# Alberta Seed Guide SPRING 2013 Seed.ab.ca

**ON THE HORIZON** THE FUTURE OF HYBRID WHEAT IN CANADA

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#### WELCOME to the spring edition of the Alberta Seed Guide.

The theme for this issue, Seed –Tomorrow's Success, reminds us that the choice of seed is the most important decision that we will make for this crop year.

With the ever increasing opportunities that have presented themselves since the demise of the single desk marketing system, it's becoming clear that our grain customers have many varying requirements that were not evident under the old system. In order to satisfy these many different demands we, as grain producers, will be required to grow what our customers require, not what we think they would like. To this end it is more important than ever that grain growers become involved with all aspects of plant breeding and development of new varieties that will provide us a leg up on the competition.

In the past, here in Canada, we have left the responsibility of plant breeding up to the federal and provincial governments. While this approach has its merits, it is becoming increasingly clear that both levels of governments have neither the will, nor the finances to keep up with the rest of the world in plant breeding.

It is being left up to us to look after ourselves if we want to be able to compete in this ever changing world. What we are seeing is that the various commodity groups that represent all segments of the grains and oilseeds sector are beginning to realize that if we all work together we will be able to make the necessary changes that will enable us to access the varieties that we require to fulfill our customers' requirements.

The time has come where it is up to us, the grain producers, to make sure that we are not left behind. Get involved and make your voice heard.

#### Steven Miller, President

Association of Alberta Co-op Seed Cleaning Plants Email: stevenmiller@mcsnet.ca





#### RYAN MERCER

**WELCOME** fellow seed producers, growers and industry partners to our spring issue of the Alberta Seed Guide! With today's rapidly changing agricultural industry we are constantly faced with challenges, but even more so I feel there is a true sense of optimism and opportunity we've never seen before!

You likely read the "Made In Canada" article in the last "Alberta Seed Guide" concerning a project titled "Investigation and Development of a New Cereal Varietal Development Model for Western Canada." In collaboration with grower organizations, a Steering Committee has been established to guide and direct this project for the benefit of the entire industry. We are now in full swing, and since then Garvin and Associates of Saskatoon, Sask., have been selected to carry out this project and are planning over the next few months to investigate global cereal breeding programs and how they are financed, along with the government legislation that enables these various models to work. We will hold various stakeholder consultative sessions throughout Western Canada to inform the industry what is being used around the world, then gather as much input from these private, public and producer groups as possible as we attempt to construct a "Made In Canada" solution that will maintain and improve the competiveness of cereals as an important part of good crop rotations.

It is well known that varietal development will require increased investment from multiple sources to help growers and the western Canadian cereals industry to remain competitive globally, to improve growers' profitability from cereal crops, and to maintain existing and develop new markets domestically and internationally. It is critical and essential that growers, companies and governments be actively involved in helping develop the path forward that will strengthen partnerships in the future development of improved cereal varieties.

I know you'll find this issue extremely useful as you review results from this past season's variety trials while learning something new that will benefit your operation from the articles within. Enjoy!

#### **Ryan Mercer, President**

Alberta Seed Growers' Association Email: rmercer@mercerseeds.ca

Seed Industry Partner

ASSOCIATION OF ALBERTA CO-OP SEED CLEANING PLANTS SGA SEED GROWERS'

#### Greetings



#### **MINISTER OLSON**

**CONGRATULATIONS** to the Alberta Seed Industry Partnership on another informative *Alberta Seed Guide – Seed: Tomorrow's Success*. For 13 years, the Alberta Seed Industry Partnership has published this dependable source of agricultural information for Alberta's producers.

As the Canadian seed industry evolves and progresses, so too will the way that we breed, grow and market our seed crops. New seed technologies will continue to have a profound effect on the industry, leading to advancements in seed genetics research and varietal development. Innovation and research are leading the way in defining tomorrow's crops. One example of such innovative work was the establishment of a steering committee to investigate the development of a new cereal plant breeding model for Western Canada.

Not only is research and technology changing our industry, there are also new opportunities for marketing our products. There is a new

marketing structure for cereal grains in Western Canada and 2012 saw the transformation of the Canadian Wheat Board.

These initiatives are creating new global opportunities for producers and together we will continue to adapt in this increasingly competitive and evolving industry.

Through seed crop certification and a world-renowned quality assurance system, Canada is known for producing some of the highest quality seed in the world. Alberta is a key partner in that success.

As Minister of Agriculture and Rural Development it is my sincere pleasure to extend greetings to the readers of the *Alberta Seed Guide* and to wish all Alberta's producers a productive and successful year ahead.

#### Verlyn Olson, Q.C.

Minister of Agriculture and Rural Development



#### SHAWN BROOK

**THE** agri-food and life sciences sectors are modern, vibrant and diverse industries, filled with forward-thinking people who love what they do. For these industries to reach their full potential, their roles and importance have to be better understood by the public and our industry itself.

An initiative is currently underway called Agriculture More Than Ever that is working on shifting perceptions and creating positive dialogue about Canadian agriculture. It is up to all of us to be champions of agriculture. We can do this by how we talk to our kids, our neighbours or even strangers on the street with respect to what's happening in the industry. It's our job to be educated on the issues the industry is facing so we can fill in the information gaps, bring people together, respond to misguided perceptions, and tell the success stories about agriculture with pride, passion and accuracy. We hope that the stories and information you find in the *Alberta Seed Guide* helps you do this.

Now more than ever is an exciting time to be in agriculture. Though we face many challenges globally—water shortages and a ballooning population—the research and advancements being released from the agri-food and life sciences sectors contain solutions for the path forward. We are proud to count ourselves among this hard-working group of individuals and share in their achievements with the larger industry and consumer audiences.

#### Shawn Brook, Publisher Alberta Seed Guide | Email: sbrook@issuesink.com

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#### Alberta Seed Guide

#### Spring 2013

Seed Industry Partners



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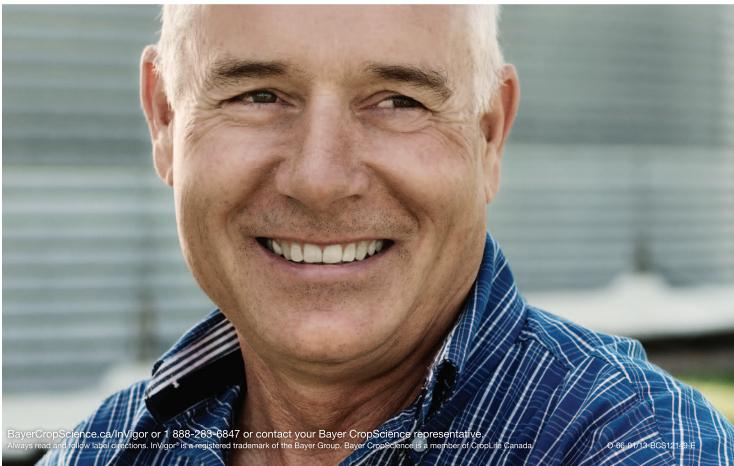
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# **HYBRID WHEAT ON THE HORIZON?**

The commercialization of hybrid wheat varieties in Canada is still several years away, but a renewed desire in the private sector to develop improved wheat genetics might mean hybrid wheat will reach the market in the next decade.

**SOME EXPERTS SAY** it is coming in the next decade. Others are more skeptical. But no matter how you look at it, hybrid wheat in Canada is more of a reality now than ever before.

"There's no doubt industry needs to work together [on cereal research], the reason being when you think about a grower and the farm operation, we're not going to have the answer to every one of his or her issues," says Norm Dreger, head of cereals North America for Syngenta.

"We really need to look at the gaps within the offer we have and then look for partnerships and collaborations to try and fill the gaps. This isn't going to be a cheap, short-term venture to try to 'technify' wheat; we're talking about decades and a great deal of money," he adds.

#### **Investment is There**

The desire to add value and improve the Canadian producer's toolkit of products has led to an increased investment in wheat in recent years. "When you look at the number of acres out there and you look at the vast array of different types of products that we can produce and produce well in Canada, we're really just embarking on a whole new frontier in terms of the types of varieties that we can grow and the types of markets that we can access," says Jeff Reid, general manager of SeCan. "We look at hard white spring wheat for example, now that's really just getting ramped up in Western Canada and I think those types of things are going to present tremendous opportunity for the seed industry and for farmers across Western Canada."

While the timeline for new wheat varieties is still somewhat up in the air, one thing is certain: investment will continue and will likely lead to more private and public partnerships. "SeCan has been a fairly large private sector investor in wheat for about the last 15 years, but I think going forward we see increasing opportunity for SeCan to leverage up dollars with other private sector partners as well as the federal government—while they are scaling back their own research and development activities they are willing to partner and certainly look at more partners outside of AAFC," says Reid.

"In recent years, we've heard a lot more about private sector



The industry is confident that hybrid wheat is a reality for western Canadian farmers.

investment in wheat but a lot of that is really still out on the horizon—we haven't seen a lot of activity on the ground yet at this point and undoubtedly that's coming and that's going to be a very positive thing for the entire industry," adds Reid.

David Hansen, president and CEO of Canterra Seeds, agrees. "Companies are now taking the tools that have been developed for other crops and utilizing them to help advance wheat on a major scale, on a global scale," he says.

#### **Turning to Hybrids**

While many private companies are now investing in wheat, Syngenta is leading the way in Canada when it comes to hybrid wheat research. The company, which invests roughly \$130 million annually in cereals R&D efforts globally, announced last November that it was ramping up its hybrid wheat breeding efforts. The company expanded its Junction City, Kan., research site to include an advanced hybrid wheat greenhouse, alongside its North American double haploid lab.

"Nearly a half-billion acres of wheat are grown around the world, but wheat growers are not seeing yield and quality increases in line with other crops like corn and soybeans. We're working to change that," said Dreger in a press release.

The company has been breeding cereal varieties for nearly four decades within North America and is now increasing its efforts to release commercially-available hybrid wheat varieties in Canada and the United States. "We're applying the same principles we used in successfully developing hybrid barley for Europe to develop hybrid wheat varieties for North America," says Rollie Sears, senior science and technology fellow for Syngenta. "Hybrid wheat can offer growers yield stability and consistent performance across fields with varying soil types and qualities. Our goal is to release the hybrid wheat varieties to growers by the end of the decade."

Sears leads the research and development operations for cereals seeds and is located in Junction City. His team of seven regionally-based breeders are embedded in research sites across the United States and Canada. Syngenta is also in a partnership with the International Maize and Wheat Improvement Centre that entails joint research and development in native and GM wheat traits, hybrid wheat and the combination of seeds and crop protection to accelerate yield performance.

#### **New Roles for Seed Growers**

What will the introduction of some of these exciting new traits and genetics in wheat mean for the traditional seed grower? "Hybridization is certainly a process that results in higher use of certified seed; it results in higher investment or reinvestment in innovation so all that's good," says Dale Adolphe, executive director of the Canadian Seed Growers' Association. "There is a concern amongst seed growers that when a crop gets hybridized they will lose a role in the production and distribution of that crop kind. And we certainly saw it, as an example, in canola. However, it comes down to the distribution system and wheat is produced differently than canola."

Adolphe says to seed an acre of canola it takes five pounds, but to seed an acre of wheat it takes about 120 pounds, so companies are going to need local suppliers and distributors as they get into the wheat business.

Reid agrees. "I think going forward the introduction of new traits and genetics will change the landscape somewhat but maybe not as much as people think," says Reid. "You always hear that saying that 'wheat is grown, processed and distributed 50 miles at a time.' And that's really what sets the cereal industry apart from canola—where canola can be centrally produced and really needs to be because of the costs associated with hybrid seed production, cereals really lend themselves well to localized production, processing and distribution."



Hansen believes seed growers might even play a more important role in cereal seed production than ever before. "When we look at wheat as a crop it has a very, very low multiplication rate and if we look at the economics and the logistics of growing wheat or cereal seed of any type, moving it from point A to point B is very expensive and very labour intensive," he says.

"Therefore, we can't relocate wheat production to another part of the country similar to what we have seen happen in canola, which has a very high multiplication rate. So cereal crops are going to be managed within a hundred- to a fifty-mile radius of where that crop has been produced. Seed growers are the ones that the industry is going to be reliant on to help move the technology, move the traits and move the genetics into the hands of the farm customer," says Hansen.

"I think it is a message to seed grower retailers that there is an opportunity there to work as a retailer for these private investments in cereals because it's a different set of logistics than the distribution of canola seed," says Adolphe. "It's still going to be local production and distribution of sales."

#### **Hurdles to Hybridization**

While breeders list crop stability and heat tolerance as the main advantages to hybrid wheat, which ultimately leads to more bushels per acre for farmers, there are some hurdles that still need to be met. "Hybrid vigour in wheat to date has been limited to five per cent to a maximum of 15 per cent," says Ron DePauw, a wheat breeder at Agriculture and Agri-Food Canada's Semiarid Prairie Agricultural Research Centre in Swift Current, Sask.

Then there is the cost issue. "Production of hybrid seed is very costly. Saved seed from a hybrid will not produce to the same level of productivity as the hybrid and that is an advantage to hybrid seed," says DePauw, adding that very little to no hybrid wheat breeding is being done in the public sector.

DePauw says figuring out how to get "sufficient hybrid vigour and yield gain to offset the high cost of seed," are the main factors that might delay the introduction of hybrid wheat.

Darcy Pawlik, Syngenta's North America industry relations lead, says Syngenta would like to see increased use of certified seed, but he says they understand the benefit has to exceed the cost for growers. "Obviously this would have a benefit to our bottom line and allow us to reinvest back in wheat research, but we believe farmers are smart, dynamic and they understand what's going on. If there's a benefit from growing a Syngenta variety, they'll buy the certified seed because it has the advancement that they're looking for," says Pawlik.

That benefit may just be found in Syngenta's hybrid wheat varieties, he says, adding that the yield benefit of the hybrid varieties may lead more growers to choose certified seed, which in turn, could drive more investment in wheat breeding.

#### **Consumer Acceptance**

Hansen says work on hybridization of wheat has been ongoing for many years but trying to perfect a system that will actually work economically on a large field scale has been very challenging. While he says the industry is closer to that end point than where it has been, the introduction of GM wheat is likely still a few years away due to lingering consumer concerns.

#### Success Story: Hybrid Barley in Europe

To date, hybrid wheat has remained a pipe dream. It's difficult and expensive to produce hybrid seed since wheat flowers self-pollinate. However, hybrid wheat may finally be on the horizon. Syngenta is developing hybrid wheat based on hybrid barley it has commercialized in Europe.

Syngenta scientists overcame the seed production issue with hybrid barley using a cytoplasm male sterile hybrid production system. Unlike old attempts to make hybrid barley, no chemicals are used under this system. Instead, this process crosses a sterile female parent with a fertile male parent. The resulting F1 hybrid is fertile and fully restored, and it produces seed across whole barley fields. According to the company, the system for hybrid barley works consistently and Syngenta breeders think it can be transferred into wheat.

According to Darcy Pawlik, North America industry relations lead for Syngenta, the hybrid barley system in Europe is:

- Driving higher grower ROI (3.3:1)
- Giving farmer gains of five per cent premium for quality
- Increasing barley yields by up to 20 per cent
- More than doubling farm profit per acre in some cases

"I think we need to talk more about GM wheat, in particular the traits and the values we want to see and in what sort of format they come to the market. There is a lot of sensitivity in terms of public acceptance," says Hansen. "The technology is certainly available and can be adapted and incorporated into wheat programs relatively quickly for the benefit of the grower, the industry and, ultimately, the end user and consumer but I think we are all well aware that we need to tread carefully. However, I firmly believe that we will see hybrid wheat and GM wheat in certain market segments where it makes sense and where it is not impeding trade and marketing of the commodity."

The technology is driving acceptance forward, as long as everyone in the value chain continues to communicate and work together. "Society, when you think of consumers, for example, is not only expecting new technology but it is also demanding it because it wants things like sustainability to be addressed," says Dreger. "Technology acceptance is moving in the right direction but there is a lot of work to be done because there are a lot of players along the value chain and we need to have all of them aligned before we bring the technology forward." **Julie McNabb** 

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# **TRENDS in TRAITS**

Genetic modification technologies aren't exactly 'news' anymore, but the ability to take these techniques and optimize them is constantly changing and accelerating the pace that new traits come to the marketplace.

**"WE ARE SPENDING** a lot of our research and development in trait development," says Simon Phillips, Syngenta business development manager for North America Cereals Genetics. "If you talk about winter wheat, in a traditional breeding system it would take you 11 years to get a new variety. With the new systems of identification in terms of traits and doing leaf tissue analysis, so that you know what you have in the plant, we can bring that process down to seven years. That's a major point because that is enabling us to react to the marketplace and bring solutions as quickly as possible."

At the forefront of trait development today is data management, says Neil Arbuckle, Monsanto's canola business lead. "Today's ability to roll together field data and phenotypic and genetic information is light years ahead of where it was five years ago," says Arbuckle.

An example of this is seed chipping technology, which Monsanto uses to help increase the speed and probability of finding desirable traits within seed populations of corn, soybeans and wheat. The seed chipping machine picks up each individual seed and orients it to make sure that the embryo will not be damaged during the process. Very gently, it removes a tiny piece of the hull, which is then blown onto a plate and sent off for analysis. The original seed and the chip from it have a barcode associated with them that will be used to relate the two if analysis shows that the chip contains a trait of interest in its DNA. If a desirable trait is identified, the seed is removed from storage and advanced through the breeding process and if not, it's discarded. "It's the industrialization of plant breeding," says Arbuckle. "It gives the plant breeder the ability to continue the breeding program and maybe he won't run as many trials but he knows he will have a higher probability of success."

There are basically three different categories of traits; protective traits such as herbicide and pest tolerance and disease resistance; agronomic traits such as drought or cold tolerance, nitrogen or water use efficiency; and end-use traits such as high Omega-3 or amylase content. "Each one represents a very different value proposition in the marketplace," says Carl Peterson, owner of Peterson Farms Seed and an independent seed retailer in Harwood, North Dakota.



Today's plant breeding is promising many sought after traits for farmers.

#### **Protective Traits**

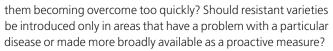
Protective traits, such as herbicide or pest tolerance offer the easiest, most obvious and most immediate benefits to seed companies and growers.

Traits that offer increased weed management options and pest and disease protection are always near the top of breeders' lists, especially as herbicide resistant weeds continue to spread, whilst pest and disease cycles alter in response to changing climates. "The adoption of stacked traits in corn, soybeans and other crops is a trend that will continue to grow," says Ben Kaehler, Dow AgroSciences general manager for U.S. seed affiliates. "Every year in corn we see additional growth in the adoption of stacked traits, because growers are seeing the value of having additional insect protection and additional herbicide options for them to control their pests and weeds." Kaehler predicts that the future will offer more weed control options both in corn and soybeans, such as Dow's new Enlist traits, which provide tolerance to 2,4-D and glyphosate to give complimentary multiple modes of action for broader-spectrum weed control. It's expected that the Enlist Weed Control System will receive approvals for corn in the upcoming months and soybeans in 2015.

"We believe new technologies coming into the marketplace like Enlist will be widely adopted because it is going to allow growers to continue to farm like they currently do," says Kaehler. "That is one of the key things that growers want because they are comfortable with today's practices and they have been very successful for them and so they want to continue to use them."

An effective pest resistance tool in wheat is solid stem varieties, which offer good resistance to pests, such as sawfly and midge, and have been around in bread wheat for some time. SeCan is close to launching the first solid stem durum line, DT818, which is completing the registration process and is soon to be named. Seed from the new variety will be released for multiplication in 2013 and should be available for commercial use by 2014.

Stewardship of protective traits is a hot topic in breeding circles and sparks much discussion about gene deployment. Companies involved in developing protective traits are asking themselves how they maximize those traits to maintain resistance to disease, weeds and pests. Should traits be stacked, and then put into the environment at the same time to give early resistance or should they be deployed independently over time to minimize the risk of



"We are trying to see how we can make sure that we continue to deploy our products strategically to ensure [for example] that canola can continue to be grown under a shorter rotation because we know that growers are going to do that," says Arbuckle. "Those kinds of strategies are front and centre for us."

In the near term, Monsanto will be introducing its new TruFlex Roundup Ready canola trait in 2014 that offers enhanced glyphosate tolerance and will offer more options to deal with hard to control weeds with a higher application rate and wider window of application.

"Longer term weed resistance management is another huge issue for farmers across Western Canada," says Arbuckle, and Monsanto will be introducing some Liberty Link/Roundup Ready stacked products in the short term to help manage resistant weeds in canola. For the longer term, it's evaluating a dicamba/TruFlex stack.

Breeding programs, says Todd Hyra, SeCan's business manager for Western Canada, will continue to try and get all eggs in one basket. "The ultimate dream is to have the short, strong straw varieties with a good fusarium rating and midge tolerance all together in one package," he says.

#### **Agronomic Traits**

Agronomic traits such as water use efficiency or drought tolerance face more of a challenge in the marketplace because



their benefits may accumulate over time or demonstrate most value under specific conditions. For example, a drought tolerant corn variety may offer an advantage only in years when lack of moisture becomes a limiting factor for optimum yield.

Manageability at the farm level is another important factor that can drive agronomic traits, because as farm sizes increase, greater emphasis, especially in Canada, is being placed on those things that make the farm more productive and efficient. "Farmers want good yielding material, just as they always have, but what's drawing the most interest right now in terms of new varieties coming to the marketplace is things such as ease of harvest, straw management and grain index," says Hyra.

Pod shatter resistance in canola, which many companies are trying to improve through breeding, is a good example of that drive. "Better shatter resistance will be a huge benefit to farmers, because if you had improved shatter resistance and you chose to straight cut, you'll have a higher yield because the pods won't split," says Arbuckle. "That will deliver a tremendous amount of value."

Abiotic stresses such as heat and drought are always the "Holy Grail" that plant breeders are striving for in their long- term programs. Syngenta is preparing to launch its new Artesian water optimization trait for corn varieties in 2013, which in trials were shown to increase yields by 15 per cent under conditions of moisture stress over varieties that do not have the trait.

Although there were a few other drought tolerant corn hybrids released in some parts of the United States in 2012, Arbuckle thinks it could be a while before western Canadian farmers see many more options in this area. "Breeders are realizing that geography by environment interactions in germplasm is much more complex in things like drought resistance, water use efficiency or nitrogen use efficiency than in herbicide or pest tolerance," he says.

Syngenta spends around \$130 million annually on its cereal breeding program and has breeding centres across Canada and around the globe in major wheat breeding areas. The company, says Phillips, is strongly committed to the development of hybrid cereals, which he expects will be commercialized within the next 10 years.

Meanwhile, Syngenta's newest wheat variety, Canadian Prairie Spring Red (CPSR) SY 985, which is being launched for the 2013 growing season, combines the qualities of a highyield potential and milling quality grain, whilst maintaining the desirable agronomic features of short straw, standability, good lodging resistance and good resistance to leaf, stem and stripe rusts, loose smut and bunt. It's indicative of the influence that a new marketing environment for western Canadian wheat growers is beginning to exert on the breeding pipeline. The CPSR wheat class was developed as a high-yielding industrial wheat for the ethanol and feed industries, but by breeding a variety that can be milled it has created new opportunities for western Canadian growers in a changing marketplace. "To us, disease is very important, quality is very important, but at the top of the list is always yield. At the end of the day, a wheat crop has to fight in the marketplace for position, so we have to produce goods that can be economically produced by the grower," says Phillips.

"Farmers want good yielding material, just as they always have, but what's drawing the most interest right now in terms of new varieties coming to the marketplace is things such as ease of harvest, straw management and grain index."

– Todd Hyra

#### End-Use Traits

End-use traits have to connect their value all the way through the chain from the trait, the seed and the genetics, through the seed company purveyor, the grower, the grain company, the processor and on to the end user. "Everybody wants a little piece of that," says Peterson. "The seed companies need a part of it and the marketers need something for it and the grower needs a reason to grow it and so on. I think [all of these parts] will be connected at some point when someone comes up with a value proposition that is compelling enough to push through that chain."

Some of these traits, like improved pod shatter resistance, says Arbuckle, are regular breeding traits that don't involve the introduction of foreign DNA and are not subject to the same regulatory approvals process that genetically modified traits must undergo.

"A lot of people don't differentiate between a GM trait and a breeding trait," says Arbuckle. "Our DNA or GM technology requires rigorous regulatory approval, which is prohibitively expensive and so the output or the value that trait would deliver typically needs to be spread across a very large number of acres in order to justify the investment to get it through first the discovery and testing processes and then the regulatory process."

Breeding traits that require only a plant with novel trait approval offer a lot of opportunity in the area of traits to serve niche markets, which address special requirements such as enhanced health or nutrition or artisanal foods from heritage grains.

There will continue to be improvements and changes in the protective traits, says Peterson and the first flush of agronomic traits is coming. Although there are some end-use traits in the marketplace, it's fairly minimal, but some day he says, "Someone will crack that nut." **Angela Lovell** 

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**CERTIFIED SEED** has long been known for its guarantee of quality. The seed industry has worked hard to promote the benefits of certified seed over bin-run, and most growers would not dispute this assertion. While few argue about the purity, weed seed-free guarantee, disease reduction and improved germination of certified seed, traceability issues make growing certified seed even more important. As well, the premiums being paid by end-use markets is quickly becoming the top reason for growing certified seed as end users are willing to pay extra to get a specific product.

As seed science knowledge increases and breeders develop varieties to meet specific end uses, the importance of growing certified seed will increase. Changes in the marketing of grain, particularly in Western Canada with the transition of the Canadian Wheat Board into a privately-managed marketing proceeds from certified seed use to drive breeding to deliver the desired products. He adds the low rate of planting certified seed in cereals is the result of a culture that believes in planting seed from the crop grown the previous year, but that belief comes with an opportunity cost which is the absence of investment into innovation and performance gains.

As cereal crops move to catch up to oilseeds in the certified seed trade, barley is a leader. Largely driven by the malting industry, growing certified barley seed is providing growers with access to good markets and long-term contracts. According to the Canadian Malt Barley Technical Centre, brewers drive the need for certified seed as they demand consistent quality and a guarantee of variety. "Japan's breweries use 100 per cent Canadian malt barley," says Rob McCaig, managing director at the centre. "The top 10 brewers in the world represent 61 per

# Nothing But The Best Using certified se benefits includin

Using certified seed has many benefits including increased profits.

Certified

company, is leading buyers to demand that certain qualities be guaranteed in the products they purchase. The development of hybrid and identity preserved varieties in corn and oilseed production has set a standard for certified seed use. Now, the cereal industry is poised to catch up.

"Certified seed has always been fundamental to Canada's seed quality system," says Stephen Denys, president of the Canadian Seed Trade Association and vice-president for sales and marketing at Pride Seeds. "Certified seed is distinguishable for purity and it will produce a better yield. But this is only one part of the certified seed story. If we look at crops where there is a high percentage of certified seed use we see investment and as a result of that investment much greater gains over time."

Denys explains that in corn, soybean and canola crops, where either hybrid production is used or where technology and certified seed use agreements are in place, the percentage of certified seed use if very high. As a result, 92 per cent of the research investment is going to these crops. "There is a visible return on this investment," he explains. "Certified seed drives new investment." For a non-hybrid crop he cites, as an example, identity preserved soybeans sold to Japan that are grown with certified seed under contract. Over time we have been better able to meet the needs of our foreign customers by taking the cent of all the beer brewed and this gives them a lot of clout. The big brewers are looking at direct contracts with farmers and a component of that will be the use of certified seed."

McCaig says growing a crop with certified seed could be a source of pride for growers because they will know they are delivering the best crop possible to the end user. He adds the cost of certified seed is not exorbitant when the end result could be better yield and the chance of being selected by a brewer to grow the desired variety. With only 25 to 35 per cent of the barley crop grown in Canada selected for malt, Canadian growers lag behind their European and Australian counterparts who hit 65 per cent. McCaig says this is largely due to Canadian growers not growing certified seed.

"Using certified seed gives growers a leg-up in having their crop selected by the malting industry," McCaig says. "Hopefully, the extra money generated in buying certified seed will work its way back to the breeders." His organization does brewing research for brewers around the world, providing customers with data on new varieties. As beer drinkers can attest, not all beer tastes the same, but brewers want their particular brand to always taste the same and, therefore, they want to get the same variety for their brew. McCaig says the centre will brew a batch of each new crop of barley by variety so they can tell brewers how they might need to tweak their brewing process to get the taste their customers expect.

"There is opportunity in malting barley to have variety segregation," says Earl Geddes, executive director of the Canadian International Grains Institute. "We also do research for Warburton, the largest bakery customer for western Canadian wheat in Europe. They find that CWRS class is too broad for them and they have gone to their growers get them to use certified seed use if the growers want to stay on their program. As well, Canada has the best durum in the world, but each variety has characteristics that might appeal to buyers for different end uses."

Geddes suggests that certified seed use will become more prevalent as end users demand guarantees of variety and the ability to trace the source of the grain. He says the market is driving the move to more certified seed use.

For Greg Stamp, a seed grower in Enchant, Alta., certified seed reduces risk because growers know exactly what is being planted. If the end user has specific parameters that must be met by the crop, certified seed will give the buyer exactly what is wanted. "I think growing certified seed will become more important as seed retailers have opportunities to become more involved in the value chain and to target a higher value end-user market," he comments.

More investment in variety development would be available if

growers increased their use of certified seed. Denys says Canada is lagging behind in research for improvements in cereals for yield, agronomic traits and improvement in quality for specific uses.

"There needs to be a system to [ensure] a return on investment for companies willing to invest in cereal variety development," he says. "Certified seed is an excellent tool to drive innovation as it is user-based and more efficiently and directly provides a return to the companies investing in innovation."

"Growers may want to be more involved in the development of varieties," adds Geddes. "This may require a check-off funding because growers generate the grain products that are sold around the world and being involved in variety development gives them a say in what they grow." He says he expects customers will become more directly involved in what criteria is needed as development occurs and they will expect growers to deliver the varieties they choose. He adds that marketers have to know they are selling a predictable product and this all comes back to growers starting with certified seed.

For growers profitability is what crop production is all about. "In a normal year, the value of malt barley is \$50 per tonne over feed barley," McCaig explains. "It can be the most profitable cereal crop in Western Canada." Therefore, he suggests, to get that premium, growers should be starting with certified seed. Brewers are now demanding one variety over another and they

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prefer 100 per cent Metcalfe or Copeland, but not a mixture of both, McCaig says. The only guarantee for that is to deliver a crop grown with certified seed.

"Certified seed has a traceability element and it can be a selling tool if a farmer produces a variety a miller prefers," says Nobleford, Alta., grain grower Edwin Mans. "There are now premiums for returning the crop to the company that provided the seed." Mans' father is a certified seed grower, so when Mans started out on his own, he did not question what kind of seed he would be growing.

"In order to get better genetics, we have to buy certified seed because it will support more research," Mans says. There are also opportunities to get better prices for grain if growers can prove they have the variety the end user wants.

The brewing industry is the first example of a cereal industry demanding proof of variety. Other industries from bakers to noodle makers are following. Growers who want to earn the premiums or sign long-term contracts with millers or brewers will have to grow certified seed. In turn, investment in improved genetics or varieties with particular traits will follow. It's no longer about clean seed, growing certified seed is a badge of quality for which growers will receive better compensation.

**Rosalie Tennison** 

#### CDC Meredith Barley: A Canadian Success Story

Breeders at the Crop Development Centre in Saskatoon have introduced a high-yielding barley variety is generating a lot of excitement in the brewing industry. CDC Meredith could offer a golden opportunity for growers, putting more suds in the hands of beer drinkers.

Early testing results show CDC Meredith has protein under 12 per cent, which provides additional starch that, in turn, could result in a higher number of bottles produced per tonne of grain. The variety is also 13 per cent higher yielding than the current standard, which, again, will put more bottles on beer store shelves.

The development of CDC Meredith is the direct result of the certified seed system—royalties from the sale of certified seed funded the research that led to this new exciting variety.

Canadians love their beer, and the announcement that the certified seed system led to the production of a malting barley variety which could get farmers striving to achieve malt status is worth raising a pint over.

Source: Canadian Seed Growers' Association





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## A STATE OF **OPPORTUNITY**

The Harper government's Growing Forward 2 cluster funding scheme offers unique opportunities for the barley sector.

**ON DECEMBER 7**, the Canadian government announced three new federal programs under its agricultural policy framework Growing Forward 2. The new programs—entitled AgriInnovation, AgriMarketing and AgriCompetitiveness—are designed to streamline investments in the agriculture and agrifood sector.

While all three programs will come into effect in April 2013, the announcement focused on the Agrilnnovation program, with details of the other programs forthcoming in the new year. Agrilnnovation is designed to support industry-led research and development initiatives through non-repayable support for national agri-science clusters as well as individual research projects, and to facilitate the commercialization of innovative products or services.

According to Patrick Girard, senior media relations officer for Agriculture and Agri-Food Canada, the ultimate goal of the AgriInnovation program is to "acquire new knowledge, generate solutions and support activities that lead to innovative agriculture, agri-food and agri-based practices, processes and products."

Girard says AAFC views research and development in the seed sector as being "very important," but the level of support for farmers and the sector in general will vary based on need. "For the seed sector specifically, research related to new variety types, for example, may be eligible," he explains. "However, each application will be reviewed on its merits and potential benefits to agricultural producers, stakeholders and Canadians in general."

Key to the Canadian government's agriculture agenda is an emphasis on industry leadership. "GF2 offers a model of science delivery that encourages industry leadership in near market areas of the innovation continuum where the industry is in the best position to decide what can deliver economic gains to the sector," says Girard. "The seed industry [is] currently in a state of opportunity where new investors are making investments in variety development, and will be able to leverage these investments with those of GF2."

#### **Brewing a Competitive Barley Market**

While the government's new federal programs will eventually affect every aspect of Canadian agriculture, a special nod was given to the Alberta barley industry in December. "As the oneyear anniversary of the adoption of the Marketing Freedom for Grain Farmers Act approaches, western Canadian grain farmers are already enjoying the economic potential of an open market," said Minister Ritz at the December 7 event. "I would like to thank the Alberta Barley Commission for its long-standing leadership in support of marketing freedom, innovation and a strong future for barley producers." Last October, the government announced an AgriMarketing investment of \$525,000 in the malting barley industry. The funds will be directed to the Canadian Malting Barley Technical Centre, the Malting Industry Association of Canada and the Brewing and Malting Barley Research Institute, but the support will be felt throughout the barley value chain, according to Matt Sawyer, chairman of the Alberta Barley Commission.

"The investment from the government will keep this barley market competitive," says Sawyer. "The word of the day that we've been hearing is that farmers, and our industry in general, need to be more innovative and collaborate more. The funding will help do that through product and market development. We're certainly pleased that there's a commitment from the government towards our industry."

Sawyer believes the funding, and GF2 program in general, will benefit the Alberta seed industry in the long term. "It will help investment in new varieties and in developing markets, move them down the value chain into commercialization," says Sawyer. "Without research dollars things don't move along as quickly. In order for us to stay competitive in the global marketplace we need to have investment in our industry. It's wonderful that the government is behind us."

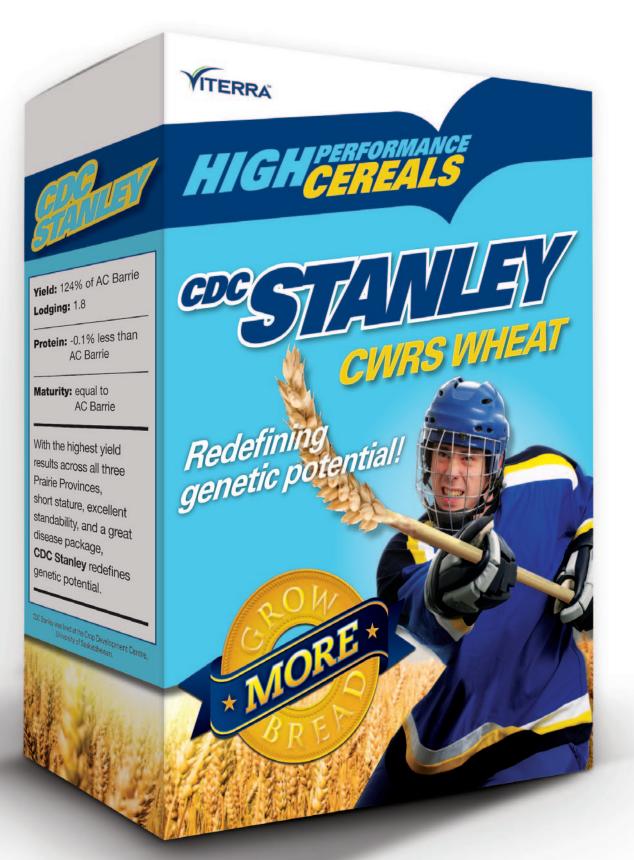
#### **Closing the Gaps?**

While the government's expressed support for the Canadian barley industry is encouraging, the structure of funding is also a signal that things will change in the new marketing era.

At the Canadian Malting Barley Technical Centre based in Winnipeg, Man., a not-for-profit organization dedicated to improving the Canadian malt barley value chain from the grower to the end user and promoting Canadian malting barley in international markets, continued government funding is essential to ensure smooth operations. The recent grant will help build Canada's barley brand, which is already viewed highly abroad.

The funding is doubly necessary, however, in promoting the movement of new barley varieties through the system, according to Rob McCaig, managing director and director of brewing at the centre. "One of the new gaps that has appeared with the CWB gone is the adoption of newly-registered varieties through our system," says McCaig. "Varieties get long in the tooth—we can't keep AC Metcalfe for 150 years because of vitality, disease, agronomics—we have to keep developing and adopting barley varieties with improved agronomics and disease resistance. The wheat board did a really good job of introducing new varieties to customers and moving them into our system. Getting customers to try the new varieties and adopt them for use is difficult, both maltsters and brewers like the familiar and are slow to change."

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The centre has its hands full now, pilot malting and brewing and collecting data on new varieties, trying to match up customers with ideal varieties. "We're heavily involved in that this year," says McCaig. "We are working more with companies rather than countries, and with these new varieties, that money we're getting from GF2 will help us to do more and more of this work, which will bring these new varieties to the forefront."

In the new marketing reality, says McCaig, there will be more emphasis not only on the characteristics of the barley varieties, but on the quality of the seed itself. "Now that the malting and brewing companies can come and do more direct marketing with growers, they are going to insist on certified seed," he says.

The health of the barley industry depends on this government support. And the work of the CMBTC is central to the promotion of Canadian barley and its success long term. "As we work with these [international] breweries, we're serving as the conduit between the global brewers and the producers here in Canada," says McCaig. "We're facilitating that." Julienne Isaacs

#### **Seed Sector Value Chain**

In addition to supporting research and development in the seed industry, AAFC continues to support the Seed Sector Value Chain Roundtable, according to Patrick Girard, senior media relations officer with Agriculture and Agri-food Canada. The roundtable discusses many issues related directly to the seed industry, says Girard, of which Alberta is well represented, including the following and numerous other issues critical to the industry:

- alternative service delivery models for seed crop inspections;
- providing input towards improving the variety registration system as a means to accelerate seed-related innovation for the agricultural sector;
- coordinating industry's input toward the review and streamlining of the seed grade tables as a means of facilitating the marketing of seed;
- preparing a new economic profile of the seed sector with up-to-date, well-researched and credible data in order to fully demonstrate the contribution of the seed industry to the economy; and
- monitor the use of cell patenting to protect varieties and assess the impacts in the seed industry and in plant breeding activities.

Read more: Seed Sector Value Chain Roundtable at www.ats-sea.agr.gc.ca/rt-tr/6237-eng.htm

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# FACILITATING TRADE



An update from the Canadian Seed Trade Association on how Canada is blazing a trail when it comes to low level presence policy.

IT ALL STARTED well over a decade ago, when former Canadian Seed Trade Association executive vice-president Bill Leask wrote a paper entitled, "The Trouble with Thresholds". That paper outlined the inevitability of low levels of genetically modified material in shipments of seed and grain. It also predicted the difficulties that would be faced if countries tried to assure zero presence of GM in any shipment given the growth of biotechnology and the large volumes of seed and grain that move around the world.

We are now living the situation predicted in that paper, and it is negatively affecting Canada's ability to export seed to many international destinations. As new technology enters the marketplace, and testing becomes more precise, the situation will only worsen unless countries around the world can come to an agreement on a low level presence policy that is founded in science and facilitates trade.

Low level presence is defined as the "unintentional presence at very low levels of a genetically modified product that is approved as safe in one or more countries but not in the country of import." The definition is important because it underscores that the GM product has been found to be safe for food, feed and environmental release at 100 per cent. LLP does not include product that is not approved anywhere.

While Canada has never experienced an incident of LLP in seed imports, the seed industry faces it regularly in export markets. CSTA members have had shipments to some countries rejected for the extremely low presence—the equivalent of dust—in a container of seed. Many are unable to make sales because they cannot guarantee absolute zero presence of GM material.

While the seed industry has been substantially affected by LLP for quite a while, it took an incident in the grain and oilseed sector to capture the attention of policymakers and regulators. The "Triffid" situation—where low levels of a GM flax variety, fully approved in Canada and the United States but not in the European Union, were found in shipments to Europe—was the first serious LLP situation in that sector. It is estimated the flax industry lost over \$30 million (lost sales, price drops, demurrage, etc.) due to LLP.

A special interdepartmental group of assistant deputy ministers was convened and technical working groups

established to examine and recommend an LLP policy for Canada, which could be used as a model for other countries to follow. The Minister of Agriculture and Agri-Food built support in countries that are members of the CAIRNS group of trading nations to make LLP a high priority; and an international conference was held in Vancouver to build awareness and international support for addressing LLP in a way that would facilitate trade.

From the fall of 2011 to the spring of 2012, the interdepartmental working group consulted on an issues paper

"It is estimated the flax industry lost over \$30 million (lost sales, price drops, demurrage, etc.) due to LLP."

- Patty Townsend

that discussed options for a Canadian policy on LLP. The seed sector was actively involved in the consultations and CSTA was part of a small advisory group on the issue. The results of the consultations were incorporated into a new policy proposal, which was given broader circulation in September. The proposal includes the use of expert panels to set crop-based thresholds, followed by LLP risk assessments on a crop basis.

However, the government has chosen not to include seed in this proposal. The policy outlined in the newest proposal would only apply for LLP in grain for food, feed and processing. The reasons

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- Risk assessment for LLP in seed has to be done differently because seed is intentionally introduced into the environment; and,
- While international guidelines for both safety assessments (for full approval) and risk assessments exist through the *Codex Alimentarius*, there are no international guidelines for risk assessments for seed LLP.

Given that the seed sector continues to face market disruptions and lost opportunities to concerns over LLP, the CSTA was very disappointed with this decision and has been working closely with government staff to ensure that seed LLP is not left behind. A working session, organized by the interdepartmental group and the CSTA, was held in August. The session brought together stakeholders from grains and oilseeds, organics, forages and other industry groups, and representatives of different government departments, to start the process to develop a domestic LLP policy on seed for Canada. A working group was established, currently chaired by the CSTA, to provide input and advice to the government officials as they develop an issues paper on LLP in seed. This is the same process as was followed for grain for food, feed and precessing. The working group has made it clear that grain and seed are ultimately linked, and the LLP policies for each must not compromise the other.

In the meantime, CSTA is also very active internationally. Our proposal for seed LLP policy, which is built on existing seed quality standards, has been accepted by the Seed Association of

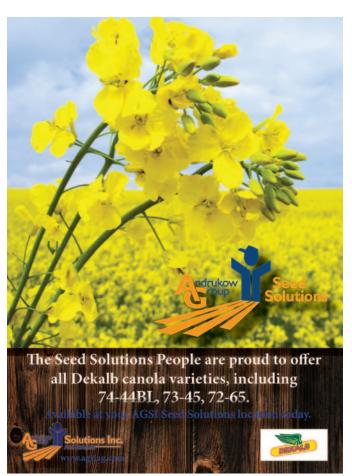
the Americas, and has been presented to the International Seed Federation.

The proposal is that, unlike grain, seed is produced and traded under very strict quality control systems, which are designed to ensure varietal purity and identity. Seed producers and companies are subject to strict production and other quality control procedures designed to provide assurances of varietal purity, and these processes are verified by grow-outs and testing, overseen by national regulators. These systems have facilitated seed trade for decades, and can form the basis for LLP policy to facilitate the trade of seed.

Because of the work of the Seed Association of the Americas and its members, seed was featured prominently in the most recent international LLP conference, held in mid-September in Rosario, Argentina. CSTA was there. An industry/government day that focused specifically on seed preceded government meetings, and the last day of the government meeting focused specifically on LLP in seed. It was our objective and that of the government of Canada that the countries meeting in Rosario would commit to working together on LLP in seed.

Patty Townsend

*Editor's note: Patty Townsend is the chief executive officer of the Canadian Seed Trade Association.* 



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# **Pest Protection**

Variety selection can be an important tool against ( pests, especially in cereal crops.

**KNOWING WHAT PESTS** you are likely to face in the 2013 growing season can help you understand what characteristics you should consider in your seed traits and what seed treatments you should apply. In the past decade, several significant advances have been made in plant breeding and seed enhancements that can provide you with pest protection without ever having to take your sprayer out of the shed.

One example is midge-tolerant wheat. These varieties have greatly helped to reduce midge problems in many areas, but it's still important to assess the different varieties that are available to ensure they are suited to your farm. "I am of the opinion that, especially in cereals, it's a good idea to grow some acres of midgetolerant varieties and see how they respond on your operation because there are a lot of choices now," says Scott Meers, insect management specialist with Alberta Agriculture and Rural Development. "Midge tolerance is a tremendous tool, but you have to find the right varieties that fit your operation."

Another success story in wheat has been the adoption of solidstemmed wheat varieties which have drastically reduced problems with wheat stem sawfly. "Solid stem wheat varieties have been a big part of how the sawfly population has been managed and backed down, along with natural controls such as weather and parasitism," says Meers.

Flea beetles are once again expected to be fairly abundant in 2013 because of high numbers this past fall. Some canola producers have experimented with large seed hybrids to try and produce larger seedlings that are more tolerant of flea beetle feeding in the early spring. It's important, however, to maintain high seeding rates, says Murray Hartman, AARD's provincial oilseed specialist. "If a farmer is seeding at his usual seeding rate with a larger seed there are fewer plants per square foot. The fewer plants there are, the more concentrated are the flea beetles," says Hartman. "If he plants the same seeds per square foot, then a larger seed size would give him an advantage, but I find that they end up seeding too few plants and it's somewhat counterproductive."

In canola, there are no varieties yet available that offer increased tolerance or resistance to pests. Currently there is nothing in the pipeline, although there is ongoing research in this area for insects like cabbage seedpod weevil and root maggots. But the more canola that is grown, the more insect pressure builds, meaning that longer rotations are needed to help break up insect cycles.

With all insects, especially ones like wireworms or flea beetles which attack young plants, it's important to choose good quality seed and try to establish plants early on. This can help seedlings to better withstand insect feeding. Later in the growing season, unless there is tolerance built into the genetics of the plant, careful scouting is important to determine the level of insect pressure and if economic thresholds for control have been reached. But that doesn't mean producers should be too trigger-happy. "It's not a good idea to spray when you first notice a small population of pest insects because there are a lot of beneficial insects, and they can often catch up and provide a good control," says Hartman.

An example of this is the diamondback moth. A large influx in April 2012 meant high numbers of diamondback moths were seen early in the season but the larvae population, which does the most damage to the crop, dwindled dramatically due to natural mechanisms such as diseases and predatory insects. Spraying too early would have also removed some of those natural controls. "When pests are at economic threshold numbers, producers need to spray, but we need to remember that we don't have the ability to deal with these insects just by growing a different variety of the same crop yet in canola," says Hartman.

That lack of genetic control options for insects in crops such as canola also means that farmers should consider rotating their herbicide resistant varieties to avoid shifts in weed populations that can favour certain insect pests and increase the risk for development of resistance in insect populations.

"If you alternate your herbicide tolerances you are going to control canola volunteers from two years ago, because a lot of producers are now growing canola every second year and a high percentage of those volunteers are going to be susceptible to the different chemistries," says Hartman. "Just from the fact of changing the herbicide tolerance you might be reducing the chance of a green bridge for disease and insect transmission being allowed to form when volunteers become resistant to a single chemistry."

#### 2013 Insect Forecasts for Alberta

Pests are never good news, and Alberta producers have been seeing a few more insect pests than they might like also appearing in some areas where they haven't been seen before. What that means for the year ahead can't easily be predicted, but AARD has completed its provincial pest surveys and plans to have some useful data for producers as they plan next year's crops. The following includes results from surveys predicting which pests to keep an eye on in 2013.

#### Wheat Midge

Wheat midge numbers were definitely up slightly in 2012 based on results from almost 300 fields that were surveyed, but seemed to be sporadic across the province and the level of infestation varied considerably from field to field. "Not every field was infested, but overall we have more positive wheat midge fields than we did in previous years across the province," says Meers.

The western half of Alberta from Claresholm to Calgary had a number of individual fields with high infestation levels, as well as a few northeast of Medicine Hat to Provost. Vulcan, Lethbridge and Wheatland counties had a significant number of high level fields and one or two were also reported in Red Deer County.

The biggest concern, says Meers, is that some producers continue to have grading issues with wheat from the previous year because of midge problems. "I think anybody that had issues with midge in their grading should seriously consider midge tolerant wheat varieties," he says.

#### Bertha Armyworm

After a couple of years where bertha armyworm seemed to be in a low cycle, last year they were back with a vengeance. About 200,000 acres in Alberta were sprayed in 2011 for bertha armyworms and a substantial acreage again this past growing season, leading experts to suspect there will be issues with this pest again in 2013.

AARD maintains an online map that shows the distribution of this yield-robbing pest from last summer, with the eastern side from Lamont to Provost and across to Vermilion and Lloydminster being the heaviest hit areas. Meers says this map could act as an initial guide for anyone in or near those areas to ensure they are scouting properly for bertha armyworms in 2013 and to be prepared to spray if need be for the coming growing season. But that doesn't mean jumping the gun either. "We will conduct surveys again next year so we get a better idea where the bertha armyworm numbers are highest. Producers should look for that toward the end of July ," says Meers. "Then after they have scouted, if spraying is justified, it usually should take place by the middle to the end of August."

#### **Cabbage Seedpod Weevils**

High numbers of cabbage seedpod weevils are expected in fields south of Highway 1, especially if seeded early next spring. "Early flowering crops tend to be the ones which have a lot of weevil activity," says Meers. In 2012, weevil activity was observed a little farther north than usual in the northern parts of Cypress, Newel and Wheatland Counties, which straddle the Trans-Canada Highway. Apart from the timing of the crops, weevil populations are influenced by weather and years of high spring moisture, which seem to increase weevil numbers.

#### Angela Lovell

#### WHERE ON THE WEB

To see what insects might be of concern in your area, visit the Alberta Insect Pest Monitoring Network's website where you can find forecast maps, insect reports and links to other useful resources.

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# 2013 Seed Quality

As you begin to make seed selection choices for the coming crop year there are many issues to watch for.

**THE SEED SELECTION** process can be daunting, as each crop type can be affected by a number of different issues from Mother Nature. It all begins with selecting the right seed for your geographic region. This year, some of the main concerns among industry specialists are germination and vigour levels, *Fusarium graminearum*, and root rot—to name a few.

Last year's temperatures in addition to the damp weather caused problems during the growing season, which in turn affected the grain at harvest.

#### The Importance of an Accredited Germination Test

According to Morgan Webb, vice-president and senior accredited seed analyst with SeedCheck Technologies Inc., producers need to perform the appropriate tests to determine seed health depending on where they are purchasing their seed products from. "A germination test is the very first point of important information, supplying the maximum germination potential of the seed. This test is the best indicator of how the seed will perform in-field under good growing conditions," explains Webb.

Mark Cutts, a crop specialist with Alberta Agriculture and Rural Development, agrees that the best practice from a seed perspective is to purchase seed that has undergone a germination test and, if possible, completed vigour test as well. "For 2013, many concerns during crop growth will be weather-related, but why not get off to the best possible start," says Cutts.

While germination tests are standardized among accredited Canadian seed laboratories, Webb notes that vigour tests are not; however, he stresses that most vigour tests adhere to either the stringent guidelines set by the United States or Europe. "A high germ and vigour test should equate to high yield," says Webb.

Dale Adolphe, executive director of the Canadian Seed Growers' Association, cautions that when buying seed in 2013 it is important to know when any tests were completed. "It is imperative that you know when the germination test was completed on the seed you are purchasing. Depending on the seed you purchase you wouldn't want a germination test that is more than three months old, three months is a good guideline to follow," says Adolphe. "When purchasing certified seed you are guaranteed by the blue tag of the seed's integrity."

#### The Implications of Fusarium graminearum

*Fusarium graminearum* is a fungal disease that is becoming more common in wheat and barley fields in Western Canada. According to Holly Gelech, manager of business development with BioVision Seed Labs, *Fusarium graminearum* has been increasing in southern Alberta, and appearing in non-traditional areas in central and eastern Alberta. Producers need to be taking the appropriate precautions if they are planting cereals this year.

"The top recommendations to manage this disease in 2013

is variety selection and to use a seed treatment," says Gelech. "Proper crop rotations will also help to fight against fusarium as well as other diseases. Another important fact to keep in mind is crop residue from previous harvests, which can also act as a host for such diseases."

Sarah Foster, senior seed analyst with 20/20 Seed Labs Inc., agrees that Alberta producers should be concerned about *Fusarium graminearum* in their cereal crops as analysts with 20/20 have noticed a significantly higher incidence of the disease in samples they have been testing.

"Our Lethbridge lab has been starting to see higher levels of *Fusarium graminearum*, and it seems to be spreading west, north of Highway 1," explains Foster. "Having the proper disease tests conducted, even if only low levels are detected, can result in providing producers with a pre-warning of infestation. This past year saw warm, humid conditions and timely rains that resulted in many pathogens to infest plants."

Germination can also be affected by fusarium infections and, according to Foster, can also result in a lower final germination percentage. "After the lab has determined the test results on the seed lot it will also help producers on deciding whether the seed lot still has good germ and vigour, is still viable, and whether it warrants a seed treatment," explains Foster.

#### **Preventing Other Infestations**

Cutts notes that there are many factors that producers need to take into consideration each growing season. Regular scouting of fields is essential to help your crop along the right path; however, not all infections are visible, such as in the case of sclerotinia stem rot in canola. "This fungus really needs to be controlled before any symptoms in the plants appear," says Cutts. He recommends producers manage this risk through rating the level of possible infestation by degree; for example, low, medium or high, to determine whether a fungicide application is warranted.

Another disease showing up in Alberta's fields is blackleg. Cutts says producers with tight rotations will likely see this yield-robbing disease within their fields. Clubroot in canola fields has also become more prevalent and Cutts recommends using a resistant variety tohelp fight against this disease. If you have already been hit by clubroot, Foster recommends a seven-year rotation of canola in fields that have tested positive.

Start the 2013 growing season off on the right foot by following Cutts' recommendations for proper disease-risk management:

- Use certified seed
- Use a seed treatment
- Scout fields regularly
- Use proper crop rotations
- Use resistant varieties



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# Future Direction for Cereal Variety Development

**MANY CROPS, INCLUDING** corn, soybean and canola, have seen major advances in productivity and performance over recent decades. Wheat and barley have shown a flatter improvement curve; about a one per cent yield improvement per year, due to both the genetic complexity of these cereal crops and to the quality and disease requirements that must be met for a new variety in Canada. Over the past 40 years, acreage of wheat and barley has declined in Western Canada due to the increased profitability of oilseeds and pulses in crop rotations.

In order for wheat and barley to remain competitive in crop rotations and in world markets, aggressive varietal development strategies need to be developed and implemented. This will require access to the best technology and an attractive open-door policy that can increase cereal variety development investment from multiple sources including producers, private interests and the public sector.

In response to this need, a consortium of producer groups has come together to undertake an investigation and development of a new cereal variety development model for Western Canada. This initiative will involve investigation of cereal variety development models currently being used in other countries, identification of barriers to investment and make recommendations for solutions. It will include stakeholder consultations and the solicitation of feedback from producers, private and public sector seed interests. A preferred business model(s) for future cereal variety development will be created and incorporate recommendations for implementation.

The project will be completed by the fall of 2013. The project's results will show how Canada can incorporate the best of funding models used in other countries while maintaining the best of

what we already have; high-quality public and private breeding programs and a strong and vibrant seed and grain sector. It will build a "Made-In-Canada" solution that will provide increased investment on a sustainable basis thereby maintaining and increasing our competitiveness.

#### For further information contact: Steering Committee Chair:

• Ryan Mercer, president, Alberta Seed Growers' Assoc., farmer, seed grower

Telephone: (403) 320-6620 email: rmercer@mercerseeds.ca

#### Steering Committee Members:

- Don Dewar, member, Keystone Agricultural Producers
- Greg Stamp, director, Alberta Barley Commission, farmer, seed grower
- Glenn Logan, director, Alberta Seed Growers' Assoc., farmer, seed grower
- Doug Robertson, president, Western Barley Growers Assoc., farmer
- Kevin Bender, president, Western Canadian Wheat Growers Assoc., farmer
- Gary Stanford, vice president, Grain Growers of Canada, Director, Alberta Wheat Commission, farmer
- Dave Sefton, chair, Western Grains Research Foundation, farmer
- Ron Markert, seed grower, farmer
- Kent Erickson, co-chair Alberta Wheat Commission, farmer
- Roy Klym, Saskatchewan Seed Growers Assoc., farmer, seed grower
- Patti Cuthbert, Manitoba Seed Growers Assoc.

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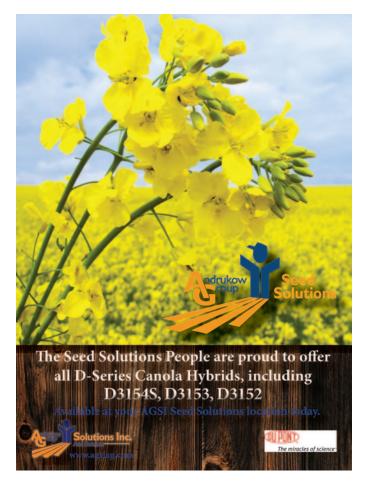
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## A New Cereal Variety Development Model for Western Canada

#### Key Messages

#### 1. PRODUCERS NEED IMPROVED CEREAL VARIETIES THAT BECOME AVAILABLE FASTER WITH NEW GENETICS AND TECHNOLOGIES.

- i) Many crops, including corn, soybeans and canola, have seen major advances in productivity and performance over recent decades.
- ii) Aggressive variety development strategies need to be developed and implemented in order for wheat and barley to remain competitive in crop rotations and in world markets.
   iii)Two major benefits from this will be:
  - to drive up cereal yield, maintain quality and improve agronomy and,
  - to increase the economic sustainability of crop rotations involving oilseeds, pulses and cereals.



#### 2. A NEED EXISTS TO EXPAND INVESTMENT IN CEREAL VARIETAL DEVELOPMENT FROM ALL SOURCES WORKING TOWARDS A COMMON GOAL.

- i) Cereal varietal development efforts to date have been sustained by public and producer funding.
- ii) Cereal varietal development will require increased funding from the private sector such as producers and private seed companies.
- iii) Our competitors are investing much more in wheat and barley variety development than Canada.
  - Australia Wheat: \$80 million/year
  - U.S. Wheat: Over \$50 million/year
  - Canada Wheat: \$23 million/year
- iv) Other competing crops are receiving more investment for variety development.
  - Canada Canola: \$65 million/year
  - U.S. Corn: \$680 million/year
  - U.S. Soybean: \$340 million/year
- v) Producer money is private money and producers are showing strong interest at increasing their investment.
- vi) Potential exists for partnerships that include producers, private industry and the public sector.

#### 3. PRODUCERS WANT TO BE A PART OF THE FUTURE IN CEREAL VARIETAL DEVELOPMENT THROUGH PARTNERSHIPS; THEY ALSO WANT CHOICE AND COMPETITION IN CEREAL VARIETIES.

- i) Producers want a competitive environment for cereal varieties. They want choice and competition in their inputs, just like they want choice and competition in the marketplace.
- ii) This project will explore new ways and opportunities for producers to be part of the future in cereal varietal development.

#### 4. PRODUCER INVESTMENT IN CEREAL VARIETAL DEVELOPMENT IS COMPLIMENTARY TO THE PUBLIC SECTOR AND PRIVATE INDUSTRY—STRENGTHENING THE COLLABORATIVE EFFORT.

- i) Producers want to be part of future partnerships.
- ii) This project will identify where partnership opportunities exist.
- iii) The way forward could involve a three-way partnership between producers, private industry and the public sector.

#### 5. USING POLICY AND REGULATION TO ENABLE INVESTMENT.

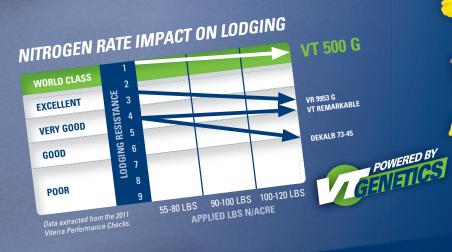
i) The project will identify how policy and regulation can facilitate increased investment in cereal varietal development.

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With over 70 years serving its community, Westlock Seed Cleaning Co-op Ltd. has its finger on the pulse of its customers' needs.

WAYNE WALKER, general manager of Westlock Seed Cleaning Co-op Ltd., has been working at the plant for the past 30 years. Over the years, he has witnessed three additions and countless upgrades on equipment. The plant is home to seven employees, and after the 2013 planned expansion the plant will have an in-house storage capacity of 55,000 bushels of seed. With over 400 active shareholders and 1,050 total shareholders, the company has a strong presence in the community.

Westlock Seed Cleaning Co-op Ltd. has created a niche market within the pedigreed seed segment and is one of the largest pedigreed cereal and pulse distribution centres in Alberta. Setting themselves apart in the pedigreed seed market has helped make the co-op a success for the past 70 years. Walker says that success is a result of a number of factors; however, exclusively servicing 14 pedigreed seed growers in the area—providing all cleaning, storing, treating and marketing of the growers' seed—and the involvement of a progressive board have played large roles in the plant's achievements. Walker explains the co-op encourages their growers to use pedigreed seed as a tool to grow better crops.

"Cleaning pedigreed seed has been a win-win for us and the growers as it is a huge value-added product," Walker says. The plant now consists of 80 pedigreed seed bins owned by the seed growers located on its property with storage capacity of 300,000 bushels. Last year was a busy one for the plant as it upgraded its website and began the planning stages for next year's expansion. One of the challenges every plant faces is to keep its customers happy and informed—Walker hopes the development of the co-op's new website will assist in keeping growers updated on what the plant can offer.

"Farming is a big business and the younger generation is very well connected on the Internet and social media. The new website is a means to make sure our name is out there and people are aware of our products and services offered," says Walker.

In the spring of 2013, the plant will move ahead with its planned expansion. "The expansion will see the plant grow by 8,000 bushels storage capacity, the installation of another colour sorter, with an additional 100-foot scale, and an increase in seed treating capabilities from 40 to 45 bushels per minute to 75 to 80 bushels per minute," says Walker.

"Our area has always been a strong progressive agricultural hotspot and we are lucky to have above-average crops. This expansion allows us to fulfill customer demand and provide service in a timely manner. We have always done a lot of custom treating and this expansion ensures that we can continue to expand in this area," Walker says.

As the industry evolves so do seed plants. Walker says operations are no longer just seed cleaning plants but have evolved to market pedigreed seed, work as grain agents, handle animal feed and, in some cases, become successful at loading producer cars. "There is always an opportunity; a plant just has to find its niche in order to remain current and viable in the market," he says.

With the Association of Alberta Co-op Seed Cleaning Plants' sixtieth anniversary Walker says Westlock Seed Cleaning Co-op Ltd. is appreciative of what the organization offers seed plants in the province. "The AACSP has always strived to do what's best for all plants, not just a select few, and we are a proud supporter of the group," he says. **Jennifer Ewankiw** 



## WHERE ON THE WEB

To learn more about the Westlock Seed Cleaning Co-op Ltd. visit **WWW.WESTLOCKSEED.CA**.



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# Growing to Serve

The Three Hills and District Seed Cleaning Plant Ltd. has stepped up and grown with its members to meet their business needs.

**THREE HILLS** and District Seed Cleaning Plant Ltd. has been a member of the Association of Alberta Co-op Seed Cleaning Plants for the past 54 years, and Greg Andrews, Three Hills' general manager, has worked at the plant for the past 26 years. As well as his duties as general manager, Andrews also operates a 1,000-acre farm with his family. Over the years, he has seen a new plant built constructed in steel and the evolution of cleaning grain from a simple air and screen to advancements that have allowed the plant to clean grain in six different ways.

"One of the biggest changes I have seen in my 26 years with the plant is the size of farms in our area. T he average farm size is 3,500 to 4,000 acres, which is significantly greater than when I began in the business," Andrews says. The increase in the scale of farm operations has created challenges for the plant as they worked to meet the demands of their clientele. To overcome this challenge, Three Hills has had to stay current by constantly improving and maintaining the plant and its machinery.

To stay ahead of the game and to add value for their customers, Three Hills added a colour sorter to their outfit which has assisted the plant with cash flow while allowing farmers to save thousands of dollars in dockage expense. The colour sorter has meant that the plant remains current and competitive in a market where many small seed plants have shut down over the past two decades.



Currently, Andrews is busy overseeing the expansion of the plant's driveway. "The expanded driveway will allow larger trucks to come into the plant easier and create efficiencies for our operation," says Andrews. "It will also keep the customer happy and loyal."

The plant currently has seven employees, a shareholder base of 400 local farmers and 25,000 bushels of storage capacity. It specializes in seed cleaning for wheat, barley and canola along with speciality seeds and pulses. Over the years, Three Hills has expanded its services from straight seed cleaning to offering seed treatments for canola, cereals and peas along with seed coatings and micro-nutrients.

Andrews thinks seed plants will continue to play an important role in agriculture, especially in terms of ensuring seed is up to the specific quality that food companies are demanding. "Food companies will be looking for consistent product and seed plants will be of great assistance to ensuring quality," he says.

Andrews is proud to be part of the Association of Alberta Co-op Seed Cleaning Plants which is celebrating its sixtieth anniversary this year. He appreciates the availability of the association to assist in the plants' marketing efforts. "We are the only province that works together as a group and the Association of Alberta Co-op Seed Cleaning Plants goes a long way in helping the plants be successful." **Jennifer Ewankiw** 

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### Legend for Cereals & Oilseeds

### Symbols

- † Denotes variety is flagged for removal.
- NS Denotes variety generally not suited for area.
- XX Denotes insufficient test data to describe.
- Denotes variety protected by Plant Breeders' Rights.
- Denotes protection under Plant Breeders' Rights has been applied for.
- \* Numerical yield data followed by a star (e.g. 101\*) denotes limited data.

### Resistance

Ldg.	Lodging.
Shat.	Shattering: EX = Excellent, VG = Very Good, G = Good,
	F = Fair, P = Poor, VP = Very Poor.
Com. Rt. Rot	Common root rot.
Fl. & Cov. Smut	False loose & covered smuts.
Net Blt.	Net Blotch: R = Resistant, I = Intermediate, S = Susceptible.
Sprout Toler.	Sprouting Tolerance: Ex = Excellent, G = Good,
	F = Fair, P = Poor.
Leaf Spot	VG = Very Good, G = Good, F = Fair, P = Poor,
	VP = Very Poor.

### Abbreviations

Comp. Mat.	Comparative maturity in (+ or -) days from the check variety.
Comp. Prot.	Comparative protein in (+ or -) percent from the check variety.
Te. Wt.	Test Weight (lb/bu). Multiply lb/bu by 1.25 to get
	kilograms per hectolitre.
Kn. Wt.	Kernel Weight (grams/1,000 kernels).
Seed size	S = Small, M = Medium, M-L = Medium Large, L = Large.
Ht.	Height in centimetres.
Awn type	R = Rough, S = Smooth, SS = Semi-smooth.
Toler. FHB	Fusarium Head Blight Tolerance: G = Good,
	F+ = Somewhat better than fair, $F =$ Fair, $P =$ Poor,
	VP = Very Poor.



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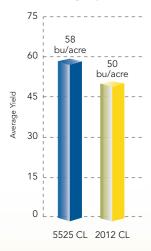


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<sup>2</sup> Data from 2011 Canola Performance Trials – medium season zone.

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# Varieties of Cereal and Oilseed Crops

**THIS** publication provides information on cereal and oilseed variety performance within Alberta and northeastern British Columbia. Important agronomic characteristics are given in tabular form for varieties of wheat, oat, barley, rye, triticale, flax and canola. The Alberta Regional Variety Testing program is coordinated by the Alberta/British Columbia Grain Advisory Committee and Alberta Agriculture and Rural Development. Funding for the program is provided by Alberta Agriculture and Rural Development, the Alberta Seed Growers' Association, the Association of Alberta Co-op Seed Cleaning Plants, the Alberta Winter Wheat Producers' Commission and entry fees for the varieties in the tests. Data for this publication is contributed by numerous applied research associations, the Prairie Grain Development Committee, the Canola Council of Canada, Viterra, Agriculture and Agri-Food Canada and Alberta Agriculture and Rural Development. Every year, the test results and updated tables are reviewed and approved by members of the ABCGAC. Sincere thanks are extended to all individuals and organizations who contribute to this important publication.

### **Test Yield Categories**

The defined range for each Yield Test Category is provided in bushels per acre. Variety yields are reported based on the site means relative to the check in two ways:

- As the overall average yield for all data available to the Alta./ B.C. testing program, with the number of site-years of data indicated. When there are limited data for a new variety, yield information may only appear in the Overall Yield column.
- As the average yields in Low, Medium, High and Very High Test Yield Categories for comparison with the check for productivity regimes and environments that may be anticipated. Varieties that are statistically higher (+) or lower (-) yielding than the standard check are indicated. No symbol after the yield figure indicates that there is no statistical difference. Caution is advised when interpreting the data with respect to new varieties that have not been fully tested.

Test Yield Categories allow producers to fine tune their variety choices for the productivity levels expected in particular fields in the coming season. This approach is similar to that used when making decisions on the levels for other inputs. Scientific studies conducted on crop varieties in Western Canada show that Test Yield Category analysis provides a more stable description of variety yield performance than descriptions organized by geographic groupings.

To make effective use the yield comparison tables, producers first need to assess where their target yield for the season fits within the Low, Medium, High and Very High Test Yield categories. It should be noted that the indicated yield levels are those from small plot trials, which are often 15 to 20 per cent higher than yields expected under commercial production. Also remember that yield is not the only factor that affects net return. Be sure to consider the other important agronomic and disease resistance characteristics. The genetic yield potential of a variety is often masked by various crop management factors, some of which can be controlled.

For more information, please visit Alberta Agriculture's website, Ropin' the Web: www.agriculture.alberta.ca/rvt.

### **Yield Summarization Methods**

For cereal crops, yield data is expressed on the basis of varying environmental productivity (Test Yield Categories of Low, Medium, High and Very High). Experience has shown that yield rankings can change substantially due to growing conditions. To reflect these differences and make the data more useful to producers, results from a test site that produced high yield in a particular year are now placed into the database for 'high' yielding environments. That same site may contribute to the 'low' yielding category in a drought year, when yields are low.

Consistent performance over all productivity environments indicates that the variety has good yield stability over a wide range of environments. For new varieties where sufficient data is not available to provide reasonable estimates of yield performance in each Yield Test Category, the overall provincial yield is a first indication of the yield potential relative to the check.

It is important to note that many of the comparisons in the tables are not direct comparisons. Small plot agronomic trials are expensive to grow, and new varieties are registered every year. It is simply impractical to grow all of the varieties at the same time. Following several years of data collection, the yield data for a particular variety will stabilize relative to the standard check and testing will no longer be warranted. It is for this reason that the same standard reference check varieties are grown every year (e.g. AC Barrie for CWRS wheat, AC Metcalfe for barley) and changes do not occur very often. This means that the only direct comparison that you can be sure of is with that of the reference check. The "number of station-years" column provides some indication of the unbalanced nature of the data.

To help aid in the selection process, varieties that have yielded statistically higher (+) or lower (-) than the standard check are indicated. If a large difference from the check is reported but is not significant, this could mean that the yields of the new variety have varied widely, and/or there still is not enough data to prove a statistical difference. In all cases, for the yield data to be presented, there must be a total of at least six station-years of data collected over two years. With additional years of testing, the reported yield differences will become more precise.

Variety choice should not be based solely on yield in a specific Yield Test Category. Producers are encouraged to consider other characteristics, such as maturity, straw strength and disease resistance when considering a new variety. In addition, factors such as expected growth season rainfall, soil moisture status, disease forecasts, soil fertility and weed pressure will impact the specific Yield Test Category in which actual yields will occur.

### **Maturity Ratings**

As is the case for yield, growing conditions have a tremendous influence on maturity. For example, a variety of CWRS wheat may mature in 98 days in Lethbridge, but take 103 days in Edmonton. In addition, a two day difference in maturity between varieties in Lethbridge may amount to a five day difference in Edmonton. To take this into account, maturity is now expressed using a five category scale: Very Early, Early, Medium, Late and Very Late. To aid producers with this relative scale, the average number of days to maturity for the standard check is reported. Note that this scale is different for each crop type. For example, an early barley variety will mature much earlier than an early flax variety.

### **Plant Breeders' Rights**

The use of Plant Breeder's Rights logo 🕲 indicates a variety is protected by law, and seed of this variety cannot be sold without permission and royalty payment. The use of the logo **A** indicates that PBR has been applied for.

### Canola

The Alberta Cereal and Oilseed Advisory Committee does not take any responsibility for accuracy or validity of the canola performance data.

### **Diseases, Seed Treatment and Seed Testing**

- Disease ratings are compiled from various data sources in Alberta and other Prairie Provinces.
- Treat rye and flax seed to control seedling blight, cereal seed for smuts and fusarium, canola seed to control flea beetle, seedling blight and the seed borne phase of virulent blackleg.
- Treated seed must not be fed to livestock, poultry or wildlife or sold for feed. Refer to labels for maximum storage periods of treated seed
- The leaf spot rating in the wheat charts is a combination of resistance to tan spot and septoria leaf disease complex.
- Fusarium head blight, caused by Fusarium graminearum, is an increasing problem in Alberta. The relative ranking of

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crops from most susceptible to least susceptible is durum, CPS wheat, CWRS wheat, triticale, barley and oat. Corn is a host of *F. graminearum* and can serve as a source of infection when residue is left on the ground. Under severe epidemics, all cereal varieties will suffer damage. All seed, especially seed brought in from infected areas of the Eastern Prairies, should be tested for the presence of FHB and treated with an appropriate seed treatment. Producers are advised to choose varieties with the best FHB tolerance whenever possible and always use best management practices to slow the spread of this disease.

• All seed of cereal varieties tested in the Alberta Regional Variety Testing program comes with a "fusarium-free" certificate. In addition, all regional trials are inspected for the disease at the most susceptible stage.

## Laboratories participating in the FHB testing program:

- 20/20 Seed Labs Ltd., Nisku, Alta., 1-877-420-2099
- BioVision Seed Research Ltd., Edmonton, Alta., 1-800-952-5407
- BioVision Seed Research Ltd., Grande Prairie, Alta., 1-877-532-8889
- Parkland Laboratories, Red Deer, Alta., (403) 342-0404
- Precision Seed Testing, Beaverlodge, Alta., (780) 354-2259
- Seed Check Technologies Inc., Leduc, Alta., (780) 980-8324

### **Other Variety Information**

For additional variety information, including varieties not listed in this factsheet, check the Alberta Agriculture website or call the Alberta Ag-Info Centre toll-free at 310-FARM (3276). Website: www.agriculture.alberta.ca.

### All tables prepared, reviewed and approved by:

Alberta/British Columbia Grain Advisory Committee

### Fact sheet and data preparation coordinated by:

Alex Fedko Coordinator RVT/Crop Research Technologist Alberta Agriculture and Rural Development

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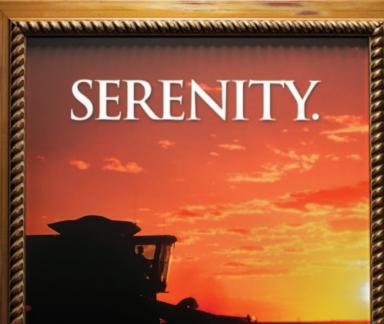






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## **MALTING BARLEY**

				Overall	Yield	l Category <sup>2</sup>	(% AC Metc	alfe)	Agronomic Characteristics					
Variety	2 or 6 row	Awn Type¹	Overall Yield	Station Years of Testing	Low < 60 (bu/ac)	Medium 60 - 90 (bu/ac)	High 90 - 120 (bu/ac)	V. High > 120 (bu/ac)	Maturity Rating⁴	Test Weight (lb/bu)	TSW (g)	Ht. (cm)	Resistance to Lodging⁵	
				М	ALTING AC	CEPTANCE:	RECOMMEN	IDED						
Varieties tested in	the 201	2 trials (	Yield and	agronomic (	data only di	irectly comp	arable to A	C Metcalfe)						
AC Metcalfe (bu/ac)			100		52	80	106	133						
AC Metcalfe <sup>3</sup> ®	2	R	100	454	100	100	100	100	М	50	46	80	F	
CDC PolarStar	2	R	102	30	XX	108	104	95	М	51	42	80	G	
Major 💩	2	R	107 +	59	104	108 +	108+	106+	М	52	44	73	G	
Previously tested v	arieties	(Yield a	nd agrono	mic data or	ly directly	comparable	to AC Metc	alfe)						
CDC Copeland 💩	2	R	104+	137	93	101	108+	109+	М	51	47	81	F	
CDC Meredith	2	R	108 +	63	102	108+	108+	108+	L	51	46	75	F	
LEGACY 💩	6	SS	102	122	91-	99	103	111+	М	49	40	82	G	
Merit 57 🕲	2	R	109+	85	108	108+	109+	109+	VL	51	44	79	F	
Newdale 👁	2	R	103 +	92	102	102	104	104 +	М	52	46	72	F	
Stellar-ND †	6	SS	94-	73	XX	88-	94-	103	E	49	41	79	G	
Tradition 🕲	6	SS	101	121	88-	99	102	110+	E	50	40	81	G	
					MALTING A	CCEPTANCE	E: UNDER TE	ST						
Varieties tested in	the 201	2 trials (	Yield and	agronomic (	data only di	irectly comp	arable to A	C Metcalfe)						
Bentley 🕸	2	R	105 +	75	109	102	105 +	105 +	М	52	46	80	G	
CDC Anderson	6	R	96	29	XX	99	90	101	М	50	43	82	G	
CDC Kindersley 💩	2	R	104+	45	XX	102	104	104	E	51	45	77	G	
Previously tested v	arieties	(Yield a	nd agrono	mic data on	ly directly	comparable	to AC Metc	alfe)						
CDC Kamsack @†	6	R	97	37	XX	90-	99	109	М	48	41	69	G	
CDC Mayfair 🐵	6	R	97	54	XX	93-	96	104	E	49	40	75	G	
Cerveza	2	R	109+	47	XX	109+	108+	110+	М	51	46	73	F	
Norman @†	2	R	97-	47	XX	94-	97	98	М	52	43	75	G	
					MALTIN	G ACCEPTAI	NCE: OTHER							
Previously tested v	arieties	(Yield a	nd agrono	mic data or	ly directly	comparable	to AC Metc	alfe)						
CDC Battleford +	6	S	105+	107	92-	103	105	115+	М	49	41	82	G	
CDC Clyde @†	6	SS	103	77	93	104	101	108+	VE	49	40	76	G	
CDC YORKTON †	6	S	106+	96	XX	100	104	114+	М	49	39	84	G	
Harrington	2	R	92-	284	97	96-	91-	89-	М	50	44	78	F	

**REMARKS:** Malting Barley varieties are described as follows: Recommended: varieties with market acceptance and recommended by the Canadian Malting Barley Technical Centre (CMBTC); Under Test: varieties currently undergoing evaluation for market acceptance; and Other: not currently recommended but varieties where a market may exist. AAC Synergy – insufficient information to describe. B – Plant Breeder's Rights.  $\blacktriangle$  – Plant Breeder's Rights applied for.  $\ddagger$  – Flagged for removal. 1 Awn types describe as R = rough, S = smooth and SS = semi-smooth. 2 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ ac. The actual yields for AC Metcalfe are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. 3 Yield is reported relative to AC Metcalfe. Varieties that are statistically higher (+) or lower (-) yielding than AC Metcalfe are indicated. No symbol after the yield figure indicates that there is no statistical difference. 4 Maturities rated as: VE - Very Early; E - Early; M - Medium; L - Late and VL - Very Late. Long term average days to maturity for AC Metcalfe is 95 days and rated as Medium maturing (M). 5 Resistance/Tolerance Ratings: VG - Very Good; G - Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to smuts should be treated with a systemic seed treatment to reduce the potential for plant infection.

### Alberta and British Columbia Pedigreed Seed Growers Directory of Varieties Produced in 2012

Grower listings were prepared by the Canadian Seed Growers' Association for varieties eligible for sale in Canada and crops issued certificates at the time of publication. Breeding institution and distributor listings were prepared by the publisher. CSGA assumes no responsibility for errors or omissions in any listings. Pedigreed class code is listed after the grower's phone number. S=Select; F=Foundation; R=Registered; C=Certified. BI=Breeding Institution; Dist.=Canadian Distributor(s)

## MALTING BARLEY — CONTINUED

				Disease	Tolerance	<b>)</b> <sup>5</sup>	
Variety	Loose Smut	Other Smuts	Root Rot	Scald	Spot Form Blotch	Net Form Blotch	Fusarium Head Blight
	MAL	FING AC	CEPTAN	ICE: REC	OMMEND	ED	
Varieties tested in (Yield and agrono			ectly co	omparabl	e to AC M	etcalfe)	
AC Metcalfe (bu/ac)	)						
AC Metcalfe <sup>3</sup> ®	VG	F	F	VP	F	VP	F
CDC PolarStar	VP	VG	Р	VP	G	VP	G
Major 🐵	VG	G	F	Р	G	F	F
Previously tested	varieties						
(Yield and agrono	mic data	only dir	ectly co	omparabl	e to AC M	etcalfe)	
CDC Copeland 💩	Р	F	F	VP	F	F	F
CDC Meredith	VG	G	G	VP	VG	VP	F
LEGACY 🕲	F	G	G	VP	G	VP	Р
Merit 57 💩	Р	VP	F	Р	G	Р	G
Newdale 💩	VP	G	G	Р	G	F	F
Stellar-ND +	G	G	F	Р	F	Р	F
Tradition 💩	VP	G	G	VP	F	VP	VP
	MA	LTING A	CCEPT/	ANCE: UN	IDER TEST	Г	
Varieties tested in	the 201	2 trials					
(Yield and agrono	mic data	only dir	ectly co	omparabl	le to AC M	etcalfe)	
Bentley 🕲	Р	G	G	VP	VG	Р	Р
CDC Anderson	G	VG	F	Р	G	Р	F
CDC Kindersley 💩	VP	VG	F	VP	G	Р	F
Previously tested		•					
Yield and agronor		only dire				etcalfe)	
CDC Kamsack @†	F	G	F	Р	F	VP	VP
CDC Mayfair 🕲	VP	G	F	VP	G	Р	Р
Cerveza	VG	VG	F	VP	G	Р	F
Norman @†	VP	VP	Р	VP	VG	Р	G

MALTING ACCEPTANCE: OTHER

#### Previously tested varieties

(Yield and agronomic data only directly comparable to AC M	etcalfe)
--	----------

CDC Battleford †	Р	G	G	Р	VG	Р	VP	
CDC Clyde @†	F	VG	G	Р	G	F	VP	
CDC YORKTON †	Р	G	G	Р	G	F	VP	
Harrington	Р	Р	F	VP	Р	VP	G	





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## **FEED AND FOOD BARLEY**

					Yie	ld Category <sup>2</sup> (	% AC Metcalfe	Agronomic Characteristics					
Variety	2 or 6 row	Awn Type¹	Overall Yield	Overall Station Years of Testing	Low < 60 (bu/ ac)	Medium 60 - 90 (bu/ac)	High 90 - 120 (bu/ac)	V. High > 120 (bu/ac)	Maturity Rating⁴	Test Weight (Ib/bu)	TSW⁵ (g)	Height (cm)	Resistance to Lodging <sup>6</sup>
						GENERAL PUF	RPOSE						
Varieties tested in th	ie 2012	trials (Y	ield and a	pronomic data on	ly directly con	nparable to A(	C Metcalfe)						
AC Metcalfe (bu/ac)			100		52	80	106	133					
AC Metcalfe <sup>3</sup> @	2	R	100	454	100	100	100	100	М	50	46	80	F
CDC Maverick 🔺	2	S	96-	30	XX	92-	97	98	М	48	49	89	F
Champion 💩	2	R	113+	111	122+	114+	112+	109+	М	52	48	77	G
Gadsby 🔺	2	R	112+	45	XX	114+	114+	108+	Μ	53	51	83	F
Muskwa	6	S	105	29	XX	103	106	110+	М	51	45	74	G
TR07728 🕲	2	R	111+	59	109	110+	114+	111+	М	53	46	74	G
XENA 🐵	2	R	112+	243	107	109+	114+	115+	М	52	49	78	G
Previously tested va	rieties (	Yield an	d agronom	ic data only dire	ctly comparab	le to AC Metca	alfe)						
AC Harper 🐵	6	SS	103+	166	94	96-	102	111+	М	48	40	80	G
AC Lacombe 🐵 †	6	S	107+	196	98	101	107+	115+	М	48	42	84	G
AC Ranger	6	S	107+	48	100	99	118+	108+	L	49	43	74	F
AC Rosser @	6	S	110+	166	100	103	111+	117+	Μ	48	41	82	G
Busby 🐵	2	R	104+	45	107	103	106	103	М	51	49	78	G
CDC Austenson 💩	2	R	112+	65	108	113+	111+	112+	L	53	46	78	G
CDC Coalition 👁	2	R	110+	55	107	112+	108+	109+	L	53	47	74	G
CDC Cowboy 💩	2	R	95-	75	107	94-	93-	95-	L	52	48	103	F
CDC Dolly	2	R	101	184	97	100	103+	100	М	53	49	74	F
CDC Helgason 💩 †	2	R	104+	101	96	99	106+	114+	E	52	46	75	G
CDC Mindon 👁 †	2	R	99	47	XX	98	103	96-	М	52	48	77	G
CDC Trey 💩	2	R	104+	106	98	103	103	109+	М	52	50	80	G
Chigwell 💩	6	S	104	43	XX	98	106	111+	М	49	41	76	G
CONLON 💩	2	S	94-	63	94	92-	93-	95-	VE	52	52	80	G
Ponoka 🕸	2	R	110 +	120	98	107+	112+	112+	L	51	46	80	G
Seebe	2	R	100	229	91-	98	103	102	VL	52	50	86	G
Sundre 💩	6	S	111 +	70	97	111	109+	121+	L	51	43	85	G
Trochu 💩	6	S	110+	136	99	106	110+	120+	М	49	41	78	G
						SEMI-DWA							
Varieties tested in th	ie 2012	trials (Y	ield and a	pronomic data on	ly directly con	nparable to A(	C Metcalfe)						
Vivar 🐵	6	R	109+	188	98	105+	111+	117+	М	50	43	74	VG
Previously tested va	rieties (	Yield an	d agronom	ic data only dire	ctly comparab	le to AC Metca	alfe)						
CDC Bold	2	R	106+	77	111+	107+	106+	102	М	53	48	72	VG
						HULLES	S						
Varieties tested in th	ie 2012	trials (Y	ield and a	gronomic data on	ly directly con	nparable to A(	C Metcalfe)						
CDC Clear	2	R	94-	30	XX	92-	99	XX	L	47	45	86	F
Previously tested vari													
CDC Carter @	2	R	97-	45	97	99	94-	XX	М	62	39	77	VG
CDC Caller @	2	R	97-	107	97 88-	99	94-	XX	M	61	39	80	VG
Falcon @ †	6	S	93- 83-	181	72-	93-	99 91-	89	E	58	35	68	VG
	2	R	84-	35	85-	86-	90-	XX	M	57	42	87	F
Millhouse 🐵 †													

**REMARKS:** General Purpose barley varieties are described as follows: 1) General Purpose varieties – standard height; 2) Semi-Dwarf – varieties shorter than standard General Purpose varieties and 3) Hulless – Hulless General Purpose type. In hulless varieties comparable yields are 9-12% lower. Hulless seed is more susceptible to damage than hulled seed, so handling should be minimized. CDC Carter, CDC McGwire and Millhouse are normal starch hulless barleys suitable for food use. CDC Clear is a hulless malting variety. Breton – insufficient information to describe.  $\Rightarrow$  – Plant Breeder's Rights applied for. † – Flagged for removal. XX – Insufficient data to describe. 1 Awn types describe as R = rough, S = smooth and SS = semi-smooth. 2 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Metcalfe are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. 3 Yield is reported relative to AC Metcalfe. Varieties that are statistically higher (+) or lower (-) yielding than AC Metcalfe are indicated. No symbol after the yield figure indicates that there is no statistical difference. 4 Maturities rated as: VE = Very Early; K = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Metcalfe is 95 days and rated as Medium maturing (M). 5 Thousand Seed Weight. 6 Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

## FEED AND FOOD BARLEY — CONT.

Disease Tolerance <sup>6</sup>												
Variety	Loose Smut	Other Smuts	Root Rot	Scald	Spot Form Blotch	Net Form Blotch	Fusarium Head Blight					
		GEN	ERAL F	PURPOS	E							
Varieties tested in rable to AC Metcal		2 trials ('	Yield a	nd agror	iomic data	a only dire	ctly compa-					
AC Metcalfe (bu/ac)												
AC Metcalfe <sup>3</sup> @	VG	F	F	VP	F	VP	F					
CDC Maverick 🔺	VP	VG	F	Р	G	F	F					
Champion 💩	VP	VG	XX	VP	F	VP	F					
Gadsby 🔺	VG	VG	F	VG	G	Р	F					
Muskwa	Р	VG	Р	G	G	Р	VP					
TR07728 🕲	Р	VG	G	VP	F	F	F					
XENA 🕲	Р	Р	G	VP	F	VP	G					
Previously tested va	arieties (	/ield and	agrono	mic data	only direc	ctly compar	able to AC					
Metcalfe)			-		-							
AC Harper 🕲	Р	F	F	F	F	F	Р					
AC Lacombe 💩 †	Р	G	Р	Р	G	Р	VP					
AC Ranger	Р	F	G	Р	G	F	VP					
AC Rosser 🐵	Р	VG	G	VP	G	F	VP					
Busby 🐵	VP	G	VP	F	G	Р	F					
CDC Austenson @	VP	VG	F	VP	VG	Р	F					
CDC Coalition 💩	VG	VG	F	VP	G	VP	F					
CDC Cowboy 💩	Р	G	F	Р	G	F	G					
CDC Dolly	VP	F	F	F	Р	VP	G					
CDC Helgason 💩 †	VG	G	F	VP	G	G	Р					
CDC Mindon @†	VG	VG	XX	VP	G	VP	G					
CDC Trey 🕲	Р	VG	G	Р	VG	F	F					
Chigwell 🕲	Р	G	Р	G	G	F	VP					
CONLON @	F	F	G	VP	G	F	G					
Ponoka 👁	VG	VG	F	G	G	Р	F					
Seebe	VP	VG	F	G	Р	VP	G					
Sundre 💩	Р	VG	Ρ	VG	F	Р	VP					
Trochu@	Р	G	G	F	G	VP	F					
		S	EMI-D	WARF								
Varieties tested in rable to AC Metcal		2 trials ('	Yield a	nd agror	iomic data	a only dire	ctly compa-					
Vivar 🐵	F	VG	G	F	G	VG	VP					
Previously tested v AC Metcalfe)	varieties	(Yield a	nd agro	onomic c	lata only c	directly co	mparable to					
CDC Bold	Р	G	G	VP	F	VP	VP					
			HULL									
Varieties tested in rable to AC Metcal		2 trials ('	-		iomic data	a only dire	ctly compa-					
CDC Clear	VG	VG	F	VP	VG	Р	G					
Previously tested va			201000	mie data		tly compar	able to AC					

Previously tested v Metcalfe)	arieties (N	ield and	agrono	mic data	only direct	tly compara	ble to AC
CDC Carter 💩	VG	VG	VP	Р	G	F	F
CDC McGwire 🕲	Р	G	G	F	G	F	G
Falcon 🕲 †	Р	G	F	F	F	F	VP
Millhouse @ †	VP	G	F	Р	Р	Р	F
Tyto	VP	VG	F	Р	F	VP	Р



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BI: AAFC (Lacombe), Dist: SeCan Members					Svean, Alan Carl & Scott / Rivercourse / (780) 745-2578		
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C METCALFE Bl: AAFC (Brandon), Dist: SeCan Members					Wagner, Terry & Loree / Laconnee / (403) 762-2107 Weigum, Garry / Three Hills / (403) 443-2476		
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Archer, Charles Darrel / Wetaskiwin / (780) 352-3179				С	Wood, Robert & P. & Marshall / Bowden / (403) 224-3928		
Benci, Dennis / Carmangay / (403) 643-2294			R R	C C	AC RANGER BI: AAFC (Brandon), Dist: FP Genetics		
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Dueck, Ralph E. & Brent / Olds / (403) 556-2602	S	F	R		BI: Dist: Canterra Seeds		
Eliason, Bruce W. / Wrentham / (403) 222-2258			D	C	Cameron, Danny / Millet / (780) 387-5313 Kaun, David E. / Penhold / (403) 886-4562		
Ellis, Brian / Olds / (403) 556-2890 Foster, Norman R. / Beaverlodge / (780) 354-2107			R	C C	BRETON		
Freh, Herman R. / Colinton / (780) 675-4840				C	BI: FCDC Lacombe, Dist: Canterra Seeds		
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Hallett, Dale R. & Richard / Carstairs / (403) 337-2469 Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268				C C	BUSBY BI: AAFRD, Dist; Mastin Seeds		
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### Alberta Wheat Trials

Variety	Yield.	FHB Rating	Leaf Rust	Stem Rust
	% of Check			
SY985	126+	Fair	Fain	Not Rated
5700PR	102+	Very Poor	Poor	Poor me
5701PR	101	Very Poor	Poor	Good Mare
AC/Crystal	99	Very Poor	Fair	Very Poor
AC/Foremost	98-	Very Poor	Poor	Very Poor

Source: www.seed.ab.ca (Spring 2012)

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McNelly, Bevin / Clyde / (780) 348-5749			R	
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King, Harold F. / Three Hills / (403) 443-7330				С
Knight, William & G. & Blaine & Craig & B. / Tees / (403) 784-3633	c			C
Kopjar, Gerald M. / Rowley / (403) 368-2409 Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240	S			C C
Logan, Glenn C. & Marie & Douglas / Lomond / (403) 792-3696				C
Massey, Derwin / Stettler / (403) 883-2503				С
McDonald, Gerald / Grande Prairie / (780) 538-3868			R	С
Meding, Ernest / Trochu / (403) 442-2129 Marcar Llavd A. & Connis & Purp / Lathbridge / (402) 227, 0726				C
Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736 Mueller, Darcy / Three Hills / (403) 820-4115				C C
Mueller, Donald A. / Three Hills / (403) 823-3177				C
Niemela, Terrance & Tracy / Sylvan Lake / (403) 746-2645				Ċ
Nisbet, Andrew E. & Diane E. / Bowden / (403) 224-3788	S	F		~
Oatway, Grant / Lacombe / (403) 784-3418 Ponwest / Three Hills / (403) 443-2577				C
Penwest / Three Hills / (403) 443-2577 Peters, Edward W. / Didsbury / (403) 335-4506				C C
Schmermund, Donnie / Calahoo / (780) 967-2850				C
Selte, Donald / Vermilion / (780) 853-2484	S			С
Shultz, Shawn / Didsbury / (403) 335-3694				С
				_

Zwack, Thomas / Daysland / (780) 374-2450 C THOMPSON BI: CDC, Dist: FP Genetics Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535				С	MUSKWA BI: FCDC Lacombe, Dist: N/A	
BI: CDC, Dist: FP Genetics						
					Chin Ridge Seeds Ltd. / Taber / (403) 223-3900	
			R		Logan, Glenn C. & Marie & Douglas / Lomond / (403) 792-3696	S
C TREY					Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395	
BI: CDC, Dist: FP Genetics					NEWDALE	
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928		F	R		BI: AAFC (Brandon), Dist: FP Genetics	
C YORKTON		· .			Dalton, Dennis / Wainwright / (780) 842-2361	
BI: CDC, Dist: Canterra Seeds					King, Harold F. / Three Hills / (403) 443-7330	
Haney Farms (1985) Limited / Picture Butte / (403) 738-4517				С	Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358	
				C		
Haney Farms (1985) Limited / Picture Butte / (403) 738-4518				0	Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535	
Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322			R		Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253	
RVEZA					PONOKA	
BI: AAFC (Brandon), Dist: Mastin Seeds			-		BI: FCDC Lacombe, Dist: SeCan Members	
Lefsrud, Kevin J. & Edmund J. / Viking / (780) 336-2500		-	R		Freh, Herman R. / Colinton / (780) 675-4840	
Mastin, Robert B. / Sundre / (403) 556-2609		F	R		Gibson, Donald / Sangudo / (780) 785-2214	
Schultz, Jason / Bashaw / (780) 372-2286			R		Meinczinger, Matthew Jr. / Busby / (780) 349-2456	
AMPION					Mueller, Richard J. & R.R. & Rosemary / Barrhead / (780) 674-2595	
BI: Viterra, Dist: Viterra					Schmermund, Donnie / Calahoo / (780) 967-2850	
Richards, Cliff & Dan / Sexsmith / (780) 766-2266			R		Selte, Donald / Vermilion / (780) 853-2484	0
Wurz, John / Picture Butte / (403) 757-2330				С	Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	
IGWELL					Webber, Curtis / Stony Plain / (780) 963-6897	
BI: FCDC Lacombe, Dist: SeCan Members					SEEBE	
Anderson, Ken & Evelyn / Barrhead / (780) 674-5670				С	BI: FCDC Lacombe, Dist: SeCan Members	
Brousseau, Jules / Foisy / (780) 657-2276				С	Anderson, Ken & Evelyn / Barrhead / (780) 674-5670	
Crop Production Services Canada / Didsbury / (403) 335-3055			R	С	Baier, Bill & Dean / Clyde / (780) 348-5791	
Feenstra, Lloyd / Barons / (403) 757-3737			R		Beamish, Dale / Jarvie / (780) 954-3960	
Hadland, Edward / Baldonnel / (250) 789-3646				С	Cross, Douglas / Westlock / (780) 349-2587	
Haney Farms (1985) Limited / Picture Butte / (403) 738-4517				С	Meinczinger, Matthew Jr. / Busby / (780) 349-2456	
Repka, Gerald / Willingdon / (780) 636-3458				Ĉ	Schmermund, Donnie / Calahoo / (780) 967-2850	
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617		F		0	Webber, Curtis / Stony Plain / (780) 963-6897	
Webber, Curtis / Stony Plain / (780) 963-6897		·		С	SUNDRE	
Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395				C	BI: FCDC Lacombe, Dist: Mastin Seeds	
NLON				0	Crop Production Services Canada / Didsbury / (403) 335-3055	
BI: NDSU, Dist: Seed Depot					Cross, Douglas / Westlock / (780) 349-2587	
Niemela, Terrance & Tracy / Sylvan Lake / (403) 746-2645				С		
Welsh, Donald Alan / Milk River / (403) 647-2228				C	Feenstra, Lloyd / Barons / (403) 757-3737	
LCON				0	Gibson, Donald / Sangudo / (780) 785-2214	
					Hadland, Arthur Austin / Baldonnel / (250) 789-3566	
BI: FCDC Lacombe, Dist: N/A		E.		0	Hallett, Dale R. & Richard / Carstairs / (403) 337-2469	
Stickland, Brian & Melvin G. & Irma / Red Deer / (403) 886-4875		F		С	Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268	
DSBY					Jonk, Nicholas / Westlock / (780) 349-5458	
BI: FCDC Lacombe, Dist: SeCan Members				0	Kemp, Richard L. / Innisfail / (403) 227-4836	
Dechaine, Louis / St. Lina / (780) 635-2235				C	Lyster, Norman / Stettler / (403) 742-4456	
Ohrn, Norman / Thorsby / (780) 985-2263	~	_		С	Mastin, Robert B. / Sundre / (403) 556-2609	
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S	F			Mueller, Richard J. & R.R. & Rosemary / Barrhead / (780) 674-2595	
Webber, Curtis / Stony Plain / (780) 963-6897				С	Richard, Gerald / Spirit River / (780) 864-2339	
GACY					TROCHU	
BI: Busch Ag. Res., Dist: Viterra/FP Genetics					BI: FCDC Lacombe), Dist: SeCan Members	
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928			R	С	Crop Production Services Canada / Didsbury / (403) 335-3055	
JOR					Kittle, James W. & Andrew / Viking / (780) 336-2583	
BI: N/A, Dist: Viterra					Smith, Gary W. / Eckville / (403) 746-5878	
Eckert, Art / Duchess / (403) 378-4791				С	VIVAR	
RIT 57					BI: FCDC Lacombe, Dist: SeCan Members	
					Beamish, Dale / Jarvie / (780) 954-3960	
31: Busch Ag. Res., Dist: Canterra Seeds						
BI: Busch Ag. Res., Dist: Canterra Seeds Haney Farms (1985) Limited / Picture Butte / (403) 738-4517			R		DUECK BAIDD F & Brent / UIDS / (4U3) 556-2602	
Haney Farms (1985) Limited / Picture Butte / (403) 738-4517			R R		Dueck, Ralph E. & Brent / Olds / (403) 556-2602 Sim. Darwin & Derek / Ponoka / (780) 372-2111	
			R R R	С	Dueck, Kaipn E. & Brent / Olds / (403) 556-2602 Sim, Darwin & Derek / Ponoka / (780) 372-2111 Webber, Curtis / Stony Plain / (780) 963-6897	



Harold & Jan King RR2, Three Hills, AB TOM 2A0

**(403) 443-7330** Fax (403) 443-7992 Harold Cell (403) 443-0005 Jan Cell (403) 443-0006



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## **CIMBIC** Recommended Malting Barley Varieties 2013-14

**THESE** recommendations are based on the varieties expected to be selected by grain and malting companies for both domestic and export markets from the 2013 harvest. Seeding decisions should be based on agronomic considerations and feedback from your grain company representative, local elevator operators and malting companies. This list is published on behalf of the members of the CMBTC, and other companies that have provided their input. Varieties not listed are not recommended. The varieties are listed in descending order to the amount expected to be selected next crop year.

### RECOMMENDED TWO-ROW BARLEY VARIETIES

VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
AC METCALFE <sup>4</sup>	ESTABLISHED	ESTABLISHED	STABLE DEMAND
CDC COPELAND <sup>4</sup>	ESTABLISHED	ESTABLISHED	STABLE DEMAND
CDC MEREDITH <sup>4</sup>	ESTABLISHED	LIMITED	INCREASING DEMAND
NEWDALE <sup>3</sup>	ESTABLISHED	LIMITED	STABLE DEMAND
CDC POLARSTAR5**	LIMITED	LIMITED	STABLE DEMAND
MERIT 57 <sup>5</sup>	LIMITED	LIMITED	LIMITED DEMAND
MAJOR <sup>1</sup>	LIMITED	LIMITED	LIMITED DEMAND

BENTLEY, NORMAN, CERVEZA, CDC KINDERSLEY, CDC LANDIS, CDC RESERVE, VOYAGER AND AAC SYNERGY ARE NOT YET BEING GROWN FOR THE COMMERCIAL MARKET. PRODUCTION IS LIMITED TO QUANTITIES REQUIRED FOR TESTING AND MARKET DEVELOPMENT. **\*\*CDC POLARSTAR IS AVAILABLE ONLY THROUGH A CLOSED LOOP IDENTITY PRESERVED PROGRAM OFFERED BY PRAIRIE MALT LIMITED/SAPPORO BREWERIES AND THEIR AGENTS**.

#### **RECOMMENDED SIX-ROW BARLEY VARIETIES**

VARIETY	DOMESTIC	EXPORT	MARKET DEMAND
LEGACY <sup>1,2,3</sup>	ESTABLISHED	ESTABLISHED	STABLE DEMAND
STELLAR-ND <sup>5</sup>	ESTABLISHED	ESTABLISHED	DECLINING DEMAND
TRADITION <sup>1,2,3</sup>	ESTABLISHED	ESTABLISHED	DECLINING DEMAND
<b>CELEBRATION<sup>5</sup></b>	LIMITED	LIMITED	LIMITED DEMAND

INNOVATION, CDC MAYFAIR AND CDC ANDERSON ARE NOT YET BEING GROWN FOR THE COMMERCIAL MARKET. PRODUCTION IS LIMITED TO QUANTITIES REQUIRED FOR TESTING AND MARKET DEVELOPMENT. PLEASE TALK TO YOUR LOCAL MALTING COMPANY SELECTOR IN REGARDS TO DEMAND FOR LACEY AND ROBUST.

"Domestic" as used in this publication, means barley selected for domestic processing into malt to supply domestic brewers as well as for malt destined for export. "Export" is that malting barley designated for markets outside of Canada including the U.S., shipped as unmalted grain.

The following companies have pedigreed seed distribution rights for those varieties that are footnoted: 1-Viterra; 2- BARI-Canada; 3 – FP Genetics; 4 - SeCan; 5 – CANTERRA SEEDS

The CMBTC and its' members recommends the use of Certified seed to ensure varietal purity and to increase opportunity for selection.

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

Questions? Call you selector, seed company, grain handling company, the Canadian Wheat Board or contact the CMBTC at (204) 984-4399 (cmbtc@ cmbtc.com).





		Overall	Yie	Id Category <sup>1</sup>	(% CDC Dan	cer)		Agronomi	c Charac	teristics		
Variety	Overall Yield	Station Years of Testing	Low < 70 (bu/ac)	Medium 70-100 (bu/ac)	High 100-130 (bu/ac)	V. High > 130 (bu/ac)	Mat. Rating <sup>3</sup>	Test Weight (Ib/bu)	TSW ⁴ (g)	Height (cm)	Res. to Ldg ⁵	Tolerance to Smuts
					MILLIN	IG						
Varieties tested in t	he 2012 tr	ials (Yield a	and agrono	mic data onl	y directly cor	nparable to	o CDC Danc	er)				
CDC Dancer (bu/ac)	95		52	85	117	146						
CDC Dancer <sup>2</sup>	100	108	100	100	100	100	E	40	36	96	G	VG
CDC Minstrel 💩	106+	20	XX	103	XX	107+	М	42	38	88	VG	VG
CDC Seabiscuit 👁	104+	61	103	103	105	105 +	М	42	41	99	G	G
Stride 💩	113+	20	XX	110	XX	110+	М	42	34	101	G	VG
Previously tested va	arieties (Yi	ield and agi	ronomic da	ta only direc	tly comparab	le to CDC I	Dancer)					
AC Juniper	103+	80	100	102	105+	103	E	41	38	94	VG	F
AC Morgan	112+	94	109+	112+	110+	118+	М	42	41	92	VG	F
Bradley 💩	104+	31	XX	103	108	106	E	39	39	92	VG	VG
Cascade †	102	159	103	102	102	101	E	39	37	100	G	VP
CDC Boyer	102	89	103	103	100	105	М	39	42	101	G	Р
CDC Orrin 💩	109 +	52	113 +	107 +	107+	XX	М	41	40	84	G	VG
CDC Weaver 🐵	104	44	108 +	103	100	100	М	40	43	91	F	VG
Derby	101	79	103	102	96-	105	L	41	39	103	G	Р
Jordan 💩	112+	36	112+	109+	117+	XX	VL	38	44	87	G	VG
Leggett @†	95-	40	97	93	93-	XX	М	41	39	88	G	VG
Ronald @†	97-	55	98	92	98	101	М	41	37	83	VG	VG
SW Betania 🕲 †	102	43	106 +	104	97	XX	E	40	39	88	G	G
Triactor 🐵	110+	45	109	108+	114+	110+	М	38	38	88	G	VG
					FEED	)						
Varieties tested in t	he 2012 tr	ials (Yield a	and agrono	mic data onl	y directly cor	nparable to	o CDC Danc	er)				
CDC Nasser	118+	21	127	115	XX	XX	L	47	36	94	G	G
Previously tested va	arieties (Y	ield and agi	ronomic da	ta only direc	tly comparab	le to CDC I	Dancer)					
AC Mustang *	114+	106	118+	112+	110+	117+	L	42	37	103	G	F
Lu *	100	56	99	98	99	110	VE	41	39	84	G	VG
					FORAC	θE						
CDC Baler *	99	42	97	106	96	XX	L	40	43	99	XX	VP
Murphy 🐵 *	95-	51	93	96	97	94	М	39	36	108	XX	VP

ATO

**REMARKS:** Use higher seeding rates for large seeded varieties. Souris - insufficient data to describe.  $\triangle$  - Plant Breeder's Rights.  $\blacktriangle$  - Plant Breeder's Rights applied for.  $\uparrow$  - Flagged for removal. \* These varieties have limited data compared to CDC Dancer and yields have been adjusted to CDC Dancer from Cascade. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields (bu/ac) for CDC Dancer are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. 2 Yields are reported relative to CDC Dancer. Varieties that are statistically higher (+) or lower (-) yielding than CDC Dancer are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for CDC Dancer is 98 days and rated as Early maturing (E). 4 Thousand Seed Weight. 5 Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.



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UAI 5
AC MORGAN
BI: AAFC (Lacombe), Dist: SeCan Members
Anderson, Ken & Evelyn / Barrhead / (780) 674-5670
Bratland, Jason H. / Hythe / (780) 356-3375
Chin Ridge Seeds Ltd. / Taber / (403) 223-3900
Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383
Graham, Lawrence W. / Innisfail / (403) 227-2336
Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268
Hill, Gordon P. / Taylor / (250) 789-3469
Jonk, Nicholas / Westlock / (780) 349-5458
Kalinsky, Dwayne / Iron River / (780) 826-4452
Kemp, Richard L. / Innisfail / (403) 227-4836
Klassen, Ken / Rosemary / (403) 378-4408 Massey, Derwin / Stettler / (403) 883-2503
Ohrn, Norman / Thorsby / (780) 985-2263
Peters, Edward W. / Didsbury / (403) 335-4506
Richard, Gerald / Spirit River / (780) 864–2339
Selte, Donald / Vermilion / (780) 853-2484
Smith, Gary W. / Eckville / (403) 746-5878
Tomlinson, Chelsea / Redwater / (780) 777-5885
Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617
Webber, Curtis / Stony Plain / (780) 963-6897
AC MUSTANG
BI: AAFC (Lacombe), Dist: Mastin Seeds
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464 Feenstra, Lloyd / Barons / (403) 757-3737
Mastin, Robert B. / Sundre / (403) 556-2609
BRADLEY
BI: AAFC, Dist: N/A
Jonk, Nicholas / Westlock / (780) 349-5458
Selte, Donald / Vermilion / (780) 853-2484
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617
CDC BALER

CDC BALER BI: CDC. Dist: FP Genetics

Crop Production Services Canada / Didsbury / (403) 335-3055 Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268 Sand, Ron W. & David R. / McLaughlin / (780) 745-2251 Sim, Darwin & Derek / Ponoka / (780) 372-2111 Wood, Robert & P. & Marshall / Bowden / (403) 224-3928

		CDC HAYMAKER			
R	C	BI: CDC, Dist: N/A			
	-	Sim, Darwin & Derek / Ponoka / (780) 372-2111	S	F	
		CDC SEABISCUIT			
		BI: CDC, Dist: Canterra Seeds			
R	С	Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322	S		
	Ċ	CDC SO-I	-		
	Ĉ	BI: CDC, Dist: N/A			
	Ĉ	Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268			
	Ũ	Logan, Glenn C. & Marie & Douglas / Lomond / (403) 792-3696		F	
	С	DERBY		·	
	Ĉ	BI: N/A, Dist: Mastin Seeds			
	Ĉ	Mastin, Robert B. / Sundre / (403) 556-2609		F	
	Ĉ	Richard, Gerald / Spirit River / (780) 864-2339		·	
	Ĉ	FOOTHILL			
	Ĉ	BI: N/A, Dist: SeCan Members			
	Ĉ	Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383			
	Ĉ	JORDAN			
	Ĉ	BI: AAFC (Winnipeg), Dist: SeCan Members			
R	Ĉ	Jones, Greg Thomas / Ponoka / (403) 783-6495			
	Ċ	Nisbet, Andrew E. & Diane E. / Bowden / (403) 224-3788		F	
R	C	LU			
	С	BI: AAFC (Lacombe), Dist: SeCan Members			
R		Warkentin, Harold K. & Errol / Tofield / (780) 662-2617		F	
	С	MURPHY			
	С	BI: AAFC (Lacombe), Dist: SeCan Members			
		Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383			
		Markert, Ron / Vulcan / (403) 485-6708			
	С	Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S	F	
R		Webber, Curtis / Stony Plain / (780) 963-6897			
R		STRIDE			
		BI: AAFC, Dist: N/A			
		Jones, Greg Thomas / Ponoka / (403) 783-6495	S		
R		TRIACTOR			
		BI: SW Seed Ltd., Dist: Canterra Seeds			
		Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322			
		WALDERN			
		BI: AAFC (Lacombe), Dist: SeCan Members			
	С	Selte, Donald / Vermilion / (780) 853-2484	S		
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# **IT'S ALL ABOUT THE SEED**

You wouldn't consider using uncertain pedigree on multiplying your herd, so why would you use common seed as the basis for your crop?

Great producers recognize the value of good genetics when it comes to producing superior cattle; it's the same for a superior crop. What you put in is what you get out. Choose the best genetics to start your next crop.



CHOOSE CERTIFIED BLUE TAG SEED.

## **SPRING TRITICALE**

		Overall	Yi	eld Category	<sup>1</sup> (% AC Ultii	ma)		Agı	ronomic (	Charact	eristics			Diseas	e Toler	ance⁵
Variety	Overall Yield	Station Years of Testing	Low < 60 (bu/ac)	Medium 60-80 (bu/ac)	High 80- 110 (bu/ac)	V. High > 110 (bu/ac)	Mat. Rating <sup>3</sup>	Test Weight (lb/bu)	TSW⁴ (g)	Ht. (cm)	Re Ldg.	esistanc Shat.	e to:⁵ Sprout.	Ergot	Bunt	FHB
Varieties tested in		Ū	,	. ,	. ,	( . ,		. ,	(9)	(only	Eug.	onut.	oprout.	Ligot	Duin	THE
			•	75		•		-)								
AC Ultima (bu/ac)	86		48	75	102	138										
AC Ultima <sup>2</sup>	100	177	100	100	100	100	E	45	45	97	G	G	F	Р	VG	F
Brevis	108+	24	XX	108+	112+	XX	Μ	46	43	94	G	G	F	Р	VG	Р
Sunray	94-	37	93-	97	94-	XX	Е	45	44	92	VG	G	F	G	VG	Р
Taza 🕲	96-	37	94	100	97	XX	Μ	44	46	100	G	G	F	F	VG	VP
Previously tested	varieties	(Yield and a	gronomic d	ata only dire	ctly compar	able to AC U	tima)									
Bumper 🐵	101	39	109	104	98	93	Е	45	45	89	VG	G	F	XX	VG	Р
Bunker 💩	91-	49	89-	94	88-	93-	VL	48	48	107	F	G	F	XX	VG	F
Companion †	92-	50	94-	98	87-	89-	М	51	51	116	XX	XX	XX	XX	VG	XX
Pronghorn	100	177	99	100	101	100	М	43	43	99	G	G	F	F	VG	G
Tyndal 🕲	101	55	106	101	97	96	L	44	44	97	G	G	Р	XX	VG	Р

**REMARKS:** All varieties are late maturing compared to CWRS wheat (approximately five days later). AC Ultima yields about 30% more than AC Barrie (CWRS Wheat) in areas of adaptation. Companion is a forage type. Bunker, Taza, and Tyndal are reduced-awn varieties. New check variety - AC Ultima. (a) - Plant Breeder's Rights.  $\blacktriangle$  - Plant Breeder's Rights applied for. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Ultima are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. 2 Yields are reported relative to AC Ultima. Varieties that are statistically higher (+) or lower (-) yielding than AC Ultima are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Ultima is 112 days and rated as Late maturing (M). 4 Thousand Seed Weight. 5 Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

TRITICALE - SPRING	S	F	R	C
AC ULTIMA				
BI: N/A, Dist: FP Genetics				
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358		F		
BUNKER				
BI: FCDC Lacombe, Dist: FP Genetics				
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358			R	С
PRONGHORN				
BI: AARD Dist: Not Assigned				
Mans, John / Nobleford / (403) 824-3585			R	

SUNRAY			
BI: AAFC, Dist: N/A			
Markert, Ron / Vulcan / (403) 485-6708	S	F	
TAZA			
BI: FCDC Lacombe, Dist: Solick Seeds			
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358		R	
TYNDAL			
BI: FCDC Lacombe, Dist: SeCan Members			
Airth, Jock & Linda / Brooks / (403) 362-4372		R	
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464		R	
Fabian, Patrick V. / Tilley / (403) 377-2000			С
Jonk, Nicholas / Westlock / (780) 349-5458			С
,			





### DURUM

		Overall	Yield Cate	egory¹ (% Str	onafield)			Aaronor	nic Chara	cteristi	cs			Diseas	e Tolera	nce⁵	
		Station	Low	Medium	High		Test	<u> </u>			esistance	to:5	_				
Variety	Overall Yield	Years of Testing	< 45 (bu/ac)	45-75 (bu/ac)	> 75 (bu/ac)	Mat. Rating <sup>3</sup>	Weight (lb/bu)	TSW⁴ (g)	Height (cm)	Ldg.	Shatter.	Sprout.	Loose Smut	Bunt	Stripe Rust	Leaf Spot	FHB
					C	ANADA W	<b>ESTERN</b>	AMBER	DURUM								
Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to Strongfield)																	
Strongfield (bu/ac)	65		34	63	95												
Strongfield <sup>2</sup> 🐵	100	105	100	100	100	М	62	45	85	F	VG	F	VP	G	G	Р	VP
Brigade 🕲	104 +	56	106	103	103	L	63	47	88	G	XX	F	Р	G	G	F	Р
CDC Verona 👁	102	46	103	103	99	Μ	62	46	82	G	XX	F	Р	G	VG	Р	Р
Enterprise 💩	101	46	104	100	101	Μ	63	43	82	G	XX	F	Р	G	VG	F	Р
Transcend 💩	102	35	103	101	100	М	62	47	89	F	XX	F	VP	VG	VG	F	Р
Previously tes	sted varie	ties (Yield a	nd agronor	nic data only	directly co	mparable	to Strong	field)									
AC Avonlea 🕲	98	103	103	92-	100	Μ	63	44	90	F	G	F	VP	VG	F	Р	Р
AC Morse @ †	91-	67	95-	89-	93-	E	61	44	84	F	G	F	VP	VG	G	VP	VP
AC Navigator 🐵	95-	65	102	93-	92-	М	63	45	77	G	G	G	VP	VG	VG	VP	VP
Eurostar 💩	102	47	104	103	100	L	64	47	88	G	XX	F	Р	VG	VG	F	Р
Kyle †	88-	123	90-	89-	85-	М	62	44	99	Р	G	F	VP	VG	VG	Р	Р

**REMARKS:** Generally durum wheat should only be grown in south and south-eastern portion of Alberta due to late maturity. Outside these areas, durum is late maturing and subject to quality loss. All durum varieties are susceptible to two new races of loose smut and are generally more susceptible than CWRS varieties to Fusarium Head Blight. Strongfield yields about 10% higher than AC Barrie in areas of best adaptation. Navigator is grown under contract. CDC Vivid - insufficient data to describe. 
A - Plant Breeder's Rights. 
Plant Breeder's Rights. 
Plant Breeder's Rights applied for. 
F-Flagged for removal. XX - Insufficient data to describe. 
Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for Strongfield are reported in the Overall and Low, Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. 
Yields are reported relative to Strongfield. Varieties that are statistically higher (+) or lower (-) yielding than Strongfield are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Maturities rated as: VE - Very Early; E - Early; M - Medium; L - Late and VL - Very Late. Long term average days to maturity for Strongfield is 105 days and rated as Medium maturing (M). 4 Thousand Seed Weight. 5 Resistance/Tolerance Ratings: VG - Very Good; G - Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

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#### WHEAT - DURUM HALLMARK S F R C BI: N/A, Dist: N/A Haney Farms (1985) Limited / Picture Butte / (403) 738-4519 **CDC VERONA** STRONGFIELD BI: CDC, Dist: Paterson Grain BI: AAFC (Swift Current), Dist: SeCan Members Fabian, Patrick V. / Tilley / (403) 377-2000 С Chin Ridge Seeds Ltd. / Taber / (403) 223-3900 Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736 С Haney Farms (1985) Limited / Picture Butte / (403) 738-4517 Nikkel, Ed / Lethbridge / (403) 792-2116 С Hierath, Michael W. & Philip / Milk River / (403) 647-2347 Van Roessel, William & Jean / Bow Island / (403) 545-6018 С Holmen, Jonathan W. & Carson R. / Rosedale / (403) 823-9296 Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434 F Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338 S F R Willms, Kevin J. / Grassy Lake / (403) 655-2450 Strain, Arthur George / Foremost / (403) 867-2227 CDC VIVID Welsh, Donald Alan / Milk River / (403) 647-2228 BI: CDC, Dist: Viterra Willms, Kevin J. / Grassy Lake / (403) 655-2450 Willms, Kevin J. / Grassy Lake / (403) 655-2450 S TRANSCEND **ENTERPRISE** BI: AAFC (Swift Current), Dist: N/A BI: AAFC (Swift Current), Dist: Canterra Seeds Benci, Dennis / Carmangay / (403) 643-2294 Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151 С Hummel, Wallace H. / Milk River / (403) 647-3749 Haney Farms (1985) Limited / Picture Butte / (403) 738-4517 С Markert, Louise / Vulcan / (403) 485-6708 С Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736 F С Welsh, Donald Alan / Milk River / (403) 647-2228 Welsh, Stuart Jason / Milk River / (403) 647-2228 С



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## **SPRING WHEAT**

		Overall		eld Categor % AC Barrie			Ag	ronomic Cl	haracte	ristics				Diseas	e Tolera	nce⁵	
		Station	Low	Medium	High >						Resist	tance to:⁵					
Variety	Overall Yield	Years of Testing	< 45 (bu/ac)	45-70 (bu/ac)	70 (bu/ac)	Maturity Rating <sup>3</sup>	Protein %	Test Wt. (lb/bu)	TSW⁴ (g)	Ht. (cm)	Ldg	Sprout.	Loose Smut	Bunt	Stripe Rust	Leaf Spot	FHB
						CANADA WE	STERN R	ED SPRING	3			-					
		Va	rieties tes	ted in the 2	2012 trials	(Yield and a	gronomic	data only	directly	comp	arable	to AC Barri	e)				
AC Barrie (bu/ac)	58		36	55	79												
AC Barrie <sup>2</sup> @	100	369	100	100	100	М	14.1	62	37	88	G	G	G	F	VP	Р	F
5603HR @	105 +	63	104	107+	104+	L	-0.5	63	33	87	G	VG	G	G	Р	G	F
5604HR CL @	99	61	103	97	99	M	-0.5	63	32	87	G	G	VG	VG	VP	Р	F
AAC Bailey	106	29	107	100	114	E	-0.9	65	35	90	G	G	Р	F	G	F	F
SY433 ▲	102	29	103	99	107	M	-1.1	65	36	93	G	G	F	VP F	XX F	F	G
CDC Kernen @ CDC Stanley @	107+ 113+	61 61	110 115+	102 111+	110+ 113+	M	-0.3 -0.7	63 63	37 33	92 86	G G	G	VG G	F VP	F	P F	P
Glenn @	104	61	110+	100	104	L	-0.7	65	36	85	VG	F	F	F	G	F	F
Goodeve VB @	104	96	107+	100	104	M	-0.2	62	36	88	VG	G	G	P	F	P	VP
Katepwa @	98-	313	97-	98-	98-	M	-0.2	63	35	93	F	F	G	G	P	Р	F
Vesper VB @	106+	45	106	108+	104	M	-1.5	63	37	90	VG	F	F	P	VP	F	F
WR859 CL @	106+	79	110+	103	107+	М	-0.4	63	34	81	G	G	VG	VG	F	P	G
		-				ield and agro						-					
5602HR @	105+	80	101	104	109+	M	0.7	63	37	91	G	F	VG	G	F	Р	G
AC Cadillac 💩 †	96-	103	96-	96-	96-	М	0.6	64	39	98	F	F	VG	VG	G	F	F
AC Eatonia 🐵	94-	78	87-	97	92-	М	0.4	62	35	92	Р	G	F	G	F	Р	XX
AC Elsa 🐵	103+	110	99	105	104	М	0.2	62	35	89	G	F	G	F	F	G	Р
AC Intrepid @	102	107	98	103	105+	E	0	62	39	90	G	Р	F	G	G	F	Р
AC Splendor 💩	95-	153	93-	96-	98	VE	0.9	61	37	89	F	F	F	F	F	F	Р
Alikat 🕲 †	96-	70	95-	95-	98	E	0.1	63	36	87	F	F	G	XX	VP	Р	F
Alvena 🐵	101	68	100	101	103	E	0.1	63	37	90	G	Р	G	G	F	XX	Р
Carberry @	108+	51	117+	104	105	L	-0.9	64	38	78	VG	F	G	G	G	Р	G
CDC Abound @	110+ 107+	86 105	108+ 105+	110+ 107+	112+ 109+	M	0 0.2	63 62	40 36	82 92	G	FG	F G	F G	P	P VP	VP
CDC Alsask @ † CDC Bounty †	107 +	65	105+	107 +	109+	M	0.2	64	30	92 94	F	F	G	F	G	P	F
CDC Go	110+	90	103	111+	117+	M	-0.1	61	42	83	G	VP	P	G	G	VP	P
CDC Imagine @	104+	76	103	104	109+	M	0.1	61	37	83	G	F	G	G	F	P	VP
CDC Osler	106+	72	102	106+	109+	E	0	61	35	84	G	F	G	G	F	F	VP
CDC Teal †	100	87	94-	102	101	E	0.3	62	36	90	G	P	F	F	G	P	VP
CDC Thrive @	109+	51	109	106	110+	Е	-0.2	63	35	87	G	Р	G	F	F	F	Р
CDC Utmost VB 👁	112+	51	115+	112+	111+	М	-0.2	62	35	84	G	G	Р	VP	F	F	Р
Fieldstar VB 🐵	102	50	102	102	102	М	-0.4	63	33	88	F	VG	F	G	Р	XX	F
Harvest @	102	117	98	103	104	М	-0.1	62	36	84	VG	VG	G	F	G	Р	VP
Infinity @	104+	72	104	104+	106	М	-0.4	62	33	89	G	G	G	F	Р	Р	VP
Kane 💩	99	51	95-	98	102	М	0.4	64	36	85	G	VG	Р	F	F	F	F
Lillian 🕲	104+	85	111+	100	104	М	0.2	61	37	87	G	G	F	G	VG	G	VP
Lovitt @ †	97	37	96	95-	105	М	-0.2	62	35	89	G	VG	G	F	Р	XX	VP
McKenzie	103+	104	101	104	105+	M	-0.4	62	34	90	F	VG	Р	VG	P	F	F
Muchmore @	111+ 97	51	119+ 91-	107	110	L VE	-0.9	63	37	74	VG	G	G	G	G	P	P VP
Park Peace	100	45 53	100	98 97	102 103	M	-0.2 0.1	62 63	35 37	92 92	F G	G P	G VG	XX VG	P G	P XX	VP
Roblin †	95-	82	91-	97	95-	VE	0.1	62	36	87	G	F	G	VG	F	VP	VP
Shaw VB @	112+	51	116+	109+	113+	M	-0.9	63	37	91	G	G	P	G	F	P	P
Somerset @	100	50	102	99	100	M	-0.1	62	36	97	G	F	VG	F	F	VP	Р
Stettler † @	112+	69	119+	109+	111+	M	-0.3	63	37	84	G	G	G	G	G	P	Р
Superb @	112+	179	110+	112+	115+	L	-0.3	62	42	85	G	F	F	G	VP	VP	P
Unity VB @	110+	69	111+	110+	111+	M	-0.7	64	36	89	G	G	P	VG	P	P	P
Waskada 🐵	100	67	101	98	102	М	0.1	64	37	92	G	VG	G	G	Р	Р	G
						CANADA WE	STERN HA	ARD WHIT	E								
Varieties tested in	the 2012	trials (Yiel	-	onomic dat													
Whitehawk 👁	109+	26	XX	107	110+	E	-0.3	63	31	90	G	G	F	Р	VP	Р	F
Previously tested	varieties		-			mparable to		,									
Snowbird 💩	101	94	99	101	101	М	-0.2	62	36	89	G	G	G	F	Р	VP	Р
Snowstar @	102	58	99	103	102	М	-0.8	64	30	82	XX	G	Р	Р	Р	F	Р
UEMADKC, AC Lotor																	

**REMARKS:** AC Eatonia and Lillian are adapted to sawfly areas. Alikat is adapted to acid soils. C.W. Red Spring Wheat grown under irrigation tends to have lower grades. 5604HR CL, CDC Abound, CDC Imagine, CDC Thrive and WR589 CL are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX. VB - designates a varietal blend for midge tolerance. Cardale, CDC VR Morris, CDC Plentiful, AAC Redwater - insufficient data to describe. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Barrie are reported in the Overall and Low, Medium, and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. 2 Yields are reported relative to AC Barrie. Varieties that are statistically higher (+) or lower (-) yielding than AC Barrie are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Barrie is 106 days and rated as Medium maturing (M). 4 Thousand Seed Weight, 5Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to lose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

## **SOFT WHITE SPRING WHEAT**

			Yi	eld Catego	ry <sup>1</sup>																
			(%	6 AC Andre	w)	Agronomic Characteristics							Disease Tolerance⁵								
		Overall					Resistance to:5														
		Station	Low	Medium	High		Test														
	Overall	Years of	< 55	55-85	> 85	Mat.	Weight	TSW⁴	Ht.				Loose		Stripe	Leaf					
Variety	Yield	Testing	(bu/ac)	(bu/ac)	(bu/ac)	Rating <sup>3</sup>	(lb/bu)	(g)	(cm)	Ldg.	Shatter.	Sprout.	Smut	Bunt	Rust	Spot	FHB				
		S	OFT WHIT	E SPRING	WHEAT (Y	ield and ac	ironomic (	data onlv	directl	v comp	arable to	AC Andrew)									
AC Andrew (bu/ac)	82		45	75	115					· ·		,									
AC Andrew <sup>2</sup>	100	126	100	100	100	1	63	38	79	VG	VG	Р	VP	Р	E	Р	VP				
		120					03			vu	vu	Г		•	Г	Г	VF				
AC Meena	97-	51	101	97-	95	L	61	37	80	G	G	F	VP	VP	G	F	Р				
Sadash 🐵	110+	51	113 +	109 +	109 +	L	63	39	82	VG	VG	Р	VP	VP	VG	F	Р				

**REMARKS:** All soft white spring wheat varieties have a semi-dwarf stature. AC Andrew yields about 35% more than AC Barrie. SWS varieties may have potential demand as a feedstock in the production of ethanol. Soft white spring wheat is susceptible to pre-harvest sprouting. (a) – Plant Breeder's Rights. XX – Insufficient data to describe. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Andrew are reported in the Overall and Low, Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. 2 Yields are reporte there is no statistical difference. 3 Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Andrew relative to AC Andrew. Varieties that are statistically higher (+) or lower (-) yielding than AC Andrew are indicated. No symbol after the yield figure indicates that is 110 days and rated as Late maturing (L). 4 Thousand Seed Weight. 5Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

## **CPS AND GENERAL PURPOSE SPRING WHEAT**

		Overall	Yield Cate	egory <sup>1</sup> (% A	C Crystal)		Agronomic Characteristics						Disease Tolerance <sup>5</sup>				
		Station	Low	Medium	High >		Test			Resist	ance to:⁵						
	Overall	Years of	< 45	45-90	90 (bu/	Maturity	Weight	TSW⁴	Ht.		<u> </u>	Loose	<b>.</b> .	Stripe	Leaf		
Variety	Yield	Testing	(bu/ac)	(bu/ac)	ac)	Rating <sup>3</sup>	(lb/bu)	(g)	(cm)	Ldg	Sprout.	Smut	Bunt	Rust	Spot	FHB	
					-	DA PRAIRI											
Varieties tested in		trials (Yield	-			comparable	to AC Cry	stal)									
AC Crystal (bu/ac)	69		36	67	103												
AC Crystal <sup>2</sup> (9)	100	278	100	100	100	L	62	42	79	G	Р	F	VG	VP	F	VP	
Conquer VB	119+	37	XX	122+	97	М	63	42	84	G	Р	Р	G	VG	F	Р	
SY 985 🐵	115	37	XX	116	86-	Μ	62	44	78	G	F	VG	G	G	F	F	
<b>Previously tested</b>	varieties (	Yield and ag	gronomic da	ata only dire	ctly compa	rable to AC	Crystal)										
5700PR 🕲	104+	117	110+	103+	103	М	62	42	75	VG	F	Р	G	Р	Р	VP	
5701PR 🕲	103	113	102	102	110	М	61	42	78	G	Р	F	F	G	Р	VP	
5702PR @	103	52	114	102	100	Μ	61	40	79	G	Р	Р	F	Р	F	Р	
AC Foremost	99	124	101	98-	100	Μ	62	43	73	VG	F	F	VG	VP	Р	VP	
AC Taber †	101 +	297	102+	101 +	101	L	62	42	79	G	Р	Р	VG	VP	F	VP	
					CANADA	WESTERN (	GENERAL F	URPOS	E								
Varieties tested in	the 2012	trials (Yield	and agrono	omic data or	ly directly	comparable	to AC Cry	stal)									
CDC NRG003 @	124+	38	XX	127+	97	Μ	61	43	80	G	F	G	VG	VP	Р	VP	
NRG010 💩	123+	51	XX	125+	102	L	62	41	83	G	Р	VG	VG	VG	F	VP	
<b>Previously tested</b>	varieties (	Yield and ag	gronomic da	ata only dire	ctly compa	rable to AC	Crystal)										
Minnedosa 🐵	116+	44	130+	117+	95	Μ	62	43	82	G	G	F	G	G	Р	Р	

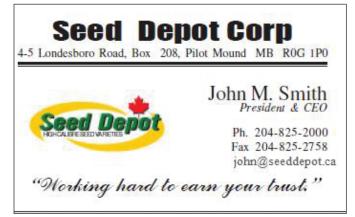
**REMARKS:** CPS varieties are more susceptible to take-all root rot than other wheat classes. AC Crystal yields about 20% higher than AC Barrie. AC Crystal, 5700PR, 5701PR, and 5702PR have improved quality compared to AC Foremost and AC Taber. 5700PR and 5702PR are grown under contract. Conquer VB is the only CPS-red midge variety. Varieties in the General Purpose market class are intended for ethanol and livestock feed purposes. Enchant VB and Pasteur - insufficient data to describe. (a) - Plant Breeder's Rights. (A) - Plant Breeder's Rights applied for. XX - Insufficient data to report. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Crystal are reported in the Overall and Live Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. 2 Yields are reported relative to AC Crystal. Varieties that are statistically higher (+) or lower (-) yielding than AC Crystal are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Crystal is 110 days and rated as Late maturing (L). 4 Thousand Seed Weight. 5 Resistance/Tolerance Ratings: VG - Very Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

		_		_
CDC UTMOST-HARVEST				
BI: N/A, Dist: FP Genetics				
Andrukow, Allan / Viking / (780) 385-6402				С
Benci, Dennis / Carmangay / (403) 643-2294				
Dalton, Dennis / Wainwright / (780) 842-2361				
Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036			D	~
Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268			R	С
Hoff, Peter Edward / Gleichen / (403) 734-2140				0
King, Harold F. / Three Hills / (403) 443-7330				C C
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240 Markert, Ron / Vulcan / (403) 485-6708				U
Markert, T. Lee / Vulcan / (403) 485-6708				
Marken, 1. Lee / Vultari / (403) 483-0708 Massey, Derwin / Stettler / (403) 883-2503				С
Pizzey, J. David / Canmore / (403) 609-3588				C
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251				C
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358				0
Tomlinson, Chelsea / Redwater / (780) 777-5885			R	
Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253			n	С
CONQUER - 5701PR				0
BI: N/A, Dist: Canterra Seeds				
Markert, Ron / Vulcan / (403) 485-6708			R	
ENCHANT-AC CRYSTAL				
BI: N/A, Dist: FP Genetics				
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251	S			
GOODEVE-AC INTREPID	Ŭ			
BI: AAFC (Winnipeg), Dist: SeCan Members				
Lefsrud, Kevin J. & Edmund J. / Viking / (780) 336-2500				
SHAW-AC DOMAIN				
BI: AAFC (Winnipeg), Dist: SeCan Members				
Huvenaars, John & Lisa / Hays / (403) 725-2126			R	
Shultz, Shawn / Didsbury / (403) 335-3694			R	
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358				
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S			
UNITY-WASKADA				
BI: AAFC (Winnipeg), Dist: SeCan Members				
Dow, Willard & Dale / Rivercourse / (306) 387-6767				
Eliason, Bruce W. / Wrentham / (403) 222-2258				С
Jacula, Dean S. & Shawn D. / Vermilion / (780) 853-7333				С
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617				
VESPER-WASKADA				
BI: N/A, Dist: SeCan Members				
Pare, Raymond A. / Wainwright / (780) 842-2073		F		
Pizzey, J. David / Canmore / (403) 609-3588				
WHEAT - SPRING	S	F	R	C
5604HR CL				
BI: Syngenta Seeds Canada, Dist: Viterra				
Murray, Bruce / Picture Butte / (403) 732-5550				С
AAC BAILEY				U
BI: AAFC (Swift Current), Dist: N/A				

### AAC REDWATER BI: AAFC (Lacombe), Dist: SeCan Members Oatway, Ward / Lacombe / (403) 784-3418



AC ANDREW				
BI: AAFC (Lethbridge), Dist: SeCan Members				
Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383				С
Kittle, James W. & Andrew / Viking / (780) 336-2583				С
AC CRYSTAL				
BI: AAFC (Swift Current), Dist: SeCan Members				0
Davidson, E. Daryl & Dean / Kitscoty / (780) 846-2456				С
Pare, Raymond A. / Wainwright / (780) 842-2073				С
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251				С
AC DOMAIN				
BI: AAFC (Winnipeg), Dist: SeCan Members		F		
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617		F		
AC EATONIA				
BI: Viterra, Dist: Viterra	0	F	D	
Willms, Kevin J. / Grassy Lake / (403) 655-2450	S	F	R	
AC ELSA				
BI: AAFC (Swift Current), Dist: SeCan Members	0			0
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S			С
AC FOREMOST				
BI: AAFC (Swift Current), Dist: SeCan Members				~
Anderson, Ken & Evelyn / Barrhead / (780) 674-5670			D	C C
Beamish, Dale / Jarvie / (780) 954-3960			R	C C
Cyre, Clifford & Greg / Barrhead / (780) 349-4775			R	
Dallas, Bradley C. / Bowden / (403) 224-2162				С
Ellis, Brian / Olds / (403) 556-2890				C C
Foster, Norman R. / Beaverlodge / (780) 354-2107				C
Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036 Hadway, W. Tom & Carol / Didsbury / (403) 335-4929				C
			D	C
Jackson, Thomas / Killam / (780) 385-2332			R	C
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240			D	U
Meinczinger, Matthew Jr. / Busby / (780) 349-2456			R	
Nanninga, Justin / Neerlandia / (780) 674-3822		г	R	0
Nisbet, Andrew E. & Diane E. / Bowden / (403) 224-3788	0	F	D	С
Radke, Bryan Victor / Barrhead / (780) 674-5715	S	F	R	0
Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535		F	D	С
Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253		F	R	С
Webber, Curtis / Stony Plain / (780) 963-6897				С
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928				С
AC MEENA				
BI: AAFC (Lethbridge), Dist: Haney Farms			D	
Murdoch, Jody / Fort Steele / (250) 489-2339			R	
Saari, Sue / Cranbrook / (250) 421-0874			R	
AC SPLENDOR				
BI: AAFC (Winnipeg), Dist: SeCan Members				0
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251				С
ALVENA				
BI: Semiarid Prairie Agricultural Research Centre,				
Dist: SeCan Members				~
Wagner, Terry & Loree / Lacombe / (403) 782-2107			D	С
Webber, John D.J. / Berwyn / (780) 338-3657			R	С
CARBERRY				
BI: N/A, Dist: SeCan Members				~
Benci, Dennis / Carmangay / (403) 643-2294				С
Card, Gordon B. / Magrath / (403) 758-3444	~		-	С
Chin Ridge Seeds Ltd. / Taber / (403) 223-3900	S		R	С
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464				С
Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151			~	С
Dovichak, Michael / Brooks / (403) 501-5420		_	R	
Dyck, Heinz W. & Colin & Alan / Rosemary / (403) 378-3321	S	F		



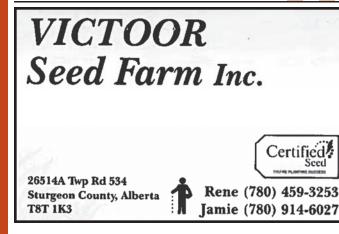


The Farm King grain vac is an efficient way to transport grain from bin to truck, bin to bin, storage shed to truck and basic bin cleanup. The high vacuum suction carries the crop on a pillow of air and aids in cleaning out trash particles as the crop goes through the grain vac. The versatility of the grain vac hoses and cleanup wands allow the operator to access hard-to-reach areas for superior cleaning. The optional self-contained hydraulics allow the grain vac to be fully operational without using the hydraulic ports of the tractor.

## **Farm King**



				_
Eliason, Bruce W. / Wrentham / (403) 222-2258				С
Feenstra, Lloyd / Barons / (403) 757-3737				C
Haney Farms (1985) Limited / Picture Butte / (403) 738-4517				С
Huvenaars, John & Lisa / Hays / (403) 725-2126				С
Jonk, Nicholas / Westlock / (780) 349-5458			R	
Kopjar, Gerald M. / Rowley / (403) 368-2409	S		R	
Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736				С
Peters, Edward W. / Didsbury / (403) 335-4506			R	
Pizzey, J. David / Canmore / (403) 609-3588			R	
Shultz, Shawn / Didsbury / (403) 335-3694			R	
Stamp, Richard & Marian & Greg & N. / Enchant / (403) 739-2233				С
Strain, Arthur George / Foremost / (403) 867-2227	S			
Templeton, Doran / Lethbridge / (403) 345-4144			_	С
Van Roessel, William & Jean / Bow Island / (403) 545-6018			R	С
Welsh, Donald Alan / Milk River / (403) 647-2228				С
Welsh, Stuart Jason / Milk River / (403) 647-2228				С
Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395				С
CARDALE				
BI: AAFC (Winnipeg), Dist: Seed Depot Van Roessel, William & Jean / Bow Island / (403) 545-6018		F		
CDC ABOUND		Г		
BI: CDC, Dist: Viterra				
Eckert, Art / Duchess / (403) 378-4791				С
Krywko, Edward William & Ron / Morinville / (780) 939-2166				C
CDC GO				0
BI: CDC, Dist: Public				
Chin Ridge Seeds Ltd. / Taber / (403) 223-3900				С
Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151	S			C
Crop Production Services Canada / Didsbury / (403) 335-3055				Ĉ
Dovichak, Michael / Brooks / (403) 501-5420				C
Dyck, Heinz W. & Colin & Alan / Rosemary / (403) 378-3321			R	
Ellis, Brian / Olds / (403) 556-2890			R	С
Feenstra, Lloyd / Barons / (403) 757-3737				С
Hadway, Walter Thomas / Didsbury / (403) 335-4929				С
Hoff, Peter Edward / Gleichen / (403) 734-2140				С
Holmen, Jonathan W. & Carson R. / Rosedale / (403) 823-9296				С
Kaun, David E. / Penhold / (403) 886-4562			R	С
Kemp, Richard L. / Innisfail / (403) 227-4836				С
King, Harold F. / Three Hills / (403) 443-7330				С
Limoges, Marcel / Mc Lennan / (780) 324-3024				С
MacFarquhar, Bill / Cremona / (403) 337-2910		-		С
Markert, Louise / Vulcan / (403) 485-6708		F		
Markert, Ron / Vulcan / (403) 485-6708	0		R	
Mastin, Robert B. / Sundre / (403) 556-2609	S		R	0
Metzger, Don / Three Hills / (403) 572-3284 Murray, Bruce / Lethbridge / (403) 327-9389		г	R R	С
		F F	R	
Nisbet, Andrew E. & Diane E. / Bowden / (403) 224-3788 Page, Dan / Didsbury / (403) 335-4563		Г		С
Penwest / Three Hills / (403) 443-2577				C
Richard, Gerald / Spirit River / (780) 864-2339				C
Schmermund, Donnie / Calahoo / (780) 967-2850		F	R	C
Sich, Louis John & Ivan / Trochu / (403) 442-2112		1	п	C
Smith, Miles A. / Trochu / (403) 442-2693				C
Templeton, Doran / Lethbridge / (403) 345-4144				C
Weigum, Garry / Three Hills / (403) 443-2476				C
Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395				C
CDC IMAGINE				
BI: CDC, Dist: Viterra				
Logan, Glenn C. & Marie & Douglas / Lomond / (403) 792-3696	S			



CDC NRG003 BI: CDC, Dist: Canterra Seeds Kapitski, Lawrence / Andrew / (780) 365-2134 Laliberte, Adam & Vos, Henry / Fairview / (780) 835-5286 CDC OSLER			R R	C C
BI: CDC, Dist: N/A Hill. Gordon P. / Taylor / (250) 789-3469		F		
CDC PLENTIFUL				
BI: CDC, Dist: FP Genetics				
Andersen, B.W. / Kitscoty / (780) 847-2022 Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036	c		R	
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251	S S			
CDC STANLEY	0			
BI: CDC, Dist: Viterra				
Eckert, Art / Duchess / (403) 378-4791				С
Jacula, Dean S. & Shawn D. / Vermilion / (780) 853-7333			R	_
Wurz, John / Picture Butte / (403) 757-2330 CDC THRIVE				С
BI: CDC, Dist: Cargill Ltd.				
Cameron, Danny / Millet / (780) 387-5313		F		
HARVEST				
BI: AAFC (Winnipeg), Dist: FP Genetics				
Andersen, B.W. / Kitscoty / (780) 847-2022			D	С
Appleby, Kenneth Arthur / Tofield / (780) 662-3583 Benci, Dennis / Carmangay / (403) 643-2294			R R	
Bright, David / New Norway / (780) 855-2240			n R	
Crop Production Services Canada / Didsbury / (403) 335-3055				С
Dalton, Dennis / Wainwright / (780) 842-2361				Ċ
Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036			R	С
Kapitski, Lawrence / Andrew / (780) 365-2134				С
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240				С
Sim, Darwin & Derek / Ponoka / (780) 372-2111			D	С
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358 Tomlinson, Chelsea / Redwater / (780) 777-5885			R R	С
Trueblood, Brian G. / Dapp / (780) 954-3745			n	С
Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253		F	R	C
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928	S	F	R	
LILLIAN				
BI: AAFC (Swift Current), Dist: SeCan Members				_
Chin Ridge Seeds Ltd. / Taber / (403) 223-3900				С
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464 Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151				C C
Hierath, Michael W. & Philip / Milk River / (403) 647-2347			R	C
Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338				C
Strain, Arthur George / Foremost / (403) 867-2227				С
Welsh, Donald Alan / Milk River / (403) 647-2228				С
Willms, Kevin J. / Grassy Lake / (403) 655-2450	S	F	R	
MINNEDOSA				
BI: AAFC (Winnipeg), Dist: SeCan Members Kopjar, Gerald M. / Rowley / (403) 368-2409			D	
MUCHMORE			R	
BI: AAFC (Swift Current), Dist: N/A				
Airth, Jock & Linda / Brooks / (403) 362-4372			R	
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240			R	
Massey, Derwin / Stettler / (403) 883-2503			R	
Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535			R	
NRG010 BL: AAEC (Swift Current) Dict: Cantorra Soods				
BI: AAFC (Swift Current), Dist: Canterra Seeds Plante, Jacques / St. Paul / (780) 645-4604			R	
Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322	S		R	
Condition, Don't & Otophon, Edinoliton, (100) 101 1022	0		-11	

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PARK					Shultz, Shawn / Didsbury / (403) 335-3694			
BI: N/A, Dist: N/A				0	Sim, Darwin & Derek / Ponoka / (780) 372-2111			
Lyster, Norman / Stettler / (403) 742-4456 PASTEUR				С	Trueblood, Brian G. / Dapp / (780) 954-3745 Van Roessel, William & Jean / Bow Island / (403) 545-6018			
BI: N/A, Dist: SeCan Members					Victoor, Rene & Jamie / Sturgeon County / (780) 459-3253			
Chin Ridge Seeds Ltd. / Taber / (403) 223-3900	S	F			Wagner, Terry & Loree / Lacombe / (403) 782-2107			
Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151	S				Warkentin, Harold K. & Errol / Tofield / (780) 662-2617			
Holmstrom, Darrell & Barbara / Killam / (780) 385-3574	S			С	Weigum, Garry / Three Hills / (403) 443-2476			
SADASH					Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434			
BI: AAFC (Lethbridge), Dist: SeCan Members	0		D	0	Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395			
Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151 Fabian, Patrick V. / Tilley / (403) 377-2000	S		К	C C	Wuthrich, David / Cecil Lake / (250) 781-3527 Zwack, Bryan / Daysland / (780) 374-3577			
Gibson, Donald / Sangudo / (780) 785-2214				C	Zwack, Blyan / Daysland / (780) 374-3377 Zwack, Thomas / Daysland / (780) 374-2450			
Haney Farms (1985) Limited / Picture Butte / (403) 738-4517			R	0	SUPERB			
Huvenaars, Carl / Hays / (403) 725-2213				С	BI: AAFC (Winnipeg), Dist: SeCan Members			
Huvenaars, John & Lisa / Hays / (403) 725-2126		F			Jones, Danny / Beaverlodge / (780) 354-8089			
Laird, Patrick R. / Paradise Valley / (780) 745-2379				С	SY433			
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240				C	BI: Syngenta Canada Inc., Dist: Cargill			
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251 Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434			R	С	SY 985 BI: Syngenta Canada Inc., Dist: Richardson Pioneer,			
Withins, Henry & Hindury H. / Glassy Lake / (403) 033-2434 Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395			R		Cargill, Andrukow Seed			
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928				С	WHITEHAWK			
SNOWBIRD					BI: AAFC (Lacombe), Dist: SeCan Members			
BI: AAFC (Winnipeg), Dist: FP Genetics					Benci, Dennis / Carmangay / (403) 643-2294	S	F	
Lefsrud, Kevin J. & Edmund J. / Viking / (780) 336-2500			R		Markert, Ron / Vulcan / (403) 485-6708			
SNOWSTAR					Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736		F	
BI: AAFC (Winnipeg), Dist: SeCan Members	c		D		WR859 CL Bli Surgente Coneda Inc. Diet: Dieberdeen Bioneer			
Benci, Dennis / Carmangay / (403) 643-2294 Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736	S		R		Bl: Syngenta Canada Inc., Dist: Richardson Pioneer			
STETTLER								1
BI: AAFC (Winnipeg), Dist: SeCan Members					WHEAT - WINTER	s	F	
Andersen, B.W. / Kitscoty / (780) 847-2022				С		0	•	
Archer, Charles Darrel / Wetaskiwin / (780) 352-3179				С	AC BELLATRIX			
Baier, Bill & Dean / Clyde / (780) 348-5791	S	F	R	~	BI: AAFC (Lethbridge), Dist: N/A			
Benci, Dennis / Carmangay / (403) 643-2294 Cameron, Danny / Millet / (780) 387-5313			R	C C	Strain, Arthur George / Foremost / (403) 867-2227			
Clark, Todd / Edmonton / (780) 472-6308			n	C	AC TEMPEST			
Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151				Č	BI: AAFC (Lethbridge), Dist: SeCan Members Murray, Bruce / Lethbridge / (403) 327-9389	S		
Crop Production Services Canada / Didsbury / (403) 335-3055				С	CDC BUTEO	0		
Cyre, Clifford & Greg / Barrhead / (780) 349-4775	S	F	R		BI: CDC, Dist: SeCan Members			
Dallas, Bradley C. / Bowden / (403) 224-2162				С	Corns, Bryan & Gary / Grassy Lake / (403) 655-2464			
Davidson, E. Daryl & Dean / Kitscoty / (780) 846-2456				C	Crop Production Services Canada / Didsbury / (403) 335-3055			
Fabian, Patrick V. / Tilley / (403) 377-2000 Foster, Norman R. / Beaverlodge / (780) 354-2107				C C	Metzger, Don / Three Hills / (403) 572-3284			
Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036			R	C	FLOURISH			
Hadway, W. Tom & Carol / Didsbury / (403) 335-4929			R	Ũ	<b>BI: AAFC (Lethbridge), Dist: N/A</b> Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S	F	
Harris, William P. & L. & Thomas & A. / Beaverlodge / (780) 354-2823	S	F		С	MOATS	0	'	
Hoff, Peter Edward / Gleichen / (403) 734-2140			R	С	BI: CDC, Dist: SeCan Members			
Holmstrom, Darrell & Barbara / Killam / (780) 385-3574				С	Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S	F	
Huvenaars, John & Lisa / Hays / (403) 725-2126				С	RADIANT			
Huvenaars, Richard / Hays / (403) 725-2213 Jackson, Thomas / Killam / (780) 385-2332				C C	BI: AAFC (Lethbridge), Dist: Canterra Seeds			
Jensen, Albert / Drumheller / (403) 823-9976				C	Benci, Dennis / Carmangay / (403) 643-2294			
Kapitski, Lawrence / Andrew / (780) 365-2134				C	Corns, Bryan & Gary / Grassy Lake / (403) 655-2464 Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151			
Kittle, James W. & Andrew / Viking / (780) 336-2583			R	С	Galloway Seeds Ltd. / Fort Saskatchewan / (780) 998-3036	S	F	
Klassen, Ken / Rosemary / (403) 378-4408				С	Hegland, David Olaf / Wembley / (780) 766-2450	0		
Kopjar, Gerald M. / Rowley / (403) 368-2409			R	С	Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736			
Kotowich, Paul & Dennis / St. Paul / (780) 645-2535				С	Stamp, Richard & Marian & Greg & N. / Enchant / (403) 739-2233			
Laliberte, Adam & Vos, Henry / Fairview / (780) 835-5286 Limoges, Marcel / Mc Lennan / (780) 324-3024				C C				
Lopushinsky, Julian / Bruderheim / (780) 796-2048			R	C				Ī
Macyk, Don / Waskatenau / (780) 358-2411				C				
Massey, Derwin / Stettler / (403) 883-2503				Č				
McDonald, Gerald / Grande Prairie / (780) 538-3868				С				
Metzger, Don / Three Hills / (403) 572-3284				С				
Miller, Brian / Barrhead / (780) 674-5001				С				
Mueller, Darcy / Three Hills / (403) 820-4115				C				
Nemetz, Charlie & Jerritt & L. & B. / Stettler / (403) 742-0436 Oatway, Ward / Lacombe / (403) 784-3418		F	R	С				
Pare, Raymond A. / Wainwright / (780) 842-2073	S	F	n	С				
Penwest/ Three Hills / (403) 443-2577	0	1	R	C				
Persely, Edward & Shirley / Bonnyville / (780) 826-2992				C				
Peters, Edward W. / Didsbury / (403) 335-4506				С				
Sand, Ron W. & David R. / McLaughlin / (780) 745-2251			R	С				
Sekulic, John Jr. / Rycroft / (780) 765-2280				С				
Sekulic, Warren, F / Rycroft / (780) 765-2234				<u> </u>				
				C				
Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322				C C				

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## WINTER WHEAT

	Yield Test Category 1 (% CDC OSPREY)							Agronomic Characteristics									Disease Tolerance <sup>3</sup>			
Variety	Overall Yield (% CDC OSPREY)	Overall Station Years of Testing	Low < 45 (bu/ ac)	Medium 45-75 (bu/ac)	High 75-105 (bu/ac)	V. High > 105 (bu/ac)	Wint. Surv. <sup>3</sup>	Mat. Rat.⁴	Protein (%)	Ht. (cm)	Ldg. Res. <sup>3</sup>	Shatter. Res. <sup>3</sup>	Test Wt. (Ib/ bu)	TSW (g)	Kernel Hard. & Clr. ⁵	Bunt	Stripe Rust	Leaf Rust		FHB
		C	ANADA \	VESTERN	RED WINT	ER (Yield	and ag	ronom	ic data o	only di	rectly c	omparabl	e to CI	)C Osp	rey)					
CDC OSPREY (bu/ac)	76		35	62	86	118														
CDC OSPREY <sup>2</sup>	100	(236)	100	100	100	100	VG	М	12.2	90	G	G	63	32	HR	VP	VP	Р	Р	Р
AAC Gateway 🔺	102	(23)	XX	105	100	XX	F	М	+0.7	75	VG	G	63	34	HR	VP	G	F	G	F
AC Bellatrix	102 +	(201)	110 +	101	100	101	F	L	+0.3	88	G	G	64	36	HR	F	VP	VP	VP	F
AC Readymade †	96 -	(83)	99	96 -	95	97	Р	VL	+1.7	90	VG	F	63	36	HR	Р	XX	VP	VP	XX
AC Tempest	98	(137)	100	97 -	100	98	Р	VL	+1.4	89	VG	G	63	37	HR	Р	G	VP	VP	F
CDC Buteo	99	(117)	102	100	97	101	VG	М	+0.2	88	F	G	65	34	HR	VP	VP	G	G	G
Emerson 🔺	98	(41)	XX	100	97	XX	G	Μ	+0.4	83	VG	G	64	30	HR	VP	G	G	VG	VG
Flourish 🔺	100	(56)	XX	102	98	XX	F	Е	+0.5	78	VG	G	63	35	HR	F	F	F	F	VP
McClintock 🐵 †	96 -	(78)	89	97	95	100	F	L	0.0	91	VG	G	64	32	HR	VP	G	G	VG	VP
Moats 🔺	104	(21)	XX	107	104	XX	G	Μ	+0.4	89	G	G	65	33	HR	Р	G	VG	VG	VP
Norstar †	95 -	(131)	103	96 -	92 -	88 -	VG	L	-0.1	108	VP	G	64	33	HR	VP	XX	VP	VP	G
Radiant 🐵	103 +	(171)	105	102	103 +	100	VG	L	-0.1	87	VG	G	63	36	HR	VP	Р	VP	VP	VP
		CAN	ADA WES	TERN GEN	IERAL PU	RPOSE (Y	ield and	l agror	nomic da	ta only	y direct	ly compa	rable to	D CDC	Osprey)					
Accipiter 💩	108 +	(42)	XX	108	108 +	105	G	М	-0.2	81	VG	G	64	30	HR	VP	XX	G	VG	VP
Broadview @	104 +	(56)	XX	106	103	XX	G	Е	-0.7	78	G	G	63	32	HR	VP	VP	VG	VG	VP
CDC CLAIR †	103 +	(125)	103	103 +	104	105 +	VG	М	-0.4	88	F	G	63	34	HR	VP	XX	Р	Р	XX
CDC Falcon	102 +	(177)	94	104 +	102	103	F	Е	-0.4	73	VG	G	63	31	HR	VP	VP	G	G	VP
CDC Harrier †	105 +	(141)	108	104 +	105 +	104	G	Μ		93	G	G	62	31	HR	VP	VP	Р	G	Р
CDC Kestrel †	104 +	(108)	106	104	105 +	102	VG	Μ	-1.4	93	G	G	62	32	HR	VP	XX	Р	Р	XX
CDC Ptarmigan	110 +	(84)	XX	110 +	109 +	111 +	G	Μ	-2.0	90	F	G	61	34	SW	VP	VP	Р	Р	F
CDC Raptor †	101	(95)	99	102	102	98	G	Μ	-0.4	81	VG	G	63	30	HR	VP	XX	G	VG	XX
Peregrine	108 +	(43)	XX	107 +	109 +	105	VG	Μ	-0.5	94	F	G	64	33	HR	VP	G	VG	VG	F
Pintail 🔺	109 +	(41)	XX	109	109 +	XX	VG	Μ	-1.5	85	G	G	61	30	HR	VP	G	Р	Р	VP
Sunrise	110 +	(35)	XX	116	108 +	XX	G	Μ	-0.8	87	G	G	61	33	SR	VP	G	G	G	XX

**REMARKS:** Winter wheat can be grown successfully in all areas of Alberta if seeded into standing stubble within the optimal seeding date period (generally before September 15) and if there is adequate snowfall. Varieties with Poor winter survival are generally not suitable outside of southern Alberta. The provincial average maturity date for CDC OSPREY is August 7 (219 days after January 1). Radiant has resistance to the wheat curl mite, the vector that carries Wheat Streak Mosaic Virus. AC Bellatrix and Flourish are the only varieties with resistance to common bunt; other varieties should be treated with a systemic seed treatment to reduce the potential for plant infection. Winter wheat may escape Fusarium head blight infection if seeded before September 15. Fields in southern Alberta should be inspected in the fall for infestation by Russian wheat aphid, as it may reduce winter survival. Note that the varieties formerly designated as CWRW "Generic" will be moved to the Canada Western General Purpose class. For more information, please refer to the Variety Designation Lists at the CGC website (www.grainscanada.gc.ca). Limited quantities of Flourish, Emerson and Moats will be available in fall 2013. AAC Gateway will not be available in fall 2013. O - Protected by Plant Breeders' Rights (PBR).  $\bigstar{O}$  - Applied for PBR protection. XX - insufficient data to describe.  $\ddagger{O}$  - Flagged for removal. 1 Yield Test Categories are based on the site means for small plot trials are reported relative to CDC OSPREY. Varieties that are statistically higher (+) or lower (-) yielding than CDC OSPREY are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Resistance / Tolerance Ratings: VP = Very Poor, P = Poor, F = Fair, G = Good, VG = Very Good. 4 Maturity Ratings: VE = Very Early, E = Early, M = Medium, L = Late, VL = Very Late. 5 Abbreviations for Kernel Hardness and Colour: HR = Hard Red, SW = Soft White, SR = Soft Red.



## WINTER TRITICALE

		Overall	Agronomic Characteristics										
Variety	Overall Yield <sup>1</sup> (% Pika)	Station Years of Testing	Winter Survival <sup>3</sup>	Maturity Rating ⁴	Height (cm)	Lodging Resistance <sup>3</sup>	Test Weight (lb/bu)	TSW (g)					
Yield and agronomic data	a only direct	ly comparab	ole to Pika										
Pika (bu/ac)	73												
Pika <sup>2</sup>	100	(42)	VG	L	119	VP	54	38					
Bobcat	94	(40)	F	VL	99	G	54	36					
Luoma	105	(14)	VG	VL	118	F	54	39					
Metzger	102	(14)	VG	L	107	G	54	35					
CDC OSPREY (W. Wheat)	111 +	(28)	VG	М	88	G	64	32					

REMARKS: The provincial average maturity date for Pika is August 12 (224 days after January 1) or about a week later than winter wheat. Winter triticale has a winter hardiness potential slightly lower than winter wheat. Bobcat, Luoma and Metzger have heads with reduced awn length (awnletted), making them more palatable in forage applications. No data for winter triticale variety performance were collected during 2009-2012.1 The actual yields (bu/ac) for Pika are reported. 2 All yields are reported relative to Pika. Varieties that are statistically higher (+) or lower (-) yielding than Prima are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Resistance Ratings: VP = Very Poor, P = Poor, F = Fair, G = Good, VG = Very Good. 4 Maturity Ratings: VE = Very Early, E = Early, M = Medium, L = Late, VL = Very Late.

## **FALL RYE**

		Yield Test Category <sup>1</sup> Overall (% Prima)						Agronomic Characteristics								
Variety	Overall Yield (% Prima)	Station Years of Testing	Low < 48 (bu/ac)	Medium 48-80 (bu/ac)	High 80-112 (bu/ac)	V. High > 112 (bu/ac)	Winter Survival <sup>3</sup>	Mat. Rating ⁴	Height (cm)	Lodging Resistance <sup>3</sup>	Shattering Resistance <sup>3</sup>	Test Weight (Ib/bu)	TSW (g)			
Yield and agro	nomic data o	nly directly	comparab	le to Prima												
Prima (bu/ac)	80		36	60	93	139										
Prima <sup>2</sup>	100	(79)	100	100	100	100	EX	E	119	F	F	58	33			
AC Remington	101	(31)	120	100	98	88 -	EX	Μ	97	G	VG	57	30			
AC Rifle	101	(79)	114	106	97	87 -	EX	Е	87	VG	VG	57	30			
Dakota †	120 +	(45)	120 +	123 +	116 +	XX	EX	Μ	111	F	XX	56	34			
Hazlet	119 +	(22)	XX	128 +	XX	106	EX	Μ	105	G	XX	58	39			
Musketeer †	91 -	(40)	88 -	92	93	93	EX	Μ	120	F	F	56	33			

REMARKS: The provincial average maturity date for Prima is August 3 (215 days after January 1). AC Rifle and AC Remington are semi-dwarf varieties. Hazlet has lower viscosity which improves feed performance in monogastric livestock. No data for fall rye variety performance were collected during 2009-2012. 1 Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields (bu/ac) for Prima are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. 2 All yields are reported relative to Prima. Varieties that are statistically higher (+) or lower (-) yielding than Prima are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3 Resistance Ratings: VP = Very Poor, P = Poor, F = Fair, G = Good, VG = Very Good, EX = Excellent. 4 Maturity Ratings: VE = Very Early, E = Early, M =  $\label{eq:Medium} \text{Medium}, \text{L} = \text{Late}, \text{VL} = \text{Very Late}.$ 

RYE	s	F	R	C
AC REMINGTON				
BI: AAFC (Swift Current), Dist: Canterra Seeds				
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464	S			
GAZELLE				
BI: N/A, Dist: SeCan Members				
Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383		F		
HAZLET				
BI: N/A, Dist: SeCan Members				
Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383			R	
PRIMA				
BI: AAFC (Swift Current), Dist: SeCan				
Bayes, Harold / Trochu / (403) 443-2208			R	С
Weigum, Sarah / Three Hills / (403) 443-2476				С

TRITICALE - WINTER	s	F	R	C
BOBCAT				
BI: AAFC (Swift Current), Dist: Corns Brothers Farms				
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464	S			
FRIDGE				
BI: N/A, Dist: N/A				
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928				С
LUOMA				
BI: AARD (Lacombe), Dist: Corns Brothers Farms				
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464			R	
METZGER				
BI: AAFRD (Lacombe), Dist: Haney Farms Ltd.				
Corns, Bryan & Gary / Grassy Lake / (403) 655-2464				С

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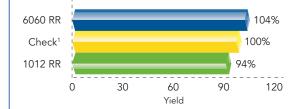
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<sup>1</sup> 2011 CPT trial average yield medium and long season zones. Yield responses on 6060 RR and 1012 RR only from sites where both varieties were present.

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# **Canola Variety Information**

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

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

The CPT trials in 2012 were conducted under the guidance of a governance committee that approves participating varieties, protocol design, data collection, analyses, reports and finance management. The Canola Council of Canada delivered the program on the committee's behalf.

The CPT summaries provided in this factsheet are based on successful trials that did not show confounding factors during field inspections. There were 23 successful small plot trials and 81 field scale trials in 2012. The trial sites were distributed based on seeded acres in Manitoba, Saskatchewan and Alberta.

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

- All varieties are treated with appropriate commercially associated herbicides and seed treatments;
- An independent third party representative inspected all trials; and
- Harvest occurred at the most appropriate time to minimize harvest losses due to maturity differences.

Field scale comparisons add extra perspective for assessing consistency in variety performance. A check variety 73-75 RR was included in all field scale trials in 2012.

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

### Where are CPT results available?

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

Data is also available in booklet form that will be distributed through various publications, and can be obtained from your local agri-retailer.

## *Brassica rapa* (Polish Canola) – no varieties were tested under PCT in 2012

Polish varieties mature approximately two weeks earlier than Argentine varieties and are less likely to produce green seed. They are also more shatter resistant than Argentine varieties and are therefore more suitable for straight combining. ACS-C7 has fair resistance to blackleg; all other Polish varieties have poor resistance.

Three new synthetic Polish varieties are Early One, ACS-C29 and Synergy. All three varieties yield significantly more than their open-pollinated varieties such as AC Sunbeam. Early One and ACS-C29 are available through Mastin Seeds, while Synergy is available through SeCan.

## Canola Quality *Brassica juncea* – no varieties were tested under PCT in 2012

*Brassica juncea* canola is a new class of canola that is slightly better adapted to areas where hot, dry conditions are common than B. napus types. It has very good resistance to blackleg and slightly better heat/drought tolerance than other canola types. Juncea canola shattering resistance is similar to Polish canola and has similar suitability for straight-cut combining. All production is contracted.

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

Small yield differences can easily be random variation and thus are less likely to be real effects of varieties. When comparing average zone yields for varieties in the small plot data, the least significant difference (LSD) is generally about six to seven bushels per acre. If variety A yielded 50 bu/ac and variety B yielded 45 bu/ac, they would be considered statistically the same. This is based on a confidence level that significant differences would occur by chance less than five per cent of the time. A confidence level of 10 per cent is sometimes used in statistical analyses, and this would result in a slightly smaller LSD. In the small plot design used, varieties are grouped by herbicide system, which means that the LSD shown strictly applies to comparisons between varieties of the same herbicide system. Comparisons between varieties of different herbicide systems are still valid but the LSD could be slightly larger. More importantly, comparisons between varieties within the same herbicide system reveal only genetic differences, whereas variety comparisons from different herbicide systems involve the net effect of both genetic and



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canola – performance trials and grower directory

herbicide effects (weed control and crop tolerance).

When comparing variety yields in the field scale summaries, an asterisk (\*) indicate yields that are statistically different than 73-75 RR (five per cent level).

As you combine results from more sites, the statistical power to determine if small differences are not due to chance often improves quickly up to 15 to 20 sites, and then marginally after that. This means that smaller differences are more relevant when all sites are averaged than just a few selected sites. Also, when there are a high number of individual sites for comparing two varieties, this increases the predictability that the average yield differences would likely occur in other fields in future years.

# **SMALL SCALE SUMMARY 2012**

			Yi	eld			Maturit	y		Height		
		Long (4)	Mid (13)	Short (6)	Overall	Long	Mid	Short	Long	Mid	Short	Blackleg
Variety	Distributor		(bu/	'acre)			(days)			(inches)		Tolerance
					Clearfie	eld						
5525 CL	BrettYoung	41	47	53	48	92	96	99	46	43	45	R
5535 CL	BrettYoung	40	43	52	45	88	93	95	45	40	43	R
VR 9560 CL	Viterra	44	51	53	50	92	97	100	47	45	46	R
LSD		6	7	8								
					Liberty I	.ink						
5440	Bayer CropScience	42	53	55	52	91	95	98	46	43	46	R
L120	Bayer CropScience	38	47	54	47	90	95	96	44	41	44	R
L130	Bayer CropScience	43	51	52	50	89	93	97	44	42	44	R
L150	Bayer CropScience	41	52	56	51	90	96	98	46	42	46	R
L154	Bayer CropScience	44	54	57	53	91	96	98	46	44	46	R
L159	Bayer CropScience	43	53	52	51	92	96	98	49	45	49	R
LSD		6	5	5								
					Roundup F	Ready						
1970	CANTERRA SEEDS	36	50		Х	93	97		48	44		R
1990	CANTERRA SEEDS	38	51	55	50	90	96	100	45	41	42	R
1999	CANTERRA SEEDS	45	52		Х	90	95		45	42		R
6050 RR	BrettYoung	39	47	54	47	88	94	97	43	40	39	R
6060 RR	BrettYoung	38	50	52	48	93	97	102	47	43	45	R
72-65 RR	DEKALB	38	48	55	48	90	96	99	42	41	41	R
73-15 RR	DEKALB			51	Х			95			40	R
73-45 RR	DEKALB	43	48	52	48	88	93	96	41	39	38	R
73-75 RR	DEKALB	45	52	54	51	89	95	97	44	41	42	R
74-44 BL	DEKALB	40	50	55	50	90	94	97	43	41	40	R
74-47 CR	DEKALB		52	55	Х		96	98		42	43	R
94H04	FP Genetics	39	46	51	46	89	94	96	46	40	41	R
V12-1*	Cargill	40	52	52	50	91	97	99	45	43	44	R
VR 9559 G	Viterra	43	50	55	50	91	97	100	47	44	46	R
VT 520 G	Viterra	39	52	52	50	94	98	101	48	45	47	MR
LSD		5	6	7								

LSD - least significant yield difference (5% level) within herbicide system

\* - specialty oil profile X - not tested in all zones

**B**, **PIONEER**,

D COMPARISON SCAL

# **≩45S54 ▲**

Canola hybrid with built-in Pioneer Protector® Sclerotinia Resistance trait and rated R for Blackleg.

> 42.2 bu/ac 41.1 bu/ac 45S54 VS Dekalb 73-75 (RR) 1.1 bu/ac increase 59% WINS 17 Proving Ground Comparisons

45H29

High yielding canola hybrid with a built-in Pioneer Protector<sup>®</sup> Clubroot Resistance trait.

38.5 bu/ac 35.7 bu/ac

PIONEER

45H29 vs Dekalb 74-44 BL 2.8 bu/ac increase 77% WINS Proving Ground Comparisons

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Farming is large-scale, and at DuPont Pioneer, we think seed trials should reflect real farming. That's why each year we test our seed products in over 1500 large-scale Proving Ground<sup>™</sup> trials of canola, corn and soybeans across Western Canada. And why our goal is to test our Pioneer<sup>®</sup> brand products on your farm under your field conditions to find the right product for the right acre.

Ask your Pioneer Hi-Bred sales rep about Proving Ground trial results in your area.

# www.pioneer.com/yield

Canola yield data summary averaged across 3 years (2010-2012). Yield data collected from large-scale, grower managed Proving Ground trials across Western Canada as of November 30th, 2012. Product responses are variable and subject to any number of environmental, disease and pest pressures. Individual results may vary. Multi-year and multi-location data is a better predictor of future performance. Refer to www.pioneer.com/yield or contact a Pioneer Hi-Bred sales representative for the latest and complete listing of traits and scores for each Pioneer<sup>®</sup> brand product. Roundup Ready is a registered trademark used under license from the Monsanto Company. Dekalb is a registered trademark of Monsanto Technology LLC. Pioneer<sup>®</sup> brand products are provided subject to the terms and conditions of purchase which are part of the labeling and purchase documents. The DuPont Oval Logo is a registered trademark of DuPont.

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# FIELD SCALE SUMMARY 2012

	Season Zone							
	Long	Mid	Short	- Overall				
Variety	% yield of	73-75 RR (numbe	er of sites)	Average				
		Liberty Link						
5440	97 (12)	107* (16)	103 (6)	103 (34)				
L120	X(1)	91 (6)	92* (4)	90* (11)				
L130	97 (17)	106* (20)	105 (7)	103 (44)				
L150	91* (18)	100 (26)	100 (11)	97 (55)				
L154	98 (12)	99 (15)	98 (6)	98 (33)				
L159	94 (12)	99 (14)	101 (6)	97 (32)				

#### Roundup Ready

1970	98 (2)	100 (4)		99 (6)
1990	94* (12)	101 (22)	102 (4)	99 (38)
1999	X (1)	102 (6)		102 (7)
6060 RR	94* (11)	99 (16)	96 (5)	97 (32)
72-65 RR	94* (9)	101 (18)	94 (3)	98* (30)
73-15 RR		108 (9)	96* (8)	102 (17)
73-45 RR	98 (9)	103 (21)	97 (10)	100 (40)
74-44 BL	93* (16)	106* (22)	101 (9)	101 (47)
74-47 CR	99 (4)	101 (13)	100 (3)	100 (20)
73-75 RR yield	42	41	46	42

(bu/ac)

\* - significant difference from 73-75 RR yield (5% level, paired t test)

X - single site data in zone and therefore no average or t test

# CANOLA - ARGENTINE

	_	
1970		
BI: N/A, Dist: Canterra Seeds		
Canterra Seeds / Winnipeg / (877) 439-7333		С
1990		
BI: N/A, Dist: Canterra Seeds		
Canterra Seeds / Winnipeg / (877) 439-7333		С
43E02		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С
5440		
BI: N/A, Dist: Bayer CropScience		
Bayer CropScience Inc. / Lethbridge / (403) 329-0706		С
1012 RR		
BI: N/A, Dist: Dow AgroSciences		
Dow Agrosciences Canada / Calgary / (403) 735-8838		С
1016 RR		
BI: N/A, Dist: Dow AgroSciences		
Dow Agrosciences Canada / Calgary / (403) 735-8838		С
2012 CL		
BI: N/A, Dist: Dow AgroSciences		
Dow Agrosciences Canada / Calgary / (403) 735-8838		С
2016 CL		
BI: N/A, Dist: Dow AgroSciences		
Dow Agrosciences Canada / Calgary / (403) 735-8838		С
45H29		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С
45H31		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С

# **CANOLA SEED DISTRIBUTORS**

For additional canola varieties available for purchase and detailed variety information please contact these canola seed distributors.

BASF / 1-800-371- 2273 / www.agsolutions.ca Bayer CropScience / 1-888-283-6847 / www.bayercropscience.ca BrettYoung / 1-800-665-5015 /www.brettyoung.ca Canterra Seeds Ltd. / (204) 988-9750 / www.canterra.com Cargill Specialty Canola Oils / 1-800-323-6232 / www.victorycanola.com DEKALB Canada/Monsanto Canada Inc. / 1-800-667-4944 / www.DEKALB.ca DL Seeds / (204) 331-2361 / www.dlseeds.ca Dwo AgroSciences / 1-800-667-3852 / www.dowagro.ca Dupont Pioneer / 1-800-265-9435 / www.pioneer.com/canada FP Genetics / 1-877-791-1045 / www.fpgenetics.ca Mastin Seeds / (403) 556-2609 / www.mastinseeds.com SeCan / 1-800-764-5487 / www.secan.com Viterra / (306) 569-4448 / www.viterra.ca

#### ADDITIONAL RESOURCES:

Canola Council of Canada / 1-866-834-4378 / www.canolacouncil.org Alberta Agriculture and Rural Development / 310-FARM (3276) / www.agriculture.alberta.ca Alberta Canola Producers Commission / 1-800-551-6652 / www.canola.ab.ca

45852		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С
45854		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С
46H75		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		1
5535 CL		
BI: N/A, Dist: BrettYoung Seeds		
BrettYoung / Winnipeg / (204) 261-7932		С
6040RR		
BI: N/A, Dist: BrettYoung Seeds		
BrettYoung / Winnipeg / (204) 261-7932		С
6060 RR		
BI: N/A, Dist: BrettYoung Seeds		
BrettYoung / Winnipeg / (204) 261-7932		С
D3154S		
BI: N/A, Dist: Pioneer Hi-Bred Intl.		
Pioneer Hi-Bred International Inc. / Lethbridge / (403) 327-6135		С
FUSION		
BI: DL Seeds, Dist: SeCan Memebers		
McDonald, Gerald / Grande Prairie / (780) 538-3868		С
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617		С
L120		
BI: N/A, Dist: Bayer CropScience		
Bayer CropScience Inc. / Lethbridge / (403) 329-0706		С
L130		
BI: N/A, Dist: Bayer CropScience		
Bayer CropScience Inc. / Lethbridge / (403) 329-0706		С
L135C		
BI: N/A, Dist: Bayer CropScience		
Bayer CropScience Inc. / Lethbridge / (403) 329-0706		С

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CENTENNIAL BI: N/A, Dist: Viterra Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736	s	F	B	C	E-mail: lefsrud@telusplanet.net www.telusplanet.net/public/lefsru
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# FLAX

		Overall	Yiel	d Category <sup>1</sup>	(% CDC Be	ethune)	Agronomic Characteristics						
Variety	Overall Yield	Station Years of Testing	Low < 20 (bu/ac)	Medium 20-35 (bu/ac)	High 35-50 (bu/ac)	Very High > 50 (bu/ac)	Maturity Rating <sup>3</sup>	Seed Size	Ht. (cm)	Resistance to Lodging 4			
Varieties tested in the	2012 trials (\	lield and agr	onomic data o	only directly	comparabl	e to CDC Bethu	1e)						
CDC Bethune (bu/ac)	36		15	29	44	60							
CDC Bethune 2 🛞	100	107	100	100	100	100	L	М	58	VG			
AAC Bravo 🔺	104	15	XX	XX	XX	103	VL	L	63	VG			
CDC Sanctuary	105	20	XX	100	XX	XX	VL	М	63	G			
Prairie Grande 💩	99	51	103	100	94-	99	Μ	Μ	55	VG			
Prairie Sapphire 💩	97	15	XX	XX	XX	99	Μ	М	64	G			
Previously tested variet	ies (Yield and	d agronomic d	lata only direc	tly comparal	ble to CDC	Bethune)							
CDC Sorrel @	104	32	112	104	100	99	L	L	61	G			
Flanders	99	47	93	101	101	98	VL	S	57	G			
Hanley 👁	97-	37	99	97	95	97	L	Μ	53	VG			
NorLin †	95-	94	98	96-	95-	91-	Μ	Μ	57	G			
Prairie Thunder 💩	99	38	101	98	99	XX	Μ	Μ	55	VG			
Taurus 🐵	98-	27	103	97	XX	XX	L	Μ	53	VG			

**REMARKS:** CDC Glas, CDC Sanctuary - insufficient information to describe. (a)- Plant Breeder's Rights. + - Flagged for removal. XX - Insufficient data to describe. 1Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for CDC Bethune are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. 2Yields are reported relative to CDC Bethune. Varieties that are statistically higher (+) or lower (-) yielding than CDC Bethune are indicated. No symbol after the yield figure indicates that there is no statistical difference. 3Maturity rating: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average maturity for CDC Bethune in Alberta is 110 days and rated as Late maturing (L). 4Resistance to Lodging: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

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Bit CDC, Dist: SeCan Members           Corns, Bryan & Gary / Grassy Lake / (403) 655-2464           Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383           Fabian, Patrick V. / Tilley / (403) 377-2000           Huvenaars, John & Lisa / Hays / (403) 725-2126           King, Harold F. / Three Hills / (403) 443-7330           Markert, Ron / Vulcan / (403) 485-6708           Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736           Sendziak, Don P. & Stephen / Edmonton / (780) 434-1322           Sich, Louis John & Ivan / Trochu / (403) 442-2112			R	C C C C C C C C C C C C C C C C C C C	<b>BI: AAFC (Morden), Dist: N/A</b> Crooymans, John & Joseph & A. / Bow Island / (403) 545-2151 Dovichak, Michael / Brooks / (403) 501-5420 Stamp, Richard & Marian & Greg & N. / Enchant / (403) 739-2233 Witdouck, Dale & Calvin / Iron Springs / (403) 738-4395			





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# 2012 Regional Silage Variety Trials

**CATTLE** producers grow ever increasing amounts of annual crops for feed (silage, green feed and swath grazing), and measuring those that produce the highest forage yield becomes increasingly important. Silage is an integral forage source in feedlots across the province and has become more prevalent in cow herds as well. With many producers trying to lower production costs, swath grazing of cow herds has increased dramatically in the last few years. It could also be argued that there is more grain forage than cereal grain fed to take a market animal from conception to plate.

#### **Participating Organizations**

Under the umbrella of the Agricultural Research and Extension Council of Alberta, 10 applied research groups initiated the project.

- Agricultural Research and Extension Council of Alberta, Sherwood Park, Alta., (780) 416-6046
- Battle River Research Group, Forestburg, Alta., (780) 582-7308
- Chinook Applied Research Association, Oyen, Alta., (403) 664-3777
- Gateway Research Organization, Westlock, Alta., (780) 349-4546
- Lakeland Agricultural Research Association, Bonnyville, Alta., (780) 826-7260
- Smoky Applied Research and Demonstration Association, Falher, Alta., (780) 837-2900
- West Central Forage Association, Evansburg, Alta., (780) 727-4447
- North Peace Applied Research Association, Manning Alta., (780) 836-5230
- Peace Country Beef and Forage, Fairview, Alta., (780) 835-6799

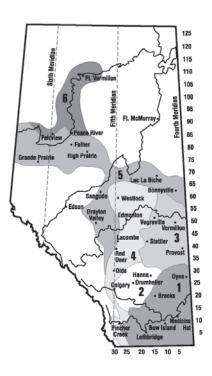
## **Major Sponsors**

- Agricultural Initiatives Program
- A & L Canada Laboratories Inc.
- Association of Alberta Co-op Seed Cleaning Plants
- Alberta Seed Growers' Association
- Alberta Beef Producers

## **Trial Information**

This is only the fourth year of the trials and concrete conclusions shouldn't be drawn, however, as many of the groups involved have been growing silage trials for several years, their information has been shared with their local membership. Funding has been difficult to find to support these trials but through the diligent work of the associations enough funding was secured to continue this trial another year.

Varieties of barley, oats, triticale and peas commonly used for silage, greenfeed and swath grazing were included in the trial as well as new varieties showing good potential for these



uses. The pulse mixture trial looked at increasing the nutritional value of silage as well as decreasing nitrogen costs. The pulse mix plots were seeded with 50 pounds of 11-52-0-0 while the straight cereal comparison plots were fertilized with 50 per cent of the recommended cereal rates. Peas were seeded at 75 per cent of their recommended seeding rate and cereals at 50 per cent when in mixtures. Monocrop cereals were seeded at 100 per cent the recommended seeding rate. The other trials (barley, oats and triticale) were seeded at recommended rates and at recommended fertility.

## **Site Information**

There were 10 sites across the province. Sites were located near Castor, Stettler, Fort Kent, Debolt, Evansburg, Hanna, Manning, Spirit River, St. Paul, Stony Plain and Dapp. The Manning and Spirit River site did not seed the triticale trial this year. Maturity, plant height and lodging were not measured in the trials as it was felt that most have already gone through the Cereal RVT program, and have been extensively reported on.

#### **Nutritional Analysis**

Nutrition was assessed using wet chemistry analysis. Full nutritional analysis was done on each sample, however, we have only reported on six nutritional categories; crude protein (CP), total digestible nutrients (TDN) which is an estimation of energy, calcium (Ca), phosphorus (P), potassium (K) and magnesium (Mg).

# OATS

		Overall	Yield C	ategory (%	Murphy)	Yield	by Are	a (see i	map)	Nutritional Data							
Variety	Overall Yield	Station Years of Testing	Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)		
Murphy (t/ac)	3.2		1.9	3.3	4.4	3.6	2.3	2	4.6	9.9	59.4	0.2	0.2	2.3	0.2		
Murphy	100	8	100	100	100	100	100	100		100	100	100	100	100	100		
Baler	97	8	99	88	101	121	87	102	90	118	105	109	112	96	105		
CDC SOI	92	8	84-	95	98	114	109	81-	87-	102	106	92	90	97	100		
Everleaf	87	8	94	83	81	92	98	108	73-	118	103	111	104	104	101		
Foothills	100	8	105	85	105	104	84	102	99	93	102	101	100	96	98		
Jordan	95	8	93	87	103	114	80	89	97	108	104	97	107	92	110		
Morgan	96	8	91	89	107	118	89	89	97	97	104	98	104	86	89		
Mustang	96	8	97	88	100	115	87	92	91-	109	104	99	104	87	97		
Waldern	101	8	105	100	99	112	97	95	95	108	104	119	98	87	105		



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# BARLEY

		Overall	Yield C	ategory (%	Vivar)	Yie	eld by Ar	ea (see	map)	Nutritional Data							
Variety	Overall Yield	Station Years of Testing	Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)		
Vivar (t/ac)	3.6		1.7	2.9	5.1	5.6	2.4	1.9	4.7	9.3	66.1	0.3	0.2	1.4	0.2		
Vivar	100	10	100	100	100	100	100	100	100	100	100	100	100	100	100		
Busby	102	10	102	99	105	101	106	96	108	102	99	107	111	100	89		
CDC Austensen	114+	10	114	115	114	100	113	127	117+	111	101	94	107	106	99		
CDC Coalition	102	10	96	102	106+	109	97	106	104	107	101	87	111	100	90		
CDC Cowboy	118+	10	127	117+	114	102	118	134	116	98	98	111	108	121	105		
Chigwell	99	10	95	103	97	92	93	108	100	105	98	115	101	110	100		
Gadsby	118+	10	122	120+	113	96	112	135	118+	100	101	106	105	93	95		
Ponoka	113+	10	113	114	111	107	110	124	112	101	98	130	112	102	97		
Seebe	109+	10	113	110+	106	96	110	118	109	112	97	104	120	110	95		
Sundre	100	10	99	100	101	91	94	104	105	105	98	107	106	116	103		
Trochu	97	10	100	94-	99	102	92	103	97	107	102	113	118	107	106		
Xena	107	10	111	112	99	88	119	110	103	106	102	88	120	99	89		

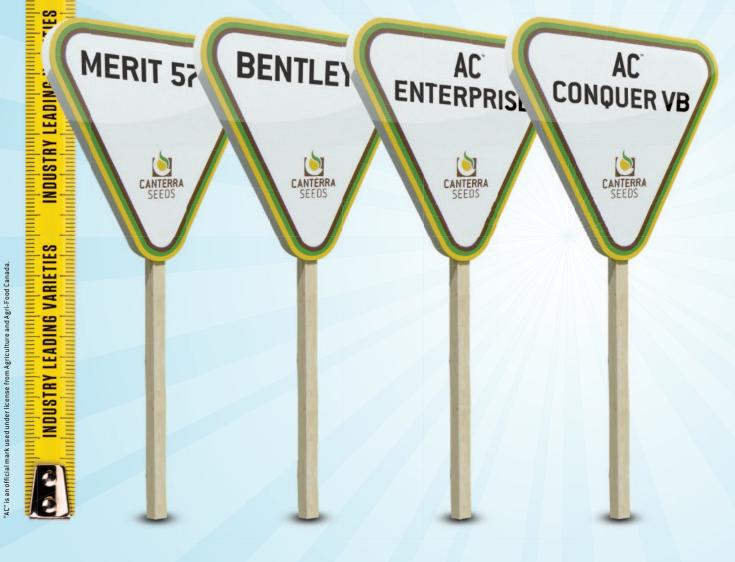
# **PULSE MIXTURES**

		Overall	Yield (	Category (%	Vivar)	Yie	ld by A	rea (see i	map)	Nutritional Data						
Variety	Overall Yield	Station Years of Testing	Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)	
Vivar (t/ac)	2.7		1.6	2.4	3.8	XX	2	1.5	3.6	10.4	65.1	0.4	0.2	1.4	0.2	
Vivar	100	9	100	100	100	XX	100	100	100	100	100	100	100	100	100	
Murphy	126	9	156	118	118	XX	133	157	116	91	94	86	99	118	94	
Pronghorn	108	9	111	97	120	XX	100	109	111	104	101	67	111	100	76	
40-10 Vivar	93	9	92	96	89	XX	78	108	88	130	97	198	109	107	132	
40-10 Murphy	106	9	114	109	98	XX	89	132	104	107	97	161	101	127	123	
40-10 Pronghorn	100	9	103	97	101	XX	76	113	104	119	95	150	108	107	110	
Horizon/Vivar	98	9	107	93	97	XX	94	112	92	120	96	165	99	104	118	
Horizon/Murphy	109	9	133	111	90	XX	108	144	98	107	95	132	102	129	115	
Horizon/Pronghorn	105	9	116	107	95	XX	95	132+	99	111	95	150	97	116	94	

# TRITICALE

		Overall	Yield Category (% Pronghorn)				by Ar	ea (see	map)	Nutritional Data						
Variety	Overall Yield	Station Years of Testing	Low < 2.25 (t/ac)	Medium 2.25 - 4.50 (t/ac)	High > 4.50 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)	
Pronghorn (t/ac)	3.6		2.1	3.3	4.9	5.5	2.2	2.2	4.5	9.4	61.5	0.2	0.2	1.5	0.1	
Pronghorn	100	9	100	100	100	100		100	100	100	100	100	100	100	100	
AC Ultima	97	9	94	95	100	88	85	101	103	99	103	83	86	87	111	
Bunker	104	9	101	117	99	86	113	96	107	96	98	102	91	96	106	
Taza	100	9	103	100	98	90	108	91	103	90	102	115	93	98	93	
Tyndal	95	9	94	100	93	86	101	90	97	96	99	97	94	96	93	

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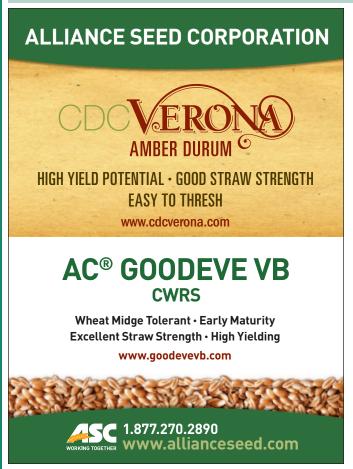
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#### Forage references:

How to Purchase High Quality Forage Seed – FS120 / 45-1 Establishing Perennial Hay and Pasture Crops – FS120 / 22-2 These publications can be obtained from the Alberta Agriculture Publications Office. Call the toll-free line at 1-800-292-5697. Other forage species and new varieties not listed in this publication are sometimes seeded by producers in Alberta.

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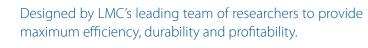
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AC KNOWLES BI: AAFC (Saskatoon), Dist: Viterra Kerschbaumer, John A. / Fairview / (780) 835-4508 Vanderstoel, Jeroen & M. / Enchant / (403) 654-2653 AC ROCKET BI: AAFC (Sainte-Foy), Dist: Viterra Noble, Robert / Manning / (780) 836-2337 CARLTON BI: AAFC (Saskatoon), Dist: Public BrettYoung Seeds Limited / Rycroft / (780) 765-3069 Dechant, Mark / Fairview / (780) 835-3602 Dynamic Seeds Ltd. / Fairview / (780) 835-5435 Froese, Cornelius H. / La Crete / (780) 927-4645 Kerschbaumer, John A. / Fairview / (780) 835-4508 Lay, Dennis M. / Beaverlodge / (780) 354-8357 Mittelstadt, Mark Andrew / Fairview / (780) 835-3239 Noble, Robert / Manning / (780) 836-2381 Shaw, Theron Harry / Fairview / (780) 835-0826	S	F	R	
AC KNOWLES BI: AAFC (Saskatoon), Dist: Viterra Kerschbaumer, John A. / Fairview / (780) 835-4508 Vanderstoel, Jeroen & M. / Enchant / (403) 654-2653 AC ROCKET BI: AAFC (Sainte-Foy), Dist: Viterra Noble, Robert / Manning / (780) 836-2337 CARLTON BI: AAFC (Saskatoon), Dist: Public BrettYoung Seeds Limited / Rycordt / (780) 765-3069 Dechant, Mark / Fairview / (780) 835-3602 Dynamic Seeds Ltd. / Fairview / (780) 835-435 Froese, Cornelius H. / La Crete / (780) 835-4508 Lay, Dennis M. / Beaverlodge / (780) 835-4837 Mittelstadt, Mark Andrew / Fairview / (780) 835-4508 Lay, Dennis M. / Beaverlodge / (780) 835-4847 Shaw, Theron Harry / Fairview / (780) 927-4645 Hatland, Edward / Baldonnel / (250) 789-3646 Hostettler, Fritz / Bluesky / (780) 835-4761 Kipke, Bob / Hines Creek / (780) 494-2260 Koester, Gordon / Rockyford / (403) 533-2248 Van Garderen, Case / Picture Butte / (403) 738-4203 Vanderstoel, Jeroen & M. / Enchant / (403) 654-2653	S		R	
Kerschbaumer, John A. / Fairview / (780) 835-4508 Vanderstoel, Jeroen & M. / Enchant / (403) 654-2653 AC ROCKET BI: AAFC (Sainte-Foy), Dist: Viterra Noble, Robert / Manning / (780) 836-2337 CARLTON BI: AAFC (Saskatoon), Dist: Public BrettYoung Seeds Limited / Rycroft / (780) 765-3069 Dechant, Mark / Fairview / (780) 835-3602 Dynamic Seeds Ltd. / Fairview / (780) 835-5435 Froese, Cornelius H. / La Crete / (780) 927-4645 Kerschbaumer, John A. / Fairview / (780) 835-4508 Lay, Dennis M. / Beaverlodge / (780) 354-8357 Mittelstadt, Mark Andrew / Fairview / (780) 835-3239 Noble, Robert / Manning / (780) 836-2337 Sallis, Gary / Manning / (780) 836-2381 Shaw, Theron Harry / Fairview / (780) 835-0826 FLEET BI: AAFC (Saskatoon), Dist: SeCan Members Card, Gordon B. / Magrath / (403) 758-3444 Froese, Cornelius H. / La Crete / (780) 927-4645 Hadland, Edward / Baldonnel / (250) 789-3646 Hostettler, Fritz / Bluesky / (780) 835-4761 Kipke, Bob / Hines Creek / (780) 933-2248 Van Garderen, Case / Picture Butte / (403) 738-4203	S	F	R	

CANARYGRASS	s	F	R	C	;	FESCUE	s	F	R	
CDC TOGO BI: CDC, Dist: Canterra Seeds Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338		F				BOREAL BI: AAFC (Beaverlodge), Dist: Viterra Johnson, Jim / Cherry Point / (780) 595-2198 Longson, Wayne / Beaverlodge / (780) 354-2909				
CICER MILKVETCH	s	F	R	C	;	Maisonneuve, Robert L. / Donnelly / (780) 837-8296 Meiers, Mark / Charlie Lake / (250) 827-3843 Nelson, Barry Kenneth / Spirit River / (780) 351-2158				
ARC ASPEN BI: ARC, Dist: N/A Andersen, Terry / Bon Accord / (780) 921-3461				C	)	Paszkowski, Walter / Sexsmith / (780) 566-3629 Richard, Gerald / Spirit River / (780) 864-2339 Richard, Michel / Spirit River / (780) 864-4220 Rudakewich, Mike / Fairview / (780) 835-2650				
CICER MILKVETCH	s	F	R	C	;	Skrlik, Perry / Nampa / (780) 322-2190 Vander Linden, Robert / Clayhurst / (250) 781-3554 ORACLE				
VELDT BI: AAFC (Lethbridge), Dist: Viterra Vanderstoel, Jeroen & M. / Enchant / (403) 654-2653				С	0	BI: AAFC (Beaverlodge), Dist: Canterra Seeds Hegland, David Olaf / Wembley / (780) 766-2450	4			
CLOVER	s	F	R	C	;	GROUSE	S	F	R	
AURORA BI: AAFC (Beaverlodge), Dist: BrettYoung						BI: ARC, Dist: N/A Andersen, Terry / Bon Accord / (780) 921-3461				
BrettYoung Seeds Limited / Rycroft / (780) 765-3069 Dynamic Seeds Ltd. / Fairview / (780) 835-5435 Hostettler, Fritz / Bluesky / (780) 835-4761					2	ORCHARDGRASS	s	F	R	ſ
Limoges, Daniel / Girouxville / (780) 833-1287 Moore Seed Processors Inc. / Debolt / (780) 957-3964 Richard, Michel / Spirit River / (780) 864-4220 Vandeligt, Gerry / Eaglesham / (780) 359-2451					5	KAY BI: AAFC (Ottawa) Dist: SeCan Members/Ken Long Seeds Card, Gordon B. / Magrath / (403) 758-3444				

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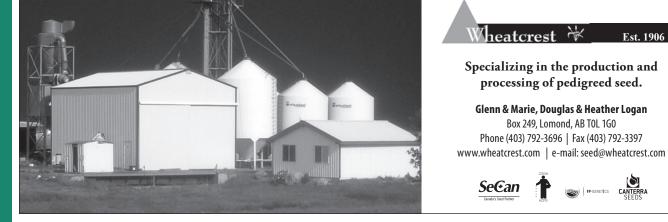
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Card, Gordon B. / Magrath / (403) 758-3444 Whitney, David / Fairview / (780) 835-4897				C C
Willing, David / Failview / (760) 635-4697				U
ТІМОТНҮ				
	S	F	R	C
ALMA				
BI: Pickseed Canada Inc., Dist: ABT Canada				
Moore Seed Processors Inc. / Debolt / (780) 957-3964		F		С
ARLAKA				
BI: N/A, Dist: Pickseed Canada Inc.				
Wood, Robert & P. & Marshall / Bowden / (403) 224-3928				С
CLIMAX				
BI: AAFC (Ottawa), Dist: Public				0
Heuston, Scott / Creston / (250) 428-7026 COMTAL				С
BI: N/A, Dist: Pickseed Canada Inc.				
BrettYoung Seeds Limited / Rycroft / (780) 765-3069				С
Moore Seed Processors Inc. / Debolt / (780) 957-3964				C
DERBY				0
BI: Growmark Inc., Dist: Growmark Inc.				
BrettYoung Seeds Limited / Rycroft / (780) 765-3069				С
PROMESSE				-
BI: BrettYoung, Dist:BrettYoung				
BrettYoung Seeds Limited / Rycroft / (780) 765-3069				С
TENHO				
BI: Parsons Seeds Ltd., Dist: N/A				
Moore Seed Processors Inc. / Debolt / (780) 957-3964		F		С
Skrlik, Perry / Nampa / (780) 322-2190				С
TUUKKA				
BI: Boreal Plant Breeding (Finland), Dist: BrettYoung		_		~
Moore Seed Processors Inc. / Debolt / (780) 957-3964		F		С

BrettYoung Seeds Limited / Rycroft / (780) 765-3069			
WHEATGRASS	S	F	R
AC GOLIATH			
BI: Saskatoon Research Station, Dist: SeCan Members Schmitt, Cameron John / Milk River / (403) 647-2157			
AC SALTLANDER			
BI: AAFC (Swift Current), Dist: N/A			
Miller, Kenneth F. / Milk River / (403) 647-2127		F	
AG-299 (AEC HILLCREST)			
BI: N/A, Dist: N/A Sorensen, Niels / Berwyn / (780) 338-2205			
CLARKE			
BI: N/A, Dist: SeCan Members			
Weigum, Garry / Three Hills / (403) 443-2476			
FAIRWAY			
BI: U of S (Saskatoon), Dist: Public Hostettler, Fritz / Bluesky / (780) 835-4761			
Whitney, David / Fairview / (780) 835-4897			
KIRK			
BI: AAFC (Saskatoon), Dist: SeCan Members			
Card, Gordon B. / Magrath / (403) 758-3444			
Kerschbaumer, John A. / Fairview / (780) 835-4508 Swanson, Wray / Milk River / (403) 647-3998			
NORDAN			
BI: George A. Rogler (Mandan), Dist: Public			
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**THE** Alberta Regional Variety Testing Trials are a key source of information to the agriculture industry regarding the yield potential and field performance of new pulse varieties. The trials are managed by a team of research experts to minimize variability. These trials provide unbiased, comprehensive information that assists producers to make better cropping decisions and higher profits.

The Alberta RVTs flourished in 2012 thanks to early moisture and midsummer heat. Seeding was done into good soil moisture conditions and on time. Emergence was uniform. Frequent spring precipitations kept soil well saturated, but never caused flooding conditions except some parts of the Peace region where soil moisture was rated as excessive. Then the hot weather of July and August may reduce field peas yield potential at some locations possibly due to plants being shallow rooted.

#### Methodology

Agronomic and quality data collected at each location include seed yield, plant height, standability at physiological maturity, disease reaction and thousand seed weight. The RVT trials are arranged in a randomized complete block design. All tests have four replications per site. Varieties within each table are arranged in alphabetical order. The check variety for each crop type is determine by Crop Coordinator and displayed in bold at the top of the table. Cultivar yield data is shown as per cent of the check and the station years of testing column is located beside the yield. Caution is advised when interpreting the data with respect to new varieties that have not been fully tested.

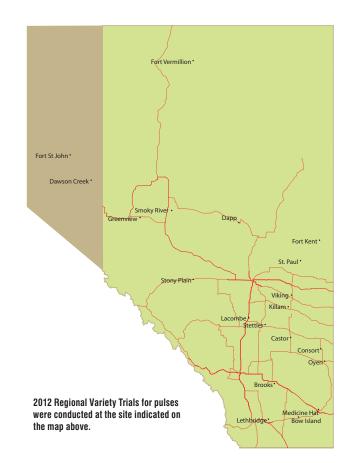
The CV stands for coefficients of variation (CV) in the trial and is expressed as a percentage. Large CVs mean a large amount of variation could not be attributed to differences between varieties. The lower the CV the better is the quality of data. Acceptable coefficient of variation for seed yield is 15 per cent.

## 2012 Data

There were 17 green and yellow pea sites established across Alberta and two sites in north eastern British Colombia. Sites in Alberta consisted of five green plus two checks (Cooper and CDC Patrick) and five yellow plus a new check (CDC Meadow) cultivars. Only two green and three yellow variety trials failed due to various reasons.

The chickpea and lentil trial design was changed this year. There is only one joined (desi and kabuli) chickpea and one (early and late) lentil trial starting 2012. Nine chickpea varieties plus check (CDC Frontier) were grown at Bow Island, Brooks, Lethbridge and Medicine Hat. All the trials were successfully harvested. Unfortunately the yield results for the trial at Medicine Hat were not added to the database due to unacceptable CV. 2012 was a good year for growing lentil trials. 19 varieties plus a check (CDC Redberry) were successfully grown at Bow Island, Brooks, Lethbridge and Medicine Hat.

Wide row dry bean trials were grown at Bow Island, Lethbridge and Vauxhall and the narrow row dry bean had two



sites – Lethbridge and Vauxhall. There were 12 varieties including checks in both trials and all grown under irrigation. The wide row locations had a complete set of data, however, only the Vauxhall data set was included in the database because 112 km/h winds blew the Lethbridge trial all over beyond repairs at harvest time.

Again there were no fababean regional trials grown in 2012 due to no new varieties being registered.

Varieties displaying a symbol () are subject to Plant Breeders' Right. Any unauthorized sale of seed of these varieties is an infringement under the act. Under PBR, farmers are allowed to save seed of the variety for their own use, to plant on their own farms.

We would like acknowledge the hard work of all the people who seed, maintain, take field data, harvest and process grain samples from the variety trials. The research organizations that were involved in testing are: Agricultural Research and Extension Council of Alberta, Battle River Research Group, Chinook Applied Research Association, Lakeland Agricultural Research Association, MacKenzie Applied Research Association, Peace Agricultural Research Demonstration Association, Southern Applied Research Association, Agriculture and Agri-Food Canada Lacombe and Lethbridge Research Stations, Agriculture and Rural Development Research Stations in Brooks and Edmonton, BC Grain Producers and Viterra. As well we appreciate hard work of the crop coordinators, APG staff, ARD staff and pulse breeders who reviewed the results of the testing, updated diseases and other agronomic information.

A sincere thank you to Alberta Pulse Grower Commission for contributing to the Pulse Science Cluster Project that is run under Agriculture and Agri-Food Canada, Growing Forward program; to breeders and seed companies for paying testing fees (Alliance Seed Corporation, Crop Development Centre at University of Saskatchewan and FP Genetics Inc.); to the Association of Alberta Co-op Seed Cleaning Plants, the Alberta Seed Growers' Association and the Ministry of Agriculture and Rural Development. Finally, about two thirds of our trials were Alberta producer's fields and we appreciate their cooperation and dedication as well.

# **DRY BEANS - NARROW ROW**

Variety	Туре	Site Years 1997-2012 <sup>1</sup>	Yield (% of check)	Days to Bloom <sup>2</sup>	Days to Maturity	TSW <sup>3</sup> (g)	Plant Height (cm)	Lodging ⁴ (1-5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)	Type	1997-2012	2724	DIOUIII	maturity	(9)	(cm)	(1-3)	Παυπ
AC BLACK DIAMOND	Black Shiny	16	100	56	101	254	38	2.4	II
CDC Blackcomb (A)	Black Matte	1	104	63	-2	178	39	1.8	II
ISLAND (kg/ha)			2838						
ISLAND	Pinto	6	100	60	102	345	43	2.9	П
CDC WM-2	Pinto	3	69	60	2	364	45	2.5	
Medicine Hat	Pinto	2	111	63	5	359	48	2	II
Winchester	Pinto	3	82	58	1	336	47	2.6	П
AC Resolute (kg/ha)			2602						
AC Resolute	Great Northern	14	100	54	102	323	40	2.4	II
AAC Tundra (A)		1	101	64	-4	342	43	2	II
AC Polaris	Great Northern	14	117	58	4	293	41	3.5	11
AC REDBOND (kg/ha)			2569						
AC REDBOND	Small Red	17	100	51	100	303	39	2.3	II
CDC Sol (kg/ha)			1002						
CDCC Sol	Yellow	3	100	51	114	317	32	2.0	I
VIVA (kg/ha)			2307						
VIVA	Pink	15	100	52	99	249	32	3.5	III

**REMARKS:** A = First year entries; 1 Trials failed in 2010; 2 Days to bloom from seeding; 3 Thousand Seed Weight; 4 Lodging: 1 = erect, 5 = flat. 5 Growth Habit: I = determinate bush, II = indeterminate bush, III = indetermina



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Barley: CDC Yorkton • Sundre • CDC Mayfair • Bentley • Merit-57 • CDC Austenson Oats: Triactor • AC Morgan • CDC Seabiscuit

Peas: AC Thunderbird • CDC Patrick Flax: CDC Sorrel



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# **DRY BEANS - WIDE ROW**

Variety	Туре	Site Years 1997- 2012 <sup>1</sup>	Yield (% of check)	Days to Bloom <sup>2</sup>	Days to Maturity	TSW <sup>3</sup> (g)	Plant Height (cm)	Lodging <sup>4</sup> (1-5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)			2912						
AC BLACK DIAMOND	Black Shiny	39	100	57	104	262	39	2.1	II
CDC Blackcomb (A)	Black Matte	3	86	63	-3	167	39	1.8	П
ISLAND (kg/ha)			3457						
ISLAND	Pinto	13	100	57	102	361	41	2.8	П
CDC WM-2	Pinto	8	75	59	-1	357	43	1.5	11
Medicine Hat	Pinto	6	82	68	3	331	42	1.3	П
Othello	Pinto	8	90	58	0	353	36	3.5	III
Winchester	Pinto	13	86	55	-1	336	40	2.3	
AC Resolute (kg/ha)			2764						
AC Resolute	Great Northern	22	100	53	101	338	42	2.3	П
AAC Tundra (A)	Great Northern	3	100	61	-3	340	39	2.3	П
AC Polaris	Great Northern	22	111	57	4	316	40	3.5	Ш
AC REDBOND (kg/ha)			3134						
AC REDBOND	Small Red	39	100	53	101	316	41	2.4	Ш
CDC Sol (kg/ha)			1513						
CDC Sol	Yellow	6	100	66	108	386	33	1.0	I.
Myasi	Yellow	3	119	67	6	325	32	1.0	I
VIVA (kg/ha)			3013						
VIVA	Pink	39	100	55	104	255	36	3.6	111

**REMARKS:** A = First year entries; 1 Trials failed in 2010; 2 Days to bloom from seeding; 3 Thousand Seed Weight; 4 Lodging: 1 = erect, 5 = flat. 5 Growth Habit = flat; 5 I = determinate bush, II = indeterminate bush, II = indeterminate vine.

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# **CHICKPEAS**

					Agronomic Characteri	stics	
	Туре	Overall Yield	Station Years of Testing	TSW ² (g)	Maturity Rating <sup>3</sup>	Plant Height (cm)	Tolerance to Ascochyta <sup>4</sup>
Varieties tested in the 2012 trials							
CDC FRONTIER (kg/ha)		5150					
CDC FRONTIER <sup>1</sup>	Kabuli	100	22	360	L	43	F
Amit (R)	Kabuli	90-	22	270	L	44	F
CDC Alma	Kabuli	88-	7	390	ML	39	VP
CDC Cabri	Desi	92-	18	330	E	42	F
CDC Corinne	Desi	100	3	260	Μ	34	F
CDC Cory	Desi	87-	3	300	Μ	39	F
CDC Leader	Kabuli	95	3	390	ML	40	F
CDC Luna	Kabuli	91-	7	380	ML	41	Р
CDC Orion	Kabuli	91	7	450	ML	39	Р
CDC Vanguard	Desi	93	6	230	ML	39	F
Previously tested varieties (2003-2011)							
CDC Chichi	Kabuli	77	8	340	Μ	47	Р
CDC Chico	Kabuli	87	8	250	E	46	VP
CDC Diva	Kabuli	71-	15	450	L	41	F
CDC Xena	Kabuli	72-	15	450	L	41	VP
CDC Yuma	Kabuli	73-	15	420	L	45	Р
Sanford	Kabuli	69-	15	410	L	47	VP

**REMARKS:** CDC Leader (493-24) - a new variety added to the table. XX - No data. 1 Yields are reported relative to CDC Frontier. Varieties that are statistically higher (+) or lower (-) yielding than CDC Frontier are indicated. No symbol after the yield figure indicates that there is no statistical difference. 2 Thousand Seed Weight: g; 3 Maturity Rating: E = Early, M = Medium, ML = Medium Late, L = Late; 4 Tolerance to Ascochyta: VP = Very Poor, P = Poor, F = Fair.

CHICKPEAS	s	F	R	C
CDC ALMA				
BI: CDC, Dist: N/A			_	
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434			R	
CDC EBONY BI: CDC. Dist: N/A				
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S			
CDC FRONTIER	0			
BI: CDC, Dist: Sask. Pulse Growers				
Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338	S			С

CHICKPEAS	s	F	R	C
CDC JADE				
BI: CDC, Dist: N/A				
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S			
CDC LEADER				
BI: CDC, Dist: N/A				
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S	F		
CDC ORION				
BI: CDC, Dist: N/A				
Klempnauer, Joerg / Vauxhall / (403) 524-4705	S			
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S	F		





# **FABABEANS**

	Site Years 2000- 2008 <sup>1</sup>	Relative Yield (% of EARLIBIRD) 2000-2008	Relative Maturity <sup>2</sup>	Plant Height (cm)	Thousand Seed Weight (g)	Flower Colour <sup>3</sup>						
EARLIBIRD (KG/HA)		5462										
EARLIBIRD 🐵	27	100	E	86	540	C						
CDC Blitz R	37	98	ML	96	460	С						
CDC Fatima R	31	94	Μ	92	530	С						
Snowbird 🕲	24	105	E	93	530	W						
FULLY TESTED VARIETIES												
Aladin R	Fully Tested	82	L	100	430	С						
Ben 🕲	Fully Tested	110	E	101	580	С						
Cresta	Fully Tested	98	Μ	86	590	W						
Hertz Freya	Fully Tested	80	L	111	400	С						
Orion R	Fully Tested	84	Μ	77	350	С						
Outlook	Fully Tested	92	L	100	370	С						
Pegasus	Fully Tested	88	L	99	390	С						
Scirocco	Fully Tested	104	ML	89	580	С						

**REMARKS:** All colored flower types have seed coats that contain tannins and may be suitable for export food markets if seed size and quality match customer demand. Varieties with more than ten site years are Fully Tested. Fully Tested varieties not tested in 2008. @ = Indicates varieties with Plant Breeders Rights; R = Registered with CFIA. 1 No trials in 2011. Trials failed in 2010. 2 Maturity: E = early, M = medium, ML = medium late, L = late; 3 Flower Colour: W = white flower, zero tannin, C = colored flower, tannin.

FABABEANS	S	F	R	C
SNOWBIRD BI: Innoseeds B.V., Dist: Bob Park Benci, Dennis / Carmangay / (403) 643-2294 Cyre, Clifford & Greg / Barrhead / (780) 349-4775 Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240			R	C

HEMP	s	F	R	C
CFX-1				
BI: N/A, Dist: N/A				
Friesen, Kevin G. / Langley / (604) 882-4936			R	
CFX-2				
BI: N/A, Dist: N/A				
Friesen, Kevin G. / Langley / (604) 882-4936				С
CRS-1				
BI: N/A, Dist: N/A				
Friesen, Kevin G. / Langley / (604) 882-4936				С





# LENTILS

					Agronomic	Characteristic	s		Disease	Tolerance <sup>7</sup>
	Overall Yield	Station Years of Testing	TSW <sup>2</sup> (g)	Plant Height (cm)	Maturity Rating <sup>3</sup>	Cotyledon Colour⁴	Seed Coat Colour⁵	Market Class <sup>6</sup>	Ascochyta	Anthracnose
Varieties tested in the 2012	2 trials									
CDC REDBERRY (kg/ha)	3340									
CDC REDBERRY <sup>1</sup>	100	19	43	36	E	R	GR	SR	G	G
CDC Dazil	93	7	35	37	E-M	R	GR	SR	G	F
CDC Greenland (R)	78-	4	67	36	M-L	Y	G	LG	G	VP
CDC Imax (CL)	96	8	46	40	E-M	R	GR	SR	G	F
CDC Imigreen (CL)	77	4	61	39	М	Y	G	MG	G	VP
CDC Impala (CL)	90	9	30	37	E	R	GR	ESR	G	G
CDC Imperial (R; CL)	83-	12	29	38	Е	R	GR/BR	ESR	G	G
CDC Impower (CL)	74	4	70	38	ML	Y	G	LG	G	VP
CDC Impress (R; CL)	81	4	50	34	М	Y	G	MG	G	Р
CDC Improve (R; CL)	86	4	74	37	М	Y	G	LG	F	VP
CDC Imvincible (CL)	98	8	33	37	E	Y	G	SG	G	G
CDC KR-1	100	4	55	37	М	R	GR	LR	G	G
CDC Maxim (R; CL)	105	9	42	34	E-M	R	GR	SR	G	G
CDC Redbow	100	9	31	39	E	R	GR	ESR	G	G
CDC Redcliff	107	7	39	38	E-M	R	GR	SR	G	F
CDC Redcoat	99	9	42	35	E	R	GR	SR	G	G
CDC Rosebud	99	9	29	37	E	R	Т	ESR	G	G
CDC Rosetown	99	12	30	40	E	R	GR	ESR	G	G
CDC Ruby	93-	7	28	33	E	R	GR	ESR	G	G
Previously tested varieties	(2004-2011	)								
CDC Blaze (R)	86-	13	38	30	E-M	R	GR	SR	G	Р
CDC Cherie	108	3	41	35	E-M	R	G	SR	G	F
CDC Impact (R; CL)	84-	8	36	37	Е	R	GR	SR	G	Р
CDC Milestone (R)	100	18	39	32	E	Y	G	SG	G	VP
CDC Peridot (CL)	116	1	37	XX	Е	Y	MRB	FG	F	Р
CDC Robin (R)	87-	15	28	34	E	R	BR	ESR	G	G
CDC Rouleau (R)	106	5	37	37	М	R	GR	SR	G	G
CDC Viceroy (R)	108	13	35	33	E	Y	G	SG	G	G
Crimson (R)	82	10	39	27	E	Ŷ	BR	SR	VP	VP
Eston (R)	89	5	34	35	Е	Y	G	SG	VP	VP
Pardina	106	1	40	XX	X	Ŷ	GR/DT	SB	VP	VP

REMARKS: Weight, diameter and thickness of lentil seeds will vary depending on environmental conditions and agronomic factors. R = Registered with CFIA; CL = Clearfield variety; XX = No data. 1 Yields are reported relative to CDC Redberry. Varieties that are statistically higher (+) or lower (-) yielding than CDC Redberry are indicated. No symbol after the yield figure indicates that there is no statistical difference. 2 Thousand Seed Weight: g; 3 Maturity: E = Early, M = Medium, L = Late, VL = Very Late. 4 Cotyledon Color: R = Red, Y = Yellow, G = Green; 5 Seed Coat Color/Patterns: G = Green, GR = Grey, BR = Brown, FG = French Green, T = Tan, MRB = Marbled, DT = Dotted; 6 Market Class: SG = Small Green, MG = Medium Green, LG = Large Green, FG = French Green, ESR = Extra Small Red, SR = Small Red, LR = Large Red, GC = Green Cotyledon, SB = Spanish Brown; 7 Disease resistance: VP = Very Poor, P = Poor, F = Fair and G = Good.



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PEAS: **CDC Meadows** Agassiz WHEAT: Stettler Harvest CDC NRG 003

OATS: Triactor

BARLEY AC Metcalfe

\*Access to other varieties

# LENTILS

CDC DAZIL		
BI: CDC, Dist: N/A		
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434		R
CDC IMAX		
BI: CDC, Dist: Sask. Pulse Growers		
Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338		R
CDC IMPOWER		
BI: CDC, Dist: Sask. Pulse Growers		
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434		
CDC ROSIE		
BI: CDC, Dist: N/A		
Holmstrom, Darrell & Barbara / Killam / (780) 385-3574	S	
CDC SCARLET		
BI: CDC, Dist: N/A		
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S	

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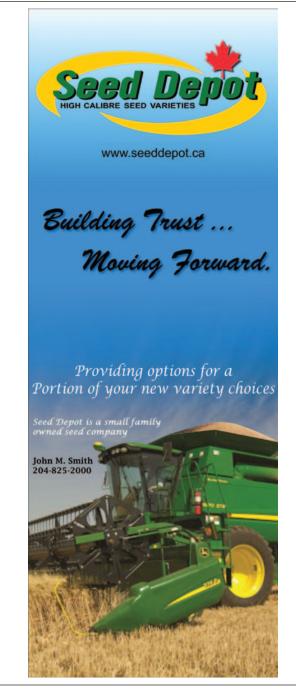
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AAC A100	S	F	R	
BI: N/A, Dist: Agrisoma Canterra Seeds / Winnipeg / (877) 439-7333 ANDANTE				C
BI: N/A, Dist: N/A Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736		F		C
SOYBEANS	s	F	R	(
TH32004R2Y				



# **FIELD PEAS - GREEN**

					Reg	gion (see	map)					
		So	uth									
	Irri	igation	Dr	y Land	East C	entral	West (	Central	Pea	ice	Total	Overall
Veriete	Site	Viold (0/)	Site	Viald (0/)	Site	Yield	Site	Yield	Site	Yield	Site	Yield
Variety	Years	Yield (%)	Years	Yield (%)	Years	(%)	Years	(%)	Years	(%)	Years	(%)
			KELA	ATIVE YIELD A	15 % UF C		2004-201	_				
COOPER (kg/ha)		XX		4110		3843		5976		4759		4588
COOPER 💩	XX	XX	23	100	38	100	23	100	45	100	129	100
CDC Limerick (A)	XX	XX	5	93	5	92	2	102	5	95	17	94-
CDC Patrick	XX	XX	15	100	22	97	12	99	27	96	76	98-
CDC Pluto	XX	XX	10	93	9	86-	4	91	12	91-	35	90-
CDC Raezer	XX	XX	10	87	9	115	4	102	12	95	35	99
CDC Tetris	XX	XX	10	90-	9	107	4	95	12	97	35	97-
Mendel 💩	XX	XX	6	85-	11	95	4	92	17	90-	38	91-
		FULLY TES	STED VA	RIETIES: RELA	TIVE YIEL	DAS %	OF NITOU	CHE: 200	00-2009			
NITOUCHE (kg/ha)		4586		2568		2955		5047		3914		3601
NITOUCHE †	6	100	18	100	45	100	27	100	53	100	149	100
CDC Sage	XX	XX	5	80	8	88	8	97	13	91	34	90
CDC Striker	1	71	8	90	19	95	8	95	21	95	59	94



# FIELD PEAS - GREEN - CONTINUED

		Agronomic Ch	aracteris	tics			Tolerand	e to:4		
Variety	Maturity Rating <sup>1</sup>	Vine Length (cm)	TSW <sup>2</sup> (g)	Standability <sup>3</sup> (1-9)	Powdery Mildew	Mycosphae-rella Blight	Fusarium Wilt	Bleaching	Seed Coat Breakage	Seed Coat Dimpling⁵
				<b>RELATIVE YIELD</b>	AS % OF CO	OPER: 2004-2012				
COOPER (kg/ha)										
COOPER 💩	L	75	270	3.5	VG	F	F	G	F	G
CDC Limerick (A)	L	81	201	3.6	VG	F	F	G	VG	G
CDC Patrick	М	82	187	4.3	VG	F	G	G	G	G
CDC Pluto	М	86	168	5.7	VG	F	F	G	G	G
CDC Raezer	М	94	224	4.1	VG	F	G	G	G	G
CDC Tetris	L	96	210	4.4	VG	F	G	G	G	G
Mendel 🐵	М	78	205	3.9	VG	F	F	G	F	G
		FULL	Y TESTED	VARIETIES: REL	ATIVE YIELD	AS % OF NITOUCH	E: 2000-2009			
NITOUCHE (kg/ha)										
NITOUCHE †	М	69	270	3.4	Р	Р	Р	G	F	F
CDC Sage	Μ	71	220	3.1	VG	F	G	G	VG	G
CDC Striker	Μ	66	240	2.9	Р	F	G	G	G	F

**REMARKS:** CDC Tetris is an Espace type with blocky seed shape. (a) = Indicates variety with Plant Breeder's Rights; A = First year entries (2011); XX = No data available. †-Flagged for removal. 1 Maturity: E = Early, M = Medium, L = Late; 2 Thousand Seed Weight: g; 3 Standability: 1 = Erect, 9 = Flat; 4 Tolerance to: P = Poor, F = Fair, G = Good, VG = Very Good; 5 Seed Coat Dimpling: VG = Very Good (0-5%), G = Good (6-20%), F = Fair (21-50%).



# FIELD PEAS - YELLOW

						Region	(see map	)								
	Innia		outh	land	_ Foot (	Control	West	) on two l	De						Phoroato	riation
	Irrig	ation	Dry	Land	East	Central	West (	entral	Pe	ace	Total	Overall	A	gronomic ( Vine	Inaracte	ristics
Variety	Site Years	Yield (%)	Maturity Rating <sup>1</sup>	Length (cm)	TSW <sup>2</sup> (g)	Standability <sup>3</sup> (1-9)										
					RELAT	IVE YIEL	D AS % C	F CDC	MEADOV	V: 2003	-2012					
CDC MEADOW (kg/ha)		XX		3727		3946		5963		5436		4752				
CDC MEADOW	XX	XX		100		100		100		100	85	100	E	83	211	3.5
Abarth (A)	XX	XX	4	108 +	5	108	2	111	5	95	16	104	Μ	80	237	4
CDC Amarillo (A)	XX	XX	4	96	5	93	2	125	5	111	16	103	М	87	221	3.2
CDC Saffron	XX	XX	9	104	9	99	3	100	10	99	31	100	М	88	232	3.9
Hugo 💩	XX	XX	11	102	14	83-	5	90	17	96	47	93-	М	73	210	5.2
Stella 🐵 NR F	XX	XX	11	76-	14	80-	5	83-	15	81-	45	80-	М	95	213	3.9
						F	ULLY TES	TED VA	RIETIES							
CUTLASS (kg/ha)		3934		3188		3436		5568		4600		4200				
CUTLASS 💩	XX	XX	26	100	38	100	25	100	59	100	149	100	М	64	240	4.2
Agassiz 🐵	XX	XX	6	100	11	102	9	102	18	103	44	102	М	76	237	2.9
Argus @	XX	XX	7	100	9	114+	3	103	12	100	31	104	М	88	227	4.1
Canstar @†	XX	XX	15	98	24	106	15	103	28	102	82	103	М	79	245	3.4
CDC Centennial	XX	XX	5	101	12	99	9	104	14	100	40	101	E	61	259	4.8
CDC Hornet	XX	XX	10	101	12	116 +	6	110	15	103	43	107 +	М	89	215	3.7
CDC Prosper NR	XX	XX	6	93	12	97	8	97	17	98	43	97-	E	72	151	4
CDC Treasure NR	XX	XX	6	96	12	105	8	98	17	99	43	100	Е	79	218	3.5
DS-Admiral 💩	1	91	13	98	18	107	13	98	24	103	69	102	М	69	247	3.1
Eclipse 🐵	1	113	17	106	27	104	20	97	33	101	97	102	М	69	252	3.2
Polstead 🐵	XX	XX	5	97	12	99	9	99	16	104	42	101	E	62	262	3.7
Reward 💩	XX	XX	5	86	12	106	9	102	13	101	39	101	М	76	248	2.5
SW Midas @	XX	XX	10	103	17	106	11	91-	21	99	59	100	E	65	213	3.1
Thunderbird	XX	XX	6	89	11	96	9	99	14	99	40	97	М	76	229	2.1
			FI		STED VA		(RELATIV		AS % 0		RERA): 2	000-2005	j –			
CARRERA (kg/ha)		4459		2593		2926		5098		3986		3677				
CARRERA ®	6	100	14	100	28	100	15	100	33	100	96	100	E	53	257	4.6
CDC Bronco	1	93	11	91	14	102	8	94	15	117	49	102	М	63	218	4.1
CDC Golden	1	109	11	101	14	105	8	102	15	109	49	105	М	68	224	3.4
CDC Handel †	2	116	8	95	17	94	7	87-	14	102	48	96-	L	67	201	6.2
CDC Minuet	5	115	12	97	26	100	11	92	22	111	76	102	М	64	192	4.9
CDC Mozart <b>REMARKS:</b> Stella is a silac	2	110	8	108	17	100	7	97	14	105	48	103	М	62	241	5.9

**REMARKS:** Stella is a silage type pea.  $\otimes$  = Indicates variety with Plant Breeder's Rights; A = First year entries (2011); NR = Variety not registered with CFIA; F = Forage type. XX = No data available. †-Flagged for removal. 1 Maturity: E = early, M = medium, L = Late; 2 Thousand Seed Weight: g; 3 Standability: 1 = erect, 9 = flat; 4Tolerance to: P = poor, F = fair, G = good, VG = very good; 5Seed Coat Dimpling: VG = very good (0-5%), G = good (6-20%), F = fair (21-50%); 6Green Seed Coat: G = good (0-10%), F = fair (11-25%).

PEAS	S	F	R	C
AAC PEACE RIVER				
BI: AAFC, Dist: N/A	S	F		
Hadland, Edward / Baldonnel / (250) 789-3646 ABARTH	5	F		
BI: N/A, Dist: FP Genetics				
Dalton, Dennis / Wainwright / (780) 842-2361	S			
Sim, Darwin & Derek / Ponoka / (780) 372-2111	S			
ARGUS	0			
BI: AAFC (Lacombe), Dist: SeCan Members				
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240			R	
Oatway, Ward / Lacombe / (403) 784-3418				С
CANSTAR				
BI: AAFC (Morden), Dist: Canseed (Canada) Ltd.				
Mueller, Richard J. & R.R. & Rosemary / Barrhead / (780) 674-2595		F	R	
CDC AMARILLO				
BI: CDC, Dist: N/A				
Van Roessel, William & Jean / Bow Island / (403) 545-6018	S			
CDC CENTENNIAL				
BI: CDC, Dist: Sask. Pulse Growers		-		
Jonk, Nicholas / Westlock / (780) 349-5458	0	F		~
Lefsrud, Kevin J. & Edmund J. / Viking / (780) 336-2500	S	F		С
Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736				C C
Van Roessel, William & Jean / Bow Island / (403) 545-6018 CDC DAKOTA				U
BI: CDC, Dist: N/A				
Klempnauer, Joerg / Vauxhall / (403) 524-4705	S			

CDC GOLDEN				
BI: CDC, Dist: Sask. Pulse Growers				
Degenhardt, Keith L., Terry L. & K. / Hughenden / (780) 856-2383				С
CDC HORIZON				
BI: CDC, Dist: N/A				
Boles, Don / Three Hills / (403) 443-0123			R	
Foster, Norman R. / Beaverlodge / (780) 354-2107			R	
Hadland, Edward / Baldonnel / (250) 789-3646		F	R	
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S	F	R	
CDC HORNET				
BI: CDC, Dist: N/A				
Solick, Leonard & Kelsey & C. / Halkirk / (403) 884-2358				С
CDC LEROY				
BI: CDC, Dist: N/A				
Jonk, Nicholas / Westlock / (780) 349-5458			R	
Klempnauer, Joerg / Vauxhall / (403) 524-4705	S			
Sim, Darwin & Derek / Ponoka / (780) 372-2111				С
CDC LIMERICK				
BI: CDC, Dist: N/A				
Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240	S			
Warkentin, Harold K. & Errol / Tofield / (780) 662-2617	S			
Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434	S			
CDC MEADOW				
BI: CDC, Dist: Sask. Pulse Growers				
Airth, Jock & Linda / Brooks / (403) 362-4372			R	~
Andersen, B.W. / Kitscoty / (780) 847-2022	~	-		С
Benci, Dennis / Carmangay / (403) 643-2294	S	F		С
Bouw, Curtis / Bow Island / (403) 545-0007			R	~
Crop Production Services Canada / Didsbury / (403) 335-3055				С

#### FIELD **PEAS - YELLOW-**CONTINUED

			Tolerance	e to:4		
Variety	Powdery Mildew	Mycosphae- rella Blight	Fusarium Wilt	Seed Coat Breakage	Seed Coat Dimpling⁵	Green Seed Coat <sup>6</sup>
REI	LATIVE YIEL	D AS % OF CE	OC MEADO	N: 2003-20	12	
CDC MEADOW (kg/ha	a)					
CDC MEADOW	VG	F	F	G	G	G
Abarth (A)	VG	F	F	F	G	G
CDC Amarillo (A)	VG	F	G	F	F	G
CDC Saffron	VG	F	F	G	F	G
Hugo 💩	VG	F	F	G	F	F
Stella @ NR F	VG	F	F	G	G	F
	F	<b>JLLY TESTED</b>	VARIETIES			
CUTLASS (kg/ha)						
CUTLASS 💩	VG	F	F	F	F	G
Agassiz 💩	VG	F	F	G	VG	G
Argus 🐵	VG	F	F	F	F	G
Canstar 💩 †	VG	Р	G	G	G	G
CDC Centennial	VG	F	G	G	G	F
CDC Hornet	VG	F	F	F	F	G
CDC Prosper NR	VG	F	G	G	F	G
CDC Treasure NR	VG	F	F	G	F	F
DS-Admiral	VG	Р	F	F	G	F
Eclipse 👁	VG	F	F	G	F	G
Polstead 🐵	VG	Р	Р	F	VG	F
Reward 🕲	VG	F	F	G	VG	F
SW Midas 💩	VG	Р	F	G	G	G
Thunderbird	VG	F	F	G	VG	XX
FULLY TESTED	VARIETIES	(RELATIVE YII	ELD AS % (	OF CARRER	A): 2000-20	)05
CARRERA (kg/ha)						
CARRERA 🕸	Р	Р	F	F	G	XX
CDC Bronco	VG	F	F	G	G	G
CDC Golden	VG	F	F	G	G	G
CDC Handel †	VG	F	Р	G	G	F
CDC Minuet	VG	F	F	F	G	F
CDC Mozart	VG	F	F	G	G	F

				_
Cyre, Clifford & Greg / Barrhead / (780) 349-4775 Dallas, Bradley C. / Bowden / (403) 224-2162 Davidson, E. Daryl & Dean / Kitscoty / (780) 846-2456 Foster, Norman R. / Beaverlodge / (780) 354-2107			R	С С С С
Gross, Bruno / Bow Island / (403) 545-6495	_			C
Hadland, Edward / Baldonnel / (250) 789-3646 Harbin, Clifford T. & Bruce C. / Rivercourse / (780) 745-2268	S		R R	C C
Hartzler, Leonard / Carstairs / (403) 337-2416				Ĉ
Hoff, Peter Edward / Gleichen / (403) 734-2140 Jacula, Dean S. & Shawn D. / Vermilion / (780) 853-7333			R	С
Kapitski, Lawrence / Andrew / (780) 365-2134			R	C
Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338		F		_
King, Harold F. / Three Hills / (403) 443-7330 Kittle, James W. & Andrew / Viking / (780) 336-2583		F	R	C C
Kopjar, Gerald M. / Rowley / (403) 368-2409				С
Limoges, Marcel / Mc Lennan / (780) 324-3024 Lindholm, Craig, & Stevan & D. & L. / New Norway / (780) 352-3240				C C
Markert, Ron / Vulcan / (403) 485-6708				C
Massey, Derwin / Stettler / (403) 883-2503 Mastin, Robert B. / Sundre / (403) 556-2609	S	F		С
Mastin, Robert B. / Sundie / (403) 330-2009 Mattinson, Rodney William / Viking / (780) 336-2453	3	1		С
Meinczinger, Matthew Jr. / Busby / (780) 349-2456				C C
Mueller, Richard J. & R.R. & Rosemary / Barrhead / (780) 674-2595 Nemetz, Charlie & Jerritt & L. & B. / Stettler / (403) 742-0436				C
Page, Dan / Didsbury / (403) 335-4563	0	-		С
Pare, Raymond A. / Wainwright / (780) 842-2073 Penwest / Three Hills / (403) 443-2577	S	F	R R	С
Peters, Edward W. / Didsbury / (403) 335-4506				Ĉ
				_

Radke, Bryan Victor / Barrhead / (780) 674-5715 Richard, Gerald / Spirit River / (780) 864-2339 Richards, Cliff & Dan / Sexsmith / (780) 766-2266 Sand, Ron W. & David R. / McLaughlin / (780) 745-2251 Shultz, Shawn / Didsbury / (403) 335-3694 Sich, Louis John & Ivan / Trochu / (403) 442-2112 Sim, Darwin & Derek / Ponoka / (780) 372-2111 Smithers, Graydon / Three Hills / (403) 442-7137 Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535 Tomlinson, Chelsea / Redwater / (780) 777-5885 Trueblood, Brian G. / Dapp / (780) 954-3745 Van Roessel, William & Jean / Bow Island / (403) 545-6018 Warkentin, Harold K. & Errol / Tofield / (780) 662-2617 Weigum, Garry / Three Hills / (403) 443-2476 Welsh, Donald Alan / Milk River / (403) 647-2228 Welsh, Stuart Jason / Milk River / (403) 647-2228	S	F	R R R	0000000 000000
CDC PATRICK BI: CDC, Dist: N/A				
Hegland, David Olaf / Wembley / (780) 766-2450 Hill, Gordon P. / Taylor / (250) 789-3469 Howard, Fred / Wanham / (780) 694-2427 McDonald, Gerald / Grande Prairie / (780) 538-3868 Penwest / Three Hills / (403) 443-2577 Thompson, M. Ellwood & K. / Innisfail / (403) 728-3535 Warkentin, Harold K. & Errol / Tofield / (780) 662-2617 <b>CDC PLUTO</b> <b>BI: CDC, Dist: N/A</b> Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434 <b>CDC RAEZER</b> <b>BI: CDC, Dist: N/A</b> Holmstrom, Darrell & Barbara / Killam / (780) 385-3574 Krywko, Edward William & Ron / Morinville / (780) 939-2166 Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434 <b>CDC SAFFRON</b> <b>BI: CDC, Dist: N/A</b> Benci, Dennis / Carmangay / (403) 643-2294 Bouw, Curtis / Bow Island / (403) 545-0007 Bouw, Joe P. / Bow Island / (403) 545-2871 Holmstrom, Darrell & Barbara / Killam / (780) 385-3574 Kiffiak, Edwin H. & Nathan J. / Foremost / (403) 867-2338 Kopjar, Gerald M. / Rowley / (403) 368-2409 Lefsrud, Kevin J. & Edmund J. / Viking / (780) 336-2500 Markert, Ron / Vulcan / (403) 485-6708 Mercer, Lloyd A. & Connie & Ryan / Lethbridge / (403) 327-9736 Webber, John D.J. / Berwyn / (780) 388-3657 Welsh, Donald Alan / Milk River / (403) 647-2228 Willms, Henry & Timothy H. / Grassy Lake / (403) 655-2434 <b>CDC TETRIS</b>	SSS SSSSS SSS	F F F F F F F F F F F F F F F F F F F		000000
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# **Fight Wheat Midge in Your Fields**

Midge-tolerant wheat offers built-in protection and high yields.

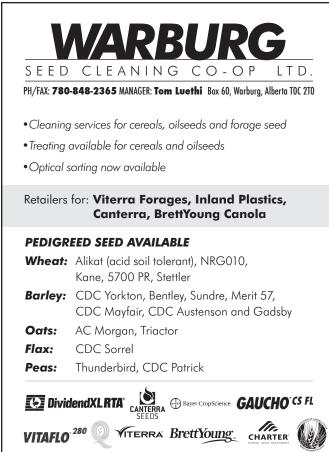
**STUART** Elder is able to enjoy his July summer nights now that he doesn't have to be out scouting for wheat midge. "Since I started using midge-tolerant varieties, I don't have to worry about checking my crops for midge," he says.

Elder farms about 3,200 acres of spring wheat, winter wheat, flax, canola and peas near Simpson, Sask. In 2012, he seeded all of his wheat acres to either AC Shaw VB or AC Unity VB, and plans to continue growing midge-tolerant varieties in the future.

"I've had midge damage in the past, and commonly used insecticides to help prevent it," says Elder. "So I was always following the midge-tolerant wheat research down the pipeline, and began growing them when they became commercially available."

"I think the biggest benefit is to preserve yield," he says. "Plus I don't have midge damage in my harvested grain and the added worry and expense of insecticide application."

Adam Ellis is also pleased with the quality and performance of midge-tolerant wheat. "Over the last few years, before we started using the technology, we did have quite a bit of midge damage and had to spray," says Ellis.



Ellis' family farms about 5,000 acres of peas, canola, wheat, durum, barley and sometimes lentils, just south of Allan, Sask. In 2012, they planted about 2,000 acres of AC Goodeve VB and 500 acres of AC Utmost VB, leaving only one wheat field with a nonmidge-tolerant variety. "That field didn't perform as well as the midge-tolerant varieties," says Ellis. "Bushels were down and it did have some bug damage."

Ellis was happy with the yield and quality of the midge-tolerant wheat varieties. "Pretty much everything came off in that 45 to 50 bushel per acre range, and most graded No. 1," he says. "We like

# "We like these varieties because we don't have to worry about spraying, it saves crop damage from the high clearance sprayer, plus they have high yields and early maturity."

– Stuart Elder

these varieties because we don't have to worry about spraying, it saves crop damage from the high clearance sprayer, plus they have high yields and early maturity."

While this new technology is very effective, it does require proper stewardship in order to keep it viable for future generations. Farmers are required to sign a Midge-Tolerant Wheat Stewardship Agreement, which limits the use of farm-saved seed to one generation past certified seed. This step keeps the interspersed refuge at the desired level of 10 per cent of the plant population, preventing a build-up of resistant midge.

"I understand the science behind why the stewardship program is in place," says Elder. "That's why I grow certified seed and then use it just the following year. I think that's a good way of doing it."

Ellis agrees that maintaining the interspersed refuge system is important to extending the life of the midge tolerance trait. "The technology works for us, and it makes sense to keep seed only one year after it was certified," he says.

Visit www.midgetolerantwheat.ca to learn more about the varieties and how the interspersed refuge system works.

Editor's Note: This article has been brought to you by the Midge Tolerant Wheat Stewardship Team, a broad industry coalition representing plant breeders, government, seed growers, seed distributors and producer groups.



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## On the Edge

## **Cracking Plants' Internal Clocks**

Plant biologist, C. Robertson McClung from Dartmouth College, is studying the different mechanisms affecting plant behaviour and genetics. Among these mechanisms, McClung is focused on the circadian rhythms of plants, saying that internal clocks are increasingly important in the face of global climate change, especially to agricultural productivity. He adds that, "We need to know how an organism measures time and how it uses that information."

McClung has been using the Arabidopsis plant in his study but is now looking at circadian patterns of Brassica napa, and together with his colleagues have mapped 10 genetic regions associated with water use efficiency. Initial results indicate that the internal clock could be used to manipulate water use efficiency. In another project, McClung will work with soybeans to correlate circadian period length with latitude. He added that, "If we can understand the clock, we might then be able to manipulate the clock in ways to achieve desired goals, including water use efficiency and better yields."

#### **Mite Fight**

Purdue University scientist Greg Hunt and postdoctoral student Jennifer Tsuruda have discovered bees that are exhibiting unique behaviors. The discovery could lead to the control of varroa mite parasitism.



Varroa mites parasitize honeybees, infecting them with viruses causing

death and can possibly kill entire bee colonies. Identified bees were observed to exhibit a trait called varroa sensitivity hygiene and could smell varroa mites that have gone into brood cells where honeybee grubs are pupating. The bees identified, uncap the cells and sometimes remove the infested pupa, disrupting the mites' reproduction process. Other bees exhibit a grooming behavior where they swipe at their backs; this can remove or possibly kill the mite.

After a thorough genetic marker study, the researchers found one region coding for the gene Neurexin 1 on a chromosome that contains 27 genes, to be the candidate gene that governs this behaviour. Unrelated mouse testing has shown that Neurexin 1 can be involved in excessive grooming.

#### **Stabilizing Suds**

Scientists have discovered the first gene CFG1 from beer yeast (*Saccaromyces pastorianus*) that is involved in forming foam, which could improve the smell and eye appeal of one of the world's favourite alcoholic beverages. Tomas Villa from the University of Santiago de Compostela,



Spain, together with other scientists reported the results of their study in ACS' Journal of Agricultural and Food Chemistry. According to the study, proteins from barley and beer yeast are the primary factors involved in forming beer foam, wherein the proteins gather around carbon dioxide gas to form bubbles in the foam. Their study showed that the proteins from the yeast stabilized the foam, preventing the bubbles from disappearing early.

## Shine a Light on Me

Duke University bioengineers developed a system using blue light to control gene expression for biotechnology and medical applications. This method, referred to as Light Induced Transcription using Engineered Zinc finger proteins (LITEZ), involves a light sensitive protein from *Arabidopsis thaliana* and a zinc finger protein, which can be readily engineered to attach to specific regions of a gene.



The researchers introduced the fusions of the proteins into a group of human cells in a petri dish. When the dish is placed under a blue LED light, the part of the protein that turns genes on is recruited to whatever gene the researchers have targeted with the zinc finger protein and this gene lights up. According to Charles Gersbach, main author of the study, LITEZ has the potential to be used in medicine or industry, including gene therapy, metabolic engineering, synthetic biology and biopharmaceutical production.

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