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FEATURES

Ed McNally
All he wanted was a good beer. What he did was revolutionize Canada’s brewing industry.

Grain grading
Is it a No. 1, 2 or 3? The stakes are high after a complicated harvest.

Chantelle Donahue
Cargill’s dealmaker opens up about the future of ag, the farm and her family.

Plant breeding
Part art, part science, part painstaking dedication.

Microeconomics of trade
Another day, another trade deal—what does it mean for the average farmer?
Rolling forward
Tom Steve examines farmer ownership and simplifies the dizzying array of information.

Tall wishes
The future of Canadian farming must involve farmers. Yes, this means you.

She said, three said
You win some, you lose some. Learn what these farmers experimented with on the farm this past year.

Market monitor
With a year full of degrading factors, does it make more sense to sell domestically or into other markets?

From lab to field
The UN named 2015 the ‘International Year of Soils,’ so why not learn how little we know about what we’re standing on?

Capital gains
Farmers are plagued by many voices outside of the industry, but there’s light at the end of the tunnel.

Grain Science News
for wheat
If you thought the barley genome was big, you ain’t seen nothin’ yet.

Grain Science News
for barley
Scald doesn’t stand a chance against improved plant genetics.
Tumble down

AS A BOY I WAS SELF-DEFINED BY A few things: How loud I was (quite), how much I wanted to be like my older brothers (very much) and how much I loved rocks (more than anything).

For my eighth birthday, my parents gifted me a rock tumbler. That weekend, my dad and I headed down to a local lapidary where I picked out a number of rocks primed for a polish. I selected a range of grits to pair with the rocks and I was away to the races. I spent countless hours in the garage, tumbling, preparing, categorizing and—most enjoyable of all—thinking about rocks. I was daily transfixed by the tumbler’s repetitious drudgery and my mind became adrift at sea, lost as the red barrel spun endlessly. Once all my top-tier rocks were tumbled, I started to snatch rocks from the back alley and plunk them into the tumbler. Refining rocks was my business and business was good.

I feel a bit like my eight-year-old self these days. There are rocks out there ready for a polish in agriculture, and not the ones kids pick up prior to seeding. These rocks are new trade deals being brokered by our government (page 38), conversations about a Farmer Model and what the future of end-point royalties and breeding research in our country will look like (page 9), as well as a new oil and grain transloading facility in Northgate, SK (page 42). As editor, I’m still practising my favourite pastime—one now I’m polishing ideas, rather than rocks. I want to see what these rocks look like post-tumbler and learn their true form. When I see the prime minister shake hands with the presidents of South Korea and the European Union to broker trade agreements, I well with hope because of what it could mean for Canadian agriculture. Just like I selected a rock to tumble all those years ago, the real excitement is during the refining process—it’s about discovering what comes out on the other end.

If Canada inks a trade deal with a new country, will the average farm in Alberta become more profitable? Is the new oil and grain transloader in southeast Saskatchewan going to make border farmers’ lives easier? Are 100 farmers in a room chewing the fat on the future of research and end-point royalties in Canada going to spur action and open communication?

All of these discussions are exciting for me, but they are potentially game changers for farmers. As you load these ideas and others into your mental rock tumbler, you’ll find that the ones with real value will shed their rough edges and produce a true lustre five, 10 and 20 years from now. Some of my prize porcelain pebbles started out as forgotten alley rocks, covered in dirt.

On the cover

With such a wild year for grain quality in the books, it made sense to have our cover story examine grading. Our cover image was created by Landland’s Dan Black and Jessica Seamans, two talented illustrators residing in the northern United States, whose style lent itself well to encapsulating how making the grade this year feels like a game of chance.
SHALLOW AGVOCACY

Editor,

I find the “agvocacy” movement a little shallow. It seems pretty “rah rah” for farmers—sometimes at the expense of other professions. Who can forget that quotation ending with “… needs a farmer three times a day” that bombards Facebook and Twitter? How about the “God made a farmer” Dodge Ram Superbowl ad.

If we are trying to be taken seriously by our end users, we should be more sensitive to their professions. The tool-push who pulls my diesel from the ground and the engineer who provides power for irrigation have important pieces to play in my operation before I even get a seed into the ground. If we want to be treated like experts, we must be willing to reciprocate. Agvocacy must be respectful of other occupations and points of view, be ready to tackle tough questions and be rooted in facts.

Most evident these days in the comment sections of food blogs, shallow agvocacy looks amateurish, simplistic and patronizing. Recently, the pre-harvest glyphosate debate has hit the blogs and—as incorrect and biased as many blogs are—the farmer comments can be just as incorrect. Most start with “we grow wheat and I’ve never heard of this,” “we would never knowingly spray a toxin on food” or “why would you want to kill a wheat plant before harvest?” Uninformed farmers can be worse for ag than an uninformed blogger when their simplistic arguments are exposed.

So what should we do when agvocacy goes sideways? Shut up, research the issue and then, and only then, should we contemplate engaging in the debate. We can do far more good by remaining silent than misinforming consumers or oversimplifying a complex issue.

Andy Kirschenman
Hilda, AB
In 21st-century agriculture, E.A. Partridge and Sintaluta, SK, are little more than footnotes in the history books. And yet Partridge and the tiny farming community about an hour east of Regina, SK, played a major role in shaping a farmer-controlled grain industry in Western Canada. That story is worth revisiting in the current debate over farmer ownership of grain companies, fertilizer plants and seed companies.

Partridge, a homesteader and part-time schoolteacher, was instrumental in founding the Grain Growers’ Grain Company (GGGC), the first large-scale farmer co-operative in Western Canada. In early 1905, Partridge made a trip to observe the activities of the Winnipeg Grain Exchange. Based on that experience, Partridge argued that farmers needed to unite to achieve fair returns in the face of the unsavoury practices of the grain trade. A first organizing meeting of the GGGC was held in Sintaluta in January 1906, and the company was officially launched in September with Partridge as president.

In 1917, the GGGC and the Alberta Farmers’ Co-operative Elevator Company amalgamated to form United Grain Growers (UGG). The Prairie wheat pools followed in the 1920s, and for the balance of the 20th century the Prairie grain-handling business was dominated by the pools and UGG. These farmer-owned co-ops were highly diversified, owning port terminals, fertilizer manufacturing, seed research programs, feed mills, value-added processing, hog barns and livestock auction houses—even a controlling interest in a doughnut chain (Robin’s Donuts).

Over the years, the pools and UGG were forced to restructure their finances, and, in the case of the Saskatchewan Wheat Pool, came within a whisker of bankruptcy. Eventually, the companies combined under a single banner as Viterra in 2007. In 2013, Viterra was sold to the Swiss-based multinational Glencore Xstrata, thus ending the era of significant farmer-ownership of Canadian agribusiness. While a handful of successful farmer enterprises remain—among them Alberta’s Providence Grain and Westlock Terminals—farmers no longer hold a significant financial stake in the industry.

Recently, the notion of farmer investment in the value chain has resurfaced, with some arguing it is needed to counterbalance the power of the multinational. Farmers of North America, a Saskatoon-based company, has made a pitch to farmers to invest in a $1.76-billion nitrogen fertilizer plant at Belle Plaine, SK, and recently tried to raise a further $380 million in an unsuccessful bid to acquire controlling interest in the CWB (formerly the Canadian Wheat Board). There is also talk of farmers investing in a wheat and barley breeding company in light of indications that Agriculture and Agri-Food Canada intends to get out of the varietal development business.

But history has shown that farmers are lukewarm on the idea of making large investments in their industry beyond the farm gate. Case in point: For many years, UGG and Agricore United offered a share purchase plan that gave customers the option of buying shares in the company through a deduction off their grain cheques with no brokerage fees. There were few takers.

Viterra became a takeover target, even though it had a global expansion strategy, a healthy balance sheet and strong profits. Why? Its share price was chronically depressed because Canadian investors (including farmers) did not see the value of investing in a global Canadian agribusiness.

Whether the time has come for farmers to reacquire an industry they previously owned is a question that will be debated in coffee shops and at farm meetings across Western Canada. The new CWB may afford such an opportunity—but do farmers want it? Some would argue it’s more prudent to diversify your investments into other industries, such as oil companies or railways.

And farmers should be wary of promises of windfall profits. The farmer-controlled grain companies produced their fair share of red ink and significant erosion of shareholder value.

So, when considering investments in grain companies, fertilizer plants and seed companies, farmers should ask the tough questions and consider the lessons of history.

Tom Steve is the general manager of the Alberta Wheat Commission.
about three years ago, we started hearing determined rumblings about the end of the Canadian Wheat Board. Tensions amongst farmers were running high, but the government’s agenda was clear: It was time to open up grain marketing in Western Canada.

Since then, we’ve had a couple of interesting years: One record crop and one crazy weather year. We’ve had terrible transportation issues, an ongoing debate on plant breeders’ rights, and a host of backroom discussions on end-point royalties and a permanent, non-refundable regional check-off.

With the government’s push on international trade agreements, combined with a move to implement UPOV 91, the message for Canada’s agriculture trading partners is that we are open for business. Yet real problems continue to exist on the home front, from getting grain on trains to agreeing on how best to manage the variety registration system.

For the record, although UPOV 91 still hasn’t been signed onto by Canada, the path forward is clear due to amendments to the Plant Breeders’ Rights Act under Bill C-18, the Agricultural Growth Act. Bill C-18 has many complexities, but one simple truth is that its amendments will bring Canada under UPOV 91, and subsequent regulations are likely to establish a mechanism for the collection of end-point royalties.

Through my work on international trade, I have come to believe that UPOV 91 isn’t just inevitable—its implementation is necessary in order to grow Canada’s status within international markets. That said, although farmers may never agree on all issues, it’s time to put past rivalries aside and start working on the future of Canadian agriculture.

For too long, government and industry have been able to push forward their own agendas with a divide-and-conquer mentality. If you have farmers on the right and farmers on the left, and neither is talking with any intent to compromise, it’s much easier for others to move their policy agendas forward.

But on the issue of funding variety development—on whether or not there will be an end-point royalty or a permanent, non-refundable regional check-off or some other collection mechanism—it’s time for farmers to come together, consider the options and decide what is really needed. It’s time to get down to business and determine what farmers want and expect in a future funding model. This includes asking: Do you need an end-point royalty to be competitive? Or don’t you? At what cost? And, at what reward?

No matter how you answer these questions, it’s clear that we need to have an answer that works at the farm level. Choosing to do nothing—to see where the chips may fall—means the decision will be left to those who are more organized, have stronger voices, make better connections and simply know the right people. A system built in this manner—without the buy-in and support of the farmers who are going to pay for it—simply doesn’t make sense.

This past year, Alberta Barley held the first-ever Farmer Model meeting in Calgary to get direct input from farmers on what they want in a future research and breeding system. In holding this meeting, we learned that government and industry have a real reluctance to discuss a new funding system for crops research in Western Canada without first knowing what it will look like. In my mind, this defeats the purpose of engaging in an open discussion about what farmers want and need in the future.

In the coming weeks and months, let’s take the time to engage in a thorough discussion. Let’s debate and refute and argue and converse. Let’s chat and hash out and confer and deliberate. Let’s talk about what farmers want, and consider that discussion the real Farmer Model.

Lisa Skierka is the general manager of Alberta Barley.
A CENTURY OF SUCCESS

JOHN BOCOCK BELIEVES THE
University of Alberta’s Faculty of Agricul-
tural, Life and Environmental Sciences
(ALES) has seen a healthy, progressive
change over the last century.

“Back in my day, we were really think-
ing about how much fertilizer we should
use to get good yield,” said Bocock, who
graduated from what was previously
known as the Faculty of Agriculture at the
U of A in 1957, and now farms north of St.
Albert. “Now, they’re focusing more on
the long-term and sustainability. I think
it’s great.”

Bocock was among about 500 guests
who attended the Myer Horowitz Theatre
to celebrate ALES’s 100th anniversary in
late October 2014.

“It’s an opportunity to reset a bit,” said
Stan Blade, the dean of ALES. “It was a
chance to talk about what we are doing,
covering everything from the hardcore
producer side to nutrition.”

The U of A’s Faculty of Agriculture was
established on May 1, 1915. There were
only two staff members: the dean and his
assistant, who both shaped the minds of
the first 16 students who enrolled that year.

The faculty has since seen its name change
a couple of times, and ALES now boasts
1,600 undergraduate and 500 graduate stu-
dents enrolled in its various departments.

Ty Faechner, director of member prac-
tice at the Alberta Institute of Agrologists,
also attended the celebration.

“It was educational, interesting and
humorous,” said Faechner, who graduated
from the agronomy program at ALES in
1974. “Stan really spelled out his vision. It
was great, and people really connected.”

FUTURE FOCUS

A NEW $35-MILLION NATIONAL
training facility for future CN Rail em-
ployees opened this past September in
Winnipeg, MB.

The increase in demand for grain and
energy products prompted the investment,
said Mark Hallman, director of communica-
tions for CN.

“I think having new employees with
standardized training is a really good
idea,” said Andrew Weir, CN’s on-the-job
trainer coordinator in Sarnia, ON, before
the facility opened.

In learning laboratories, the facility
provides hands-on experience for up to
400 workers, ranging from car mechan-
ics to signal maintainers. It takes seven
weeks for a new employee to complete
CN’s conductor program, and three
weeks to complete its engineer program.
The facility also includes outdoor labs
with rolling stock and other equipment
for field training.

The training campus will enhance the
company’s railroader training programs,
providing a strong safety culture for the
company’s new employees, and reinforce
that culture for current employees who are
upgrading their skills, according to CN.

“Winnipeg was an ideal spot for the new
facility, Hallman said.

“The city is central to our operations.
It’s a hub that funnels a lot of our traffic,
from east to west and north to south.”

The new Winnipeg training centre is
also “a symbol of the key role that Winni-
peg and Manitoba play in CN’s network,”
said CN CEO Claude Mongeau.

The facility is part of CN’s workforce
renewal plan, which saw the hiring of
more than 3,000 employees by the end
of 2014.

As evidence of CN’s growth, the
company opened a similar facility in
Homewood, Illinois, in October, in a
location that is geographically central
to American operations. CN also spent
$70 million this past year on a program
upgrading its main corridor between
Edmonton and Winnipeg. Another $30
million was spent to improve CN’s Prai-
rice North Line, a second line that runs
parallel to the company’s main corridor.
AS GLOBAL MARKET ACCESS FOR agriculture and agri-food amplifies, Marcus Weidler hopes a new wheat breeding facility will boost Canada’s competitive edge.

“It’s critical we provide producers with crops that are stable with high yield in today’s competitive global market,” said Weidler, vice president of seeds operations at Calgary-based Bayer CropScience Canada.

Early September 2014 marked the groundbreaking of Bayer’s new Wheat Breeding Centre near Pike Lake, SK.

The site was chosen “solely based on the soil” in the region, Weidler said.

“Nothing is more crucial than having the right nursing conditions for the wheat,” he explained, adding that Bayer’s team finalized the deal after taking numerous soil samples and comparing multiple sites for two years.

He said the site is a perfect fit because all types of wheat are represented in Saskatchewan.

The Wheat Breeding Centre is a continuation of Bayer’s ongoing ag investment, following the expansion of its Canola Breeding Centre of Innovation in 2009, according to Weidler.

“We’ve seen canola grow in places that we never thought possible,” he said. “That’s because different breeds were made. So we thought, ‘Why not do that with wheat?’”

Once the facility is built, about 15 to 20 full-time and seasonal staff members will work on everything from planting to genetic analysis.

In particular, technicians will look at breeding the best germplasm, or genetic variability, in the wheat. The more variable the wheat variety’s genetics, the likelier a better crop will be produced, said Weidler.

“Developing a certain type of wheat has to have high yield and yield stability,” he explained.

Once a new wheat variety is developed and approved, Bayer will partner with other companies that will produce seeds under tight quality control. The seeds will then go to market for farmers.

The groundbreaking of the new facility marks the possibility of wheat becoming a “big player” in the agricultural market, said Saskatchewan Agriculture Minister Lyle Stewart.

“My hope is that Bayer will be at the forefront,” said Stewart. “We are proud to have this facility, and I hope the best things come from it.

“The days of government funding all research are long gone. Government should do some research while the private sector does some as well. We would like to see more private companies do research—taxpayers shouldn’t have to completely foot the bill.”

Bill Gehl, chair of the Saskatchewan Wheat Development Commission, also noted the shift in the landscape of the wheat breeding industry, where private companies can now share the pie with the government that once funded all research.

“I don’t think we have to jump up and down and be afraid, nor jump up and down and say, ‘Hooray,’” said Gehl, who also farms near Regina, SK. “I’d like to hope plant breeding worldwide is a shared vision. The more wheat breeding that’s done in Western Canada, the better—whether that’s through the government or private companies. We just want to make sure we maximize farmers’ net returns on investments.”

As the landscape changes, Levi Wood hopes the facility will be the first of many.

“I think getting facilities like this is great,” said Wood, president of the Western Canadian Wheat Growers Association, who farms near Pense, SK. “I hope we get a bunch of varieties out of it to maintain competitiveness with other markets.

Research like this will ultimately create varieties with higher yields and better germplasm that can handle potential hazards.”

Completion of Bayer’s new facility is slated for July 2015.
BREANNE TIDEMANN HOPES A new method of controlling herbicide-resistant weeds from Australia takes off in Canada before the problem becomes severe.

The method requires the use of the $120,000 Harrington Seed Destructor (HSD), a tow-behind machine attached to a combine that collects weeds and grinds their seeds at harvest. Tests in Australia have shown the HSD is able to crush 92 to 98 per cent of weed seeds.

“We’re hoping Canadian producers can use the Harrington Seed Destructor to manage weeds before herbicide-resistance gets really bad,” said Tidemann, a University of Alberta graduate student. “The machine would be an add-on to conventional herbicide methods.”

As part of her PhD research, Tidemann is working with a team of researchers at Agriculture and Agri-Food Canada (AAFC) looking at the seed retention of weed species like volunteer canola, wild oats and cleavers.

Researchers in Western Canada will test the machine in fall 2015 after the data on weed-seed retention is complete, Tidemann said.

“It looks like cleavers will be a good fit because they hold seeds long into harvest, and produce high in the canopy. Volunteer canola is a good target. But wild oats seem to lose their seeds early on before harvest.”

Despite these first findings, more trials need to be done to be sure the machine is a good match for Canadian weeds, Tidemann added.

Positive Australian results prompted Canadian researchers to take a closer look.

In fact, 70 per cent of Western Australian growers are using a harvest weed-seed system due to high rates of herbicide resistance, according to Michael Walsh of the University of Western Australia, who has worked closely on HSD trials.

High rates of herbicide resistance developed due to the predominant use of conservation cropping systems and the complete reliance on herbicides for weed control, which delivered high frequencies of herbicide resistance, Walsh explained.

“Herbicide resistance in the dominant weed species is expanding at a dramatic rate,” he said. “There is a need to add additional weed control options into weed management programs.”

Herbicide-resistant weeds affect 40 per cent of cropland in Canada, according to estimates from Bob Blackshaw, weed scientist at AAFC. And herbicide use is a major method to tackle weed populations, he added.

“I think it’s important to have new methods that control weed seeds,” he said. “We don’t do much to get rid of weed seeds at harvest, although some farmers use pre-harvest herbicide applications.”

Methods like tillage, crop rotation and growing crops that “choke” weeds are instrumental when controlling weed populations at other times of the year, Blackshaw added.

Canadian farmers have largely balked at the machine’s price tag, but Blackshaw said the weed-population in Canada has worsened over the last 25 years, meaning new methods may need to be implemented.

“In the late ’80s and early ’90s, we’d see wild oats in 10 per cent of the fields we’d look at. Now, that rate is at 50 per cent,” Blackshaw explained. “Every year, wild oat populations get a bit worse, but we still have some time to establish other methods of controlling weed seeds on the Prairies.

“We haven’t seen a new herbicide come to the market in the last 15 to 20 years, and we can’t continue to rely on new herbicides to solve the problem. We have to see what other methods are available.”

Tidemann said it’s incredibly important to ensure farmers can continue to produce high-quality, high-yielding crops.

“We’re not in a state right now where adoption of harvest weed-seed control practices are absolutely necessary, but we don’t want to get to that point,” he said. “By starting the work now we’ll have the answers for when producers need them to aid in the management of their weeds.”
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What’s in Your Glovebox?

As farmers, we all have our “can’t-live-withouts,” and—no surprise—they’re often found in the glovebox. In this issue, we asked Tara Davidson, a grain and cattle farmer from Strathmore, to open up her glovebox. Here’s what we found:


What is it?

Each issue, GrainsWest will show you a close-up view of an ag-related image and it’s up to you to correctly identify it. Email your winning answer to contests@grainswest.com for your chance to win a prize, awarded to one randomly selected contest entrant who answered correctly. Then, watch for the next issue, where we will reveal the full image and have a new one to keep you guessing.

Do you have a glovebox that you would like GrainsWest to peek inside? Or a farm image that would make readers say “What is it?” If so, send us the picture and drop us a line: info@grainswest.com

This Issue’s Image

Last Issue’s Image

Congratulations to Lloyd Voss from Lethbridge, a production agronomist with Bayer CropScience. Lloyd has won a prize pack courtesy of Alberta Barley and the Alberta Wheat Commission for correctly identifying last issue’s image as a Monosem vacuum planter.
The beauty of agriculture is the ability to experiment on the farm. Whether it’s raising new animals, planting a special crop, spraying at different rates or trying out new equipment, the farm is often a place where innovation meets opportunity.

Three Hills-area farmer and writer Sarah Weigum asked three Alberta farmers: What did you try on your farm this past year and what were the results?

1 Kendall Bevans
Cardston, AB

This year, we tried hiring a foreign worker. One of our hang-ups in starting this process was the fear of not knowing the person. We cautiously proceeded when we found someone whom others in the area knew and gave good recommendations for.

We started the process last February and by October, we were still waiting for the government to finalize the paperwork. The individual is still ready to come, but in the meantime, he’s been left hanging for employment and our whole staff has been overloaded. If we are to try this again, we had better plan on it being a year-long process.

The job position that is to be filled is manager of our hog feeder barns and feed mill. We advertised this position throughout Canada without success. Management positions of intensive livestock enterprises can be tough to fill as they require someone who is educated and well trained.

2 Trevor Bell
Keoma, AB

We tried a new drill for our farm this year: a John Deere Conserva Pak. With the hail we had, it’s hard to make a good judgment on the performance, but where the crops were left alone by nature it seemed to work better than our old drill.

With our old drill, we felt that we were getting lots of compaction issues. This drill actually rips into the ground with the fertilizer knife and places the seed in the side of that ridge, so the seed is put into relatively soft ground. The theory is that you get more consistency with seed depth. Whether the ground is hard or soft, the seeding depth is uniform. It allows you to put the fertilizer two to four inches below the seed, which allows the seed to access the fertilizer fairly quickly.

We learned that, with this particular tool, you want to make sure everything is set properly before you head to the field. Once you get there, things don’t move a lot.

3 Delores DeRudder
Alcomdale, AB

I started raising miniature horses this year. I have two mares and a stud, and we sold the first foal when it was two days old. The neighbours thought they were cute and wanted to buy one for their grandchildren. I have quarter horses, but my granddaughter really likes the miniatures—they’re very friendly.

We’re also increasing our meat goat herd and I’m increasing the Boer goat (a meat variety) population of our herd. I market the goats through a friend. We sell them live and the buyer takes them home. I’ve had meat goats for 20 years, but demand is going up with more people coming to Canada from countries where they eat goat meat.

Working with animals is very intriguing. There is always one animal that is boss of the herd and when you bring other animals in they’re quite aggressive until they figure out where they are in the herd.
Person: Brennan Turner
Place: Saskatoon, SK (and the rest of the globe)
Thing: Brains behind Farmlead.com and also has his fingers in many other pies
Advancing the grain-selling game

Young entrepreneur knew life would be good back on the Prairies

BY JEREMY SIMES • PHOTOGRAPHY BY TWITCHY FINGER PHOTOGRAPHY

IT MADE SENSE FOR BRENNAN TURNER TO LEAVE THE URBAN JUNGLE OF NEW YORK AND PLANT HIMSELF BACK IN the Prairies.

Originally from Foam Lake, SK, Turner has skated on NHL ice, suited it up on Wall Street and put in long hours during harvest. Once the Canadian Wheat Board was dismantled, Turner saw a beaming opportunity to start FarmLead, a Saskatoon-based online grain marketing service. It’s a website where farmers can post new deals from the tractor, and where buyers can scope the many varieties that sellers have to offer.

With his degree in economics from Yale University combined with relevant job experience, Turner understands the grain market. But make no mistake, his life is about more than just punching the clock. As the director of the Mandi Schwartz Foundation, a non-profit that increases bone marrow donor awareness and registration, Turner’s mission is to save lives by finding perfect matches between donors and patients. As an entrepreneur, his passion and work ethic come from values he learned growing up in a community firmly entrenched in agriculture.

GrainsWest: You went from living in a community rooted in farming, to playing hockey, to big-city living, and now you’re back in the farming community. What made you want to go back to your roots?

Turner: My family has been farming since the early 1900s. I never grew up on it, but I was always around it. I liked spending summers at the cabin and on the combine during harvest. You develop an appreciation for it. The saying ‘hard work pays off’ ultimately shaped me.

GW: Talk about your passion for the things you’re involved in.

Turner: Maybe it’s being around the farming community that makes me want to get involved with things—you know, when your neighbour isn’t done harvest but you are, so you help them out. I’ve learned in the very few years I’ve lived that it’s better to give than to take. Even though I’ve been in the NHL and went to an Ivy League university, I think using those tools and the skill set I’ve got should be applied to what I do now. Both agriculture and hockey are hard work, and you have to work hard to achieve your goals, but also change your goals and adapt. If there’s a way to do it better, I’ll do it better.

GW: Is there common ground between playing hockey and working in agriculture?

Turner: I think it’s the team attitude you have in hockey that’s similar to agriculture. I was never a hotshot player. Making a brilliant pass was more important to me, rather than scoring a goal.

It’s about understanding what you are doing and developing. I was able to get a scholarship to Notre Dame in my Grade 12 year. But it took a lot to get there—I would sometimes practise by myself at 7 a.m. and then again at 8 p.m. Sometimes, I’m taking customer calls at 6 a.m. and then as late as 11 p.m.

GW: How did working on Wall Street differ from what you do now?

Turner: Well, I don’t have to wear a suit and tie to work every day. I worked with commodity markets—grain, oil and so on. With my degree in economics, I applied what I learned from the textbook: supply and demand. There’s a lot of great people in finance, but a lot more people willing to give you the shirt off their back in the farming industry.

GW: Why did you start FarmLead, and why is it important to you?

Turner: I started FarmLead because we were looking for better ways producers can sell their grain. Clearly, we’ve made some progress in the market. Now, we have more than 1,700 registered accounts since starting 25 months ago. It’s important because it lets buyers have more options and a greater selection of grain to choose from, and it lets sellers have more options when comparing buyers.
People are doing deals much more than they once were. My grandfather would sell his grain twice a year; my dad would make five to eight deals; and now, on larger farms, it can go up to 20 deals. That growth is an indication of the amount of risk that producers face, meaning they’re looking to diversify.

GW: You seem keen on price transparency.
Turner: I think transparency is key. If you’re upfront and honest, why wouldn’t you benefit? The more open you are, the better you’ll be. It’s kind of like a handshake deal, and we give the opportunity to have that handshake with someone, whether you are a buyer or a seller.

We do our due diligence. Producers who show the quality of their grain, and who are upfront and honest, will benefit. People remember those guys who are shady—it leaves a bad taste in your mouth.

GW: Where did the inspiration come from to start your business?
Turner: It really came from trying to find that better deal—trying to help those looking for different varieties. Every extra bit counts, even if a farmer gets a few cents more for his bushel. I found a gap in the market, as there was an opportunity to help the bottom line for producers.

GW: What’s the most exciting part?
Turner: I would say seeing a deal go through where a guy gets paid more than he would through traditional methods. We are doing our job when that happens.

GW: What do you like most about the ag industry?
Turner: It’s constantly evolving. There are new varieties, new chemicals, new tech and new equipment. It continually looks to grow, as guys are always looking to maximize yields. It’s also the people in small towns. They become the fabric, you know—everyone in the community plays an important role.

GW: Do you ever have second thoughts on what you do?
Turner: I never doubt what I do, but I’m constantly re-evaluating. If you don’t do that, you’ll never improve. I think I’m my own worst critic.

GW: You have clients who are both in the U.S. and Canada. Tell us what the biggest difference is between the two ag scenes.
Turner: I think Western Canada is more landlocked. The U.S. has a solid river system, where grain can be delivered quicker down to places like New Orleans and North Carolina. Canada is going to have to constantly improve the railroads because we don’t have the ability to truck all of the grain. But we still remain one of the largest producers, being the breadbasket.

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A case for ag literacy

IN THE LAST 25 YEARS, HOW MUCH have our agricultural education programs changed to encourage enrolment? For certain, the student demographic has changed. Fewer people are living on farms, so there are fewer post-secondary students with a farming background. Consideration of agriculture careers may be less likely as urban primary and secondary education can present a negative, misrepresented view of agriculture. There is a feeling that if you have not come from a farm, you will probably not end up on one. We must fix that misconception if we are going to meet the needs of the ag industries with a new generation of students.

There are many suggested reasons for the decline in student interest in some classical ag programming. As a career choice, it comes paired with certain negative perceptions. In 2012, a U.S. website stated that the “top five useless degrees” included agriculture (No. 1), animal science (No. 4) and horticulture (No. 5), based on negative growth in positions for graduates. Some negativity may be associated with the press coverage of issues including zoonotic diseases (BSE, H1N1 influenza), animal rights demonstrations, environmental issues, large-scale farming, shrinking genetic diversity and biotechnology. Economic downturns in some sectors have negatively impacted farming communities and may have discouraged people from continuing in family operations or from entering agriculture as a career.

The ag sector, and ag education programs in particular, must do a better job of cultivating agriculture interest in “new-to-ag” students. These can be urban students, rural non-farm students or international learners. These students must be presented with safe, supported opportunities where it is ok to ask questions and pique interest. It starts by providing opportunities to build ag literacy in which new-to-ag students can develop fluency in ag issues on an even playing field with students who can already run a combine or neuter a bovine. There are ways to do this that actually serve farm-experienced students well, too. Broadly based courses in which no student “knows it all” help establish common learning in the classroom, lab or field. In my experience, students who know everything about beef cattle may know little about swine or poultry. We all have something to learn.

I am a strong believer in “learning with dirty hands”—likely due to my 4-H experiences over 40 years ago. I like to see students having close contact with plants and animals in their first university days. This helps them to see new opportunities, widens their view and gives them a chance to see themselves doing something they had never considered before. Over the years, I have come to value “learning with dirty feet” as students validate their ag contact experiences.

What can each of us do? It would be great if our ag commodities could come together to build short-term (summer) or long-term (year-long) ag internship opportunities for students. I have found that summer employment in ag disciplines is more effective in “ag evangelism” than academic programs are. We can invite students to our annual meetings, demonstrations and technical meetings to help them fit in.

We need to look at how we put our programs together. A fundamental question in first-year curriculum planning has been: “What should come first: the big-picture overview or the discipline-based details?” In my experience, students need to engage with the issues in agriculture and then, through formal course work and open-ended problem solving, learn what they need to advance themselves.

As we shape and establish students to become lifelong learners, they must become familiar with seeking knowledge and assessing the quality of it. The current undergraduate generation has grown up with web-based knowledge acquisition and they are less dependent on classical textbooks than previous generations. Nonetheless, they must be encouraged to stay up-to-date with new published knowledge and to build connections with researchers and practitioners.

It is time to awaken an interest in agriculture in all students. The inclusion of agricultural principles in high school science curricula is one place to start, but a broad education at the ag school or university is a great opportunity, as well. Let’s start now.

Frank Robinson has been a poultry production and physiology professor at the University of Alberta for nearly 30 years. His research program focuses on reproductive efficiency of meat type poultry.
By JONATHON DRIEDGER

MARKET MONITOR

Marketing in a variable quality environment

THIS PAST FALL WILL GO DOWN as one of the more challenging harvests in recent memory. Persistent showers, interspersed with heavy rains and even snow, made progress feel like a real grind through much of the Prairies. Unfortunately, this also affected grain quality, with the cereals being impacted most heavily.

In contrast to when problems are more localized, widespread downgrading results in deeper quality discounts and creates greater challenges for buyers in managing blending opportunities and coordinating logistics. This is the case particularly when multiple grading factors are causing issues, which this year included sprouting, fusarium, weak protein, poor hard vitreous kernel ratings and low falling number. Depending on the specific needs of the end user, some have the ability to blend up or down for any one of the many variables, while others don’t.

The end result is not just wider discounts for quality specs, but also a great deal of price variability among buyers. This creates a very challenging environment within which growers are forced to make selling decisions. But, regardless of the quality of your own grain, there are some important steps you can take in the current market environment to achieve the best price possible for your specific inventory.

First, make sure you take samples that are truly representative of what you are trying to sell so buyers know exactly what you have. It’s frustrating and expensive for both the buyer and the seller when a truck shows up with lower-quality grain than was expected. The best-case scenario in this situation is that the grain can still be unloaded at a reasonable discount. More than likely the penalty will be punitive, or the load may even be rejected entirely.

Second, shop around extensively. Different buyers tap into a variety of end users, all of whom have their own quality specs that are important to their unique needs. Because of this, premiums and discounts can vary enormously—irrespective of what the posted bid may be for a base grade. Understand which buyers have the ability to blend or have higher tolerances for certain grading factors, and which end users have a threshold below which a load simply gets rejected.

This also means talking to buyers you’ve never considered before. This is where reputable cash grain brokers can be highly effective, as they are plugged into markets that you may not otherwise be aware of and understand the specific needs of each of these buyers.

Farmers should also be very careful in negotiating when they have diverse quality on their own farm. Often, buyers will show an interest in the best samples but are less passionate about the other inventory. Where possible, include the lower-quality grain in your discussion. Otherwise, you run the risk of being stuck with only low-quality grain in the bin and little bargaining power as you try to move it.

Finally, try to find that balance between being patient and taking action when good opportunities are presented. In years of variable quality, the market can take some time to sort itself out in terms of what is out there, who wants it, and where the opportunities exist for traders to arbitrage price spreads and logistics. But, given some time, markets can be highly effective at finding the best home for various grades.

Growers also need to be realistic about what they have. There’s nothing to be gained by holding out for a price that is unlikely to be seen, and then ending the crop year with bins full of low-quality grain. The best opportunities to move off-grade samples may be fleeting, and can quickly disappear if one procrastinates in the hopes of squeezing a bit more out of the market.

In a year like this, growers don’t have much control over the quality of their crop or what the market is willing to pay for it. But you can take steps to get the best value possible for what you have. This requires more hard work than in years when you—and the rest of Western Canada—harvest a crop that is consistent and high quality. But the additional effort could be one of the best investments you make all year.

Jon Driedger is a senior market analyst with Farmlink Marketing Solutions.

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RENAISSANCE BREWER
FEW DECADES AGO, BEFORE BIG ROCK BREWERY became the behemoth it is today, barley farmer Richard Nordstrom took a tour of the updated Canada Malting factory in Calgary. He was pleased to see his good-humoured friend Ed McNally was on the same tour.

Seeing some malt packed up and ready for shipment, Nordstrom did a little wisecracking.

“I jokingly said, ‘This must be Big Rock’s,’ just sort of kidding. But when we walked over, the invoice on the batch said ‘Going to Big Rock Brewery.’

“You should have seen the Irish glint that came into old Ed’s eye,” Nordstrom said with a chuckle.

Ed McNally passed away at the ripe old age of 89 in August of 2014, following a life that defies concise description. He was a journalist, a prominent Calgary lawyer, a breeder of exotic cattle, and a tireless opponent of the Canadian Wheat Board’s monopoly on grain.

And this was all before he launched the pioneering Big Rock Brewery at age 60, sparking the craft brewing craze that has swept the country.

Nordstrom, a retired farmer and past president of the Western Barley Growers Association, first met McNally in 1984. He had just joined the association’s board of directors, to which Ed also belonged.

“He was just a real good, hardworking, ordinary guy who genuinely had concern for the farmer,” said Nordstrom. “And that was why he was on the board: to do his best to help with the issue of the Canadian Wheat Board having a monopoly, and the farmer not being able to sell his malt barley directly to a maltster.

“He was concerned about the Wheat Board fiddling and fooling with the domestic and export prices, and saw a lot of injustice there,” Nordstrom went on. “He was a real free marketeer.”

It was around that boardroom table that Nordstrom first heard McNally mention beer.

“More than once, Ed had said, ‘You just can’t get good beer in this country,’” Nordstrom said. “And he was mad, saying he would start up his own brewery, but we all just kind of laughed at him. He was 60 at the time.”

But had the room known a little more of old Ed’s story, this ambition may not have seemed so unlikely.

Ed’s father was born in Ontario, and was a gifted surgeon who attained his medical degree at age 20. He served in the First World War, during which he met his love—a Scottish nurse—and took her back to Canada. There, Dr. McNally was dispatched westward by the Canadian government. He was assigned to set up three First Nations’ hospitals in Alberta, and settled in Lethbridge.

Among Dr. McNally’s patients was the well-known Sick family, owners of the Lethbridge Brewing and Malting Company. Founded by German émigré Fritz Sick, the brewery produced a much-loved beer called Alberta’s Pride, known as “the beer without peer.”

During his boyhood years, Ed became fast friends with Kim Sick, heir apparent to the Sick brewing empire. The two remained lifelong friends, and McNally was distraught when Kim told him of his plans to sell the brewery to Molson in 1958.

“Ed was just appalled,” said his wife, Linda McNally. “He said, ‘You just can’t do that, it’s awful!’”

The sale of the brewery was a major blow to the people of Lethbridge, Linda said, explaining that Ed never forgot the disappointment in the community as Alberta’s Pride was taken off the market and replaced with Molson Canadian.

“It was something all the Lethbridge people were so proud of,” she added. “There was a real sense of pride, and suddenly it was taken over by a very large eastern company.”

The disappointment Ed and the broader community felt stuck with him for the next 25 years, resurfacing thanks to a German friend named Otto Leverkus. Leverkus had a passion for the Canadian West, but would always lament how he missed the fine-quality food and drink of Europe.

“He used to say, ‘Oh, I love Canada, but the beer! And the cheese!’” Linda said. “Otto used to just shake his head.”

It was 1984 and Leverkus complained the big brands were bland, watery and, for the most part, all the same. Plus, they were full of strange ingredients and chemicals that violated the Reinheitsgebot—the 1516 Bavarian Purity Law, much beloved by German beer drinkers. The Reinheitsgebot stipulates only four ingredients may be used in beer: water, hops, barley and yeast.

Ed was 60 at the time, and had been retired from practising law for the better part of a decade. In fact, he had already transitioned careers yet again, this time into breeding exotic cattle at his ranch.
We had breeds like Simmental and Maine-Anjou,” Linda said. “They were brought over to give hybrid vigour to the Hereford and Black Angus.”

Ed decided to put this breeding on the back burner, and make his dream of good beer a reality. Leverkus helped him “import” a German brewmaster named Bernd Pieper, and brewing began in 1985. Staying true to German tradition (hence the now-ubiquitous Big Rock Traditional Ale), all the beers were pure malt, unpasteurized and preservative-free.

As for the brewery’s name, it came straight from the field.

“On his farm near Okotoks, there was this big rock—a huge rock—on it,” Nordstrom recalled. “And I remember him saying if he ever got this brewery going it was going to be Big Rock Breweries.

“He had a lot of things figured out, old Ed.”

The last time Nordstrom had the pleasure of seeing Ed was a few years ago at the Western Barley Growers Association annual convention, where Nordstrom presented him with a lifetime appreciation award.

“We apologized to him for laughing at him back in 1984 when he told us he was going to start the brewery,” said Nordstrom. “And he had that twinkle in his eye again.

“We called him elderly back then, but he was just getting started.”

The late Ed McNally stands as a shining example of decency, hope and charity for Albertans. In 2005, when he was inducted into the Order of Canada, he was described as “an inspiration to other freethinking entrepreneurs.”

By his family, he is remembered fondly for his kindness and his lovely singing voice.

“He really had curiosity, a lot of energy, and he loved challenges,” Linda said. “Life was really very interesting to him, and he really didn’t see any reason why he couldn’t achieve anything he desired. He always saw how things could be better.”

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FOR GRAIN EXPORTING

nations like Canada, identifying grain quality for sale is a vital step in the successful marketing of a crop. Being able to segregate the crop by quality, and being able to maintain those segregations through the handling system and into the end user’s control, facilitates the export of grains as well as price determination. In Canada, this system was written into legislation in 1874 and is currently regulated by the Canadian Grain Commission (CGC), a federal government agency, under the Canada Grain Act.

The CGC ensures certain criteria are met in relation to grading: Commercial relevance, an efficient process with consistent, reproducible results, and an acknowledgement of grain quality by farmers from growing regions across the country.

If a system is well run, it will theoretically give buyers a quick and true look at protein content, as well as any and all factors they may take into consideration during their particular manufacturing process. This takes a coordinated effort on all sides, whether dealing with the huge volumes in 2013 or the unpredictability of 2014.

This past harvest, farmers brought the conversation online, talking up storms and posting photos on social media and agriculture forums discussing degrading factors—from freak snowstorms and diseases to low test weights and atypical grain appearances—all of which underscore the need for an accurate, professional grading system.

A farmer will typically first meet the grading system head-on when delivering grain to an elevator.

“In the post-Canadian Wheat Board (CWB) era, any grain being delivered to a primary elevator is usually already designated for a sale,” said Daryl Beswetherick, program manager, quality assurance standards and reinspection, at the CGC. “Elevators are now responsible to buy farmers’ grain, not just handle it on behalf of the CWB, so the onus is on the elevator to ensure the grain received is going to meet the specifications set out in the sale.”

The grain will then be loaded into rail cars and shipped to port or to a domestic or U.S. end user.

“The CGC will provide a ‘Certificate Final’ for all grain loaded onto a vessel,” said Beswetherick. “If specifications are required in the contract or a particular grade and protein, the CGC will ensure the load meets the specifications.”

Beswetherick explained that peas and malting barley, for example, are most often sold by “shipment by specification,” whereas wheat is sold by a regulatory grade.

“Buyers know what a No. 1 Canada Western Red Spring is,” explained Beswetherick. “The grade describes the functionality of the wheat and how it will perform for the buyer.”

The CGC’s Role

The CGC is a key part of Canada’s grain grading system with very specific mandates legislated by government:

• Maintaining the grain-grading guide, the complete reference on the grading of grains, oilseeds and pulses, and gathering input from the Eastern and Western Grain Standards Committees to revise and update the guide annually. Both committees are made up of representatives of stakeholders such as growers, grain handlers and end users, and changes are made on the basis of consensus.

• Preparing standard and guide samples for the industry on an annual basis and as necessary. For example, the 2014 mildew problem has not been encountered for two or three years. Guide samples refresh the standards for grading mildew for those on the front lines.

• Official weighing and inspection at shipping ports, and issuing Certificate Finals to certify that cargoes meet the specifications of the sale contracts.

• Performing a monitoring function using the expertise of the Grain Research Laboratory and Industry Services branches. Example outcomes of monitoring include: Italy’s approval of protocols for pre-shipment testing of ochratoxin (OTA) in wheat and durum for export; China’s acceptance of ongoing shipments of peas based on the CGC’s statistics for selenium levels; and the ongoing collection of pesticide residue data, which provides assurances to buyers of Canadian grain.
The Farmers’ Take
Gerard Oosterhuis farms near Bow Island, about 150 kilometres from the U.S. border.

“The key, in my opinion, to marketing grain is to know what you have,” said Oosterhuis. “We put a lot of effort into sampling when we transfer grain to our bins at harvest, and we get third-party grades on the resulting samples. We are very confident that those grades are representative of our production, and our marketing success over the years bears that out.”

Oosterhuis shops his samples around to three Canadian and two U.S. companies.

“I can’t say I’ve ever had an issue with a grade at a delivery point,” said Oosterhuis. “If I’ve ever not been happy with it, I’ve always been able to work it out, mainly because I am confident my samples truly represent my production. I’ve never officially contested a grade.”

Oosterhuis regularly ships grain to the U.S.

“Where I deliver in the U.S., the grading is not done at the driveway, but at the state lab,” he explained. “There can be significant delays in getting grades back.”

Oosterhuis noted that, although there are differences north and south of the border, they go both ways.

“In the U.S., they do falling number analysis on samples,” explained Oosterhuis. “Here, we use visual indicators to estimate falling number and there are times when it is far more beneficial for me to sell my wheat in Canada. The onus, in my opinion, is on the farmer to understand both grading systems, understand there are pros and cons to both, and then he can make better decisions about where to market his grain.”

Jeff Nielsen farms at Olds, in an area where quality can regularly take a beating due to the climatic conditions.

“You have to know what you have to market,” said Nielsen. “I always take my grain to at least three companies, and I take it out of my own area as a double-check on the grades.”

While Nielsen streams samples when the grain is transferred to the bin at harvest, he generally does not get an independent third-party grade on it prior to shopping it around.

“In all my years farming and marketing my production, I’ve never had a grade dispute,” said Nielsen. “That said, don’t be satisfied with just one person grading your sample, especially this past year when there is definitely some variability.”

Don’t be satisfied with just one person grading your sample, especially this past year when there is definitely some variability.

—Jeff Nielsen

The Grain Handler
“Understanding crop quality is very important to us,” said Lynne Sweeney, assistant vice-president, quality assurance and food safety, at Richardson International. “The more we understand about the physical and intrinsic attributes of the crop, the better we are able to collect and assemble individual commodities and anticipate how they will perform in processing environments consistent with end-use customer needs.”

Additionally, Sweeney noted that companies that market grain also have to manage food-safety risks and requirements to comply with import regulations in the various countries where they sell grain.

Richardson’s frontline staff work to accurately interpret and verify the quality and food-safety characteristics of the crops they market, according to Sweeney.

“A discount or cargo rejection due to a quality or food-safety deficiency is a risk we can’t afford from a financial and quality-assurance perspective,” said Sweeney.

Staff at Richardson facilities use globally recognized food safety certification schemes (such as hazard analysis and critical control points, or HACCP) and train to stay up-to-date with national and international standards, Sweeney said. Furthermore, the company employs a corporate calibration program to routinely validate the accuracy of its equipment.

Third-Party Options
There are a number of third-party providers in the grain-grading business in Canada. These companies grade based on the Canadian or U.S. grading standards, take samples, provide training and serve any number of other functions on a fee-for-service basis.

Norm Woodbeck is the manager of agri-operations for Canada at Intertek. Prior to taking on this position, he spent 37 years at the CGC, where his final posting was as acting chief grain inspector. His vast experience in grading stretches from coast to coast, and everything in between.

“This year is a classic example of what happens in our business,” said Woodbeck. “We’ve gone three years without any major weather issues causing problems, and this year we are seeing the full gamut. I have to work very closely with our inspectors to identify the problems and assess them properly.”

Training in grain inspection is ongoing no matter where the grain inspector works.

“The grain companies, ourselves and anyone who inspects grain needs to be training every year,” said Woodbeck. “Grain inspection is an art, as well as a science, and it’s only with years of experience that an inspector gains enough knowledge and exposure to become really confident. Even now, every day for me is an opportunity to learn, after 40-plus years in this business.”
Post-CWB, farmers have the opportunity to truly saturate themselves with the vagaries and quirks of grain grading, said Woodbeck.

“You are now the marketer,” he said. “It’s your responsibility to know your production—certainly protein, grade and moisture content. Dockage may vary. And you can also find out if your grain is a good, fair or poor representative of whatever it grades. That gives you more information about its blending capacity.

“The single most important factor in grading grain is the sample,” he added. “The best inspectors and the best equipment can be used to grade the sample, but if the sample is not representative of the bin, then it’s all useless.”

Woodbeck advised sampling every truck, understanding what is going into the bin, and knowing the inherent variability that exists in the grain in every bin.

“Variability is always part and parcel of inspecting grain,” he said. “The problems generally arise at the break line for a grading factor.

“| I encourage farmers and producer groups to really understand our system of grain inspection, as well as that in the U.S.,” he explained. “Both are science-based, but both are also very different, using different protocols and methodology to measure the same factors, like protein, moisture content and test weight. The two systems are like comparing apples and oranges.” |

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**Around the Globe**

In the U.S., the system is regulated by the USDA Grain Inspection, Packers and Stockyards Agency (GIPSA). Its powers are granted through the U.S. Grain Standards Act and the Agricultural Marketing Act of 1946. The Canadian and U.S. systems are similar in that they use defined grades to describe grain quality. They differ in that Canada chooses to describe many more grades and specifications than does the U.S. In comparison, the U.S. relies on contract specifications to reduce the number of grades required while still ensuring customers get what they want. Another difference is that only Canadian-grown grains can receive an official Canadian grade any higher than a feed grade, whereas the U.S. will grade grain regardless of origin.

In Australia, a system has evolved that is dependent on variety declarations first and foremost, and then on various physical quality specifications outlined in the grade standards. The system is reviewed and published annually by Grain Trade Australia (GTA) with input from its standards committee. Like those of Canada and the U.S., Australian grade standards are developed to facilitate trade. This includes the ability to meet importing country regulations and international protocols, such as those of the Cartagena and Codex Alimentarius Commission, as well as recognizing the ability of the handling system to segregate grain. Unlike in Canada and the U.S., however, GTA is non-political and is industry driven and managed.

In the United Kingdom, there is no comparable system to those in Canada or the U.S.

“Generally, all trades in the U.K. are done on specification,” explained Bob Beard, purchasing director at Warburton Group, the mammoth English baking company that sources wheat from Western Canada. “Specifications are set by the customer for end-use demand, be that a ‘class’ of wheat, a variety or a particular protein specification.”

In the U.K., Group 1 comprises the higher-quality, bread-making wheats that consistently meet milling and baking performance requirements. Group 2 varieties are still used for bread-making, but have slightly more inconsistencies than wheat found in Group 1. Group 3 wheats, or soft wheats, are typically used for cookies and crackers. Lastly, group 4 is almost exclusively reserved for feed. The U.K. also uses two ratings to describe quality of wheat for export: “ukp” and “uks,” which closely mirror the typical specifications for Group 1 and Group 2 wheat, respectively.

The system is maintained by the Home-Grown Cereals Authority (HGCA), which, in turn, is a division of the Agriculture and Horticulture Development Board, a statutory levy board funded by farmers and others in the supply chain. The HGCA is managed independently of both the commercial industry and government.
It’s a good thing Chantelle Donahue is used to wearing multiple hats. Because she just added one more.

Donahue, Cargill Canada’s vice-president of corporate affairs, has long been one of our country’s most respected agricultural executives. With her husband Greg, she also farms near Biggar, SK. Meanwhile, in her “spare” time, she serves on more boards than most people have fingers.

Then, last July, she and Greg added a baby to the mix with the arrival of their daughter, Abigail. Like many new moms and dads, the Donahues have discovered that parenthood just might be the biggest job yet.

“I was talking to the folks in High River, where Cargill has the largest cattle-processing facility in Canada,” laughed Chantelle. “I told them my baby is as much work as High River is for me.”

Somehow, you get the feeling that the Donahues will continue to function just fine. For years now, after all, Chantelle has managed to build her Winnipeg-based career while commuting back to Biggar on weekends (plus longer spells during seeding and harvest). Of course, a certain level of creativity comes into play.

“Last year, I was seeding and I had to stop the drill to take a quick conference call for one of the boards,” she said by way of example. “It’s not conventional—let’s put it that way. When
Greg goes for coffee with his friends, they probably sometimes wonder a little bit how we’re making it all work. But we do.”

If baby Abigail represents yet another piece of the puzzle, the Donahues are more than up to the challenge.

“Our little girl was a frequent flyer before she was born,” Donahue pointed out, adding that Abigail’s industry debut was at the Canada Grains Council meetings in the third week of November.

“It’s finding that balance, and never losing the broader perspective of why you’re doing this.”

Donahue’s Biggar roots run deep—her parents’ farm is part of the land she and Greg work today—but, growing up in the 1980s, she didn’t picture a career in agriculture. This outlook shifted as she gradually drifted towards the field while in university, eventually earning a business degree with a major in agriculture economics. She planned to follow up with a PhD, and possibly an academic posting, but decided to first spend some time with a private company. She hasn’t looked back since.

It was 2002—a drought year, and not the best time to be job hunting. Nevertheless, Donahue landed a job with Cargill, working as an export merchant out of the Vancouver office. Then, a couple of years later, she jumped at the chance to return to Biggar when a job opened up at Cargill’s Prairie Malt operation.

“That was nice,” she recalled. “It had me at home, and that’s really when Greg and I started farming full time, and started expanding the farm a bit.”

Before long, Donahue was managing Cargill’s entire supply chain for Canadian barley. Then came the promotion to corporate affairs, and the beginning of her rigorous commuting schedule between the Cargill head office in Winnipeg and the farm back in Biggar.

As demanding as that split focus may be, it may also help explain Donahue’s success, suggested Ted Menzies, president and CEO of CropLife Canada (and former Member of Parliament for Macleod, which includes High River).

“I find it fascinating when you meet with someone in their office and it’s all business—and then she can reflect back on what happened on the farm in Biggar last week. She brings it back to what actually matters, on the farm. That, I think, has stood her very well in her career.”

Donahue has many different work locations: The farm or her office at Prairie Malt, both in Biggar, SK, or at Cargill HQ in Winnipeg, MB.

Laycraft also marvels at Donahue’s seemingly boundless energy.

“I’m sure she gets tired, but she certainly appears to be a tireless advocate. No matter what the occasion requires, she’s there to ensure the issue is dealt with properly.”

Meanwhile, back on the farm, Greg said his wife’s industry-wide outlook has broadened his own perspective, as well.

“You see these tens of thousands of check-off dollars leaving the farm, and you have some realization of where it’s going and people are actually working to get it to the right places,” he said. “It’s nice to have the other view, rather than just what you hear at the coffee shop—which is generally not the whole story.”

For her part, Chantelle cherishes her farm and family for keeping her grounded. Often, while working in Winnipeg or Ottawa, she’ll find herself pausing to think, “OK, is this going to make sense when I bring it back to the farm?”

“No matter what the occasion requires, she’s there to ensure the issue is dealt with properly.”

– Dennis Laycraft
Not surprisingly, then, she doesn’t draw a stark line between corporate goals and the everyday concerns of producers. “It took me a while to realize that it’s not about ‘us’ and ‘them.’ It’s about all of us working together to move the value chain, and move the country further. It’s not always easy to see, but if the supply chain collectively is prospering, and is bringing value to the marketplace, that in itself will bring long-term success to the industry.”

She points to the sector’s ongoing challenge in transitioning through the Canadian Wheat Board monopoly. “It’s been a few years now, and I would say we’re all still learning,” she said. “We needed to walk, not run, and build trust throughout the process. But, as we work through that, our ability to be candid and show our value in what we can do has been important. The industry is coming together well.”

As a farmer at the other end, Greg tends to agree. “You have to spend a lot of time looking at information—that’s probably the biggest change. If you don’t keep up-to-date, you might get blindsided a bit. But if you read, and keep yourself educated, you have a pretty good idea of what is coming and how to work through it. It actually hasn’t been that bad at all.”

Both Donahues are excited for the future of Canadian agriculture, particularly given the technological advances of recent years. “In the past 10 years, canola yields around here have basically doubled,” Greg observed. “That’s huge.”

Although canola is clearly a special case, Chantelle looks forward to eventual advances in Canadian grains, as well. “Over the past five years, there have been some really great agronomic traits bred into wheat,” she observed. “There’s more that can be done.”

Despite the global undercurrents and concerns around GMOs, Donahue sees biotechnology as a key component of sustainability. “The key there is sticking to sound principles of science. Those are the baselines for trade, and that’s what we try to work towards,” she explained. “That’s why it’s so important that we work as an industry. Because one farm, or one company, can’t do that, and the government alone can’t do it. It needs to be the entire value chain—right from seed producer and crop protection company, through to producers, grain handlers, government—all working together.”

The future hangs in the balance, added Donahue. “How do we keep this entire value chain in Canada profitable, and growing, so that when our little girl is our age, she has the opportunity to farm if she wants?” Fortunately, Donahue believes Canada is up to the task.

“We stand out internationally for our ability to come together.”

She and Greg feel a shared sense of purpose on the home front, as well. “I hope, as our daughter Abigail grows up, she can see that and appreciate that,” said Donahue. “It’s not going to be necessarily easy to find that balance, but we’re committed to doing it, and making sure that she has both parents actively involved with her.”

Although Abigail will determine her own future, Chantelle would be thrilled to see her eventually follow in her parents’ footsteps. “She was five or six days old, and we had her out in the field scouting crops with us. “She has agriculture in her blood.”
A lesson in patience

Plant breeders play the long game

BY TREVOR BACQUE • ILLUSTRATION BY TOMMY WILSON

If there was ever a golden rule when conversing with a plant breeder, it may be this: Be prepared. To talk plant breeding requires a colossal amount of brainpower, especially once you dive into the genetic nitty-gritty.

Being able to harvest a uniform crop is the result of two factors: hard, carefully planned work by the farmer, and painstaking, meticulous, calculated time in the lab and field by the breeder. Think of a breeder as the portion of the iceberg under the water and a farmer in a field as what’s above.

“It is a science,” said Ron DePauw emphatically. “The underpinning is science principles. If you miss that point, you won’t be successful.”

With more than four decades of breeding experience to his name, DePauw is the senior principal wheat breeder at SPARC, the Semiarid Prairie Agricultural Research Centre, in Swift Current, SK. Western Canadian farmers have benefited over the years from SPARC’s well-known varieties, such as AC Barrie, Carberry and Stettler Hard Red Spring, and Kyle, Strongfield and Avonlea durum.

When it comes to breeding, the goal is just the same as it ever was, despite private interest, if you ask barley breeder Joseph Nyachiro, who works in Lacombe’s provincial Field Crop Development Centre.

“The broad fundamental nature and goals of plant breeding have not changed from increasing agricultural productivity in order to supply adequate food and feed,” he said.

Genetic selection has also made significant gains over the last half-century thanks to computer technology for data collection and cross-referencing, as well as instrumentation advancements to shave time off lab and field work.

“When I started, we were using wet chemistry for protein—the Kjeldahl method,” said DePauw of the longstanding quantitative test that determines protein content. “Now, with infrared, you can get a reading on protein in 20 seconds, so we can just crank them through. We are able to select for protein concentration simultaneously when selecting for yield.”

Despite such advances, breeding is still very much a lesson in patience. Consider this: If a breeder successfully creates a new line, tack on another eight to 10 years for that successful genetic combination to become commercially available for farmers. This means developing a new line can easily take 11 to 13 years in total.

 “Why does it take time? You have to go through a biological cycle,” said DePauw, who likened it to pregnancy. “You can’t really do much about that. You can’t throw any dollars at it. It’s the same with plants.”

Breeders look for similar climates the world over to mimic western Canadian conditions to expedite the process by growing two crop cycles per year. Locations include northern New Mexico’s Yaqui Valley, southern California’s Imperial Valley and New Zealand’s Canterbury Plains. The latter has netted the most success, saving breeders up to four years in development.

From there, a breeder will work to select desirable gene combinations and create “inbred lines,” or lines that will annually reproduce the same traits. This is no small task, as there are truly millions of selections a breeder could make with each plant cross.

“There are more ways of failing than succeeding,” said DePauw. “We get lucky every once in a while.”

The story remains the same in private breeding—long timelines and small, incremental success rates. However, private breeding has popped up more and more as companies see renewed interest in hybrid cereals, namely wheat.

“A hybrid breeding model gives one the opportunity to achieve genetic gains in a faster and more efficient way than in a classical inbred model,” said Marcus Weidler, vice president of seeds operations at Bayer CropScience. “You can introduce desired characteristics for the hybrid from both sides: the female as well as the male. One doesn’t need to pyramid all the desired traits in one single line.”

The time commitment is still approximately the same as conventional breeding—about 12 years—but Bayer hybrids, scheduled for release between 2020 and 2025, are what Weidler calls superior, asserting that the lines are “higher yielding and have a higher yield stability.”

However, hybrid breeding still requires two distinct programs, according to Brian Rossnagel, a longtime breeder and University of Saskatchewan professor emeritus with the department of plant sciences.

“You need an inbred breeding program to create each of your hybrid parents, one male and one female, thus there is a lot of regular breeding to be done to produce those best parents,” he said. “Initial hybrid plants will show heterotic advantages, but from there it’s just small incremental gains. This business of ‘faster and more efficient”—I would say that’s not a defendable statement.”

“There are more ways of failing than succeeding.”

–Ron DePauw
Cross two, three or four existing plant parents.
Parents = P1, P2, P3, P4 etc.
P = parents    F = filial, or offspring

Two Parents are crossed to produce the F1 generation at which point evaluation, selection and trials begin. The progeny generation following the initial cross is indicated by an F#.

NOTE: F generations can be sped up by growing multiple crops in different latitudes. These are called "contra-season nurseries."

Editor’s note: There are nuances to any breeding program, depending on location, crop and breeder methodology. This diagram is not meant to be a representation of all crops.

**WHAT ARE THE BREEDERS SAYING?**

“When I look at Canada and compare it to many other countries I have travelled to, I think Canada has tremendous potential of leading in agricultural productivity.”
—Joseph Nyachiro, Lacombe Field Crop Development Centre

“Breeding is often expedited by growing multiple generations in a single year by utilizing greenhouses and winter nurseries.”
—Brian Rossnagel, University of Saskatchewan

“Input from producers and end-users is essential to set the direction and ensure the relevance of any breeding program.”
—Aaron Beattie, University of Saskatchewan

“Molecular markers and genomic selection models help us understand how genes combine to give us desirable lines. But at the end of the day, field testing (phenomics) is king.”
—Richard Cuthbert, Semiarid Prairie Agricultural Research Centre

“Genetics is real and works! You get what you select for!”
—Ron DePauw, Semiarid Prairie Agricultural Research Centre

**THE BREEDING WHEEL**

F10
Multi-site, multi-year testing continues.
Initial grow out of plants.
Increase seed, begin process of "inbred line" production.

F9
Multi-site, multi-year testing continues.

F8
Multi-site, multi-year testing begins.

F7
Continue to select for F5 & F6 traits.

F6
Select for grain quality.
Select for specific agronomic traits.

F5

F4
Continue to inbred lines, seed increases and selection.

F3
Select for disease and other simple traits, like height and colour.

F2
Multi-site, multi-year testing continues.

F1
Initial grow out of plants.

F0
(2014; P1 and P2 cross occurs. Most Parent crossing and the F1 “grow out” would be done in the same year.
(2015–2016; F2 is the generation with the greatest diversity. More generations are needed to multiply seed and produce “inbred lines.” Inbred means the progeny of that line will be consistent. Breeders begin to select for specific disease resistance and agronomic traits. Select for simple traits like height, maturity, and grain colour. Hundreds of thousands of plants will be studied during this time.
(2017–2018; Select for specific agronomic traits. Build up new base again. Continue disease and agronomic selection. Breeders will also begin selection for grain quality. Breeders will only have a few dozen lines left in trials.
(2019–2021; Multi-site and multi-year testing is now underway within programs while breeders concurrently test for agronomic traits, yield stability, and disease resistance. Depending on the crop, a program’s resources and the weather, testing may last between two and four years. The best selections advance to the registration trials.
(2022–2027; Once the line has been selected, it moves into the next phase of its journey: the farmer’s field.

Registration Trials (authorized by the CFIA). This takes two to three years.
Variety registration (done by the CFIA). Input given by a recommending committee at the Prairie Grain Development Committee (PGDC).
Multi-site and multi-year testing continues. The best selections advance to the registration trials.
Breeding Trials continue, selecting for quality and agronomic traits.
Breeding Trials are conducted in the field, evaluating seed for performance and stability.
Breeding trials are multi-year, with testing in different locations.
Breeder seed purification is conducted.”
Breeder seed is a precursor to the Select seed level. Normally this takes three years and can produce about half a tonne of Breeder seed.

Breeders then sell their Breeder seed to a marketing company. 
Marketing company picks up the variety.
Breeders then sell the Breeder seed to a marketing company.

Variety registration (done by the CFIA). Input given by a recommending committee at the Prairie Grain Development Committee (PGDC). 
Breeding Trials begin. Breeders go through a parallel process called “Breeder seed purification.”

Farmer plants a new crop variety, has high yields, low inputs, zero disease and perfect weather.*

*Subject to change.

Editor’s note: There are nuances to any breeding program, depending on location, crop and breeder methodology. This diagram is not meant to be a representation of all crops.
It takes a surge of lively discussions before those new, impressive varieties can be potentially planted for profit.

In 1933, talk of new varieties was likely the order of the day when the Associate Committee on Field Crop Diseases and the Associate Committee on Grain Research first met to review their findings. Thereafter, following committee expansions and name changes, the Prairie Grain Development Committee (PGDC) eventually formed in 2007, acting as a convention of conversation about the development of improved cultivars of grain crops in the Prairies.

The PGDC’s recommending committees advise regulatory agencies regarding legislation and regulations on breeding, cultivar production and sector development; facilitate scientific discussions concerning research planned to improve the grain sector; and organize an annual meeting to talk about innovation.

The annual meeting is the organization’s greatest asset, according to PGDC Chair Tom Fetch.

“It’s great to have all these people come together, discussing the value of lines that may get registered,” he said. “Also, it’s a time to just talk about new ideas with producers, plant breeders and those in the industry. There are very few meetings like this that encompass the whole spectrum of those who represent different growing organizations.”

With respect to variety registration, the PGDC looks at varieties that may get picked up by the industry. As soon as those varieties are talked about at PGDC meetings, they have potential to go commercial.

AC Barrie was a variety that changed the landscape when certified sales began in 1997, becoming the dominant cultivar in 1998, said Fetch, who was the former chair of the disease evaluation subcommittee of wheat, rye and triticale.

“AC Barrie had half of the wheat acres in the late 1990s to early 2000s. It really got popular. That isn’t the case some of the time, where certain varieties make it through but don’t get used by producers. But when they do become popular, it’s great.”

The PGDC’s recommending committees are wheat, rye and triticale; oat and barley; pulse and special crops; and oilseeds.

The committees’ roles differ based on how they approach variety registration. Generally, they determine if candidates are suitable for registration in Canada, sending them to the Canada Food Inspection Agency (CFIA) for final analysis.

“Committees have become more diverse, which includes private companies, seed companies and growers,” Fetch said. Having representation from the entire value chain is essential, said Syngenta Canada’s Francis Kirigwi, the secretary of the wheat, rye and triticale committee.

“We need to have representation, as each member from the value chain plays a key role, talking about varieties, farmers and the market.”

Fundamentally, Kirigwi’s mantra is “farmer first, farmer last.”

“We talk to producers and other value chain participants to know what’s needed, not what’s fancy for the scientists,” he said.

Breeders in the oat and barley committee submit potential lines to the Canadian Grain Commission to be evaluated for quality, agronomy and disease. After two years of testing, varieties then go up for registration and committee members
review the data. If a candidate outperforms or is equal to the check variety, it will be recommended to the CFIA for registration.

The wheat, rye and triticale committee basically operates the same as the oat and barley committee, Fetch said, adding that yield improvements of wheat have grown about 1.5 per cent per year. “Think of that as compound interest,” he explained. “Compared to a decade ago, we’ve really improved variety performance. It’s all about beating benchmarks.”

Just like Fetch, Rich Joy of Canada Malting Corporation believes the annual meeting is vital. “Everyone gets to discuss what’s working and what’s not working,” said Joy, who’s the chair of the oat and barley committee. “For example, brewers voice their concerns to maltsters, who are looking for certain traits from breeders.”

As the Canadian Wheat Board dismantled, many organizations and policy-makers have sought change in the variety registration system. That has left the PGDC to change its approach on variety registration in conjunction with the federal government’s work to alter the system.

In 2013, Agriculture Minister Gerry Ritz requested a renewed focus on research, innovation, competitiveness and market development from the recommending committees. Agriculture and Agri-Food Canada (AAFC) engaged stakeholders through telephone interviews and by sending them the CFIA’s Issues and Options paper last October. One part of the proposal looks to reduce the three-tier crop system to a two-tier structure. Tier two, or the basic level of the structure, requires the committees to submit data that includes the description of the variety, pedigree, reference sample, declaration of area of adaption and proof of claims. The enhanced level, however, includes pre-registration testing and merit assessment through the recommending committees.

To the surprise of some, the 47 voting members of the pulse and special crops committee voted to move pulses from tier one (most stringent) to the basic level, meaning pulse crops would no longer receive merit assessment by the recommending committee once the government’s proposal is implemented.

“The decision will only affect pulses, not specialty crops,” said AAFC Research Scientist Parthiba Balasubramanian, chair of the PGDC’s pulse and special crops committee. “It’ll speed up the release of varieties by at least one year. Breeders will continue to do all the trials and provide data to the CFIA.”

Outlined in the proposal, the committees’ operating procedures will be changed, as will their structure, to include balanced representation from the value chain, allowing for variety selection to become increasingly market driven. The idea is to produce smaller, dynamic committees.

The proposed measures include: reducing merit standards; considering the registration of varieties after two years of positive test data; and accepting private and foreign data after the remaining quality and disease merit criteria and performance testing is streamlined. These impacts are expected to give clarity and predictability to investors who want to respond more quickly to market opportunities.

“The aim of those operating procedures is to provide guidance as far as they operate and how transparent they are,” said Giuliano Tolusso, chief of biotechnology and emerging technology issues at AAFC. “It’ll promote innovation in the development of varieties, improve competitiveness, and allow for producers to access varieties in a more timely manner.”

The government’s role in the variety registration process won’t change once the proposal takes effect, he added. Tolusso said the recommending committees will likely integrate new guidelines in spring 2016, followed by the CFIA finalizing the proposal in the fall of that year. Implementing the proposed two-tier system also requires a change in legislation. However, the proposal may alter slightly, as Ritz has yet to formally announce the intended changes.

Even though the number of crops that require recommending committees and merit criteria will potentially be reduced as a result of the proposed variety registration changes, the PGDC will continue to operate.

“We will react accordingly, and change once Minister Gerry Ritz has made those calls,” Fetch said. “The committees will continue to advise the CFIA, and we will maintain our great conversations about new ideas and make sure the most promising varieties are presented to the CFIA.”

“Compared to a decade ago, we’ve really improved variety performance.”
—Tom Fetch
How Canada’s new free-trade agreements will benefit Alberta farmers

BY IAN DOIG • PMO PHOTO: DEB RANSOM

O RELATIVELY LITTLE FANFARE, THE CANADIAN government brought two of three major international free-trade agreements very near completion this past fall. After years of negotiation, the Canada–EU Comprehensive Economic Trade Agreement (CETA) now faces the approval of its constituent states, the Canada-Korea Free Trade Agreement (CKFTA) has been ratified and the Trans-Pacific Partnership (TPP) remains in negotiations, though its eventual completion and final approval look promising.

“We’ve embarked upon the most ambitious trade agenda Canada has ever had, and it is going to serve us very, very well for many, many decades to come,” Canadian Minister of International Trade Ed Fast told GrainsWest last fall.

Fast pointed out that being ahead of the U.S. in signing an agreement with the EU is significant.

“When CETA comes into force, Canada will be the only major developed economy in the world to have trade agreements with the two largest markets in the world: the U.S. and the EU,” he said.
It’s a huge advantage that must be diligently guarded and aggressively pursued. A joint Canada–EU study concluded that the agreement could generate $12 billion in new revenue for Canada. Notably, when implemented in approximately late 2016, CETA will see nearly 94 per cent of agricultural tariffs dropped outright.

In comparison, the agreement with South Korea is about playing catch-up. Since the EU and the U.S. signed agreements with South Korea in 2011 and 2012 respectively, Canadian exports to the country have diminished to $530 million in 2013 from $1 billion in 2011. “This agreement will rectify that,” said Fast.

While some tariffs face long phase-out periods, when the CKFTA comes into force, 82 per cent of tariff lines will be duty-free. The Canadian government predicts this will boost the Canadian economy by $1.7 billion annually.

In contrast, the TPP represents a market of 792 million customers that now accounts for 65 per cent of Canada’s agri-food exports. It will cement existing agreements with its 12 member nations, including Mexico, Chile, Australia and New Zealand, and maintain Canada’s dominant access to the U.S. market under NAFTA. It also nets previously unsigned trading partners such as Vietnam and Malaysia, with Japan being the deal’s top Canadian prize.

Japan is already a $4 billion agri-food market for Canadian exports, and Canada is working parallel to the TPP on the Canada–Japan Economic Partnership Agreement so as not to fall behind the U.S. A 2012 government study concluded that increased trade with Japan has the potential to boost Canada’s GDP by $3.8 billion.

Yet these three agreements will take time to come into force. While CETA is predicted to take effect in two years, once CKFTA is finalized, it will see some tariffs phased out over two to 17 years. And though it is too early to predict an implementation date for the TPP, Alberta’s agricultural sector isn’t complaining about the wait, as the potential return for an export-focused nation such as Canada is just so staggering.

A 21ST-CENTURY TRADE AGREEMENT
In notable contrast to the 1987 signing of the Canada–U.S. Free Trade Agreement and subsequent North American Free Trade Agreement (NAFTA), these latest international handshakes have generated little controversy. A transatlantic flight for EU trade officials provided by the Canadian government, and the too-late fusing of German opposition politicians opposed to CETA, were instantly old news. Fast ascribed this quiet approval at home to Canadians’ comfort with well-negotiated trade agreements and understanding that they can well serve the country’s long-term economic interests. As well, he believes NAFTA and CETA are barely comparable. Whereas NAFTA concentrated on trade goods, CETA is broadly comprehensive in scope—a complex 21st-century agreement.

“CETA takes a giant leap forward,” he explained. “Putting in place mechanisms that will address many of the non-tariff barriers that your industry’s members struggle with, and are so frustrated by.”

The biggest agreement, CETA has received a great deal of the government’s focus despite the stagnation of the EU marketplace. Fast said the goal is obtaining immediate access for Canadian companies to a previously untapped market made inaccessible by high tariffs or significant non-tariff barriers.

“That’s why this agreement allows us what I believe may be a once-in-a-lifetime opportunity for our Canadian companies to have access to the largest consumer market in the world,” he explained.

A SYSTEMS APPROACH
A Canadian Agri-Food Policy Institute (CAPI) report, Leveraging Trade Agreements to Succeed in Global Markets, underscores that other countries are also aggressively attempting to secure preferential trade access for their agricultural producers, and this competition doesn’t end with the stroke of a pen.

“We’ve scored a big win with the CETA,” said CAPI president and CEO David McInnes. However, he suggested there’s work to be done in order to profit: The agricultural sector must act collaboratively, prepare to seize new export channels and act defensively against new competition.

Addressing all of these facets as part of what McInnes terms a “systems approach,” CAPI is calling for a trade barrier audit.

“We really have to think about the supply-chain strategies, the market access and entry strategies,” McInnes said. This includes ensuring that transportation and infrastructure—from ports to railways—are aligned and well oiled.

As strategic as government negotiators have been in hammering out agreements, he said, this same diligence must apply to dealing with the non-tariff barriers that fall outside of the agreements.

“It requires working with and advancing private-sector standards that dictate market entry requirements, and truly knowing how the Canadian food brand can be best leveraged to win over consumers in market niches in various countries,” he explained.

In other words, opening a market...
doesn’t guarantee receptiveness. Consumer trends and expectations are the next hurdle after access. Food purchases are based on many requirements, said McInnes, including where and how it’s grown, its nutritional content and its ecological footprint.

“Those are complex factors that retailers, processors and, increasingly, producers have to be more and more cognizant of to ensure we’re ready to access markets.”

McInnes is confident this will pay off.

“Consumers around the world will increasingly seek out Canadian food and ingredients because of their quality, safety and nutrient profile, perhaps even around how we manage our land, water and soil,” he said. “Discerning consumers from Beijing to Berlin will increasingly look at those attributes. Canada’s in a very good spot to serve those high-end markets and other markets, as well.”

**A WEALTH OF BENEFITS**

Given the scope of the preparation required, taking a couple of years to gear up appears prudent, especially for small and medium-sized enterprises (SMEs). According to Peter Kuperis, director, domestic and international trade policy with Alberta Agriculture and Rural Development, while large ag corporations may be ready to take on new markets, SMEs require greater prep time.

Kuperis went on to list a wealth of benefits the recent agreements offer Alberta’s ag industry: CETA will reduce the cost of doing business with the EU as tariffs drop and improve access to this $78.9-million wheat market and $48.9-million durum market. Wheat tariffs will be reduced to zero over seven years, as will canola seed and canola oil tariffs. A historically small canola market, the EU’s $23.6-million biodiesel market is growing. As well, when tariff escalation is done away with, it will become more feasible to produce higher-value agricultural products in Canada for export.

To be phased in over five years, CETA will also bring increased quota access for livestock. This will include duty-free access for 64,950 tonnes of Canadian beef valued at nearly $600 million annually. Access will also be granted for up to 80,000 tonnes of pork and 3,000 tonnes of bison. Better livestock pricing and feed market expansion may lead to better prices for feed grains and will increase the volume of feed sold. Better market access may generate similar spinoff in processed meats and pet food.

Kuperis also pointed to the attractiveness of investment provisions in the EU deal, suggesting they may attract European investment in the Canadian food-processing industry.

“We’ve got high-quality commodity products, and Europeans are known for being sophisticated in food processing,” he said. “We think there’s a good match up there.”

Also of note, he explained that the sanitary and phytosanitary portion of the agreement is a strong means to discipline unjustified or unscientific trade barriers, including canola biotechnology issues and complications with variety registration and recognition. As well, common to the agreements, Kuperis pointed out, is trade facilitation, a decorative term for the crafting of smooth and predictable customs procedures.

While the CKFTA will see some lengthy phase-outs, including up to 15 years for barley, the existing 10 per cent tariffs on canola seed and wheat will drop immediately upon implementation, while other canola products will see five- to seven-year phase-outs. Canadian wheat exports to South Korea represent an annual value of $273 million, and this number will potentially grow. South Korea was also a $50-million Canadian beef market in 2002 prior to the BSE closure, and Canada Beef predicts renewed exports may hit $65 million by 2020.

The Canadian Agri-Food Trade Alliance (CAFTA) has pushed for a strong TPP agreement, said Executive Director Claire Citeau. Though the agreement will not change existing commitments, she said it may improve the market access conditions in these countries. The ag sector expects to benefit from the creation of a plurilateral agreement, she added, meaning equal access for competing products across the region.

“The TPP has the potential to improve the competitiveness of our economies and enhance regional supply chains by permitting the production, processing and movement of products and ingredients among TPP countries where competitive advantages exist,” she explained.

Citeau emphasized that Japan must import 60 per cent of its food, and given that Canada can supply ag products that satisfy its traditional dietary needs, the existing positive trade relationship between the two nations can only improve.

“An agreement with Japan will provide Canada’s agriculture stakeholders with the opportunity to broaden and deepen the trading relationship with the Japanese market, which is critical to Canada’s growth and economic prosperity,” she said.

**GET MOVING**

In the past, trade agreements have not always been followed up with assistance to exporters in accessing new markets. Fast said this is no longer the case.

“It’s now time for Canadian companies to get serious about exporting beyond North America,” he said.
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Feature

Option to market

Northgate transloader to serve U.S., Mexico and beyond

BY LEE HART • PHOTOS COURTESY OF CERES GLOBAL AG

R I A N N O R T H E A S T B E L I E V E S the new grain-shipping terminal being built a few miles south of his Oxbow, SK, farm this past fall, which will rail Prairie grains and oilseeds into U.S. and Mexican markets, is going to be a boon for southern Saskatchewan farmers.

Northeast said the Ceres Global Ag Corp. rail terminal located at Northgate, SK, in the province’s southeast corner, will give farmers another marketing option alongside the traditional Canadian grain elevators that rely on moving grain over Canadian rail lines.

“Any time producers have another option, it presents a great opportunity,” said Northeast, who is also reeve of the rural municipality of Enniskillen No. 3.

From a municipal government standpoint, he said the investment of about $80 million to build the Northgate rail loading facility also helps the municipal tax base.

“It appears to be a great project that will benefit both the agriculture and the oil and gas industries in the southern Prairies,” said Northeast. “Ultimately, time will tell exactly what the impact is, but there certainly appears to be a lot of interest.”

The Northgate Commodity Logistics Hub is a 1,500-acre site just north of the U.S. border. The Ceres terminal was built to load trains that will haul commodities south to U.S. markets and beyond.

The double-loop railway track system connects at the U.S. border with a branch line from the Burlington Northern Santa Fe (BNSF) Railway—America’s largest rail company.

With the Northgate project serving as both a grain buyer and exporter, Ceres has staff on the ground now in southern Saskatchewan. They are sourcing grains and oilseeds to be moved through temporary grain-handling facilities that opened in October. A temporary transloading system fills about 72 rail cars with about 300,000 bushels of wheat, barley, oats, durum and canola per week bound for U.S. markets. Once a permanent 2.2-million-bushel grain storage and handling facility is completed in early 2016, that volume should about triple as the facility plans to load 220 rail cars—moving about
900,000 bushels of grains and oilseeds per week into U.S. and offshore export markets.

The facility will also move energy products such as crude oil and liquefied natural gas by rail into the U.S.

“It is a diversification plan,” said Pat Bracken, Minnesota-based CEO and board chair of Ceres, a commodity logistics holding company that also owns the 132-kilometre Stewart Southern Railway short line in southern Saskatchewan and Riverland Ag Corp, which has 10 grain storage and handling facilities dotting the map in Minnesota, New York, Wisconsin and Ontario. “As they developed this project, they saw two important industries in southern Saskatchewan and southern Manitoba were underserviced, and that was agriculture and the oil and gas industries.”

At the Northgate site, along with receiving and shipping grain on one of the rail loops, Ceres is also developing crude oil and natural gas storage and a rail loading facility to move those commodities into the U.S. The crude oil and natural gas side also has a temporary transloading system able to handle about 15,000 barrels of energy products per day. That is expected to increase to about 60,000 barrels per day once its permanent facility is operational in 2016.

“We are ready to move grain and oilseed commodities into the U.S., so we are encouraging farmers to call us,” said Jim Vanasek. He’s on the board of Ceres, and his New York-based investment firm, VN Capital Management, is one of the major Ceres shareholders.

“We are a regional operation, but plan to offer very competitive pricing and services to farmers in the southern Prairies,” he said. “As farmers in southern Saskatchewan discovered last year, the existing Canadian system can be challenged to have the rail service to meet demand for moving grain.

“At Northgate, we have an agreement with BNSF to provide rail service. We have a commitment they will have rail cars available as we need them. It is the largest railway in the United States. Once the trains are loaded, they can go east to port position at Duluth, Minnesota, or west to Seattle ports, or straight south to dozens of market destinations served by BNSF.”

BNSF has direct access to 28 American states, Mexico, and numerous Pacific and Gulf of Mexico ports along a 51,500-kilometre rail network, including more than 45 crude-by-rail destinations. BNSF also has secondary, or inter-line, connections with many other U.S. interior locations and Atlantic ports.

Vanasek said Canadian grains will be bought for a wide range of North American and off-shore export markets. He expects canola will be hauled south directly to crushing plants in northern Mexico. He said using rail service through the U.S. to Mexico will be much more efficient than hauling it by train from Saskatchewan to Vancouver, then loading it onto ships travelling down the west coast, offloading it at a Mexican port and hauling it inland to a crushing plant.

He expects Northgate to be sourcing crop commodities from about a 150-kilometre radius in southern Saskatchewan and into Manitoba.

“Within that zone, we estimate farmers produce about 180 million bushels of wheat, about 60 million bushels of oats, and another 180 million bushels of canola and other commodities,” said Vanasek. “I don’t think we will have trouble sourcing the commodities we need.”

The concept of developing this north–south rail link between western Canadian production and U.S. markets is actually credited to a former executive of hedge fund management company Whitebox Advisors. Vanasek said that an executive of Whitebox began researching rail links between Canada and the U.S. back in 2008 in anticipation of the end of the Canadian Wheat Board monopoly.

“He actually drove the border between Canada and the U.S. looking for any crossing opportunities,” said Vanasek. Northgate is a small community divided by the Canada/U.S. border.

BNSF has long operated the 129-kilometre branch line between Northgate and Minot, North Dakota. As this Ceres project was coming on line, the railway undertook a major $40-million upgrade of the branch line to handle the increased traffic with product from Saskatchewan, and also to better serve its many existing customers along the line.
Along with shipping Saskatchewan and Manitoba grains, oilseeds and energy products out of the country, Northgate may also look to be a supply centre for dry commodities brought into the country, including frac sand for the oil and gas sector, dry cement for the construction industry and fertilizer for farmers.

Longtime Canadian grain transportation observer Mark Hemmes, president of Quorum Corp., said the Northgate project could do well as a regional player when it comes to rail transportation.

“It appears to be another good alternative for farmers, but its success will depend a lot on how well it is marketed,” he said.

Quorum, which is based in Edmonton, was selected by the federal government in 2001 as an independent, third-party watchdog to monitor the efficiency of the Prairie grain handling and transportation system.

“We saw last year here in Canada how a combination of severe winter weather and a bumper crop resulted in a rationing of rail capacity in Western Canada,” said Hemmes. “And in many respects right now, U.S. farmers south of the 49th are also challenged by rail capacity. So the challenge ahead for this project may be to ensure it has the rail cars when they are needed.”

Meanwhile, BNSF officials say they are ready for the challenge. Noting that improvement in the U.S. economy in recent years has corresponded with increased demand for rail service in many parts of the U.S., BNSF undertook a major capital improvement project. Out of an overall $5-billion improvement program, it included $1 billion worth of upgrades to rail services in the Northern Corridor, which spans the northern U.S. between the Pacific Northwest and Chicago, and includes the branch line running from Northgate to Minot, North Dakota.

“Our capital upgrade program is investing about $400 million in North Dakota alone to expand rail capacity and replace and maintain the network infrastructure,” said Roxanne Butler, media relations director with BNSF. “No one can offer absolute guarantees, but the company has invested heavily to ensure it has capacity to meet customer demands.”

Overall, Northgate appears to be a good opportunity for Saskatchewan farmers and oil and gas producers, said Lyle Stewart, Saskatchewan minister of agriculture.

“Certainly the government has been supportive of the project, which will provide producers with another outlet for the commodities they produce,” said Stewart. “With [Ceres’] plan and facilities in place, we feel their service will be very positive for both the agricultural and oil and gas industries. Improved access to these markets will create some real opportunities for Saskatchewan producers.”
Another print revolution

CREATE YOUR PARTS WITH 3D PRINTING TECHNOLOGY

AS THE PRICE OF 3D PRINTING continues to fall, farmers should start thinking about what they can and will do with these devices. It’s not pie in the sky … it’s here now!

If I’ve said it once, I’ve said it 100 times: “Can you please drive to the dealership and pick up a part for me?” A “parts run” is pretty much a standard practice and an unavoidable part of agriculture. We use machinery and it breaks—new parts are required for repairs.

Huge strides have been made to reduce the agonizing downtime we experience while we wait for parts that are not in stock at the local dealer. Overnight couriers, mobile parts apps and improved parts availability have all helped, but the fact remains that the part is manufactured somewhere, stored in a warehouse somewhere else, shipped to a local dealer and then picked up by you or someone you now owe a favour.

This is about to change, and 3D printers are the reason.

3D printers have been around for more than 20 years, but only recently has the process become economical enough to be of use to non-commercial users like you and I. Additive manufacturing is the technical term for 3D printing. The most popular application involves using heated plastic (ABS) that runs through a nozzle and is secreted in layers to build a three-dimensional object or, in our world, a part. It is one of those things that is difficult to describe, but makes a lot more sense when you see it in action.

If you do a YouTube search for “3D printer,” there are some amazing videos that show how the machines work and some examples of what can be created. You will be blown away.

In only a few years, the cost of a 3D printer has fallen to about $1,000 today from $5,000 or more. A low-end model can be had for as little as $500. This technology will revolutionize light manufacturing around the world.

So what’s in it for you? Instead of waiting for a part to be shipped from China, you will just go online and buy a file that you download and transfer to a 3D printer. The printer spits out the part and away you go.

Plastic is only one material that can be used. Some 3D printers utilize metal or super-strong composite materials. Bio-engineers are even using 3D printers to generate replacement organs and prosthetics for humans. And Chinese technicians built an entire house using 3D printers to showcase the technology. It’s even possible to create food products using 3D printers.

Farm equipment manufacturers are already using 3D printing technology to build prototypes before taking a new design to full production. These prototypes can be generated at a fraction of the cost of traditional tooling, so the innovation process is faster and more economical than in the past. AGCO Corporation used this technology to produce new seed meter designs for its planters. GVL Poly makes plastic snouts, or dividers, for corn heads, as well as other harvesting equipment for John Deere, Case IH, AGCO and others. GVL made a major commitment to using 3D printing technology to develop and manufacture the plastic snouts, it has paid off big time.

Farmers will take 3D printing beyond just creating replacement parts for equipment. We know farmers are innovative by nature. The cost of having ideas turned into prototypes has been a major speed bump for many would-be entrepreneurial farmers. The low cost of 3D printing will stimulate some amazing innovations at the farm gate.

So you may not be chasing friends and family to do a parts run for much longer. The request may soon be, “Hey, can you print a part for me?” And who knows, maybe your future field service truck will have a wireless-enabled 3D printer right in the field.

Peter Gredig is a corn, soybean and wheat producer near St. Thomas, ON. He is also a partner in AgNition Inc., a Guelph-based mobile development company focused on building agriculture apps and solutions.
On solid ground

PRAIRIE SOIL STILL AN UNDISCOVERED WORLD

The United Nations has declared 2015 the International Year of Soils. The goal of this effort is to “raise awareness of the importance of sustainable soil management as the basis for food systems, fuel and fibre production, essential ecosystem functions and better adaptation to climate change for present and future generations.” I have noticed that the usual UN ambassadors (Angelina Jolie, David Beckham, Katy Perry) have not stepped forward to serve as the celebrity face of this important initiative. Perhaps they think there are limited possibilities for a “photo op” with saline seeps, chernozems and micronutrients.

Where do you stand on soil? No doubt it is the substrate that produces millions of tonnes of grains, oilseeds and forage across Western Canada. Our soil contains large pools of nutrients (and manages the complex chemistry of nutrient cycling) that can be accessed by plants to combine with light and water to generate a remarkable range of products. At times, I wonder if we appreciate that soil is also a finite natural resource—non-renewable on a human time scale. In addition to soil as the foundation for food, animal feed, fuel and natural fibre production, it also contributes to the supply of clean water and a range of ecosystem functions.

I am convinced that western Canadian producers are superb stewards of the land—but there are many things happening in that ground that science is just starting to discover. Every producer in Alberta knows that our soils are based on climate and parent material. The brown chernozems of southeast Alberta are dictated by their original grassland vegetation and limited precipitation. As we move north and west in the province, the soils reflect dark-brown and then black coloration determined by the associated vegetation based on higher precipitation. Further north in the province, limitations to productivity occur due to soils associated with mixed forest vegetation and shorter frost-free periods.

Soil research has a remarkable history. The Russian geologist Vasily Dokuchaev is considered the father of soil science. He was the first to make the case in the early part of the 20th century that soils should be considered a complex and distinct resource separate from geology and crop production. Although there has been a massive amount of research done in the intervening century, there are still new areas of research that are providing us with novel insights.

Data from Texas A&M University estimates that the total weight of soil organisms ranges from 1,160 to 12,700 pounds per acre—and that doesn’t include earthworms, nematodes, mites and springtails. State of Colorado researchers, using the newest genomic techniques, compared virgin prairie soil microbiota to current cropland—and the populations were radically different. New research from the University of Helsinki indicates that small changes in atmospheric temperature can reduce the amount of sequestered carbon due to micro-organism response. The work and studies go on.

How does this work relate to current production? The Grains Research and Development Corporation in Australia is investing in research to see what role soil microbiology might play in disease suppression, and to quantify the benefit of free-living nitrogen-fixing bacteria in soils. Producers have been rewarded from new technologies to gain benefits from nitrogen-fixing rhizobia and mycorrhizae. The soil health initiative in the United States is looking at new ways to encourage U.S. farmers to understand the value of soil microbes—noting that there is a remarkable symbiosis between plants and soil microbes. Ohio State data showed that typical crop plants give up 25 to 45 per cent of their total carbohydrate reserves to feed the microbes; in return, the microbes provide nutrients and water to the plant. The relatively new Haney Soil Test measures not only the existing pools of nutrients, but also the capacity of soil to deliver nutrients based on soil biological status.

We now have the tools to start to understand (and, in the future, maximize) the massive populations of organisms that are active just beneath our feet in the cropland across Western Canada. A recent survey of producers by the Alberta Crop Industry Development Fund indicated that soil health was high on the list of issues that are of concern to crop producers in Alberta. This is the time to start using new scientific tools to not only understand the complexity of soil biology on the Prairies, but also develop new crop management techniques to work with nature to achieve both higher yields and healthy soils.

Dr. Stan Blade is Dean of the Faculty of Agricultural, Life and Environmental Sciences at the University of Alberta.
Life on the front line

Communication from farmers is vital to success

Farmers are on the front line of our food production. Daily, they are battling the elements, including nasty, uncooperative weather, invasive insects, disease, and weeds that choke and steal the nutrients from healthy crops. And this year, they faced a short growing season (emphasized by #Harvest14).

It is a risky time to be in farming, and many farmers are reviewing their risk management options.

When you think of your risk management toolbox, do you think of research and innovation as part of your arsenal? Yet, access to new crop varieties and genetics helps farmers manage risk.

The modern agriculture methods used today are based on giant leaps in genetic plant-breeding technology. The science that farmers use every day on their farms allows them to manage a risky, short growing season. It also introduces a new realm of possibility for production in a normal growing season that previous generations could only dream about.

Two areas of risk that need management are consumer perception and satisfying consumer demand. Gauging consumer trends is becoming increasingly complex and risky, since these trends do not always make sense. Yet, these trends do and will affect producers’ long-term operation sustainability.

Deborah Whale, a seventh-generation Ontario farmer, recently expressed the frustration many farmers feel at an “ideas” conference near Toronto. “The anti-modern agriculture message is eating away at the foundations of this mighty industry,” she explained. “If it eats away at the foundations, then it will surely destroy the future of one of the greatest success stories on the Earth—and that is Canadian agriculture.”

At the conference, Whale communicated that old-fashioned, small-scale farming practices are not better than how producers farm today. The land management practices and poor food-safety protocols of the last century would put too many pressures on the environment and would not allow us to produce what farmers are outputting today. It would not feed us the way we demand to be fed for the low cost of food we have come to expect.

Farmers and industry alike are saying that more communication with the public is needed, but whose job is it anyway?

Agriculture and agri-food is more than a career choice; it is a way of life and a culture. We, too, are consumers, not just food suppliers, and we all care about our industry. We need to communicate that by sharing our passion and personal perspective.

Agriculture More Than Ever hosted a “Social Media 101 for Agvocates” webinar with Megan Madden, from southpaw pr. Madden explained that, when using Twitter, you need to share credible, balanced information: “Twitter is a social community you are building, not a propaganda tool.”

She also said to “tweet from the heart,” engage in conversation about what you are interested in and, if you disagree with something, push back by asking for more information.

Is it as simple as that?

Recently, Sarah Schultz (@NurseLovesFarmr), a farm wife and blogger, directly challenged a Starbucks campaign that claims to “help farmers” but actually dictates to farmers how they should farm. Sarah, a social media stalwart, and her husband Jay, an Alberta Wheat Commission regional representative, farm near Standard. Other farmers from across North America joined Sarah’s commentary. Her engagement, coming from a farmer’s personal perspective, made the public and Starbucks rethink. Not all urbanites are hostile to modern agriculture farming practices, but they are actively seeking information.

If you are on Twitter (and many farmers are), sharing your farm event experiences and what happens on your farm is a sure way to have urbanites “follow” you from large urban centres as far away as New York and L.A.—they seem to want to learn more about farming.

Through social media, many grassroots farmer communication efforts are emerging, such as @FarmersOfCanada, sharing “a week in the life of Canadian farmers,” and @AskTheFarmers, which answers questions like, “Where does your food come from?” and “How is it raised?”

Can we really influence public discussion on food and farming by engaging in conversations using social media and other public venues to explain our story? As Megan Madden from southpaw pr says, “Keep calm and agvocate on.”

Janet Krayden works for the Canadian Agricultural Human Resource Council and lives outside Ottawa. Originally from a mixed farm near Acme, AB, she specializes in agriculture communications. Follow her on Twitter, @CdnAgvocate.
THE LABOUR-INTENSIVE TASK OF decoding one of the world’s highly consumed wheat varieties has made headway in Saskatoon, SK.

Led by the University of Saskatchewan’s Curtis Pozniak, under the Canadian Triticum Advancement Through Genomics (CTAG), the project’s goal is to create a supreme reference genome sequence of the bread wheat genome using DNA from the Chinese Spring variety.

Sequencing the entire genome will cost about $21.6 million. The CTAG project alone received $8.5 million in funding, with $1.6 million going towards the sequencing and assembly of chromosome 1A. In fact, the wheat genome is five times larger than the human genome, and only 20 per cent of it contains genes.

Due to the large size and complex structure of the bread wheat genome, substantial barriers have made it difficult for researchers to map it fully. However, recent technological advances mean researchers can now undertake the hefty task.

“We can develop a high-quality reference sequence in a much more rapid way because of new technology that wasn’t available four or five years ago,” explained Pozniak.

In particular, Canada will sequence chromosome 1A, which contains key genes that determine dough strength and disease resistance. As a global effort, CTAG will also work on chromosome 1A with researchers in Switzerland and Turkey.

“There are a lot of interesting genes on 1A. Many quality aspects reside on it,” Pozniak said. “But the project goes beyond 1A. We have access to other breeding information through international partners that we may want to use.”

Once sequenced, the efficiency of selecting specific traits will be greatly enhanced for breeders who will develop new varieties, said Kofi Agblor, managing director of the Crop Development Centre in Saskatoon.

“Ultimately, the project will help pinpoint varieties that impact producers, improving their outcomes by using a product that has less quality issues.”

Cultivars must continually be improved to cope with changes in the production environment—it reduces the dependence on pesticides and production costs, and provides marketing advantages, attracting consumers and exporters, said Chris Barker, chief scientific officer at Genome Prairie.

“Having a wheat genome sequence is a blueprint. It impacts possible varieties coming out from programs, and it’s important to have the best varieties used on farms.”

Canada will also develop a database of all the genes, which can be used for future marker-assisted selection and genome-wide selection strategies.

“Genome selection is about taking new technology to the next level, Barker added. “Advances in technology allow you to build that database, and understand all of those regions in the chromosome,” he explained. “There’s never an ideal variety because things are constantly changing. The strategies are really about allowing breeders to be more productive to provide better products for farmers.”

The project will examine four more additional objectives: sequencing the exome of key Canadian wheat cultivars; identify single nucleotide polymorphism (SNP) markers; developing high-throughput SNP genotyping for wheat breeding; and examining the role of public breeding institutions.

“Those objectives all fit together,” Barker said. “They are all very important for the wheat industry as a whole. Developing sequences is critical to understanding what breeders have done, and what diversity is out there for Canadian varieties right now.

“While canola is king these days, king wheat goes way back. Wheat is an essential crop on the Prairies, and this project makes sure Canada is a leader, providing cutting-edge research.”

The project is set to finish in 2016.

FIELD SCHOOL: A field of spring wheat that’s used for the University of Saskatchewan’s wheat breeding program.
Scaling back scald

THE FIGHT AGAINST SCALD IS

underway for one of Canada’s premier
feed varieties.

Aaron Beattie, a barley and oat breeder
and the project lead to combat scald resist-
ance at the University of Saskatchewan’s
Crop Development Centre, is leading a
research project that looks to map several
scald-resistant barley genes within CDC
Austenson to develop a variety of barley
with improved scald resistance.

According to SeCan, CDC Austenson
produces grain yields higher than the
other two check varieties, Xena and AC
Metcalfe.

“Austenson has high yield, plump
seeds and good straw strength,” said Jim
Downey, research and development man-
ger at SeCan.

Despite Austenson’s strong leaf-disease
resistance, it lacks adequate protection
against scald, a major foliar disease that
affects barley in the wetter areas of the
Prairies, especially in Alberta’s southern
parkland region.

“Scald is an important disease to look
at,” Beattie said, adding that the disease
has potential to considerably slash yields.
In fact, scald has cut yields in some fields
by more than 25 per cent. Currently,
average yield losses in Alberta are at 2.4
per cent.

“It’s always been a big issue in parts
of Alberta,” Beattie said. “Depending on
the year, you might see it in southwest
Saskatchewan. However, we saw a lot of it
this year near Saskatoon.”

Scald is found on leaf sheathes and
leaves. Large, water-soaked, grey-green
spots appear on the leaves, which rapidly
dry out and become bleached with brown
spots. Those spots then engulf the entire
leaf and kill it. Subsequently, a decrease
in the photosynthetic area on the flag and
second leaf reduces seed weight, resulting
in yield loss.

If scald appears on the upper leaves
and sheathes in mid-July, farmers should
expect considerable yield loss. If scald
doesn’t appear until early to mid-August,
losses from scald will be considerably
reduced, as grains are well filled by that
time.

To combat the disease, and to ensure
the possibility of higher yields for those
who plan on growing the new breeding
line derived from Austenson, Beattie is
mapping three scald-resistant genes in the
variety.

Beattie is collaborating with Kelly
Turkington, a research scientist with Agri-
culture and Agri-Food Canada (AAFC) in
Lacombe, on this project. Beattie is using
one of Turkington’s nurseries to screen the
Austenson trials.

Each trial, or test, is restricted to the
crop’s lifespan, which is similar to the an-
nual growing season. The data is recorded
each July and breeding lines derived from
Austenson are established and identified.

“We then characterize that data as
to how resistant the barley is to scald,”
Turkington said. He ranks the trials based
on their scald resistance, and sends them
back to Beattie.

“Nothing has surprised me so far,”
Beattie said. “Everything is working out as
we thought it would.”

Even though the implementation of
scald-resistant genes in Austenson will
help defend the crop against scald, Tur-
kington said farmers should rotate crops
and crop varieties every two to three years
to reduce the opportunity for the scald
pathogen population to adapt to the new
breeding lines.

“If you don’t appropriately manage
your field against the scald pathogen
population, new scald-resistant varieties
may no longer be useful for the farmer
and no longer useful for the breeder,” said
Turkington.

Downey echoed concerns with scald’s
presence on the field.

“Scald pathogen populations change
so they can attack certain varieties,” he
explained. “We’ve seen some varieties go
from resistant to poor because of that. It’s
a complex issue.”

But as new disease-resistant lines hit
the market, farmers can expect to use
fewer fungicides, which would effectively
reduce costs and produce an attractive
crop to sell, said Barley Council of Canada
Chair Brian Otto, who farms in Warner.

“Research like this supports growers’
pocketbooks,” he explained. “It’s good for
our bottom line, and better for the envi-
ronment. We can turn to chemicals, but
I’d much rather invest in a seed breeding
program. Obviously we need both, but the
less fungicides we use, the better.”

The project is slated to finish in 2018.
Curling pioneers

THE SCOTTISH GAME OF CURLING was introduced to Canada in 1807 in Montreal, QC, but didn’t make its way west for another 80 years, where the first game was played in Edmonton in 1888. From there, the game’s popularity spread to even the newest pioneer settlements—including the hamlet of Grimshaw in the Peace River Region.

The eight women and men of the Grimshaw curling group were—in true pioneer fashion—resourceful: they used conventional brooms, played on an outdoor rink and even improvised the “stones,” which were hand-carved out of green wood by team member Mike Miller. While wooden stones probably weren’t ideal, they were no doubt easier to manage than the first iron stones used in Canada—shaped like a tea kettle, men’s iron stones weighed up to 80 pounds and the women’s up to 48 pounds.

Grimshaw, located southwest of the town of Peace River and named after its first doctor, wasn’t settled until 1921, so it was a very new community when the above photo was taken. Residents of the new hamlet along the Central Canada Railway were interested in a range of sports, including hockey, baseball and basketball.

Miller started out as a farmer near Grimshaw. He owned three quarter sections at one time, farmed them for a few years, but sold out after three successive crop failures. He later operated a service station.

Yvan Adam operated a general store in Grimshaw and served on the first village council. He was also captain of the volunteer fire department.

Miller and Adam’s fellow curler, Bert Geyer, started a general store in 1927, and also worked hard to organize and finance the first school district. John Schur, meanwhile, ran a butcher shop.

Although cropping success was hit-and-miss, the Security Company finally took a chance and built the Security Elevator in 1926, with the competition soon following. By 1928, the village had five grain elevators, two oil companies, wholesale supply depots and all types of tractor and farm machinery dealers.
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With the combined protection of three different actives and its micro-dispersion formulation, Raxil PRO is easy-to-apply and provides advanced seed coverage for unmatched contact and systemic protection from the most serious seed- and soil-borne diseases, including Fusarium graminearum, true loose smut and much more.

Raxil – Still the toughest thing in pink.

To learn more about Raxil PRO, visit: BayerCropScience.ca/Raxil