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The lines are drawn and farmers weigh in

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### FEATURES

**CETA Deal Struck**  
Canada and the EU broker a historic partnership—we probe the pact’s details.

**UPOV 91**  
The lowdown on plant breeders’ rights, farmers’ rights and saving seed.

**The Godfather**  
A living legend, we talk to the man himself, Bill Cooper, the Godfather of Grain.

**No Till Farming**  
What minimal impact on the land can mean for your farm.

**Canadian Wheat Alliance**  
A look inside the organization fighting to keep wheat’s profitability and strength at optimum levels in Western Canada.
**CONTRIBUTORS**

**Michael Byers**
After graduating from Sheridan College with a bachelor of applied art degree in illustration, Michael began illustrating right away. Shortly after he signed on with Sari Schorr of Levy Creative Management. He’s been published with clients such as The New York Times, O Magazine, Entertainment Weekly, Washington Post and Boston.

**Ian Doig**
Editor-in-chief of Where Calgary magazine, Ian Doig’s writing has been featured in The Calgary Herald, The Globe and Mail, Alberta Venture and Canadian Geographic. Recent story topics include the rise of specialty agriculture, aboriginal labour force initiatives and Calgary’s red-hot restaurant scene.

**Lee Hart**
As a journalist for more than 40 years, Lee Hart has focused on reporting on and commenting about the Canadian agriculture industry for the past 25 years. A former field editor for Country Guide Magazine, he has been a writer and editor for Grainews for the past 10 years—based in Calgary, AB.

**Tamara Leigh**
Tamara Leigh is a transplanted Prairie girl living on Vancouver Island. A passionate student of agriculture and food issues, she is a contributor to Canadian farm publications, and president of the BC Farm Writers’ Association. Tamara provides consulting services to agriculture clients through her company, Shiny Bird Communications.

**Candice Ward**
Candice Ward is a freelance photographer/journalist in Calgary, where she studied photojournalism and hasn’t taken her finger off the shutter since. Candice shoots for major dailies and specialty magazines. She grew up in Bonnyville, AB, and she can proudly say she survived many of their legendary winters.

**Sarah Weigum**
Sarah Weigum grew up on a seed farm in Alberta. After graduating from high school she moved west to study English literature in Vancouver. Since, she’s lived north, east and south of her original starting point, where she once again finds herself growing pedigreed seed alongside her parents and writing for agriculture publications.
Life is Agriculture. The Rest is Just Details.

**MOST PEOPLE THINK THERE ARE TWO CERTAINTIES IN LIFE: DEATH AND TAXES. LET’S NOT FORGET, EVEN THE TAX COLLECTOR NEEDS TO EAT.**

**INTRODUCING GRAINSWEST**—Alberta’s first wheat and barley magazine created by farmers, for farmers. This magazine was developed with one goal in mind—giving farmers the information they want. From agronomics to stunning visuals, GrainsWest is a quality read from start to finish.

At its heart, GrainsWest represents the hallmark of hard work and belief in an industry that employs one in eight Canadians.

These days, our industry is looking forward. Through marketing freedom, an outstanding harvest and a brand new trade agreement with the European Union (see page 23), western Canadian growers are poised to expand their agricultural and agri-food products into a new market of 500 million hungry people.

Our hard work, combined with a tireless dedication to getting the job done, is impetus to celebrate. Quality farming doesn’t just happen: we are the drivers of our farmgate’s success. Each and every one of us knows the value of the work we do—and GrainsWest is our way of sharing that value with other farmers.

We are all serious businesspeople carrying enormous responsibility. The narrative of agriculture has always lent itself to work—teamwork, hard work, honest work—and that’s why Alberta Barley and the Alberta Wheat Commission now share office space, staff and resources. After all, many hands make light work—and we’re in this together.

We are proud of who we are and will continue to tell the great stories that come from feeding the world. It’s a great day to be a farmer.
I AM PLEASED TO EXTEND MY warmest greetings to the staff and readers of GrainsWest on the occasion of the publication’s inaugural edition.

I have tremendous respect for the farmers, processors and shippers who ensure the continued vitality of Canada’s grains industry. From family farms to large-scale operations, grain farming is a key component of our prosperity. The grains sector has overcome many challenges to endure and thrive as an innovative industry with a strong future.

Our government is dedicated to securing the industry’s continued development and success. Grain farmers now have an opportunity to compete in an open market where they are able to respond to demands with innovative farming and processing practices. We will continue to work to open new markets and provide new avenues of success for the industry.

GrainsWest will be a valuable forum for examining issues facing the industry and promoting the interests of grain farmers. I congratulate the publication on this launch and commend all who contributed to bringing this publication to press. On behalf of the Government of Canada, please accept my sincere congratulations and best wishes for great success.

The Rt. Hon. Stephen Harper, PC, MP
Prime Minister of Canada

IT IS MY PLEASURE TO CONGRATULATE GrainsWest magazine on the launch of its inaugural issue.

Alberta’s grain farmers are an integral part of our agriculture community and it is wonderful to see a new grain industry publication created in partnership with the Alberta Wheat Commission and Alberta Barley.

Our government is committed to a strong and vibrant agriculture sector. Through the Building Alberta Plan, we continue to pursue new opportunities for our producers by exploring new markets for our agricultural products in Canada and around the world.

Innovation will be pivotal to our ongoing success. In today’s competitive global marketplace, we must continue to work together to find new and better ways of doing things so that we can adapt to the evolving needs of our customers and seek out exciting new ventures.

This new magazine will have an important role in keeping our grain producers informed.

I wish you great success in your endeavours.

Alison M. Redford, QC
Premier of Alberta
MESSAGE FROM THE AGRICULTURE MINISTER – GOVERNMENT OF CANADA

CONGRATULATIONS TO THE ALBERTA WHEAT COMMISSION AND ALBERTA BARLEY

Wheat Commission and Alberta Barley on the launch of GrainsWest magazine.
Leading the country in barley production, and home to one-third of Western Canada’s wheat, the Alberta grain industry is an economic driver, bringing $2.5 billion to the farmgate and generating $2.3 billion in exports. And the future is filled with new opportunities for Alberta wheat and barley producers, including Canada’s historic trade agreement in principle with the European Union, which will open up a market of half a billion consumers, eliminating tariffs on our wheat and barley of up to $190 a tonne.

To give farmers the marketing tools they need to compete, the Harper government delivered on its commitment to an open grain market in Western Canada. Marketing freedom has re-energized and revitalized the Western Canadian grains industry. New producer-driven organizations like the Alberta Wheat Commission are taking shape to provide the leadership needed to improve the competitiveness and profitability of the industry. The time couldn’t be better to foster stronger communications and information-sharing across the industry.

Together with producers, our government will continue to build a modern, competitive and profitable grain industry in Alberta and across Canada through our aggressive trade agenda, Canadian Grain Commission reform, supply chain improvements and strategic investments in innovation under Growing Forward 2. I’m very optimistic about the future of the grain industry and Canadian agriculture overall.

The time is right for the industry to capture new opportunities in burgeoning markets that are looking for healthy, nutritious food. I have no doubt this publication will be a strong voice in agriculture and spark constructive dialogue to help the industry unlock its full economic potential.

Congratulations and I look forward to reading your first issue!

Gerry Ritz, PC, MP
Minister of Agriculture and Agri-Food Canada

MESSAGE FROM THE AGRICULTURE MINISTER – GOVERNMENT OF ALBERTA

CONGRATULATIONS TO THE STAFF OF GRAINSWEST MAGAZINE ON THE PUBLICATION OF YOUR FIRST EDITION.

Agriculture is part of the foundation of our province, and Alberta is blessed with some of the best and most innovative producers in the world. This magazine will be an important venue to help our producers stay informed about the latest trends and developments in the grain industry. The ongoing success of our agriculture sector is dependent on our ability to share ideas, adopt innovative new approaches to farming and adapt to changes in the marketplace.

I would also like to take this opportunity to thank Alberta Barley and the Alberta Wheat Commission for supporting this magazine and for all of their efforts on behalf of our province’s grain producers. The commissions are a strong voice for their memberships and provide valuable support to help advance the grain industry through research and market development.

Best wishes to the publishers of GrainsWest magazine and to our producers for a successful and productive year.

Verlyn Olson, QC
Minister of Alberta Agriculture and Rural Development
From the Farm to the World

North, East, South and West: There’s a World Out There Waiting for You

Canada has developed a brand of its own when it comes to Canadian agricultural products. People around the world who eat anything labelled “Product of Canada” know they are getting a quality product. That label is sought out at grocery stores both here in Canada and worldwide.

The “Product of Canada” label creates a real opportunity to present the story of Canadian farming from a producer’s perspective, and helps create a connection to the source. When buyers feel connected to the supplier, especially with food staples, they feel confident in looking for that supplier in the future.

It is important for producers, when given the opportunity, to get out and participate in trade missions that take them overseas to meet the people who are buying Canadian agricultural products. It not only allows the buyers to ask questions about the producers’ farming operations and get an understanding of how farms are managed in Canada, but it also establishes a relationship. When Canadian growers are given the opportunity to tell the story about their farms, their families and their crops, they take ownership of the food they are growing and selling.

Business is about building relationships and meeting face to face—farmers to buyers. Relationships between the farmers who grow the wheat, lentil, barley or canola crops, and the buyers around the world who are purchasing them, are critical for growing business—for both the grower and the buyer. Collaboration and partnerships are the new order of the day. The end results are stronger business relationships for Canada, and increased opportunities to sell our products worldwide.

Even Canadian grocery store chains are taking on similar marketing strategies here at home. In many grocery stores, when you pick up a package of meat, the label often introduces you to the farmer who grew the chicken or beef that you are buying. This allows consumers to feel better about the food they eat by knowing where it comes from. The same goes for our international customers. They, too, place importance on knowing where their food comes from, and like to have that connection back to the farmer who grew or raised it.

With growing issues around food security and being able to trace food back through the value chain, building the relationship between farmer and buyer is very important for selling Canadian agriculture products. Creating that personal link between the farmer and the food is a key marketing trait that Canadian agriculture can turn to in the future.

Buyers really want to connect with growers. For the future of the Canadian agriculture industry, it is important for our farmers to establish relationships with our customers so they feel informed and educated about Canada, our production systems, the quality of our agriculture products for their end use and our quality-assurance systems. Building relationships is a key part of doing business today and it should remain a top priority, especially when it comes to agriculture.

Doug Cornell is the general manager of the Alberta Wheat Commission.

Creating that personal link between the farmer and the food is a key marketing trait that Canadian agriculture can turn to in the future.
There’s a poem called “Silos,” by former U.S. poet laureate Rita Dove. It ends: “They were masculine toys. They were tall wishes. They were the ribs of the modern world.”

When talking about silos in agriculture, we are generally thinking of grain storage. But silos of the mind can separate us from our colleagues in agriculture, as well as from other industries, the general public—and sometimes our own friends and families.

In agriculture, we can be proponents of an individual crop, or proponents of a cropping, marketing or organizational system, and this can sometimes be polarizing. Yet, when we unite, when we come together with one voice, we are much stronger—and much more able to affect change.

The gluten-free movement is one area the cereals industry has the ability to come together and make a difference. It seems that every time we turn around—every time we’re in a restaurant or at an event or listening to the radio or watching a talk show—someone’s talking about the importance of “going gluten-free.”

As a culture, we are being told to limit gluten because self-styled experts continue to opine that gluten is bad for us. And when they’re taking on gluten, they’re really targeting wheat.

Consumers—including our friends, neighbours and family members—are consciously choosing to eat foods that are often more expensive and come from further away in order to fit a self-imposed dietary restriction that is not necessarily nutrition-focused, but is fast becoming a middle-class norm.

Yet we are doing a disservice to ourselves by not redefining the argument and pushing back. Let’s not be intimidated by the slogan-centric “gluten-free” language. Instead, let’s start talking about balance.

We have a unique opportunity to start redefining and refining our own message around cereals crops: whole grains, including wheat, are good for us. Wheat is an excellent source of fibre, and it has a place in a healthy, balanced diet. Like barley, it’s a local grain with a strong nutrient profile.

So let’s redefine the debate. Let’s not let the language cloud the issue, because it is not about “wheat belly,” it’s about wheat balance. In order to be healthier, we need to talk about wheat balance and carb balance to ensure we are eating fewer processed foods overall, because whole grains are part of a nutritious and healthy diet.

Granted, we all know (or know of) people who have true health issues related to Celiac disease and allergies. These people deserve our concern. But for the other people in our lives—the ones who are self-limiting their diets because someone on TV told them to—let’s push back a little and suggest they get tested by a doctor if they have health concerns. They need to do some research, and find out what’s really going on.

Let’s move out of our silos, work together and encourage balance and real wellness—and let’s find the language to inspire this new movement.

Lisa Skierka is the general manager of Alberta Barley.

The gluten-free movement is one area the cereals industry has the ability to come together and make a difference.
“When it is understood that one loses joy and happiness in the attempt to possess them, the essence of natural farming will be realized. The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings.”

– Masanobu Fukuoka, pioneer of no-till farming in Japan.
OF KALE AND COWS AT CROSSFIELD

WHEN RANCHER GRAEME FINN trialed a bite-sized, seven-acre plot of kale this past year on his Crossfield-area grazing land, he thought it would be a simple crop investigation. As it turned out, the plot was both revealing (for him) and nutritious (for the cows).

Years prior, he had visited a friend in the high country of New Zealand who farmed kale. Finn, an Australian expat, finally decided to give it a go here in Alberta. This past June, he seeded the Winfred variety of kale, part of the brassica family, into the ground with Crusader rye grass as a grazing mix. He swathed it just after Labour Day and samples were collected September 13 for analysis.

Even with some chilly nights approaching -30°C late last year, Finn said the cell structure of the kale hadn’t deteriorated.

“The way it tolerated the cold was just phenomenal,” said Finn, a director of the Foothills Forage and Grazing Association (FFGA). “We mixed it with [semi-annual] Crusader rye grass. I know the kale won’t come back, but the rye should. I’ll be able to have some cows on it,” he said.

Will the experiments continue? Finn has reason to believe the leafy superfeed, which can fully mature in 60 days, might make another appearance on his pasture.

“If I had spare cropland and was going to put yearlings on it, I’d do it in a heartbeat,” he said.

The cows are probably hoping so, too. Finn’s kale had a hearty 16.2 per cent crude protein, nearly double the 9.6 per cent of his oat-and-barley swath mix.

“It was bred for grazing specifically,” said John Snider, an Oregon-based marketing agronomist with PGG Wrightson Seeds, a New Zealand seed company. Snider supplied the seed to Finn and said he isn’t surprised it held up well in Alberta’s climate.

“We use it in California because it’s so drought-tolerant,” he said, “but it defies all kinds of descriptions and planting zones.”

Overall, Finn’s kale grew quickly with large full leaves. In the future, getting the seed in the ground in May would allow earlier growth and perhaps two grazings during the summer. Due to its high moisture content, at nearly 70 per cent, the swaths Finn tried were fairly wet going into the fall, which increased the risk of moulding within the swath, according to Laura Gibney, FFGA manager.

Weighty Numbers

THANKS A MILLION, CANADA—ACTUALLY, 6.5 MILLION. THAT’S THE NUMBER of pounds Farm Credit Canada (FCC) tallied for its 10th annual Drive Away Hunger campaign. When the final numbers were added, shock is what set in among staff, according to Dawn Kobayashi, FCC’s manager of community investment in Regina.

“It was overwhelming, for sure,” she said. “When we equated what that means, that’s about five million meals.”

Oh, and if you’re wondering, 2013 easily eclipsed 2012’s donations of 3.1 million pounds—a job well done by everyone who participated. Over the last 10 years, FCC has brought in more than 17 million pounds of food to Canadian food banks.

According to FCC, more than 900,000 Canadians, 338,000 of whom are children, rely on food banks across the country each month.
STAN SWIATEK HAS ALWAYS BEEN a fan of green—for years he successfully grew 10,000 cucumbers in his Airdrie-area greenhouses each week. At his peak, he was fetching $24 per dozen cucumbers, but luck and the vagaries of the marketplace have caused prices to fall in recent years. Swiatek needed to reassess his livelihood. Now, he’s trying to move on by becoming a licensed medical marijuana grower.

“The more I did research, there was a whole world I was unaware of,” said Swiatek, who’s currently in the application process to grow medical marijuana through Health Canada.

Swiatek, who doesn’t puff, decided the switch could prove lucrative since there are nearly 40,000 licensed smokers across Canada, many of whom suffer from chronic illnesses including multiple sclerosis or cancer.

Last June, Health Canada passed a law to change the country’s medical marijuana rules. By Oct. 1, 2013, no more permits were being issued to grow your own marijuana plants. And, as of April 1, 2014, users will only be able to legally purchase marijuana from licensed growers by providing a medical note, effectively morphing marijuana growers into pharmacists distributing prescription drugs.

One of the chief reasons the regulations were re-written was that Health Canada saw that the old system was open to abuse by medical marijuana users.

If Swiatek’s application to grow and distribute marijuana is successful, he may soon find himself in select company (by mid December 2013, only three people in the country had licences to grow marijuana, with about 285 in the application queue).

“It’s very intense for security and record keeping to become a commercial grower,” said Swiatek. “It’s extremely regulated, unlike what lots of people think.”

However, that’s not stopping apprehensive neighbours from expressing concern. About a dozen people showed up to Rocky View County’s Nov. 26, 2013, council meeting to express concern, said Councillor Lois Habberfield.

“Their main concerns were security, protection of properties and property devaluation,” she said. “They feel if they go to sell their property that it would diminish the value. Who would want to buy next to one of these?”

As it stands, the County doesn’t have an official policy regarding medical marijuana and growing facilities, but is now working to have a policy in place during the first quarter of 2014, Habberfield said.

For Swiatek, it’s about his bottom line and location.

“POT LUCK

ALREADY HAILED AS ONE OF THE BEST agriculture apps in recent memory, the award-winning Mix Tank 3.0 recently introduced its Mix Sheets update, a feature that records tank and field size as well as usage rates and spray volume. Once the app calculates inputs, it’s a few more taps on your smartphone and you’re sharing results with others in no time. In addition, Mix Sheets can calculate rates per acre, field and load.

“Every year, we solicit input from applicators,” said James Reiss, co-developer of Mix Tank. “The feedback we get is that it’s great to share recipes, but what they really wanted was some record of what they’ve done, including use rates.”

The update took about a year to create and now works to achieve “entire records for spraying” and not just simple “recipe building.”

What will 4.0 have in store for us?

We’re not sure, but development has already begun. Mix Tank is a free app available through Apple’s App Store and Google Play.

HERE’S THE BEEF

THE PRAIRIE PROVINCES’ AGRICULTURE MINISTERS, along with Agriculture and Agri-Food Canada Minister Gerry Ritz, attended the North American Meat Association’s Outlook Conference in November 2013 to reaffirm their disapproval of Country of Origin Labeling (COOL). As the U.S. re-examines its national farm bill, Ritz has said now would be a good time to amend COOL regulations, which have been widely decried by Canadian politicians, as well as beef and pork producers.

Ritz has made it clear Canada will seek all options to resolve the dispute, including retaliation. Alberta Agriculture and Rural Development Minister Verlyn Olson took a moment to tweet during the conference, “Retaliation isn’t Canadian but we also play hockey & once in a while you have to get elbows up.”

Canada is currently appealing COOL through the World Trade Organization. Retalatory levies will only be enacted if the WTO authorizes Canada to take such action.

Mix Tank Update

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MEANINGFUL LINKS

IT’S AN INCREASINGLY PROSPEROUS TIME TO BE A landowner in certain pockets of Canada, especially in rural areas. Farm Credit Canada’s (FCC) Spring 2013 Farmland Values Report estimated that land values in Alberta increased by 7.2 per cent in the second half of 2012. Values are the highest around the Highway 2 corridor, while southern Alberta’s irrigated areas had a solid showing due to favourable commodity pricing and crops grown on contract.

“There are a lot of different factors that are driving this,” said Ken Gurney, senior appraiser for FCC in Lethbridge, AB. “Our ag industry across Canada as a whole, and especially in Alberta, is very strong.”

To the east, Saskatchewan and Manitoba had increases of 9.7 per cent and 13.9 per cent, respectively, in the second half of 2012. The biggest winner was Quebec, with a whopping 19.4 per cent farmland value increase. Both New Brunswick and Newfoundland and Labrador had zero change.

The report, which will be released only once a year beginning in the spring of 2014, uses about 245 benchmark properties across Canada to assemble its data.
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 the first of an ongoing series, GrainsWest will bring you up close and personal with one producer’s glovebox, finding out what they need to get through the daily grind.

In this issue, we ask Charlie Leskiw, a grain and cattle farmer from St. Paul, AB, to open up his glovebox. Here’s what we found.

1. Gloves, of course
2. Flashlight
3. Lock de-icer
4. Registration and pink card
5. Notepad
6. Bill book (for the year end)
7. Air freshener (new car scent)
8. Plastic hose coupler
9. Pens
10. Jackknife (courtesy of The Western Producer)
11. AGLAND (JD) business card
12. Four loonies (A&W money)
13. Matches
14. Sinutab
15. Packet of fuses
16. Phone charger
17. Cigarette lighter (no, it’s never used)
18. Alan Jackson CD
19. Soil thermometer
20. Snap ring and CCIA button (for the calf that got away ... has anyone at CCIA tried to tag a calf out on pasture?)

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, drop us a line: info@grainswest.com
Ag Education is a Long-term Investment

MORE THAN 100 YEARS AGO, THE Alberta Department of Agriculture recognized that the many new settlers living in the province needed agricultural education. In 1911, it created seven demonstration farms throughout the province. People were encouraged to visit these farms for short courses so they could develop hands-on skills while learning about the scientific side of farming.

Of course, agricultural education has changed immensely since the days of the demonstration farms, but its importance hasn’t. Agriculture is a multi-billion-dollar global industry, and whether a person intends to work on the family farm or pursue a career elsewhere in the industry, education is crucial.

Agriculture and related industries have evolved into complex businesses. They are highly capitalized and risk-intense, and are very much affected by global forces. These businesses require production, marketing, finance and operational expertise. They also need employees who understand important issues such as environmental sustainability, animal welfare, health and safety, verification and traceability. It has become increasingly important that individuals entering the industry have an enhanced level of management and business training.

Today’s agricultural sciences students study animal and plant science, participate in research, learn about sustainable farming practices, delve into food safety, discuss emerging consumer trends and develop an understanding of economics. And they learn not only from expert instructors, but also industry guest speakers and their classmates.

The information students learn in classrooms and the skills they gain in labs are essential, and serve them well when they enter the industry. In addition to learning the technical skills that are taught at colleges and universities, students typically improve their soft skills such as listening, communication, public speaking, decision-making, problem solving and time management. These skills are increasingly invaluable for career success.

Just as importantly, post-secondary studies also promote critical thinking and help students develop an appreciation for learning and discovery. Regardless of where the graduate goes after college or university, we all know that learning must continue.

After convocation, graduates often ask me if I have any tips for them. One thing I tell them is that they must own their education. It is their responsibility and theirs alone. I encourage them to participate in webinars, subscribe to industry publications, join applicable listservs, attend industry seminars, find a mentor, take short online courses and create a strong network of contacts.

For those who return to a farm operation, ongoing learning is even more important. After all, to operate and manage a successful agricultural enterprise, producers must understand commodity marketing, human resources management, accounting, farm machinery, current technology and much more. There are few other industries that require such a diverse skill set.

Globalization has caused a seismic shift in the way the agricultural sector operates today. But since the demonstration farms of 1911, the landscape of agricultural education has been likewise transformed to meet the dynamic needs of both industry and today’s learners.

Josie Van Lent is the dean of Agricultural Sciences at Lakeland College in Vermilion, AB.
From seeding dates and variety selection to grain storage and a good relationship with your maltster, many variables factor into successful malt barley production. Three Hills-area farmer and writer Sarah Weigum asked three Alberta farmers what they do to achieve malt-quality barley on their farms.

1 **Donald Mueller,**
Three Hills, AB
We start off with a good rotation. We exclusively put barley on canola stubble. On pea stubble, we might get carried away with protein. Our fertilizer blend is between 75 and 80 pounds of nitrogen, 35 to 40 of phosphorus and probably 15 of potash.

We always seed from certified seed, usually 110 pounds of barley per acre. The higher plant population can produce a smaller head, which is less prone to break off. It also produces a more consistent kernel size, so you have less little kernels that tend to be higher in protein. We’ve been growing CDC Meredith the last couple of years. The lower protein means we can get away with more fertilizer than other varieties.

I prefer to bag the barley because it cools quicker, extending germination and vigour. We’ve had barley in bags from fall to spring and the germination stayed at 100 per cent. Meredith’s lower protein also produces a more European-style malt.

2 **Dave Davidson,**
Haynes, AB
We use Farmers Edge (FE) for all our inputs. After we take the crop off, FE probes and sends in samples for analysis. Then we’ll sit down and go over each field. We might only need 20 pounds of nitrogen in green areas, but red areas might need 130. Before FE, we had trouble with protein because of our rolling land. We don’t want to over-fertilize, but we still want to maximize our yields.

I try to seed between May 1 and May 5. The goal is to get it off before the monsoons in September. When the barley gets to about 18 per cent moisture we’ll cut it and put it in bins to dry, since it will chit so easily. We’ll swath right ahead of the combine. Get it off quick—that’s the secret of malt barley. We dry the grain at about 110°C. At that temperature, it takes a point of moisture a day out of it.

3 **Scott Keller,**
New Norway, AB
We grow CDC Copeland and CDC Meredith. It’s nice to have varieties with different maturities. We seed the Copeland before the Meredith in the spring, and that spreads the window out in the fall.

We upped our phosphorus to 35 to 45 pounds, which lets us use more nitrogen. A good crop of barley used to be 75 to 80 bushels per acre, now we’re in the low to mid-90s.

We use fungicides, and if you keep the disease down you get plumper kernels and lower protein. Our fertility plan is geared towards leaving some yield on the table to keep the plant standing. I did trials this year with plant growth regulators on fields that had a history of heavy manure, and the barley was all vertical there. With our nitrogen, phosphate and fungicide, we’re probably always going to get plump and protein—chitting and sprouting are our major risks. We start straight-cutting barley at 17.5 to 18 per cent moisture and we dry every bushel of malt.
Person: Nancy Ames, PhD, crop science, University of Guelph
Place: Richardson Centre for Functional Foods and Nutraceuticals, Winnipeg, MB
Thing: Fighting the good fight for gluten, grains and growers
NANCY AMES IS A CEREAL RESEARCH SCIENTIST WITH AGRICULTURE AND Agri-Food Canada, and holds degrees in crop science, plant science and food science. She is also an adjunct professor in the Department of Human Nutritional Sciences, Faculty of Human Ecology, at the University of Manitoba. Ames serves on several industry committees for oats and barley, including as chair of the oat quality evaluation committee for the Prairie Grain Development Committee in Western Canada. She is a regular contributor to scientific journals, and recently authored two chapters for the book Oats Nutrition and Technology. Ames works closely with cereal breeders and the cereal industry to add value to cereal grains, and to improve both market opportunities for producers and the health of consumers. She has been instrumental in promoting the health benefits of cereal grains.

GrainsWest: What are you researching?
Ames: My research focuses on the nutrition and quality of oats, barley and wheat, and the genetic, environmental and processing factors that affect overall value. I work with other researchers and the grain industry to develop wheat, oat and barley cultivars with added-value processing and improved end-product quality, and to develop methods to predict quality characteristics of the raw and processed product.

GW: Are Canadian researchers at an advantage in addressing some of these issues?
Ames: Canada is known for producing high-quality grain, which is a result of a strong research base in cereal science and breeding. We have strong multidisciplinary teams of researchers that can address most of the questions that come up about wheat varieties, genetic changes over time, GMO questions, composition and quality aspects, as well as nutritional effects of wheat or gluten on health.

The history and detailed genetics of wheat cultivars grown in Western Canada is well documented. This information gives us an advantage and perhaps branding capability in that we know where our wheat comes from. We know why each new variety was developed and what the main benefit of the development was.

GW: What’s next in terms of wheat, nutritionally?
Ames: I am excited about research related to the healthfulness of wheat—the whole grain and the bran layers. There are lots of opportunities in terms of combating issues like obesity and diabetes. We need to look at the healthful components in wheat along with opportunities for improving whole grains and whole-grain products. Also,
in the developing world, wheat can play a huge role in the fight against malnutrition and hunger. Wheat has not been considered as a healthy grain so much as a staple food. Wheat is unique as it can be both.

GW: What about the gluten?  
Ames: If people have Celiac disease or are sensitive to gluten, they need to avoid it. However, for the majority of people, there is no scientific evidence showing a nutritional advantage in removing gluten from the diet. What many people don’t know is that gluten is protein, and people need protein as part of a complete diet. Sound, scientific messaging needs to be distributed to consumers so they can understand the whole story around gluten.

GW: How have you been involved with grain health claims?  
Ames: I was involved in researching and preparing a petition for a therapeutic health claim—“barley beta-glucan soluble fibre and reduction of blood cholesterol, a risk factor for cardiovascular disease”—that was approved by Health Canada in 2012. Now we are starting to see more interest from industry in using barley for food. There are also new opportunities to use health claims. We continue to research barley health benefits because we see additional effects that are not [already] validated by the claim, like the potential effects on glycemic response and the potential for use with diabetes patients.

GW: How do these health benefits affect farmers?  
Ames: Consumer demand for nutritious and health-promoting food products is an important factor in today’s agri-food processing industry. Growing high-quality cereal grains that will impart improved nutritional properties to the end products represents an opportunity to strengthen demand for Canadian grains and expand into new, value-added markets.

GW: Do you think there will be a health claim for wheat in the future?  
Ames: The soluble fibre component in wheat meets a health claim in Europe, so it’s not out of the realm of possibility. There was a whole-grain health claim proposed in Canada, but it was not accepted. There needs to be more work on this.

GW: Why do you think the science community has been so quiet, relative to the wheat naysayers?  
Ames: The science community is focused on providing factual evidence from sound research studies, and does not customarily critique articles found in the popular press. In fact, there is often no venue for scientists to respond to apparent market trends that may not be based on science or healthy choices for consumers.

Perhaps the best approach the scientific community can take is to increase efforts to transfer science-based findings into consumer-friendly messages. Validating food-based nutrient and health claims and educating consumers are important functions of the scientific community in this age of health-conscious consumers.

GW: Why is it important for the public research sector in Canada to get involved with whole-grain research and promotion?  
Ames: Part of the role of public research is to support the development of value-added agricultural products that will be competitive and profitable in the marketplace for our Canadian producers and processors. As well, it promotes the production of agriculture products that will improve the health and wellness of Canadian consumers. Research and promotion of whole grains and their products would help achieve these outcomes.

GW: Do you see nutrition as something that will ever be included in the variety registration process?  
Ames: Currently, nutritional constituents are not considered as quality factors in varietal registration of wheat, but they are considered in registering oat and food barley varieties. Part of the reason for this is that the industrial users of oats and barley are motivated to meet the requirements of the U.S. and Canadian health claims.

A health claim for wheat, or increased demand for whole grains by industrial processors and consumers, may result in nutritional traits being considered in variety registration.
Looking back on the 2013 harvest, we can summarize the year’s dominant theme in one word: replenishment. In 2012, once-a-decade weather aberrations in all of the major growing regions created extremely tight carryovers headed into 2013. Prices rose to levels unprecedented in recent decades. For grain, pulse and oilseed growers, it all translated into a comparatively easy period of doing business. It was the proto-typical “seller’s market.”

A year on, it’s a very different scenario. Production conditions were nearly universally stellar across the world in 2013, resulting in a substantial market shift that now favours the buyers. In Alberta and elsewhere, many growers harvested 30 per cent more crop than usual. That could translate into higher gross revenues, to be sure. But in aggregate, it also becomes the equivalent of having 30 per cent more competition in the marketplace. As far as crops go, specialty crops like flax are perhaps a little more insulated from this shift compared to wheat and durum. But to make matters worse for everyone, transportation-related logistical problems abound as the bumper crop moves through the system. Often, there aren’t enough railcars to keep up with the flow of grain. Elevators fall behind on their shipments, and suddenly the whole supply chain is experiencing more headaches.

It all adds up to a much more challenging environment for farmers. The situation underscores the importance of a good marketing plan to not only preserve healthy profit margins, but—perhaps just as crucially—to ensure adequate cash flow throughout the year.

To put things in perspective: I visited Camrose, Grand Prairie, Westlock and a few other Alberta towns during a November 2013 speaking tour, during which I met numerous farmers who had yet to sell even 10 per cent of their crop. Their stories were similar: they were waiting for prices to return to healthier levels. They had struggled to absorb an average gap between sale and delivery of one to two months, rather than the one to two weeks common in 2012. This created major problems for those with bills to pay—a land payment or a fertilizer purchase—in January.

Some farmers also failed to see the potential for their increased yields—free bushels, in a sense—to offset the lower prices on offer. This year, profit per bushel and profit per acre were often two very different things.

A good marketing plan begins with an informed market outlook, takes into account farm-specific considerations, and then builds a sales strategy that strikes a balance between profit margins, cash flow and risk exposure. Whether you plan to hire a consultant or forge ahead on your own, here’s one approach to consider in the context of 2013/14 grain-marketing realities for Alberta growers.

Take the Long View to Avoid Stress Down the Line

Given the current outlook, one strategy is to lock in some pricing and delivery contracts for 2014 production to ensure efficient management of cash flow requirements and price risk. Booking in some movement for next fall will make for a less stressful experience of playing the market with the rest of your crop later in 2014/15. As the livestock industry rebounds from its 2012 woes, Alberta growers in particular will be well positioned to take advantage of possible increases in regional feed demand. This will be easier to do if basic cash flow constraints are already taken care of.

Whether you plan to hire a consultant or forge ahead on your own, here’s one approach to consider in the context of 2013/14 grain-marketing realities for Alberta growers.

Brenda Tjaden-Lepp is FarmLink Marketing Solutions co-founder and chief analyst.
My first cellphone was a Motorola bag phone, and when I first hoisted that puppy into my tractor back in the ‘90s, I was pretty sure it represented the pinnacle of modern communication. It weighed about five pounds, was the size of a breadbox, and had enough wattage to double as an arc welder.

We’ve come a long way baby. Over the years, we’ve added a lot of functionality to mobile devices that allow us to communicate in ways we couldn’t even imagine possible 20 years ago. In fact, a smartphone does so many things that it challenges us to get the maximum benefit from all it can do. You have to be aware of your smartphone’s capabilities and develop what I call a “mobile mindset.”

Say your combine breaks down and it’s not something you can immediately diagnose. Maybe it’s losing power or shutting down randomly, which is affecting performance. You have a smartphone, so obviously you can call the combine technician at the dealership—but you can also do much more.

Take a picture of the serial number of the combine and anything else that would be helpful for the mechanic to see. If the machine is making a strange noise, record it on your phone. Email the picture and audio files to the mechanic or parts department before you call.

Better yet, have a real-time video conversation using a smartphone app like Skype, Google Hangouts or FaceTime (iPhones only) so you can let the mechanic see and hear the machine for a virtual assessment. Just remember that both you and the person you’re talking to must have the same app on your phones for this to work.

You can use the same approach for sharing what you see in the field with your agronomist, or even to give your veterinarian an indication of animal health issues.

If an in-person visit is unavoidable, create a GPS location with the mapping software on your phone and email it to the mechanic to make it easy to find you.

Even social media can enter the picture. If you’re on Twitter, post a message or a photo from your smartphone: “Having a problem with my Acme 5230 combine. Losing power at random intervals. Anyone else experience this? #acmecombine” You may be surprised by the number of helpful responses you get and how quickly they come.

If you have employees or family members who need to be informed of your situation, consider an app such as Voxer that makes your smartphone function like a walkie-talkie so you can communicate with the entire team just as you would with a two-way radio or mic phone.

Time can be the most precious of all commodities for farmers, and the mobile mindset is all about efficiency. If you can use these communication tools to save a lengthy drive (particularly if it’s only to find out that the necessary part is not in stock), then you’re winning.

Situations in which you need to use these communication tools may not come up often, but it’s good to know what you can do with a smartphone when the need arises.

Lastly, and most importantly, keep the phone on your person when you leave the cab. If you get in trouble, a cellphone could save your life.

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.
MAKING WAVES

Transatlantic trade agreement a boon for most Canadian farmers

BY ALLISON FINNAMORE • PMO PHOTOS: JASON RANSOM
According to Canada’s minister of international trade, cohesiveness among stakeholders is the key that unlocked this country’s successful position in the Canada–European Union Comprehensive Economic Trade Agreement (CETA).

Minister Ed Fast added that provinces, territories, municipalities and stakeholder groups showed “unprecedented co-operation” in laying the framework for what eventually became Canada’s offering in CETA.

“Canadians can look back on this and be reassured there was such overwhelming support because of the involvement of stakeholder groups,” Fast said in a recent interview.

The CETA agreement in principle gives Canada guaranteed preferential access to 28 EU states. That’s 500 million people with an annual economic activity of almost $17 trillion—the world’s largest economy. The EU is also the world’s largest importing market for goods—its annual imports are worth more than Canada’s GDP, which totalled just over $1.8 trillion in 2012. This is the most ambitious trade agreement Canada has signed since the North American Free Trade Agreement in 1994. According to the federal government, CETA is the economic equivalent of adding $1,000 to the average Canadian family’s income or almost 80,000 new jobs to the Canadian economy.

CETA was announced in October 2013 by the Canadian and European governments after four-and-a-half years of talks. Some of that time, Fast said, was spent reaching agreements among Canadian stakeholders. He explained that while it appeared to the public that EU negotiations dragged on, Canadian stakeholders continued to work together behind the scenes.

“In mid-2012, that agreement internally wasn’t at the point to take to the EU,” he said, noting the continued discussions by domestic stakeholders meant “their input informed the outcome.”

While a draft deal was released in October, Foreign Affairs, Trade and Development Canada said housekeeping details like translation and inclusion of legal language would happen over the following 18 to 24 months before the deal would be finalized and take effect.

For Canadian agriculture, most consider the deal a win. Once CETA is signed, 93.6 per cent of agricultural tariffs will be eliminated, with immediate elimination of tariffs on some processed pulses and grains, beef products and pork products.

Durum and high-quality common wheat tariffs, currently unbound and applied at zero per cent, are now at a rate of $190 per tonne and $122 per tonne, respectively. Duties for low- to medium-quality common wheat are currently levied at $122 a tonne, rye and barley at $120 a tonne, and oats at $114 a tonne. All of these grain tariffs will be eliminated over a seven-year transition period.

CETA will also create a duty-free, low- to medium-quality common wheat transitional quota of 100,000 tonnes, incorporating Canada’s existing 38,853-tonne share of the EU global quota.

Doug Sawyer, chair of the Alberta Beef Producers, said he sees nothing but positives for his members. For Canadian livestock producers, CETA means duty-free, in-quota access for 50,000 tonnes of beef carcass weight, with the majority for fresh, chilled beef products, and another 15,000 tonnes carcass weight for frozen products.

“It’s a big opportunity,” Sawyer said. “We’re looking at 65,000 tonnes in tariff-free imports,” an increase that will triple current levels. The rise in exports of Canadian beef to the EU will be in the fresh and frozen beef product sectors, he said.

Trade agreements can be good news to the industry, but the benefits they bring to local farms are more difficult to calculate. Sawyer said the increased trade opportunities for fresh and frozen beef products is bound to result in increased processing at current plants that, to this point, have not had enough meat to process. It may also mean the opening of new processing facilities.

Sawyer explained that, with 200 different products from one carcass, less-expensive cuts tend to have limited markets. However, once CETA is signed, there will be potential for greater ease of access to more markets, as well as reduced tariffs. That means the door has opened to hard returns for the farmer, he said.

“This adds value to the whole carcass,” he added.

The Canadian Pork Council (CPC) said it’s very pleased with CETA, as Canada would acquire a quota volume equivalent to over 80,000 tonnes of pork cuts, as well as access to markets for pork fat, and cured and processed pork products.

“The Canadian and EU markets for pork complement each other and this relationship holds great potential to enhance our sector’s export opportunities, as well as benefit workers, businesses and families who rely on the pork sector for their livelihood,” said CPC chair Jean-Guy Vincent.

Canada’s pork industry exports two-thirds of its production. CPC said that diversification in export marketing opportunities is crucial to maintaining the industry. Canada currently imports a significant volume of high-value pork ribs from the EU, and the pork industry sees the market opportunity for shipping hams and other pork cuts to the EU.

“Our current exports of pork cuts to the EU are virtually non-existent.
This is not because our prices are uncompetitive but instead is due to tariff and non-tariff barriers to entry into the EU market, which CETA will now address,” said Vincent.

Matt Sawyer (no relation to Doug Sawyer), chair of Alberta Barley, said his industry is equally happy with the prospect of the new trade deal. At the moment, about 80 per cent of Alberta’s 4.5 million tonnes of barley goes to the feed industry, so “a win for the beef industry and a win for the pork industry is a win for us.”

Alberta produced about 4.5 million tonnes of barley in 2013, about half of Canada’s average production. Most of the remaining half was produced in Saskatchewan and Manitoba, but Matt Sawyer noted that Atlantic Canada, particularly Prince Edward Island, is also increasing production.

With trade regulations eased and tariffs lifted, Matt Sawyer said the prospect of a signed CETA deal is an exciting time for the beef and pork industries, as well as feed suppliers like barley growers. He called CETA a positive step for agriculture.

“CETA is a solid deal with real benefit,” he said.

Wally Smith, chair of the Dairy Farmers of Canada, said his members aren’t as excited about CETA as other producers. The agreement gives European cheese makers 16,800 tonnes of market access, with all but 800 tonnes of it being new access. Smith said members are “angered and disappointed” with the deal, as it could mean the end of small, artisan and local cheese makers in Canada.

“If this deal proceeds, the Canadian government will have given the EU an additional exclusive access of 32 per cent of the current fine cheese market in Canada, over and above the existing generous access,” said Smith. “This deal would displace our local products with subsidized cheeses from the EU and risk our small businesses being shut down or put out of business. This is unacceptable.”

The federal government has said it’s considering compensation for Canadian dairy farmers if they lose income due to CETA.

While the CETA buzz in the yard is mainly optimistic, the new agreement will mean a change in some farm practices. Doug Sawyer pointed out that some Alberta beef producers will need to change their production methods if they want to sell to the EU, since exports of beef with hormone growth promotants (HGPs) will not be allowed.

Doug Sawyer said producers could save between 10 and 20 per cent of their total feed costs by using HGPs. Discontinuing the use of HGPs will mean an increase in feed costs due to the additional time to get cattle to market weight.

The change is a fact of life when conducting business with the EU. The use of HGPs in farm animals, either implants or feed, has been banned for more than 20 years. Member states have reviewed the prohibition several time since then, but the strict rules remain in place.

For exporters, Fast said now is the time to get to work, fostering business relationships with potential trading partners.

Once CETA is inked, free trade can begin immediately.

“Don’t wait until the agreement comes in to start preparing,” the minister said. “You’ve got a year-and-a-half to two years to develop key partnerships.”

For the EU, CETA is the first trade agreement with a G8 country. José Manuel Barroso, president of the European Commission, called it a “landmark achievement for the transatlantic economy and a stepping stone to an integrated transatlantic market.”

Barroso said the EU’s annual GDP is expected to climb by around $17 billion Canadian with a signed CETA. Since industrial trade tariffs for EU products coming into Canada will be brought down to zero, he said European exports are expected to save about $721 million Canadian a year.
It’s a story 23 years in the making, and it’s not over just yet.

Way back in 1991, Canada joined the International Union for the Protection of New Varieties of Plants—an organization better known by its French acronym, UPOV. UPOV’s mission is to craft an international framework for plant breeders’ rights (PBR), a system to ensure those who develop new plant varieties can protect and profit from their work.

Within a year of joining, Canada signalled its intent to bring Canada’s Plant Breeders’ Rights Act in line with the organization’s 1991 round of revisions, or “UPOV 91.”

Now, after more than two decades, it looks as if that’s finally about to happen. On December 9, the governing Conservatives tabled an agriculture omnibus bill that includes amendments to strengthen Canada’s PBR Act in line with the organization’s 1991 round of revisions, or “UPOV 91.”

Now, after more than two decades, it looks as if that’s finally about to happen. On December 9, the governing Conservatives tabled an agriculture omnibus bill that includes amendments to strengthen Canada’s PBR Act in line with the organization’s 1991 round of revisions, or “UPOV 91.”

Most Canadians have completely overlooked this story—and, assuming you’ve managed to stay awake this far into the article, you might understand why. We’re talking about compliance versus non-compliance with a highly technical and complex international agreement—not exactly the stuff of tabloid headlines.

But, to many farmers and plant breeders, the move towards UPOV 91 marks a turning point for Canadian agriculture, for better or for worse. Some say it sacrifices Canadian farmers at the altar of huge multinational corporations. Others argue it secures our country’s rightful place at the forefront of innovation.

UPOV 91

Questions abound on issues of rights, royalties and seeds. For Canada, will the tale of UPOV 91 end happily ever after?

By Scott Rollans • Illustration by Michael Byers
UPOV Secretary-General Francis Gurry sees plant breeders’ rights as a key to our very survival. “We are facing a situation in which food security is increasingly a global challenge,” he said by phone from UPOV headquarters in Geneva, Switzerland.

Gurry argued that UPOV is essential in an increasingly urbanized world—a world that may contain more than nine billion people by the year 2050.

“We’re going to have to improve agricultural productivity by roughly 70 per cent over current levels. We think plant breeding has a very important contribution to that improved productivity,” Canada is now about to step into line with UPOV—even if it’s stepping very carefully.

“Canadian farmers want to see growth and innovation being fostered,” said Ritz in a written statement to GrainsWest. “That is why our government is encouraging the ongoing farmer- and industry-led discussions with respect to adopting and implementing UPOV 91.

“Any update to legislation will come before Parliament for a full debate.”

Anthony Parker, commissioner of the PBR Office of the Canadian Food Inspection Agency (CFIA), is pleased to see the changes moving ahead.

Parker believes the new legislation will spur domestic investment in plant breeding, because it gives companies here the same protection being provided by our major trading partners. He also thinks it will encourage foreign plant breeders to bring their varieties into Canada. In the long run, Canadian farmers should benefit as well, he said.

“The net result of having an increased level of investment in Canadian plant breeding, as well as more varieties coming into the Canadian marketplace, hopefully spurs on innovation and gives farmers more choice in accessing varieties that are in demand by the market.”

UPOV acknowledges that farmers may end up bearing some of the cost, said Gurry.

“There, the question we have to ask is, ‘How are you going to finance innovation? How are you going to finance the development of new and useful varieties?’ Because that development costs human and financial resources. You have to have a way of compensating that. And that’s the purpose of the plant breeders’ rights.”

In return, said Gurry, new plant varieties will then become available for further breeding and experimentation.

“We think it’s a good balance between encouraging the necessary investment in innovation on the one hand, and making available the social benefit of the innovation on the other hand.”

Gurry had expected that Canada would soon change its legislation to conform to UPOV 91.

“We don’t understand that there are any really substantive obstacles,” he said. “But any matters concerning agriculture, or any matters concerning innovation, tend these days to attract a certain amount of public interest, if not controversy.”

UPOV 91 is certainly attracting controversy at the National Farmers Union (NFU). In a Nov. 15, 2013, media release, former NFU president Terry Boehm slammed the pending deal in no uncertain terms.

“Yet again Gerry Ritz is proving himself to be the Canadian agriculture minister most hostile to farmers ever by giving a choice plum to the biggest corporations in the world: the right to exploit farmers through UPOV 91,” he said.

“Ritz is pretending that the only way we will get innovation is to [hand] control of our seed sector to huge corporation and plant breeders,” Boehm continued. “At the end of the day, however, this is not about innovation at all. It is just another way for consolidated multinational agribusiness to maximize the dollars they extract from farmers. UPOV 91 gives these companies all the tools they need—and more.”

One of the NFU’s main complaints is that UPOV 91 opens the door to end-point royalties—the option for plant breeders to collect fees based on the final harvest, rather than on the seeds provided.

“Farmers should be very aware that this regime will allow breeders to collect royalties on the entire crop—not just on the seed as allowed under our current Plant Breeder’s Rights legislation,” Boehm said.

Not all farmers agree with Boehm, however.

Kent Erickson, chairman of the Alberta Wheat Commission (AWC), said, “We’re generally supportive of updating to UPOV 91.”

Erickson sees plant breeders’ rights, including end-point royalties, as a way to...
increase investment in cereals and wheat in Western Canada. Also, given the fact that most other developed countries conform to UPOV 91, he believes it only makes sense for Canada to keep pace.

“Having said that,” continued Erickson, “we do have three conditions that we feel are critical in the implementation stage of UPOV 91.”

First, Erickson said the AWC wants assurance that Canada’s legislation will state that farmers have the continued right to save their own seed, clean it and use it on their own farms.

“Under UPOV 91, what we understand is that it has to be explicit in the implementation that farmers are able to use farm-saved seed,” he pointed out. Early indications suggest that the government’s proposed legislation will include this so-called “farmers’ exception” which is part of UPOV 91, guaranteeing their right to save seed from their own crop, and to clean and condition it for use on their own land.

Second, the AWC worries that a new emphasis on the private sector will weaken AAFC’s role in plant development.

“We don’t want [AAFC] to see this as a way out,” Erickson said. “We want to see Ag Canada still maintaining funding in basic breeding and pre-breeding. We still think there’s a public good to Ag Canada, and there’s still a role for the public and the taxpayers to support agriculture through Ag Canada.”

Finally, Erickson said the AWC expects the government to protect the long-term investment farmers and taxpayers have already made in plant breeding.

“We want to see something recognizing that producers have put money into those programs in the past, and we don’t want to lose that in the future.

The CFIA has spent several years trying to allay farmers’ concerns regarding UPOV 91. On its website, an FAQ page addresses issues including farm-saved seed and end-point royalties.

“Would amending the Canadian Plant Breeders’ Rights Act to conform to the 1991 UPOV Convention (UPOV 91) affect Canadian farmers?” the page asks. Its answer begins with a one-word sentence: “No.”

The CFIA doesn’t have to promote its message to Canada’s plant breeders—a group that, not surprisingly, has consistently pushed for new PBR legislation.

Bob Mastin has been a pedigreed seed grower in Sundre, AB, for 35 years. About eight years ago, he started acquiring and distributing varieties from research stations. He chuckles when UPOV critics raise the spectre of greedy multinational corporations—“I’m probably one of the smallest seed-distribution companies in Canada,” he pointed out.

If Canada fails to conform to UPOV 91, Mastin argued, Canada’s plant breeders will eventually lose access to top genetic materials from elsewhere in the world. Once they start to fall behind, so will Canada’s farmers.

Patty Townsend, CEO of the Canadian Seed Trade Association, is relieved to see the legislation moving forward.
recent years, she has seen warning signs related to Canada’s outdated legislation. “It creates an uncertain environment for breeders, particularly private-sector breeders, to invest in Canada,” she said. “Just as important, or even more importantly, it makes it more difficult for us to attract international investments.”

Townsend explained that her concerns were more than mere speculation. “We had a letter from the European Seed Association saying very clearly that European seed companies would not send their varieties to Canada until we are compliant with UPOV 91,” she said. Like Mastin, Townsend said plant breeders weren’t the only ones negatively impacted by the wait. “It was hurting farmers,” she said. “The provisions included in this new bill will give Canadian breeders more confidence to develop new varieties here, and it will also give international breeders and developers the confidence to provide their advanced varieties to farmers in Canada.”

Many of the arguments against UPOV 91 are simply wrong, said Townsend. She doesn’t believe that stronger PBR legislation will weaken the research activity of governments and universities— institutions that tend to focus on open-pollinated crops rather than hybrids and genetic modification.

“Plant breeders’ rights are used more by the public sector than by the private sector,” she said. “All the varieties that are developed by Agriculture and Agri-Food Canada, universities, provincial researchers—they’re the ones that use plant breeders’ rights.”
According to Townsend, opinions of UPOV 91 are often shaped more by preconceptions than by reality. “I think people have read the legislation without being really objective about it,” she said. “And UPOV language isn’t simple. It’s legal text.”

She’s not persuaded when people forecast doom and gloom. “I think a lot of people have used this as a way to say the multinationals are going to take over, or farmers are going to be put at a disadvantage. They said that when we put plant breeders’ rights in in the first place. The 10 year review of PBR showed that none of the predictions for higher seed prices and negative impacts on farmers came to be.”

Despite some lingering (and occasionally forceful) pushback, Townsend believes the government can expect wide support on UPOV 91. “I think that most farmers understand that they need those new varieties,” she said. “Canada is not as competitive, particularly in cereals, as the other main wheat producing and exporting countries. And farmers know that the only way they’re going to get new varieties is if we have the kind of environment that investors and breeders need.”

At the CFIA, Parker believes that criticism of UPOV 91 will continue to fade once the new legislation is in place. Before long, he said, Canada should begin to enjoy the benefits already evident elsewhere in the world. “With many other countries that have moved to UPOV 91, there have been increases in the number of varieties available in the marketplace; there have been increases in the diversity of the varieties that occur in the marketplace; there have been cited increased levels of investment, not only privately, but also publicly and in private–public collaboration.”

In other words, when it comes to the long story of Canada and UPOV 91, Parker predicts a happy ending.

Bill C-18 makes changes to the Agricultural Marketing Programs Act and the Farm Debt Mediation Act through Agriculture and Agri-Food Canada.
THE

GODFATHER
OF GRAIN

Bill Cooper, living legend of Western Canadian agriculture

BY IAN DOIG • PHOTOGRAPHY BY CANDICE WARD & ELECTRIC UMBRELLA

LET’S TALK ABOUT THAT.
Over a cup of coffee at Carver’s Steakhouse at the Sheraton Cavalier in Saskatoon, the city where he now lives, Bill Cooper framed his achievements in a team context. The sturdy, straight-talking 82-year-old farmer from West Bend, SK, is interim chair of the Saskatchewan Barley Development Commission (SBDC), serves on the Barley Council of Canada, and operates Farm West Management Inc., his own agricultural accounting service and consultancy.

He is also the grain industry’s undisputed senior authority and adviser. Affectionately known as “The Godfather,” he’s eminently approachable.

“I always try to turn the negatives into positives,” said Cooper. Illustrating this, he cited complaints he’s fielded with the SBDC about check-off dollars, the fee subtracted from producer payments to fund research.

“We’ve had some complaints, like ‘We don’t benefit from this research.’ I’ll say, ‘Well, just a minute. Let’s talk about that.’”

“I’ve met with some really irate people and had some great conversations.”

– Bill Cooper

It’s a persuasive tactic. To engage with Cooper in conversation is to risk becoming a convert to his point of view.

“I’ve met with some really irate people and had some great conversations,” he said, with obvious satisfaction. Illustrating his case, Cooper recounted how he and his brother received contracts to sow an early variety of rust-resistant wheat. That year, the disease destroyed all their wheat except for 100 acres of the new variety. “And if you look at trans-fat-free canola,” he added, emphasizing the bottom-line benefits of scientific investment, “that’s worth $100 a tonne more than regular canola. That’s research.” But more on this later.

One foot in the boardroom, the other on the farm, he often draws such parallels between policy and practice.

“He can manage on the farm talking to a guy riding a combine, but he does just fine in the prime minister’s office,” said Saskatchewan Agriculture Deputy Minister Alanna Koch. “He’ll often make
it real for politicians and decision-makers [by saying] ‘For a young farmer, here’s how that would impact his decision to invest or change.’ Bill’s always been able to make it granular for [them] by saying ‘Here’s how it matters to me, and that’s why it should matter to you.’”

A mighty résumé
Though his name is not well known outside the agricultural sphere, Bill Cooper has shaped western Canadian grain production, transportation and marketing for more than half a century. His résumé is unparalleled.

Cooper is known as the go-to policy adviser at the rough-and-tumble intersection of politics and agriculture. Having formulated policy recommendations across the industry spectrum, he is a proponent of market-driven economics who has pushed for improved grain marketing, handling and transport, as well as fair returns for producers.

The longtime university instructor and Saskatchewan Agricultural Hall of Fame member has held many grain association positions, including executive director of the Saskatchewan Canola Growers Association from 1978 to 1987. Cooper was also a founding member of the Prairie Oat Growers Association and has served with numerous other organizations including Flax Growers Western Canada (now the Manitoba Flax Growers Association), Saskatchewan Wheat Pool and United Grain Growers.

He worked with the Western Grain Transportation Task Force, which initiated the Western Grain Transportation Act, and also on the Western Grain Standards Committee assessing new grain varieties. His transport work has been extensive, having served on the Rail Rate Reform Committee and on the Prairie Rail Action Committee that informed the Prairie Branch Line Rehabilitation Program.

It takes a deft hand to endure in agri-politics as he has, and his unparalleled effectiveness owes much to his well-informed approach.

Colleagues describe Cooper as consummately practical and exceedingly passionate about his work, a disarming advocate for the best interests of the agricultural sector. All commend his sharp intellect and diligent research ethic. Above all, however, they call him a mentor.

An agricultural education
Born near the southeast Saskatchewan hamlet of West Bend in 1931, Bill Cooper had a childhood that reads like a W.O. Mitchell novel. His English immigrant father homesteaded in the West Bend district in 1903. Returning to England in 1923, he married Bill’s mother. The couple returned to Saskatchewan to raise seven children and maintain a grain operation and shorthorn cattle herd.

“He can manage on the farm talking to a guy riding a combine, but he does just fine in the prime minister’s office.”
– Alanna Koch
Life for the family during Cooper’s formative years wasn’t easy. The Great Depression saw drought, poor crops and low cattle prices. As conditions began to improve, the family’s buildings were destroyed by a cyclone in 1937.

“It was tough,” said Cooper, “but the other thing that was critical to our development was my parents were really strong on education.”

While attending a one-room schoolhouse, he recalls selling his pencil case to another student for what he thought was the princely sum of 25 cents. He later realized what he thought was a quarter was actually an oversized one-cent piece. His parents expanded upon this hard lesson in economics, opening a bank account for their son. While he continued grade school as a boarding student in the village of Kelliher, he was expected to supplement the rent money in the account with his own earnings. His odd jobs included chauffeuring his landlords’ children by horse and buggy. Later, attending high school in Foam Lake, he worked at a chicken plant.

All of Cooper’s siblings went on to post-secondary education, as did he in 1949, earning a bachelor of science at the University of Saskatchewan College of Agriculture in 1951.

Just prior to graduation came the turn of events Cooper describes as “the real game changer.” Hartford Lewis, his agricultural engineering professor, invited him to work on the Lewis family farm in Gray, SK, and subsequently insisted he take a job teaching farming courses. This led to two decades instructing university extension courses in welding, farm power and machinery, as well as marketing.

After two years on the Lewis farm, Cooper purchased a quack-grass-infested half-section adjacent to his father’s land and seeded it to barley, but it took him a few years to commit to life as a farmer.

“The wild oats almost did me in,” he said.

Cooper also took to raising purebred shorthorns, though he sold his herd in 1969 as the demands of his cattle operation became incompatible with his winter teaching schedule. In partnership with his nephews, he maintained a grain operation until 2008.

Cooper’s own agricultural knowledge snowballed while co-ordinating the university’s rural courses across the province through the mid-’70s. He absorbed the expertise of fellow university professors and the best practices of the seasoned farmers enrolled in the courses.

In the Nipawin area, where farmers grew specialty grasses such as bluegrass, Cooper realized their expertise outstripped what the university was teaching on the subject. In a move that was ahead of its time, he asked several of the farmers to deliver lectures detailing their growing methods.

“His legacy within the university community is his ardent support of young people into their future careers in agriculture,” said Mary Buhr, dean of the University of Saskatchewan College of Agriculture and Bioresources. An enthusiastic 4-H supporter, Cooper has also established two annual $1,000 scholarships for students to pursue business-related studies.

Chairman of the board
The farmer-educator added an advisory tier to his agricultural career, joining the Saskatchewan Canola Growers Association (then the Rapeseed Growers Association of Saskatchewan) as a farmer-director in 1973, becoming executive
director in 1978. He considers his eight-year tenure there his most important achievement.

“The whole advancement of the canola industry, that’s got to be the highlight,” he said.

During his time at the helm, the organization was instrumental in the phenomenal growth of the canola industry, launching the Saskatchewan Canola Development Commission and the Canola Council of Canada, as well as initiating check-offs.

Cooper worked to keep canola on the open market, to increase its transport priority relative to wheat, and to lower elevation and handling costs. He also pushed to establish Winnipeg as the world pricing exchange for canola, improving market competitiveness and increasing producer profits.

In 2013, canola production hit 15 million tonnes—two million more than the Canola Council of Canada’s 2017 target.

“This is unreal,” said Cooper, who credits such numbers to co-operation between industry players, from breeders and producers to exporters and crushers. “It’s difficult to get industry, governments and research institutions all on the same page,” he explained. “The canola industry is a good example of how we’ve managed to do that.”

It also illustrates the payoff in the market-driven economics and value-added opportunities Cooper favours. Half the country’s canola crop is crushed domestically, a value-added export of which half again is exported.

“We have always wanted our decisions to be based on science and on the market,” he said of his canola association work, pointing to advocacy for scientific solutions as an industry weak point. “I was pleased to see Saskatchewan has set up an advocacy group within the Ministry of Agriculture to do that.”

He also stands behind the industry’s early adoption of genetic modification in producing trans-fat-free canola and other crops, a notoriously volatile subject.

“Nobody objected to that at the time. There’s no reason to object now. There have never been any health problems with GMO crops.”

While he gets on well with farmers and politicians, Cooper emphasizes that good relations with industry are also crucial.

“I learned quite early to respect industry—even the railways, which are easy to hate. I had a good relationship with both CP and CN. I’m proud of that, and that has continued.”

Canada is an exporting nation, he said. “We rely on industry to make it happen. We don’t want to be always condemning the grain industries or the railways. You’ve just got to say, ‘Lookit, let’s talk about it, let’s work it out, and try to pay our way and make it work.’”

Though he’s credited with influencing the process, he downplays his part in the elimination of the Canadian Wheat Board (CWB) monopoly. The move did square...
with a major pillar of his philosophy, however: market transparency and openness. He doesn’t believe the institution possessed the versatility contemporary markets demand.

According to Cooper, farmers must be privy to market signals affecting basis price fluctuations to run efficient operations.

“That was a big thing—the lack of transparency, and also the lack of diversification within the commodity. They were an export agency and therefore not necessarily interested in value-added opportunities.”

He was also critical of the CWB preoccupation with Hard Red Spring Wheat, which he points out represents a small portion of the global grain trade.

“It needed to change, and it has done, and everybody’s living quite well without it.”

Cooper is fine with the new, private entity the CWB has become (and agricultural corporations in general), as long as it’s competitive with other industry marketing options.

“I want fair and honest competition.”

**Marriage and motivation**

Cooper is fully engaged in his work at an age when most people have long retired. In fact, as he sipped his coffee, he explained that he’d just flown in from a meeting in Winnipeg concerning feed mills and animal nutrition. He merely alluded to slowing down when his SBDC term expires.

“I don’t think he would be happy not doing something,” said Cooper’s wife, Gail. “When he takes on a committee project of any kind, he absorbs his whole self in it.”

A farm girl from Outlook, SK, whose large family also raised registered shorthorns, the two met while she studied business at the University of Saskatchewan. They were much alike in that her passion for sport matched his for agriculture and politics. While he orbited that world, she worked for Blue Cross and played softball, taking a senior women’s team to the 1970 world championship in Japan. She was also a competitive curler until the age of 78.

For years, both were too busy to settle down. Cooper was even named bachelor of the year by Saskatoon radio station CFQC in 1972. After an on-and-off, 30-year courtship, they married in 1981.

“We were late bloomers,” Gail said with a laugh.

According to Gail, her husband happily spends his home time reading about agricultural policy and consulting with colleagues on the phone. She speculated that he may feel as though he’s missed out on leisure pastimes, but his enduring preoccupation has always been building a better agricultural industry.

“The Godfather of Grain” had to admit this was an accurate assessment.

“It keeps me motivated,” he said. “I think we can’t let up.”

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To TILL or NOT to TILL

Direct seeding is a custom fit for each farm

BY LEE HART

ALBERTA FARMERS RYAN MERCER AND JAMES JACKSON farm about 650 kilometres apart under vastly different growing conditions. Yet for the past 20 years or more, both have been committed to the concept of conservation farming.

Mercer’s family farm stepped into a direct seeding system with a Victory Seed-O-Vator in 1989, and although equipment and technology has changed, their grain and oilseed operation south of Lethbridge hasn’t been tilled since.

Jackson, who runs a grain and oilseed operation at Jarvie, about 150 kilometres north of Edmonton, said a total one-pass direct seeding system is a good concept, but that in his part of the world, he has produced the best results by harrowing to manage crop residue, along with one field operation just to blacken the seed row.

Mercer harvests crops with combines equipped with stripper headers, leaving stubble as tall as possible and undisturbed, making for easier seeding with a disk-type air seeding system the next spring. Meanwhile, Jackson gets the best distribution he can of often-heavy crop residue with rotary combines, but follows that with one harrow pass in the fall to better distribute chaff and straw. He also makes a pass with knife banding equipment in the fall, to apply fertilizer and blacken the seed row, before seeding directly overtop of that fertilizer band with a disk-type air seeding system the following spring.

Despite different conditions and approaches, both farmers have the same objectives: to protect soil from wind and water erosion, to improve soil organic matter and soil tilth, and to create a better environment for seedlings so they get the best start every spring. And of course, one of the underlying objectives for both producers is to make some money—sound economics is important.

THE EVOLUTION OF CONSERVATION FARMING

Prairie cropping practices have changed dramatically over the past 25 to 30 years. When conservation farming and direct seeding was first introduced between the late 1970s and early 1980s, some early adopters talked about first trying the technique on the “back 40” at night, so conventional neighbours wouldn’t see the craziness of seeding without tillage. But times have changed.

Statistics Canada reports almost a complete reversal over the past 20 years. In 1991, 69 per cent of all Canadian farmers applied conventional tillage practices, with only about seven per cent
practicing no-till and about 24 per cent applying conservation tillage measures. In 2011, Statistics Canada reported 56 per cent of farmers were practicing no-till, 24 per cent used conservation farming techniques and only 20 per cent continued with conventional tillage.

Conservation farming is in a fine-tuning period, according to Rob Dunn, an agriculture land management specialist with Alberta Agriculture and Rural Development.

“I think most producers today are looking for ways to take the ‘disturbance’ out of the system,” said Dunn. “There will always be a certain percentage of farmers who, for a variety of reasons, will continue to practise conventional tillage. But certainly over the past 20 years or more we have seen the majority of producers move from conventional tillage to reduced tillage, to direct seeding with minimum tillage, to direct seeding with no tillage, and now many with disk-type openers have systems with ultra-low disturbance.”

But each farm and each region is different, said Dunn. Many dryland farmers in southern Alberta are committed to zero-till direct seeding systems, whereas in central and northern parts of the province that see more rainfall, cooler temperatures and heavier crop residues, it is still common to see limited field operations to manage residue and blacken the soil.

“Farmers dealing with heavy crop residue are looking at direct seeding practices, and standing back and looking for the best way to manage this residue,” said Dunn. “Can they manage this residue with a direct seeding system? Or do they incorporate a very specific tillage operation that manages residue, and perhaps blackens the soil a bit to improve seed germination and growth?”

Depending on the growing season, heavy crop residue isn’t always an issue on his dryland farm. However, as soil organic matter has improved with direct seeding, and with very low disturbance improving moisture conservation, even in dry years managing crop residue is still important.

Mercer used a Flexi-Coil 5000 air seeding system for several years before switching to John Deere 1895 disk drills with mid-row banders about 10 years ago. He has since moved onto using combines equipped with stripper headers since 2007, Mercer said he has found a better way to manage residue and still get optimum performance from an ultra-low-disturbance direct seeding system. The stripper header has fingers that comb up through the crop and clip only the seed heads into the combine. Depending on the year and crop, it isn’t uncommon for Mercer to leave 16 inches or more of standing stubble after harvest.

“Years ago, with conventional tillage, the main concern was the huge losses due to wind and water erosion of the soil,” said Mercer. “Fortunately, as farmers have moved into reduced tillage and direct seeding systems, we have moved beyond that.”

His main focus now is to improve soil quality with more organic matter, and improve moisture conservation.

“We’ve been at this for more than 20 years and we are seeing improvements in the soil,” he said. “Soil organic matter has increased from two to four per cent. The soil has improved tilth. Water infiltration rates have improved. Even in wet years we aren’t seeing as many sloughs. And in dry years we are seeing improved moisture reserves to carry the crop through.”

“Years ago, with conventional tillage, the main concern was the huge losses due to wind and water erosion of the soil.”
– Ryan Mercer
The 16- to 20-inch-tall crop stubble helps to trap snow, which adds to soil moisture reserves as snow melts. Mercer said with healthy soil, proper crop rotation and active soil microorganisms, crop residue is quickly incorporated back into the soil. And he was amazed at how tall stubble creates a warm microclimate close to the ground. Even with strong southern Alberta winds, it is warmer at the base of the stubble, and wind doesn’t impact crop seedlings.

Northwest of Edmonton, Tom McMillan of Pickardville, AB, has also become a fan of stripper headers to help manage crop residue on his direct seeding operation. He ran a conventional-tillage grain and oilseed operation for many years that usually involved three tillage passes in the fall, two more passes in the spring before seeding, as well as harrowing.

“We began direct seeding in 2001, so we are relatively late bloomers,” he said. Westlock County ran a direct seeding demonstration on his farm for a number of years and, watching those results, he saw the system worked.

“We saw poorer soil began to improve, and overall there was no yield penalty and it was a lot less work,” said McMillan.

For the first few years he just had to work to keep the knives sharp in the straw chopper to get the best distribution of crop residue as possible. But then he found a better way to manage the residue. In 2013, he outfitted the combine with a stripper header. Depending on the setting, the stripper header combs up through the crop, for the most part, removing only the seed head, leaving the stubble standing. Even in an area with plenty of moisture during the growing season, he said it is no problem for his John Deere 1895 disk drill to work through tall standing stubble.

Even though he’s in the same, sometimes-cooler, north-central part of the province as Mercer, the tall stubble creates a warmer microclimate close to the soil, so McMillan doesn’t worry about blackening the seed row to improve seedling vigour.

He added that it’s important with any cropping system, but particularly with no-till direct seeding, to follow a proper crop rotation that includes grains, oilseeds, pulse crops and legumes. It is beneficial not only for crop production, but also helps in managing residue.

Jackson, who grows wheat, canola and pulse crops, isn’t alone in his practice of blackening the soil so it warms faster and improves crop growth. He still wants the ground protected by stubble and residue, but said there are many -2°C mornings right after seeding when that dark band of soil warms up quickly, helping young canola plants overcome the cold.

CONTROLLED TRAFFIC FARMING
Jackson is one of only a handful of Alberta producers taking his conservation farming practices a step further, and adopting controlled traffic farming (CTF). This system of limiting all traffic over a field to specific and permanent wheel tracks, or tramlines, was developed in Australia, then pioneered in Alberta by south-
central-Alberta farmer and crop consultant Steve Larocque.

Jackson has been involved in a provincewide CTF study for the past three years. He readied equipment in 2011 for the first year of the project involving about 430 acres. Recognizing the benefits he applied the concept to more of his farm. In 2013 with larger seeding equipment he applied CTF to about 80 per cent of his land, and plans to expand that to 95 per cent of his acres in 2014. Along with adapting “hardware” to CTF, the setup also requires time for management and field planning to optimize the system.

One of the main advantages of CTF is to reduce all equipment traffic over crop land, reducing soil compaction. This, in turn, should improve crop production, said Larocque, who farms at Morrin, east of Three Hills.

“Most years, wheel traffic over fields—even with reduced tillage or direct seeding—can cover as much as 50 per cent of your land,” said Larocque. “That all contributes to compaction. It can affect root development of crops, crop access to nutrients, and the movement of moisture through the soil profile.”

Larocque has been impressed with 110-bushels-per-acre yields on CPS wheat, and barley yields in the 120- to 135-bushels-per-acre range. He expects even more as soil conditions and management improve.

The first challenge is getting all equipment set for CTF. Both Larocque and Jackson, for example, use equipment that is either 30 or 60 feet wide. Wheels on equipment are set on 10-foot centres, and travel on set tramlines that are each about 20 inches wide. All field traffic must travel on these permanent tramlines, and operators need an accurate GPS to keep all equipment properly aligned with the tracks.

It’s with such accuracy that Jackson can make one pass to band fertilizer in the fall, and then directly seed over the fertilizer band the following spring. Depending on his preferences, he has the option to seed the following crop the next year directly into the same stubble row, or adjust the spacing on the drill and seed between rows.

While the traffic is limited, that doesn’t limit the way the land is farmed. Larocque follows a zero-till, direct seeding system on his farm.

“It takes some time to get it set up, but each year, as you keep the traffic limited to these tramlines, you begin to see benefits in crop production, as well as your overall operation,” he said.

As the ground mellows, plant roots have improved access to moisture and nutrients, which translates into improved yields. Larocque said the tramlines have allowed him to be on fields two to three days earlier, which is especially important at seeding, but is a benefit for all field operations. The firm tracks of the tramlines can carry equipment, and with reduced soil compaction water infiltrates through the soil faster. Not only are the tramlines solid running tracks, but improved water infiltration through the soil allows fields to dry out sooner in the spring or after a rain. He can travel faster for all field operations, harvest efficiency is improved, and he’s already seeing fuel savings of five to 10 per cent.

Larocque said CTF is doing more to improve overall yields and field operations than any deep tillage operation that could be applied to fracture compaction layers—and CTF doesn’t require an extra $65,000 to $100,000 in specialized equipment.

Larocque, who is a firm believer in minimizing field traffic to correct soil compaction, said one of the most important tools for direct seeding operations is a proper straw chopper that does a good job of residue management and distribution.

Controlled traffic farming is just some of the “fine tuning” producers are exploring to get the most out of their conservation farming practices, said Peter Gamache, a longtime soil conservation specialist based in Edmonton. He said limited tillage operations may play a role in specific situations, but he is a bit concerned when local farmers show interest in high-disturbance European tillage tools. They might have fit in across the pond, but may be a step backwards for western Canadian soils prone to wind and water erosion.

“Statistics show that perhaps 60 to 70 per cent of farmers are practising conservation farming and direct seeding technology.

– Peter Gamache

“Statistics show that perhaps 60 to 70 per cent of farmers are practising conservation farming and direct seeding technology. More are now starting to think about soil health and soil quality,” said Gamache. “Sometimes direct seeding may be blamed for a particular production problem, but, as some researchers have pointed out, one of the most important tools of farming is to follow a diversified crop rotation.”

Direct seeding and zero-till farming were initially used to reduce soil losses due to wind and water erosion, then farmers realized this system was also a very cost-effective way to farm—saving many field operations both time and money.
HEAT IS CANADA’S MAJOR COMMODITY CROP, and one of the most popular food crops in the world—yet for the last 20 years, research has lagged and production has decreased. A new research alliance is bringing together some of the superpowers in Canadian genetic research and cereal development to fill the gap and ensure future competitiveness of Canadian wheat farmers.

The Canadian Wheat Alliance (CWA) is an 11-year commitment between Agriculture and Agri-Food Canada (AAFC), the University of Saskatchewan, the Province of Saskatchewan and the National Research Council Canada (NRC) to work together to develop new and improved varieties of wheat that are resistant to disease; have increased tolerance to drought, heat and cold stresses; require less nitrogen fertilizer; and produce increased yields.

“By 2050 we will need a 60 per cent increase in food production. At the same time, we are facing challenges from climate change, limits to expanding growing areas, and the availability of water,” said Faouzi Bekkaoui, executive director of the Wheat Improvement Flagship Program. “We believe that working together as a partnership and alliance will maximize our chances of succeeding and fulfilling the demand for the increase in wheat globally.”

The CWA will invest approximately $97 million over the first five years of the initiative, with a goal of increasing the value of wheat at the Canadian farmgate by $4.5 billion by 2031.
“Agriculture and Agri-Food Canada and the University of Saskatchewan have been breeding wheat for a long time. On the Prairies, 86 per cent of the acreage planted comes from varieties developed by these programs,” said Bekkaoui.

“The NRC brings expertise in genomics and biotech to assist with information and tools to help breeders accelerate their programs and understand complex traits.”

Research will focus on six projects to improve the yield of Canadian wheat varieties:

• Genomics-Assisted Breeding (GAB) will build genomic resources to speed up gene discovery and the ability to identify and develop new traits.

• Wheat Improvement through Cell Technologies (WICT) will improve efficiencies in double haploid systems, reducing variety development times by two to four years.

• Enhanced Fusarium and Rust Tolerance (EFRT) will work to reduce producer losses due to disease by identifying disease-resistant genes and breeding new wheat varieties with more durable fusarium and rust tolerance.

• Improving Wheat Productivity Under Conditions of Abiotic Stress (Abiotic stress project) will seek to improve the drought, heat and cold tolerance of wheat varieties.

• Targeting developmental pathways to improve performance and yield in wheat looks at plant development and crop performance to better understand seed development from early stages to maturity to increase plant yield and seed production.

• Beneficial Biotic Interactions (BBI) looks at the interaction of micro-organisms in the soil as a way to enhance nutrient-use efficiency and plant health, and to reduce the need for nitrogen fertilizers.

The CWA marks a shift in focus for researchers at the NRC, moving from work on other crops, like canola, to wheat.

Andrew Sharpe is a research officer at the NRC and leads the group working on genomics-assisted breeding. He said that one of the challenges in wheat research in the past has been the size of the genome—it is five times the size of the human genome, and includes a lot of repetitive genetic information.

“Over the last few years, we have seen the DNA sequencing technology move forward in quantum leaps in terms of how much data you can manage,” said Sharpe. “Technology has transformed things. It has enabled projects to move from pipe dreams to reality.”

The CWA’s genome-assisted breeding project is working with Genome Canada and international networks to map the wheat genome and build a resource of genetic information that plant breeders and other researchers can use.

“We can take those bits of useful information where we have a particular genetic variance in the DNA sequence and turn it into a marker that you can detect in a fairly routine fashion,” Sharpe explained. “The marker provides a beacon that is specific to a particular variation in a specific cultivar, and the breeders can use that marker to speed up the breeding process instead of having to grow the plants to full maturity to assess the trait.”

For AAFC Plant Breeder Ron DePauw, the resources that will become available to him through the CWA will significantly improve the efficiency of his work.

“The NRC has a lot of capability in basic upstream science, and this new knowledge and technology will ultimately result in better varieties for producers,” said DePauw. “As we increase our understanding and develop genetic tools or markers that are linked to the genes that control those traits, we can select them more effectively and accelerate our pace as we go forward.”

Acceleration, in this case, means that the work being done in Sharpe’s lab today may not yield results in the field until after 2020. Even with the advances in gene identification and propagation, it takes DePauw eight to 10 years to develop and register a new cultivar.

The long-term focus and commitment to collaboration provided by the CWA partners is a unique model in Canadian grains research today.

“We believe that going to this alliance will minimize duplication and provide complementarity in research,” said Bekkaoui, who is working to recruit partners from private industry to join the CWA. “Sometimes the funding resource is short and there’s no strategy, but we want to have a long-term plan with real impact on the future profitability of the sector.”

The targeted specifications for new Canadian spring and winter wheat varieties include:

• Increase yield on a per acre basis
• Increase in resiliency to climate stresses and diseases
• Shorten and improve the efficiency of the wheat breeding cycle
• Reduce the nitrogen fertilizer requirements
Are we in the golden age of crop research innovation?

If you think Alberta isn’t on the cutting edge of innovation, think again

In Canada, it is a national sport to claim that our country is trailing our competitors in innovation. There is no doubt that both government and industry spend a great deal on research—and there are serious questions about whether Canadians reap the economic benefit from these investments. However, it is my opinion that investments in agriculture have resulted in rapid adoption and tremendous returns both to producers and society.

We don’t have to look far for Canadian examples of new technology adoption. Western Canada led the world in understanding the science of conservation tillage—with innovative producers collaborating with (and sometimes pushing!) the research community. Everything came together: extension messaging, equipment development, appropriate inputs and producer creativity. We have seen new crops being adopted across the Prairies—canola, peas, lentils and others—based on a “biological fit” (which included lots of continued fine-tuning) with our environment.

The arrival of transgenic crops in Western Canada created another tool to maximize yield and product quality.

So what is next on the list for crop innovation in Western Canada? We already see the future in other global crops. The first generation of transgenic crops was focused on biotic pests (weeds, insects and diseases). We now see a major focus on abiotic stressors like drought and heat, as well as improving the efficiency of the uptake and use of nutrients. The next major phase will likely be including quality traits that benefit processors and consumers (although this has already been a major focus in the improvement of canola oil since the crop was introduced to Canada).

What are some of the tools that molecular biologists and plant breeders are using to achieve these remarkable gains? Here are three:

Epigenetics: Plant scientists are learning that inheritance can occur based not only on genetics, but by genes being turned off and on by a range of events—and these changes (triggered by heat, drought or other external factors) can also be passed on to the next generation. This creates both complexity and opportunity in developing new traits that are expressed by crops.

Gene silencing: In the past decade, plant biologists have started to use their understanding of a phenomenon where certain types of RNA present (or introduced) in plants can shut down portions of a plant’s genetic code. This has been used to understand the huge amounts of data made available in genome sequencing by “knocking out” certain genetic segments to see what effect they have in a normal plant. The other use has been to kill viruses that invade plant cells. This function has been used to create virus immunity in commercial papaya (papaya ringspot virus) and potato (potato leafroll virus) cultivars. The same mechanism has been successfully used in barley (barley yellow dwarf virus).

Gene editing: In the early days of molecular biology, a number of methods were used to “introduce” new genetic material into an organism’s DNA. This included such subtle approaches as the blasting of DNA into plant tissue on the tip of a platinum projectile and hoping for the best. We now have methods to insert, replace or remove specific gene sequences accurately in specific locations of a plant’s genome.

The process of “stacking” traits uses this method to introduce multiple gene sequences into a variety with exquisite control over their insertion. These are just three of the amazing things happening in crop innovation in Canada. These tools will create crops that enable producers to supply the food, feed, fuel and fibre opportunities that a growing global population will demand.

Stan Blade is the CEO of Alberta Innovates Bio Solutions.

Investments in agriculture have resulted in rapid adoption and tremendous returns both to producers and society.
Grain Commission Reform

CHANGES WITHIN THE LAST YEAR SPELL GREATER RESPONSIBILITY
AT A FAR GREATER COST TO FARMERS

Since the Single Desk ended, the Canadian Grain Commission (CGC) has been undergoing reforms. In particular, it moved to a full cost-recovery model with additional user fees as of Aug. 1, 2013.

Before, the federal government shared 50 per cent of the cost of operations with industry. Now, however, the government is lowering its contribution to less than 10 per cent. (In the U.S., by comparison, the Federal Grain Inspection Service receives 37 per cent of its funding from government.)

This means a farmer cropping 5,000 acres, producing one tonne per acre, and delivering most of it to the grain elevator, will see costs jump from about $5,000 to almost $7,200—an increase of 44 per cent.

Under the current funding model, fees on grain exports fund the bulk of CGC operations, including services for the domestic industry and grain quality-assurance functions. Essentially, we have all of our eggs in one basket, and we expect exports from port to pay for all CGC operations.

This is not an ideal setup for the CGC or for farmers. We need a new funding model.

A more representative model would be able to charge all those who use and benefit from CGC services across Canada.

This may mean a new check-off structure. But from Grain Growers of Canada discussions, it appears there is zero appetite for that among farmers or farm groups.

Important CGC changes we hope to see:

• Installing a more accountable governance structure: If farmers are paying the majority of costs, then they need more of a voice at the table. A new governance structure would assist in further streamlining CGC operations and better align CGC’s services with grain industry requirements.

• Extending the “subject to inspector’s grade and dockage” repeal provision to process elevators: This would allow producers to challenge the grade they are given at a flour mill or crush plant. Currently, there is no recourse for farmers who disagree with the grade they receive.

Recommendations the Grain Growers are currently reviewing:

• Increasing co-operation between the Canadian Grain Commission’s Grain Research Laboratory and the Canadian International Grains Institute’s lab in the hope of achieving cost savings or better service options.

• Broadening the CGC mandate to include “all Canadians” rather than the Canada Grain Act’s current stipulation that the CGC act “in the interests of the grain producers.” This could help to more accurately describe to government and the public the importance of the CGC’s role in serving the public good.

• The Canada Grains Council is suggesting we should shift the responsibility for issuing Phytosanitary Certificates from the Canadian Food Inspection Agency to the Grain Commission, which would be more in tune with the needs of the grain industry than Health Canada. This follows the shift of responsibility for the CFIA from Agriculture Canada to Health Canada.

Now that farmers market their wheat and barley, they are seeing how the work of the CGC is needed in the international markets. Since farmers are paying the bill, they need to think through what works for their crops and farms, take control of their own destiny, and communicate their ideas to their local farm leaders regarding the CGC and other issues they are facing.

Janet Krayden is the public affairs manager at the Grain Growers of Canada.
A big push is now under way to encourage farmers in Alberta to reduce greenhouse gas (GHG) emissions—and increase profits while they’re at it.

“[Farming 4R Land] is designed to help Alberta farmers get better economic and environmental results through better stewardship of fertilizer products,” said Clyde Graham, vice-president of strategy and alliances at the Canadian Fertilizer Institute (CFI).

Farming 4R Land (Alberta) is part of a new national project by the CFI that aims to ensure as much fertilizer as possible ends up in the bin, rather than the air or water.

“The more nutrients you get into the plant, the better the return,” said Dan Heaney, the top soil fertility scientist on the project. “And the more nutrient you get in the plant, the less there is to wander off and get into trouble in the water or come off as greenhouse gas.”

In recent years, Heaney said a lot of high-level research into fertilizer use optimization has been done across North America. The result of this research is the “4R” method of fertilization, which focuses on applying the right fertilizer source, at the right rate, at the right time and in the right place. Following these best practices optimizes fertilizer uptake, and reduces runoff and GHG emissions.

For example, Heaney said, fertilizing in the winter is generally the wrong time, since most of the nutrients can’t penetrate the frozen ground and will simply run off in the spring, taking the farmer’s investment with it. Similarly, “broadcasting” fertilizer equally across entire fields is less effective than ensuring higher concentrations are spread onto areas that need it most, Heaney said.

“The 4R method is aimed at reducing the environmental impact of fertilizers,” he said. “It’s not a fertilizer reduction program.”

Reducing the amount of nitrous oxide that is released into the atmosphere from the province’s agricultural land is a key goal of Farming 4R Land.

According to Heaney, all agricultural land emits a baseline level of nitrous oxide, even when unfertilized, due to naturally occurring chemical processes. Ensuring more nitrogen gets into the target crop, he said, helps keep this greenhouse gas out of the atmosphere.

The Province of Alberta has set targets to reduce GHG emissions from agricultural land with the Nitrous Oxide Emission Reduction Protocol (NERP).

Graham said this presents Alberta farmers with an opportunity to make some extra money on the side by collecting and selling offset credits.

“If they can get involved in offset projects, they can make some money by getting some offset credits,” he said. “These can then be sold to large industries that have emissions and need those offsets to comply with Alberta’s emissions programs.”

Farming 4R Land estimates that using the 4R best practices will reduce GHG emissions by 15 to 25 per cent by using nitrogen fertilizer more efficiently.

Bruce Ringrose, vice-president of business development at GHG emissions management provider ClimateCHECK, said global companies like Walmart and Unilever have also set targets to reduce emissions throughout their supply chains. Alberta’s farmers risk losing market share to regions that are using more sustainable practices if an effort isn’t made, he added.

“The downstream supply chain is starting to ask for more and more information about environmental stewardship on the farm,” Ringrose said. “And the 4R framework is a potential tool to demonstrate to the supply chain that good practices and stewardships are occurring.

“We need to be able to demonstrate we can be good stewards of the land.”

Training courses in the 4R method are available online, and farmers interested in participating in the program can learn more from their crop advisors or agri-retailers.
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Brewing for a Showdown

HIGH-YIELDING MEREDITH TAKES ON OLD STANDARD METCALFE

THE CANADIAN MALTING BARLEY Technical Centre (CMBTC) released its Recommended Malting Barley Varieties list for 2014/15, a report it has published for the last 12 years.

The report’s purpose is simple: “[We] advise farmers on what the industry—including both domestic and international maltsters and brewers—is looking for,” said Rob McCaig, managing director and director of brewing for the CMBTC.

Testing has evolved into a more collaborative effort since the end of the single desk, and “all varieties on the list, including those still undergoing market development, have passed rigorous preregistration co-operative and collaborative tests,” explained Michael Brophy, president and CEO of the Brewing and Malting Barley Research Institute (BMBRI), which performs the collaborative tests. “Making the list confirms that there is commercial demand for these registered varieties.”

The report covered two-row and six-row barley, with two-row accounting for 95 per cent of the malting barley sold.

“The two-row section is actually two lists,” said McCaig. “The first one contains four varieties that represent 80 to 85 per cent of the anticipated selections for the year.”

Those four are AC Metcalfe, CDC Copeland, CDC Meredith and CDC PolarStar.

“AC Metcalfe is still the king,” said McCaig, “but others are gunning for the crown. In terms of agronomics, yield, disease resistance and acceptance by the industry, CDC Meredith is the one to watch. While it has yet to be picked up by the export market, and the domestic market is just discovering it, it had a yield of 116 per cent over Metcalfe, which is significant.”

Also in the top four, CDC Copeland is 10 years old and is still widely accepted by domestic and international markets. PolarStar is grown on contract for Sapporo Breweries.

The second list comprises five varieties accounting for 15 to 20 per cent of the anticipated selections.

“These would be the ‘kings-in-waiting,’” said McCaig. “We expect several of them could become dominant varieties in six or seven years.”

These five varieties are Newdale, Major, Bentley (developed at the Lacombe Field Crop Development Centre), Merit 57 and CDC Kindersley.

According to McCaig, “Major, Kindersley and Bentley could graduate to the first list down the road. Newdale can be a high selection in years with a poor overall barley crop, but in good crop years like this one it won’t be chosen as frequently. The other varieties are preferred over Newdale, but because of the higher yielding potential of Newdale, the opportunity to get selectable barley in poor crop years is magnified.”

McCaig said that Newdale is “at its peak now” and won’t move to the top of the list in the foreseeable future.

As for Major, “it has an excellent combination of agronomic traits and disease resistance with malting quality similar to AC Metcalfe,” said Yueshu Li, PhD, director of marketing technology for the CMBTC.

Among six-row varieties, Legacy, Tradition and Celebration were the top three.

“Six-row continues to be dominated by those varieties required by Anheuser-Busch InBev, the leading global brewer, managing over 200 beer brands,” said McCaig. “But that demand is steadily declining.

“They do best in black soil,” added McCaig. “In Alberta we have prime conditions for malting variety selection in the Palliser Triangle, running from Lethbridge along the eastern edge of the foothills and extending north to just east of Edmonton.”

Most years, the industry identifies the most desirable varieties, and farmers proceed to grow them.

“Not so this year,” said McCaig. “Interestingly, many farmers put in Meredith instead of Metcalfe because of yielding potential. That’s why Meredith is where it is in the report. There’s a lot of good-quality Meredith out there and, agronomically, it’s fantastic for farmers.”

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Wheat’s "Game Changers"

HOMEGROWN VARIETIES A TRUE ALBERTA ADVANTAGE

AFTER A DOZEN YEARS OF research, University of Alberta wheat breeder Dean Spaner, PhD, has scored two major wins for prairie wheat producers. For now, they are known as BW947 and PT765, two newly registered Canadian Western Red Spring (CWRS) wheat cultivars notable for their combination of high-yield, early-maturation, good protein and improved disease tolerance. When they become available to commercial producers two to three years from now, these two cultivars may become known as something else entirely.

“Game changers,” said Brian Beres, chair of the Prairie Grain Development Committee responsible for testing, evaluating and recommending wheat, rye and triticale candidate cultivars for registration. “I think that’s what they’ll be known as. If you’re talking CWRS, there are probably less than a handful of varieties you can successfully grow in Alberta’s parkland, and none of them available to date are so all-inclusive.”

The challenge for wheat breeders is the inverse relationship between maturity and yield. Typically, the higher the yield, the more growing degree days a variety requires to reach maturity, explained Beres. As such, varieties bred to successfully grow in Alberta’s cooler, shorter-season parkland have, until now, been characterized by lower yields.

“That problem has been a tough nut to crack,” said Beres. “But what Spaner has provided are two early-maturing varieties that have maintained both yield and protein levels. You can’t overstate the value and importance of that, especially since there are more arable acres in the Peace River region than in all of Manitoba.”

In addition to the maturation and yield benefits, Spaner’s varieties also offer above-average disease tolerance to the most serious disease issues affecting the parkland region. Both BW947 and PT765 have good resistance to stripe rust, and PT765 offers improved tolerance for fusarium head blight.

“Getting the yield and early-maturity benefits is one thing. But if a breeder really wants to complicate the research, they’ll try to package in disease resistance, too. Spaner was able to pull all of those attributes together, which is a real shot in the arm for Alberta producers,” said Beres.

“Your chance of finding a successful cross is low: maybe one in 1,000 or one in 10,000.” – Dean Spaner

Both BW947 and PT765 were originally crossed in 2005 from parents selected from trials grown in 2003, and then field-tested in 52 environments between 2007 and 2012. The chance of either achieving this was amazingly low. In fact, these two are the first U of A-developed varieties of CWRS approved for release since 1998, and are among the five varieties successfully released by the university since its breeding program began in 1915.

“Every year we make about 100 crosses that you start yield-testing six generations later. It’s a rather time-consuming process,” explained Spaner. “It’s about stacking the odds and following a scientific method of advancement. But ultimately, you are playing a numbers game. Your chance of finding a successful cross is low: maybe one in 1,000 or one in 10,000.”

Spaner is hopeful for another breeding success is in the near future, and continues to work on developing new varieties of CWRS, Canadian Prairie Spring Wheat and general-purpose wheat. He was quick to point out his success was only possible due to the support of the agriculture industry.

“The development of wheat varieties, especially at a university, involves long-term funding commitment. I am very grateful to the Alberta Crop Industry Development Fund and the Western Grains Research Foundation funded by the check-off supported by all wheat growers. And the program looks forward to long-term collaboration with the Alberta Wheat Commission.’”

Both varieties have passed registration and are now well en route to commercialization. Canterra has purchased plant breeder’s rights to BW947 and is currently building up the seed bank by growing a one-hectare plot of the variety. PT765 was grown by four Alberta seed growers in 2013, and Spaner is currently working with them to commercialize the variety.

BY THE NUMBERS

1 – company planning to commercialize BW947: Canterra Seeds
2–3 – estimated number of years until BW947 and PT765 are available commercially
5 – varieties of CWRS have been developed at the University of Alberta (including BW947 & PT765) since its breeding program began in 1915
13 – years Dean Spaner has been breeding wheat
16 – years since the last release of a CWRS variety from U of A
52 – number of field-test environments BW947 and PT765 were tested in between 2007 and 2012
2005 – the year BW947 and PT765 were initially crossed
TODAY, WITH ABOUT 65 MILLION acres in production, Western Canadian farmers are busy growing crops to feed the booming BRIC markets—Brazil, Russia, India and China. But Canada’s role in feeding the world dates back much further—long before those countries were even on the radar—as this 111-year-old illustration shows.

This inspiring illustration recognizing “Canada: The Granary of The World” is the front cover of a 30-page booklet printed by the Canadian government in 1903 as part of a campaign to attract new farming immigrants to Western Canada.

This particular booklet, filled with red, white and blue Uncle Sam images, was aimed at attracting U.S. farmers to homestead on the Canadian Prairies. It was part of a drive headed by Sir Clifford Sifton, Minister of the Interior in the Wilfred Laurier government, to encourage farmers from the U.S., Britain, Germany, Scandinavia and eastern Europe to come to Canada.

It was part of a series of booklets described as being “flamboyant and spectacular,” not to mention overstated, with some similarities to a “travelling medicine show,” promising free homesteads and great opportunities. Canada, “the land that produced the finest of the wheat—where cyclones are unknown, where the crops show large and profitable yields, and where civil rights and religious liberty are maintained and enjoyed.”

Although not all remained to farm, many did, bringing with them community names reflecting the diversity of the countries left behind. The campaign had reasonable success as immigration increased from 16,835 in 1896 to 141,465 in 1905.
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