GrainsWest

WINTER • 2020

Connecting Farmers, Food and Ideas

The Special Areas

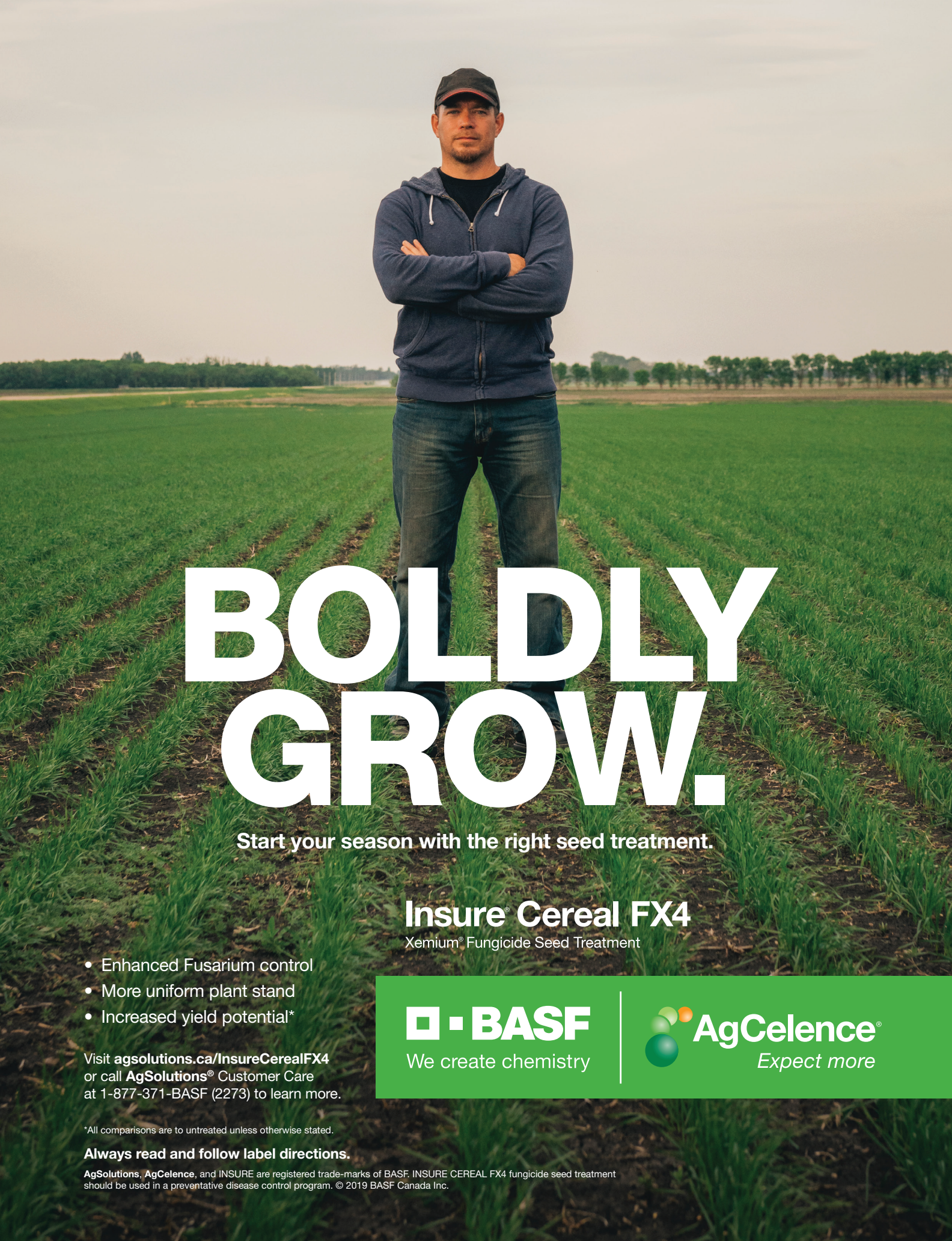
Growing grain in Alberta's Empty Quarter

Plus

Profit boosters for difficult economic times

On-farm research trials

The art of the rental deal


BOLDLY
GROW.
Start your season with the right seed treatment.
Insure® Cereal FX4
Xemium® Fungicide Seed Treatment
• Enhanced Fusarium control
• More uniform plant stand
• Increased yield potential*
Visit agsolutions.ca/InsureCerealFX4 or call AgSolutions® Customer Care at 1-877-371-BASF (2273) to learn more.
BASF
We create chemistry
AgCelence®
Expect more
*All comparisons are to untreated unless otherwise stated.
Always read and follow label directions.
AgSolutions, AgCelence, and INSURE are registered trade-marks of BASF. INSURE CEREAL FX4 fungicide seed treatment should be used in a preventative disease control program. © 2019 BASF Canada Inc.

PRAIRIE CEREALS SUMMIT

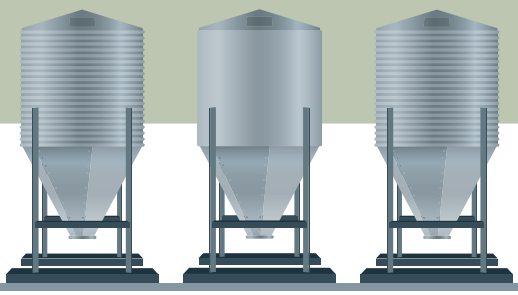
Thank you to our sponsors

PLATINUM

GOLD

SILVER

BRONZE



CONTENTS

COLUMNS

THE FARMGATE

FEATURES

Alberta Barley and the Alberta Wheat Commission co-publish *GrainsWest*, a farming quarterly dedicated to the interests of this province's grain farmers. *GrainsWest* connects farmers, food and ideas.

RECOMMENDED READING

QUICK READ

3-4 minutes

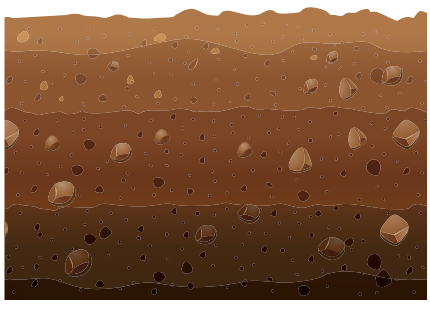
Well spent

Agri-food entrepreneur transforms brewing byproduct

07

MEDIUM READ

6-7 minutes



Tactical tips

Practical cost cutters and profit boosters for difficult economic times

30

LONG READ

10-12 minutes

Sow what?

Seed add-ons, specialty fertilizers flood the marketplace, but are they any good?

26

PUBLISHER
Tom Steve

EDITOR
Ian Doig
idoig@grainswest.com

SALES & DESIGN LEAD
Tommy Wilson
twilson@grainswest.com

COPY EDITOR
Trevor Bacque

EDITORIAL ADVISORY BOARD
David Bartlett
Victoria Decker
Todd Hames
Jason Lenz
Wade McAllister
Jeff Nielsen
Cole Siegle

CONTRIBUTORS
Trevor Bacque, Stan Blade, Cereals Canada, Ellen Cottee, Melanie Epp, Debbie Foisy, Tim Fowler, Ellen Goodman, Government of Alberta, Erin Gowriluk, Lee Hart, Sarah Hoffmann, Juli Labreque, Jason Lin, Brenna Mahoney, Rob McMorris, Cole's Ag Media, Alyssa Mistelbacher, Carol Patterson, Provincial Archives of Alberta, Colleen Seto, Shepherd's Grain, David Simbo, Susgrainable, Zoltan Varadi, Jenn Walker

***GrainsWest* magazine is a joint venture owned and operated by Alberta Barley and the Alberta Wheat Commission. *GrainsWest* is published four times per year by the GrainsWest Publications Society, an autonomous, incorporated body.**
GrainsWest is published at:
200, 6815 – 8 Street N.E.
Calgary, AB T2E 7H7

Phone: 403-291-9111
Toll-free: 1-800-265-9111
Fax: 403-291-0190
Email: info@grainswest.com

Web: grainswest.com | **Twitter:** @grainswest

For subscriptions, email: subscriptions@grainswest.com

Volume 7, Issue 1

EDITOR'S MESSAGE

Special interest

ALBERTA'S SPECIAL AREAS ARE full of surprises. One massive region subdivided into three parts, it is so named for the land-use regulations introduced decades ago to conserve the farms and ranchland of this arid, sprawling expanse of southeast Alberta.

At risk of turning this page into the new *GrainsWest* travel column, I will briefly sing the praises of exploring this vast and sparsely populated land. Alberta photographer Zoltan Varadi and I spent the 2019 Labour Day weekend wandering its roads and trails so that he could produce the photographs that accompany writer Carol Patterson's cover story "Special circumstances" (page 20).

Owing to its land conservation practices, this is important habitat for wild Prairie plants and animals. As we travelled, whitetail deer bounded through golden grain fields, and flights of songbirds peppered the air. Every other fencepost seemed to hold a hawk that flapped off as soon as it spotted the camera, refusing to pose long enough to have its portrait snapped.

Though we rolled past serious acres of healthy grain, this is dry country. From Consort in the north to Empress in the south, we stepped over knots of multi-coloured cacti and the region's abundant grazing land was dressed with wild plants that flourish where moisture is scarce. In stark contrast, early in the morning at Blood Indian Park south of Youngstown, we watched pelicans glide over the mist-shrouded Blood Indian Creek Reservoir adjacent to the main camping area, their bellies most likely full of the water body's plump rainbow trout.

The rolling hills and coulees hide several such gem-like recreational areas treasured by locals. These include Prairie Oasis Park south of Hanna and Gooseberry Lake Provincial Park north of Consort. An oasis of stellar geography, Mud Buttes with its dramatic sediment-striped canyon walls is all but invisible until you're on top of it.

Especially hard hit during the dry and dusty years of the Great Depression, profitable farming in the region became largely uneconomic. As pioneering immigrant families left the region, land-use policies and agronomic practices were adopted that better suited the soil and climate conditions. Some cropland was converted to forage and existing native grassland was preserved in perpetuity, a fact the region wears as a badge of honour. Over ensuing generations, farmers and ranchers in the Special Areas further adapted to the unique agronomic challenges they faced.

"Special" is more than a mere designation here, it's a way of life. Adversity proved the mother of invention, and this area of forward thinking farmers was the birthplace of the province's system of applied farm research facilities. Located in the town of Oyen, the Chinook Applied Research Association continues to carry out important agronomic studies that focuses on the region's particular climate conditions and soil types as well as contributing to broader provincial research work.

Once virtually impossible to farm, with the steady work of farmers, ranchers, researchers and agronomists, the Special Areas are now surprisingly productive. If Alberta agriculture needs role models to deal with climate adversity, we've got three right in our own backyard.

BY COLLEEN SETO

Well spent

Agri-food entrepreneur transforms brewing byproduct

WITH THE EXPLOSION OF CRAFT brewing comes a food waste problem. Spent grain accounts for about 85 per cent of brewing byproduct. Big breweries generate thousands of tonnes daily that is sold or given away as animal feed. Craft breweries, especially those in urban areas, don't produce enough to make its distribution as feed financially viable. They have little choice, but to dispose of it as compost.

This is where Vancouver, B.C.'s Susgrainable comes in. The company takes spent grain from urban craft brewers and turns it into a high-fibre, high-protein, low-sugar flour for human consumption.

Susgrainable sells its spent grain flour directly to consumers. It also produces baking mixes as well as ready-to-eat cookies and banana bread, all made with its flour. "Our customers appreciate that we provide a local source of fibre-rich flour, and that we divert a product from becoming food waste," said Clinton Bishop, Susgrainable co-founder and director of operations.

Having grown up on a grain farm near Barons, where his family grows malting barley, Bishop was naturally drawn to the idea of using spent grain. "Those quality grains that farmers work very hard to produce still have a lot of nutritional value," he said. "Why throw it away after only using one part of the grain?"

Ensuring Susgrainable's production process goes smoothly is no simple task. As spent grain has high water content, it's tricky to work with. "Wet grain needs to be quickly processed to avoid spoiling," said Bishop. "That countdown starts from the moment the grain has finished steeping at the brewery." The grain is dried by a contractor. "We've been able to develop a process that dries the grain quickly enough while maintaining quality," said Bishop. The flour is produced using a small stone mill in a converted warehouse space that's done up like a commissary kitchen.

High-fibre food products are not always the most appetizing, but with experimentation, Bishop has produced delicious baked goods that incorporate the flour. "We've managed to create products that are both high-fibre and taste great," he said.

Susgrainable has developed a loyal customer base through farmers' markets and food retailers such as Nada, a package-free grocery store in Vancouver. "Susgrainable is a great example of a company using recovered ingredients and preventing food waste" said Brianne Miller, Nada CEO. "We love working with suppliers like this who are leading the way forward."

Photo: Courtesy of Susgrainable

Converting spent grain from breweries into flour, Susgrainable plans to expand production.

The amount of spent grain continues to increase as the craft beer industry expands. According to Beer Canada, as of 2018, the country had 995 breweries, with most being craft beer operations. "Many urban breweries have no choice but to use waste-management companies to handle their spent grain," said Bishop. Diverting some of this flow, he will dramatically increase the company's flour production with a new facility to be completed this year. It will feature larger milling equipment and its own drying gear.

Since its launch, Susgrainable has diverted more than 1,000 kilograms of spent grain and produced about 250 kilograms of flour. Bishop plans to repurpose 75,000 kilograms of spent grain and produce 18,000 kilograms of flour in 2020.

By transforming spent grain into a product for human consumption rather than animal feed, Bishop has hit upon a mostly untapped market. It's a perfect symbiosis in which the byproduct from one industry becomes the raw material for another.

Serious support for grain science

Saskatchewan crop researchers receive huge cash infusion

U of S wheat breeder Curtis Pozniak is co-leader of the *4D Wheat* project, an ambitious genetics initiative.

RESEARCHERS FROM THE University of Saskatchewan (U of S) have been awarded major funding in support of cutting-edge crop research geared to ultimately improve characteristics such as yield and disease resistance in wheat. Agriculture and Agri-Food Canada (AAFC) and National Research Council Canada scientists as well as collaborators in Canada and the United States will also work on the project.

Professor and wheat breeder Curtis Pozniak along with AAFC molecular geneticist Sylvie Cloutier are co-leading a four-year project titled *4D Wheat* that was awarded $4 million by Genome Canada with additional funds from government and industry topping $11.2 million. The amount includes $1.9 million from the three Prairie wheat commissions and $2.8 million from AAFC. The Alberta Wheat Commission's share of the funding is $600,000.

"Our project is focused on developing strategies to maximize use of genetic resources in wheat breeding," said Pozniak. The project will focus on durum wheat, spring wheat and winter wheat. Simply put, this next big thing in wheat genomics research will identify genes that will be of use to breeders and ultimately produce new varieties to benefit farmers. These genes may provide resistance to disease or drought.

Launched in October 2019, the project involves the use of germplasm from the seeds of wild wheat relatives and historical landraces used by early farmers. Researchers will study the DNA sequencing of these plants and use this information to design strategies to support wheat breeding.

"What we're trying to do is gain access to the good genes present in wild relatives

and introgress them into elite cultivars in a much more efficient way than has been done in the past," said Pozniak. Introgression, or introgressive hybridization, involves the transfer of genetic material through hybridization and repeated backcrossing in plant breeding, where a desirable trait can be transferred from a wild relative to a crop species.

Pozniak estimated about 500,000 wild wheat relatives are available globally for breeding. However, breeders can't systematically assess and use them because of linkage drag, which is the impact of genes with negative traits that are usually introduced along with those that are beneficial.

"When you're making those crosses, you might transfer good disease resistance, but there are also negative traits that come along with it," said Pozniak. "So, we are using genomics to identify only the good genes we want to bring in and get rid of those parts that are not all that useful."

The three Prairie wheat commissions have been supportive of the Genome Canada grant and other recent projects that *4D Wheat* builds on, said Pozniak. "Producer groups have been active funders in supporting genomics research for applied breeding in wheat. That has really elevated Canadian scientists to international success in terms of recognition for the work that we do."

In turn, the recent Genome Canada funding has shifted its focus to end users, said Pozniak. "Wheat producers across the country were consulted and are part of the project. Producers were involved in the process and helped push us forward in terms of our objectives." He said because of this, the project has emphasized farmer-friendly plant traits such as disease resistance.

"Producers recognize that within our project we have all the pieces," said Pozniak. "We have basic research, genomics research and also translational research to make sure what we discover can be translated into breeding programs and ultimately into varieties for their farms."

Project co-leader Cloutier said *4D Wheat* creates an opportunity to add to previous research. "We already have good knowledge of resistance to Fusarium head blight (FHB), leaf rust, stripe rust and powdery mildew," she said. The project will examine gaps in this knowledge to identify as-yet-undiscovered resistance genes such as for rust in wheat lines.

> "I think these large-scale projects allow us to think outside the box."
>
> **—Sylvie Cloutier**

Introducing new varieties that incorporate these resistance traits in combination with suitable agronomic practices could see positive gains in crop grade as well as food safety. Also, producing a genomic platform where breeders have access to seeds that have already been developed in pre-breeding would likely save time and create greater efficiency in their work, said Cloutier.

"I think these large-scale projects allow us to think outside the box," said Cloutier. "They really allow for that reach for new ideas where you have the opportunity to experiment and work with a large team of experts across the country."

PLANT COMMUNICATION

Funding awarded to another U of S researcher will support investigation of molecular communication within plants. Byung-Kook (Brian) Ham was awarded $225,000 by the Canadian Foundation for Innovation for state-of-the-art imaging equipment to support this work. Ham serves as the Global Institute for Food Security research chair of plant molecular signalling and is an assistant professor in the U of S Department of Biology. Scientists in Canada, the United States and China will collaborate on the project.

Signalling molecules such as proteins are used by plants to co-ordinate activities within their various parts. Plants also use them to respond to environmental factors that impact functions such as growth.

Ham's project will focus on how this molecular signalling contributes to mineral nutrient uptake and usage in crops such as wheat, canola, rice, potatoes, tomatoes and lentils. The aim is to help scientists improve the efficiency of nutrient use and acquisition by plants.

A special microscope has been customized for this work to assist in collecting information on the vascular system of cucumbers. This will be the basis for further study on how signalling molecules function in more complicated plants such as wheat.

"If we determine the function of candidate genes [upon] long-distance signalling molecules, especially in seed productivity and development via the plant vascular system, it means that those are potentially involved in grain productivity of wheat or rice," said Ham. "Those candidate genes may act to increase important grain traits. In future, we plan to examine the function of our identified genes in wheat and rice regarding sustainable crop yield under non-optimal soil conditions."

Where essential nutrients such as nitrogen, phosphorus and potassium may be lacking, increasing the ability of plants to utilize them may result in consistent and even better yield. Ham suggested this could simply boost yield in developed nations and aid crop sustainability in countries where fertilizer input may be limited.

BY ELLEN COTTEE

Skills for a new farming era

Report urges action to strengthen the sector

THE AGRICULTURE INDUSTRY faces pivotal challenges, and a new report from the Royal Bank of Canada (RBC) suggests action is needed. *Farmer 4.0: How the coming skills revolution can transform agriculture*, details the precarious situation Canadian agriculture finds itself in as it faces a labour shortage, shrinking profits and its slice of global export markets diminishes.

Andrew Schrumm, RBC senior manager of research, said it was the concerns of farmers that inspired the report. While RBC staff were preparing a separate report on youth and the digital skills revolution, they became aware of problems faced by the agriculture industry. "We heard about labour shortages and people not entering the industry," said Schrumm. "We wanted to explore that with industry groups and see what value we could add."

The report was released in August 2019 following four months of roundtable discussions with farmers, industry groups, economists and academics. Central to the report's recommendations are integrating agriculture into school curriculums and increasing funding for skills and technology advancement. It also lays out suggested methods to reduce the shortage of farm labour.

While the industry is by no means in crisis, it is at a crossroads. Canadian agriculture could face a shortage of 123,000 workers within the next decade, stalling productivity and decreasing global exports.

Alberta Barley chair Dave Bishop farms grain near Barons and agreed the farm labour shortage must be addressed. "We need to make agriculture this nice, shiny, attractive opportunity for people," he said. "Once people get into agriculture, they tend to stay for their whole career. They just need to get here."

Getting them here requires better integration of agriculture into general education, the report concludes. Compared to their peers in countries such as Australia and the Netherlands, Canadian children are not generally taught about food production and farming practices. They enter the workforce with little awareness of opportunities presented by the industry.

Once students are made aware that the farming sector requires workers with a wide range of skills, they're drawn to investigate. To make this happen, co-operative education, a mix of classroom learning and real-world experience, is an effective way to educate young people about agriculture.

"Producers have told me they have software engineers [do co-op work] on the farm, and once they get on the tractor, using the equipment they're programming, they see the opportunity there," said Schrumm. "There are many skills needed in agriculture."

Technology is another area government and industry groups must address to maintain global competitiveness, the report states. In 2018, Canada's share of global agriculture technology funding was just 3.4 per cent, behind Brazil and India.

It's not that farmers don't want technology, explained Bishop. "We are often early adopters of technology," he said, instead suggesting barriers centre upon money. "We may call it a family business, but it's still a business, and we need to look at our capital investment."

More funding from government, industry and private sources for technological innovation in agriculture would help the ag sector increase production by overcoming the barriers of time and money, summarizes the report. A set of federal government economic recommendations, The Barton Report of 2017 likewise emphasized the importance of funding the sector.

As with integrating agriculture into the education system, spurring increased funding for skills and technology will not be a speedy process. "There's a lot of opportunity in the industry," said Schrumm. "We're all thinking long-term about what agriculture will look like, but we need to start preparing now."

BY SARAH HOFFMANN

Proactive protection

Video security systems can deter on-farm crime

Photo: Courtesy of Pixabay

Farm surveillance systems can warn farmers or security service companies of criminal intruders.

WITH THE ALBERTA RURAL CRIME rate being 42 per cent higher than in urban centres in 2017, farm residents have become more interested in beefing up security. Some are using technology to deter crime on their properties.

Olds College partnered with Telus in 2019 to install a security system to protect the employees and assets of its Smart Farm. "We have had numerous thefts and theft attempts in the last eight months," said Jason Bradley, the college's director, Smart Ag and interim farm director, this past November. The fuel stored in the yard of the Smart Farm's equipment shop has been targeted multiple times. As a countermeasure, the college had a video security system installed that can detect the presence of people and vehicles after hours.

The system notifies Bradley or on-campus security personnel. "As a farm owner, I would get notification that there was activity in the farmyard and I'd be able to look at the live-streaming footage on a computer or smart device and see that someone is trying to steal fuel. At that point, I can phone the RCMP and hope there's an intervention."

When a crime does occur, the video files can provide evidence in a criminal case. It can also protect farm owners and employees. "I don't want my farm staff to be combining at the end of day and they come back to the shop and happen upon a thief who has no respect for people or property," said Bradley. "If the deterrence and monitoring can prevent interaction with my staff, that's important."

Companies such as Edmonton's Video Security Solutions offer a camera-based system equipped with a unique method of deterrence. The system's video feed can be monitored by the company or the farm owner. When the camera detects unauthorized on-farm activity, a loudspeaker is used to scare off the intruder. It emits a bullhorn sound followed by a vocal warning. This can be an automated message or can be delivered by a live person who can describe the intruder's appearance. Company owner Kevin Penberthy said this interaction is normally enough to repel would-be criminals.

"We'll never catch them, but if we stop the crime from happening in the first place, the client wins and the bad guy loses," he said. The camera equipment is available in a range of prices and the company offers video monitoring for about $100 per camera per month. Customers can enlist this farmyard monitoring on a temporary basis, such as when they're away on winter vacation.

According to Penberthy, the biggest challenges faced by rural users of video security systems is internet speed and the type of access being used. The system he sells should ideally have a minimum upload speed of one megabyte per second for monitoring purposes or the video will be choppy.

As well, in order for video footage to be viewed by the monitoring company or the property owner, a static public IP address is ideal. Some internet service providers offer a hub or cellular gateway with dynamic IP addresses that can change with no notice to the user. When this happens, the cameras are not accessible remotely and a service call is required to restore the connection with the new IP address.

Research project roundup

Wheat and barley commissions fund cutting-edge crop science

THE WORLD'S FOOD DEMAND IS increasing, but its supply of agricultural land is not. The challenge faced by the farming industry is to increase productivity, improve food security and boost farm income on a land base that is fixed, or in some cases, shrinking. One of the best strategies to address all these related demands is to encourage innovative scientific research.

In 2020, the Alberta Wheat Commission (AWC) will invest about $5.5 million in the area of research. Similarly, Alberta Barley may invest up to $500,000. Although the AWC spends significantly more than its sister commission in this area, research represents the biggest part of both commissions' budgets. These investments align with their missions to advance the interests of their members through leadership and investment in innovative research and development.

The research priorities of the commissions are set by their respective research committees in consultation with farmers. Research projects that are chosen for consideration typically address the needs and challenges farmers experience in their operations. These are then sent for peer review to ensure their methodology is sound and will deliver quality results.

Following peer review, decisions are made as to which projects will receive financial support. As a member of the Agricultural Finding Consortium (AFC), AWC and Alberta Barley co-operate with other crop commissions and funding agencies covering project costs. AFC's 12 member organizations take a team approach in supporting agricultural research and development. Splitting the cost of a given project between multiple partners makes the process more economical for each one.

Among the many projects now being supported by AFC, three are being conducted by research scientists at Agriculture and Agri-Food Canada's Lethbridge Research and Development Centre.

A study of beneficial insects is being undertaken by researcher Haley Catton. It is focused on those that eat insect pests, pollinate crop plants, eat or destroy weed seeds and contributes to nutrient cycling in the ecosystem.

A vast majority of the insect species that inhabit farm fields are not considered pests as they're not harmful to crops. Some of these, in fact, may be very beneficial to farmers. Unfortunately, the control products that kill pests may also impact beneficial insects. Though the benefits many of these insects provide may be known to scientists and farmers, the true value of these positive services has not been adequately quantified.

The study is intended to establish the economic and ecological value provided by beneficial insects. Such information will help farmers make better insecticide application decisions to improve integrated pest management on their farms.

André Laroche is leading a project studying stripe rust resistance in wheat. Its goal is to renew the effectiveness of a defeated and currently ineffective resistance gene no longer effective against the stripe rust pathogen. There is a limited number of resistance genes now effective against stripe rust and the pathogen that causes the disease is constantly evolving. Because it may defeat currently effective resistance genes, more must be incorporated in wheat breeding. The deployment of new stripe rust resistant genes in wheat germplasm will reduce the cost of wheat production as it may shrink pesticide costs. Diminished pesticide use may in turn produce environmental benefits.

Led by Claudia Sheedy, a third project will study the impact of pesticide on the soil microbiome under cereal production. It will identify microbes thriving under pesticide use and investigate their potential as pesticide degraders.

Pesticides protect crops, boost yield and ensure food security, but their residues cause concern. Identifying and multiplying microbes capable of degrading them may protect ground water and the environment without affecting farm operations and profitability. This may also provide a degree of environmental licence for Alberta's wheat industry.

In staying true to AWC's mission to increase the long-term profitability of wheat through innovative research, the sustainability of our agricultural production system can't be overlooked.

THE PROJECTS

GrainsWest spoke with the researchers heading the three projects mentioned on the previous page that are being carried out at Agriculture and Agri-Food Canada's Lethbridge Research and Development Centre.

Research project: Beneficial insects in Prairie crops

GrainsWest: What problem is this research project working to solve?
Haley Catton: This project will focus on the economic and ecological value of biological pest control by beneficials. Results will help determine the hidden costs of insecticide use, guiding producers in making optimal insecticide use decisions in integrated pest management.

GW: What is unique about this project?
HC: This project will start filling a critical knowledge gap for Prairie producers on how best to manage pest insects while giving consideration to beneficial insects in farming operations. It will initiate the process of assigning economic value to the beneficial insects that provide free pest control services and, in the long-term, will reduce unnecessary pesticide use. It will also identify key knowledge gaps to direct future research.

It is a leadership initiative from a large research network of Prairie crop entomologists. We strongly believe that the value of beneficial insects must be quantified to be better appreciated and better integrated into field crop pest management.

GW: How may this research project benefit farmers?
HC: Producers lack information on the value and vulnerability of biological pest control by beneficial insects, and therefore incur hidden costs with insecticide use. Our long-term goal is to give producers the tools they need to make the best and most informed decisions for their farm operations.

Research project: Pesticide impact on soil microbiome

GW: What problem is this research project working to solve?
Claudia Sheedy: We are hoping to help protect water resources from pesticide contamination via the development of mitigation measures. We have learned that microbes excel at pesticide degradation. Our objective is therefore to discover microbes—bacteria, fungi—which can degrade pesticides frequently used in cereal production.

GW: What is unique about this project?
CS: It couples genomic, soil and pesticide research into one applied project. It is the first bio-augmentation project in Canada as far as we know, and it is the first project of its kind dedicated to cereal production.

GW: How may this research project benefit farmers?
CS: While farmers have to use pesticides to control pests—weeds, insects, fungi—this research can demonstrate how using pesticides may result in a positive outcome, other than crop protection, by generating and using new knowledge that can help Canadian growers prevent water contamination by pesticides.

Research project: Upcycling a defeated disease resistance gene of wheat

GW: What problem is this research project working to solve?
André Laroche: In 2000, we saw the appearance of a new race of stripe rust that was more aggressive. The pathogen has evolved and it is no longer recognized by the resistance gene called Yr10, and it can invade the plant. We want to modify the gene to again be effective against stripe rust.

GW: What is unique about this project?
AL: We are using a gene we had previously characterized. We know about the complete sequence of the gene and where and when it is expressed. From there, we can modify it and see if we can develop a variant gene that will be efficient. We could also use different variants together to hold down stripe rust pressure. This would open the door to all the other genes that have been defeated that then could be modified. That would be a simpler and faster way to bring novel genes into wheat.

GW: How may this research project benefit farmers?
AL: It's known genetic resistance is the most efficient, the cheapest way for farmers to protect their crops. To be able to bring in genes that are resistant, to build a strong resistance level in all classes of wheat, this will directly benefit farmers.

The bright side of the budget cut

Alberta farmers see role in setting ag research priorities

ALBERTA CROP AND LIVESTOCK commodity organizations are hoping the provincial government sticks to its plan to tighten agricultural spending while leaving key programs and services in place, if not enhanced.

Following the tabling of the United Conservative Party's 2019 provincial budget this past October, Alberta crop and livestock organizations are cautiously optimistic. It's hoped the planned 9.1 per cent reduction in the Alberta Agriculture and Forestry (AF) budget will be made through creative operational efficiencies rather than by cutting ministry staff.

The budget reflects the fact provincial revenues are down, and follows through on the government's plan to deliver "responsible fiscal management." It will translate to an 18 per cent reduction in provincial spending over the next four years. Specific to AF, the budget calls for a cut of about $34 million by 2023. Farmers and commodity organizations wonder where the spending cuts will be made.

Commodity organizations have taken a united position in agreeing cuts may be necessary, but the industry wants a role in setting priorities and program funding decisions, especially involving research and development. There is common agreement among sectors that some reincarnation of the recently dismantled Alberta Crop Industry Development Fund (ACIDF) and Alberta Livestock and Meat Agency (ALMA) will be needed to facilitate the set up of research priorities.

The groups are encouraged by the government's stated objective to "consult with farmers and ranchers to develop a research and extension plan that ensures producers' needs and views guide key agriculture research priorities."

"Nobody likes to see budget cuts," said Ryan Kasko, chair of the Alberta Cattle Feeders Association. "But, we knew, or expected, there would be cutbacks. Something had to be done. The province couldn't keep living beyond its means."

Photo: Courtesy of the Government of Alberta

While the 2019 budget trimmed agricultural spending by 9.1 per cent, farm groups hope this comes with a greater say in reseacrh priorities.

Rich Smith, Alberta Beef Producers executive director, said while there appears to be good-news–bad-news elements in the budget, he's hoping even in lean economic times, essential programs and services will be maintained.

"Farmers, being fiscal conservatives, knew there would be some belt tightening," said Alberta Wheat Commission and Alberta Barley general manager Tom Steve.

While it appears essential business risk management programs aren't affected by the budget trim, Steve said farmers and organizations hope they will have a say in what programs will be cut.

A broad cross-section of crop and livestock commodity organizations provided input in recent weeks to the preparation of a whitepaper presented to AF Minister Devin Dreeshen early this past December. Lauren Comin, research director with the Alberta Wheat and Barley commissions, led the creation of the document. It outlines the industry's clear desire to play a role in guiding future spending while creating efficiencies. It also urges the government to allow farmers and the agriculture industry to play a greater role in setting research priorities.

"The previous government had moved away from productivity research and focused more on policy-type research such as sustainability, climate change and public trust issues," said Steve. "It's not that those issues aren't important,

but when funds are limited and we have to set priorities, we need to focus on improved agronomics, research geared toward increasing yield and improving crop disease resistance. Farmers need to increase efficiencies in a very competitive marketplace. If they can't be competitive, the industry is in trouble."

The whitepaper emphasizes the importance of maintaining government funding of research programs such as those carried out at Lacombe's provincial Field Crop Development Centre (FCDC). Barley breeding is an important part of the FCDC mandate," said Steve. "And having improved barley varieties is important to both the crop and livestock industries. Providing stable funding for barley breeding is a priority."

Steve said he is pleased to see no planned cuts for business risk management programs such as crop insurance, AgriStability and AgriInvest programs. In fact, he's hopeful ongoing discussions between the province and farm groups will spur enhanced coverage within these safety net programs.

Kasko said the Cattle Feeders were pleased the budget has assured funding for Alberta's irrigation network will continue. This is particularly important, given irrigated cropland plays a large role in producing feed for southern Alberta's livestock feeding industry.

Kasko also sees the new *Farm Freedom and Safety Act* as an example of the government's willingness to seek input from the industry in decision-making and the development of legislation. He's hoping that whitepaper recommendations to create farmer-directed livestock research through a structure similar to ALMA will be considered in discussions in 2020.

While the industry needs to provide input to the government, Kasko also noted certain observers predict the budget will effectively constitute an interim document likely to be replaced by a new budget early in 2020.

Smith said the budget holds both pluses and minuses for beef producers. The budget "overall appears reasonable considering the fiscal position the government was facing," said Smith. However, he is disappointed that AF is taking a 9.1 per cent hit on spending, which ultimately could affect research and other programs that contribute to the success and competitiveness of the beef industry.

Outside the AF-specific portion of the budget, he said there is good news for farmers and ranchers. He said increased provincial justice department spending is an important step in dealing with a dramatic increase in rural crime. He also pointed to the new Act as an example of legislation developed after the government sought input from farmers. He hopes this input will likewise be sought when it comes to research and development planning and budgeting.

"We really appreciate the government has stated its commitment to industry-led research and development for the agriculture industry," said Smith. "Our position in the whitepaper is that we feel producers and their associations are in the best position to set out the priorities for research projects and funding."

Comin said whitepaper input from various commodity organizations emphasizes the need to maintain services and programs essential to the sector, adding actions need to be carefully thought through. When a program or service is cut, it's difficult to bring it back in its old form.

The whitepaper also recommends the development of a board to oversee the research.

"The creation of a new board to direct crop and livestock research would not be that difficult to do," said Comin. "We're probably looking at some hybrid between the former ALMA and ACIDF boards that has a lean administration and can set priorities for research."

She believes such an organization would lend itself well to co-operation and collaboration within the industry groups.

The 2019 provincial budget includes $879 million in Alberta Agriculture and Forestry spending. Initiatives include:

- Enhancement of service delivery to include on-farm visits and improved online service delivery.
- Continuing to fight the mountain pine beetle. An additional $20 million is budgeted over four years.
- Working with farmers and industry to determine research priorities and build programs.
- Introducing the "Fighting for Agriculture and Forestry" strategy to help strengthen consumer confidence and promote agriculture and forestry.

To learn more about the 2019 Alberta provincial budget visit alberta.ca/budget.

Person: Erin Armstrong

Place: Winnipeg, MB

Thing: leading the charge for barley farmers across Canada

BRING ON THE BARLEY

Erin Armstrong takes the helm of the Barley Council of Canada

BY ELLEN COTTEE • PHOTO BY ROB McMORRIS

A born-and-raised Winnipegger, Erin Armstrong has spent more than 20 years in the agriculture industry and has become a widely respected leader. Following management stints at Canterra Seeds, the Canadian Malting Barley Technical Centre (CMBTC) and the Brewing and Malting Barley Research Institute (BMBRI), she's taken the helm of the Barley Council of Canada (BCC) to lead the organization through its current management transition. After a recent strategic review of the BCC, key areas of change were identified, such as tweaking its partnerships with other barley industry bodies, and Armstrong is ready to jump into action.

GrainsWest: **What drew you to agriculture as a career path?**
Erin Armstrong: I had a high school biology teacher who was one of those influential teachers in my life. He said, why don't you think about agriculture? My first reaction was the typical: but I'm not from the farm. He said it's not just about farming, so he also planted that seed in my mind.

GW: **How did you end up choosing your undergraduate major?**
EA: It was a process of elimination. I knew I didn't want to do just chemistry or biology, and I'm very technical, so it came down to agriculture. I was getting my undergrad degree at the University of Manitoba, and at that time they had a program where you rotated through different departments over six weeks to figure out where to specialize. Again, it was a process of elimination to find an undergraduate degree in food sciences.

GW: **Where did your career take you?**
EA: I travelled for several years and I looked into lab technology jobs, a couple of food companies and also research labs and I wandered around Europe and Australia. Then it was time to go to grad school. A whole bunch of circumstances lined up. I ended up doing my research under a scientist at Agriculture and Agri-Food Canada (AAFC) in Ottawa and that's what really got me involved in grains. After that, I went to the United States for a couple years and worked for General Mills.

GW: **What eventually brought you back to Canada?**
EA: I joined Canada Malting in Calgary. I spent 14 years in the malting and brewing industry, six at Canada Malting and then eight years back in Winnipeg with the BMBRI. I then switched gears to the seed industry and spent 11 years with Canterra Seeds.

GW: **How did you end up at the helm of the BCC?**
EA: The BCC was going through an in-depth strategic review over the course of eight to 10 months, and in casual conversation with someone about whether I was going to be retiring, we started talking further about the direction of the BCC. The reason I signed on is the change aspect—so much is changing in all sectors. I was part of the industry roundtable process that preceded the strategic review the BCC undertook, and there were other changes happening in the BCC infrastructure as well. It's interesting to have been working at the back-end of this strategic review in the beginning to

now being on the front-end in the organization.

Having had 14 years of experience in the malting and brewing industry, and of course handling barley, among other crops when I was with Canterra Seeds, I know the people and the organizations we're working with. That helps a lot. Coming back into barley specifically after having a broader focus, I've had to come up to speed and become more familiar with areas like feed barley, having had less experience there.

***GW*: What are some of the changes that can be expected for the BCC?**
EA: No. 1, we now have a service-level agreement with Cereals Canada. I consider it a partnership. We're working with them on market access issues, communications and other similar issues. The other two main pieces we're looking at … we're working much more closely with the BMBRI on big research issues and more closely with the CMBTC on development and broader industry discussions.

***GW*: What led to these closer relationships?**
EA: We had to take a look at what the functions of an entire value chain are. What development and what research is important? Often, there's no shortage of work for all these organizations to do, there's just a shortage of resources. We're trying to collectively figure out how best to get done what really needs to get done.

It's like trying to use a telescope and a microscope at the same time, which can be difficult. We want to see the broader context, nationally and internationally, but we also have to look at the specifics of our own organizations to see what we need to do there.

***GW*: What would the impact of these changes be on farmers in Canada?**
EA: These changes and closer collaborations will ensure that collectively, resources are used as best they can be. We can avoid duplication of work and we can better fill in gaps. Of course, we'll all focus on our areas, but as we're all talking, there may be times to have a unified voice. Also, increased collaborative communication provides insight and helps us look at opportunities for further changes that benefit producers.

Photo: Courtesy of Juli Labreque

Jill McDonald, Delaney Seiferling, Luke Harford, Brittany Burden and Erin Armstrong pictured celebrating the first ever Canadian Beer Day, which took place on Wednesday, Oct. 9, 2019.

***GW*: The BCC was part way through an AgriMarketing Program (AMP) grant from AAFC when the strategic review was taking place. The grant is intended to look at long-term feed barley export opportunities. What is the future for that program?**
EA: BCC still has the AMP project, although it was paused while undergoing the strategic review. We needed to take a look at what we're doing and what we're going to be doing. There's been minor activity this year on it, and we're in year two of the current three-year project.

CMBTC is taking the lead on market development plans for barley and we're still discussing what to do on the feed barley front. AAFC is aware that we're working with CMBTC and others on a comprehensive market development strategy for all barley.

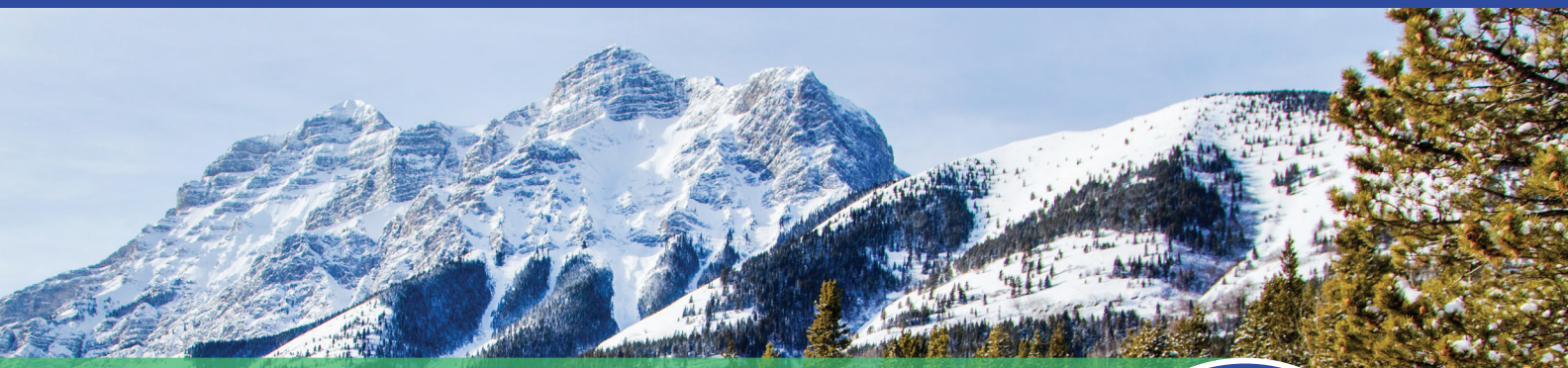
***GW*: What does the future of Canada's barley industry look like to you?**
EA: First off, barley acres went up this past year, so it is clear barley remains relevant. Second, there's a focus—not just in barley, but other crops as well—on diversification. That could be diversification of use or of the market. Even looking around at things like The Barton Report and seeing the emphasis on increasing exports and diversification, it's important to us to take issues like these into account as we work on them. The big thing is, anytime there is change and unsettlement, there's opportunity. We need to make sure we capitalize on that opportunity.

The 2020 spring issue of the Alberta Seed Guide is out!

ASG
ALBERTA SEED GROWERS

Alberta Seed Guide

To receive the magazine visit seed.ab.ca.



91ST ANNUAL GENERAL MEETING

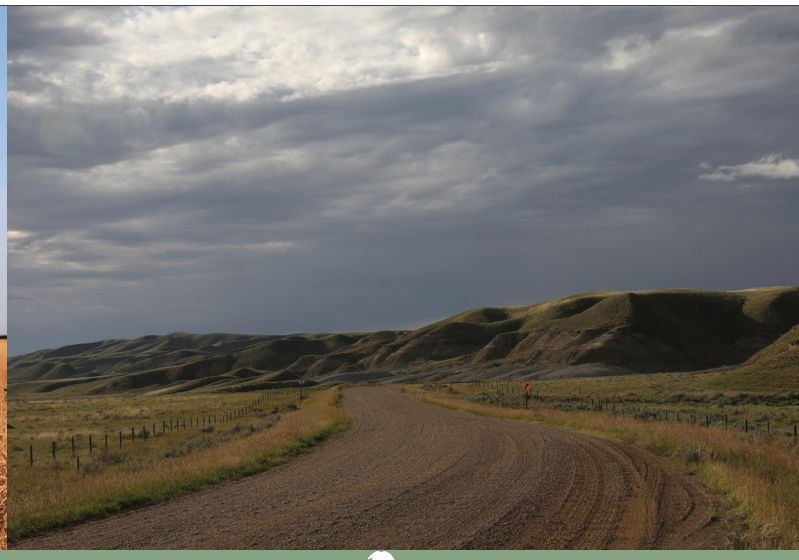
Kananaskis Mountain Lodge

February 6-7, 2020

www.seedalberta.ca

REGISTER TODAY!

Members and seed industry attendees will receive important updates about their industry.



Special circumstances

Growing grain in Alberta's Empty Quarter requires resilience and resourcefulness

BY CAROL PATTERSON • PHOTO BY ZOLTAN VARADI

Blood dripped from Liz Roberts's hand. She needed help but her cell phone showed no service. She stepped away from the fence stretcher that had gashed her hand. Driving to get medical help, she stopped several times to phone for assistance without success. From her family's farm south of Cereal, Roberts arrived 30 minutes later in Oyen, a town of 1,000 hardy souls perched just south of Highway 9 in southeast Alberta, relieved to have remained conscious long enough to find a doctor and stitches for her wound.

Drawing on one's own strength isn't new for people living in Alberta's Special Areas 2, 3 and 4. With a farm and ranch population of 4,184 in the 2016 census, this is about half the population of Banff spread over five million acres, or about one person per 1,000 acres. Even counting the roughly 4,000 townspeople of Oyen, Consort and Hanna, the Special Areas might be dubbed Alberta's Empty Quarter for its sparsity of inhabitants. Though not quite as arid and unpopulated as the legendary Empty Quarter of the Arabian Peninsula, dealing with isolation is a way of life here, as is battling drought.

In the Special Areas, cattle and occasionally pronghorn dot large pastures and songbirds flit between grain fields. Wind-swept prairie and deep coulees wrap an unbroken horizon, the area's history tucked away in homesteads and towns. The region's western edge dips into the Canadian Badlands, its dinosaur fossils hinting of a long-ago age when moisture was abundant.

The Roberts family and their neighbours have come to terms with the difficult soil and climate conditions of this region, but many past inhabitants were chased away by the dust clouds of the 1920s and '30s. Almost a century later, the residents of the Special Areas are role models for tackling drought and volatile climate conditions.

SPECIAL RULES FOR SPECIAL AREAS

Lured by cheap land, people with big dreams flocked to southeast Alberta between the early 1900s and 1920s. Homesteaders hoped to break the land, but it often broke them.

Population in the area surged past 20,000, peaking in 1916 at about 24,500 but fell as newcomers discovered the land was poorly suited to the farming practices of the day. Worsening the situation, persistent drought conditions started in 1917. Many walked away from homes, mortgages and unpaid taxes, leaving towns and municipalities staggering under debt.

A provincial commission struck to tackle the problem produced the *Special Areas Act*. Passed in 1938, it gave administrative powers to the newly formed Special Areas

On a short break from harvesting their pea crop, Fred and Liz Roberts visit with daughter Candy and her baby Cazzlyn Bachmeir. The family farms south of Cereal.

Board including management of "tax recovery" land that had been abandoned with taxes owing. Some of the land was sold to area residents but much remains under the board's governance.

The boundary encompassing the Special Areas is shaped like a jagged puzzle piece. From the Red River Valley in the west to the Alberta-Saskatchewan border, it also stretches from Highway 599 in the north to Canadian Forces Base Suffield in the south. Towns within the region are not covered by the Special Areas Act. Special Areas 1 once included land near Tilley and Cypress Country but the designation was removed decades ago.

The board put tax recovery land back into production, setting up large community pastures with user fees and leasing portions to farmers with the proviso native prairie not be cultivated. "The board on the public land side does not allow any breaking of undisturbed, uncultivated native prairie," said Jordon Christianson, Special Areas Board chair. The one exception is select leaseholders who have established forage crops on previously cultivated land have been allowed to apply to cultivate them.

"There is a large component of the landscape not suited for farming; the best and most suitable use for much of it is perennial forage," said Christianson. As a result, about one-third is cultivated,

one-third is reseeded perennials—cultivated land reseeded for hay or grazing—and the remainder is native pasture. Farmers in the area align their activities with the land's designated ideal usage.

UNIQUE GOVERNANCE

Eight decades after the creation of the Special Areas, governance remains different from other Alberta rural areas. Rural residents do not elect councillors for municipal districts. Rather, the region is governed by an advisory council comprised of elected representatives from each of 13 sub-districts. The council provides input to a four-person board that deals with day-to-day governance.

Some residents question whether special governance is still needed and the issue has been reviewed in recent years. "Redford and Prentice [provincial governments] looked at the governance model and asked, 'Does it still make sense?' They decided there would be no changes," said Christianson.

A descendent of area farmers who arrived over a century ago, Christianson sees value in the governance model. "This form of government does make sense out here because of the dynamic between the public lands and the ranch and farm units and how things are set up here. The anomaly is that public land here is managed at a local level and that speaks to the success of the Special Areas."

Perhaps the model works because the people governing it are local farmers and ranchers. "There's so much time and history on the landscape," said Christianson. "Intuitively, there's a feel what's going to work on a particular piece of land."

"The anomaly is that public land here is managed at a local level and that speaks to the success of the Special Areas."

—Jordon Christianson

FARMING THE SPECIAL AREAS

The soil on Liz and Fred Roberts's farm is the shade of brown indicative of low organic matter and poor moisture retention. Compared to soils elsewhere in the province, it also takes longer to recover from compaction and other impacts. Special Areas farmers know succeeding with poorer soils requires a longer planning horizon and an acceptance that drought will be a regular visitor. Maintaining soil health is critical.

Now cropped with wheat, oats, barley, canola and field peas, the farm has been in Fred's family for 104 years. What separates Special Areas farmers from those elsewhere in the province? "Patience, maybe," said Fred with a laugh.

Liz concurred: "You can't farm from year to year. You have to have a long-range outlook in terms of finances. If you have a good harvest one year, you don't spend all your money, you put some aside whether it's in dollars or seed so you have some means of getting through the next year because it could be a drought year."

Fred's grandfather, who homesteaded the land, kept the farm going through the Great Depression with his First World War pension. For a period of time, both Liz and Fred worked off the farm to keep it going. With improvements they've made in soil health, the farm now sustains the family. Their three adult children have moved away but all are landowners and help operate the farm.

Crop rotation has been critical to their success. "You might rotate over six years within a field," said Liz. What works on the Roberts's farm is two years of cereals followed by peas, cereals, canola and cereals. The cereal component can be oats, barley or wheat, depending on their economic needs and market demand. Different plants have different root zones. Going to a rotation, you take disease down and utilize different layers of soil."

While they may have left land fallow in previous years, they now work it more intensively even with dry conditions. "In the last five years, we've gone through continuous cropping, which seems to be working. Three of those five years have been drought years and we're still getting decent crops. Farming practices in general have changed enough it seems to be working for us," said Fred.

LISTENING TO THE SOIL

Scientists at the Chinook Applied Research Association (CARA) are helping Special Areas farmers wring the most out of these stingy soils while improving their general health.

Founded in 1979, CARA was the province's first broad based applied research organization that conducted crop, forage, conservation and extension projects. It was one of 12 groups that formed the Agricultural Research and Extension Council of Alberta (ARECA). Though the original 12 ARECA members continue to work together on farm initiatives and advocacy, CARA and five other organizations recently left to create the informal FarmRite group. These six partners now focus on advocacy and collaborative partnerships.

Dianne Westerlund grew up in the Special Areas and knows the challenges of the region's wide-open spaces. "There is some isolation. We accept that if we want our kids to participate in sports or cultural activities, there will be windshield time."

In her role as CARA manager and forage agronomist, she looks for ways to improve yields on the problem soils of prairie grasslands that typically receive light precipitation. "If you look at a soil capability map, most of our land is class three, four or five. I don't know if we have any class-one land," said Westerlund.

"This isn't next-year country, but last year's country," she said. "If in 2019 you are overgrazing and it is compounded by dry conditions, next year, even with great conditions, [the land] may not be able to recover."

Encouraging crop rotation, reduced tillage and better soil quality has helped farmers capture moisture more efficiently. Crop and soil health management specialist Yamily Zavala is CARA's Soil Health Lab manager. Assisting farmers in improving the soil, she studies the stuff with the intensity of a teenager playing *Fortnite*.

Having worked in Venezuela and West Africa, she knew it was important to have her own laboratory, as sending samples out for testing is costly. Located adjacent to the main CARA facility, the lab opened in 2018. Here, Zavala studies soils from around the province, but she is particularly excited about solving agronomic problems in the Special Areas. "The soil [here] has low organic matter," she said. "Will this area sequester more carbon than others? We don't know, but it would be interesting to know." What she's certain of is, "healthy soil will capture more water and that will help with any drought."

Zavala's research is carried out in partnership with local farmers and ranchers. In one instance, a farmer with a soil compaction problem invited Zavala to plant an experimental mix of plant species to test its effectiveness as a remedy.

CARA assists Special Areas farmers and ranchers in coping with challenging soils and moisture conditions.

CARA's Soil Health Lab manager Yamily Zavala emphasizes the region's challenging soils can be quite productive with good management.

She hoped the various varietals with their contrasting root lengths would reduce compaction.

"It was interesting to see that an area that was very compacted, in the next growing season the soil changed structurally." The practice increased aggregation, the healthy formation of bonds within the soil. "In that short period of time [the mix] allowed that soil to regenerate in a faster way than expected," said Zavala.

She stressed that although soils in this part of the province have more constraints, including low moisture, decomposition and organic matter, "with good management they have been made almost as productive as areas with fewer constraints."

IMPLICATIONS FOR CLIMATE VOLATILITY

Farmers across the rolling grasslands and cultivated fields of this area have danced on the razor's edge of survival for decades. They may have learned to thrive in this area that once drove many away, but with each census, the population in the Special Areas trends downward.

The Roberts's daughter Candy lives in Calgary where she works as a chartered accountant. She believes farming in the Special Areas holds opportunity given the right approach. "You need to think outside the box," she said. "Land costs have crept up in the last few years. You have to get things on paper and pay attention to the data instead of gut instincts." Real estate investors appear to agree. In recent years, some have bought land in the area, at times contracting young farmers to run successful operations.

With a perspective earned from long hours working on the farm and through her financial experience, Candy recognizes the risks facing farmers but feels they can be managed with planning and understanding farm cost structures. "You have to be thinking about moisture. The biggest variable is the weather and you can't control it, but with good plans in other areas you can mitigate the risk."

Christianson agrees. "They [ranchers and farmers] have learned to live within the means of their environment. When years are good, people will not hesitate to put up as much as they can and carry it over for a year or two so they have something to lean on when times are tough. I think that's why people have been so successful in Special Areas. They've adapted to that [climate] volatility."

Good agronomic science and farming practices have enhanced soil health in the Special Areas, but a bone-deep commitment to long-term strategies underpins agricultural success. The people in the Special Areas are well positioned for climate challenges and their experience offers insight for their farming peers across Alberta.

FEATURE

SOW WHAT?

Seed add-ons, specialty fertilizers flood the marketplace, but are they any good?

BY TREVOR BACQUE • LEAD PHOTO: iSTOCK

The websites of specialty fertilizer companies now often resemble a love letter to the periodic table of elements. Boron, zinc, manganese, oh my! Each shiny product is designed to sell farmers a nutrient they either didn't know they needed or simply cannot live without.

It's part of a growing trend seen more and more when it comes time for a farmer to evaluate their soil biology and determine what additives are needed. It's suggested they back off on traditional fertilizer rates and insert a unique product in its place to drive either modest or substantial yields. Likewise, various seed-applied coatings also promise worth and improved tilth. All claim net returns no matter how small. So, can it all be worthwhile? How does a farmer avoid stepping over a dollar to pick up a dime with so many options?

Jason Lenz has farmed long enough to know he must temper his excitement. In an industry all about gaining minute advantages to cushion thin margins, he takes a cautious approach. It's why, in 2014, he started small when he decided to try Awaken ST, a zinc-ammonium acetate nutritional seed treatment from American manufacturer Loveland Products.

At first it was a 40-acre side-by-side test on his hard red spring wheat. Results showed a five bushel per acre advantage through Awaken ST. In a trial the following year he saw about a three-bushel advantage and a 2.5-bushel gain the year after that. The last figure is currently his annual average.

Today, he applies it to all his wheat and barley because all he requires is a one bu/ac jump to break even and anything above that is net gain. Money aside, Lenz farms at Bentley in west-central Alberta where wicked winds are a fact of life. "A heavier, thicker stem helps to reduce lodging," he said of the improved cereals. "That's almost as important to us as the yield advantage."

Another key for Lenz is a head start. "We feel we are getting a quicker emergence of the plant after seeding," he said, adding his root systems are larger, as well. "What typically takes five to seven days, we're seeing plants emerge in the four-to-five-day range." Even one day can make all the difference in Alberta where several recent harvests have been plagued by rain, snow and early frost.

Lenz, like many, treats his seed on farm in a mobile unit and believes he gets an evenness comparable to a commercial applicator. Farmers may opt for commercial seed-treating businesses, which generally can add multiple products onto the seed coat depending on the request.

At Westlock Seed Cleaning Co-op, staff focus on Omex's manganese-zinc formulation, annually treating anywhere from 32,000 to 39,000 bushels. Manager Wayne Walker said that figure plateaued in the last five years due to a lack of data. "Some people don't think it does anything. Others are very much in belief that it does give you a yield boost," he said. "We would like to see more concrete data come out on it."

Walker noted that when money gets tight, such micronutrients are the first line item to be blacked out. However, he said interest has continued to grow steadily on fungicide and pesticide seed treatments.

For his plant, Walker explained that infrastructure investment would be no issue if it was clear there was a demand, but it's not. "These additives, they've been around for a long time," he said. "Why is there not more uptake? It's kind of the same guys over the last few years doing it."

That molasses-like adoption rate is old news to Steve Larocque, though. The independent agronomist from Three Hills first noticed micronutrient products used for seed priming coming on-stream in the mid-2000s in Western Canada. Despite the long-standing availability, Larocque believes such lukewarm interest is a combination of disingenuous products and salespeople along with a general lack of education of both seller and farmer.

"We've focused on macronutrients, not the micronutrients that could make a difference with yield and quality at the end of the year."

—Abdel El Hadrami

"There's no doubt that seed priming fits on some soils," he said. "You can do all the small-plot trials you want, but your farm system is unique … that's why the uptake is slow."

Too often he hears horror stories of farmers being victims of an "end run," where a salesperson goes directly to a farmer, skirting the agronomist, and sells them a product they may or may not need. "If you want traction, talk to the people who are getting paid to make recommendations," he said of agronomists. "We'll challenge, we'll scrutinize, but hey, if your product works, we're happy to try it."

While seed treatments, such as insecticides and fungicides are more accepted and perhaps better understood, for certain other products such as micronutrients, calculating a return on investment is arguably more difficult, explained Larocque.

However, if you ask Abdel El Hadrami, CEO and director of R&D at Omex, it's quite easy to calculate net returns, partially because western Canadian soils desperately lack a variety of micronutrients.

The company is one of the country's largest suppliers of nutrient primers, liquid starters and foliar fertilizers and has been in the domestic marketplace for more than 20 years. In 2004, a survey by Omex revealed a zinc deficiency in soil and harvested grain samples. Ten years later, another company report also revealed issues related to boron in soil and tissue tests.

"The first nutrient the plant takes up from the soil before anything else is boron," said El Hadrami. "The Prairies used to be grasses, then we switched to crops that are very hungry on boron. That's where our fertility programs haven't been adapted to crops. We've focused on macronutrients, not the micronutrients that could make a difference with yield and quality at the end of the year."

Photo: Shutterstock

At one time, plant fertilizers contained nutrients such as copper, iron, manganese and zinc. Over time, products were refined to a purer form without certain heavy metals.

Fertilizers once came jam-packed with scores of nutrients, including copper, iron, manganese and zinc. Gradually, fertilizers were distilled to become a purer product without certain heavy metals, stated El Hadrami. With the various elements separated out of the fertilizers, it also meant they were not going into the soils either.

He points at canola as a case study for copper usage. "[Farmers] wouldn't think of copper even though canola requires three times more copper than wheat," he said. "The reason being is that they have a budget and they have to look at the budget of boron on canola."

El Hadrami asserted the woefully low usage, which he estimates is no higher than 10 to 12 per cent in Western Canada, is tied to a growing number of big, busy farm operations come springtime. "Time is the big portion," he said. Farmers are working large acres, so once the snow melts, they just don't want to add another operation.

He admitted though, across Canada, Alberta has the highest percentage of seed priming and treatments with Saskatchewan and Manitoba close behind. He also acknowledged there is confusion and misinformation flooding the market, which makes farmers' homework increasingly difficult. "Farmers need solutions and all that we hear is criticism that these products don't work," he said. "This supplements a good fertility program, they do not replace it."

Most farmers simply allocate their budgets to nitrogen, phosphorus and potassium and El Hadrami speaks with a disappointed tone about how agronomists and others scare off farmers from trying a potentially field-saving product. Worse yet, when tests are done, often it's simply just a micronutrient and nothing else in a strip trial, he said, noting that's the complete opposite of how a trial should run.

"Using a more holistic approach and using these products in the program, you'll prevent some deficiencies and see those yields go up year after year," he said. "Rather than being reactionary, be proactive in applying them."

Like many others, El Hadrami is not keen with what he sees being pushed on farmers, but reminds them to exercise healthy caution. "Farmers have to apply common sense if someone is recommending a half-litre or litre of a certain product and promising a 20- to 30-bushel [increase]. That seems to be an outrageous claim," he said. "Coming to farmers and showing they can get the crop off the ground two to three days earlier and benefit from the availability of zinc in priming, that's more measurable and that's what they have to expect."

Omex has third-party independent testing done on its products, for both safety and efficacy, along with a minimum of three years' worth of trials before bringing a new product to market. El Hadrami said Omex is one of the only companies in Western Canada that voluntarily does this to continue to drive innovation and test new technologies.

Still, it frustrates him when Omex is lumped in with businesses that prefer the low road. "Our industry was painted with a snake oil paintbrush and it still is," he said. "We raised the profile, we started doing research and a few other companies followed suit."

However, since the Canadian Food Inspection Agency (CFIA) changed a set of regulations on April 1, 2013—no fooling—sifting through bogus and bona fide is ever-onerous. "Then we had the floodgate of companies coming in, then we see wild claims. It brought out that paintbrush," he said.

FREE MARKET ECONOMY

Changes to the CFIA's *Fertilizers Regulations* in 2013 were supposed to be a good thing. The series of changes was meant to streamline operations and create efficiencies. If every other industry is a river, then agriculture is a glacier. It moves slowly and change is most often gradual. But when the CFIA pipped its product quality and performance requirements to focus on regulatory oversight on product safety, the glacier began to thaw. Moreover, the CFIA's removal of efficacy requirements, designed to let the industry and marketplace self-regulate product performance, has seen a large increase in products come to the public.

This was a big mistake if you ask Rigas Karamanos, a PhD soil scientist with 40 years of expertise in Western Canada's dirt. Like many farmers, he asks an obvious question. "The bottom line is where is the proof that these products are working?" he said. "Has proof been established? In many instances, no."

With more than 400 academic papers bearing his name as a principal or contributor, Karamanos has spoken to thousands of farmers about soil-based research findings over the years. He consistently points out the lack of systematic research that would legitimize many of these products. "There is no harm with any of them other than to the pocket," he said of the pricy compounds. "At the rates they are being applied it doesn't make any difference."

While he does believe certain products may show positive results in patches of Western Canada, to label something as a surefire winner no matter what soil type is simply nonsensical.

Similarly, Larocque knows many elemental offerings are, at the very least, harmless, but that's not helping farmers decide what might fit at the farm. "Every product has a yield increase attached to it," he said. "If you apply X you get X returns. If that were the case, we'd yield 300 times more." He believes seed priming and micronutrients are more art than science and said farm to farm and field to field there will be expected variance.

Larocque said he has often been exposed to scrapbook sessions in which salespeople show him side-by-side comparisons of plants where one has a decidedly larger root system, which he's then told means it's a superior product. "There's no economic data, no yield data, just photos, which are pretty, but don't pay the bills and don't help me make a decision," he said.

Of all the products he's tried over the years, and there are plenty, less than 10 per cent pass his First Five inspection (see sidebar). Larocque does believe, however, something such as inoculants, especially on pulses, are vital and sees no reason why farmers shouldn't try them out.

FIRST FIVE

HOW TO QUICKLY SEPARATE SEED PRIMING FACT FROM FICTION

Independent agronomist Steve Larocque loves testing new products and giving farmers the straight goods on what's hot and what's not. A skeptic with a smile, Larocque is the first person to put up his hand to give something a try. He happily accepts tried-and-true field results that challenge his hypotheses.

He offers farmers his First Five, a set of questions everyone should ask themselves about a seed dressing, micronutrient or biological product they're considering to purchase and utilize.

1. What is the science behind the product?
A product that's sexy and flashy may seem impressive but won't get you very far and harvest will be particularly disappointing.

2. What problem is it solving?
Many times, people are given a solution to a problem they didn't know they had. If the product falls into this category, it could be a sign you may not need it.

3. Does the product have third-party data to back up its claim(s)?
It's not a surprise that every single year, every seed company's varieties all sweep to victory during trials. Similarly, when a product touts its own internal research and says it's wonderful, this should raise a warning flag. Verified, third-party science is out there, ready to prove or disprove a product's utility.

4. What does it cost?
Further to this question, what are the projected returns? If you're making an appreciable investment in a product, be sure the returns are there, too.

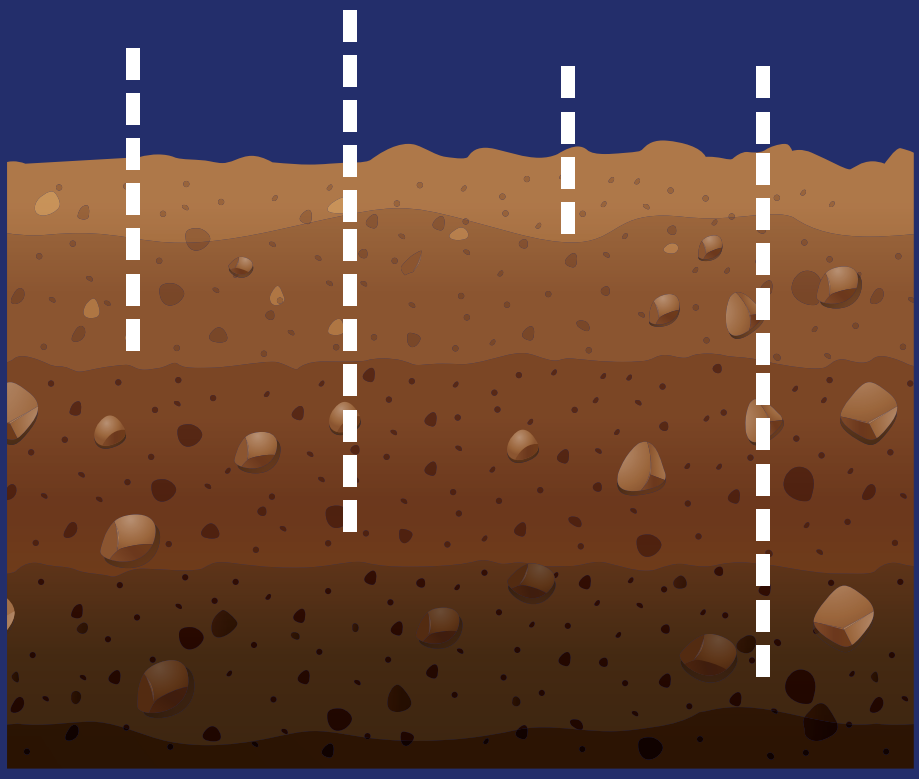
5. How is it applied?
Is it very simple or extremely complex? Be prepared that certain products are quite hands-on and require extra care compared to others.

FEATURE

TACTICAL TIPS

Practical cost cutters and profit boosters for difficult economic times

The tight farm financial picture that has evolved over the last three crop years has many farmers adjusting capital, operational and agronomic practices. The aim is to push up the profit margin while cutting costs. *GrainsWest* spoke with three agricultural advisors about such dollar-saving tactics.



RETHINKING SOIL SAMPLING

A proponent of multiple-depth soil sampling, Jack Payne is a crop supplies regional grow team advisor with Federated Co-operatives. He said there are two economically beneficial reasons to go beyond single-depth sampling of the first six inches of soil.

"Firstly, single-depth samples can underestimate leached nitrate and sulphate levels in the soil," he said. "If these are overlooked, a grower could find themselves over-applying nitrogen." As well as not meeting 4R nutrient stewardship guidelines, in barley, the result can be lodging and protein levels that are too high for malting grades.

"Secondly, single-depth sampling can overlook hidden salinity," said Payne. "This is salinity that is not visible as crusting at the soil surface. In the case of over-fertilizing, it could save a grower in the range of $25 per acre or more depending on fertilizer prices."

BALANCING THE SOIL BANK ACCOUNT

Last spring was the most price-sensitive year Matt Gosling has experienced in his 16-year agronomy career and he doesn't believe 2020 will be materially different. A founding partner of Premium Ag Solutions, he had several operational suggestions aimed at reducing financial risk. "The used equipment market is saturated, so if you're over-equipped, now might be a good time to restructure some loans, equipment lineups and questionable land rents," he said.

"There is no Cinderella crop heading into 2020, and those are rarely worth chasing, especially if they are new to the farm," he said. "A diverse crop rotation that has early maturing crops helps maximize capital costs and reduce risk. Loading a rotation with late-maturing crops is a risky gamble if you're maximizing machinery capital."

Focusing on agronomics, he emphasized understanding soil systems is critical.

"As an agronomist, we have always considered ourselves the most affordable input on a farm." He estimated typical year-round agronomy services cost around three to six per cent of variable costs, based on $175/ac.

"Treating your soil like a bank account is a simple way you can reduce costs without sacrificing yield from a nutritional standpoint," he said. "And unless you have your macro-nutrients performing in a well-balanced system, wandering into micronutrient territory is a risky gamble."

Like Payne, he noted the value of accurate soil testing, especially in assessing nitrogen needs. "On a single-rate management practice, taking cores in an area of poor-producing soil will give you a false reading, typically a high one, so the recommendation will be for less nitrogen. This will cost a grower a lot in missed margin, especially in a great year."

Nitrogen is one of farming's biggest variable-cost line items. Spoon-feeding it to crops through the growing season is something to consider, but logistics can trump risk mitigation, said Gosling. In a short growing season, nitrogen and herbicide applications are typically best done at similar growth stages. "So, you either need to be over-equipped or rely on custom application, which comes at a cost."

In terms of phosphorus, much of southern Alberta has missed yield expectations for three to four years, he said. Farmers whose phosphorus application rates have been aggressive may have unintentionally been applying a phosphorus build rate. Cutting the rate back from 40-50 lbs/ac actual, one could easily get by with 20-30 lbs/ac, he said. A saving of $6.50-$13/ac at $0.65/lb phosphorous is possible.

Citing the bank account metaphor, he suggested another cost saver when budgets are tight may be to skip potassium and sulphur, provided soil testing indicates a solid existing balance.

TWEAKING FARM FINANCES

Given the current difficult financial times, farm management consultant Denise Filipchuck of Filipchuck Management recommends farmers check their working capital and cash flow situation. "Every farm situation is unique and a strategy that considers the goals and vision of the farm and the family members, in addition to other financial indicators, will yield the best results for your business," she said.

Short-term credit requirements should be measured against the options available to service these requirements. "Be mindful of the type of credit available and if this will sufficiently meet your needs without sacrificing profit," she said. "Consider your actual working capital and the timing of marketability." The aim is to maintain flexibility in case delivery must be delayed or to store inventory in anticipation of a stronger market.

Completing a monthly cash flow worksheet outlining cash inflows and outflows may improve profitability and provide financial clarity. "Knowing your cash flow situation at least 12 to 18 months in advance provides you with the information you need to assess your cash situation and deal with timing issues in advance," said Filipchuck. This allows the alignment of loan payments and the creation of a marketing plan that aligns with one's commitments. It can also make it easier to identify and deal with cash flow surpluses and shortfalls. She suggested starting with a whole-farm historical and forecast analysis of cash inflows and outflows, drilling down to the month-by-month level.

Doing debt management may likewise improve profitability, overall financial health, and relationships with creditors, said Filipchuck. "Utilizing the right credit facilities for your farm gives you maximum flexibility at minimum cost and will improve profitability by reducing interest costs and aid in better grain marketing." She said the difference in interest costs between various credit options can easily be one per cent and often two per cent or more. Adjusting debt servicing by reducing interest can potentially save tens of thousands of dollars.

"Having a solid understanding of the farm's overall financial situation will enable you to make decisions and manage your business with confidence and peace of mind while significantly improving relationships with creditors and reducing stress for you and your family," said Filipchuck.

FEATURE

IF YOU'VE GOT IT, FLAUNT IT

Leveraging the inherent strength of the Canadian grain system

BY MELANIE EPP • PHOTO COURTESY OF COLE'S AG MEDIA

It's no secret that Canada is one of the world's top producers of consistently high-quality wheat. Millers in countries such as Ecuador, Indonesia and Japan rely on Canadian wheat to produce top-quality flour for their customers. And while American millers contend with wheat consistency issues, new marketing opportunities for Canadian wheat have popped up in that country. In a highly competitive market, quality is what sets Canada apart from its competitors.

When purchasing Canadian grain based on class and grade, end-users such as millers are assured of high-quality shipments.

Canada's global reputation as an exporter of high-quality, high-protein wheat is in large part due to the country's rigorous grain grading and variety registration system, which guarantees agronomic stability for farmers and consistent quality for end-users. The country's variety registration system uniquely governs variety development, registration, release and commercialization.

Canada's place in the global wheat trade pecking order is being tested. The high volume of grain being exported from the Black Sea region has created a significant shift in the marketplace (see "Surfing the Black Sea" in the October 2019 issue of *GrainsWest*). It is therefore imperative Canada protect its brand as a producer of top-quality grain, or face losing a critical competitive advantage.

"Canada's brand reputation is among the best," said Patti Miller, Canadian Grain Commission (CGC) executive division chief commissioner. "If buyers come back each year to buy Canadian grain it's because they know what they are going to get."

Fifteen years ago, the Black Sea region of Russia and Ukraine exported virtually no grain. Today, it exports approximately 50 million tonnes of wheat annually. Production is low-cost and most of the grain is within trucking distance of ports. The industry doesn't face the large transportation cost that Canadian farmers do.

"It's going to be difficult for us to compete just based on price," said Cam Dahl, president of Cereals Canada. "We really do need to work to our strengths and preserve that brand. The delivery of consistent, high-quality products is critically important to the competitiveness of the Canadian cereal crops."

A UNIQUE SYSTEM

Canada's variety registration process is a unique and somewhat complex system managed by the Canadian Food Inspection Agency (CFIA). Under the Canada Seeds Act, CFIA has the authority to register wheat varieties. It can also give recommending committees the authority to set criteria for new variety registration. The CFIA also approves and issues the variety registration.

Under the same act, the CGC assigns the new wheat varieties to an appropriate class and has the authority to deny a variety's entry into a wheat class. The commission also maintains the wheat class variety eligibility list.

The Prairie Grain Development Committee (PGDC) recommends new varieties for registration through its four recommending committees: wheat, rye and triticale; oats and barley; pulses and special crops; and oilseeds.

The team that forms the Prairie Recommending Committee for Wheat, Rye and Triticale is tasked with assessing varieties as they go through co-op trials. Through a voting process, its task is to recommend varieties for registration.

Once recommended, varieties then require approval by the CGC, and their registration must be approved by the CFIA.

Across the Prairies, wheat trials are conducted at various locations. Under regional environmental conditions, new varieties are compared to previously established ones over a three-year trial period. For CWRS, the most widely planted class, three co-op trials are run in three locations.

Independently of each other, three PGDC evaluation teams assess grain for disease resistance, agronomic characteristics and overall quality. These teams are comprised of industry experts. The quality evaluation team, for example, is made up of cereal scientists, grain handlers and marketers as well as baking and milling representatives who understand the needs of wheat customers. "They understand the quality parameters that wheat is being evaluated for," said Lisa Nemeth, the Canadian International Grains Institute's director of markets.

The objective of the quality evaluation team is to recommend varieties with milling and end-product characteristics that meet or improve upon class specifications. New varieties recommended for registration must meet or improve upon the traits of established varieties.

As part of the variety registration process, all three PGDC teams must recommend a variety for registration. When a variety does not receive unanimous approval, the cultivar voting panel subcommittee assesses its combined characteristics. The panel then votes on whether to recommend the variety for registration.

End-users such as millers value the consistency of Canadian wheat. "They know when they're purchasing a shipment based on class and grade that there is a quality expectation they can have, and that it's based on this system established in Canada," said Nemeth. "Millers are delivering sometimes to very large customers, sometimes large industrial bakeries that have strict quality requirements. Being able to rely on a supplier to have consistent quality is huge for them."

Photo: Courtesy of Shepherd's Grain

U.S.-based Shepherd's Grain purchases durum varieties from two Alberta farmers, who said Canada's registration system facilitates such opportunities.

In terms of quality wheat production, Canada's biggest competition is the United States. According to Geoff Backman, Alberta Wheat Commission and Alberta Barley business development and markets manager, the U.S. has recently experienced consistency problems.

"Something we've been hearing out of the U.S. is that the consistency in quality attributes has been decreasing," said Backman. The issue came to his attention while attending a crop industry meeting in the U.S. at which millers and production co-ops met to discuss options to address quality variability.

"When you're a miller and you're producing a product like flour, you want to be able to say to your bakers that, 'every time you use this flour, you're going to get the same result when you're making a loaf of bread,'" said Backman. "If you're looking at varying quality of wheat as a miller, you're having

to do a lot more adjusting to your process to ensure that the quality of that final flour to your bakers stays the same. It's a lot of extra work."

Canadian wheat importer Juan Carlos Arriola, director of plant operations at Moderna Alimento in Ecuador, agrees. The company processes 700 tonnes of Canadian wheat daily, and Ecuador imports 300,000 tonnes of Canadian wheat annually.

"We use Canadian wheat for everything," said Arriola, a member of the quality evaluation team of the PGDC. With more than 20 years' experience in milling, he provides valuable feedback on end-user requirements. "Every company in Ecuador that produces flour for bread is buying CWRS from Canada," he said.

Millers need to have a wheat class that is dependable, and consistency is key, said Arriola. "You don't want to adjust your process every time you receive a new vessel of wheat. The Canadian grading system provides you that kind of consistency on the quality side."

There are distinct differences between how the Canadian and U.S. systems operate. In the U.S., for instance, Dark Northern Spring wheat is more of a grade standard than a classification standard.

"A U.S. farmer isn't going to know whether he's delivering Dark Northern Spring until that product gets into the elevator, is delivered into the U.S. system, and the tests for quality specifications come back," said Dahl.

In Canada, we don't have to do that because there's an inherent quality in each of those classes, he continued. "The grain company is already going to have a pretty good idea of what the quality specifications are because we already know it's a CWRS class," he said.

The main difference between the systems is U.S. grain spends a long time in the commercial handling end. It sometimes takes grain companies months to test for quality specifications. This type of infrastructure is very expensive, said Dahl.

In Canada, on the other hand, grain will spend maybe two weeks in the commercial handling system, and elevators have a pretty good idea of quality even before the grain comes in.

The U.S. competes with Canada in markets such as Japan, which pays a premium for quality. The U.S. delivers quality wheat, said Dahl, but does so in a very different way.

Regardless, the inconsistencies in the U.S. system have created space for new business models, such as Shepherd's Grain, a milling company owned and operated by the farmers who supply its wheat. Shepherd's Grain was developed to promote no-till, direct-seed farming that relies on minimal inputs. Its members believe their farming practices are directly tied to the resulting quality.

Rod Lanier is one of two Alberta farmers who work with Shepherd's Grain. And while both farmers deliver wheat to the U.S.-based company, they grow Canadian varieties. Canada's registration system has made choosing a wheat variety that produces top-quality flour a relatively simple task.

Lanier has chosen three, mostly older registered durum varieties, that perfectly fit the needs of Shepherd's Grain clients. Without the variety registration system in place, he believes it would have been much more difficult to consistently choose successful durum varieties.

"If we had just grown anything, I don't think we would have been successful keeping the pasta customers that we do have," he said. "It's a combination of variety and the way we farm—that's why we still have customers."

Alberta grain farmer Jason Saunders also supplies durum to Shepherd's Grain. Saunders likes the fact the company is farmer owned. Prices are not commodity-based, but rather reflect the cost of production, milling and distribution. The model provides a year-long stable price for Shepherd's Grain customers while removing middlemen in the process.

> "We're delivering reliable, consistent quality. We have to ensure that we work to maintain that brand identity."
>
> —Cam Dahl

QUALITY IS CRUCIAL

"Before the Black Sea advances, there was a case to be made for competing on lower protein, high-yielding wheat varieties because that significant competition just wasn't there," said Dahl. "But the market is changing and has changed, and our competitive advantage has become that brand, which is reliable, consistent quality."

It's branding that he said was not concocted by the Canadian grain industry, but has been self-generated by the strength of the product. "That's what we're hearing from customers on why they buy Canadian," he said. "We're delivering reliable, consistent quality. We have to ensure that we work to maintain that brand identity."

FEATURE

SCALE UP

Farmers participate in on-farm research, reap tangible rewards

BY TREVOR BACQUE • PHOTOS COURTESY OF JENN WALKER

This site near Fort Vermilion is part of the Alberta Pulse Growers' five-year Plot to Field initiative. The 2018 trial pictured here focused on honing seeding rates.

Research plots dot the Prairie landscape and provide farmers a glimpse of what may come from new crop varieties in yield, disease resistance, standability and more. About the size of a pickup truck and just as numerous across Alberta, these plots are an inescapable component of agricultural research. However, dimensions and conditions continually leave something to be desired. Highly manicured and cared for by research scientists in specialized environments, the plots don't simulate real life and that's a real problem for farmers who farm sections, not square centimetres.

At Alberta Barley, the idea to scale up was brought forth during a research committee meeting and subsequently pitched to the crop group's board of directors in 2019. The board approved the field-scale, on-farm research and a short time later the Alberta Wheat Commission (AWC) green-lit a similar project.

Now, the commissions' in-house agronomist, Jeremy Boychyn, is leading the charge to develop programming. As he plans for the inaugural year's trials in spring 2020, he is excited to run the experiments so farmers may judge their value and effectiveness on a field scale.

A central goal is to create a network and system where farmers have the capacity to implement experimental protocols on their own farm, Boychyn explains. "It's not replacing existing research, it's helping to extend that research information to a point where farmers can see it and trial it."

Each Alberta crop group will support one participating farmer, allocating $10,000 to their first year of testing. Expecting good results, they will increase both the financial contribution and the number of participating farmers in years to come.

The nature of the projects will not be prescriptive, either. Instead, Boychyn will work with farmers to create projects that dovetail with their needs, eschewing the idea of working in a research vacuum. "Every farmer handles their logistics and agronomy differently. I want to keep this project malleable so we can make sure it aligns with farmers," he said.

Boychyn believes the initial projects will centre on seeding rates, general fertility and disease management. He also said fungicide application timing and agronomic stacking may be explored. Trials will range in size between 20 and 60 acres and trialling farmers will have initial access to results before they are made public.

Once the projects are chosen and ready to begin, a third party working with Boychyn will oversee seeding, harvest and anything that may arise in between with the express goal of making the process simple and straightforward. He said this is necessary since protocols must be followed verbatim to compile accurate year-over-year, multi-site data.

One group whose data collection is becoming more and more robust is the Manitoba Wheat and Barley Growers Association (MWBGA), which has on-farm research dating back four years. Its members already had a blueprint, too,

Photo: Rob McMorris

Jeremy Boychyn, Alberta wheat and barley agronomy research extension specialist, is excited to run the experiments so farmers may judge their value and effectiveness on a field scale.

since the Manitoba Pulse and Soybean Growers conducted on-farm research with its members prior to the MWBGA doing so. The overall goal for the MWBGA is no different than that of the Alberta commissions: help make its barley and wheat farmers more profitable through research that will provide real returns.

MWBGA research manager Lori-Ann Kaminski believes it is logical to take successful plot-size research and try it out for farmers' benefit at the field level. "The advantages of that are growers get an idea how things play out with their equipment and how they might incorporate a new way of doing things they're interested in," she said. Kaminski added that pencilling out economic benefits is also of critical importance.

Successful projects that Kaminski has overseen relate to plant growth regulators, nitrogen trials for high-yielding wheat varieties and fungicide timing. These themes may also be trialed in Alberta.

In MWBGA's first year of trials, its board committed $38,900 to field research. Today, the commitment is up to $95,000. In previous years, Kaminski has received grant funding to hire additional staff and pay for various project costs including mapping, statistical interpretation and, at times, extra inputs.

Each spring, Kaminski puts out an open call to farmers who may be interested in specific research in addition to targeting particular people. This year, 31 farmers participated in three projects across Manitoba.

Once the research is complete, Kaminski hosts a day for the data to be presented to the group's farmers who receive individualized reports on the findings. From there, Kaminski spins out a generalized document for the farm community at large.

One person thumbing through the early reports is Boris Michaleski, a grain farmer southwest of Dauphin, MB. He started working with the provincial soybean and pulse group in 2014 and partnered with Kaminski in 2017, all in the name of becoming more educated about agronomics and making his farmland as productive as possible.

"I'm always interested in learning what works and doesn't work," he said. "If you try something and find out it doesn't work … I don't deem that as a failure, it's good information to know." Michaleski believes determining whether a practice works or not is more practical at the strip test size than across his entire farm, consuming greater time and resources.

An aspect of the program he appreciates is the help from Kaminski's team during seeding, spraying and harvest, the busiest times on Michaleski's farm. "Many times, a producer might want to do a trial, but it's time consuming," he said. "Having this additional help to lay out the groundwork and collect the data really helps simplify and speed up the process."

Those same farm teams that conduct such trials also turn the data out into farmer-friendly results, a key feature praised by Michaleski. "You're looking at the raw data," he said. "It's third party neutral data. [The commissions] don't have a vested interest in selling a particular product. It's unbiased information."

Field-scale projects currently being conducted include the study of phosphorus and fertilizer rates in peas and pea leaf weevil management.

Back in Alberta, another crop commission has also caught on to the novelty that is on-farm research. The Alberta Pulse Growers Commission (APG) is working with farmers now to provide field-level answers to questions that either plague its members or could simply help them improve agronomic practices.

Not long after work began in Manitoba, APG staff conducted a survey of farmers, scientists and extension specialists. The results showed them where investment should be focused and how to address gaps in knowledge.

"We knew that from close interaction with growers there's always been a bit of a disconnect between small-plot research and the farm," said Jenn Walker, APG research manager. So, in 2016, APG held a one-day event that brought together numerous researchers, from entomologists to agronomists as well as crop breeders and extension specialists, to pitch the field-scale research concept and discuss how it could function.

With plans in place that year, the first research was conducted on-farm in 2017 with nine farmers. The APG board believed it was a good idea, too, earmarking $2 million for the project. Walker confirms that money is so far "grossly underspent" due to the project's efficient nature. "When we started out, we started small," she said. "We had no idea where it would lead us, we just had this big dream and a roadmap."

After just one year, Walker saw the potential of this project. "It was huge, just the affirmation that we could do this," she said. "We can take 10 farmers with 10 unique pieces of equipment and build a replicated trial and actually use it in total. Any farmer … he can hand me his equipment list and I can build a test." APG had 10 sites in 2018—the project's second year—and 11 sites the next.

In a broader sense, the on-farm research trials allow for greater collaboration, as well. APG has partnered with other public scientists conducting their own research, explained Walker. These partnerships became a win-win for all involved.

This year marked the start of a partnership with research scientist Monika Gorzelak of Agriculture and Agri-Food Canada's (AAFC) Lethbridge Research and Development Centre to examine the impact of the activity of mycorrhiza and rhizobia bacteria on soil biology. In addition, fellow Saskatoon, SK, AAFC research scientist Meghan Vankosky has partnered with APG since 2018 to work on experiments related to pea leaf weevil. "There's a really cool synergy about the whole thing," said Walker, adding she is thrilled the idea has turned into a living laboratory.

With the wheat and barley research about to take off in the springtime here in Alberta, Boychyn is eager to supply farmers with the information they need and want. He is keenly aware that ideas may change and not every single one will translate to solutions across the province.

"Just because I develop a protocol doesn't mean it will align," he said. "We just want to make sure that when farm trials are being done, the data collected is reliable. I think it's needed. Farmers are looking for it and there's no better time to start than now."

THE ART OF THE RENTAL DEAL

Crafting agreements that work for both parties

BY LEE HART • ILLUSTRATION BY JASON LIN

Renting rather than purchasing land can be a smart short- and long-term farming strategy. While it makes especially good economic sense for young, cash-strapped farmers starting out, land prices in the $3,500 to $6,000 per acre range make renting a sound strategy for established farmers as well.

The most important caveat in doing so, farmers and renters must put the rental or lease agreement in writing. Handshakes and verbal agreements are valuable, but for everyone's protection and peace of mind, a properly worded, legally binding rental agreement helps both parties avoid disappointments, surprises and outright conflicts.

While most farmers in Canada continue to operate with owned or deeded land, the most recent Statistics Canada census shows that more cropland is being farmed under rental agreements. Across the country there has been about a 2.25 per cent increase in rented land in the years between the 2011 and 2016, the census reports.

Jonathan Small, chief research officer with Global Ag Risk Solutions, believes renting just makes sense given the increasing value of farmland across Western Canada. This challenges a long-established paradigm that farmers must own land. Small agrees it's nice to own if you can, but urges farmers to consider sustainability and profitability over ownership.

"Young farmers are facing all kinds of expenses, and have limited resources," said Small. "Many desire to own land, to emulate their parents, but they really don't have the money to buy land. I urge them to slow down, take a deep breath and perhaps don't worry about owning land. Think about being profitable."

Small uses the example of two young farmers, striking out to farm in an area where all land quality is the same. Each is given $1 million. Young Farmer A takes his or her money, leverages it to borrow another $500,000 and then sets out to buy as much land and machinery as possible with $1.5 million.

Young Farmer B takes his or her $1 million, leverages it to $1.5 million, but decides to rent both land and machinery. Farmer B ends up farming five times more land, than Farmer A. They both apply the same skills and inputs to produce crops with the same yield.

"Farmer A may net more dollars per acre than Farmer B, but then Farmer A only has 20 per cent of the land base of Farmer B," said Small. "Farmer B can use their profits to continue cropping more rented acres.

"Farmer B can improve their size and scale of operations and efficiency and hopefully one day have those surplus dollars that they can invest in buying land," he said. "I have seen many situations where a young farmer pours every dollar they have into buying more land. In terms of farm growth, it is like putting both feet on the brakes—they don't realize the implications."

Small said renting also makes sense for established operations that need to grow as one or more children join the

family business. It provides the flexibility to expand the farm, increase production and increase profits.

GET IT IN WRITING

Stuart Person, senior vice-president of agriculture with MNP, emphasizes the importance of having a proper rental agreement to protect both landlord and renter.

"As farmers plan to expand their operations, and with increasing land costs, we are seeing a larger percentage of rented crop land," said Person. "And we are also seeing significant tracts of land owned by investors who are just looking for someone to farm it. Unfortunately, we still see too many of these rental deals based on handshakes or verbal agreements."

Person recommends both sides create a rental agreement with a three- to five-year term. It can then be reviewed annually or at least a couple of times. Agricultural lenders and farm management advisors can provide advice in drafting these documents. Person strongly suggests rental agreements should be prepared or reviewed by a lawyer.

Farmers can face a variety of difficult and potentially expensive situations when no written agreement exists. For example, a farmer fills a grain bag in the fall and leaves it on rented land. If the land is subsequently rented to another farmer, when must the bagged grain be removed? Similarly, if a farmer applies anhydrous ammonia to rented land in the fall and in spring is informed the land has been rented to someone else, how will he be compensated?

Needless to say, if a farmer has built an equipment line around a certain number of acres, losing a portion can really mess with efficiency and economics. "With a three- to five-year agreement, both parties can have stability," said person.

Alberta Barley region two director Jeff Nielsen is familiar with the consequences of not having a written agreement. A verbal agreement made between a landlord and his grandfather more than half a century ago had been passed on to Nielsen. Ownership of the land had passed from the original landlord to his own granddaughter. While the arrangement worked well, one day it simply evaporated.

"I had bought one quarter section from them previously when they just decided they weren't going to rent to me anymore," said Nielsen. "I offered to buy the last quarter, but the granddaughter decided they were just going in a different direction. So, that was it.

"It is very tough when you don't have an agreement in writing," he said. "I never liked it over the years because there was always this feeling of insecurity."

> "...we still see too many of these rental deals based on handshakes or verbal agreements."
>
> **—Stuart Person**

MAKING IT WORK

Merle Good is a farm tax expert and farm succession planning consultant. He uses a four-point plan for developing rental agreements that are secure, flexible and fair.

"About 85 per cent of my clients are developing wills where they leave some land to non-farming children," said Good. In response, he created a mechanism that works for rental agreements between farmers and their off-farm siblings, but that he also suggests can work for most rental agreements.

1. To determine a fair cash rent value, generally 20 to 30 per cent of gross revenue per acre, Good uses a formula based on crop insurance coverage rates that would be assigned to a beginning farmer. This fairly representative figure is referred to as the proxy. The beginning farmer crop insurance coverage is calculated by using average land prices and yields in a certain area. In the Didsbury area, for example, that beginning farmer crop insurance coverage might be determined to be $275 per acre. If the cash rent is to be about 30 per cent of gross revenue per acre, then 30 per cent of $275 is $82.50 per acre, which is the average cash rent in the area. If the coverage rate drops, the cash rental amount drops, and vice versa if the coverage rate increases.

2. For a rental agreement term, Good recommends what he described as a rolling lease, a three-year term reviewed annually. The landlord and renter square up on rental fees for the current growing season. If everything is good, the rental agreement rolls ahead to be reviewed again the next year. It allows the renter to plan at least a three-year rotation, and also forces renter and landlord to talk at least once a year. "Rather than just send a cheque in the mail, it forces them to communicate, which is important," said Good.

3. In the event of a landlord's death, Good encourages the inclusion

of a discovery period in the rental agreement. "What happens if the landlord dies and the spouse or estate decides to sell the land?" said Good. "It is not likely the rental agreement will give the renter a right of first refusal, so rather than the renter one day seeing a for-sale sign on the land, this clause in the agreement allows for 60 days to discuss things." The renter can then discuss options or plans with the landlord's family or estate before the land goes on the market.

4. Good encourages the inclusion of a break-fee clause in the event the landlord decides to sell the land. "So, we have this three-year rolling lease, but partway through the year the landlord decides they are selling the land," said Good. If they do so midway through the growing season, then the crop belongs to the renter, but as a fee for breaking the agreement, the landlord also agrees to refund one-year's cash rent.

Good said a properly worded rental or lease agreement simply makes good business sense. It's not about lack of trust on either side. It merely ensures clarity of the terms and can be crafted in such a way that it is fair and protects both parties while also encouraging open communication.

THE PROSPEROUS RENTER

Jonathan Small offers three tips to farmers who rent:

1. Good working relationships are important. Be a good communicator and keep your landlords informed.

2. Don't put all your crops into one rental basket. Aim to work with multiple landlords to reduce risk.

3. Always be prospecting for more rental acres. Even though rental agreements may be in place, situations can change. Again, it's good risk management to have rental options available to maintain or increase cropped acres.

MARKET MONITOR

BY ALYSSA MISTELBACHER

The falling number conundrum

Unofficial grading factor complicates grain marketing

WESTERN CANADIAN CROP quality is a hot topic. An exceptionally wet September delayed harvest across the Prairies. Western Canadian wheat quality suffered, with falling numbers lower than desirable.

Minimum falling number requirements are largely determined by end-users. Millers and food production companies consider it an important measure of grain quality. In the United States and internationally, it has long been an important specification. In recent years, a minimum falling number has become a fine-print condition of many western Canadian wheat contracts.

Grain that has begun to germinate or sprout has an increased presence of alpha amylase, an enzyme that breaks down starch in the kernel, feeding the seed as it grows. Its presence is not desirable for bakers producing high-quality breads and baked products.

Falling number measures the amount of active enzyme in the wheat sample and evaluates the degree of sprout damage. It is derived from the number of seconds it takes a plunger to fall through a heated slurry of ground wheat. The greater the amount of enzyme (sprout damage), the thinner the paste and the faster the plunger falls, expressing a lower falling number. When less enzyme is present, the opposite is true, a higher falling number indicates the sample has a lesser degree of sprouting damage.

An adequate falling number is considered an important parameter to produce a high-quality, consistent product. The typical standard for wheat shipments is a falling number of 300 or greater. While 300 is sufficient for most millers, a large proportion of this year's crop shows falling numbers at or below 200. For perspective, Canadian export shipments averaged 400 in 2018, according to the Canadian Grain Commission (CGC).

Dough made with flour damaged by sprouting holds less water, causing bakers to use more flour to produce their bread, which is a central cost factor. The higher amylase content that corresponds to lower falling numbers also impacts bread texture and structure, typically causing wet and/or sticky dough that is difficult to work with. Lower falling numbers make it harder to achieve consistency in baked goods and creates difficulty in processing.

Doughs higher in sugar and fat such as those that produce cakes and cookies can tolerate lower falling numbers. However, mills often produce flour for many types of products and prefer to avoid using wheat with lower falling numbers.

2019/20 FALLING NUMBER CHALLENGES

Wheat buyer requirements now appear to change daily due to quality variability, with sprouting damage being a major downgrading factor. Companies have difficulty meeting their customers' falling number specifications. Unfortunately, blending equal portions of 400 and 200 falling number wheat doesn't produce a 300 falling number.

Falling number is neither an official grading factor in Canada nor has it been historically tested for. Falling number provides grain buyers and millers a better idea of what they're purchasing. Though the test is a laboratory process not easily done at the elevator, some grain companies started incorporating falling number tests at delivery points starting in 2016. Farmers and elevator companies have shown an unwillingness to pay for testing.

In the past, the industry has used visual grading for sprout damage. However, due to the overwhelming occurrence of sprouted grain this year, line companies are also utilizing falling number on tested samples when purchasing from farmers.

Given the high variability in falling number and overall quality, farmers who know what they have in their bin may gain an advantage when marketing their crop. A higher return is possible when a farmer can deliver wheat that meets end user specifications. In 2019/20, wheat with a 300-plus falling number has intrinsic value. Farmers should build a strategy that ensures they have a reasonable opportunity to get paid for this desirable quality by maintaining segregation and avoiding on-farm blending.

As the grain industry changes across Western Canada, falling number will continue to increase in importance as a factor in determining the value of farmers' grain.

Alyssa Mistelbacher is a market analyst with FarmLink Marketing Solutions.

HERE TO STAY

As falling number is now a standard concern for baking and milling companies, Canadian grain companies are employing minimum falling number in grain purchasing contracts. Causing confusion among farmers, this is being applied in addition to sprouting factor testing mandated by the CGC. Alberta wheat has undergone falling number testing in 2016 and 2019, so it will likely continue to be applied in difficult harvest years. It remains to be seen if CGC will adopt the test as an official grading factor.

BY STAN BLADE, P. Ag.

Rally for research

Science and innovation are key to ag industry growth

RESEARCH DOLLARS ARE allocated and projects implemented to improve returns for farmers. If the sector is to succeed, we should not lose the courage to invest in it.

As Dean of the University of Alberta's Faculty of Agricultural, Life and Environmental Sciences (ALES), I am grateful for every dollar farmers provide my colleagues. Such support is given to our wheat breeding program by the Western Grains Research Foundation, and the Alberta Wheat Commission will contribute more than $300,000 this crop year.

Commodity groups such as the Alberta Canola Producers Commission (ACPC) are making key investments with ALES professor and researcher Stephen Strelkov, a global leader in clubroot management. ALES professor and researcher Habibur Rahman has received ACPC support in identifying new sources of clubroot resistance.

Additional funding is available through Government of Alberta sources such as Alberta Innovates, which has supported the ALES Livestock Gentec program. In the recent Alberta budget, the agency's funding was trimmed to $202 million from $278 million.

Alberta Innovates has helped make Alberta a leader in genomic technologies being introduced in ranching. This leadership has been amplified with the support of Genome Alberta and Genome Canada, organizations funded by the provincial and federal governments, respectively.

Alberta Innovates has also invested in our Phytola group, which conducts ground-breaking work in understanding the production and distribution of oil within the canola seed and boosting the nutritional value of its meal as animal feed.

Alberta Innovates also invested in our work on supercritical carbon dioxide extraction, a process that removes high-value molecules from sources such as oats. It has led to the creation of numerous commercial products such as cosmetics that add value to Alberta-grown crops.

The federal government invests in science and innovation in multiple ways, the common thread being research excellence, environmental resilience and positive commercial outcomes. In 2018, the Ministry of Innovation, Science and Economic Development (ISED) invested in the plant protein supercluster. ALES is a member of this consortium, which works to ensure Canada benefits through the plant protein industry.

Last year, ISED also announced investments in two agri-food groups through its Strategic Innovation Fund. The Canadian Agri-Food Automation and Intelligence Network managed by Alberta Innovates received $49.5 million in funding. This went to 61 companies and partner groups and $30 million went to the Canadian Food Innovators Network.

This funding creates new jobs, products and enhanced exports. Such activities align with the 2017 Barton Report that urged Canada to become the preferred global supplier of safe, nutritious, sustainable food.

The federal government also invests in commercial opportunities through Western Economic Diversification Canada (WEDC), its regional economic ministry. WEDC has made investments in our faculty's spin-off company FORGE HydroCarbons, which has also received investments from Alberta Innovates, Lockheed Martin and others. WEDC also invested in upgrading our fermentation research facility, which is of great interest to food companies.

Great science is central to new opportunities in food and agriculture. The federal

government supports the Tri-Council funding agencies that invest in engineering and science. These are the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC) and the Canadian Institutes of Health Research (CIHR).

NSERC has supported new industry chairs we have established through partner funding with commodity groups. SSHRC funding enabled the study of consumer behaviour and citizen response to new food system technologies. CIHR has invested in people such as Caroline Richard, an ALES nutritionist studying the role of nutrition on immune function against chronic diseases such as Type 2 diabetes. These agencies, and others, invest in our researchers to increase productivity, ensure sustainability and create economic opportunities.

Others want to grab the global opportunities we are chasing. If we want to continue growing our industry, investing in science and innovation is a must.

Stan Blade, was the founding CEO of Alberta Innovates from 2008 to 2014.

BY TIM FOWLER

Practical learning

Students work their way into agriculture

Photo: Courtesy of Debbie Foisy

From left to right, Green Certificate Program graduate Paige Foisy and co-workers Jenine Perrott and Kayla Oloske tend to plants at Deb's Greenhouse north of Edmonton.

ALBERTA AGRICULTURE AND Forestry's (AAF) Green Certificate Program allows senior high students in the province to select an agriculture-focused career path. The program delivers apprenticeship-style agriculture production training that allows students to complete practical work placements in on-farm operations outside school hours.

Choosing from one of 14 areas focused on animal and crop production, they work 400 hours in these extra-curricular jobs. Training program options include irrigated and non-irrigated field crop production, livestock production, greenhouse production and beekeeping. The curriculum for each area has been developed cooperatively by AAF and ag industry leaders.

The coaching and mentoring component of the certification process allows students to formalize their on-farm work experience, adding a list of acquired agricultural skills to their resumes. Graduates receive 16 diploma credits and are "work ready," having developed proficiency in specific farm roles.

"The program is applied learning," said co-ordinator Raelene Mercer. "Industry is really teaching kids how to take what they learn and apply it to real life. We work with the different industries to identify what the skill requirements are to work at these operations." For example, crop production students learn about crop rotation, pest management and preparing seeding equipment as well as maintaining and operating harvest equipment.

Green Certificate students also complete agriculture safety instruction. This prerequisite teaches them to recognize hazards and manage safety risks.

Paige Foisy graduated from the program's greenhouse production track in 2018. She carried out her practical training while working for her mother Debbie Foisy at Deb's Greenhouse just north of Edmonton. "It was amazing to learn all of these other things I wouldn't have otherwise learned," said Foisy.

These new skills included ordering inventory, checking the pH of solutions, mixing and applying fertilizer and managing a work schedule. Foisy said she has become much more interested in her greenhouse work and the skills she has acquired have made her a better employee. She recently enrolled in the Norquest College business administration certification program while continuing to work at the greenhouse.

Debbie helped develop the greenhouse curriculum her daughter studied. The exercise forced her to think through what industry needs from graduates and focus on the what students need to know. "I am a better employer having had to create the competency document for greenhouse production," she said.

Students also develop soft skills such as effective communication and planning. These are easily transferable to any work setting. "There are many more skills I learned that weren't directly related to the greenhouse," said Foisy. "I am better with customer service and with problem solving."

While the program is available to all senior high students, 300 schools now participate. Interested students should contact their principal or guidance counsellor. Students must find their own work placements. Agricultural professionals able to provide a work placement opportunity are encouraged to contact the Green Certificate lead at their local high school or get in touch with one of the program's five regional co-ordinators.

For more information, visit alberta.ca/green-certificate-program.

MENTAL HEALTH MATTERS

BY IAN DOIG

Coping with the harvest from hell

Resources available in highly stressed times

WIDELY DUBBED THE HARVEST from hell, the difficult 2019/20 crop year has complicated the lives of Alberta farmers. While hard times weigh heavily, they have produced a growing awareness of mental health issues within agriculture. Producer groups advocate for awareness as farmers and rural communities have opened up, actively embracing the once largely taboo subject. Where individuals were expected to cope on their own with issues such as anxiety and depression, this is no longer so.

Warren Sekulic operates a mixed farm near Rycroft in central Peace Country and is Alberta Wheat Commission region 5 director. His area was particularly hard hit by early snow, and he said the local stress level is high.

"Whether it's market issues or weather, it just seems to be one damned thing after another. There's uncertainty over what the value's going to be in the crop we get and whether or not we're going to be able to market what we have. That closure is important. It's weighing on a lot of people. It's weighing on me."

Though he hasn't heard much discussion among farmers about coping with the mental health fallout, he welcomes the attention the issue has received from farm organizations and advocacy groups such as the Do More Agriculture Foundation. "The fact we're talking about it in agriculture is a huge step forward. Farmers see ourselves as these stoic, independent, get-it-done people, but it comes a point for some people where you have to realize you can't do it all on your own. You have to talk to somebody."

Nicholas Mitchell, Alberta Health Services director for addiction and mental health agrees. "One reason to reach out for help is we can actually do something about it," he said "People who are struggling with anxiety and depression can feel like there's no hope or things can't change. The reality is treatments are very effective." Most people can be treated by a family physician and may not require specialized services, he added.

While anxiety and depression are common, they can also hamper a person's ability to fulfil obligations and interact with others. Like Sekulic, Mitchell encourages people to reach out if they're suffering and to assist others as well. "To have that conversation, make it clear you're trying to help, that you're concerned." Doing so may lead to natural solutions or, ahead of contacting healthcare services, perhaps groups such as community agencies and churches can provide support, he said.

To listen to The GrainsWest Podcast *episodes "Reaching Out" and "Coping with the Harvest from Hell," click on the podcast link at* grainswest.com, *visit iTunes or download them wherever you access your podcasts. For Android users, visit Google Play, download the Google podcast app and search "GrainsWest Podcast."*

MENTAL HEALTH RESOURCES

Alberta Health Services provides addictions and mental health services across the province, maintaining clinics in more than 135 rural communities. Many are staffed by therapists who can provide assessments and intervention counselling and possibly referrals for more intensive services.

For assistance with mental health concerns, advice on assisting others or to locate a clinic, provincial mental health nurses are available 24 hours a day through Health Link by dialing 811. Callers can also access the Alberta Mental Health Help Line toll free at 1-877-303-2642.

A full list of Alberta Health Services addiction and mental health programs and services is available at *myhealth.alberta.ca.*

For more information on The Do More Agriculture Foundation and a list of nationwide mental health resources, visit *domore.ag.*

CEREALS CORNER

BY BRENNA MAHONEY

Customer relations

Canadian new crop missions maintain global trade ties

THE CANADIAN NEW CROP missions for the latest growing season began as farmers across the Prairies struggled to get their crops out of the field. Following such a challenging harvest, the value of these wheat marketing visits to our leading customers around the world is evermore apparent. The missions are key to build and maintain relationships with our top trade partners, including China, Colombia, Japan and Nigeria.

Representatives of Canada's wheat value chain met with milling customers in Canada and 16 additional countries in November 2019. They continued to do so throughout January 2020. At crop mission events, wheat purchasers learned about the quality and end-use characteristics of the 2019/20 Canadian wheat crop.

The Canadian team consisted of exporters, farmers, scientists, technical experts and representatives of Cereals Canada, the Canadian Grain Commission and the Canadian International Grains Institute.

The annual seminars presented an important opportunity to build customer relationships with international buyers and support Canada's reputation as a supplier of clean, consistent, quality wheat.

Photo: Courtesy of Cereals Canada

Cereals Canada president Cam Dahl speaks at a crop mission in Japan. Such seminars build and maintain trade relations.

HARVEST FROM HELL

2019 proved difficult for farmers, as this crop year was truly a tale of multiple harvests. Prairie wheat harvested prior to early snowfalls is the highest of quality and is being graded No. 1 and No. 2, with high protein. When early snow arrived in September and October, crop quality was impacted. Sprouted grain produced low falling numbers and mildew became more common.

Those weather impacts subsequently decreased the performance of wheat flour in bread and noodle making. This emphasized the importance of technical experts being present on the missions. They directly communicated the adjustments required to achieve a top-quality end product.

At crop mission events, buyers heard directly from industry experts about overall crop quality, milling and baking functionality and availability. They were also given details on growing season conditions and an overview of Canadian farming practices. Every crop year is different, making such face-to-face meetings with key customers important. The missions allowed these clients to pose questions to members of the entire Canadian wheat value chain.

This unique two-way dialogue benefits both customers and the Canadian industry, helping both to understand current and future needs. Customer feedback is provided to researchers and funders to ensure future priorities will be met.

CUSTOMERS VALUE RELATIONSHIPS

Participating farmers on these missions speak to customers about what they and the Canadian farming industry are doing to ensure Canada exports top-quality wheat year after year. Canada is known for clean, consistent, quality grain, but also for its growing sustainability. The long-term use of modern farming techniques such as zero-till and low-till directly impacts the Canadian agricultural brand. Our customers look to us to tell this story directly to them as their own customers demand this information.

New crop missions are key to maintain and develop relationships with wheat buyers. These relationships become even more important when market access issues develop, and it is much easier to work through them with customers we have met face to face.

POLICY PLACE

BY ERIN GOWRILUK

Parliament gets back to work

Building political partnerships key to ag agenda

THE 43RD PARLIAMENT CONVENED Dec. 5, 2019. By the time you read this, it's likely the Liberal's minority government will have survived its first confidence test following its throne speech. Although the Liberals command a solid minority, allowing them to govern with the support of any one of the three largest opposition parties, the situation adds complexity.

The Liberals have ruled out the formation of a coalition—formal or informal—and aim to seek support on an issue-by-issue basis. This is good for the agriculture sector and for western Canadian farmers.

As your representatives in Ottawa, the Grain Growers of Canada (GGC) will ascertain who the dance partners might be on specific issues. Some of these may be too controversial for the new government to approach, as the Liberals likely wish to avoid another election in the short term.

We are prepared to leverage aspects of the Liberal, Conservative and NDP platforms to advance priority issues for our 65,000 farmers across the country. We expect the Liberals to seek support from the NDP on labour, climate change and social justice issues and the support of the Conservatives on pipelines, trade and business risk management.

Yves-François Blanchet, leader of the Bloc Québécois, has repeatedly stated the aim of his party is not to defeat Parliament, but to work with it to represent Quebec's interests. The Bloc defends supply management. While the NDP has pledged support for supply management, it has also committed to mitigate the negative financial impacts of trade disruptions for export-oriented farmers.

The Liberals did little for the export-dependent ag sector when key markets like China, Italy and India started closing their doors to Canadian exports. This differed in their approach to the supply-managed sector, which was compensated following concessions made under the CETA and Trans-Pacific Partnership trade agreements. By a curious twist of fate, the minister of agriculture will likely be tested by the NDP to come up with a credible solution for farmers hit hard by recent trade problems. This would demonstrate the Liberals are addressing concerns from all regions of the country.

The Liberals and Conservatives both recognized the importance of restructuring AgriStability during the election cycle. The Liberal party platform included a commitment to complete a review of the AgriStability program and offered to increase federal funding. The Conservative party platform included a commitment to work with farmers and the provinces to make AgriStability more "simple, predictable, bankable and timely."

This issue is significant because any financial injections to AgriStability will require provincial support. The federal, provincial and territorial agriculture ministers will honour their commitment to revisit improvements to AgriStability when they meet on December 17 in the nation's capital. This is a step in the right direction. Restructuring business risk management programs is critical to protect Canadian farmers from risks beyond their control, including trade disruptions.

It remains to be seen how this minority government scenario will affect the highly anticipated consultation to modernize the *Canada Grain Act* and the Canadian Grain Commission. Also unknown is how the federal minority will impact the review of the *Pest Control Products Act* and a likely consultation on improvements to the regulatory approval process for plants with novel traits.

In the government's approach to the latter, the GGC advocates a rigorous,

science-, evidence- and risk-based regulatory system that protects human health and the environment. Federal policies should also enable reliable access to crop protection products and plant-breeding innovations.

During the campaign, the Liberals committed to an increase in collaboration between Canadian scientists, researchers and innovators in G7 countries and advanced economies. This promise of open collaboration is a step toward achieving these objectives while increasing alignment with our trading partners.

The prime minister's challenge is substantial. Success depends on how the Liberals collaborate with opposition parties and how aggressive the opposition parties are in opposing the government. The GGC has an important role to play in ensuring the government is willing to form partnerships in addressing priority issues. In many cases, this will require the Liberals to work with the Conservatives, the NDP and the Bloc to meet the needs of grain farmers.

Erin Gowriluk is the executive director of the Grain Growers of Canada.

Noble effort

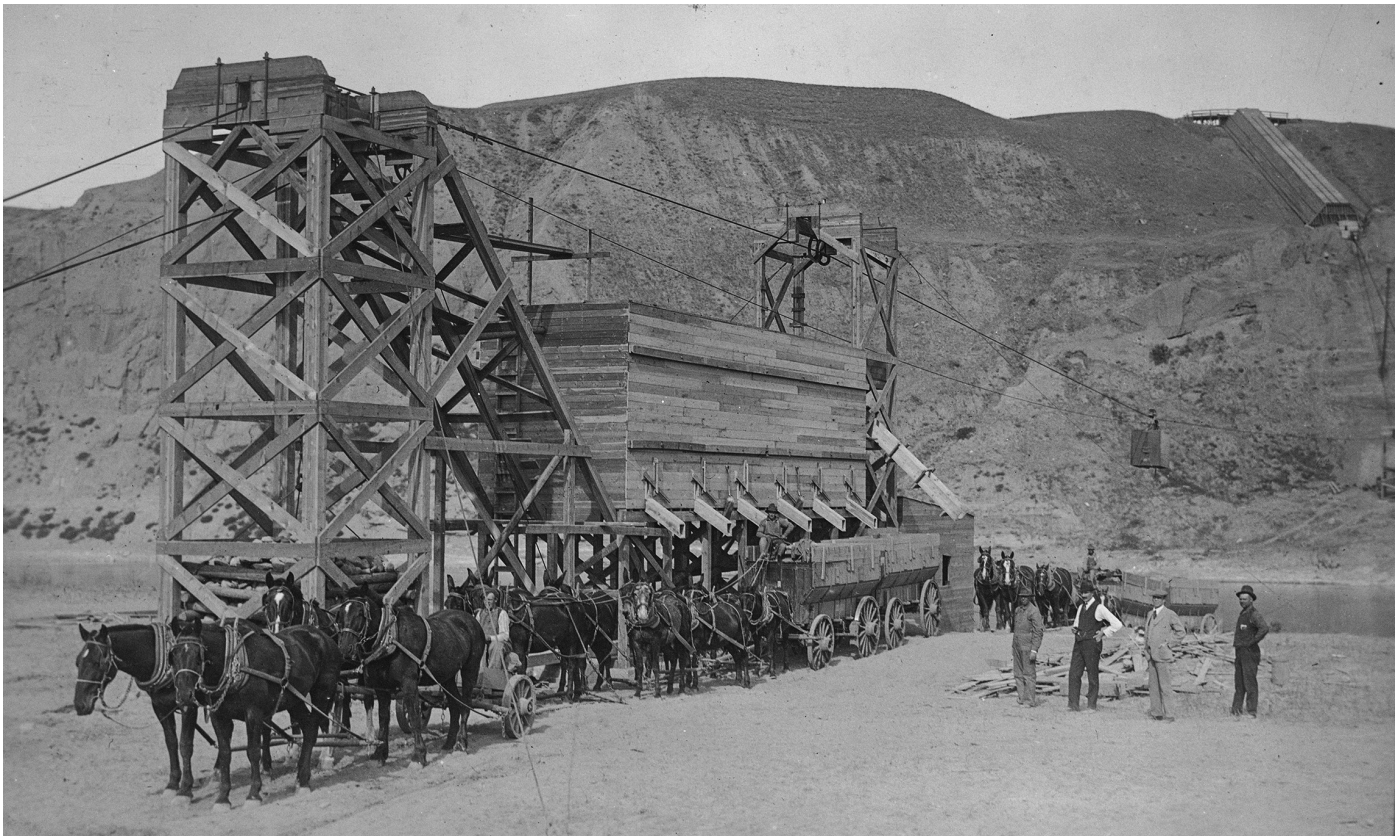


Photo: Courtesy of the Provincial Archives of Alberta

Charles S. Noble cut a wide swath through the annals of western Canadian agriculture. A progressive thinker, he was also an ambitious farmer and businessman whose guiding principle was go big or go home.

The American-born farmer moved to Claresholm in 1903. In 1910, he established Home Farms, a 4,000-acre property equipped with homes, offices, a store, elevator and hotel. It would later become the town of Nobleford.

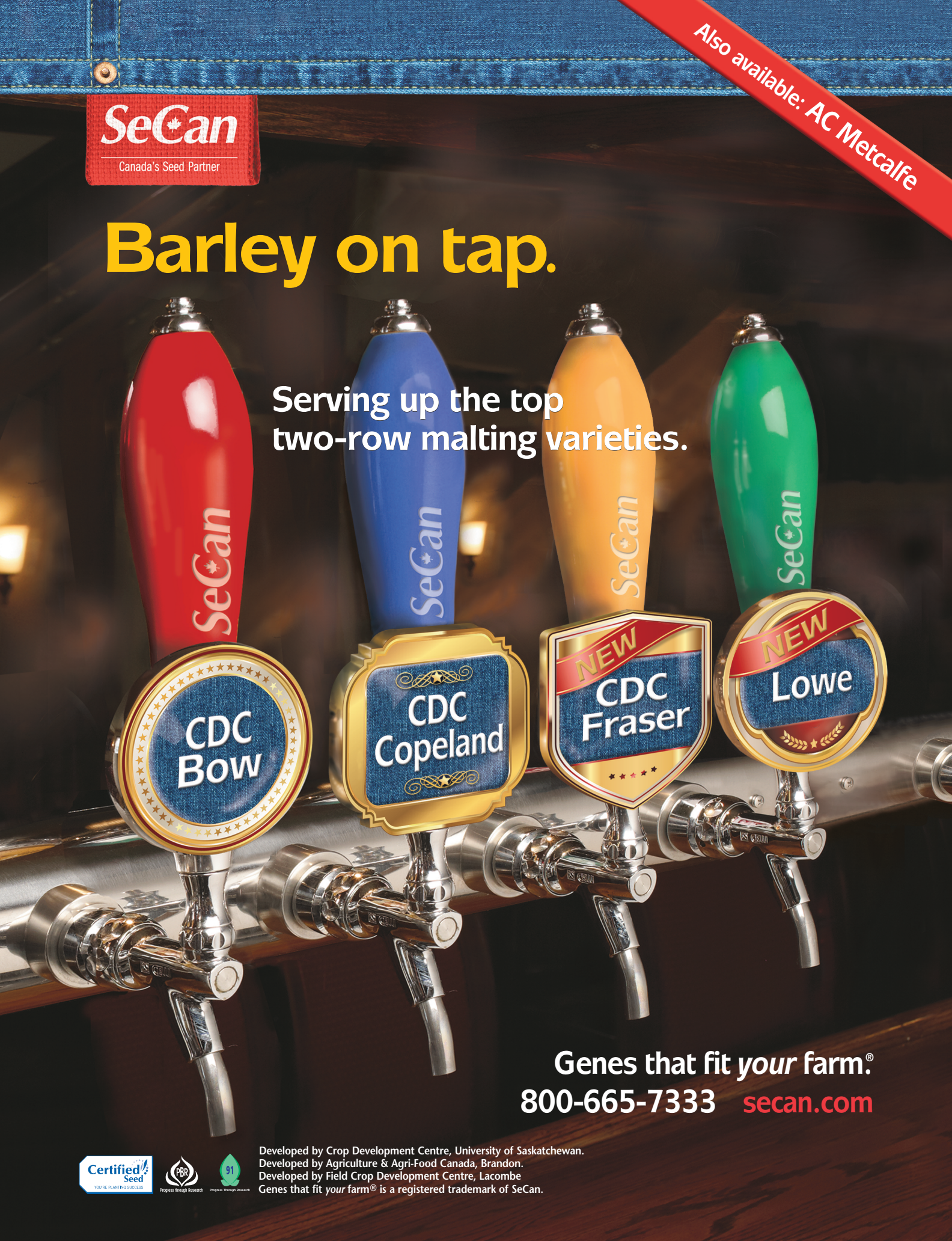
By 1916, Noble farmed about 10,000 acres in the Nobleford area and a year later purchased 20,000 additional unbroken acres of the Cameron Ranch about 56 kilometres east of Nobleford. He used eight to 10 steam engines, each pulling eight to 10 bottom plows, and operating 24 hours a day to break the land. In 1918, Noble's 36,000-acre farm was the largest farm in the British Empire.

One of Noble's little-known inventions (pictured above) is a transport system that moved grain from the Cameron Ranch across the Oldman River. The system, believed to have been in use for several years between 1918 and 1925, trimmed about 29 kilometres off the grain haul.

According to a note written on the back of the original photo, wagons rolled up the hill on the ranch side of the water, dumping their loads into the system's 250,000-bushel grain holder. The wheat was piped to 50-bushel buckets that were cabled across the river. The grain was then deposited into the pictured bin and emptied into waiting wagons destined for an elevator in the hamlet of Chin, located 13 kilometres away.

Poor grain prices and heavy debt prompted the banks to foreclose on Noble's farm, selling off much of his holdings in about 1922. Noble regrouped and returned to farming by 1928, just in time for the drought and devastation of the Dirty Thirties.

The dry conditions of the era prompted him to design the Noble Blade. A V-shaped cultivation tool that controlled weeds with very little soil disturbance, it is regarded by many as one of the 20th century's most important agricultural innovations.


SeCan
Canada's Seed Partner
Also available: AC Metcalfe
Barley on tap.
Serving up the top
two-row malting varieties.
SeCan
CDC Bow
CDC Copeland
NEW
CDC Fraser
NEW
Lowe
Genes that fit your farm.®
800-665-7333
secan.com
Certified Seed
YOU'RE PLANTING SUCCESS
PBR
Progress through Research
91
Progress Through Research
Developed by Crop Development Centre, University of Saskatchewan.
Developed by Agriculture & Agri-Food Canada, Brandon.
Developed by Field Crop Development Centre, Lacombe
Genes that fit your farm® is a registered trademark of SeCan.

We know you work hard, don't let the unexpected take that away.

Protect and enhance your operation with AFSC's suite of risk management products. With insurance, income stabilization and lending options, we offer solutions that respond to your operation's needs at every stage.

Contact AFSC about options that are available to you.

AFSC.ca • 1.877.899.AFSC (2372)

Unique Financial Services

AFSC

INSURANCE • LENDING • INCOME STABILIZATION