ALBERTA CANOLA
SaskCanola
Manitoba Canola Growers
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January 2020

canola DIGEST

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Metre-deep moisture probes added to field weather stations can help with decisions on fungicide, fertilizer and more.

INSIDE:


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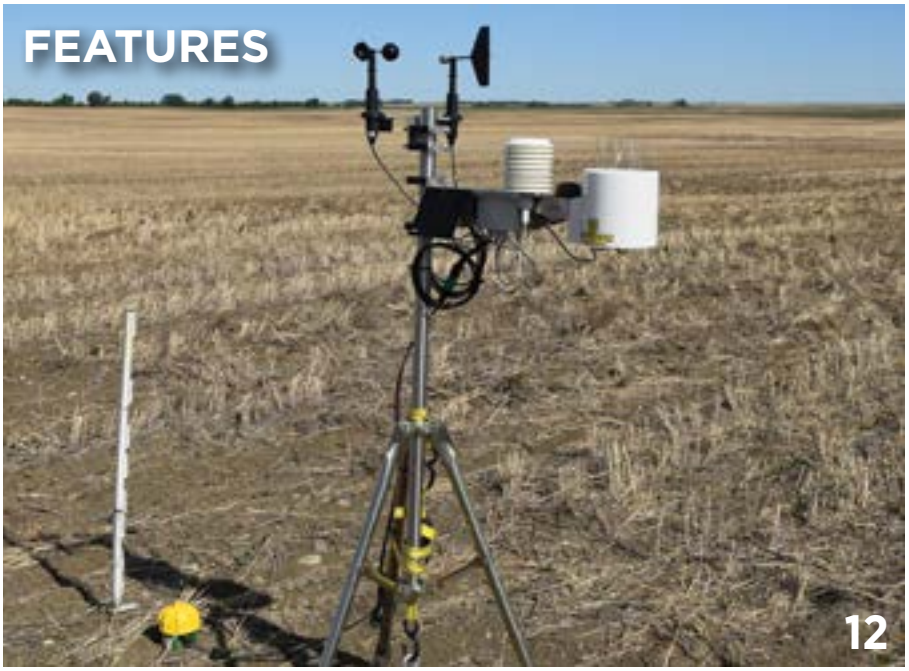
January 2020

FEATURES



DEPARTMENTS

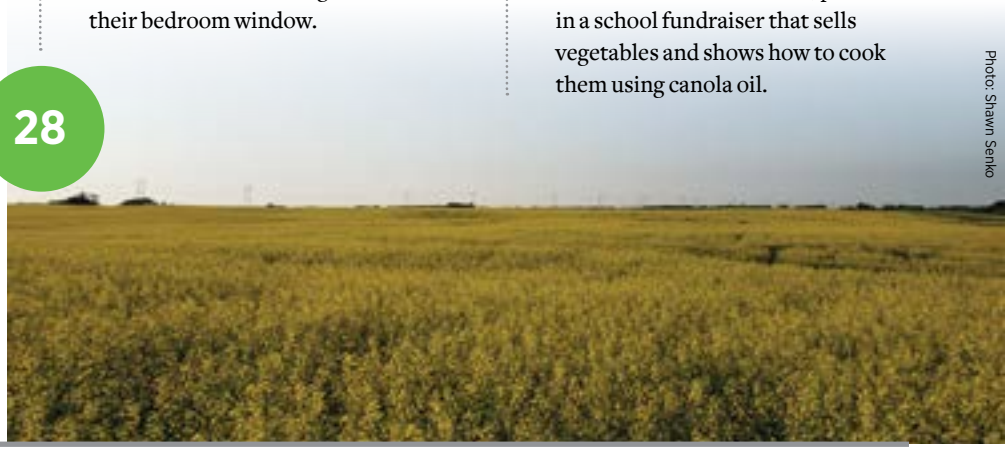


Photo: Shawn Senko

PROVINCIAL BULLETINS

6 ALBERTA CANOLA

Alberta Canola is 30! Alberta Regulation 158/89, the first to enable the establishment of a refundable producer check-off, brought the Alberta Canola Producers Commission into existence August 1, 1989. Plan to attend this year's AGM, January 28 during FarmTech in Edmonton. All members are welcome.

8 SaskCanola

SaskCanola supports the future of agriculture with scholarship investments, proudly awarding five recipients a graduate student scholarship and four recipients an undergrad scholarship. Also, learn why SaskCanola sponsors the Saskatchewan Young Ag-Entrepreneurs.

10 Manitoba Canola Growers

Manitoba Canola Growers supports the development and marketing of canola protein for human consumption. Through innovative technology, protein has been extracted from canola meal in a way suitable for the human food market. It can be used as an ingredient in a variety of foods as a good source of protein.

CALENDAR

CROPSPHERE CONFERENCE
January 14-15 | Saskatoon, Saskatchewan
cropsphere.com

SASKCANOLA ANNUAL GENERAL MEETING, AT CROPSPHERE
January 14 | Saskatoon, Saskatchewan
saskcanola.com

CANOLA DAY AT MANITOBA AG DAYS
January 21 | Brandon, Manitoba
agdays.com

TOP NOTCH FARMING MEETINGS
January 21 | Sturgis, Saskatchewan
February 4 | Meadow Lake, Saskatchewan
February 6 | Moose Jaw, Saskatchewan
February 10 | Melfort, Saskatchewan
saskcanola.com

FARMTECH 2020
January 28-30 | Edmonton, Alberta
farmtechconference.com

ALBERTA CANOLA ANNUAL GENERAL MEETING, AT FARMTECH
January 28 | Edmonton, Alberta
albertacanola.com/agm

CROPCONNECT CONFERENCE
February 12-13 | Winnipeg, Manitoba
cropconnectconference.ca

MANITOBA CANOLA GROWERS ANNUAL GENERAL MEETING, AT CROPCONNECT
February 13 | Winnipeg, Manitoba
canolagrowers.com

CANADIAN CROPS CONVENTION
March 3-5 | Vancouver, B.C.
canadiancrops.ca

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People first

I traveled to India with my dad in November. It was like Jack Whitehall's "Travels with My Father" except with less sarcasm and humiliation. However, while my dad is not curmudgeonly like Jack's dad, his palate is perhaps somewhat elder-Whitehallian: My dad would have been happy to spend two weeks in India just eating frozen sweetened milk. "I've never seen someone eat so much ice cream," said Jamie, one of our tour mates.

We spent the first week on a G Adventures tour of the "Golden Triangle" – New Delhi, Agra and Jaipur. Week two we were on our own in Gujarat, including two days at the ag college in tiny (even by Indian standards) Lokbharti, where dad worked for two years in the 1960s. Based on my observations from the bus window and bicycle seat in central India, and from the fields around the college in Gujarat, farms in India are still small and labour intensive. Hand tools shape the farm experience. I saw dairy producers take milk to market in two cans strapped to their motorcycle. Students at the college prepped wheat plots with rakes and hoes. At the college, which was founded on Gandhian philosophy, this Mahatma Gandhi saying is still a central theme: "To forget how to dig the earth and tend the soil is to forget ourselves."

Of course, with an agriculture system based on small farms and no shortage (it seems) of low-cost labour, the fields are full of people, of families working side by side. I'm not suggesting that farms in Canada go back in time, but what our modern system may be missing is constant meaningful human contact.

Gerry Friesen, who speaks about his own mental health challenges, shared his experiences at the Canadian Farm Writers Federation annual conference in B.C. in September. I reconnected with him afterward and asked if Canadian farmers spend too much time alone for their own good?

"I just heard a podcast where the speaker made the comment that we are the loneliest society in history," Friesen says. "We spend more time conversing through technology, but we connect less with "real" people. The speaker commented that more people than ever are experiencing mental health issues and he attributes that to loneliness."

Friesen mentions oxytocin. "This built-in stress buster, referred to as the cuddle hormone, gets released when we have human connection," he says. "So something as simple as a random act of kindness or getting together with friends or family will reduce the stress we feel. Social engagements are key. How often? Not sure. From my own experience, it takes a pile of effort to be socially engaged but I also know it's worth it."

In the farmer panel in this issue, Brooke Parker says conversations are the number one source for ideas on their farm. "Ideas often come from meetings on the farm, with us sitting around the table and talking. Sometimes good ideas can even come from the coffeeshop."
I really like this comment because the coffeeshop has become synonymous with bad ideas and B.S., but this overlooks the important social good that coffeeshops provide. These small town institutions are where farmers get together, often daily, before heading back to what has become, for many, a fairly solitary existence. Long live the coffeeshop.

Friesen adds that even random short give-and-takes can be good for you and can save the day for the person you engage with. "Have a conversation with the person filling your gas tank or the person bagging your groceries or anyone else you meet. They don't have to be deep conversations, just conversations," he says. "I try to do that because I know it helps me."

Spending two weeks with my dad, I was reminded of his amazing ability to connect with people. Everyone on our tour loved him. He's a good talker and can have engaging (not judge-y) conversations with anyone, including, random people on the streets of Delhi. Dad puts people first. Or maybe it's ice cream first, but people are a close second. We all need people like that.

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Alberta Canola Producers Commission Annual General Meeting

Tuesday, January 28, 2020

Alberta Canola's 30th Annual General Meeting (AGM) takes place during the FarmTech Conference on January 28. There is no charge to attend the AGM, and registration to FarmTech is not required to attend the AGM. For details visit **farmtechconference.com**.

AGM agenda includes:

A review of the activities, audited financial statements and budget for Alberta Canola.

Voting on resolutions. Resolutions to be presented at Alberta Canola's AGM must be received no less than 10 business days prior (January 18, 2020) to the AGM to allow for background to be collected and resolutions to be prepared for presentation at the meeting.

FarmTech™ For information on the FarmTech conference visit **farmtechconference.com**.

Alberta Canola – 30 years of working for farmers

Just over 50 years ago, on November 26, 1969, an educational opportunity for area farmers was held in Fairview, Alberta. The Alberta Rapeseed Seminar introduced farmers to the possibilities this new crop might have for them and their farm businesses.

In that year, Statistics Canada records that 265,354 tonnes of rapeseed were produced on 816,000 acres in Alberta – an average yield of 0.33 tonnes or 14 bushels per acre. The crop contributed under $50 million, or five per cent, of total farm cash receipts.

Later that same day, the provisional Board of the Alberta Rapeseed Association was elected by the farmers attending the seminar. The goal was to develop this new crop for the betterment of Alberta farmers and the agricultural industry.

Twenty years later, Alberta Regulation 158/89, the first regulation enabling the establishment of a refundable producer check-off, was approved by Ernie Isley, Minister of Agriculture, Food, and Rural Development. This caused the Alberta Canola Producers Commission to come into existence on August 1, 1989. In that year, 2.7 million acres of canola produced 1.41 million tonnes with an average yield of 0.52 tonnes or 23 bushels per acre. It contributed $419 million of farm cash receipts – still just nine per cent of the total.

August 1, 2019 marked the 30th anniversary of the creation of the Alberta Canola Producers Commission. In 2018, canola growers in Alberta harvested an estimated 6.7 million acres producing 6.4 million tonnes with an average yield of 42 bushels per acre.

Canola now contributes almost $3 billion of farm cash receipts, which represents roughly 25 per cent of the total farm cash receipts in Alberta.

*To learn more about Alberta Canola's priorities and activities – watch our "Year in Review" video or read our annual report. Find them both at **albertacanola.com**.*

KEEP UP TO DATE. Receive the latest news, media releases and daily grain prices when you subscribe to the Alberta Canola Connections Newsletter. Visit **albertacanola.com/subscribe** today.

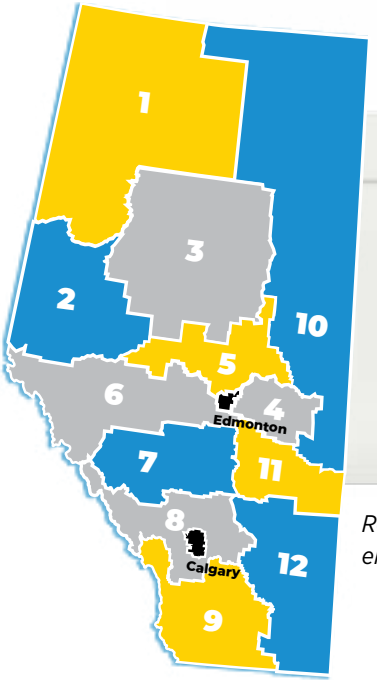
Alberta Canola Director Nomination Results

The call for nominations for farmers to serve on the Board of Directors of the Alberta Canola Producers Commission resulted in three canola producers being elected by acclamation. The nomination deadline was October 31, 2019.

Dan Doll from Fairview will serve a second term as director in Region 1, and Cale Staden from Vermilion will serve a second term as director for Region 10.

Region 4 will see an election between John Mayko of Mundare and Kyle Tarkowski of Myrnam. Eligible producers in region 4 received an information package and a voting ballot before November 30. Ballots will be counted on January 3, 2020.

Michael Ammeter of Sylvan Lake is also returning as a Director for Region 7 after the other candidate withdrew his candidacy for election.



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Regions 2, 5, 8 and 11 will have election cycles in 2020.

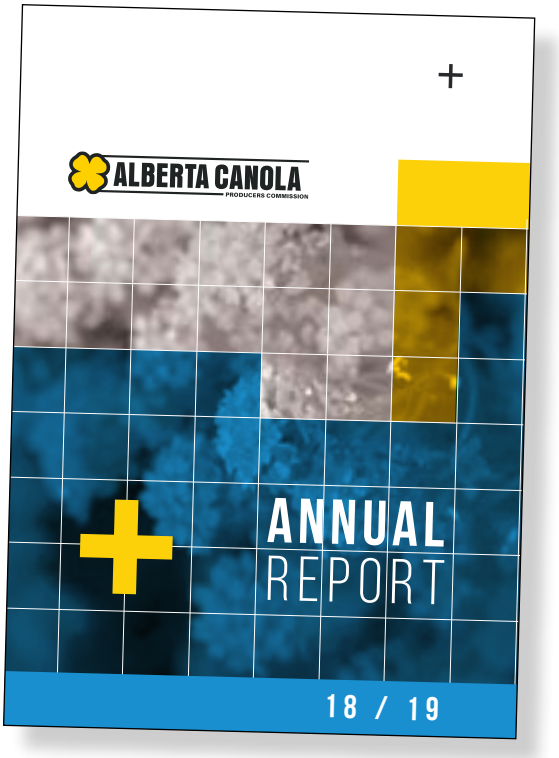
Alberta Canola – Working For All Canola Growers In Alberta

Alberta Canola focuses on four key areas:

1. Research
2. Grower Relations and Extension
3. Public Engagement and Promotion
4. Government and Industry Affairs

Our activities in these areas are guided by our elected farmer directors and driven by our mission statement:
To improve the long-term profitability of Alberta's canola producers.

For complete details, check out our Annual Report and our 'Year in Review' video (featuring the farmer directors) on our website at **albertacanola.com/annualreport**.



SaskCanola invests in the next generation of canola researchers

Each year, two scholarships are awarded to students enrolled in graduate programs with projects studying canola. This investment complements the research SaskCanola invests in for the benefit of canola production and farm profitability. This year, both recipients have projects which will help Saskatchewan canola farmers with the prevention and mitigation of the effects of clubroot over the long term.

"This scholarship has paved the way for young researchers to ensure a promising outlook for canola production and I consider it a privilege to be able to research economic factors that influence crop rotations in western Canada," expressed Blend Frangu, a recipient of the award.

Frangu's project will examine satellite and farm level data to better understand how crop rotation decisions impact profitability. The research will also look at the impact of using policy mechanisms such as crop insurance to influence on-farm decision making.

"It is an honour to be a part of SaskCanola's investment in innovative and collaborative research," stated Kimberly MacKay, "this financial support will provide me more time to share the outcomes of my project in the public space to ultimately benefit the growers who are investing in me."

The results of MacKay's project will contribute to the development of improved canola varieties. This research will provide novel insights into the underlying factors that influence disease resistance and stress tolerance in canola.

Three graduate students – Musharaf Hossain, Zayda Morales and YanRan Tang – who received the scholarships in 2018 will be continuing their studies at the University of Saskatchewan in the areas of clubroot, microbials on canola seeds, and canola protein in food formulations.

"The goal of SaskCanola's scholarship program is to invest in the future talent of the canola industry. "

—Lisa Horn, SaskCanola Executive Director

BLEND FRANGU

Project: Uncovering crop rotation practice changes and productivity impacts – Evidence from Saskatchewan canola farms.

KIMBERLY MACKAY

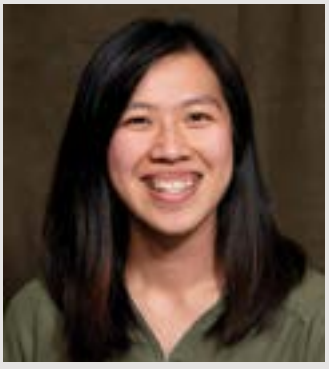
Project: Characterizing 3D genome organization in *Brassica napus* and incorporating 3D spatial information into the identification of complex agronomic traits.

ZAYDA MORALES

Project: The canola seed microbiome – A new approach towards improving crop productivity in a sustainable way.

MUSHARAF HOSSAIN

Project: Identification and functional characterization of putative effectors of *Plasmodiophora brassicae* and their role in regulating cell death during infection.



YANRAN TANG

Project: Canola protein stabilized oleogelation of canola oil.

Undergraduate scholarship winners

SaskCanola is proud to award four $2,500 scholarships to the following deserving students that are pursuing their undergraduate degrees at the University of Saskatchewan.

This year's recipients are:

JOHN DODDS
Loreburn, Sask.
Major: Agronomy

EMMA HINZ
Muenster, Sask.
Major: Animal BioScience

ZACHARRY ERICKSON
Hafford, Sask.
Major: Environmental Science

JILL KROEGER
Hanley, Sask.
Major: Agronomy

All four recipients are children of Saskatchewan canola farmers. Congratulations to this year's winners!

SaskCanola Invests in Sask Young Ag-Entrepreneurs

SaskCanola is a proud sponsor of the Saskatchewan Young Ag-Entrepreneurs (SYA). Our investment supports the SYA to provide networking opportunities for young (under 40) Saskatchewan farmers and ag professionals at both a provincial and national level, where they can exchange ideas, access development opportunities, and exchange their views on agriculture and rural challenges.

SaskCanola has a sponsored clubroot presentation on the upcoming SYA annual conference agenda. Learn more at ***saskyoungag.ca****.*

REMINDER:
FOLLOW SASKCANOLA ON SOCIAL MEDIA

Follow **@SaskCanola** on Facebook and Twitter for timely updates on the Commission's activities, relevant on-farm canola production information, and notifications for upcoming events.

Upcoming Events

TOP NOTCH FARMING MEETINGS

SaskCanola's goal in hosting these meetings is to share valuable knowledge with farmers and agronomists and to provide an opportunity for them to connect with renowned experts.

January 21 in Sturgis
February 4 in Meadow Lake
February 6 in Moose Jaw
February 10 in Melfort

Learn the latest agronomy and research findings for canola, barley, and pulses – including new Saskatchewan clubroot survey data. Keynote presentations will focus on harvest optimization and intergenerational farm transfer. Each event will also feature an update on SaskCanola's priorities and investments.

Visit the 'News & Events' section at **saskcanola.com** to register for a meeting coming to a location near you.

Canola protein technology presents new market for canola growers

Bringing the idea of canola as a protein for human consumption to the forefront is something Manitoba Canola Growers have been supporting. Through innovative technology, protein has been extracted from canola meal (currently a livestock feed) in a way suitable for the human food market. The process is simple and only uses water and a mechanical filter to separate canola 'milk'. The milk is then coagulated into curds that can be squished together into a cake.

MCGA Executive Director Delaney Ross Burtnack has sampled the milk and found it virtually flavourless with a silky texture, making it easy to add to food without needing to mask the taste. This innovative technology was supported by grower research dollars and brings forward new opportunities for canola growers.

"This is an opportunity to expand the value of canola meal as it gives farmers an option beyond livestock feed to market their meal for human protein consumption."

—Delaney Ross Burtnack

In September last year, the canola protein extraction technology was successfully licensed to Manitoba company M. & C. Commodities Inc. (M&C Commodities). M&C Commodities' mission is to add value to Canadian crops and produce sustainable plant-based protein ingredients and finished foods for humans around the world. Moving forward, M&C Commodities will license the canola protein extraction technology and take it into commercial production.

"We're proud to offer farmers another stream for canola in the market place," says Carlos Melo, president and CEO of M&C Commodities. "This technology has the ability to craft a wide range of formats (from soluble to powder) and can be used as an ingredient in a variety of foods to promote healthy cooking options. Once branded as plant based protein using canola it becomes another channel for farmers to move their crop."

Ross Burtnack says, "We've been excited to support the canola protein extraction technology and the research that's gotten it to this point because it opens up an entirely new market for canola growers. This is an opportunity to expand the value of canola meal as it gives farmers an option beyond livestock feed to market their meal for human protein consumption."

"This technology has the ability to craft a wide range of formats (from soluble to powder) and can be used as an ingredient in a variety of foods to promote healthy cooking options."

Melo adds, "We're very thankful for the hard work the province, canola growers and all those involved have done in bringing this technology to market."

This initiative was supported by grower research dollars and brings forward new opportunities for canola growers.

For future announcements about the technology and more information visit ***www.mccommodities.ca*** *or follow Canola Growers on Twitter @Canola Growers.*

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Manitoba Canola Growers

MANITOBA CANOLA GROWERS ANNUAL GENERAL MEETING

FEBRUARY 13, 2020 @ 7:30 AM VICTORIA INN HOTEL AND CONVENTION CENTRE – WINNIPEG, MB
Resolution deadline January 25. Guidelines for submission can be found at **canolagrowers.com**.

Soil moisture makes yield, but how much do you know about your soil moisture levels? Metre-deep moisture probes combined with cellular communication are giving growers continuous updates on yield potential based on soil water, which can help with decisions on fertilizer top-dress, fungicide applications and marketing.

A PROBE OF **POSSIBILITIES**

BY JAY WHETTER

"Stored soil moisture is like money in the bank."

Trevor Thompson, who farms at Assiniboia, Saskatchewan, uses this quote from well-known Saskatchewan soil scientist Les Henry to describe the value of his soil moisture probes.

Thompson had three probes on his farm in 2019, one in a wheat field and two in canola. The probes go one metre into the soil and have moisture sensors at 10, 20, 30, 50, 70 and 100 centimetre depths. Each probe and adjoining above-ground weather station provide Thompson with instant updates, including the crop's water-driven yield potential (WDYP), through his phone. Complete stations, with moisture probes, are $3,000 to $4,000 each.

"With these probes, I'm taking out some of the uncertainty," Thompson says. "Any time you can do that as a businessman, it's huge."

Soils in Thompson's probed canola field hit the wilting point twice during the 2019 growing season because weather had been so dry up until the end of August. "This took the top off my yield," he says. "We still got a very good crop, just not an excellent crop." As a result, he didn't top dress fertilizer or spray fungicide – which are two in-season decisions aided by a WDYP estimate.

Thompson's probes and program are from South Country Equipment, a John Deere dealership with various locations in southern Saskatchewan. Ryan Hutchison, integrated solutions manager for South Country, has been involved with the company's Crop Intelligence program from the beginning. The program is built around John Deere capacitance soil moisture probes. The probes were developed over 20 years ago, but it was at a farmer meeting in 2016 where Hutchison realized their potential value for canola in particular.

At the meeting, Hutchison and agronomist Kendall Gee, who was with Agri-Trend at the time and now works for Crop Intelligence, were sharing data from a soil moisture probe they were trying out in a few fields. "The probes were giving us data we'd never seen before in dryland agriculture," Hutchison says. Elston Solberg, an Agri-Trend senior coach at the time, was at the same meeting. He looked at the numbers and did some math in his head. He then asked the group of farmers about their fertilizer rates and target yields. Most farmers in the area were fertilizing for 50 bu./ac. canola crops. Solberg then made a statement that changed everything: "Based on the probes results, you've got enough water to grow a 70 bu./ac. canola crop."

"It was a real a-ha moment," Hutchison says. "We came away from that day with a vow to proactively pursue the agronomy behind this data."

They started working on algorithms based on water use efficiency for each soil type, each region and each crop, and developed the Crop Intelligence program to track ongoing changes in soil moisture and calculate real-time WDYP. With cellular communication from the in-field weather stations, it gave the farmer extra information for timely and informed in-season decisions.

Hutchison gives the example of one South Country customer who top-dressed nitrogen on a wheat field in 2019 based on the program data. The field had a WDYP of 24 bu./ac. above the farmer's target yield. Because the farmer fertilized for the target, he realized, in time, that the crop would need more nitrogen in order to meet its WDYP.

PUTTING RESULTS IN CONTEXT

WDYP does not always translate into actual yield. It can't. For Thompson, the canola yield in this probed field was about 12 bu./ac. below the program's WDYP.

Gee says the program is based on water as the primary limiting factor. "Our numbers do not account for other factors that commonly reduce yield potential throughout the season," she says. "Common factors, other than water, that affected Western Canada canola yields in 2019 were variable plant stands, flea beetle pressure, frost damage, hail, drought stress at key times and harvest losses."

Thompson still found his 2019 results useful, though. "I might have wondered before, did I under-fertilize or was it Mother Nature?," he says. "Turns out I needed Mother Nature to cooperate with more timely rains. I didn't need to put down 40 lb./ac. more nitrogen.

Trevor Thompson, who farms at Assinboia, Saskatchewan, had three Crop Intelligence moisture probes on his farm in 2019. "With these probes, I'm taking out some of the uncertainty. Any time you can do that as a businessman, it's huge."

REAL POTENTIAL

Paul Bullock, soil scientist at the University of Manitoba, sees real potential for soil moisture probes.

"Since producers are starting to adopt farm-level soil moisture data, it is clear that they expect this information could benefit their farms," Bullock says. "It should be a big help for decisions about mid-season nutrient and pesticide application."

But, he adds, the challenge is how to make an accurate extrapolation about a field based on results from one probe.

Going forward, he sees the probes as part of an accurate and automated modelling system based on multiple inputs, including LIDAR for high resolution surface elevation, surface geology, groundwater pressure sensors, soil characteristics, precipitation, air temperature and evapotranspiration. These models, Bullock says, will distinguish soil moisture variation across a field without having to deploy hundreds of sensors. "This will make it more cost effective," he says, adding. "There is a lot of work to do in order to make this information a reality, but I think it is feasible."

Hutchison acknowledges these gaps and says they're addressing them.

This is the Crop Intelligence moisture graph for one of Trevor Thompson's canola fields in 2019. The red line is the water-driven yield potential (WDYP), which is given as a value above or below the yield goal. It was moving downward until timely rains in June.

"We're collaborating with CropPro and their SWATMAP system to collectively provide growers and agronomists further insights to the challenge of in-field variability," he says. "I think we're getting to this next stage."

Meanwhile other companies have entered the space. Scott Speck is a digital ag lead for Farmers Edge, which has its own a network of field-based weather stations and soil moisture probes. The Farmers Edge crop modelling program predicts a crop's stage and water balance, and how fast soil moisture will be depleted based on the crop stage and environment.

"Is the weather hot and dry with winds that would make the crop more prone to evaporation? Or is it cooler and humid, so the crop uses less water to reach equilibrium with the atmosphere?" Speck says. "Weather stations that are field centric help us identify these variables, and make conscious decisions on what to do next. This can be used to make decisions on fertility or fungicide if water supply is good and weather forecast is positive."

As these programs evolve, Speck says data from multiple probes across a field, farm or network will also start to show us which tillage systems, soils, organic matter levels and slopes have the highest potential after rainfall events. The goal with all these models is to present farmers with simple tips, driven by lots of behind-the-scenes data and programming, to make better decisions.

Thompson is already seeing benefits for 2020. The Crop Intelligence program took his fall soil moisture measurements, which indicate a full moisture recharge, to estimate his canola WDYP for 2020.

"Having that information is huge," Thompson says. "I have my fertilizer plan for 2020 all figured out based on that."

–Jay Whetter is the editor of Canola Digest.


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The farmer panel at Canola Discovery Forum 2019, hosted by the Canola Council of Canada in Winnipeg in November, featured these four farmers sharing their most valuable integrated pest management (IPM) strategies.

CANOLA DISCOVERY FORUM:

GROWERS SHARE IPM STRATEGIES

BY STEPHANIE GORDON

Concerning clubroot

Scott Keller
Camrose, Alberta

Clubroot is the biggest threat on Scott Keller's operation. Keller farms south of Camrose, Alta., and runs a four-year rotation of wheat, canola, malt barley and a pulse – alternating between peas and fababeans. His main tactic to keep clubroot at bay is crop rotation. "You can't do integrated pest management without having a good crop rotation," he says. "It's the backbone of any plan."

The seriousness of the disease didn't set in until it was in his own backyard in 2014. His operation was running a one-in-three canola rotation at the time and adopted resistant varieties right away. "What we've learned from experience over the last decade is that we're really bad at identifying clubroot when it's at very low levels," Keller says. "Just because you haven't found it, doesn't mean you don't have it, so let's start using these resistant varieties." Rotating between different seed companies' technology is also essential for maintaining the durability of the resistance, he adds.

A longer crop rotation provides Keller's farm a layer of defence from clubroot, despite what his neighbours might be doing. "Clubroot is not just going to blow in like kochia

"You can't do integrated pest management without having a good crop rotation. It's the backbone of any plan."

–Scott Keller

The farmer panel at Canola Discovery Forum 2019 included Troy LaForge, Dana Maxwell, Shane Friesen and Scott Keller. Daryl Domitruk with Manitoba Pulse & Soybean Growers was the guest moderator.

across the fence line," Keller says, before adding that even if some contaminated dirt does make its way into the field, your crop rotation is your shield against it. Spore loads significantly reduce within the first two non-host years, so the introduced clubroot won't establish as fast when compared to a tighter rotation.

Keller says it would be nice to have a tool that helps producers diversify their rotation based on what can be grown in their region. Some producers can grow up to seven different types of crops, but some regions are not as versatile.

When it comes to what IPM strategies rank lower on the list of importance, for Keller, it's sanitation. From a clubroot management perspective, he says crop rotation and using resistant varieties are far more important for him. He still knocks off dirt off equipment and will water down equipment here and there, but he doesn't always bring the bleach mix out if it's dry weather.

Competitive crops

Shane Friesen
Rosenfeld, Manitoba

Shane Friesen's IPM revolves around growing the strongest crops. Friesen farms in Rosenfeld, Man., in the Red River Valley area, and grows a diverse rotation of corn, soybean, wheat, canola and dry beans.

To ensure a strong crop, he plants canola early so the plant can stay ahead of any weeds that come. "Weeds and crops are competing for light and water," he says. "When my crop is there, the weeds aren't there." He also makes sure to use enough seed to be competitive. Some growers might be experimenting with a reduced seeding rate or increased row spacing given the price of seed, but Friesen says that this practice leaves more space and time for weeds to fill the gaps.

Friesen's biggest weed problem is volunteer canola. He would like to see more

research on controlling volunteers, especially as seed companies are starting to stack more traits like glyphosate tolerance and dicamba tolerance. What tools will growers have to control those volunteers?

Friesen comes at this issue with a PhD in herbicide resistance, knowing just how resilient crops can be. There's an opportunity for the Canola Council to take a leadership role in resistance extension knowledge, he says. He shares an experience about the University of Western Australia: "If farmers had questions, they could come to one person who all they did was herbicide resistance," he says. "We don't have that here, so there's piecemeal people everywhere trying to solve the problem."

Manipulating IPM to boost disease

Dana Maxwell
Minto, Manitoba

Dana Maxwell uses IPM strategies for the opposite effect: to increase diseases in crops. Maxwell runs trials with AgQuest, a contract agriculture research company headquartered in Minto, Man.

"If I'm going to run a sclerotinia trial, I'm going to need to achieve a certain level of sclerotinia in order to have meaningful data," Maxwell explains. To boost sclerotinia in canola, the team will go for a variety that doesn't have resistance and plant at a high seeding rate so a dense, humid canopy can be achieved. They will also plant in all the alleyways to cut down the amount of wind that is circulating in the plot. On top of this, they've selected a plot already running a tight two-year rotation and added inoculum. "Then I'm going to add water," she says. "I'll mist irrigate the crop and see how sick I can make it."

These efforts have taught her a few things about IPM. Maxwell commends the work being done by breeding companies because it still takes time to infect the canola. "It is getting harder to infect [newer varieties] of canola with sclerotinia. If I had access to 20-year-old varieties I'd probably have really good levels of sclerotinia," Maxwell says. She would like to see more research dedicated to reviewing the fundamental agronomic questions but with newer canola hybrids.

No IPM strategy is left behind in the research trials. She notes that while some growers can get away with a rough clean, her research company has to implement sanitation measures – from cleaning equipment to giving boot covers to visitors – given its position in the industry.

A larger ecosystem

Troy LaForge
Cadillac, Saskatchewan

With a rotation that includes everything from chickpeas to cattle, Troy LaForge employs multiple IPM strategies. LaForge farms at Cadillac, Sask, and the farm grew lentils, durum, barley, flax and mustard this year, with canola in the works for 2020.

It's important to diagnose the issue before treating it.

Before deploying IPM strategies, diagnostics come first. "I see all too often that we've got tools going on a farm that don't even suit the farm," LaForge says. It's important to diagnose the issue before treating it. Some of the strategies LaForge uses on his operation include narrow row spacing (7.5-inch), no-till, disc drill, a diverse crop rotation, scouting, soil/tissue sampling for balanced plant nutrition, insect-tolerant traits, midge-tolerant durum, insecticide seed treatments, and minimizing fungicide use in pulses to boost beneficials that control aphids.

Aphid control occurs naturally and LaForge cites work by Dwayne Beck out of Dakota Lakes Research Farm in South Dakota showing that certain fungicides kill fungus that controls the aphids. While LaForge still use fungicides if he has to, he does his best to allow ladybird beetles to control his aphid populations before he needs to spray.

LaForge doesn't push any IPM strategies to the side, noting that all of them carry importance. However, he would like to be more diligent with his record keeping. "So when I go scout, do I always record everything I saw in the field? No I don't, and that bites me in the butt sometimes," LaForge says.

In terms of where research can do better, LaForge wants to see more systems research. Research that considers the entire growing system, regional environment, and sets a particular yield target. "What would you actually need to put into a 50-bushel system or 70-bushel system?" Another area that deserves more attention is intercropping. LaForge has seen the value in a chickpea-flax intercrop and feels intercropping has tremendous potential in the industry, but currently lacks support from the way risk management programs are set up right now.

–Stephanie Gordon is a writer and editor with Annex Business Media.

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Clubroot can be managed, even in areas that have exposed to high levels of the disease. Clubroot experts at CLUB Day, an event held as part of the Canola Council's Discovery Forum, explain how.

CDF: FOCUS ON THE FUNDAMENTALS OF CLUBROOT MANAGEMENT

BY STEPHANIE GORDON

Credit: Amanda Barnes

The recipe for clubroot management has six key ingredients: scout, maintain a minimum two-year break between canola in the rotation, grow a clubroot-resistant variety, control host weeds and volunteer canola, reduce soil movement within the farm and minimize the potential for contaminated soil to be introduced. However, clubroot is an evolving and complex disease that evades simple solutions, including a six-step recipe.

During the Canola Discovery Forum in Winnipeg in November, the Canola Council of Canada (CCC) hosted CLUB Day, which brought together researchers, farmers, agronomists, and industry members to tackle the toughest clubroot questions. The discussions did not debunk the original recipe for management, but put the focus on three most important objectives: reduce spore load through rotation, stay ahead of the disease with scouting and deploy resistant varieties sooner rather than later.

"I think we need growers to understand that clubroot can be managed even in intensive areas that have been exposed to clubroot," Dan Orchard, CCC agronomy specialist, says.

ROTATION ALONGSIDE RESISTANCE

Deploying clubroot-resistant (CR) varieties of canola must be married with a longer crop rotation. "It's not like you rotate crops until you get clubroot and then you grow resistant varieties. We need to keep rotating crops while we deploy resistant varieties," Orchard says. A longer crop rotation helps reduce the reliance on resistance and extend its durability.

Every effort must be made to reduce spore loads before deploying a resistant variety. According to Fengqun Yu, clubroot researcher with Agriculture and Agri-Food Canada in Saskatoon, if you deploy CR varieties when the clubroot infection is high, you expose the strain to too many pathogens and reduce its longevity.

For more on the clubroot recipe, read Agronomy Insight for the November 2019 Canola Digest at **canoladigest.ca**.

CR varieties do not help to reduce an already high spore load. Stephen Strelkov, a plant pathology professor out of the University of Alberta, emphasizes that "so much of clubroot management goes back to spore management. Genetics are just one tool."

IGNORANCE ISN'T BLISS

In-field scouting for clubroot cannot be ignored. A producer from Manitoba, who wants to remain anonymous, found clubroot on his farm last summer. He was surprised because he didn't find the disease by his field entrance – the most common location to detect clubroot – but out in the field.

"If you don't think you have clubroot, you probably haven't found it yet," the farmer says.

Provincial clubroot surveys can help, but scouting by farmers and agronomists is the predominant method of finding clubroot. Out of all the field samples that can be tested, the most revealing indicators are the canola roots themselves.

ROTATING RESISTANT VARIETIES

Switching up sources of resistance is a good way to reduce the potential for resistance to weaken. "I foresee in the near future that we will have a better opportunity to identify what pathotypes are lurking in our fields and what resistance genes are in our products, and then deploy varieties with

Credit: CanolaLAB

resistance to control the pathotypes present," Orchard says.

There are currently 36 pathotypes of clubroot in Western Canada, with 19 identified in the past two years. However, there are no commercial options for producers to test what pathotypes lurk in their fields. Despite this, CR varieties remain effective because they target the most common pathotypes. "It's like getting a flu shot," Orchard explains. "You don't get immunized for a flu that you're hardly going to run into, you're getting it for the flu that's most common in your area. And that's what's happening with clubroot." Orchard cautions there are exceptions to every rule but says deploying varieties that have resistance to the major pathotypes will work for a majority of the Prairies.

SECURING SEED

There is not enough CR seed to cover the canola growing region within the Prairies. "With clubroot resistant varieties, we need to focus on putting them in higher risk areas," Orchard says. For producers in lower risk areas, using a susceptible variety means that other management options, such as a longer break in rotation, need to be used. "A susceptible variety doesn't mean guaranteed problems, but you have to understand the risk associated," Orchard says, adding that some areas have more risk tolerance for clubroot than others. "I think it's time for us to put some more thought into these maps and forecast models. That way, the seed companies can make better decisions on where the resistant varieties are deployed."

There are still some unknowns about how clubroot pathogens work with their hosts, but the fundamentals of the clubroot management recipe still hold true even as more information about the disease is discovered. "The main takeaway from the growers I spoke to was that this disease is far more confusing than they ever dreamed it would be," Orchard says. "All they want is a simple recommendation, but now they understand that it doesn't exist yet," Orchard says. Unfortunately clubroot isn't simple and requires an integrated management approach.

–Stephanie Gordon is a writer and editor with Annex Business Media.

Every farm has acres that suck in resources and don't give anything in return. These unprofitable acres are fairly easy to recognize – soils are degraded, crops are thin and weeds are prolific. The whole farm might benefit from taking these acres out of annual crop production—and here's how to do it.

WHAT TO DO WITH ACRES THAT ALWAYS LOSE MONEY?

BY JAY WHETTER

Farmers have three good reasons to take chronically unprofitable acres out of annual crop production. They are:

1. Stop spending money on acres that don't provide a return. The costs of seed and fertilizer and weed control all add up. When saline, compacted, perpetually drowned out and weedy areas lose money year after year, maybe it's time to target those acres for a long-term rest from annual crops. It will be good for your business bottom line and reduce risk.

2. Non-farmed spaces can increase yields for cropped acres. Ongoing research led by Paul Galpern at the University of Calgary demonstrates the value of the biodiversity provided by non-farmed spaces. While he doesn't have concrete economic numbers at this time, Galpern can say this: "Evidence thus far generally supports the argument that non-cropped acres may seldom be detrimental, and sometimes be profitable."

The gist is that taking these acres out of annual production and putting them into hay or trees, for example, not only stops the financial bleed from those acres, but the pollinators and beneficial insects present could improve yields for cropped acres. Of course, by matter of simple math, taking these poorest acres out of production will also increase the farm's average yields and profitability.

Gregory Sekulic, Canola Council of Canada agronomy specialist, says shelterbelts, a staple feature of a biodiverse farmscape, have proven in various studies to increase yields. He points to research on soybeans done at Ridgetown College in Ontario, which showed a 10 per cent increase in yield on the leeward side of the trees. The area showing this yield benefit had a width equal to about 10 times the height of the trees. Sekulic also has his eye on brand new research, not yet published, from AAFC at Indian Head, Saskatchewan, which suggests a potential increase in seed oil content for canola plants within the shadow of a shelterbelt.

3. Slow the proliferation of weeds and disease. Failed efforts to push annual crops in poor producing acres can open the door to clubroot, kochia and more. Compacted field entrances and perpetual low spots are usually bad for crops, but can be hot spots for clubroot. Weeds that thrive under low crop competition, like foxtail barley, or that grow better than other plants in less productive areas, like kochia, tend to take over. So not only do you have less crop, you also have a higher weed management cost. Putting these areas into a perennial grass would nail down the clubroot spores and maintain permanent competition for kochia, foxtail barley and whatever other weeds run wild.

Curtis Rempel, Canola Council of Canada vice president for crop production and innovation, says we're finally starting to put economics to these land use decisions. "Evidence is starting to show that some acres become more productive when they're used to support natural habitat instead of growing annual crops," he says. "We suspected this all along, but now we're getting the tools to actually measure it."

Weeds that thrive under low crop competition, like foxtail barley, or that grow better than other plants in less productive areas, like kochia, tend to take over low productivity acres of a field. So not only do you have less crop, you also have a higher weed management cost.

HOW DO YOU IDENTIFY UNPROFITABLE ACRES?

The simple method is to seed field entrances, erodible water runs, saline, wet and weedy areas to perennial forage. You don't need yield maps to identify these areas.

The almost-as-simple step is to overlay a few years of yield maps with input expenses to identify areas that never generate a profit.

The advanced step is to bring in professional help. Mike Wilson is the affiliate program lead for Veritas, an Ontario-based consulting company that helps ag retails offer precision ag tools, like profit mapping and variable-rate prescriptions, to their customers.

Wilson uses yield maps and grid soil sampling to help farmers identify profit zones within each field and manage them with variable-rate fertilizer. He divides fields into four zones – and possibly five zones for those willing to take the big step of grassing-in unprofitable acres. Here are his zones:

Zone 1: Good-yielding acres with good soil nutrient levels. In these zones, Wilson recommends that farmers fertilize to match crop removal.

Zone 2: Good-yielding acres with poor soil nutrient levels. "Productivity in these areas will get steadily worse, so we need to turn the dial up on fertilizer rates," Wilson says. "These acres will reward us for spending the extra money."

Zone 3: Poor-yielding acres with poor soil nutrient levels. These areas might be fixed with more fertilizer or lime, he says.

Zone 4: Poor-yielding acres with good soil nutrient levels. "These could be saline areas, water holes or sand holes that need steady rain to be productive," he says. The crop productivity in these areas is just too poor to make use of the inputs invested. The approach here, Wilson says, would be to cut off or vastly reduce nutrient inputs as a way to improve profitability in these areas. But can they ever be profitable?

Zone 5: If the answer is no, then these acres could drop into Wilson's Zone 5, which would take them out of annual crop production.

Wilson rarely recommends Zone 5 treatment, mostly because farmers aren't that receptive to the idea. "This is often a stumbling block for farmers who are paying rent on these acres and feel like they should be doing something with them – even if these acres never make money," he says.

Putting cropland into perennial grass or forages may require specialized equipment, a nearby market for forages, and advanced seeding and spraying tools to shut off everything and lift the tools when passing over these spots.

Having said that, Wilson does see the point in setting aside the worst of the worst if a farm has a good plan for those acres. "If those acres always lose you money, you might ask, 'why am I continuing to farm this land the way I'm farming it?'"

Rempel adds, "If yields from those Zone 5 areas doesn't cover the input costs, farming these acres doesn't reduce the tax burden, it just makes the situation worse."

With any field zone discussion, Wilson starts by asking the farmer: "Are you willing to change?"

Moving toward profit mapping means an investment in more intense soil sampling, variable-rate or sectional control fertilizer and herbicide application capability, and the wherewithal to take chronically unprofitable zones out of production.

Photo: Sarah Johnson

This perpetual wet spot, a haven for drowned crop, weeds and lost profits, has been given the "Zone 5" treatment.

HOW DO YOU SET ASIDE UNPROFITABLE ACRES?

Ideally, growers would have a low maintenance and long-lasting grass to put into those set-aside acres. Calvin Yoder, forage seed specialist Alberta Agriculture and Food, says "one low-maintenance, low-cost species that comes to mind is sheep's fescue." As a bunch grass, it won't creep into the field, plus it's hardy and "pretty tolerant to a number of herbicides," he says.

Yoder says a lot of tree nurseries and orchards use sheep's fescue around their trees for all of these reasons. He'd actually like to see more sheep's fescue seeded around field edges and in field approaches to keep the sprayer booms out of the ditches and keep perennial ditch weeds from creeping into fields.

He provides a few tips to establish sheep's fescue or any other low-maintenance grass: It is nice to start out on canola stubble. Give the area a pre-seed herbicide application. Seed with a drill or broadcast the seed over the canola stubble early in the spring. Harrow the area to cover the seed with to no more than a half an inch of soil. Add some fertilizer at the time of seeding to improve establishment.

For more tips on establishment and managing forage stands, Yoder says the Saskatchewan and Alberta forage guides are useful resources. Find them at the provincial ag department websites.

Rempel sees the benefits of low-cost, low-maintenance grasses as an alternative to annual crops on those unprofitable acres. He says the ideal species or mix will meet a variety of needs, including low cost and low maintenance. "Namely, it will not host clubroot, it will attract pollinators and it will provide other ecosystem services that improve crop yields and promote beneficial insects," Rempel says. In the end, this species or mix will convert chronically unprofitable acres into spaces that actually help the farm.

–Jay Whetter is the editor of Canola Digest.

Good ideas

Where do you get your ideas? How do you know an idea is good? How long does it take for you to put a good idea into practice? Our six farmers panelists answer these questions and share examples of recent new ideas they implemented.

BY JAY WHETTER

KEITH FOURNIER LONE ROCK, SASKATCHEWAN

Keith Fournier has had challenging harvests three of the past four years, so the best idea he had this year was to install a grain dryer system.

"For me, the best ideas are those that significantly improve cashflow, reduce risk or reduce stress," Fournier says. The dryer checked all those boxes. It will allow him to harvest sooner and extend harvest days, which are especially important in years when weather spreads out harvest and drags it into October or November – or later. It also reduces the risk and stress of storing tough grain. While the dryer was a large capital expense and will incur ongoing energy costs, it will preserve grain quality in tough harvests, allow him to deliver grain at (not below) moisture thresholds, and have his grain ready to deliver sooner. All of these will improve cashflow.

Fournier pulls ideas from "everywhere," including conferences, trade shows, farm magazines and newspapers, networking with other farmers, and social media, including Twitter. Then he lets the ideas stew for a long time. "I'm in my late 50s now, so I have more of a patient outlook on ideas now. I'll research them and think about them for over a year."

His review process includes letting an idea "bounce around in my own head for a while" to see how it fits within his operation and meets his cashflow, risk and stress parameters. He also puts a lot of value on input from a few respected farmers. "I have a network of farmers who are open-minded and unbiased," he says. "This experience – mine and theirs – gives me a better approach to new stuff."

"I have a network of farmers who are open-minded and unbiased. This experience – mine and theirs – gives me a better approach to new stuff."

–Keith Fournier

"Ideas often come from meetings on the farm, with us sitting around the table and talking. Sometimes good ideas can even come from the coffeeshop."

–Brooke Parker

BROOKE PARKER STRATHMORE, ALBERTA

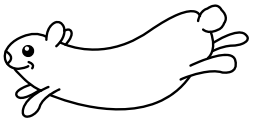
Sometimes you get unexpected opportunities to test new ideas. Five harvests ago, Brooke Parker had a few fields of canola that were in claim positions for crop insurance. The adjuster couldn't get there before harvest, so they had to leave a few strips standing in each field for the loss assessment. They were straight combining all of the canola anyway, but the strips stood for about a month, even through some snow, before the adjuster came. The yields for timely versus late-harvested canola were a big surprise. "There was no difference," she says.

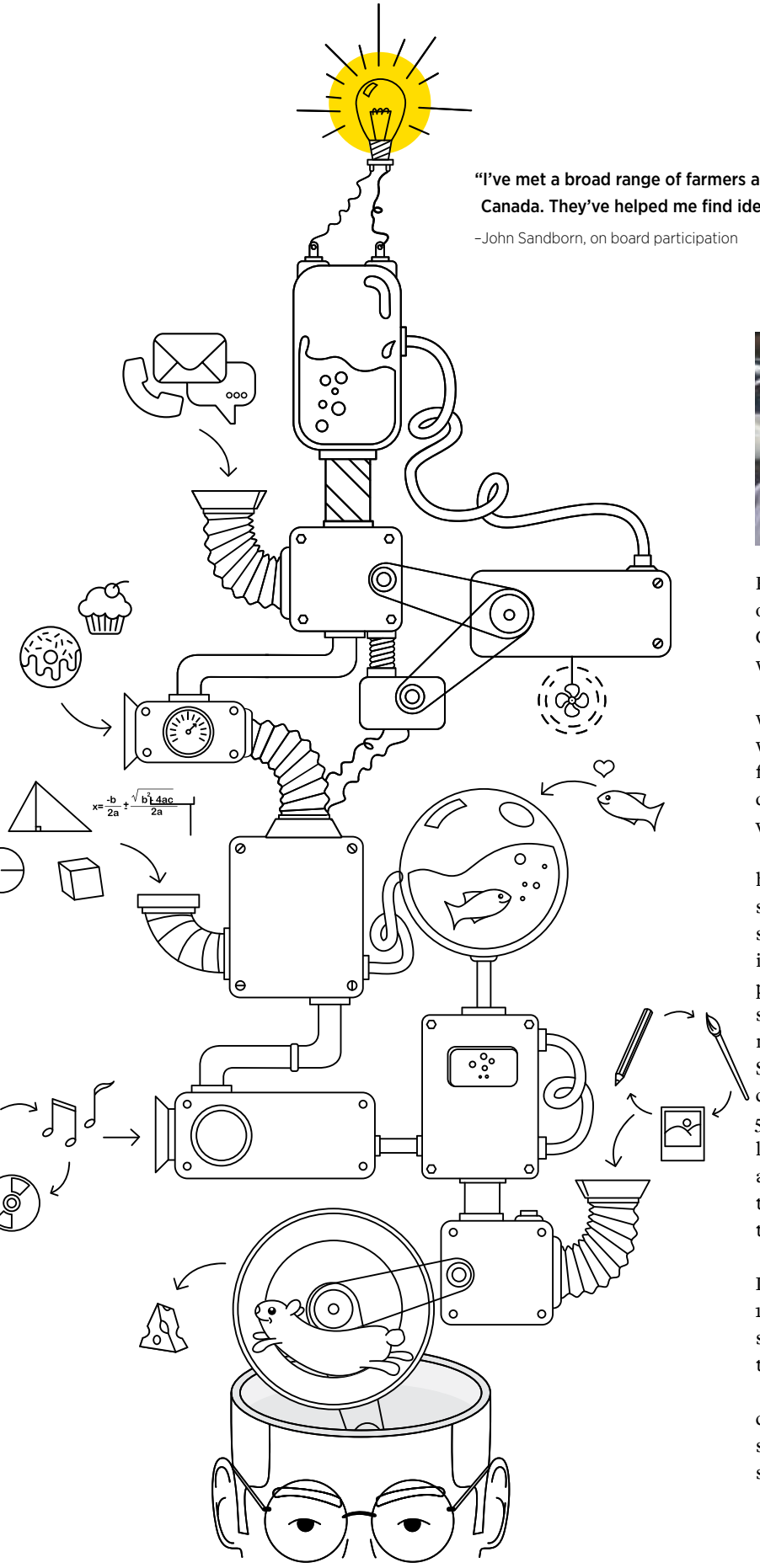
The varieties did not have the pod-shatter tolerance traits, but the experience gave Parker "more confidence in straight cutting canola." The farm now grows pod-shatter tolerant hybrids and straight combines everything. "We didn't take the swather out of the shed this year."

Around the same year, Parker also rolled all their cereal fields shortly after emergence. "We're in a very rocky area," she says, and they bought the roller to see if it might help. Rolling cereals is not normally required because they're cut high, but that fall, snow flattened the crop and they had to pick up the wheat off the ground. It was a lucky result for a bad situation, and made rolling a common practice for them. Since then, they've upgraded to an 80 footer.

As Parker shows, a lot of good ideas come from experience. But she says conversations are probably still the number one source for ideas on their farm. "We go to farm shows and read the papers," she says, "but ideas often come from meetings on the farm, with us sitting around the table and talking. Sometimes good ideas can even come from the coffeeshop." If her dad calls at a specific time of day to say "We should try this...," she knows the idea came from a coffeeshop conversation.

Talking is a skill Parker appreciates now perhaps more than she used to. "I remember going to meetings and into retailers with my parents, and saying to them, 'How long are you going to talk? You always talk so much.'" Now she realizes the immense value in using conversation to generate ideas and find the best ones.





"I've met a broad range of farmers and staff, and made friends across Western Canada. They've helped me find ideas and see what works and doesn't work."

–John Sandborn, on board participation

JOHN SANDBORN
BENITO, MANITOBA

John Sandborn has been on boards all his life. That includes Manitoba Canola Growers, Federated Co-op and Parkland Crop Diversification Foundation and many others. "I've met a broad range of farmers and staff, and made friends across Western Canada," he says. "They've helped me find ideas and see what works and doesn't work."

Through Manitoba Canola Growers, he got in contact with Justine Cornelsen, the CCC agronomy specialist, who encouraged him to take stubble samples to test them for blackleg races. "I have blackleg in some fields, and by doing these tests, I can find out what races I have and what varieties I can grow with resistance to those races."

One of his recent best ideas is a complete overhaul of his fertilizer practices. He used to put all phosphorus and some sulphur fertilizer down the seed row with his canola seed, but research showed clearly that this is not a good idea for stand establishment and seed survival. So now he puts only 10 lb./ac. of phosphate in the seed row. Ahead of seeding in the spring, he floats on urea, potash, ammonium sulphate and the balance of his phosphate. He uses SuperU urea to reduce losses from the broadcast application. This fall, he also applied anhydrous ammonia on 500 acres in warmer weather, using a treatment to reduce losses. Then, just before freeze up, he applied anhydrous ammonia on 420 acres without a treatment. He'll be able to compare results this upcoming growing season for the two treatments.

"I floated on Super U one wet fall and harrowed it in and I lost some of it. The following year, my wheat yields were 15 bu./ac. less and canola about 10 bu./ac. less," Sandborn says. "It was an idea that didn't work, so that's why I'm trying the fall anhydrous with treatment."

With his new fertilizer practices, the idea is to improve canola stand establishment, apply fertilizer outside the seeding operation to speed up seeding, and use nitrogen stabilizers to reduce losses.

LANDON FRIESEN
CRYSTAL CITY, MANITOBA

Landon Friesen gets a lot of good ideas from brainstorm sessions with his dad and brother, from conferences and from Twitter. They often look for innovative practices used in other industries and other regions and brainstorm how those ideas might work on their farm.

"We're always trying to be a little different," Friesen says.

One example is strip tillage, which is becoming more common among row croppers in the United States. As the name suggests, the farmers only work a narrow strip where the seed row will go, and leave the rest of the stubble undisturbed. "We've gone to narrower openers to move less soil, and strip tillage could represent another improvement to manage our residue better," he says. "We'd like to be able to do that with our narrow row spacing."

That's where his dad and brother come in. "They're good innovators, and could probably come up with something that works for our situation," he says.

One of their best ideas, Friesen says, is their Dash – a spray tender with a pump and chemical inductor that allows them to fill a sprayer in 4.5 minutes. "With this system, we can spray an extra 320 acres per day per sprayer," he says. They now manufacture and sell them to other farmers.

ROGER CHEVRAUX
KILLAM, ALBERTA

Roger Chevraux had his fourth challenging harvest in a row, and most of his crop went in the bin tough. But he got done October 21, which was earlier than many others in the area. The big reasons were a good idea from his machinery retailer and another from his wife.

Chevraux traded in two older combines for two new ones earlier this year. As part of the deal, the retailer suggested that Chevraux could keep one of his trade-in combines until the end of harvest. "The catch was that he had the option to sell the combine and replace it with another one, which is what happened," Chevraux says. But the idea still turned out to be a good one. They had three combines at harvest instead of two, and it helped them get the crop off in relatively good time and with decent quality.

Of course adding another combine means you need another operator. "My wife solved that problem. She put up a white board with a calendar for September and October and worked out a schedule," he says. "We needed five people per day and filled in the slots with family, regular staff and then extras we could bring in as needed."

A key to success, Chevraux says, is having a good engaged team – and you get a good engaged team by listening to their ideas and getting them involved in decision making.

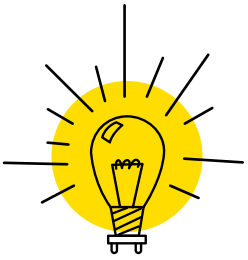
Chevraux shares another story about building their new shop.

He had a basic plan and shared it around with his family and staff. His wife suggested he add an office. A neighbour suggested a storage mezzanine. Staff wanted a bathroom and fridge and meeting room. Roger added a washer and dryer station. "In the end, we were all involved and everyone took ownership," he says. "Now our hired men will come to the shop early and on days off to use it and make it better."

Chevraux shares one more idea. The farm has grown malt barley for decades. He knows how particular the malt processors are when it comes to green seeds and sprouting, but his family and staff wondered why he was always so picky about the crop. So two years ago, after another tough harvest, he rented a bus and took his family plus the staff and their families on a Christmas party tour to Rahr Malting, a brewery and then a restaurant that serves craft beer. "Everyone couldn't believe all the things necessary for quality barley, malt and beer," he says. "Now they're all engaged and are correcting me on production practices. Plus they said it was the best party ever. I'm not sure how I'm going to top it."

"What works for one might not work for someone else. All you can do is try it."

–Anthony Eliason



ANTHONY ELIASON
OUTLOOK, SASKATCHEWAN

Anthony Eliason has one specific field set aside for trying new ideas. "It's an average field with irrigation and dryland, and small enough that we're not wasting a lot of time on it," he says. "We've used that field recently to try new canola varieties, remote-controlled pivots, soil moisture sensors and fababeans."

Fababeans are one of the better ideas. "We were tired of lentils – eating dirt at harvest and no returns – so two years ago we tried fababeans on the trial field," Eliason says. "Results are good on irrigation, and though not spectacular on dryland, it wasn't a disaster either." They grew the crop again this year.

Fababeans stand up tall for easier harvest, and return biomass and nitrogen to the soil. While the crop doesn't provide a premium compared to yellow peas, moving it hasn't been a problem, he says.

Eliason gets a lot of his good ideas from conferences, workshops and even social media. "You don't really know if ideas from Twitter are good ideas," he says. "When you mention them at the coffee shop, sometimes you find out the ideas were tried a long time ago and forgotten."

In fact, no matter where the idea comes from, you can't know for sure that it's the right thing for your farm. "What works for one might not work for someone else," Eliason says. "All you can do is try it." That's what his trial field is for.

–Jay Whetter is the editor of Canola Digest.

AGRONOMY INSIGHTS

Tips and tools from the Canola Council of Canada agronomy team

AIM FOR 75 PER CENT EMERGENCE

Why does seed survival matter? Immediate return on your seed investment is one big reason. If you spend $60 per acre on seed, the difference between 50 per cent and 75 per cent emergence could be $15 per acre or more. But that is only the beginning. Yield potential and predictability drops off with a stand below four plants per square foot, which is why the CCC suggests a target of five to eight plants per square foot. Thick, uniform stands are quicker to close canopy, are less likely to need in-season flea beetle control and are less likely to require a second in-crop herbicide application.

Common factors that decrease canola survival are environmental (too dry, too cold, too wet), abiotic (poor seed placement or seed/soil contact, excess seed-placed fertilizer), and biotic (insects and disease).

Some factors like climate are uncontrollable, so focus on the factors under your control to hit 75 per cent emergence:

Practices: Make a plan for seeding that includes setting targets for density and emergence, calibrating the seeding implement regularly, checking seed and fertilizer placement and separation often, seeding 0.5 to 1.0 inch deep into soils 5°C or warmer, seeding in optimum soil moisture conditions when possible, improving record keeping to avoid herbicide carryover issues.

Purchases: Maintain or replace worn equipment, improve residue distribution in the fall, optimize soil P levels long-term and reduce unsafe seed-placed fertilizer applications.

The final step in achieving your stand establishment goals? Assess your own fields and note areas of improvement for next year.

Strong seed survival improves seed ROI and crop profitability.

TRY NEW GENETICS EVERY YEAR

Growing more than one variety each year will improve the resilience of the farm over time. Use these approaches in combination when choosing varieties:

1. Always try new varieties with different/new traits to keep genetics moving forward on your farm. When growing only one variety on all acres in any year, a farm's canola crops have no genetic flexibility to cope with different environmental conditions or changing pest populations. And if yields are lower than expected, the farmer won't know if it's a general canola issue (all varieties) or specific to their one variety.

2. Recognize what is holding back yield on each individual field. Review scouting records, and use genetic solutions (and other management changes) to help address the problem. For example, if clubroot is holding back yield, then clubroot resistance (CR) and rotation of CR sources would be important additions to an integrated management approach. If harvest loss is the biggest issue, then maturity and harvestability traits are the priorities.

3. Look beyond yield. In fact, choose the traits you need – blackleg resistance, clubroot resistance, pod-shatter tolerance, days to maturity, lodging, etc. – and make a short list of varieties that provide those traits. Then pick from among that list based on yield potential, price and availability.

CANOLA PERFORMANCE TRIALS 2019 DATA ONLINE

A PDF report of 2019 small plot data was posted at **canolaperformancetrials.ca** in November. By now, 2019 data is likely available through the online interactive tool, available through the same website.

The 2019 Canola Performance Trials (CPT) program was funded by Alberta Canola, SaskCanola and the Manitoba Canola Growers, along with contributions from the B.C. Grain Producers Association. Haplotech coordinated the trials. The CCC supported the delivery of the program.

SCLEROTINIA 2020: PROTECT YOUR TOP-END YIELDS

Sclerotinia stem rot is not usually a major issue when yield potential is low, but the disease can be severe when conditions are right for good yields. Fifty bushel per acre canola sounds pretty good, but with good moisture and decent growing conditions in the black soil zone, canola yields can be 70 bu./ac. or more. In good growing conditions, sclerotinia stem rot left uncontrolled can be the difference between 70 and 50.

The 2019 season provided an important reminder about timing and environment as they relate to sclerotinia infection. Dry conditions right up to flowering meant many growers let their guard down. Then some areas started to get rain. Rain in the two weeks before flower can cause a dramatic increase in disease risk. This moisture also improves yield and extends the flowering period, often making a good case for late-window fungicide applications.

Steps for sclerotinia stem rot management:

1. Use the sclerotinia stem rot checklist, available at **canolawatch.org**, to determine the risk scenario for sclerotinia stem rot. This is the best tool currently available. Spore measurements (on petals or in the air) can demonstrate the risk level.

2. Use sclerotinia stem rot fungicides in high risk situations for disease development. Apply sclerotinia fungicides at the label rate, label timing, and label water volume.

3. Some other practices can have some effect on risk. Varieties with increased sclerotinia tolerance can help, but stacking with fungicide provides the most benefit. Growers can take steps to reduce the microclimate for the development of sclerotinia stem rot, but these may run counter to steps for good crop competition and yield potential. A clear positive would be to use lodging-resistant canola hybrids. If irrigation is available, reduce water at critical infection time.

Read more in the sclerotinia stem rot chapter in the Diseases section at **canolaencyclopedia.ca**.

SPORE DETECTION TOOLS FOR SCLEROTINIA MANAGEMENT

Under ideal warm and moist conditions, it takes around three weeks for the little black sclerotinia sclerotia in the soil to germinate, produce the mushroom-like apothecia and release ascospores. The big question in 2019 was whether the spores were actually present at the time when farmers would normally spray? New tools make spore detection a lot easier. Quantum Genetics and Discovery Seed Labs have new DNA-based petal tests that can provide an answer fairly quickly. The Spornado, which is available through 20/20 Seed Labs, captures spores carried by the wind. Growers and agronomists who want to try Spornado or one of the new DNA petal tests in 2020 can contact the companies over the winter to find out more. For a good discussion with sclerotinia stem rot experts, listen to the 'sclerotinia' podcast with Kelly Turkington and Luis Del Rio recorded at canolaPALOOZA 2019. Go to **canolawatch.org** and click the 'podcasts' link under the Tools & Resources tab at the top.

CCC agronomy specialist Shawn Senko took these images from his canola field in 2019. He didn't spray fungicide to protect the crop from sclerotinia stem rot, but after it started to rain during flowering, he second guessed himself all year. In the end, disease was low and yield loss was minimal. The key agronomy message is this: Base the spray decision on the moisture situation before and during flowering. If conditions are right for disease and yield outlook is decent (average or even slightly below average is probably enough), then fungicide can provide a return on investment. Given canola's ability to respond in a big way to improved growing conditions, a dry start to the season may be irrelevant to the risk scenario.

Photos: Shawn Senko

SPEAKING ENGAGEMENTS

CCC agronomy specialists will be presenting at various events this month:

- **Agronomy Update**, Red Deer, Alberta, January 7-8 – Keith Gabert on canola diseases in 2019
- **Irrigated Crops Conference**, Lethbridge, Alberta, January 14-15 – Justine Cornelsen on blackleg
- **Ag Days**, Brandon, Manitoba, January 21-23 – Angela Brackenreed on canola storage; Warren Ward and Angela Brackenreed on fertility; Justine Cornelsen and Dan Orchard on clubroot
- **FarmTech**, Edmonton, Alberta, January 28-30 – Angela Brackenreed on canola storage; Justine Cornelsen on blackleg

Study shows the value of quantitative blackleg resistance

New AAFC research results posted on the Canola Research Hub shows that quantitative (minor gene) resistance to blackleg can work to reduce disease severity even when the major resistance gene is no longer effective.

BY TARYN DICKSON

Blackleg is a complex disease that impacts canola farmers across Western Canada. Not only is the incidence (number of plants that have it) important, but also the severity (which can be rated on a scale of 0-5). The new two-part blackleg labels reveal that there are two kinds of resistance: major gene (qualitative) and minor gene (quantitative) resistance. Gary Peng, a research scientist with Agriculture and Agri-Food Canada in Saskatoon, studies both of these in a recently completed project, 'Understanding the mechanisms for race-specific and non-specific resistance for effective use of cultivar resistance against blackleg of canola in Western Canada.'

Results from this project are now featured on both the Canola Research Hub at **canolaresearch.ca** and in the 2019 Canola Digest: Science Edition at **canoladigest.ca**.

KEY RESULT:

Quantitative (minor gene) resistance to blackleg can work to reduce disease severity even when the major resistance gene (qualitative resistance) is no longer effective. The mechanism for quantitative resistance, at least in the one variety tested, is possibly through programmed cell death and reactive oxygen species to cut off the growth of *Leptosphaeria maculans*, the blackleg disease-causing fungus.

A summary of three important findings, includes:

1. Quantitative resistance is valuable in alleviating blackleg impact on canola without the direct involvement of major *R* genes. Quantitative resistance limits the spread of fungal hyphae in infected cotyledons further into stems (reducing the blackleg incidence) and/or the infection in stem tissues after the pathogen enters it (reducing the disease severity).

2. These resistance mechanisms are different from the single major R gene studied (*Rlm1*), which induced localized reactions in response to blackleg infection (by *L. maculans* carrying *AvrLm1*) that halt the infection immediately. This is the first time that molecular mechanism with a specific blackleg resistance gene (*Rlm1*) has been identified!

3. Common canola cultivars with quantitative resistance can perform effectively under high-temperature conditions during heatwaves, which show that quantitative resistance traits can be stable under a wide range of field temperatures.

Funding support for this Peng study came from Alberta Canola, Manitoba Canola Growers, SaskCanola, and Agriculture and Agri-Food Canada through the Canola Agronomic Research Program and the AgriScience Project.

A key blackleg management strategy is to scout for the disease, which includes snipping canola stems and checking them for symptoms.

Want to use the Hub to learn more about blackleg? Just select the IPM icon and type in 'blackleg' into the keyword search, before clicking on the 'Go' button and you will find many other interesting projects – both completed and ongoing – many of which have been funded in part by Alberta Canola, SaskCanola or Manitoba Canola Growers and/or administered by the Canola Council of Canada. Happy learning!

*To search the Hub at **canolaresearch.ca**, click the theme, enter the keyword and click "Go."*

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Tips to reduce harvest stress

Don't want to relive harvest 2019? Farmers can take various management steps to reduce financial and market risk no matter what storms are howling outside their bedroom window.

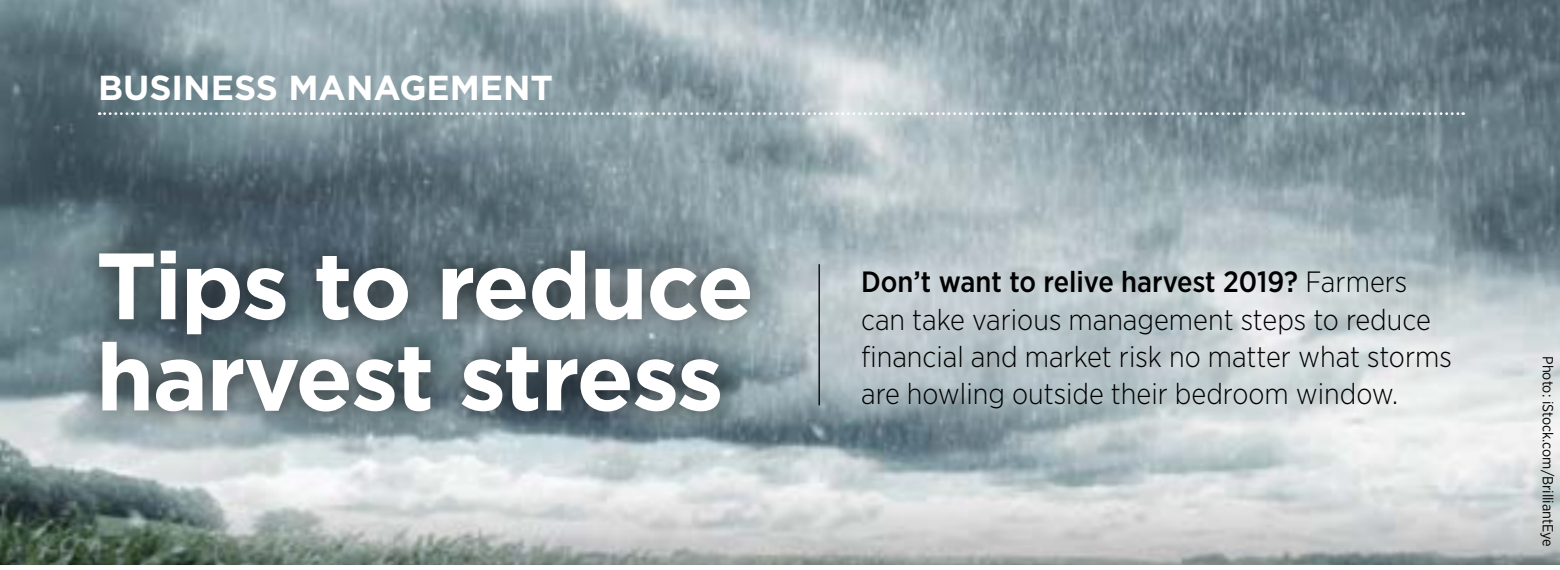


Photo: iStock.com/BrilliantEye

BY DENISE FILIPCHUCK

"No more harvest stress" is not entirely possible, but farmers can take various management steps to protect their business from major risks like weather, that could wipe out an entire harvest, or trade, that can make it difficult to sell the harvested crop in the time frame you would like. Financial and market risk are a couple of the most important areas to be mindful of and develop strategies to mitigate. The following are tips and best practices for you to use to reduce risk on your farm to a level where you can sleep at night no matter the weather or trade situation.

Start with a financial assessment. A farm financial assessment that is thorough, detailed and based on accurate and timely data provides the information required to identify financial risks. Having a farm market value net worth statement and personal net worth statement that is updated annually is key to knowing where things are at. Ensuring financial statements, corporate and personal income tax and day to day record keeping is current, and available for management decision making and creditor requirements, will reduce the risk of making uninformed decisions or credit decisions that don't meet your needs.

Use accrual adjusted income to evaluate profitability. Cash basis income often lags accrual by two to three years in terms of recognizing both downturns and upturns in profitability and that's often too late to respond.

Assess working capital and cash flow. A quick way to take a pulse check and a get an indication about the working capital and cash flow situation is by calculating your sources and uses of cash. Analyzing your short-term commitments and measuring that against your options to service those commitments will help you identify areas of strength, as well as areas that may need to be amended.

To be in a financially healthy working capital position, the farm should have at least 50 per cent of the projected operating expenses covered by your own working capital at the beginning of the productive season. Having a strong working capital position allows greater flexibility with commodity marketing, improves the ability to meet cash flow commitments on time and reduces interest costs and risk.

Knowing your monthly cash flow situation at least 12 to 18 months in advance provides you with the information you need to deal with timing issues well in advance of them occurring. It also allows you to align new or existing loan payments and create a marketing plan that aligns with your commitments.

Include accurate living expenses. Living expenses are often unknown or underestimated and can be a significant draw on the farm's residual. Knowing what these are and how they affect your bottom line is key to managing cash flow.

Keep your eye on margins and financial indicators such as operating expense ratio or gross margins, as they are more important than absolute commodity and input price levels.

Set a budget for capital expenses. If accompanied by large loan payments, debt service commitments can become overwhelming, constraining cash flow and eroding working capital over time. It's easy to get to a situation where your equipment investment is more robust than necessary and this does impact your bottom line and returns to management. Having a capital budget plan in place that is updated and reviewed annually (at a minimum) will help reduce the risk of impulse purchases, keep you on track with your farm goals and vision, and keep your equipment investment in line with your operational needs.

Know your cost of production. This is key to being able to identify opportunities to make appropriate changes, reduce costs and improve profit margins. Create a cost of production calculation for each commodity you grow as well as the field or soil type where you grow it.

...CONTINUED ON PAGE 34

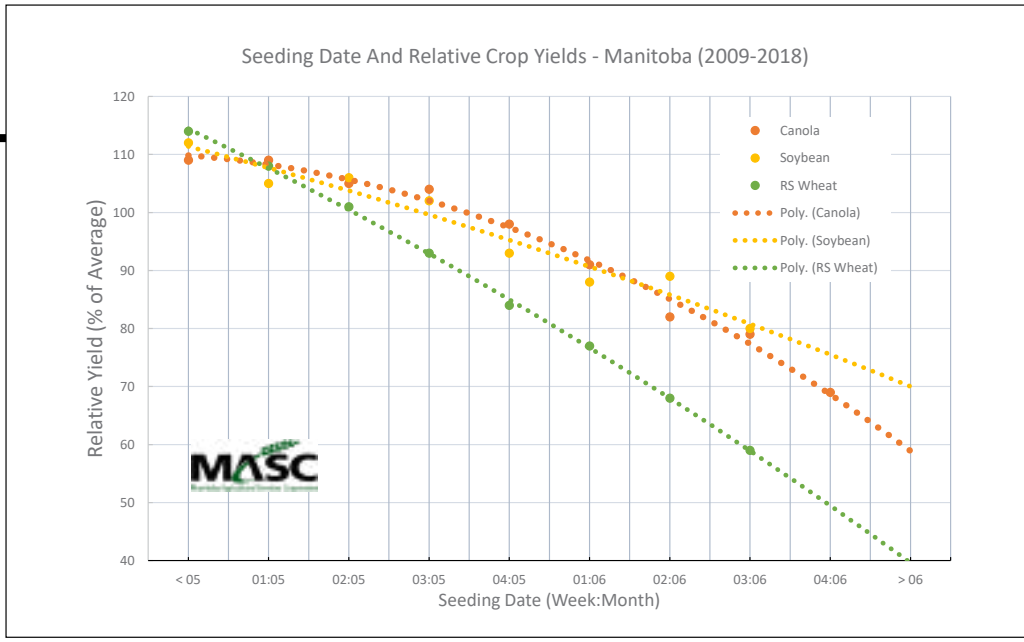
Base the farm's marketing plan on 'acceptable,' 'favourable' and 'survival' price targets and design the plan to meet your cash flow needs. This will keep you on track and reduce the risk of making emotional decisions based on price or timing.

Stretched too thin?
Read the archived article, "Stretched too thin? Practice saying 'no'" at **canoladigest.ca**. It includes 10 tips to find balance and has contacts for the provincial stress hotlines.

Provincial crop insurance providers have a lot of data and they're sharing more of it online to help farmers with variety and cropping choices in their respective risk areas.

CROP INSURANCE DATA CAN ENHANCE DECISION-MAKING

BY RICHARD KAMCHEN



This graph, based on Manitoba crop insurance data, shows the relationship between seeding date and yield for canola, soybeans and ...red spring (RS) wheat in Manitoba over the past 10 years.

Prairie farmers have a wealth of data they can access to provide production tips for their farms, and provincial crop insurance departments are adding to that available knowledge.

SASKATCHEWAN CROP INSURANCE CORPORATION

Canola growers in Canada's largest crop-producing province can tap into valuable information provided through Saskatchewan Crop Insurance Corporation's (SCIC) Saskatchewan Management Plus (SMP) online data tool at **scic.ca/resources/smp/**.

Submitted by producers, the SMP data give farmers actual crop production information to help them make more informed risk management choices for their operations.

"SCIC uses the data we collect to help design, modify and enhance the programs that we offer," says SCIC president and CEO Shawn Jaques. But the interactive online tool, the first of its kind, allows producers to view results for up to five previous years at a single glance, with users able to customize the data they seek and view it in graph or chart forms.

Information available includes acres by variety, acres by risk zone, acres by RM and risk zone, average yield by crop and average yield by risk zone.

SCIC has nearly 19,000 contract holders and insures 30 million acres. Information is collected on every acre insured, Jaques says.

"Producers can look at what's happening in their area or risk zone and how varieties compare, and it might help them make a choice," he says. "It's local information, it's based on data that's provided by our producers, so it should be relevant to individual producers."

MANITOBA AGRICULTURAL SERVICES CORPORATION

Farmers in the Keystone province can complement their research sources by using regional variety information provided by the Manitoba Management Plus Program (MMPP). Find it online at **masc.mb.ca** under the "Other Programs" tab.

Doug Wilcox, Manitoba Agricultural Services Corporation's (MASC) manager of product knowledge and support, says the online resource offers local, real on-farm variety yield averages for various crops in different municipalities. The information can assist producers in choosing varieties that perform best in their areas.

Wilcox says the most successful producers use benchmarking. For canola, benchmarking can include comparing the annual performance of the crop against that of your neighbours to identify opportunities for improvement.

"Benchmarking against inflated coffeeshop talk doesn't cut it," he says. "The regional averages on the MMPP website provide unbiased annual regional average crop yields.

...CONTINUED ON PAGE 34

Create a marketing plan. Base the plan on 'acceptable,' 'favourable' and 'survival' price targets and design the plan to meet your cash flow needs. This will keep you on track and reduce the risk of making emotional decisions based on price or timing. Use your monthly cash flow and the cost of production calculations to design a marketing plan that is specific to your timing commitments and profitability goals.

Pay attention to the credit portfolio. This will improve profitability, overall financial health, and relationships with creditors while reducing risk. Use the right revolving credit options for maximum flexibility and minimum cost, while being mindful of the term debt portfolio details, future debt service relief and leverage positions. Knowing what your credit situation is and what your options are will help you make informed decisions and reduce financial risk.

Take care of your credit score and check your credit bureau report regularly to protect yourself against any potential fraudulent activity or errors in reporting. If you find an error, contact the appropriate credit bureau as soon as possible.

Keep relationships strong with your creditors by establishing and maintaining clear and consistent communication. If you expect a change in your financial situation, due to poor crops, delayed harvest, delayed delivery, a change in your seeded acres, etc., talk to your primary creditors about it early so they can help you set up the best credit solution for your situation.

Use insurance and government safety nets. Insurance and government programs are an excellent way to reduce financial and market risk. Crop insurance, hail insurance, revenue insurance, production cost insurance, AgriInvest and AgriStability are all options available to help you manage the risk of crop failure, rising costs, reduced commodity prices, marketing issues and other financial shortfalls. Know what situations are covered and to what extent so you can relieve some harvest weather stress.

"Crop insurance, hail insurance, revenue insurance, production cost insurance, AgriInvest and AgriStability are all options available to help you manage the risk of crop failure, rising costs, reduced commodity prices, marketing issues and other financial shortfalls."

—Denise Filipchuck

With farming comes significant and diverse risks that can and do have a negative impact on farm profits, and identifying an area of concern is the first step in working towards a solution. Although there are many similarities, every farm situation is unique and a strategy that considers the goals and vision of the farm will yield the best results and solution for your business. Many financial and market risks can be managed and mitigated with a strategy that is clear, attainable, includes an action plan and is reviewed and updated annually. Taking a pro-active approach will help you navigate your business with confidence and peace of mind while reducing stress for you and your family.

–Denise Filipchuck is a Farm Management Consultant, a Certified Financial Planner (CFP), a Certified Agriculture Farm Advisor (CAFA), and a Farm Debt Mediation Service Financial Expert. She helps farmers become more successful in their businesses, relationships and lives. Find out more at ***filipchuckmanagement.com****.*

Effective use of fertilizer and crop rotation can have a dramatic positive influence on crop yield, and MMPP provides both unbiased regional average fertilizer information and average Manitoba rotation responses.

SCIC's interactive online tool at **scic.ca/resources/smp/** allows producers to view provincial and risk zone results for up to five previous years at a single glance.

Find the Manitoba Management Plus Program (MMPP) online tool at **masc.mb.ca** under the "Other Programs" tab.

The latter can be used to help with crop choice planning, whether it's deciding how to sequence your tried-and-true crops or selecting new crops to plug into your canola crop rotation cycle, Wilcox says.

Seeding date yield response data is also available. "A wet spring can lead to delayed planting of canola and potentially difficult decisions on which crop to plant next when you finally get a chance to plant," he says. "The MMPP website provides real life average Manitoba crop yield response to delayed planting, which can help with making the most appropriate decision regarding the best sequence of spring planting."

Wilcox adds that by increasing the availability of on-farm crop information to producers, MASC has added value to the program data it needs to collect from producers for operational and research purposes.

ALBERTA'S AGRICULTURE FINANCIAL SERVICES CORPORATION

Agriculture Financial Services Corporation (AFSC) concentrates its data sharing efforts on the Yield Alberta publication, which is available in print or at **afsc.ca** in PDF format.

AFSC pricing supervisor Jesse Cole says sharing more data online is "where we want to go ... but it's going to take a few years to get it all sorted out."

Cole speculates about the potential – in a year or year-and-a-half – for offering an interface or link that would allow farmers to share the data they enter into private software systems. That's also an area that SCIC and MASC are considering.

"There may even be room down the road to provide useful data back to our clients through those mechanisms, if they want that," he says.

Cole thinks this type of public-private interface might be the easiest route to take in light of any privacy concerns, not to mention a tightening provincial budget. It also empowers those companies to determine the value of the service to their farm clients.

"Ultimately, the goal is to provide useful information that respects privacy, so guidance from AFSC clients and the industry will be crucial to determine what we should be doing with the data," Cole says.

–Richard Kamchen is an agriculture freelance writer based in Winnipeg.

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School fundraiser promotes vegetables, canola oil

The Canola Eat Well program, supported by canola farmer organizations in Manitoba, Saskatchewan and Alberta, partners in a successful school fundraiser that sells vegetables and provides a recipe booklet showing how to prepare the vegetables using canola oil.

BY ELLEN PRUDEN

You may have seen the Farm to School vegetable fundraiser in various rural and urban centres across the Prairies this past fall. This is not your typical fundraiser. The unique initiative is a partnership between Peak of the Market, the Manitoba Association of Home Economists and the Manitoba Government. People can purchase a small or large bag of mixed vegetables, or purchase a bag to donate to their local food bank. The bag includes potatoes, carrots, onions, cabbage, parsnips and of course a *How To Eat More Meals Together* recipe booklet. The highly successful fundraiser leaves 50 per cent of total gross sales with the fundraising school or daycare.

"I was coordinator for the fundraising campaign at my child's school and what I heard consistently from parents were two things – they did not know what to do with all the vegetables, and they didn't know what some of the vegetables were. Parsnips are not as familiar as you might think," says Jennifer Dyck, Canola Eat Well manager.

"I was not surprised that consumers were not sure what to do with the raw whole vegetables," says Dyck, a professional home economist (PHEc). "A plan came together about how Canola Eat Well could partner with Farm to School to develop a resource to inspire consumers to cook and bake with vegetables using canola oil. The booklet encourages Canadians to eat more vegetables and use a quality product like canola oil in their kitchens."

Each year a brand-new booklet is created. For the past five years of the initiative, over 350,000 copies have been distributed through the Farm to School program as well as the Calgary Stampede, doctor's offices in Toronto and many other avenues. It is leveraged to a broader targeted audience by working with high profile food communicators and registered dietitians Erin MacGregor, PHEc, and Dara Gurau, who developed the booklet's recipes. See MacGregor and Gurau talk about the booklet in a Facebook video at **facebook.com/howtoeatblog**. The booklet, which consistently wins Canadian Agri Marketing Association (CAMA) awards, is a key resource in the marketing and communication toolkit for Canola Eat Well.

The Canola Eat Well joint effort is part of the provincial canola organizations' mandates to actively facilitate market development initiatives in Canada. Across the Prairies, market development programming is about maintenance and awareness while a targeted market development program in Ontario is about increasing awareness and demand among consumers in that growth market.

The Farm to School initiative provides a healthy choice in fundraising. Imagine a semi-truck full of fresh Canadian grown vegetables delivered directly to your school or licensed daycare located in Manitoba, Saskatchewan, Alberta or NW Ontario. We understand that profitability is important to fundraisers, and Farm to School offers 50 per cent of total sales back to schools and daycare centres. Learn more about this fundraising opportunity at **farmtoschool.ca**.

–Ellen Pruden is the Canola Eat Well director for Manitoba Canola Growers. Canola Eat Well, a partnership of provincial canola organizations, does canola oil market development for consumers in Canada. Find out more at ***canolaeatwell.com****.*

High profile food communicators and registered dietitians Erin MacGregor (right) and Dara Gurau developed the booklet's recipes.
Photo credit: Josh Tenn-Yuk

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