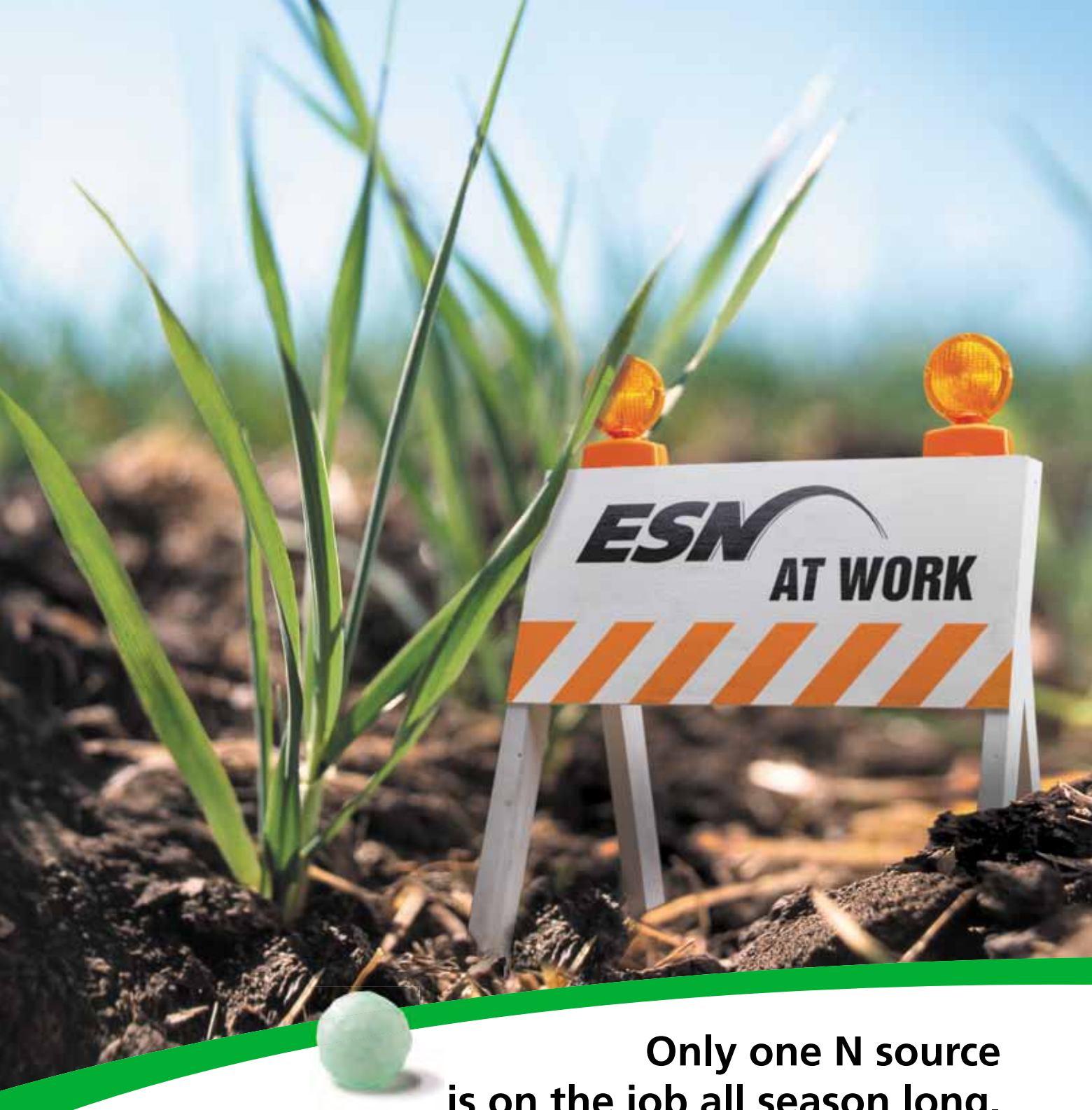
At the time, the foundation was mandated to administer a $9 million fund that was transferred by Ottawa from the discontinued Prairie Farm Assistance Act.

Since that time, annual earnings from the fund have been invested in crop research projects, with more than $20 million used to fund more than 200 projects.

In 2000, the federal government designated the WGRF to receive the excess funds from the railway freight revenue cap.

In 2008, the organization received a one-time increase of $67 million from the 2007-08 crop year.

In the last two years, the fund has been used to support a variety of research projects including the development of DNA markers to identify sources of resistance to the UG99 rust strain in durum and bread wheat, a prairie-wide assessment of the pathogens that cause net blotch of barley, research aimed at reducing root maggot damage to prairie canola, and a project that evaluates fusarium severity and mycototoxin prevalence in commercial oat fields in Saskatchewan.



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Fusarium threat
increasing in Western Canada

Tighter grading tolerances possible for fusarium damaged kernels

WP FILE PHOTO

Agriculture Canada researcher Kelly Turkington is part of a team studying the increased prevalence of 3ADON, a new strain of F. Graminearum that is causing fusarium head blight in prairie cereal crops. Studies funded by the Western Grains Research Foundation suggest the new strain is becoming more common in Saskatchewan and could result in higher toxicity levels in prairie grain samples.

By Barb Grinder
Freelance writer

RESEARCH BEING conducted by Canadian and American scientists suggests that a different strain of Fusarium graminearum, the principal causal agent of fusarium head blight, has the potential to cause more economic damage to the Canadian grain industry.

The disease has been already been shown to cause yield losses of up to 45 percent in some grain crops.

Now, a new strain of F. graminearum is forcing the Canadian Grain Commission to monitor toxicity levels more closely and tighten grading tolerances for fusarium damaged kernels.

Fusarium head blight, or FHB, affects grain yield and grade and may also contaminate the grain with mycotoxins.

Mycotoxins are toxic substances produced by fungi or moulds.

Plants infected with FHB often have visible damage to their spikes, recognized in the field by premature bleaching and the presence of orange, spore-bearing structures.

During wet weather, a white or pink, fluffy fungal growth may also appear on infected heads.

However, infected seeds don't always show visible symptoms and non-symptomatic seeds usually outnumber visibly damaged kernels by a considerable margin.

Scientists have identified a diverse group of pathogens that cause FHB.

Research has indicated that one strain, known as the 15ADON chemotype, was the principal agent of the disease in North America.

However, recent studies have revealed that a different chemotype, 3ADON, can also cause the disease.

The new chemotype is increasingly prevalent and appears to grow faster and produce more spores than 15ADON.

It also produces about twice as much of a key mycotoxin called deoxynivalenol or DON.

DON reduces livestock feed intake and may act as an immune system suppressant in livestock.

This mycotoxin resists decomposition and is not broken down during digestion.

As a result, it remains in the food chain in meat and dairy products. Even cooking and freezing doesn't destroy it.

"Our research on the 3ADON chemotype in North America dates back to 1998," said Randy Clear, a recently retired mycologist with the Canadian Grain Commission in Winnipeg.

Together, Clear and Todd Ward, a geneticist with the United States Department of Agriculture in Peoria, Illinois, conducted a study that looked at chemotype changes in the Canadian F. graminearum population from the previous five years.

The study found significant geographic variations related to the different chemotypes.

The 3ADON chemotype was undetected in western Canada until 1998, when it was first found in Manitoba.

In 2004, fusarium-damaged kernels (FDK) infected by the 3ADON chemotype were detected at a rate of six percent in Alberta, 11 percent in Saskatchewan, 31 percent in Manitoba, 50 percent in Quebec, and 100 percent in Prince Edward Island.

Based on these results, the Western Grains Research Foundation Endowment Fund helped sponsor a second project, initiated in 2006, to assess the spread of the 3ADON chemotype.

The study looked at whether there was recombination between the 3ADON and 15ADON chemotypes.

It also examined the virulence of the 3ADON strain, its spore production capacity and its sensitivity to fungicidal treatment.

Clear and a research team that included Ward, USDA colleague Kerry O'Donnell, Agriculture Canada scientists Kelly Turkington, Jeannie Gilbert and Andy Tekauz and Canadian Grain Commission scientists Don Gaba and Tom Nowicki, looked at F. graminearum isolates in grain samples collected from the country's 2005 to 2007 harvests.

The team found that the prevalence of the 3ADON chemotype had increased significantly.

It also showed a faster growth rate and produced greater numbers of macroconidia or infected rain-dispersed spores.

In Saskatchewan, 3ADON was detected in approximately one third of the samples.

Clear said Saskatchewan data in the 2005-2007 study was influenced by moisture levels, but the team is also looking for other causes.

"The continuing low levels in Ontario wheat (about 10 percent) are especially difficult to explain," he noted.

"One theory presently being tested is that the 15ADON chemotype is better suited to corn

than the 3ADON chemotype. Thus, the large role that corn plays in the disease cycle of the pathogen in Ontario may be favouring the 15ADON chemotype over the 3ADON."

Ward says the 3ADON population identified in Canada and in the northern U.S. is genetically distinct from the previously dominant 15ADON population.

"Our analyses, and those of USDA scientists at the Cereal Disease Laboratory in Minnesota, demonstrated that the 3ADON population is more closely related to populations from outside North America than it is to the 15ADON population in North America," he said.

"We're currently expanding these analyses to refine our understanding of the origin of the 3ADON population, but the data suggest the 3ADON population was first introduced into eastern portions of Canada or the U.S. and has subsequently spread to the Maritime provinces, western Canada and the U.S. Midwest.

"It probably existed in eastern Canada for at least 30 years, but wasn't identified."

Turkington said F. graminearum appears to be building in southern Alberta, though recent research suggests it's less frequently found in central and northern Alberta.

"Although cooler temperatures are probably a factor, one reason why it's less common in these areas may be related to the provincial recommendation that farmers only use cereal seed that's been tested."

Turkington, Clear and Ward also think the low levels of 3ADON in Alberta may be related to earlier research that showed F. graminearum becoming initially established in corn, which may have favoured the 15ADON strain over the 3ADON.

For grain farmers the findings of the research are worrisome.

Losses of more than $225 million annually are already attributed to FHB in Canada and that amount may rise as the 3ADON chemotype becomes more prevalent.

"The presence of DON severely limits grain marketing opportunities, both in Canada and for export. Currently, more than 100 countries, including the U.S., have regulations restricting these toxins," Clear said.

"Hogs are the most DON-sensitive livestock. Lower weight gain and reduced thriftiness are frequently attributed to DON contamination. Cattle and chickens are much more tolerant …."

In some countries there have been reports of DON toxicoses in humans who have consumed grain contaminated with high levels, Clear added.

Direct testing of DON on humans is not possible, but permissible levels are determined by Health Canada based on animal studies.

"One important aspect to consider is that most of our grain customers have limits for DON that we must meet if we are to sell to them," he said.

Research suggests that hog rations containing one part per million (ppm) of DON will result in some degree of feed refusal.

At 10 to 20 ppm, complete feed refusal may occur. Vomiting is possible at levels higher than 20 ppm.

Weanling pigs are most susceptible and may exhibit feed refusal at concentrations of less than one ppm.

The Agriculture Canada guidelines for dairy cattle and swine are one ppm while thresholds for beef cattle, sheep and poultry are five ppm.

Based on data collection and consultation with industry and producer groups, grading tolerances for fusarium damaged kernels, or FDK, have been established in Canada.

A key aspect of the grade tolerances is the DON to FDK ratio.

Should DON levels rise for a given level of FDK, there would be pressure to lower the FDK tolerance to ensure the exported grain doesn't exceed the DON limits of the importing countries.

This occurred recently causing the CGC to adjust its grading tolerances for FDK in a few wheat classes.

Preliminary surveys suggest disease levels were higher than normal in 2010 and additional changes to grading tolerances may be made as more becomes known about infestations.

Details on allowable levels of FDK at primary elevators are available from the CGC website at *http://www.grainscanada.gc.ca/guides-guides/don/don-2-eng.htm*

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Bag storage research limited, says expert

Grain bags are an economical storage option but there are unanswered questions surrounding performance and disposal

FILE PHOTO

Saskatchewan grain growers use about 12,000 to 16,000 polyethylene grain bags each year. Producers say the bags provide an effective form of temporary storage that reduces grain losses and wildlife damage. Others say the bags' performance when storing tough grain has not been adequately studied.

By Darlene Polachic
Freelance writer

A FEW YEARS AGO, the sight of gigantic white sausages laying in prairie fields might have stopped traffic. But not today.

According to information from Saskatchewan's environment ministry, the province's grain growers use 12,000 to 16,000 disposable, white plastic grain bags each year.

The bags, made of laminated, UV-protected polyethylene, are considered an affordable method of temporary grain storage and are suitable for storing all types of grain.

They are 60 to 75 metres long, about three metres in diameter, and have a stretchability factor of about 10 percent.

Each bag can store 8,000 to 12,000 bushels.

With less than optimal harvest conditions in 2010, there are questions about the impact the bags could have on grain that was harvested tough or damp.

Digvir Jayas, a grain storage expert and professor at the University of Manitoba's department of biosystems, says bagged grain should be monitored.

"There's limited research on this for Canadian farmers," said Jayas, who is conducting a study on bag-stored canola.

"We don't have all the results in yet from our own study, but my gut feeling is that canola with 14 percent moisture content will spoil, but anything less than that should store all right.

"At 10 percent, some quality or germination might be lost, but I believe canola with eight percent moisture should last all year."

Jayas said there are discussions within the industry to do similar studies on wheat, barley and durum.

"These grain bags were designed to store dry grain for short durations," he said.

"There shouldn't be an issue if they're used for that purpose. But push the limits in any direction and there could be problems. If grain is stored wet, you're very liable to find a lot of mold damage or caked grain."

Problems with bag-stored grain arise because the bags are airtight.

"They don't breathe. Unlike conventional grain bins, which often are constructed to accommodate air flow and where grain can easily be turned if it starts to heat, grain in storage bags cannot dry unless the bag is ripped apart."

Jayas said grain that is two to three percent below standard dry thresholds should easily last up to six months in the bags.

"But if there is any sort of moisture problem in the grain, one would expect it to exist throughout the whole length," he added.

"As well, with the sun beating down, the daily temperature variations along the periphery of a nine-foot diameter bag would be quite large. In a bin, only the six to eight inches of grain nearest the walls is affected."

"With our canola study, we're taking samples from the top, bottom, middle and ends to measure temperature variations and to test for quality."

Jayas said melting snow on the surface of the bag could signify grain is heating.

Bonnie and Mark Bratrud of Bratrud Agriculture Commodities near Weyburn, Sask., have been using grain bags for excess wheat, canola and lentils for the past five years with good success.

"We have adequate permanent storage for average crops," Bonnie said.

"But the bags have worked well for temporary excess storage. We try to get them cleaned up before the snow comes."

The Bratruds have no experience with storing tough or damp grain in bags.

"We always make sure the grain we put in is dry," she said.

Rick Moule of 4M Farms near Yellow Grass, Sask., has had similar success.

He has used bags to store oats, durum and canola.

"It's certainly better than leaving piles of grain in the field," he said.

"The bags are easy to fill and easy to clean up. They are expensive, but in the past, I've lost a lot of piled grain to spoilage, and I've had to make sure it was all cleaned up by Christmas. With bags, I've had zero lost bushels, and have kept the grain until April with no trouble from wildlife.

"We always put the grain in dry, but neighbours had the experience of storing really tough wheat in bags," Moule added.

"It froze. Fortunately, they were able to chip it out, put it through an extractor and salvage much of it. I haven't heard of anyone who's lost grain stored in bags."

Jayas said bag storage has a few drawbacks.

One is disposability.

"They are not reusable," he said. "And at this point, they're not recyclable."

The weight of the bags, about 300 to 700 kilograms each, is a challenge for landfill operators and the Saskatchewan Clean Air Act prohibits the burning of plastic storage bags. According to the province, chemical reactions that occur during burning produce a variety of toxic substances that are detrimental to health and the environment.

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73 SERIES HYBRIDS

Producers advised to watch for septoria

By Shirley Byers
Freelance writer

SEPTORIA ISN'T A new plant disease but it was a new problem to some farmers in the soggy 2010 growing season.

Barry Little at 20/20 Seed Labs in Nisku, Alta., said moist, cool growing conditions in the summer of 2010 boosted septoria levels from about two percent to as high as 20 percent on wheat samples from across the Prairies.

The fungus is most likely to affect wheat. However, it can also attack durum and some strains or sub-species can affect barley, oats and other cereal crops.

When scouting fields for septoria, producers should look for a yellowish, brown discolouration on the leaves. Discolouration more frequently appears as blotches rather than stripes, Little said.

In advanced stages, the disease can also develop pycnidia, or visible black spores. Severely infected plants will produce shrivelled kernels.

Septoria spores can winter on stubble and straw from the previous crop.

The spores can survive at least one year so proper rotations are critical to breaking the disease cycle.

Infection can occur in as little as six hours if leaves are wet and temperatures are cool.

Within 10 to 20 days of infection, new spores will be produced.

They are capable of spreading by wind and rain to other plants, a process known as secondary infection. Under favourable conditions, secondary infections can continue throughout the summer.

"Symptoms are often not expressed until the plants begin to ripen," Little said.

"You'll see a splotch on the leaves and later on you'll see the shrivelled kernels."

The first step in managing septoria is treating seed, Little said.

Tillage can spread the disease but the impact of tillage varies.

"From what we've seen with wheat, a lot of people find they get better control with a lack of tillage under low-till conditions," Little said.

"We found with barley and the other cereals, there's better control with deep tillage – turning the soil over. I think basically we could chalk it up to the different sub-species particular to each type of cereal."

Fungicide applications reduce damage.

Little said producers should scout cereal crops and assess the degree of infection.

"If we're seeing 15, 10 or even five percent there's obviously economic damage being done. At that point you would benefit from some sort of fungicide application."

Cool, wet conditions caused an increase in leaf diseases and other diseases last year.

Little advised producers to arm themselves with as much information as possible and watch problem fields closely.

Producers who had noticeable problems last year should consider having a fungal screen done on cereals.

Little said septoria is commonly mistaken for fusarium.

"A lot of the fusarium damaged kernels are also shrivelled and a lighter white colour. We're finding some of the graders at elevators are calling it FDK (fusarium damaged kernels) when in fact it's septoria. The only way to find out for sure is to properly test it."

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Chickpea breeder caters to grower needs, consumer demands

By Brian Cross
Western Producer staff

Saskatchewan growers are concerned with maturity, yield, disease resistance and weed control while end users focus on size, colour and nutritional characteristics

SASKATCHEWAN'S CHICKPEA acreage has gone through tough times recently but that could soon change thanks to new earlier maturing varieties that offer higher yield potential and improved ascochyta resistance.

Bunyamin Tar'an, full time chickpea breeder at the University of Saskatchewan's crop development centre, says new kabuli varieties being developed at the CDC will reach maturity several days earlier than the most popular varieties being grown.

CDC Orion, which was released by the CDC in 2010, can reach maturity in 110 to 115 days.

That is a significant improvement over Frontier, the most popular variety in the province, which normally requires more than 120 days.

CDC Orion also offers improved ascochyta resistance and larger seed size.

Frontier seed is normally eight millimeters in diameter. Orion seed ranges from 10 to 11 mm.

Breeder seed for Orion has been distributed to Saskatchewan seed growers and foundation seed will be produced in 2011.

"Probably within the next three years, there will be some commercial certified seed available," said Tar'an.

Another CDC line likely to be released in 2011 has the potential to reduce days to maturity even further, he added.

According to Tar'an, efforts to expand and stabilize chickpea acreage in the province hinge on several factors.

Economically, the price of chickpeas has not fared well relative to other pulse crops, most notably lentils.

Many pulse growers looking to maximize profits and minimize production risks have been turning to lentils, a crop that has seen significant expansion over the past decade.

Since 2000, Saskatchewan's lentil production has ranged from 1.25 million acres in 2003 up to 2.35 million acres in 2009, according to Saskatchewan Agriculture statistics.

The latest production estimates released by Statistics Canada in December suggested 2010 acreage reached 3.3 million acres, easily the largest lentil acreage in western Canada's history.

By comparison, chickpea acreage, which peaked at 1.1 million acres in 2001, has fallen dramatically.

In 2009, Saskatchewan chickpea growers planted roughly 80,000 acres. Estimated 2010 production area was around 220,000 acres.

According to Tar'an, the recent reduction in chickpea acres was largely influenced by markets.

Internationally, kabuli markets are relatively small and competition has been increasing.

India, for example, has lifted export restrictions on kabuli chickpeas and growers there have responded by increasing production.

The influx of Indian crop has put downward pressure on international prices.

In 2001, when provincial chickpea acreage exceeded one million acres, top-quality eight millimetre chickpeas were fetching as much as 34 cents a pound. Within a year, prices had dropped to the 20- to 25-cent range, spurring a significant reduction in acreage.

WP PHOTO BY BRIAN CROSS

Bunyamin Tar'an, chickpea breeder at the University of Saskatchewan's Crop Development Centre, says improving the canning quality of Canadian chickpeas could help Saskatchewan growers gain a larger share of the world market. Here, Tar'an examines a sample of CDC Orion, a new early-maturing variety with improved seed size. The variety should be commercially available in three years.

In the past year, top quality kabulis have generally been trading in the 22- to 28-cent per pound range, although prices have spiked recently to as much as 34 cents because top quality chickpeas are hard to find.

By comparison, lentil prices have risen dramatically over the past 10 years.

Top quality Laird lentils that were fetching 15 cents a pound in 2000 have routinely traded in the 35- to 50-cent range over the past three years.

No. 1 large green lentil surpassed the 50-cent mark in early December.

Prices aside, Saskatchewan growers are approaching chickpeas cautiously because the crop is prone to ascochyta damage and takes more time to mature relative to other crops.

In addition, chickpea growers have limited options for controlling broadleaf weeds.

CDC breeders have identified chickpea germplasm that offers some resistance to Group 2 herbicides and are continuing work on developing Canada's first imidazolinone tolerant chickpea varieties.

Tar'an, who became the centre's full time chickpea breeder in 2006, said the secret to expanding and stabilizing chickpea acreage is to reduce production risks and develop varieties that produce crops of consistently high quality.

Developing varieties with unique end-use quality traits is another key consideration.

For example, varieties that have a seed size of 10 or 11 mm could qualify for premium markets because size is an important factor to some processors.

In addition, some consumers are likely to pay premiums for varieties that have a better nutritional profile such as higher levels of iron, zinc and selenium and other important micronutrients.

Tar'an said biofortification — improvements to a crop's nutritional characteristics — has emerged as a key strategy in CDC's pulse breeding programs.

Chickpeas are already recognized as an excellent source of plant protein, with levels typically in the 24 to 26 percent range.

They also enhance gut health and have a low glycemic index, making them an ideal source of carbohydrates for diabetics.

Foods with a high glycemic index are often associated with spikes in blood sugar levels.

Canning quality is another factor that could help to differentiate Canadian chickpeas from those produced in other parts of the world.

Issues such as clarity, clouding, seed breakage, seed size, brine quality and seed colour changes are important considerations for canning processors.

Tar'an tests all CDC kabuli lines for canning quality to determine which lines are most likely to meet or exceed end-user expectations.

"You always have to consider what the farmer wants as well as what the consumer wants," Tar'an said.

"Farmers want varieties that mature quickly and have improved ascochyta resistance but the yield has to be there as well. Consumers and processors are more concerned with seed size, colour, canning quality, those types of things.

"That's the dynamic that a breeder has to work with. You always have to look at what both sides want."

With the introduction of new improved varieties, Tar'an thinks Saskatchewan's chickpea acreage could eventually be expanded and sustained in the 600,000 to 800,000 acre range.

Chickpeas, which are relatively tolerant to drought and heat, are unlikely to gain significant acres outside province's semi-arid southwestern growing region, he added.

"I would be happy to see it at around 800,000."

The industry should be more concerned with producing high value, high quality crops rather than expanding acreage of low quality products, he said.

Although the vast majority of Saskatchewan's chickpea acreage is sown to kabuli varieties, the appeal of desi varieties has increased significantly over the past few years.

Traditionally, kabuli prices have been higher than desi prices but in recent years the gap has narrowed.

Today, the difference in price is about five or six cents a pound for top grades.

At the same time, the agronomic performance of desi varieties has improved significantly with the release of new varieties such as CDC Corinne, released in 2008.

Relative to Myles, the most common desi variety produced in the province, newer varieties such as CDC Corinne offer a 20 to 30 percent yield advantage.

That, combined with the reduced price differential between kabuli types and desi types should translate into an increase in desi acreage, said Tar'an.

So far, however, that hasn't been the case.

About 90 percent of the province's chickpea crop is planted to kabuli varieties.

Tar'an said increased production of desis could spur an expansion in domestic processing activities.

Much of the desi crop produced in Canada is exported and dehulled overseas into a product known as dal.

"The price of desis has been improving in the last few years but I don't see that translating into grower interest," Tar'an said.

"There's definitely an opportunity there because we have some good high yielding desi varieties available. We should produce them here and also do the processing here and export them as dal rather than export them as raw seed."

In pre-registration trials, some desi varieties have produced yields as high as 3,600 lb. per acre, Tar'an said.

Flax breeder responsible for Vimy, CDC Bethune to retire

By Brian Cross
Western Producer
staff

The future of flax lies in expansion of food markets and the development of new breeding tools, says flax expert

FILE PHOTO

Flax breeder Gordon Rowland uses special glasses to evaluate flax lines for relative maturity at the University of Saskatchewan's Kernan Farm. Rowland said the donation of the farm in 1977 contributed significantly to the success of the Crop Development Centre's flax breeding initiatives.

FLAX BREEDER GORDON Rowland has spent the better part of four decades sifting through thousands of flax lines to identify traits that could benefit flax growers and end-users.

But for the next few months, he'll be sifting through some different material — thousands of books, journals and papers that he's accumulated since joining the University of Saskatchewan's Crop Development Centre in 1972.

After nearly 39 years as the CDC's full-time flax breeder, Rowland has amassed a considerable library of material, most of which he'll be leaving behind when he formally retires from the centre this year.

"In this day and age, what to do with all that written material is a real question" said Rowland, one of six original scientists hired by the CDC when it was formed in the early 1970s.

"When I started, everything was published in books and journals and papers. Now, everything is electronic so even if I wanted to give most of this stuff away, I'm not even sure if anyone would take it ," he said.

"My job this winter will be to work at clearing out my office."

The move from paper files to electronic files is just one of the changes that Rowland has witnessed during his time at the CDC.

FLAX INDUSTRY TALKING TUFGEN

STAKEHOLDERS IN THE CANADIAN flax industry say the future of flax is closely tied to Tufgen, a program that will deliver new tools to flax breeders and assist with the development of better varieties.

Tufgen, also known as the Total Utilization Flax Genomics project, is aimed at expanding flax consumption by enhancing research and developing new genomics-based breeding tools.

Those tools will allow flax breeders to develop new flax varieties that produce seed and fibre with improved end-use qualities.

A central component of the project will involve the sequencing of the entire flax genome by Canadian researchers.

That will result in a variety of genomics-based resources, including genetic and physical maps outlining the position and relationship of specific genes on chromosomes.

The maps will greatly enhance plant screening activities. The tools will also be made available to the research community in hopes of fostering expanded flax research.

"I think the project is going to have a real impact on flax breeding because we are going to be developing these molecular tools that will allow us to select for improved traits within flax much earlier in the breeding cycle," said University of Saskatchewan flax breeder Gordon Rowland, a leader of the Tufgen project.

"We're just starting the second year of four years in the project and already a lot of the work proposed has either come to fruition or is coming along very rapidly."

Under the Tufgen project, a team of experts located across Canada will look for genes associated with the improvement of important flax properties such as oil content, oil quality and fibre quality.

A second team will be involved in data analysis and management. They will develop software that will be used to preserve and interpret the data.

The four-year, $12 million project received $5.65 million from Genome Canada and $1.2 million from Saskatchewan Agriculture.

Remaining funding will come from a variety of sources including the Saskatchewan Flax Development Commission.

Dorothy Murrell, managing director of the University of Saskatchewan's Crop Development Centre, said the development of new genomics-based breeding tools is critical to ensuring that Canadian producers have access to the best and newest plant varieties.

When the project was initiated in the fall of 2009, Linda Braun, executive director of the Saskatchewan Flax Development Commission, said a better understanding of the flax genome would enhance crop quality and increase production.

"If we ever want to increase (flax) acreage, we need to know a little bit more about its genomics," Braun said.

"… Flax has some unique ingredients. Through this project and gene discovery, we're going to see a lot of those unique ingredients…. We can breed for them and we can make flax very unique to a lot of different market areas around the globe."

— CROSS

Expansion of flax acreage is another.

When Rowland joined the CDC, Western Canada's flax acreage was relatively small and the majority of production was based in Manitoba. Saskatchewan acreage was normally around 500,000 acres.

One of Rowland's first tasks was to expand acreage and develop varieties that were specifically adapted to Saskatchewan's unique growing conditions.

Soon after arriving in Saskatoon, he began familiarizing himself with flax research and by 1974 a permanent breeding program was established.

"Until then, there hadn't been any flax breeding done in Saskatchewan since the 1950s," Rowland recalled.

"It (flax) has been a part of Saskatchewan's agriculture all along but until the 1980s, the crop had never really grown to the size that it had in Manitoba."

Manitoba's dominance in flax production in the 1970s was related to the fact that most of the widely-grown varieties were developed there and were not well adapted to Saskatchewan conditions.

Before the release of the first CDC varieties in the mid 1980s, Agriculture Canada flax breeders in Morden, Winnipeg and Ottawa were responsible for most of the varieties grown in the West.

Saskatchewan growers had some success using those varieties but the industry recognized a need for new ones that were better suited to Saskatchewan.

Around the same time, a new strain of flax rust known as race 371 was beginning to have a significant impact on the industry, Rowland said.

Most of the major commercial varieties had to be discarded because of their extreme susceptibility.

According to Rowland, Agriculture Canada flax breeder Ed Kenaschuk in Morden had material that offered good resistance to the new rust strain.

That material eventually produced Dufferin, an Agriculture Canada variety that offered a significant improvement in rust resistance.

The CDC's first flax release, Vimy, was entirely bred at the centre would eventually lead to a significant expansion in Saskatchewan flax acreage.

The success of Vimy in Saskatchewan caught many people by surprise.

At the time, Rowland was most concerned with screening rust resistant flax lines for straw height and maturity.

Vimy met those criteria and also offered a significant improvement in seed size and drought tolerance.

"Vimy was our first release and it was a really big breakthrough for the Saskatchewan flax industry," he said.

Vimy was released in the mid-1980s but by the time seed growers were producing the new variety at the certified seed level, much of Saskatchewan was in the middle of a severe drought.

Despite that, Vimy performed surprisingly well and yields exceeded expectations.

Based on that experience, seed growers who were multiplying the variety promoted it heavily and there was rapid uptake by flax growers.

"The seed growers that had success with it in 1988 did a really good job of promoting the variety and it sort of developed a bit of a legend because of that," Rowland said.

"It seemed that it was really well adapted to Saskatchewan conditions, especially southern Saskatchewan … and that was when we started to see the acreage of flax increasing significantly in Saskatchewan.

"Vimy was responsible for a lot of that."

Subsequent CDC varieties including CDC Bethune and CDC Sorrell also helped to expand acreage.

Over the past decade, provincial acreage has averaged about 1.3 million acres annually.

According to Rowland, CDC Sorrell's large seed size and improved seed colour make it well-suited to food markets.

CDC Bethune's claim to fame is its consistent high yield.

"With CDC Bethune, the yield has just been really, really stable and that's why it has such a presence in the market," Rowland said.

"CDC Sorrell has the same seed size as Vimy but even better colour. It has a nice reddish colour that makes it look very good."

Today, CDC varieties account for almost 80 percent of the flax grown in Saskatchewan.

Rowland thinks the expansion of food markets will be a key consideration for the next generation of flax breeders, including Helen Booker, who will take over the CDC program.

"We still have the industrial oils market but a lot of growth seems to be in the human and animal food areas," Rowland said.

"Omega 3 is the predominant fatty acid in flaxseed oil and I think food processors would like to see it go even higher."

Additional research into other components of flaxseed, such as mucilage and lignans, could also open new markets for the crop.

"I think the whole human food and organic food markets are going to be very important for flax in the future."

Rowland plans to relocate to Victoria, B.C., this summer but will continue acting as a project leader for the Tufgen project, a national genomics initiative that will sequence the flax genome and could result in new breeding tools for use by future flax breeders.

"I think that's going to have a real market impact on flax breeding because we are going to be developing these new molecular tools that will allow us to select for improved traits within flax much earlier in the breeding cycle," he said.

"That will help immensely in developing new … improved varieties."

From beer to eternity

The Canadian Malting Barley Technical Centre has been promoting the country's malting barley industry for more than 10 years

By Brian Cross
Western Producer staff

MINNEAPOLIS MONDAY, Winnipeg Wednesday, Georgia Thursday, Tokyo Saturday.

To look at his travel itinerary, you might assume that Rob McCaig is a rock star or an A-list actor.

But McCaig's business overseas doesn't involve music, movie making or show business.

It involves Canadian barley.

McCaig is managing director of the Canadian Malting Barley Technical Centre in Winnipeg, an organization that was established in 2000 to promote Canadian malting barley and provide technical marketing support for the industry.

To Canadian barley growers, the centre is best known for producing the annual Recommended Malting Barley Varieties list, a document that is posted each year in elevators across the country to inform growers of the malting barley varieties that are most in demand among domestic and foreign maltsters and brewers. (Please see table on page VR8 of the 2011 SaskSeed Guide).

But according to McCaig, the centre's role has been expanding steadily since it was chartered by the federal government more than 10 years ago.

Global demand for Canadian malt and malting barley has been growing steadily over the past decade.

To meet that demand, the centre's staff of six full-time workers travels far and wide to enhance the reputation of Canadian barley, develop new markets and ensure that the Canadian malting barley industry remains on solid footing.

"To distill down the mandate of the CMBTC, our purpose is really to provide technical marketing support for the Canadian malting barley industry," said McCaig.

"We do that for all facets of the value-added barley chain, right from the farmers up to the maltsters and brewers."

Promoting Canadian malting barley isn't a simple task.

To do it properly, the centre employs a multi-pronged approach that involves education, promotion, training, research, trouble shooting, technical support, market intelligence, test brewing and analysis of Canadian barley's performance throughout the value chain.

When new crop barley is harvested each year, the centre accumulates samples from different production areas, conducts a thorough analysis of barley quality and assesses the crop's performance using a variety of malting and brewing parameters.

WP PHOTO BY BRIAN CROSS

Rob McCaig, managing director of the Canadian Malting Barley Technical Centre and director of brewing technology, holds up a glass of beer produced in the centre's commercial scale brewhouse in downtown Winnipeg. The centre promotes the use of Canadian malt and malting barley at home and abroad.

Reports from the analysis are prepared and distributed to foreign and domestic maltsters and brewers who trust Canadian malt to produce consistently high-quality beers.

To assist with the task, the centre malts and brews the samples using in-house equipment.

"We have a fully operational malt house and brew house on the premises that produce commercial quality malt and commercial quality beer," says McCaig, a former brewmaster with Molson.

"As that new crop is coming off the combine, we're collecting … large samples … 100 to 200 kilograms each from across the growing region and we're analyzing it, malting it and brewing it."

"We're looking at that new crop and we're discerning what the quality specs are … and determining things like malting losses, brewing losses and brewing yields, which are all important measures of malting barley performance that we can generate for customers."

CONTINUED ON PAGE 44

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CONTINUED FROM PAGE 42

According to McCaig, the function of the centre has evolved and expanded during the past decade.

One of its key roles is trouble shooting.

Canada is a juggernaut in the production of top-quality malting barley.

In a typical year, the country will jockey with Australia as the world's second largest exporter. Top spot usually goes to Europe.

Because Canadian malt and malting barley is shipped abroad to so many foreign markets, stakeholders in Canada recognize the value of providing follow-up service to foreign buyers.

When problems or questions arise, McCaig or one of his colleagues are on the case immediately.

"If there's any cargo of Canadian malting barley that … goes off the line or if it's a new customer that doesn't know how to get the best out of Canadian malting barley, we'll be there automatically, whether it's in the malt house or the brew house to solve brewing problems," McCaig said.

"That's huge value added for the Canadian industry. If we can't solve a problem over the phone, we're in the air."

In the past, when a shipment of malting barley was rejected overseas, it would normally be sold into lower-value feed markets and the differential would be deducted from producer payments.

Since the formation of the CMBTC, not a single shipment has been redirected into feed markets.

"In the last 10 years, I'd estimate that we've probably saved Canadian farmers in the neighbourhood of $25 to $30 million in claims back. We've gone in and solved an awful lot of problems."

Training and education programs are also expanding.

Each year, in an effort to promote Canadian malting barley to potential buyers, the centre hosts delegations from foreign malting and brewing companies and provides tours that cover all facets of the Canadian industry.

On a typical tour, visitors will travel to farms, malting plants, breweries, prairie terminals and port facilities.

Along the way, they might even sample a few different brands of Canadian beer.

"The tours are designed to give them a whole picture of the Canadian system," said McCaig.

"(Last) September, we (hosted) representatives from the top three brewing companies in India…. We've also done it for Heineken, we've done it for SABMiller … and every other year we do it for 20 to 30 visitors from China."

China, India and Vietnam are important markets for Canadian malting barley.

Beer consumption in those markets is expected to increase significantly in the next few years so establishing relationships is critical.

"The Indian market is going like this," says McCaig, drawing a line toward the sky.

Other key markets include the United States, Korea, South America, Central America and Mexico.

To service foreign and domestic markets more thoroughly, the centre also performs fee-for-service work that includes pilot scale of commercial scale brewing, using the recipes and production parameters of individual breweries.

In some cases, foreign brewers will provide exact brewing instructions.

Staff at the centre will use those instructions to malt and brew batches of Canadian barley and provide detailed performance reports to the client.

The centre has also assisted in recipe formulation and advised small-scale or start-up breweries on the development of new beers or steps that can be taken to improve existing recipes.

Current research involving the CMBTC is examining issues such as chitting, staining, the use of hulless malting barley and the use of six-row varieties developed in Canada.

"Right now, we're losing a lot of good six-row varieties that have a lot of (potential) in the brewing industry," McCaig said.

Funding comes primarily through membership fees, with industry members supplying 50 to 60 percent of the CMBTC's annual budget.

The centre has three tiers of membership and each tier has a different fee structure.

Activities and spending priorities are determined by a board of directors that consists primarily of tier one members.

The remainder of the centre's funding is derived through fee-for-service work, government sponsored agri-marketing programs or other public funding mechanisms.

"We're a small group but I think the industry appreciates the work we do and the services we provide," McCaig said.

"Our budget has grown from about $350,000 a decade ago to about $1 million but I think the return is very good."

MALTING BARLEY IN SHORT SUPPLY

CANADIAN MALTING BARLEY EXPORTS are expected to be down sharply this year as exporters come to grips with a small, low-quality 2010 harvest.

Robert McCaig, managing director of the Canadian Malting Barley Technical Centre in Winnipeg, described 2010 as an extremely challenging year for malting barley producers.

Throughout much of Western Canada, acreage was down, weather was unfavourable and quality was poor, he said.

Exports will suffer as a result.

"You know that movie *The Perfect Storm*?" said McCaig.

"Well this year was the perfect storm. We had a huge decrease in acreage. Farmers couldn't get into the fields because they were too wet or too late and then we had just horrible, horrible weather during most of the phases of growth and harvest."

McCaig said selections will be well below normal due to chitting, staining and other factors.

"It's going to be a struggle," he said.

"There's not going to be a lot of malting barley exported out of Canada. I think the domestic malting industry is going to be covered but there will definitely be some challenges if next year's crop comes in like this one."

McCaig said some production areas in the West managed to harvest a good quality crop but many prime production areas did not fare well.

Some producers in southern Alberta got a quality crop and for the first time in years, significant amounts of malting barley were sourced out of the Peace River region.

Isolated pockets in Saskatchewan also produced some high quality barley.

In other areas, samples had unusually high levels of chitting, sometimes in the range of 15 to 17 percent.

"There will be a lot of feed barley this year," he said.

Chitting refers to the early stages of sprouting. Maltsters will tolerate some chitting but normally, samples with excessive chitting are automatically rejected.

Canada's malting barley industry has built a reputation for exporting high-quality grain so in a year like 2010, the industry is more inclined to limit exports and focus on maintaining its reputation.

Shipping pre-germinated barley can backfire because crop quality will deteriorate when cargoes are moved from Canada's cold winter climate to overseas markets that have high temperatures and high humidity.

"We're already talking about the possibility of not moving any malting barley after December …," McCaig said.

"It's not going to be our regular (tonnage) that we usually sell. It's going to be way south of a million."

According to McCaig, the CMBTC and stakeholders in the Canadian malting barley industry will be focusing on next year's crop and hoping production rebounds.

"This year, I think we'll be out there reminding buyers that Canada sells on quality," he said.

"We're not going to select substandard malting barley and sell it, even if customers really, really want it. Instead, we'll be out there waving the Canadian flag and telling them, 'you can't get it this year but we'll be back in next year. Don't forget about us'."

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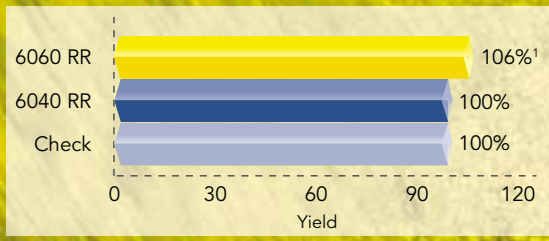

[1]Check is an average of 45H28 and 7265 over 18 replicated field scale grower trials (2010).

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Solid-stemmed Lillian makes it four in a row

The sawfly resistant variety was the most popular wheat grown in Western Canada last year

WP FILE PHOTO

In 2010, prairie wheat growers continued to move away from once-dominant red spring wheat varieties like Barrie, Superb and McKenzie, opting instead for Lillian, Harvest and other new CWRS varieties. According to the Canadian Wheat Board, nearly one-third of all CWRS acres sown in Saskatchewan last year were sown to Lillian. The Agriculture Canada variety is solid stemmed variety that resists damage caused by the wheat stem sawfly.

By Brian Cross
Western Producer staff

FOR THE FOURTH year in a row, wheat growers across the West sowed more acres to Lillian than any other wheat variety, according to an annual survey conducted by the Canadian Wheat Board.

The high-yielding, solid stemmed variety accounted for nearly 20 percent of Western Canada's total red spring wheat acreage in 2010.

Red spring wheat, or CWRS, is easily the most popular classification of wheat grown in Western Canada, accounting for roughly 75 percent of all wheat acres sown each year.

CWB agronomist Mike Grenier said Lillian continues to gain favour among growers because it has good yield potential and limits losses caused by the wheat stem sawfly.

Harvest was the second most popular CWRS variety, accounting for 16.5 percent of all red spring acres.

It placed second in last year's survey as well.

"Year over year, we didn't see a lot of change," said Grenier.

"The varieties that were popular last year were popular again this year."

Developed by Agriculture Canada, Lillian was considered a major breakthrough for Western Canadian wheat growers.

The female sawfly saws a tiny hole in the stem of a maturing wheat plant and lays an egg inside the stem.

When the egg hatches, the larva causes further damage and the stem eventually weakens and bends over.

The introduction of solid stemmed wheat varieties reduced sawfly damage and gave producers an affordable alternative to insecticides.

Before Lillian became widely available in 2005, farmers had access to other sawfly resistant CWRS varieties but they had lower yield potential and lower protein levels.

Lillian was considered the first sawfly resistant variety that offered solid disease and agronomic packages, competitive yields and good grain quality.

The variety also performed well in areas not typically prone to sawfly infestation.

While Lillian and Harvest continued to gain acreage in 2010, other varieties that were once popular across the West fell further into the background.

For example, AC Barrie, once the undisputed king of western Canadian wheat acres, continued to lose acreage in 2010, accounting for less than five percent of CWRS acres sown.

For eight years in a row, Barrie commanded the lion's share of wheat acres planted in the West.

At the height of its popularity in 1999, it accounted for almost 50 percent of the CWRS acres grown in Western Canada.

Other notable varieties that continued to decline in popularity included Superb and McKenzie.

In the amber durum, or CWAD class, Strongfield was by far the most dominant variety in 2010.

Unknown to most durum producers just five years ago, Strongfield burst onto the scene in 2006, capturing 18.5 percent of all durum acres planted.

Since then, it has easily been the most popular durum variety available, accounting for more than 60 percent of Saskatchewan's total durum acres in 2010.

According to Grenier, the availability of new midge resistant wheat varieties did not weigh heavily on farmers' seed buying decisions in 2010.

However, that could change in the next year or two, Grenier said.

"Last year was really the first year of introduction … for varieties of midge resistant wheats … so we'll be watching them for next year and the year after … to see how quickly they move up and displace existing varieties," he said.

Wheat midge was not a prominent concern among most Saskatchewan wheat growers in 2010 so widespread adoption of new midge resistant wheat may be somewhat slower than it would have been if infestation levels had been more severe.

Grenier said disease and mildew were by far the most prominent concerns among cereal growers in 2010.

Fusarium was a particularly troublesome issue.

Samples from grain harvested across Saskatchewan in 2010 showed unusually high levels of fusarium damaged kernels.

Even grain produced in western parts of the province showed unusually high levels of fusarium in 2010.

Grenier said it is not yet clear whether fusarium will be a recurring concern in those areas.

WHEAT - Expressed as percentage of all seeded acres

ALL WHEAT

Type	Saskatchewan		Manitoba		Alberta	
	2010	2009	2010	2009	2010	2009
Canada Western Red Spring	62.4	52.4	89.9	89.6	82.3	69.3
Canada Western Amber Durum	30.1	41	0.1	0.1	8.3	18.6
Canada Western Soft White Spring	3.6	1.7	0.3	0.3	0.4	0.6
Canada Western Red Winter	2	3	7.9	7.9	3.7	5.6
Canada Western Hard White Spring	0.9	0.7	1.4	1.6	0.8	0.6
Canada Prairie Spring Red	0.8	0.9	Trace	0.1	4.5	5.2
Canada Prairie Spring White	0.2	0.2	Trace	0.2	Trace	Trace
Canada Western Extra Strong	0.1	0.1	Trace	Trace	0.1	0.1
Canada Western General Purpose	Trace	Trace	0.5	0.1	Trace	Trace

CANADA WESTERN RED SPRING

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Lilian	31.7	27.2	Kane	25.3	22.8	Harvest	25.7	28.4
McKenzie	8.3	10	Glenn	15.8	3.4	Lillian	17.6	15.4
Harvest	8.2	7.5	Harvest	15.3	12.3	CDC Go	12.2	9.6
Superb	6.4	8	AC Barrie	10.3	19.6	Superb	8.3	11.6
Infinity	4.9	6.9	AC Domain	8.7	11.3	AC Eatonia	5.3	5.1

CANADA WESTERN AMBER DURUM

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Strongfield	62.5	62.9	AC Avonlea	51.8	0	Strongfield	49.3	63.4
AC Avonlea	14.4	15.2	Napolean	40.6	0	AC Avonlea	28.1	21.8
AC Navigator	13.5	9.7	Strongfield	7.3	84.1	AC Navigator	9.9	10.7
Kyle	7.4	11.1	Other	0.3	0	Kyle	4.5	2.7
Other	0.8	0.4	Kyle	0	15.9	AC Morse	4.4	1.2

CANADA WESTERN SOFT WHITE SPRING

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
AC Andrew	96.5	99.7	AC Andrew	90.2	100	AC Andrew	77.1	95.2
Sadash	2.6	0	Sadash	9.8	0	Sadash	18.5	4.4
Bhishaj	0.6	0	na	na	na	Bhishaj	2.9	0

CANADA WESTERN RED WINTER

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
CDC Buteo	45.8	53.4	CDC Falcon	75.1	67.6	Radiant	61.8	57.6
CDC Raptor	19.1	8.6	CDC Buteo	20.7	23.5	AC Bellatrix	14.4	21.2
Radiant	13.2	11.7	McClintock	1.9	6.7	CDC Osprey	9.1	10.9

CANADA WESTERN HARD WHITE SPRING

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Snowbird	52.1	63.1	Snowstar	93.1	94.1	Snowbird	54.3	74.5
Snowstar	47.9	35.7	Snowbird	6.9	5.9	Snowstar	45.7	19.8
Kanata	0	1.1	Kanata	0	0	Kanata	0	5.6

CANADA PRAIRIE SPRING RED

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
AC Crystal	42.7	50.7	5701 PR	100	74.5	AC Foremost	43.1	38.6
5700 PR	32.7	27	AC Taber	0	25.5	5700 PR	33.5	38.4
5702 PR	14.3	2.1	na	na	na	AC Crystal	10.3	9.3

CANADA PRAIRIE SPRING WHITE

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
AC Vista	90.2	76	AC Vista	100	100	AC Vista	100	100
Other	6.5	0	na	na	na	na	na	na
Snowhite 746	3.3	0	na	na	na	na	na	na

CANADA WESTERN EXTRA STRONG

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Burnside	69.7	60.1	Glenlea	100	0	Bluesky	100	96.5
Glencross VB	23.6	0	Laser	0	100	Laser	0	3.5
CDC Rama	6.7	36.4	na	na	na	na	na	na

CANADA WESTERN GENERAL PURPOSE

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Accipiter	100	0	CDC Ptarmigan	70.2	70.1	CDC Ptarmigan	88.5	92.2
Other	0	59.1	Accipiter	12.7	0	Other	11.5	7.8
CDC Ptarmigan	0	40.9	Other	10.2	29.9	na	na	na

Note: Trace denotes less than 0.05 percent of total acreage. Survey results based on 6,724 grower responses.

BARLEY - Expressed as percentage of all seeded acres

ALL BARLEY

	Saskatchewan		Manitoba		Alberta	
Type	2010	2009	2010	2009	2010	2009
Malting - two row	76.9	73.8	39.2	38.4	35.8	40
Feed - two and six row	17.1	12.5	40.2	28.9	63.6	58.6
Malting - six row	5.8	13.5	20.5	31.9	0.7	1.4
Hulless - two and six row	0.2	0.2	0	0.9	0	0

TWO ROW MALTING

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
AC Metcalfe	62.7	58.3	Newdale	42.3	38.5	AC Metcalfe	64.1	66.1
CDC Copeland	25.1	27.7	AC Metcalfe	36.1	45.4	CDC Copeland	23.7	22.6
CDC Polarstar	5.2	0	CDC Copeland	16.3	15.2	CDC Kendall	4.2	5.7

SIX ROW MALTING

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Legacy	65	45.8	Legacy	36	30.6	Lacey	35.8	18.9
Tradition	16.5	39.5	Tradition	30.9	51.1	CDC Yorkton	33.6	8.5
Stellar - ND	9.5	0	Stellar - ND	16.9	0	Legacy	11.8	40.6

TWO ROW FEED

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
Xena	30.4	42.3	Conlon	67.6	75.2	Xena	49.7	50.2
Conlon	23.3	25	Other	25.7	12.1	Conlon	14.3	18.9
CDC Cowboy	20.5	12.1	CDC Cowboy	4.3	9.5	Other	10.1	7.5

SIX ROW FEED

Saskatchewan			Manitoba			Alberta		
Variety	2010	2009	Variety	2010	2009	Variety	2010	2009
AC Rosser	25.6	31.7	AC Ranger	37.4	43.2	Sundre	30.4	17.5
AC Ranger	19.3	28.2	Sundre	27.2	15.4	Vivar	20.9	22
Sundre	19	7.5	AC Rosser	18.9	7.9	Other	14.6	14.3

Note: Trace denotes less than 0.05 percent of total acreage. Survey results based on 6,724 grower responses.

FILE PHOTO

Hector Carcamo, an entomologist with Agriculture Canada, says seed treatments and foliar sprays can reduce damage caused by the pea leaf weevil, but both methods have their limitations.

PHOTO COURTESY OF SASKATCHEWAN AGRICULTURE

The pea leaf weevil caused significant damage to pea crops in some parts of southwestern Saskatchewan last year. Adult weevils feed on the leaves but larval feeding on the plants' nitrogen fixing nodules is a larger concern. Research has shown that the nitrogen-loving insect is less likely to cause crop damage in soils that have high levels of nitrogen.

New nuisance loves nitrogen

Scientists look for ways to reduce pea leaf weevil damage

By Shirley Byers
Freelance writer

KILLING WITH KINDNESS may be the answer to a new-to-Saskatchewan insect that gobbled up pea profits in southwestern Saskatchewan last year.

The pea leaf weevil, a native of Europe and the Mediterranean area, first showed up in Saskatchewan in 2007.

Lavish helpings of soil nitrogen seem to deter the insect from feasting on the nitrogen fixing nodules of the plants' roots.

> "We have data to show (that) if the soil has enough nitrogen in it, the weevil no longer becomes a pest."
> — Hector Carcamo, Agriculture Canada

Pea and faba beans are the weevil's preferred targets but it will also feed and reproduce on clover, alfalfa and vetch.

Female weevils can produce up to 3,200 eggs in a season. The average is around 300.

Barry Floberg, a pedigreed seed grower at Shaunavon, Sask., said he had problems with the weevil in 2010.

One pea crop planted by a nearby producer was decimated, Floberg added.

"It looked like a decent crop but there were just no peas there."

Scott Hartley, entomologist with Saskatchewan Agriculture, said the pea leaf weevil was first found in southwestern Saskatchewan a few years ago and it's continuing to expand eastward.

"It still seems to be limited to areas west of the No. 4 highway and hasn't done really well moving north of the South Saskatchewan River," Hartley said.

"Whether the river is acting as a barrier or if there's any relation to warmer temperatures helping it along is hard to say."

After over wintering in field margins or alfalfa fields, the weevils move into target crops in the spring and begin feeding on leaves.

"Foliage feeding is worrisome visually but plants can compensate for it," said Hector Carcamo, research scientist in entomology with Agriculture Canada.

"It's the damage caused by larvae on the nitrogen fixing nodules that's the main concern."

Seed treatments and foliar spray can be used but both have their limitations.

In greenhouse research, Carcamo found that using the seed treatment Cruiser reduced foliar damage by 50 percent.

"That's not very high," he said.

Insect mortalities were fairly low. About 20 to 30 percent of the weevils that feed on treated pea stands will die. Some that appear to be dead will receive and continue feeding.

Females that survived ate less, were delayed up to a week in egg laying and produced fewer eggs.

Because the weevils move into fields over a period of two to four weeks, foliar insecticides are less than ideal.

"You may spray today but there might be another wave coming," Carcamo said.

Research is required to determine if the weevil has natural predators, he added.

"One of our native ground beetles is quite a voracious predator of weevil eggs. That's another important consideration when somebody is about to make a decision to spray or not spray an insecticide."

Trap crops are another management tool.

Producers can plant winter peas in the fall as a trap and follow with a crop of spring peas. Plant spring peas around the normal time, not as early as you possibly can, Carcamo advised.

"You want a good gap in the growth stages so the weevil is concentrated along borders."

Nitrogen application has the potential to be an effective management tool.

"We have data to show (that) if the soil has enough nitrogen in it, the weevil no longer becomes a pest," Carcamo said.

Yield losses on peas grown with 60 pounds of nitrogen per acre are normally around three percent.

Adding nitrogen fertilizer is not an economical option if the fertilizer costs outweigh the gains realized.

"I don't think a conventional farmer can take advantage of this," Carcamo said.

Best before dates might benefit growers

By Brian Cross
Western Producer staff

THE CANADIAN FOOD INSPECTION Agency is examining the merits of using best before dates on all certified seed sold in Canada.

Mike Scheffel, national manager of the CFIA's seed section, said the CFIA was asked last summer to assess the implications of the idea.

Some members of the Canadian Seed Growers Association think certified seed tags that include best before dates would provide a greater level of assurance to buyers.

They also say best before dates would encourage seed growers and seed companies to retest carry-over seed more regularly, reducing the risk of seed performance problems.

Right now, tags attached to certified seed have no expiry date and seed vendors are not required to retest unused seed at regular intervals.

The proposal would not make retesting mandatory but it would alert producers to the fact that tests may be dated and test results may no longer be accurate.

"We're taking that (proposal) under consideration," Scheffel said last year.

"We'll want to do a fairly fulsome study of the implications of that … but we're certainly going to examine (the idea) and depending on the outcome of that analysis, we'll prepare some further steps."

Scheffel said best before dates may be well suited to some seed types that are likely to lose germination over a relatively short time.

However, the idea could be poorly suited to other crop types that are less prone to deterioration, he added.

If that is the case, a proposal advocating regulatory changes to all crops types may not be the best solution.

In Canada, purity and germination of certified seed are regulated under the Seed Act.

According to the Act, companies selling No. 1 Certified seed must ensure that the seed meets or exceeds minimum germination thresholds.

However, certified seed is usually tested for germination well in advance of the sale date.

In some cases, test results can be a year or two old by the time the seed is sold.

Seed performance can deteriorate significantly over time, particularly if it is stored under the wrong conditions.

The CFIA occasionally investigates complaints from farmers who plant certified seed and aren't satisfied with seed performance.

But in most cases, it is difficult to determine whether inferior seed was the cause of poor crop establishment or whether other factors were at play.

"There's a lot of things that can happen (after the farmer buys the seed)," said Scheffel.

"Seed quality is one of the factors that influences how the crop produces but there are a lot of things in the hands of the farmers … that can result in crop damage as well."

Seed industry experts agree that it is difficult for farmers to tell whether test results at the time of sale still accurately reflect the condition of seed when it's planted.

Factors that can affect seed performance after the sale date include storage conditions, handling methods, planting dates, seeding depth, nutrient application, weather conditions, frost damage, insect damage and pesticide damage.

Dave Akister, executive director of the Saskatchewan Seed Growers Association, said best before dates would benefit farmers by alerting them to the fact that retesting might be warranted.

"The goal of the seed industry is to provide the best product and the most complete information possible to the farmer," said Akister.

"There are so many key dates that a farmer needs to know (like) when was the seed produced? When was it conditioned? When was it treated? When was it blended and when were the latest tests conducted?

"If the industry could somehow combine … all (that information) into a reliable 'plant before' date, it would be very helpful. If the date has expired, the farmer immediately knows that, at minimum, the seed needs to be retested."

Results of Agriculture Canada 2010 Variety Request for Proposals

The following list contains the names of companies that were awarded licence rights in 2010 to multiply and distribute new crop varieties developed by Agriculture Canada.

Variety	Company
ACS-C12 Spring canola	SeCan Association
ACS-C18 Spring canola	Mastin Seeds
ACS-C29 Spring canola	Mastin Seeds
DT801 Durum wheat	FP Genetics
MP1862 Yellow pea	Canterra
OA1228-1 Covered oat	Eastern Grain
OT05-12 Tofu soybean	Mike Snobelen Farms Ltd.
OT06-08 Tofu soybean	Mike Snobelen Farms Ltd.
OT06-17 Natto soybean	Summit Genetics Inc.
SF 2101 Alfalfa	SeCan Association
SF 2202 Alfalfa	SeCan Association
TR06294 Two-row malting barley	Mastin Seeds
W434 Hard red winter wheat	SeCan Association

* Lines marked with an asterisk will be offered again through the 2011 Request for Proposal process.

In 2011, the request for proposals for new or unlicenced Agriculture and Agri-Food Canada seed varieties will run from March 2 to 22. Watch for complete list of new varieties available on the Agriculture Canada website at www.agr.gc.ca.

NO PROPOSALS RECEIVED/ACCEPTED FOR THE FOLLOWING:

170A96048 Navy Field Bean
BW410 Spring Wheat*
GN04-001 Great Northern Bean
HB122 Two-row Barley*
HR174 Navy Bean*
HR177 Navy Bean*
MP1861Yellow Pea*
MP1864 Yellow Pea*
MP1867 Green Pea*
OA1130-1 Covered Oat*
OA1178-2 Covered Oat
OX-801 Tofu Soybean
OX-901 Tofu Soybean*
SMB02 Meadow Bromegrass
SR05-008 Field Bean (Small Red Type)
T200 Triticale*
T204 Triticale*

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Kent Hanmer, Govan, Saskatchewan

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Canadian Food Inspection Agency Variety Registration Report Nov.1, 2009 to Nov. 1, 2010

The list below contains information on new crop varieties registered by the Canadian Food Inspection Agency between Nov. 1, 2009 and Nov. 1, 2010. It also contains the names of varieties that had interim or restricted registrations renewed or extended by the CFIA. Commercial seed for the following varieties may not be available in 2010. This list does not include the names of all newer varieties that will be available to commercial producers for the first time in 2010.

Crop Type	Experimental Number	Registration Date	Status
ALFALFA			
PHABULOUS	4R72, FG4R72	10/22/2010	National Registration
BARLEY - SIX ROW			
CELEBRATION	6B01-2218, BT 980	2/26/2010	National Registration
STELLAR-ND	BT984	12/24/2009	National Registration
BARLEY - TWO ROW			
CDC POLARSTAR	TR06918	4/20/2010	National Registration
CERVEZA	TR06294, BM9831D-290	6/28/2010	National Registration
GADSBY	H96043002, TR08684	5/31/2010	National Registration
TR05671	TR05671	2/3/2010	Interim Registration
BEAN - BLACK			
CARMAN BLACK	BK05-008	9/23/2010	National Registration
CDC BLACKCOMB	1519-10	12/3/2009	National Registration
BEAN - NAVY			
PORTAGE	056C-96204	9/13/2010	National Registration
BEAN - YELLOW			
CDC SOL	2253-4	7/5/2010	National Registration
BRASSICA JUNCEA L - CANOLA QUALITY			
CL32041	CL32041, 32041	7/26/2010	National Registration
G030994	G030994, G30994, 30994	7/26/2010	National Registration
G50085	G50085, 50085	7/26/2010	National Registration
NX4-106 RR	G31064	3/19/2010	National Registration
BRASSICA NAPUS - CANOLA			
NX4-205 CL	CI 31613	2/19/2010	National Registration
VT 500	SP 07-74527	4/14/2010	National Registration
BRASSICA NAPUS - HYBRID CANOLA			
08N554R	08N554R	3/22/2010	National Registration
1960-	G99891	4/7/2010	National Registration
1970-	30220-D8	8/17/2010	National Registration
30205-D8	30205-D8	7/26/2010	National Registration
45H29	08N825R	6/15/2010	National Registration
45H74	07N292I	4/1/2010	National Registration
45S52	08N775R	5/5/2010	National Registration
6060 RR	30221-D8	8/17/2010	National Registration
73-35 RR	MB52142	3/22/2010	National Registration
73-45 RR	G88007	3/22/2010	National Registration
73-55 RR	G88115	3/22/2010	National Registration
73-65 RR	G88124	3/22/2010	National Registration
73-67 RR	G98888	4/7/2010	National Registration
73-77 RR	G98889	4/7/2010	National Registration
9557S	08N805R	3/22/2010	National Registration
9558C	08N828R	3/22/2010	National Registration
D3152	08N826R	4/1/2010	National Registration
L130	PHS08-642	9/13/2010	National Registration
L150	PHS08-624	9/13/2010	National Registration
V1040	07H004	3/16/2010	National Registration
V2035	07H730	9/13/2010	National Registration

Crop Type	Experimental Number	Registration Date	Status
BRASSICA NAPUS - RAPESEED			
RED RIVER 1997	RRHR6818	2/5/2010	Contract Registration
BROMEGRASS - MEADOW			
ADMIRAL	S9465	12/3/2009	National Registration
ARMADA	SMB01, S9452, S9454	12/3/2009	National Registration
FLAX			
CDC SANCTUARY	FP2242 (F03154)	1/15/2010	National Registration
OATS			
CDC SEABISCUIT	OT 3036	2/8/2010	National Registration
PEAS - GREEN			
CDC PLUTO	CDC 1996-216	4/20/2010	National Registration
CDC TETRIS	CDC 1812-5	3/19/2010	National Registration
PEAS - YELLOW			
CDC HORNET	CDC 1749-8	3/19/2010	National Registration
SOYBEANS			
CF60GR	9S-27R, MR2713N,	4/14/2010	National Registration
TRITICALE			
BUMPER	T196, T0200A-040	1/8/2010	Regional Registration
TAZA	94L044009, T198	7/21/2010	Regional Registration
WHEAT - DURUM			
DT801	DT801, A0132, AV044	7/21/2010	Regional Registration
WHEAT - SPELT			
CDC ORIGIN	03SPELT4	4/21/2010	Regional Registration
WHEAT - SPRING			
CDC KERNEN	BW881, W03602	4/21/2010	Regional Registration
CDC NRG003	GP003; HW605; UC38-	4/21/2010	Regional Registration
CDC STANLEY	BW880, W04086	4/21/2010	Regional Registration
CDC THRIVE	PT575, IR0431	4/21/2010	Regional Registration
CDC UTMOST	BW883, W04112	4/21/2010	Regional Registration
CONQUER	HY682, W032013	6/28/2010	Regional Registration
NRG010	GP010	9/8/2010	Regional Registration
SHAW	BA51*B92, (tested as the varietal blend BW394)	12/2/2009	Regional Registration
WHEAT - WINTER			
BROADVIEW	W425, LE1911, LE1911F	3/30/2010	Regional Registration
SUNRISE	DH99-55-2	12/2/2009	Regional Registration

Field-scale trials
Best predictor of canola performance

Field scale testing of canola hybrids is a trial method that has been developed to produce data that is a more accurate predictor of canola hybrid performance.

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FACT™ ADVANCEMENT
- **Field–scale trials one seeder width x 1000 feet**
- **DEKALB® harvested 43 sites in western Canada in 2010**

FACT™ FARM TEST
- **Farm-scale fields 20 to 40 acres**
- **DEKALB® had 302 comparisons in western Canada in 2010**

Summary of Prairie 2010 FACT™ data - 72-65 RR & 73-45 RR vs Competitors

Check Products		Other Products		Performance			Yield BU/Ac		
Product	Trait(s)	Product	Trait(s)	# of Comps	Years #	Win %	Check	Other	Adv.
72-65 RR	GENRR	45H29	GENRR	57	1	61.4	47.7	**47.5**	0.2
72-65 RR	GENRR	5440	LL	24	1	45.8	45.8	**46.4**	-0.6
72-65 RR	GENRR	5770	LL	20	1	65.0	44.2	**43.5**	0.7
73-45 RR	GENRR	45H28	GENRR	10	1	90.0	48.7	**46.7**	2.0
73-45 RR	GENRR	45H29	GENRR	32	1	68.8	48.4	**46.8**	1.6
73-45 RR	GENRR	5440	LL	27	1	40.7	48.2	**48.1**	0.1
73-45 RR	GENRR	5770	LL	27	1	63.0	48.1	**47.8**	0.3

*Results as of November 2, 2010

FACT™ tested for you, by you. To view all individual trials go to **www.DEKALB.ca**

A Big Thanks To The Saskatchewan Growers Who Helped Make Our 2010 FACT™ Program A Success:

Doug Mann, Battleford
Byron Redlick, Biggar
Dailen Spedding, Bjorkdale
Lorne Hunchak, Borden
Ken Plews, Carnduff
Rodney McNevin, Carrot River
Bill Epp, Clavet
Darren Colborn, Delisle
Randy Neumier, Dodsland
Guy St. Amant, Edam
Richard Mosimann, Edam
David Murray, Gainsborough
Cory Penner, Glenbush
Ari and Paul Vandertweel, Gronlid
Randy Toman, Guernsey
Howard Linnel, Hafford
Kenneth Derksen, Hague
Craig Smith, Maidstone
Darin Schaefer, Meota
Allan Ray, Meota
Al Puddell, Moose Jaw
Gregoire Seed Farms, North Battleford
Forest Hall Farms, North Battleford
Frank Hamel, Outlook
Steven Nahachewsky, Pelly
Dallas Jonassen, Redvers
Wayne Wright, Rockhaven
Randy Saccucci, Saskatoon
Robert Ernst, Shellbrook
Paul Hounjet, St. Denis
Gordon Decker, Strasbourg
Graham Taylor, Sunning Dale
Darrin Kudelka, Tisdale

The Prairie Grain Development Committee

The Prairie Grain Development Committee (PGDC), formerly known as the Prairie Registration Recommending Committee for Grain (PRRCG) facilitates the exchange of information relevant to the development of improved cultivars of grain crops for the Canadian prairies. In 2010, the committee recommended the following lines for registration.

BARLEY

BF317 – Forage barley line. Sponsor/developer: Westbred, Viterra.

HB08305 – Two row hulless barley line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

HB122 – Two row hulless barley line. Sponsor/developer: Agriculture Canada, Brandon Research Centre.

SR424 – Six row malting barley line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

SR425 – Six row malting barley line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

TR07114 – Two row malting barley line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

TR08684 – Two row general purpose barley line. Sponsor/developer: Alberta Agriculture, Field Crop Development Centre.

TR08732 – Two row general purpose barley line. Sponsor/developer: Westbred, Viterra.

BEANS

2007B-2 – Black bean line with indeterminate growth habit and seed weight similar to check variety CDC Jet. Line is early maturing in Manitoba with yields similar to CDC Jet. Lower common bacterial blight ratings, better hydration coefficient and less 'stone seed' numbers than CDC Jet. Sponsor/developer: Crop Development Centre, University of Saskatchewan.

2171-2 – Pink bean with a higher seed weight than check variety Viva. Matures earlier than Viva and has appropriate seed coat colour. Seed size larger than Viva, which is considered small for a pink bean. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

2253-4 – Yellow bean line with determinate growth habit and yield potential similar to check variety CDC Pintium. Seed weight higher than check varieties CDC Minto and CDC Pintium. Lodging tolerance similar to checks. White mould ratings lower. Line matures in all bean growing regions of western Canada. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

L06E613 – High yielding great northern bean line with indeterminate, upright growth habit. Matures two days earlier than AC Polaris. Lodging resistance similar to AC Resolute, which is significantly higher than AC Polaris. White mould ratings similar to Resolute but better than Polaris. Sponsor/developer: Agriculture Canada, Lethbridge, Alta.

T10704 – High yielding navy bean line with upright indeterminate growth habit and lodging tolerance similar to or better than check varieties Envoy and T9903. Seed weight similar to Envoy. White mould ratings similar to or lower than navy bean checks. Common bacterial blight ratings better than checks. T10704 is adapted to the Red River Valley of Manitoba. Sponsor/developer: Hyland Seeds, a division of Dow AgroSciences.

T67106 – High yielding navy bean with upright indeterminate growth habit and lodging tolerance similar to or better than check varieties Envoy and T9903. Lower white mould ratings than the navy bean checks and better common bacterial blight ratings. T67106 is adapted to the Red River Valley of Manitoba. Sponsor/developer: Hyland Seeds, a division of Dow AgroSciences.

DURUM

DT801 – Canada western amber durum line. Sponsor/developer: Agriculture Canada, Semiarid Prairie Agriculture Research Centre, Swift Current, Sask.

FABABEANS

Disco – Zero tannin faba bean line with higher seed weight than checks CDC Fatima, Snowbird and CDC SSNS-1. Developed for a new market class with better performance in animal feeds. Lodging tolerance similar to check varieties. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon and Agri Obtentions, France.

Divine – High yielding faba bean with colored flowering and seed weight similar to or higher than check varieties. Seed weight acceptable for Middle Eastern markets. Lodging tolerance better than checks. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon and Agri Obtentions, France.

Melodie – High yielding faba bean line with colored flowering and seed weight similar to or higher than check varieties. Seed weight acceptable for Middle Eastern markets. Lodging tolerance similar to check varieties. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon and Agri Obtentions, France.

NPZ 6-7530 – High yielding zero-tannin faba bean line with good lodging resistance and seed weight similar to check variety Snowbird. Sponsor/developer: Norddeutsche Pflanzenzucht Hans-Georg Lembke KG (NPZ), Germany.

FLAX

FP2258 – Linseed flax line with significantly higher lodging resistance than check variety Flanders. Iodine content similar to Flanders but significantly higher than CDC Bethune. Greater oil content than Flanders. Maturity, seed weight, linolenic acid content and seed meal protein similar to Flanders. Seed yield similar to Flanders and Bethune. Immunity to rust and moderate resistance to fusarium wilt, similar to the check varieties. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

LENTILS

2702-10 – Small red lentil with improved yield potential over check varieties Milestone and CDC Redberry. Seed type is suitable for most red lentil markets. Profile for ascochyta blight resistance similar to Redberry. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

3020-6 – Spanish Brown lentil with improved yield potential over check variety Pardina. Seed type suitable for lentil markets in Spain. Profile for ascochyta blight resistance similar to Pardina. Improved lodging tolerance compared to Pardina. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

IBC-289 – medium red lentil line with improved yield potential over check variety CDC Impact. Seed type suitable for some Middle Eastern and some South Asian markets. Ascochyta blight resistance similar to CDC Impact. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

MUSTARD

Experimental number n/a – Brown mustard line with significantly higher seed yield than check variety, Duchess. Similar lodging resistance, maturity, seed oil, allyl glucosinate content and percent green seed.

OATS

OT3037 – Milling oat line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

OT3039 – Feed oat line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

OT3044 – Milling oat line. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

PEAS

MP1861 – Semi-leafless yellow cotelydon pea line with larger seed size than the checks, Cutlass and Eclipse, and improved yield potential over Eclipse. Matured three days earlier than Eclipse. Resistant to powdery mildew. Sponsor/developer: Agriculture Canada, Lacombe, Alta.

MP1862 – Semi-leafless, yellow cotyledon pea with improved yield potential over checks, Cutlass and Eclipse. Matured two and four days earlier than Cutlass and Eclipse, respectively. Resistant to powdery mildew and fusarium wilt. Sponsor/developer: Agriculture Canada, Lacombe, Alta.

MP1864 – Semi-leafless, yellow cotyledon pea that matured six and four days earlier than the checks Eclipse and Cutlass, respectively. Similar yield potential to Eclipse. Resistant to powdery mildew. Sponsor/developer: Agriculture Canada, Lacombe, Alta.

MP1867 – Semi-leafless, green cotyledon pea that matured two days earlier than check variety, Cooper. Has similar maturity to check variety, CDC Striker. Yield potential similar to Eclipse but better green cotyledon colour intensity. Resistant to powdery mildew and fusarium wilt. Sponsor/developer: Agriculture Canada, Lacombe, Alta.

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CDC 1996-216 – Semi-leafless, green cotyledon pea with smaller seed size than the checks. Suited to small seed canning markets. Improved green cotyledon colour intensity and bleaching resistance relative to check varieties, CDC Striker and Cooper. Seed coat breakage similar to CDC Striker but better than Cooper. Resistant to powdery mildew. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

CDC 2235-4 – Semi-leafless, green cotyledon pea with green colour intensity and bleaching resistance equal to or better than checks, CDC Striker and Cooper. Good lodging resistance, similar to or better than checks. Seed coat breakage similar to checks. Resistant to powdery mildew and fusarium wilt. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

CDC 2093-22 – Semi-leafless, yellow cotyledon pea with improved yield potential over check varieties Cutlass and Eclipse. Seed weight similar to or higher than checks. Good lodging resistance, similar to Eclipse and better than Cutlass. Resistant to powdery mildew. Sponsor/developer: Crop Development Centre, University of Saskatchewan, Saskatoon.

TRITICALE

T198 – Spring triticale line. Sponsor/developer: Alberta Agriculture, Field Crop Development Centre.

T200 – Spring triticale line. Sponsor/developer: Agriculture Canada, Semiarid Prairie Agriculture Research Centre, Swift Current, Sask., and CIMMYT, International Maize and Wheat Improvement Centre.

T204 – Spring triticale line. Sponsor/developer: Agriculture Canada, Lethbridge Research Centre and CIMMYT, International Maize and Wheat Improvement Centre.

WHEAT

BW410 – Canada western red spring (CWRS) line. Sponsor/developer: Agriculture Canada, Cereal Research Centre, Winnipeg.

BW415 – Canada western red spring (CWRS) line. Sponsor/developer: Agriculture Canada, Cereal Research Centre, Winnipeg.

BW423 – Canada western red spring (CWRS) line. Sponsor/developer: University of Saskatchewan, Crop Development Centre, Saskatoon.

HY985 – Canada prairie spring red (CPSR) line. Sponsor/developer: Syngenta.

S01-285-7*R – Canada western red winter (CWRW) line. Sponsor/developer: University of Saskatchewan, Saskatoon.

W434 – Canada western red winter (CWRW) line. Sponsor/developer: Agriculture Canada, Lethbridge Research Centre.

Canola listings available through the WCCRRC.

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. 1, 2010. CSGA assumes no responsibility for errors or omissions.
The pedigreed class code is listed after the grower's phone number. S = Select; F = Foundation; R = Registered; C = Certified.

ALFALFA

54025

Herperger, Ronald & Elaine	Atwater, SK	(306) 745-2528			C
Pioneer Hi-Bred International Inc.	Lethbridge, AB	(403) 327-6135			C

55V48

Pioneer Hi-Bred International Inc.	Lethbridge, AB	(403) 327-6135			C

AC BRADOR

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

AC LONGVIEW

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

AC MELODIE

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

AC NORDICA

Gourley, Bruce D.	Watson, SK	(306) 287-3127			C

ALGONQUIN

Aitken, Robert	Eyebrow, SK	(306) 759-2700			C
Bueckert, Phil	Eyebrow, SK	(306) 759-2076			C
Lalonde, Lucien & Denise	Zenon Park, SK	(306) 767-2293			C
LeBras, Terence & Mart	Arborfield, SK	(306) 769-8814			C
Nicklen, Gregory	Carrot River, SK	(306) 768-2251			C
Nicklen, Jared	Carrot River, SK	(306) 768-3136			C

APPROVED

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

ASCEND

Brett-Young Seeds Limited	St. Norbert , MB	(204) 261-7932			C

ELEVATE

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241	F		

HALO

Bouey, Lyle G.	Carrot River, SK	(306) 768-2925			C

HORNET

Wallis, Brian	Tisdale, SK	(306) 873-5574			C

LEADER

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

MAGNUM VI WET

Dairyland Seed Co.	Homedale, ID	(208) 772-2465			C

MATRIX (4241 - USA)

Interlake Forage Seeds Ltd.	Fisher Branch, MB	(204) 372-6920			C

PERFECT

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088	F		

PHABULOUS

Lalonde, Lucien & Denise	Zenon Park, SK	(306) 767-2293			C

PICKSEED 2065MF

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

PICKSEED 3006

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

RANGELANDER

Gullacher, Evan	Imperial, SK	(306) 963-2511			C

RHINO

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

RUNNER

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

SPREDOR 4

Viterra	Regina, SK	(306) 569-5027			C

SPYDER

Brett-Young Seeds Limited	St. Norbert , MB	(204) 261-7932			C

WINTERGOLD

Hansen, Kurt	Marsden, SK	(306) 826-5615			C

BARLEY

AC METCALFE

Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Beuker, Allan Daniel	Melfort, SK	(306) 752-4810			C
Booy, Jerry N., Murray T. & Darcy K.	Glaslyn, SK	(306) 342-2058		R	C
Boyd, Clare W. & Dale A.	Melfort, SK	(306) 752-2108			C
Chapple, Floyd & Debbie	Grandora, SK	(306) 329-4697		R	C
Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939			C
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443			C
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140		R	
Ennis, Garnet & Burton & Neil	Glenavon, SK	(306) 429-2793			C
Fedoruk, Michael J.	Kamsack, SK	(306) 542-4235			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			C
Frederick, Blaine	Watson, SK	(306) 287-4289		R	
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		R	
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Greenshields, Grant & Jim & Callie	Semans, SK	(306) 524-2155		R	
Hanmer, Ronald F., Kent, Brad & Dallas	Govan, SK	(306) 484-4327		R	
Hardy, Allan W., Dale & Evan	Grenfell, SK	(306) 697-3128			C
Heavin, G. Harvey & G. Ryan	Melfort, SK	(306) 752-4171			
Hyland, Thomas Francis	Scott, SK	(306) 247-2086			C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		R	
Kasko, F. John	Prince Albert, SK	(306) 764-2875		R	
Kennett, Brian Guy	Manor, SK	(306) 448-4813			C
Labrecque, Roger	Saskatoon, SK	(306) 373-9379		R	
Lung Seeds Ltd.	Lake Lenore, SK	(306) 368-2414			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
Mannle, Kenneth	Moosomin, SK	(306) 435-3411		R	
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398		R	
Novak, Orrin	Kuroki, SK	(306) 338-2021			C
Nystuen, David G.	Spalding, SK	(306) 872-2014	F		C
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			C
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638			C
Sandercock, Eric M.	Balcarres, SK	(306) 334-2958		R	
Seidle, E., B., C. & M.	Medstead, SK	(306) 342-4377		R	C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503	F	R	
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840		R	
Sperle, Bentley D. & Jody	Unity, SK	(306) 228-3160			C
Stokke, Shane T.	Watrous, SK	(306) 946-4044		R	C
Tebbutt, Ronald E. & Gregg	Nipawin, SK	(306) 862-9730			C
Thompson, Jan Harris	Naicam, SK	(306) 874-5407		R	
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687	F	R	
Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984	F		C
Warrington, John	Mervin, SK	(306) 845-2642			C
Wiens, Brennan R.	Herschel, SK	(306) 377-2002			C
Winterhalt, Tim	Unity, SK	(306) 228-3440		R	
Wood, Leonard David	Wynyard, SK	(306) 554-2932		R	

Woroschuk, Andrew	Calder, SK	(306) 742-4682			C
Wylie, Leslie Dale	Biggar, SK	(306) 948-5394		R	
AC RANGER					
Cay, Randy D.	Kinistino, SK	(306) 864-3696			C
AC ROSSER					
Kerber, Greg	Rosthern, SK	(306) 232-4474			C
BENTLEY					
Crosson, Lorne, Will & Lee	Welwyn, SK	(306) 733-4593	F	R	
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235	F		
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511		R	
Pfeifer, Robert G.	Lemberg, SK	(306) 335-2532		R	C
Slind, Donald Edward	Archerwill, SK	(306) 323-4402		R	
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840		R	
CDC CLYDE					
Viterra	Regina, SK	(306) 569-5027	F		
CDC COALITION					
Crosson, Lorne, Will & Lee	Welwyn, SK	(306) 733-4593			C
CDC COPELAND					
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415	F		C
Boyd, Clare W. & Dale A.	Melfort, SK	(306) 752-2108	F		
Dutton, David H. & George	Paynton, SK	(306) 895-4306			C
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140	F		
Frederick, Blaine	Watson, SK	(306) 287-4289		R	
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010	F		C
Hansen, Jim	Yellow Grass, SK	(306) 465-2525			C
Heggie, Kyle Robert	Leross, SK	(306) 675-4920			C
Kennett, Brian Guy	Manor, SK	(306) 448-4813			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848		R	
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398			C
Nystuen, David G.	Spalding, SK	(306) 872-2014			C
Rude, Stanley	Naicam, SK	(306) 874-2359			C
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638			C
Sandercock, Eric M.	Balcarres, SK	(306) 334-2958			C
Seidle, E., B., C. & M.	Medstead, SK	(306) 342-4377		R	C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503	F		C
Thompson, Jan Harris	Naicam, SK	(306) 874-5407			C
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687	F		
Trowell, Leslie	Saltcoats, SK	(306) 744-2684		R	
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377	F	R	
CDC COWBOY					
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415	F		C
Kerber, Greg	Rosthern, SK	(306) 232-4474		R	
Patzer, Wendell Albert	Frontier, SK	(306) 296-4780			C
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377	F	R	
CDC FIBAR					
Hetland, Bill	Naicam, SK	(306) 874-5694	F		
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447	F		C
CDC MAYFAIR					
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556		R	
CDC MEREDITH					
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010	F		
Gregoire, Denis	North Battleford, SK	(306) 445-5516		R	C
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398	F	R	C
Secan Association	Kanata, ON	(613) 592-8600			
CDC POLAR STAR					
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Canterra Seeds Ltd.	Winnipeg, MB	(204) 988-9750	F	R	
Crosson, Lorne, Will & Lee	Welwyn, SK	(306) 733-4593			
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C

CDC RATTAN

Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			C

CDC RESERVE

Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010			C

CELEBRATION

Clancy, Kenneth	Carrot River, SK	(306) 768-2902	F		
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235	F		
Hetland, Bill	Naicam, SK	(306) 874-5694	F		
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447	F		C

CHAMPION

Viterra	Regina, SK	(306) 569-5027	F		C

CONLON

Bochek, Bob J.	Hodgeville, SK	(306) 677-2548			C

LEGACY

Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602			C
Hetland, Bill	Naicam, SK	(306) 874-5694		R	C
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244		R	
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			C

MAJOR

Heavin, Larry N. & L. Warren	Melfort, SK	(306) 752-4020		R	
Viterra	Regina, SK	(306) 569-5027	F	R	

MERIT 57

Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235	F		
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F		

NEWDALE

Hyndman, Neil S.	Balcarres, SK	(306) 334-2914			C
Trawin, John	Melfort, SK	(306) 752-4060	F		
Trowell, Leslie	Saltcoats, SK	(306) 744-2684		R	
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			C

NORMAN

McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848	F		
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377	F		

STELLAR-ND

Clancy, Kenneth	Carrot River, SK	(306) 768-2902			C
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			C
Fraser, Edward H., Glen & Dale	Yarbo, SK	(306) 745-3830			C
Hetland, Bill	Naicam, SK	(306) 874-5694			C
Novak, Orrin	Kuroki, SK	(306) 338-2021			C
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			C
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C

SUNDRE

Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		R	
Gizen, Jason	Prelate, SK	(306) 673-2687		R	
Latrace, Bill	Caronport, SK	(306) 693-2626			C
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			C

BEAN

SKYLINE

Terramax Holdings Corp.	Qu'Appelle, SK	(306) 699-2967		R	

BIRDSFOOT TREFOIL

LEO

Lyons, Murray F.	Nipawin, SK	(306) 862-3066			C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

BROMEGRASS

AC SUCCESS

Enns, Marcel	Carrot River, SK	(306) 768-2172			C
Howell, Dan T.	Lumsden, SK	(306) 731-2940			C
Myers, George R.	Elrose, SK	(306) 378-4074			C

Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912			C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088		F	C

BROMEGRASS - MEADOW

ARMADA

Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060			C

FLEET

Anhorn, Gerald	Elrose, SK	(306) 378-2838			C
Antony, Lawrence	Macnutt, SK	(306) 742-4585			C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C
Trawin, John	Melfort, SK	(306) 752-4060		F	C

MBA

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

PADDOCK

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C
Thesen, Perry	Carrot River, SK	(306) 768-3662			C

BROMEGRASS - SMOOTH

CARLTON

Hochbaum, Jack	Wilkie, SK	(306) 843-2054			C

CANARYGRASS

CDC BASTIA

Klym, Roy	Regina, SK	(306) 543-5052		R	
Nakonechny, Don P, Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409		R	
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244		R	
Woroschuk, Andrew	Calder, SK	(306) 742-4682		R	

CDC TOGO

Clancy, Kenneth	Carrot River, SK	(306) 768-2902			C
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235		R	
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511			C

CANARYSEED

CANTATE

Hansen, James S.	Yellow Grass, SK	(306) 465-2525			C

CANOLA

1818 - B. NAPUS

Canterra Seeds Ltd.	Winnipeg, MB	(204) 988-9750			C

34-65 - B. NAPUS

Monsanto Canada	Lethbridge, AB	(403) 327-2411			C

AC SUNBEAM - B. RAPA

Seidle, E., B., C. & M.	Medstead, SK	(306) 342-4377			C

FOREMOST - B. NAPUS

Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155			C

RED RIVER 1997 - B. NAPUS

Viterra	Regina, SK	(306) 569-5027			C

RUGBY - B. NAPUS

Bryant, Lee, Phyl, Vern &Carol	Battleford, SK	(306) 937-3565			C
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438			C
Gellner, Clayton S.	Southey, SK	(306) 726-4323			C

SW WIZZARD - B. NAPUS

Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155			C

VT BARRIER - B. NAPUS

Viterra	Regina, SK	(306) 569-5027			

CHICKPEA - DESI

CDC CORY

McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			

CDC VANGUARD

Annand, Glenn	Mossbank, SK	(306) 354-7675		R	

CHICKPEA - KABULI

CDC ALMA

Affleck, Lloyd & Kevin	Beechy, SK	(306) 858-2558			

McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171			
CDC FRONTIER					
Travland, Norman, Lureen & Kevin	Coronach, SK	(306) 267-4923			C
CDC LUNA					
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649		R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	
Simpson, Greg J.	Moose Jaw, SK	(306) 693-2132		R	
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171			C
CDC ORION					
Marcil, Harvey G. & Brent Louis	Moose Jaw, SK	(306) 694-2981			
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			
Simpson, Greg J.	Moose Jaw, SK	(306) 693-2132			
Travland, Norman, Lureen & Kevin	Coronach, SK	(306) 267-4923			
CICER MILK VETCH					
AC OXLEY II					
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088	F		C
Smith, Clarence D.	Debden, SK	(306) 724-4768			C
CLOVER					
ALTASWEDE - RED					
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088	F		
AURORA - ALSIKE					
Scowen, Richard D.	Nipawin, SK	(306) 862-3412	F		
BELLE - RED					
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C
NORGOLD - SWEET					
Antony, Lawrence	Macnutt, SK	(306) 742-4585			C
FABA BEAN					
SNOWBIRD					
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		R	
FLAX					
50					
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178	F		C
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
Stokke, Shane T.	Watrous, SK	(306) 946-4044			C
Viterra	Regina, SK	(306) 569-5027		R	C
CDC ARRAS					
Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236		R	
CDC BETHUNE					
Bergstrom, Randy M.	Birsay, SK	(306) 573-4625			C
Beuker, Allan Daniel	Melfort, SK	(306) 752-4810		R	
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			C
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		R	C
Gaertner, Lyle	Tisdale, SK	(306) 873-4936			C
Girardin, Gaetan	Meyronne, SK	(306) 264-5146		R	
Herndier, Don O.	Lemberg, SK	(306) 335-2763			C
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649		R	
Noble, Garry	Mossbank, SK	(306) 354-2679	F		
Palik, Jack	Kipling, SK	(306) 736-2618			C
Sandercock, Eric M.	Balcarres, SK	(306) 334-2958			C
Schmeling, Donald H.	Riceton, SK	(306) 738-2064	F		C
Shwaga, Jeff W.	Wroxton, SK	(306) 742-4590			C

Simpson, John W.	Moose Jaw, SK	(306) 693-2132			C
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310			C
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687		R	C
CDC SORREL					
Allan, John R. & John Garth	Corning, SK	(306) 457-2629	F		C
Allan, John Richard	Corning, SK	(306) 224-2021		R	C
Altwasser, Rodney, Allen R. & Dean	Yellow Grass, SK	(306) 465-2727		R	
Amos, K. Wayne	Oxbow, SK	(306) 483-2963			C
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602	F		
Dutton, David H. & George	Paynton, SK	(306) 895-4306		R	
Edmunds, Greg & Glen	Tisdale, SK	(306) 873-5480			C
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438		R	
Fowler, Edith	Central Butte, SK	(306) 796-4652			C
Fraser, Edward H., Glen & Dale	Yarbo, SK	(306) 745-3830			C
Frederick, Blaine	Watson, SK	(306) 287-4289		R	
Gellner, Clayton S.	Southey, SK	(306) 726-4323			C
Gerry, Greg	Creelman, SK	(306) 457-2220			C
Heggie, Kyle Robert	Leross, SK	(306) 675-4920			C
Hleck, Leo	Codette, SK	(306) 862-5966			C
Hyndman, David	Balcarres, SK	(306) 334-2914			C
Hyndman, Glen	Balcarres, SK	(306) 334-2914	F		
Johnson, Oscar Stuart	Margo, SK	(306) 324-4315		R	C
Kerber, Greg	Rosthern, SK	(306) 232-4474			C
Klemmer, Richard	Nipawin, SK	(306) 862-3874			C
Klym, Roy	Regina, SK	(306) 543-5052			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843		R	
Mayell, Harvey J. & Calvin J.	Congress, SK	(306) 642-3120			C
Needham, Reginald R.	Oxbow, SK	(306) 483-5052			C
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244		R	
Palmier, Maurice	Lafleche, SK	(306) 472-5917			C
Radloff, Shelly Colleen	Melfort, SK	(306) 752-4060	F	R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			C
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638			C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503		R	C
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060			
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555		R	
FP2214					
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602	F		
PRAIRIE BLUE					
Willner, Lorne E.	Davidson, SK	(306) 567-4613		R	C
PRAIRIE GRANDE					
Boyd, Clare W. & Dale A.	Melfort, SK	(306) 752-2108			C
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155		R	
Sperle, Bentley D. & Jody	Unity, SK	(306) 228-3160			C
PRAIRIE THUNDER					
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235		R	
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503			C
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F	R	
TAURUS					
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F	R	
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377	F		
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555		R	C
VIMY					
Palmier, Maurice	Lafleche, SK	(306) 472-5917		R	

HEMP

CFX-1					
Vandenberg, Albert Dr.	Saskatoon, SK	(306) 966-8786		R	
CFX-2					
Vandenberg, Albert Dr.	Saskatoon, SK	(306) 966-8786		R	
FINOLA					
Vandenberg, Albert Dr.	Saskatoon, SK	(306) 966-8786		R	

HEMPNUT

Campbell, Hugh	Qu'Appelle, SK	(306) 699-2967			C
Terramax Holdings Corp.	Qu'Appelle, SK	(306) 699-2967			C

LENTIL

CDC GREENLAND - LARGE GREEN

Annand, Glenn	Mossbank, SK	(306) 354-7675		R	
Bergstrom, Randy M.	Birsay, SK	(306) 573-4625			C
Carefoot, Floyd Martin	Swift Current, SK	(306) 773-6963			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087		R	
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Hansen, James S.	Yellow Grass, SK	(306) 465-2525			C
Klym, Roy	Regina, SK	(306) 543-5052		R	C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F	R	C
Moen, Jim	Cabri, SK	(306) 587-2214		R	C
Nagel, David	Mossbank, SK	(306) 354-2517		R	
Nakonechny, Don P., Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409		R	C
Palmier, Maurice	Lafleche, SK	(306) 472-5917		R	
Patzer, Wendell Albert	Frontier, SK	(306) 296-4780			C
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	
Rogg, Paul A.	Pennant, SK	(306) 626-3236			C
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley, SK	(306) 778-2344	F	R	
Simpson, Greg J.	Moose Jaw, SK	(306) 693-2132			C
Stauber, Clayton & Lori	Stewart Valley, SK	(306) 773-7907			C
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171			C
Willner, Lorne E.	Davidson, SK	(306) 567-4613			C

CDC IMAX - SMALL RED

Allan, John R. & John Garth	Corning, SK	(306) 457-2629			
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415	F		
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058	F		
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075	F		
Dutton, David H. & George	Paynton, SK	(306) 895-4306	F		
Hansen, James S.	Yellow Grass, SK	(306) 465-2525	F		
Herle, Gregory R.	Wilkie, SK	(306) 843-2934	F		
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F		
Nakonechny, Don P., Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409	F		
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		
Renwick, Douglas Dale	Milestone, SK	(306) 436-4418	F		
Simpson, Trevor W.	Moose Jaw, SK	(306) 693-2132		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310	F		
Stoll, Douglas John, Joan & Lyndon	Delisle, SK	(306) 493-2534			
Willner, Lorne E.	Davidson, SK	(306) 567-4613			

CDC IMIGREEN - MEDIUM GREEN

Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843	F		
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F		
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		
Simpson, Thomas H.	Moose Jaw, SK	(306) 693-2132		R	

CDC IMPACT - SMALL RED

Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236			C

CDC IMPALA - RED

Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438	F	R	
Latrace, Bill	Caronport, SK	(306) 693-2626			C
Palmier, Maurice	Lafleche, SK	(306) 472-5917			C
Straub, Lorne A.	Pense, SK	(306) 345-2390			C
Willner, Brady E.	Davidson, SK	(306) 567-4613			C

CDC IMPOWER - LARGE GREEN

Annand, Glenn	Mossbank, SK	(306) 354-7675	F		

Bruce, Vic R.	Tuxford, SK	(306) 631-7788	F		
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058	F		
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626	F		
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178	F		
Hansen, James S.	Yellow Grass, SK	(306) 465-2525	F		
Hundeby, R., D., R., A., K., L. & Wonnick, Adam	Elbow, SK	(306) 854-4901	F		
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843	F		
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F		
Nakonechny, Don P., Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409			
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638	F		
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley, SK	(306) 778-2344	F		
Simpson, Thomas H.	Moose Jaw, SK	(306) 693-2132		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171	F		
CDC IMPRESS - MEDIUM GREEN					
Latrace, Bill	Caronport, SK	(306) 693-2626			C
CDC IMPROVE - LARGE GREEN					
Dowdeswell, Donald D.	Pennant, SK	(306) 626-3388			C
Gellner, Clayton S.	Southey, SK	(306) 726-4323			C
Hansen, James S.	Yellow Grass, SK	(306) 465-2525			C
Klym, Roy	Regina, SK	(306) 543-5052			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
Nakonechny, Don P., Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409		R	C
Schmeling, Donald H.	Riceton, SK	(306) 738-2064	F	R	
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714		R	
CDC IMVINCIBLE - SMALL GREEN					
Bruce, Vic R.	Tuxford, SK	(306) 631-7788	F		
Dowdeswell, Donald D.	Pennant, SK	(306) 626-3388	F		
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178	F		
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F		
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		
Renwick, Douglas Dale	Milestone, SK	(306) 436-4418	F		
Rogg, Paul A.	Pennant, SK	(306) 626-3236			
Schmeling, Donald H.	Riceton, SK	(306) 738-2064	F		
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley, SK	(306) 778-2344	F		
Simpson, Jamie P.	Moose Jaw, SK	(306) 693-2132		R	
Smith, Wayne D.	Limerick, SK	(306) 263-4944	F		
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310	F		
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171	F		
CDC KR-1 - LARGE RED					
Etter, James Raymond	Richardson, SK	(306) 757-1136		R	
Saskcan Pulse	Regina, SK	(306) 525-4490	F	R	
Sopatyk, Carter	Saskatoon, SK	(306) 955-2516		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F	R	
CDC LEMAY - FRENCH GREEN					
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C
CDC MAXIM - SMALL RED					
Altwasser, Rodney, Allen R. & Dean	Yellow Grass, SK	(306) 465-2727			C
Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	C
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415			C
Barlow, Bradley L.	Griffin, SK	(306) 842-6216			C
Baxter, Daniel J. H.	North Battleford, SK	(306) 445-5414		R	
Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939		R	
Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236		R	
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075			C

Dutton, David H. & George	Paynton, SK	(306) 895-4306		R	
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626		R	
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087		R	
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			C
Gizen, Jason	Prelate, SK	(306) 673-2687			C
Gregoire, Denis	North Battleford, SK	(306) 445-5516		R	C
Hanmer, Ronald F., Kent, Brad & Dallas	Govan, SK	(306) 484-4327			C
Hansen, James S.	Yellow Grass, SK	(306) 465-2525			C
Heggie, Kyle Robert	Leross, SK	(306) 675-4920			C
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C
Latrace, Bill	Caronport, SK	(306) 693-2626		R	
Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843		R	C
Mattus, Ronald	Chaplin, SK	(306) 395-2652		R	C
Mayerle, Bernhard C.	Tisdale, SK	(306) 873-4267			C
Mayerle, Garry D.	Tisdale, SK	(306) 873-5993			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F	R	C
Nakonechny, Don P., Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409			C
Palmier, Maurice	Lafleche, SK	(306) 472-5917		R	
Parson, Ken	Elrose, SK	(306) 574-2044			C
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	
Schmeling, Donald H.	Riceton, SK	(306) 738-2064		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310			C
Straub, Lorne A.	Pense, SK	(306) 345-2390		R	
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714			C
Wylie, Leslie Dale	Biggar, SK	(306) 948-5394			C
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C

CDC PERIDOT - FRENCH GREEN

Baxter, Daniel J.H.	North Battleford, SK	(306) 445-5414			
Simpson, Thomas H.	Moose Jaw, SK	(306) 693-2132	F		
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555	F		

CDC PLATO - LARGE GREEN

Mattus, Ronald	Chaplin, SK	(306) 395-2652			C
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			C

CDC RED RIDER - SMALL RED

Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078			C

CDC REDBERRY - SMALL RED

Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236		R	
Hundeby, R., D., R., A., K., L. & Wonnick, Adam	Elbow, SK	(306) 854-4901			

CDC REDBOW - EXTRA SMALL RED

Simpson, Greg J.	Moose Jaw, SK	(306) 693-2132		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555	F		

CDC REDCOAT - SMALL RED

Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058	F		
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626	F		
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			
Simpson, Tyler J.	Moose Jaw, SK	(306) 693-2132		R	

CDC ROSEBUD - EXTRA SMALL RED

Simpson, John W.	Moose Jaw, SK	(306) 693-2132		R	

CDC ROULEAU - SMALL RED

Mattus, Ronald	Chaplin, SK	(306) 395-2652		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C

CDC VICEROY - SMALL GREEN

Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			C
Rogg, Paul A.	Pennant, SK	(306) 626-3236		R	

MUSTARD

AC PENNANT - YELLOW

Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		C

ANDANTE - YELLOW

Ackerman, Patrick	Chamberlain, SK	(306) 638-3177		C
Besco Grain	Brunkild, MB			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087		C
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		C
Mountain States Oilseeds,	Hollowlane, ID			
Olds Mustard Company	Pleasant Prairie, WI			C
Viterra	Regina, SK	(306) 569-5027		C

CENTENNIAL - BROWN

Besco Grain	Brunkild, MB			C
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		C
Olds Mustard Company	Pleasant Prairie, WI			C

CUTLASS - ORIENTAL

Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		C

FORGE - ORIENTAL

Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		C

NEEDLEGRASS

AC MALLARD

Brett-Young Seeds Limited	St. Norbert , MB	(204) 261-7932		C

OATS

AC MORGAN

Beuker, Allan Daniel	Melfort, SK	(306) 752-4810		R	
Beuker, Wilbur A.	Melfort, SK	(306) 863-2225			
Goossen, Mathew	Stenen, SK	(306) 548-4758			C
Hetland, Bill	Naicam, SK	(306) 874-5694			C
Kasko, F. John	Prince Albert, SK	(306) 764-2875			C
Kerber, Greg	Rosthern, SK	(306) 232-4474			C
Larsen, Lyle L.	Aylsham, SK	(306) 862-7333			C
Moroz, Troy	Pelly, SK	(306) 595-4622			C
Rempel, Blair Allan	Nipawin, SK	(306) 862-3573			C
Seidle, E., B., C. & M.	Medstead, SK	(306) 342-4377		R	C
Trawin, Debra Ann	Melfort, SK	(306) 752-4060	F		
Trawin, John	Melfort, SK	(306) 752-4060		R	
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687		R	

AC MUSTANG

Hetland, Bill	Naicam, SK	(306) 874-5694		R	

CDC BALER - FORAGE

Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415		R	
Lueke, Dennis	Humboldt, SK	(306) 682-5170	F		
Statham, Clifford Lyle	Star City, SK	(306) 863-2380			C

CDC BOYER

Ennis, Garnet & Burton & Neil	Glenavon, SK	(306) 429-2793			C

CDC DANCER

Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235			C
Hyndman, Neil S.	Balcarres, SK	(306) 334-2914			
Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912			C
Trowell, Leslie	Saltcoats, SK	(306) 744-2684		R	

CDC MINSTREL

Jones, Bradley & Wanda	Wadena, SK	(306) 338-2381	F		
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244		R	C

CDC ORRIN

Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602			C
Frederick, Blaine	Watson, SK	(306) 287-4289			C

CDC SEABISCUIT

Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511			
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			

CDC SO-I

Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939		R	
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F	R	
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			C

JORDAN

Palik, Jack	Kipling, SK	(306) 736-2618			C

LEGGETT

Frederick, Blaine	Watson, SK	(306) 287-4289			C
Lueke, Dennis	Humboldt, SK	(306) 682-5170			C
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423			C

SUMMIT

Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F		

TRIACTOR

Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235		R	C
Slind Seeds Group (1998) Ltd.	Archerwill, SK	(306) 323-4402		R	
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840			C
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F	R	

PEAS

AGASSIZ - YELLOW

Pfeifer, Robert G.	Lemberg, SK	(306) 335-2532		R	

CDC BRONCO - YELLOW

Klym, Roy	Regina, SK	(306) 543-5052			C

CDC CENTENNIAL - YELLOW

Allan, Raymond N. & Ruth	Corning, SK	(306) 224-4666	F	R	
Barlow, Bradley L.	Griffin, SK	(306) 842-6216		R	
Fowler, Edith	Central Butte, SK	(306) 796-4652			C
Hardy, Allan W. & Dale & Evan	Grenfell, SK	(306) 697-3128			C
Larsen, Lyle L.	Aylsham, SK	(306) 862-7333		R	
Rempel, Blair Allan	Nipawin, SK	(306) 862-3573		R	
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503	F		
Simpson, Tyler J.	Moose Jaw, SK	(306) 693-2132			C
Sperle, Bentley D. & Jody	Unity, SK	(306) 228-3160			C
Tebbutt, Ronald E. & Gregg	Nipawin, SK	(306) 862-9730		R	
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423		R	

CDC DAKOTA - GREEN

Dutton, David H. & George	Paynton, SK	(306) 895-4306	F		
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516			

CDC GOLDEN - YELLOW

Allan, John R. & John Garth	Corning, SK	(306) 457-2629		R	C
Allan, John Richard	Corning, SK	(306) 224-2021			C
Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	C
Chapple, Floyd & Debbie	Grandora, SK	(306) 329-4697			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Heggie, Robert Thomas	Leross, SK	(306) 675-4920			C
Klym, Roy	Regina, SK	(306) 543-5052			C
Mattus, Ronald	Chaplin, SK	(306) 395-2652			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	C
Travland, Norman, Lureen & Kevin	Coronach, SK	(306) 267-4923		R	C

CDC HORIZON - FORAGE

Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377			

CDC HORNET - GREEN

Clark, Shaun, Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058			
Simpson, Greg J.	Moose Jaw, SK	(306) 693-2132	F		

CDC LEROY - FORAGE

Amos, K. Wayne	Oxbow, SK	(306) 483-2963	F		
Annand, Glenn	Mossbank, SK	(306) 354-7675	F	R	
Boldt, Garry	Osler, SK	(306) 239-2071		R	
Herle, Gregory R.	Wilkie, SK	(306) 843-2934	F		

CDC MEADOW - YELLOW

Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415		R	C
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Bews, W. Kenneth & Brent W.	Eatonia, SK	(306) 967-2440			C
Bryant, Lee, Phyl, Vern & Carol	Battleford, SK	(306) 937-3565		R	
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556		R	
Cay, Randy D.	Kinistino, SK	(306) 864-3696		R	
Cresswell, Gordon B., Bryan & Mark	Tisdale, SK	(306) 873-5360		R	
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075		R	C
Dutton, David H. & George	Paynton, SK	(306) 895-4306			C
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140			C
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155			C
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C
Hetland, Bill	Naicam, SK	(306) 874-5694		R	
Hleck, Lloyd G.	Nipawin, SK	(306) 862-2155			C
Hyndman, David	Balcarres, SK	(306) 334-2914		R	
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		R	
Kasko, F. John	Prince Albert, SK	(306) 764-2875		R	
Kerber, Greg	Rosthern, SK	(306) 232-4474			C
Klemmer, Richard	Nipawin, SK	(306) 862-3874			C
Klym, Roy	Regina, SK	(306) 543-5052			C
Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078	F	R	C
Lung Seeds Ltd.	Lake Lenore, SK	(306) 368-2414			C
Mayerle, Erwin D.	Tisdale, SK	(306) 873-4261		R	
Mayerle, Kris	Tisdale, SK	(306) 873-4261		R	C
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			C
Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912		R	
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244		R	
Palmier, Maurice	Lafleche, SK	(306) 472-5917			C
Phelps, Douglas C.	Prince Albert, SK	(306) 922-6016		R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			C
Robinson, Oren A. & Marlene	Landis, SK	(306) 658-4755		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F		
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840			C
Tebbutt, Ronald E. & Gregg	Nipawin, SK	(306) 862-9730	F	R	
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060	F	R	
Trawin, Brent John	Melfort, SK	(306) 752-4060			
Trowell, Leslie	Saltcoats, SK	(306) 744-2684			C
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714			C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984		R	C
Warrington, John	Mervin, SK	(306) 845-2642			C
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811		R	
Winterhalt, Tim	Unity, SK	(306) 228-3440			C
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423			C
Woroschuk, Andrew	Calder, SK	(306) 742-4682		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555	F	R	
Youzwa, Donald	Nipawin, SK	(306) 862-5690			C

CDC MOSAIC - MAPLE

Boldt, Garry	Osler, SK	(306) 239-2071			
Dutton, David H. & George	Paynton, SK	(306) 895-4306			
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438			

CDC PATRICK - GREEN

Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	
Annand, Glenn	Mossbank, SK	(306) 354-7675	F	R	
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415		R	
Bergstrom, Randy M.	Birsay, SK	(306) 573-4625		R	
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602	F	R	

Cay, Randy D.	Kinistino, SK	(306) 864-3696		R	
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058	F		
Corbett, Dean & Trent	Macrorie, SK	(306) 243-2047		R	
Cresswell, Gordon B., Bryan & Mark	Tisdale, SK	(306) 873-5360	F	R	
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075		R	
Dutton, David H. & George	Paynton, SK	(306) 895-4306	F		
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235		R	
Forer, Tim & Denise	Avonlea, SK	(306) 868-4433		R	
Fraser, Edward H., Glen & Dale	Yarbo, SK	(306) 745-3830		R	
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155		R	
Gregoire, Denis	North Battleford, SK	(306) 445-5516		R	
Heavin, G. Harvey & G. Ryan	Melfort, SK	(306) 752-4171		R	
Hetland, Bill	Naicam, SK	(306) 874-5694	F	R	
Hleck, Leo	Codette, SK	(306) 862-5966		R	
Hochbaum, Jack	Wilkie, SK	(306) 843-2054		R	
Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078		R	
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511		R	
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843		R	
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398		R	
Novak, Orrin	Kuroki, SK	(306) 338-2021		R	
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244	F		
Pederson, Lorne Robert	Archerwill, SK	(306) 323-4240		R	
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			
Redman, Wayne G. & Collin M.	Margo, SK	(306) 324-4235		R	
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638	F	R	
Smith, Wayne D.	Limerick, SK	(306) 263-4944	F		
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516	F	R	
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714	F		C
Veikle, Lynne & Marshall	Cut Knife, SK	(306) 398-2923		R	
Walker, Vincent C.	Melfort, SK	(306) 863-4110		R	
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171			
CDC PLUTO - GREEN					
Dutton, David H. & George	Paynton, SK	(306) 895-4306			
Marcil, Harvey G. & Brent Louis	Moose Jaw, SK	(306) 694-2981			
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516			
CDC PROSPER - YELLOW					
Bruce, Vic R.	Tuxford, SK	(306) 631-7788			C
Bryant, Lee, Phyl, Vern & Carol	Battleford, SK	(306) 937-3565		R	
Clearwater, Don W.	Nipawin, SK	(306) 862-3025		R	
Dutton, David H. & George	Paynton, SK	(306) 895-4306	F		
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649	F	R	
CDC ROCKET - MAPLE					
Herle, Gregory R.	Wilkie, SK	(306) 843-2934		R	C
Walker, Vincent C.	Melfort, SK	(306) 863-4110			C
CDC SAGE - GREEN					
Cresswell, Gordon B., Bryan & Mark	Tisdale, SK	(306) 873-5360		R	
Danielson, Lionel & Bonnie	Norquay, SK	(306) 594-2173		R	
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294		R	
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638			C
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714			C
CDC STRIKER - GREEN					
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Dutton, David H. & George	Paynton, SK	(306) 895-4306			C
Gregoire, Denis	North Battleford, SK	(306) 445-5516			C
Lung Seeds Ltd.	Lake Lenore, SK	(306) 368-2414			
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398			C
Rude, Stanley	Naicam, SK	(306) 874-2359			C
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423		R	C
CDC TETRIS - GREEN					
Affleck, Lloyd & Kevin	Beechy, SK	(306) 858-2558			
Dutton, David H. & George	Paynton, SK	(306) 895-4306	F		
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516			

CDC TREASURE - YELLOW

Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602	F		
Brown, Kyle	Prince Albert, SK	(306) 922-0571	F		
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075	F		
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155	F		
Hundeby, R., D., R., A., K., L. & Wonnick, Adam	Elbow, SK	(306) 854-4901	F		
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511	F		
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848	F		
Seymour, Glen Patrick, Donne, Kyle & Kelly	Stewart Valley, SK	(306) 778-2344			
Smith, Ron T.W. & Barb A.	Limerick, SK	(306) 263-4944	F		
Willner, Lorne E.	Davidson, SK	(306) 567-4613	F		

CDC TUCKER - FORAGE

Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236	F		C
Tanner, David A. & Hazel	Regina, SK	(306) 757-7012	F		

COOPER - GREEN

Hyndman, Glen	Balcarres, SK	(306) 334-2914		R	C
Pfeifer, Robert G.	Lemberg, SK	(306) 335-2532			C

DS-ADMIRAL - YELLOW

Buziak, Carl	Mayfair , SK	(306) 445-9862			C
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Hyndman, David	Balcarres, SK	(306) 334-2914			C

HUGO - YELLOW

Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235		R	
Trowell, Leslie	Saltcoats, SK	(306) 744-2684		R	

POLSTEAD - YELLOW

Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140			C
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235		R	
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			C

REWARD - YELLOW

Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235	F		

SORENTO - YELLOW

Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939			C

SW MIDAS - YELLOW

Trowell, Leslie	Saltcoats, SK	(306) 744-2684		R	

TALENTO - YELLOW

Smith, Ron T.W. & Barb A.	Limerick, SK	(306) 263-4944			C

THUNDERBIRD - YELLOW

Crosson, Lorne, Will & Lee	Welwyn, SK	(306) 733-4593			C
Trowell, Leslie	Saltcoats, SK	(306) 744-2684	F	R	

RYE

GAZELLE - SPRING

Kerber, Greg	Rosthern, SK	(306) 232-4474		R	
Trawin, Brent John	Melfort, SK	(306) 752-4060			

HAZLET - WINTER

Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			C
Tanner, David A. & Hazel	Regina, SK	(306) 757-7012			

RYEGRASS

SWIFT - RUSSIAN

Flegel, Dan	Claybank, SK	(306) 799-4505	F		C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

SAINFOIN

NOVA

Petracek, Arnold J., Alan D. & Michael	Esterhazy, SK	(306) 745-6210	F		C

SOYBEANS

29002RR

Elmy, Robert W., Kevin & Christina	Saltcoats, SK	(306) 744-2779		R	

LS0028RR

Elmy, Robert W., Kevin & Christina	Saltcoats, SK	(306) 744-2779	F	R	

NSC WARREN RR

Gellner, Clayton S.	Southey, SK	(306) 726-4323			C
Gerry, Greg	Creelman, SK	(306) 457-2220			C

TIMOTHY

AC OPAL

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

ALMA

Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C
Riemer, Curtis D.	White Fox, SK	(306) 276-2319			C
Wallis, Brian	Tisdale, SK	(306) 873-5574			C

BASHO

Ag Vision Seeds Ltd.	Carrot River, SK	(306) 768-3335			C

CLIMAX

Boxall, Keith & Henry	Codette, SK	(306) 862-4937			C

EXPRESS

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

OVATION

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C

PROMESSE

Brett-Young Seeds Limited	St. Norbert , MB	(204) 261-7932			C

TREASURE

Northstar Seed Ltd.	Neepawa, MB	(204) 476-5241			C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088			C

TRITICALE

BUNKER - SPRING

Girodat, Jason	Shaunavon, SK	(306) 297-2185			C
Statham, Clifford Lyle	Star City, SK	(306) 863-2380			C

FRIDGE - WINTER

Elmy, Robert W., Kevin & Christina	Saltcoats, SK	(306) 744-2779	S	R	
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060		R	

TYNDAL - SPRING

Ackerman, Patrick	Chamberlain, SK	(306) 638-3177			C
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148			C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
Young, Denise	Melfort, SK	(306) 752-4060		R	C

VETCH - CHICKLING

AC GREENFIX

Tinant, Adrien J.	Cadillac, SK	(306) 785-4532			C

WHEAT - DURUM

AC AVONLEA

Lueke, Dennis	Humboldt, SK	(306) 682-5170			

AC NAVIGATOR

Boyd, William R. & Regan	Eston, SK	(306) 962-3526			C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Rennick, Joe R. & William J.	Milestone, SK	(306) 436-4353	F		
Viterra	Regina, SK	(306) 569-5027	F	R	C

BRIGADE

Viterra	Regina, SK	(306) 569-5027	F	R	C

CDC VERONA

Anderson, Trevor Ward	Frontier, SK	(306) 296-2104		R	
Bailey, Roy G.	Milden, SK	(306) 935-4702		R	C
Barlow, Bradley L.	Griffin, SK	(306) 842-6216		R	C
Carefoot, Floyd Martin	Swift Current, SK	(306) 773-6963			C
Dowdeswell, Donald D.	Pennant, SK	(306) 626-3388			C
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626	F	R	C
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148		R	C
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178	F	R	
Geiger, Timothy	Leader, SK	(306) 628-4335		R	
Girodat, Gerald	Shaunavon, SK	(306) 297-2563		R	

Gizen, Jason	Prelate, SK	(306) 673-2687		R	
Lueke, Dennis	Humboldt, SK	(306) 682-5170		R	
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843		R	
Mattus, Ronald	Chaplin, SK	(306) 395-2652			C
Patzer, Wendell Albert	Frontier, SK	(306) 296-4780		R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		C
Rennick, Joe R. & William J.	Milestone, SK	(306) 436-4353		R	
Seymour, Glen Patrick, Donne, Kyle, & Kelly	Stewart Valley, SK	(306) 778-2344		R	
Willner, Lorne E.	Davidson, SK	(306) 567-4613		R	
Wylie, Leslie Dale	Biggar, SK	(306) 948-5394			C

DT801

Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236			
FP Genetics	Regina, SK	(306) 791-0500			
Geiger, Timothy	Leader, SK	(306) 628-4335			
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			
Smith, Ron T.W. & Barb A.	Limerick, SK	(306) 263-4944			
Smith, Wayne D.	Limerick, SK	(306) 263-4944			

ENTERPRISE

Barlow, Bradley L.	Griffin, SK	(306) 842-6216			
Bews, W. Kenneth & Brent W.	Eatonia, SK	(306) 967-2440			
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626	F		
Girodat, Gerald	Shaunavon, SK	(306) 297-2563	F		
Hyndman, Glen	Balcarres, SK	(306) 334-2914	F		
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			
Pfeifer, Robert G.	Lemberg, SK	(306) 335-2532	F		
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139	F		
Simpson, Thomas H.	Moose Jaw, SK	(306) 693-2132	F		

EUROSTAR

Altwasser, Rodney, Allen R.& Dean	Yellow Grass, SK	(306) 465-2727			C
Annand, Glenn	Mossbank, SK	(306) 354-7675	F		C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Johnston, Lorne E., L., Neil & L. J.	Eston, SK	(306) 962-3917	F	R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			C
Secan Association	Kanata, ON	(613) 592-8600			C
Smith, Wayne D.	Limerick, SK	(306) 263-4944			C
Viterra	Regina, SK	(306) 569-5027			
Wiens, Brennan R.	Herschel, SK	(306) 377-2002		R	C

STRONGFIELD

Altwasser, Rodney, Allen R.& Dean	Yellow Grass, SK	(306) 465-2727			C
Barlow, Bradley L.	Griffin, SK	(306) 842-6216			C
Bews, W. Kenneth & Brent W.	Eatonia, SK	(306) 967-2440		R	C
Boyd, William R. & Regan	Eston, SK	(306) 962-3526			C
Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148		R	C
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010		R	C
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178			C
Geiger, Timothy	Leader, SK	(306) 628-4335		R	C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Hansen, James S.	Yellow Grass, SK	(306) 465-2525			C
Hyndman, Glen	Balcarres, SK	(306) 334-2914			C
Johnston, Lorne E. & L. Neil & L. J.	Eston, SK	(306) 962-3917		R	C
Klym, Roy	Regina, SK	(306) 543-5052			C
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649		R	
Miller, Neil, Lynwood, Jarrod, Sean & Bruce	Avonlea, SK	(306) 868-2165			C
Palmier, Maurice	Lafleche, SK	(306) 472-5917			C
Patzer, Wendell Albert	Frontier, SK	(306) 296-4780			C
Petruic, Cameron L., Judy & Nick	Avonlea, SK	(306) 868-2294			C
Simpson, Trevor W.	Moose Jaw, SK	(306) 693-2132			C
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310		R	
Straub, Lorne A.	Pense, SK	(306) 345-2390			C
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171		R	C
Wiens, Brennan R.	Herschel, SK	(306) 377-2002			C

WHEAT - SPRING

5400IP					
Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078			
Viterra	Regina, SK	(306) 569-5027		R	C
5602HR					
Viterra	Regina, SK	(306) 569-5027	F	R	C
5603HR					
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840		R	
Viterra	Regina, SK	(306) 569-5027	F	R	C
Winterhalt, Tim	Unity, SK	(306) 228-3440		R	
5700PR					
Viterra	Regina, SK	(306) 569-5027			C
Viterra (SWP)	Regina, SK	(306) 569-4082		R	
5702PR					
Viterra	Regina, SK	(306) 569-5027	F	R	C
AC ANDREW					
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140	F		
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235	F		
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010			C
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C
Hetland, Bill	Naicam, SK	(306) 874-5694		R	
Trawin, John	Melfort, SK	(306) 752-4060		R	
Winterhalt, Tim	Unity, SK	(306) 228-3440			C
AC BARRIE					
Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	C
Edmunds, Greg & Glen	Tisdale, SK	(306) 873-5480			C
Heavin, Larry N. & L. Warren	Melfort, SK	(306) 752-4020		R	
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			C
Woroschuk, Andrew	Calder, SK	(306) 742-4682			C
AC CRYSTAL					
Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939		R	
AC DOMAIN					
Danielson, Lionel & Bonnie	Norquay, SK	(306) 594-2173		R	
AC ELSA					
Ennis, Garnet & Burton & Neil	Glenavon, SK	(306) 429-2793			C
Gregoire, Denis	North Battleford, SK	(306) 445-5516			C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984			C
AC INTREPID					
Illingworth, H.V. & T. D.	North Battleford, SK	(306) 445-5630			C
AC VISTA					
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			C
ALVENA					
Kerber, Greg	Rosthern, SK	(306) 232-4474			C
Rempel, Blair Allan	Nipawin, SK	(306) 862-3573		R	
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811		R	
Wohlgemuth, Mark	Bredenbury, SK	(306) 898-2022			C
Woroschuk, Andrew	Calder, SK	(306) 742-4682		R	
CARBERRY					
Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			
Holland, Ernest W.	Rocanville, SK	(306) 645-4223		R	
Littman, Larry W., Allan B., L., Robert & Adam	Saltcoats, SK	(306) 783-6518			
Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511			
Moroz, Troy	Pelly, SK	(306) 595-4622		R	

Ostafie, Dave & Robert	Canora, SK	(306) 563-6244	F		
Ostapovitch, F.G. & Glen	Theodore, SK	(306) 647-2205	F		
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516			
South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840			
Tebbutt, Ronald E. & Gregg	Nipawin, SK	(306) 862-9730		R	
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060		R	
Viterra	Regina, SK	(306) 569-5027		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			

CDC ABOUND

Gregoire, Denis	North Battleford, SK	(306) 445-5516		R	
Heavin, G. Harvey & G. Ryan	Melfort, SK	(306) 752-4171			C
Viterra	Regina, SK	(306) 569-5027	F	R	C
Winterhalt, Tim	Unity, SK	(306) 228-3440			C

CDC ALSASK

Viterra	Regina, SK	(306) 569-5027	F	R	
Viterra (SWP)	Regina, SK	(306) 569-4082		R	
Winterhalt, Tim	Unity, SK	(306) 228-3440			C

CDC GO

Brown, Kyle	Prince Albert, SK	(306) 922-0571	F		
Danielson, Jason	Norquay, SK	(306) 594-2173			
Danielson, Lionel & Bonnie	Norquay, SK	(306) 594-2173		R	
Edmunds, Greg & Glen	Tisdale, SK	(306) 873-5480			C
Nystuen, David G.	Spalding, SK	(306) 872-2014		R	C
Ostapovitch, F.G. & Glen	Theodore, SK	(306) 647-2205		R	
Zwingli, James Trent & Shelley	Melfort, SK	(306) 752-4224		R	

CDC IMAGINE

Viterra	Regina, SK	(306) 569-5027			C

CDC ORIGIN

Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			

CDC OSLER

Beuker, Allan Daniel	Melfort, SK	(306) 752-4810		R	C
Pederson, Lorne Robert	Archerwill, SK	(306) 323-4240			C

CDC RAMA

Hardy, Allan W., Dale & Evan	Grenfell, SK	(306) 697-3128			C

CDC STANLEY

Viterra	Regina, SK	(306) 569-5027	F		C

CDC TEAL

Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438			C
Smith, Wayne D.	Limerick, SK	(306) 263-4944			C

CDC THRIVE

Lung, Ivan & Schemenauer, S. & B.	Lake Lenore, SK	(306) 368-2511	F		
Secan Association	Kanata, ON	(613) 592-8600			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447	F		

CDC UTMOST-HARVEST*

Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602			
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			
Cay, Randy D.	Kinistino, SK	(306) 864-3696			
Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939			
Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236			
Danielson, Lionel & Bonnie	Norquay, SK	(306) 594-2173			
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235			
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438			
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			
Littman, Larry W., Allan B., L. Robert & Adam	Saltcoats, SK	(306) 783-6518			
Lueke, Dennis	Humboldt, SK	(306) 682-5170			
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848			
Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912			
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			

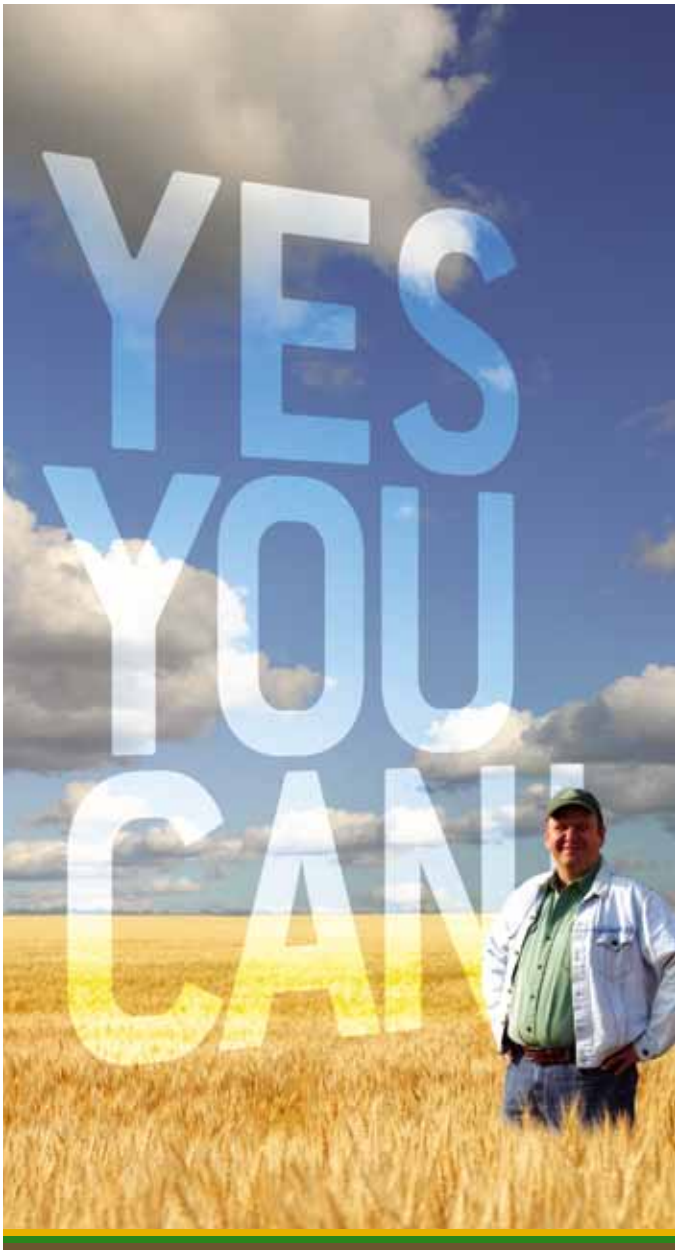
**Pedigreed class code pending the additional certification requirements to verify ratio blend.*

Trowell, Leslie	Saltcoats, SK	(306) 744-2684			
University Of Saskatchewan	Saskatoon, SK	(306) 931-9299			
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377			
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714			
Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984			
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			
CDC ZORBA - SPELT					
Amos, K. Wayne	Oxbow, SK	(306) 483-2963	F		
Kennett, Brian Guy	Manor, SK	(306) 448-4813		R	C
COLUMBUS					
Willner, Lorne E.	Davidson, SK	(306) 567-4613			C
CONQUER - 5701PR*					
Hyndman, Glen	Balcarres, SK	(306) 334-2914			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			
FIELDSTAR-WASKADA*					
Bryant, Lee & Phyl & Vern & Carol	Battleford, SK	(306) 937-3565			
Carlson, Herbert E.P. & Leslie	Buchanan, SK	(306) 592-4449			
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626			
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235			
Fraser, Edward H., Glen & Dale	Yarbo, SK	(306) 745-3830			
Hanmer, Ronald F., Kent, Brad & Dallas	Govan, SK	(306) 484-4327			
Littman, Larry W., Allan B., L. Robert & Adam	Saltcoats, SK	(306) 783-6518			
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398			
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			
Viterra	Regina, SK	(306) 569-5027			
GLENN					
Crosson, Lorne & Will & Lee	Welwyn, SK	(306) 733-4593			C
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443			C
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235			C
Hyndman, David	Balcarres, SK	(306) 334-2914			C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
GOODEVE*					
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377			
GOODEVE-AC INTREPID*					
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415			
Boyd, Clare W. & Dale A.	Melfort, SK	(306) 752-2108			
Cay, Randy D.	Kinistino, SK	(306) 864-3696			
Charabin, Dale Kenneth, Timothy V. & Ryan	North Battleford, SK	(306) 445-2939			
Denis, Michel P. & Marc	St. Denis, SK	(306) 258-2075			
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438			
Gaertner, Lyle	Tisdale, SK	(306) 873-4936			
Hetland, Bill	Naicam, SK	(306) 874-5694			
Hyndman, Neil S.	Balcarres, SK	(306) 334-2914			
Klemmer, Richard	Nipawin, SK	(306) 862-3874			
Littman, Larry W., Allan B, L. Robert & Adam	Saltcoats, SK	(306) 783-6518			
Murray, Ross	Young, SK	(306) 259-4982			
Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912			
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			
Trowell, Leslie	Saltcoats, SK	(306) 744-2684			
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811			
HARVEST					
Danielson, Lionel & Bonnie	Norquay, SK	(306) 594-2173			C
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235	F		C
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438	F	R	
Frederick, Blaine	Watson, SK	(306) 287-4289			C
Hardy, Allan W. & Dale & Evan	Grenfell, SK	(306) 697-3128			C
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			C
Van Burck, Hans & Marianne	Star City, SK	(306) 863-4377			

**Pedigreed class code pending the additional certification requirements to verify ratio blend.*

Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984			C
Wilfing, Raymond John & Ryan John	Meadow Lake, SK	(306) 236-6811		R	C
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423			C
INFINITY					
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415			C
Bergstrom, Randy M.	Birsay, SK	(306) 573-4625			C
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602			C
Blenkin, Leonard G. & Larry K.	Sintaluta, SK	(306) 727-2222			C
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443		R	
Dowdeswell, Donald D.	Pennant, SK	(306) 626-3388			C
Fedoruk, Rod M.& Cathy	Kamsack, SK	(306) 542-4235		R	
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Hyndman, Neil S.	Balcarres, SK	(306) 334-2914			C
Illingworth, H.V. & T. D.	North Battleford, SK	(306) 445-5630		R	
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		R	
Mayerle, Erwin D.	Tisdale, SK	(306) 873-4261		R	C
Mayerle, Kris	Tisdale, SK	(306) 873-4261			C
Pfeifer, Robert G.	Lemberg, SK	(306) 335-2532		R	C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	C
Slind Seeds Group (1998) Ltd.	Archerwill, SK	(306) 323-4402			C
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555		R	
KANE					
Bergstrom, Randy M.	Birsay, SK	(306) 573-4625			C
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443			C
Goossen, Mathew	Stenen, SK	(306) 548-4758			C
Heavin, G. Harvey & G. Ryan	Melfort, SK	(306) 752-4171	F	R	
Larsen, Lyle L.	Aylsham, SK	(306) 862-7333			C
Mannle, Kenneth	Moosomin, SK	(306) 435-3411		R	C
Rude, Stanley	Naicam, SK	(306) 874-2359			C
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687			C
LILLIAN					
Altwasser, Rodney, Allen R. & Dean	Yellow Grass, SK	(306) 465-2727		R	
Annand, Glenn	Mossbank, SK	(306) 354-7675		R	
Bews, W. Kenneth & Brent W.	Eatonia, SK	(306) 967-2440		R	
Blenkin, Leonard G. & Larry K.	Sintaluta, SK	(306) 727-2222			C
Carefoot, Floyd Martin	Swift Current, SK	(306) 773-6963			C
Craswell, Raymond W.	Strasbourg, SK	(306) 725-3236			C
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443		R	
Edwards, Lawrence R., Donna, Jeff & Mike	Nokomis, SK	(306) 528-2140			C
Floberg, Barry, Delana, Devin & Brandon	Shaunavon, SK	(306) 297-2087			C
Fritzler, Baine A., Brenda D. & Adam A.	Govan, SK	(306) 484-2010			C
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			C
Heggie, Kyle Robert	Leross, SK	(306) 675-4920			C
Klym, Roy	Regina, SK	(306) 543-5052			C
Lueke, Dennis	Humboldt, SK	(306) 682-5170			C
McCutcheon, David	Outlook, SK	(306) 856-2265			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			C
Patzer, Wendell Albert	Frontier, SK	(306) 296-4780			C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	C
Rugg, Barry C. & Robert B.	Elstow, SK	(306) 257-3638			C
Schmeling, Donald H.	Riceton, SK	(306) 738-2064			C
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503			C
Silversides, Roy P. & Ruby N.	Corning, SK	(306) 457-2639		R	C
Smith, Wayne D.	Limerick, SK	(306) 263-4944			C
Sperle, Bentley D. & Jody	Unity, SK	(306) 228-3160			C
Stirton, Brian James	Moose Jaw, SK	(306) 693-2310			C
Watson, Wayne Donald, Calvin & Mark	Avonlea, SK	(306) 868-2171	F	R	C
Wiens, Brennan R.	Herschel, SK	(306) 377-2002			C
Willner, Lorne E.	Davidson, SK	(306) 567-4613			C
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C

**Pedigreed class code pending the additional certification requirements to verify ratio blend.*



MCKENZIE					
Viterra	Regina, SK	(306) 569-5027	F		C
MINNEDOSA					
Laxdal, G.M. Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078			C
Straub, Lorne A.	Pense, SK	(306) 345-2390	F		
MUCHMORE					
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058	F		
Garratt, Lyle C. & K.C.	Milestone, SK	(306) 436-2178	F		
Girodat, Gerald	Shaunavon, SK	(306) 297-2563			
Laxdal, G.M. Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078	F		
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244	F		
NRG010					
Straub, Lorne A.	Pense, SK	(306) 345-2390		R	
ROBLIN					
Maxwell, David S.	Nipawin, SK	(306) 862-9622	F		C
SADASH					
Allan, Raymond N. & Ruth	Corning, SK	(306) 224-4666			C
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602			C
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058			C
Dutton, David H.& George	Paynton, SK	(306) 895-4306			C
Fenton, Gerald A. & Robin Paul	Tisdale, SK	(306) 873-5438	F		
Frederick, Blaine	Watson, SK	(306) 287-4289		R	
Greenshields, Grant & Jim & Callie	Semans, SK	(306) 524-2155			C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
Laxdal, G.M. Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078	F	R	C
Lung Seeds Ltd.	Lake Lenore, SK	(306) 368-2414		R	
Lung, Ivan & Schemenauer, S. & B	Lake Lenore, SK	(306) 368-2511		R	
Maze, Gary Keith	Unity, SK	(306) 398-2637		R	
Rude, Stanley	Naicam, SK	(306) 874-2359		R	
Toman, Fred	Guernsey, SK	(306) 365-4215		R	
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060			C
Winterhalt, Tim	Unity, SK	(306) 228-3440			C
SHAW-AC DOMAIN*					
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415			
Beuker, Allan Daniel	Melfort, SK	(306) 752-4810			
Kerber, Greg	Rosthern, SK	(306) 232-4474			
Ostafie, Dave & Robert	Canora, SK	(306) 563-6244			
Pratchler, John & Leander	Muenster, SK	(306) 682-3317			
Shwaga, Jeff W.	Wroxton, SK	(306) 742-4590			
Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			
Veikle, Lorne A., Carl E., G. & J.	Cut Knife, SK	(306) 398-4714			
Willner, Lorne E.	Davidson, SK	(306) 567-4613			
Winterhalt, Tim	Unity, SK	(306) 228-3440			
Wylie, Leslie Dale	Biggar, SK	(306) 948-5394			
SNOWBIRD					
Berscheid, K.N., B., E.K., S., C. & Y.	Lake Lenore, SK	(306) 368-2602		R	
Blenkin, Leonard G. & Larry K.	Sintaluta, SK	(306) 727-2222			C
Hyndman, Glen	Balcarres, SK	(306) 334-2914			C
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848			C
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139		R	
Smith, Wayne D.	Limerick, SK	(306) 263-4944			C
Woods, Dale Arthur	Rocanville, SK	(306) 645-4423			C
SNOWSTAR					
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148		R	C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			C
STETTLER					
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155			C
Tebbutt, Ronald E. & Gregg	Nipawin, SK	(306) 862-9730			C

**Pedigreed class code pending the additional certification requirements to verify ratio blend.*

SUPERB

Edmunds, Greg & Glen	Tisdale, SK	(306) 873-5480	C
Holland, Ernest W.	Rocanville, SK	(306) 645-4223	C
Kennett, Brian Guy	Manor, SK	(306) 448-4813	C
Ostapovitch, F.G. & Glen	Theodore, SK	(306) 647-2205	R
Trawin, Julie Ann	Melfort, SK	(306) 752-4060	R

UNITY-WASKADA*

Ackerman, Patrick	Chamberlain, SK	(306) 638-3177
Allan, Raymond N. & Ruth	Corning, SK	(306) 224-4666
Altwasser, Rodney, Allen R.& Dean	Yellow Grass, SK	(306) 465-2727
Annand, Glenn	Mossbank, SK	(306) 354-7675
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415
Berscheid, K.N., B., E.K.,.S., C. & Y.	Lake Lenore, SK	(306) 368-2602
Beuker, Wilbur A.	Melfort, SK	(306) 863-2225
Blenkin, Leonard G. & Larry K.	Sintaluta, SK	(306) 727-2222
Bryant, Lee, Phyl, Vern & Carol	Battleford, SK	(306) 937-3565
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556
Clark, Shaun & Gilchrist, Armand & Gibbings, Neil	Rosetown, SK	(306) 882-2058
Dangstorp, Brian & Perry	Redvers, SK	(306) 452-3443
Dutton, David H. & George	Paynton, SK	(306) 895-4306
Fast, Walter J. & Linda	Kindersley, SK	(306) 463-3626
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235
Fraser, Scott & Shawn	Pambrun, SK	(306) 582-2148
Gellner, Clayton S.	Southey, SK	(306) 726-4323
Gerry, Greg	Creelman, SK	(306) 457-2220
Girodat, Gerald	Shaunavon, SK	(306) 297-2563
Greenshields, Grant, Jim & Callie	Semans, SK	(306) 524-2155
Hardy, Allan W., Dale & Evan	Grenfell, SK	(306) 697-3128
Heavin, G. Harvey & G. Ryan	Melfort, SK	(306) 752-4171
Heggie, Robert Thomas	Leross, SK	(306) 675-4920
Herle, Gregory R.	Wilkie, SK	(306) 843-2934
Hetland, Bill	Naicam, SK	(306) 874-5694
Hyndman, Neil S.	Balcarres, SK	(306) 334-2914
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236
Klym, Roy	Regina, SK	(306) 543-5052
Laxdal, G.M., Blyth, D., Gregory, Wayne, Richard & Bolt, Glen A.	Wynyard, SK	(306) 554-2078
Lepp, Milton, Elden; & Neufeld, M.	Hepburn, SK	(306) 254-4243
Littman, Larry W., Allan B., L. Robert & Adam	Saltcoats, SK	(306) 783-6518
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Mayerle, Kris	Tisdale, SK	(306) 873-4261
McCarthy, Richard J. & Brent	Corning, SK	(306) 224-4848
Olson, Lyndon Ordin	Archerwill, SK	(306) 323-4912
Osborne, Nolan Stanley C.	Yorkton, SK	(306) 782-7113
Palmier, Maurice	Lafleche, SK	(306) 472-5917
Pratchler, John & Leander	Muenster, SK	(306) 682-3317
Reisner, Cecil & Barry	Limerick, SK	(306) 263-2139
Rempel, Blair Allan	Nipawin, SK	(306) 862-3573
Rude, Stanley	Naicam, SK	(306) 874-2359
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South, Winston, Richard & Bradley	Melfort, SK	(306) 752-9840
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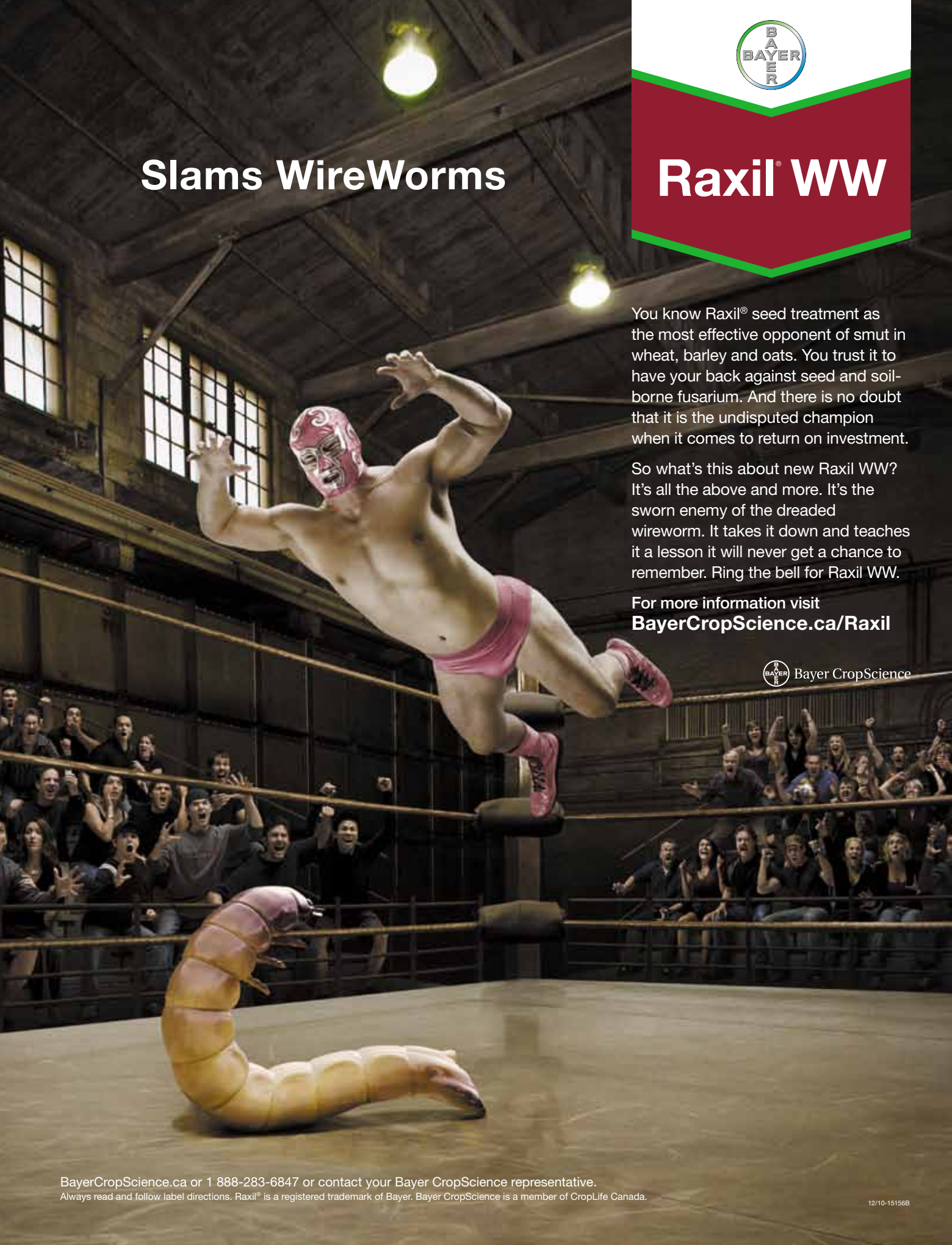
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Tomtene, Steven & Slind, Daniel	Birch Hills, SK	(306) 749-3447			
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Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984			
Wiens, Brennan R.	Herschel, SK	(306) 377-2002			
Wiens, Rudy G.	Herschel, SK	(306) 377-4800			
Will, Gordon James	Mortlach, SK	(306) 355-2289			
Willner, Lorne E.	Davidson, SK	(306) 567-4613			
Woroschuk, Andrew	Calder, SK	(306) 742-4682			
Wylie, Leslie Dale	Biggar, SK	(306) 948-5394			
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555			

WASKADA

Allan, John R. & John Garth	Corning, SK	(306) 457-2629		R	C
Allan, John Richard	Corning, SK	(306) 224-2021			C
Amos, K. Wayne	Oxbow, SK	(306) 483-2963		R	
Ardell, Terrence, Michael, & Joanne	Vanscoy, SK	(306) 668-4415			C
Carlson, Herbert E.P. & Leslie	Buchanan, SK	(306) 592-4449		R	
Dutton, David H. & George	Paynton, SK	(306) 895-4306			C
Fedoruk, Leah	Kamsack, SK	(306) 542-3645		R	
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235		R	
Fowler, Edith	Central Butte, SK	(306) 796-4652			C
Hardy, Allan W., Dale & Evan	Grenfell, SK	(306) 697-3128		R	C
Haukaas, Beric D.	Mortlach, SK	(306) 355-2575			C
Heavin, Larry N. & L. Warren	Melfort, SK	(306) 752-4020		R	
Hyndman, Glen	Balcarres, SK	(306) 334-2914			C
Lepp, Milton & Elden; & Neufeld, M.	Hepburn, SK	(306) 254-4243			C
Medernach, Louis J. & Kim L.	Cudworth, SK	(306) 256-3398			C
Nakonechny, Don P, Coral, Lance, Lauren & Richelle	Ruthilda, SK	(306) 932-4409	F	R	
Radloff, Shelly Colleen	Melfort, SK	(306) 752-4060		R	
Shewchuk, Stan, Lorne, Terry, Adam & Michael	Blaine Lake, SK	(306) 497-3503	F		C
Trowell, Kenneth, Larry & Nathan	Saltcoats, SK	(306) 744-2687	F		C
Wakefield, Kristopher, Laurie G. & Monica	Maidstone, SK	(306) 893-2984			C
Zwingli, James Trent & Shelley	Melfort, SK	(306) 752-4224		R	

WR859 CL

Beuker, Wilbur A.	Melfort, SK	(306) 863-2225		R	C
Buziak, Ronald Charles	Mayfair, SK	(306) 445-6556			C
Cay, Randy D.	Kinistino, SK	(306) 864-3696			C
Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235		R	C
Herle, Gregory R.	Wilkie, SK	(306) 843-2934			C
Hyndman, Glen	Balcarres, SK	(306) 334-2914		R	
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
Novak, Orrin	Kuroki, SK	(306) 338-2021			C
Shwaga, Jeff W.	Wroxton, SK	(306) 742-4590		R	
Sopatyk, Jeffery & Patti	Saskatoon, SK	(306) 955-2516		R	
Stauber, Clayton & Lori	Stewart Valley, SK	(306) 773-7907			C
Syngenta Seeds Canada, Inc.	Cottam, ON	(519) 839-4851		R	C
Viterra	Regina, SK	(306) 569-5027		R	
Yauck, Kevin Rodney	Govan, SK	(306) 484-4555		R	C

WHEAT - WINTER

ACCIPITER

Elmy, Robert W., Kevin & Christina	Saltcoats, SK	(306) 744-2779		R	
Lutzer, Albert & Latrace, Jim	Lumsden, SK	(306) 731-2843	F		

BROADVIEW

Fedoruk, Rod M. & Cathy	Kamsack, SK	(306) 542-4235			
Seed Increase Unit, Research Farm	Indian Head, SK	(306) 695-5266			

CDC BUTEO

Gellner, Clayton S.	Southey, SK	(306) 726-4323		R	
Hanmer, Ronald F., Kent, Brad & Dallas	Govan, SK	(306) 484-4327			C
Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236			C
McDougall, Ken & Craig	Moose Jaw, SK	(306) 693-3649			C
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Kaeding, Roger W. & Warren	Churchbridge, SK	(306) 896-2236		
University Of Saskatchewan	Saskatoon, SK	(306) 931-9299		
WHEATGRASS - CRESTED				
AC GOLIATH				
Trawin, Alan Ross, Mitchell, Ashton, Jennifer & Jessica	Melfort, SK	(306) 752-4060	F	
FAIRWAY				
Bailey, Roy G.	Milden, SK	(306) 935-4702		C
Clearwater, Don W.	Nipawin, SK	(306) 862-3025		C
Horudko, Dwight	Nipawin, SK	(306) 862-9491		C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088		C
Tulloch, Randy	Broadview, SK	(306) 696-2840		C
KIRK				
Freedman, Brent	Gronlid, SK	(306) 277-4721		C
Geall, Brian R.	Nipawin, SK	(306) 862-9177	F	C
Gilmour, Robert L.	Carrot River, SK	(306) 768-3482		C
Hochbaum, Jack	Wilkie, SK	(306) 843-2054		C
Horudko, Dwight	Nipawin, SK	(306) 862-9491		C
Horudko, Ernest	Nipawin, SK	(306) 862-4889		C
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088		C
Rempel, Blair Allan	Nipawin, SK	(306) 862-3573		C
WHEATGRASS - GREEN				
AC SALTLANDER				
McLeod, J.Grant	Swift Current, SK	(306) 778-7240		C
WHEATGRASS - INTERMEDIATE				
CHIEF				
Pickseed Canada Inc.	Winnipeg, MB	(204) 633-0088		C
WHEATGRASS - SLENDER				
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