ALBERTA CANOLA
SaskCanola
Manitoba Canola Growers
canolacouncil OF CANADA

March 2020

canola DIGEST

The Source for Canada's **Canola Growers**

MY ROTATION

The six farmers in our panel describe their rotations, and explain why they grow certain crops and not others.

INSIDE:


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Alberta Canola introduces its board for 2020, including chair John Guelly of Westlock and vice chair Kevin Serfas of Turin. Alberta canola growers can get a research tax credit of 23.69 per cent on their check-off levy. Mark your calendar for canolaPALOOZA July 8 in Lacombe.

8 SaskCanola

The latest Saskatchewan clubroot map is based on over 3,000 field surveys and includes eight new fields identified in 2019. SaskCanola partnered with Saskatchewan Ministry of Agriculture and Saskatchewan Association of Rural Municipalities on the map project. Mark your calendar for CanolaPalooza July 14 at Saskatoon.

10 Manitoba Canola Growers

Manitoba Canola Growers presents its 2020 Canola Award of Excellence to Don Flaten, professor in the Department of Soil Science at the University of Manitoba. Students can apply for scholarships from Manitoba Canola Growers. Register for the Seeding & Spraying College, March 25 in Brandon.

CALENDAR

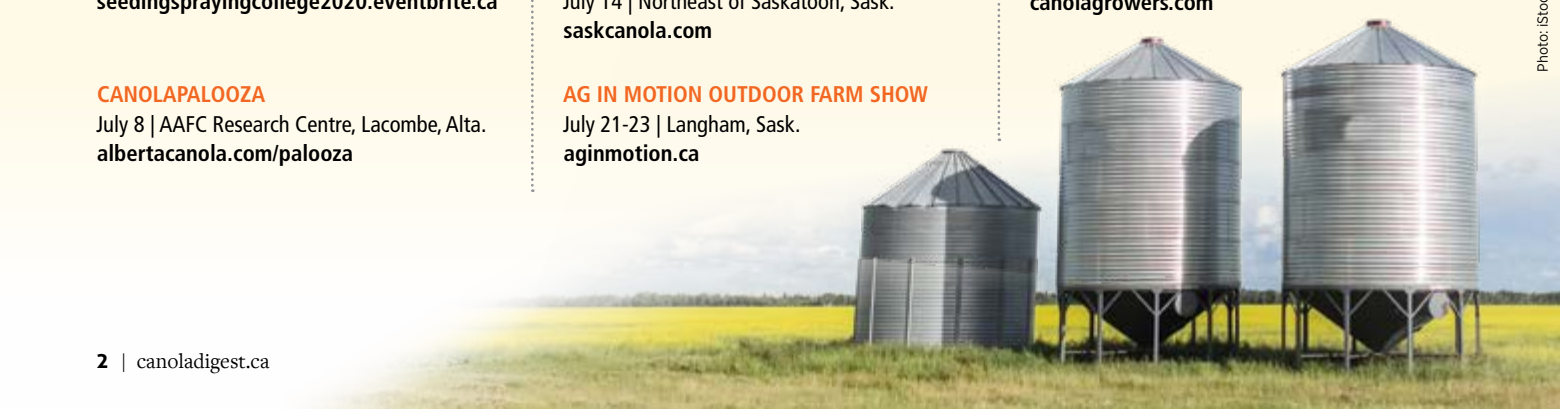
SEEDING & SPRAYING COLLEGE
March 25 | Keystone Centre, Brandon, Man.
seedingsprayingcollege2020.eventbrite.ca

CANOLAPALOOZA
July 8 | AAFC Research Centre, Lacombe, Alta.
albertacanola.com/palooza

CANOLAPALOOZA – WITH TOP NOTCH TOUR & TOP NOTCH DIAGNOSTICS
July 14 | Northeast of Saskatoon, Sask.
saskcanola.com

AG IN MOTION OUTDOOR FARM SHOW
July 21-23 | Langham, Sask.
aginmotion.ca

CROPS-A-PALOOZA
July 28 | Carberry, Man.
canolagrowers.com



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Square pegs

I am in my chair looking at the table in our living room when what did I notice? Square pegs in round holes! We all know that a 'square peg in a round hole' is a person who doesn't fit into a role or social expectation. A misfit. Yet, here is a table with square pegs in all its round holes, as though square pegs were the right choice. And of course, they were. Square pegs in round holes grip better and make for better connections. So, do we have square pegs all wrong?

On January 16, I tweeted this through my @CanolaWatch handle: "I just had coffee with a friend who is a pilot. We talked about the disconnect between modern ag and everyone else. 'You know what farmers need?,' he says. 'A presence on social media.' ... Hmm. Clearly a disconnect. How does #cdnag expand the conversation?"

Farmers and people involved in agriculture, people like me, are active on social media but perhaps we don't venture much beyond our ag circles. My tweet inspired a Twitter-at-its-best thread, including this farmer tweet: "I do think we can occasionally participate in outreach. Take time to answer people's questions if you can. Post and tag appropriate people. Farmers and ranchers have a great deal of credibility. Flex it once in a while."

Then came this tweet, which inspired my thoughts on square pegs: "I'm not enough of a people person to do a good job at that, so I generally leave it for the ones who are."

Does that person, who is present on Twitter, have a role in extending the reach of agriculture on social media even if he or she is "not enough of a people person"? Certainly. The challenge is to recognize individual strengths and contribute based those strengths. Rather than whittle square pegs round, find a fit for your squarepeggishness.

I read an article on leadership by organizational psychologist Tomas Chamorro-Premuzic, posted January 9 at **ideas.ted.com**. It had some comments that should give comfort to introverts who might think they're excluded from leadership based on their nature. Chamorro-Premuzic writes, "We appear to want leaders who are charming and entertaining, but as most of us know, there is a big difference between an effective leader and being a stand-up comedian. In fact, the best leaders are humble rather than charismatic, to the point of being boring."

He gives the example of Angela Merkel, Chancellor of Germany. "She wakes up, has breakfast with her husband, goes to meetings well-prepared, lets other people talk without interrupting them, makes rational decisions, and there are no scandals about her."

Chamorro-Premuzic says we love "charismatic individuals" and have an "inability to distinguish between confidence and competence", which is interesting, though perhaps a hair off topic for this column. But one thing I took from the article is to rethink what being a leader can mean, and to value the real talents that individuals bring to a team; don't try to force them into doing things that feel unnatural or are outside their skillset. Which brings me back to the "people person" tweet.

That's when Ellen Pruden, Canola Eat Well director for Manitoba Canola Growers, jumped in with my favourite tweet of the whole thread: "Be authentic to you and do what you do best," she wrote, and closed with a good tip for those who don't love the limelight but still want to help: "Support your fellow farmers who love engaging and do it well."

If you feel like the square peg in social media, take Ellen's advice and just share, like, retweet those positive posts you think the greater community on Twitter, Facebook and Instagram should hear. Be natural. Do what feels right for you. Pegs of all shapes have a place in sharing messages about agriculture and reminding the average consumer that we in agriculture have the same desires as they do for a clean environment, good food and healthy families.

As I learned from my friend, maybe the farm community could do more to connect with consumers in social media. And as I learned from my coffee table, it's time to change how we think about square pegs in round holes. Square pegs can help us make better connections.

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Alberta Canola board of directors

Alberta Canola's 30th Annual General Meeting was held January 28 during the FarmTech Conference in Edmonton. Following the meeting, John Guelly of Westlock was re-elected as chair, and Kevin Serfas of Turin was re-elected vice-chair.

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ALBERTA CANOLA

Tax Credit for the 2019 Tax Year Open to Canola Farmers in Alberta

Canola growers in Alberta that do not request a refund of their check-off from the Alberta Canola Producers Commission qualify for a tax credit for the 2019 tax year.

The Scientific Research and Experimental Development (SR&ED) tax credit allows canola growers to claim the tax credit for that portion of the check-off paid that was used to fund qualifying research.

"The tax credit is an additional benefit for growers who pay check-off on crops like canola," says John Mayko a farmer from Mundare, Alberta and the Chair of Alberta Canola's research committee. "Farmers are funding research into finding solutions to agronomic issues like clubroot, while being able to capture some of that investment back at tax time."

The tax credit rate for canola producers in Alberta for 2019 is 23.69 per cent. For example, if an individual grower paid $1000.00 in check-off to Alberta Canola in 2019, $236.90 is the eligible amount to be earned as the tax credit.

The tax credit can:

- offset federal taxes owing in the current year,
- be received as a tax refund,
- be carried forward up to 10 years to offset federal taxes owing, or
- be carried back 3 years to reduce federal taxes paid in those years.

Individual producers must file a T2038 (IND). Farm corporations must file form T2SCH31.

Credit: iStock.com/Floortje

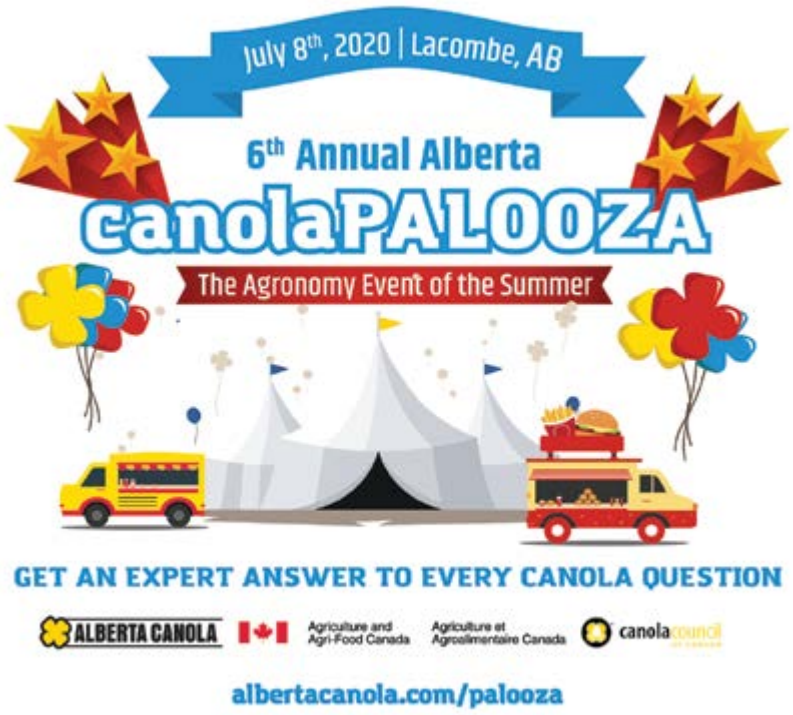
For more information, contact the Canada Revenue Agency or your accountant. **albertacanola.com/sred**

canolaPALOOZA 2020

The 6th annual canolaPALOOZA returns to the Lacombe Research & Development Centre on Wednesday, July 8.

canolaPALOOZA is hosted by Alberta Canola, the Canola Council of Canada and Agriculture & Agri-Food Canada.

There really is nothing like canolaPALOOZA. With over 100 experts spread across more than 25 learning stations... there really is an expert answer for every canola question. The event is free to attend, and you set your own schedule as you visit the learning stations of your choice – and all at your own pace.



For details visit **albertacanola.com/palooza**

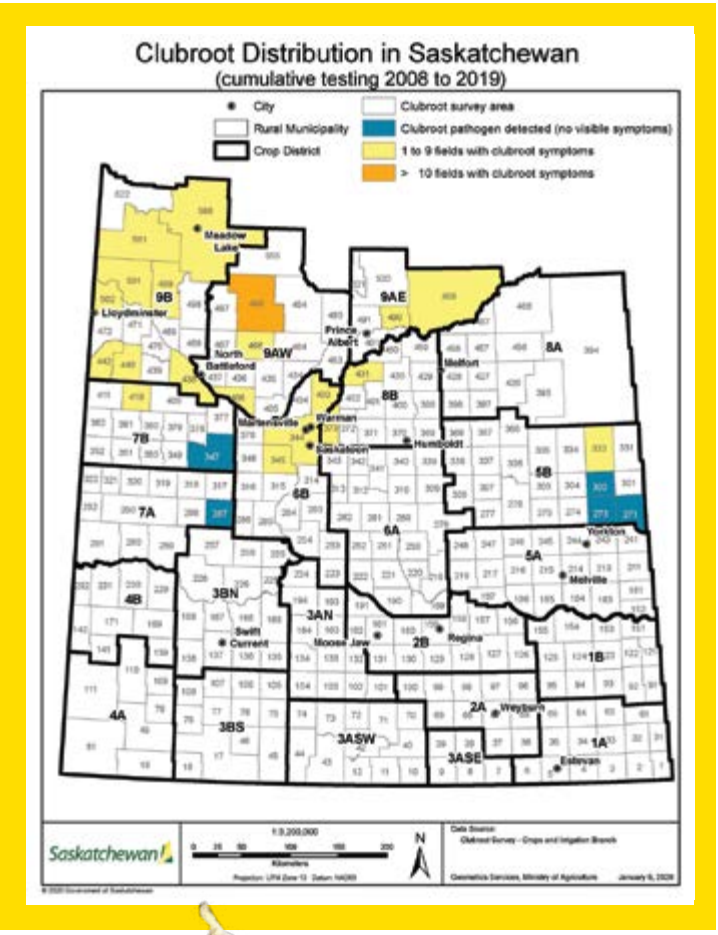
Saskatchewan clubroot distribution map

In early January, the Saskatchewan Ministry of Agriculture and SaskCanola released an updated version of the Saskatchewan Clubroot Distribution Map, which includes the results from the 2019 provincial clubroot survey and any rural municipalities with confirmed cases of clubroot reported outside the survey.

In Saskatchewan, clubroot is a declared pest and it has been regulated since 2008 under *The Pest Control Act*. Clubroot is a soil-borne disease affecting canola and other related crops and weeds. It causes yield loss, is very difficult to manage, and once the spores are present in the field it can spread quickly in the presence of host crops. Limiting the spread of soil from field to field and responsible management of clubroot resistant varieties within a three-year crop rotation are the best ways to prevent the introduction of clubroot into a field.

Since 2017, visible symptoms of clubroot have been confirmed in 51 commercial canola fields. In 2019, eight fields were identified with visible symptoms and the clubroot pathogen was detected in an additional five fields where there were no plant symptoms. All the results were compiled via Ministry surveys and through reports and samples submitted to the Ministry and SaskCanola by farmers and agrologists.

SaskCanola has partnered with the Saskatchewan Ministry of Agriculture and Saskatchewan Association of Rural Municipalities on an extensive sampling program for the past two years. In 2018 and 2019, well over 3,000 fields have been surveyed for the presence of clubroot. The industry and government also rely heavily on the voluntary reporting of farmers and agrologists.



Early confirmation of the disease is critical to managing it most effectively.

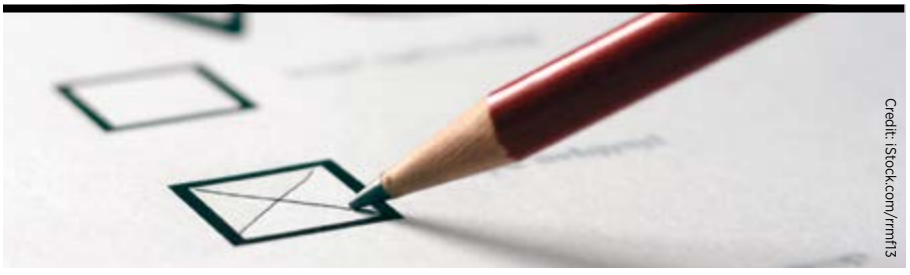
As a canola industry, we are dedicated to a farmer-driven approach to managing this disease and by working together we can reduce the impact it will have on Saskatchewan canola farmers.

Credit: Dan Orchard

Partnerships are the key to success

SaskCanola and the Saskatchewan Ministry of Agriculture have been working together for over a decade to raise farmer awareness and contain the spread of clubroot. The more we know about clubroot and how it moves, the better opportunity growers have to minimize the financial impact on their farms.

For many years, clubroot was surveyed as part of the general disease survey in Saskatchewan, with limited samples collected. The canola industry was interested in expanding the survey and committed financial investment to this effort. Under the Canadian Agriculture Partnership, the Government of Saskatchewan and Saskatchewan Association of Rural Municipalities initiated the Plant Health Network, which included the addition of six plant health officers (PHOs) to work collaboratively with the rural municipalities to help with the management of all declared pests. The PHOs are critical to the success of the clubroot survey by collecting samples from across the province. In two years, with the partnership between SaskCanola, SARM, and the Ministry of Agriculture, over 3,000 soil samples have been tested and significantly increased farmer awareness of this potentially devastating disease.



Credit: iStock.com/rmnfi3

SaskCanola Board Election this Fall

SaskCanola will hold a board election this fall for four director positions. Director responsibilities include five SaskCanola board meetings plus participation on various committees and appointments to external boards. The goal of our farmer-led board is to ensure Saskatchewan canola growers interests are always represented by SaskCanola and the canola industry.

If you are considering letting your name stand for election but have questions about the process or commitment, our nominations committee would be pleased to hear from you:

LANE STOCKBRUGGER
(306) 533-5467

KATELYN DUNCAN
(306) 541-3626

CHARLENE BRADLEY
(306) 377-2021

BERNIE MCCLEAN
(306) 342-7597

Save the Date

CANOLA FIELD DAY

JULY 14

Plan to attend our 4th annual CanolaPalooza field day this summer, now with a choice of Top Notch Farming Tour (self-guided as in prior years) and the newly added Top Notch Farming Diagnostics to provide more directed learning, diagnostic tips, and CCA credits.

Visit the 'News & Events' section at **saskcanola.com** for more information. Updates will be posted later this spring.

AG IN MOTION OUTDOOR FARM SHOW, BOOTH #646

JULY 21-23

Stop by our booth while touring Ag in Motion this summer to see our plots demonstrating a three-year crop rotation, learn about clubroot findings in Saskatchewan to date and sign up for the provincial clubroot survey to test a field on your farm ($100 value).

REMINDER:
FOLLOW SASKCANOLA ON SOCIAL MEDIA

Follow **@SaskCanola** on Facebook and Twitter for relevant agronomy updates throughout the upcoming growing season.

Soil science prof recognized with 2020 Canola Award of Excellence

U of M professor Don Flaten received the Manitoba Canola Growers 2020 Canola Award of Excellence. "I'm very grateful to receive the Canola Award of Excellence," says Flaten. "The award indicates that I might have helped the canola industry, and that's the purpose of my job."

Each year the Manitoba Canola Growers recognize an individual who has made a contribution to the growth of the canola industry with the Canola Award of Excellence. Don Flaten, professor in the Department of Soil Science at the University of Manitoba, was recognized with the 2020 Canola Award of Excellence at the CropConnect Banquet in Winnipeg in February.

Throughout his career, Flaten has taught soil fertility courses educating a large number of both diploma and degree agriculture graduates. His soil fertility and crop nutrition management research has spanned a number of crops, working collaboratively with others. For example, in canola specifically Flaten and collaborators have looked at canola fertilization with novel fertilizers and combined fertilizers looking at toxicity risks and the crop response.

"Don is a brilliant, talented and enthusiastic researcher and educator," says Cynthia Grant, recipient of the 2019 Canola Award of Excellence. "I have always admired not just his scientific contributions, but also his dedication in supporting his students and colleagues. Don is one of the kindest and most unselfish people I have ever met. It has been a privilege and a pleasure working with him through the years."

In addition to research and teaching, another important aspect of Flaten's job is the extension work he is involved in. This includes working on events like the Manitoba Agronomists Conference, speaking at Manitoba Ag Days and Soil Fertility meetings, and delivering the annual soil fertility refresher course to former students.

"I'm very grateful to receive the Canola Award of Excellence," says Flaten. "The award indicates that I might have helped the canola industry, and that's the purpose of my job. It's to help others whether its students or members of the industry through teaching, research or extension. My goals is to help others and if this help has been recognized as a positive thing than I'm delighted."

Flaten earned his B.Sc. (Ag.) at the University of Saskatchewan and his Ph.D. at the University of Manitoba and began his career as a district agriculturist for Alberta Agriculture. Next, he became the provincial soil specialist for the Saskatchewan Ministry of Agriculture before joining the University of Manitoba faculty.

Flaten grew up wintering in Saskatoon and summering on the farm near Weyburn, Saskatchewan. He is now full time teaching in the research department of soil science at the University of Manitoba and will retire later this year.

Manitoba Canola Growers would like to thank Dr. Don Flaten for his contributions to the sustained growth and prosperity of Manitoba's canola industry.

STAY CONNECTED.
Sign up for our Canola Crush Newsletter today! **Visit www.CanolaGrowers.com**

Manitoba Canola Growers

Graduating from High School?

APPLY FOR THE Manitoba Canola Growers Scholarship!

If you're a Manitoba high school student graduating in 2020, then you may qualify to earn a $1000 post-secondary scholarship from Manitoba Canola Growers.

To be eligible, you must:

- **Be from a farm that is a member of the Manitoba Canola Growers Association.**
- **Plan on attending a Canadian post-secondary institution within two years of graduation.**
- **Send your complete application to MCGA by *April 9, 2020*.**

The awarding of the scholarship will be based on academics, canola connection, school and community involvement, and essay submission.

Manitoba Canola Growers

For an application form and complete details, visit www.CanolaGrowers.com

The Canadian canola industry's *Keep It Coming* strategic plan, which set the goal of achieving an average yield of 52 bu./ac. to meet global market demand of 26 million tonnes by 2025, is at the halfway point.

THE STRATEGIC PLAN – HALF TIME UPDATE

FROM THE CANOLA COUNCIL OF CANADA

At the halfway point of its *Keep It Coming* 2025 strategic plan, the Canola Council of Canada board stands behind the market and yield goals set on launch day 2014. In support of the goal of 52 bu./ac. average yield to meet global market demand of 26 million tonnes are three priorities – sustainable, reliable supply; differentiated value; and stable and open trade. These priorities help drive industry decisions, including the work plan of CCC staff.

SUSTAINABLE, RELIABLE SUPPLY

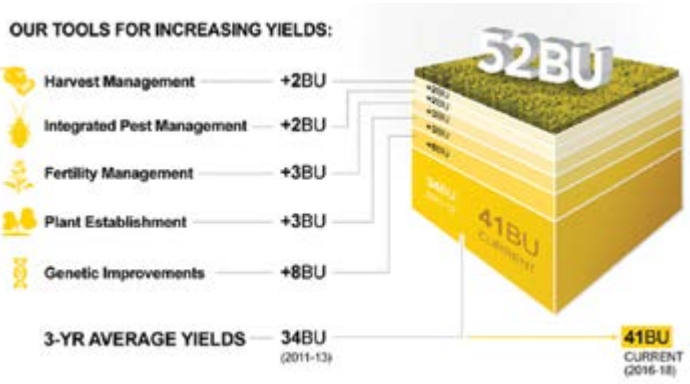
The priority is to meet growing global demand for Canadian canola while increasing the economic and environmental benefits of every acre. With extremes of drought and excess moisture, heavy flea beetle feeding and early snowfall across large parts of Canada's canola-growing region, 2019 tested the resilience of Canadian canola growers. Through Canola Watch and other resources, the Canola Council provided growers with timely, researched-based advice to maintain their competitive edge and keep canola supply strong.

In such a difficult year, the average canola yield of 40 bu./ac. is a testament to Canadian growers' capabilities, the resiliency of the crop and the ability of the CCC to bring all partners together to help manage challenges in the field.

DIFFERENTIATED VALUE

Canadian canola has quality characteristics that set it apart from other oilseeds on the global market. As global vegetable oil demand and meal consumption remain strong, the canola industry continues to demonstrate canola's value as a healthy oil, premium livestock feed ingredient and biofuels feedstock. To give just one example from 2019, the CCC hosted a visit from Thailand-based C.P. Group, one of the world's largest feed producers, so the company could learn first-hand about quality assurance in the Canadian canola industry.

The canola industry also looks for ways to build on that competitive advantage through research and development projects. The January 2020 announcement of a meal-focused seed breeding project funded through Protein Industries Canada, Corteva, Bunge and Botaneco is one example of continued investment and confidence in the crop. Jim Everson, president of the Canola Council, attended the announcement and says, "Continued innovation in Canadian canola by enhancing the protein in the seed will help us create more sustainable growth and opportunity for the canola value chain."



Biofuels are an opportunity to grow a larger, more diversified domestic market. The CCC and Canadian Canola Growers Association (CCGA) are collaborating to urge governments to increase the minimum requirement for renewable content in diesel to five per cent, up from two per cent. The efforts are working. In 2019, Manitoba committed to increasing the renewable content in diesel to five per cent and the Quebec government proposed an increase to four per cent by 2025. The European biofuels market is another opportunity to expand export markets.

STABLE AND OPEN TRADE

An ongoing challenge for Canadian canola, which relies on exports for over 90 per cent of its sales, is to maintain open trade. The market disruption with China, one of our biggest customers, has been difficult. As co-chair of the Canola Working Group, the CCC has been able to focus Ottawa's attention on the need to resolve the disruption and push for concrete actions to diversify canola markets at home and abroad. CCC's trade and scientific specialists continued to support technical engagement by the federal government throughout the dispute. At the end of October, key staff were on the ground at the World Trade Organization in Geneva to provide advice as the first face-to-face meeting about the dispute took place between China and Canada.

Meanwhile, an important step in open trade is to make sure Canada continues to deliver canola that meets the standards of our customers. *Keep It Clean!* initiatives, which promote proper use of pesticides, appropriate management of blackleg and more, help in this effort. See the recommended practices at **keepingitclean.ca** and read the *Keep it Clean!* article in this issue.

While the goals of achieving 52 bu./ac. and 26 million tonnes by 2025 are still considered ambitious, they are possible. In the meantime, the *Keep It Coming* 2025 strategic plan has key pillars that make Canada's canola industry strive for improvement every day.

—Content for this article is from the Canola Council of Canada 2019 annual report: Partnership with Purpose. *The report was included with the mailing of this magazine and is available online at* ***canolacouncil.org****.*

1.3

million tonnes of canola would be used in Canada if the minimum renewable content in diesel was increased to five per cent.

Jim Everson, president of the Canola Council of Canada. At the halfway point of its Keep It Coming *2025 strategic plan, the CCC board stands behind the 2025 targets set on launch day 2014. (See the numbers below.)*

Overview of the Canola Council of Canada strategic plan

	2019 results	2011 & 2012 average (the initial strategic plan benchmarks)	2025 target
Exported Seed	8.6 MMT[1]	8.1 MMT	12 MMT
Domestic Processing	9.6 MMT	6.9 MMT	14 MMT
Acres	21 million	20.2 million	22 million
Yield	40 bu./ac.	31.2 bu./ac.	52 bu./ac.
Production	18.6 MMT	14.2 MMT	26 MMT
Oil Content (average of No. 1 Grade)	44.6[2]	44.4%	Maintain global competitiveness in oil content (10 yr average = 44.4%)
Saturated Fat Content	6.6%[2]	6.7%	Global leadership position in oil saturated fat content
Meal Crude Protein Content (oil-free, 12% moisture basis)	38.3%[2]	39.7%[3]	Increase protein availability by target species (10 yr average = 37.9%)

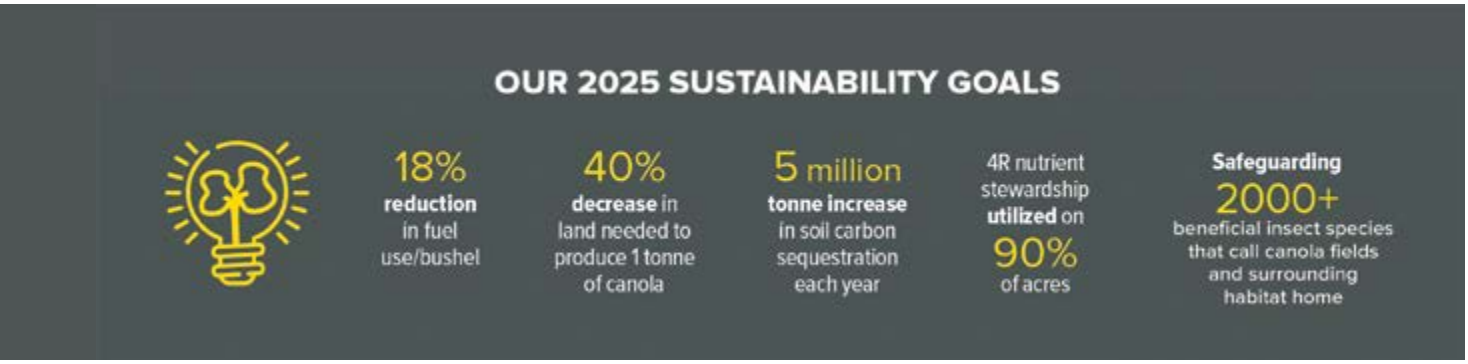
MMT= Million Metric Tonnes

All statistics are for 2019 calendar year.

1 Based on preliminary Canadian Grain Commission data

2 Canadian Grain Commission

3 8.5% moisture basis



A workshop conducted at the International Rapeseed Congress in 2019 brought together production and agronomic experts from a number of major rapeseed-producing countries, including Canada, Germany, France, U.K., Poland and Australia, to discuss agronomy issues in global canola production. Big issues include pests, pesticide regulations and more.

AGRONOMIC PRESSURES IN GLOBAL CANOLA PRODUCTION

BY TOM ARTHEY

Global production of canola saw significant expansion in the '90s and 2000s, both in terms of area seeded and tonnes produced. Increased demand for vegetable oils and biofuels helped to support this expansion.

In Canada and Australia, the development of higher-yielding GM varieties helped to turn canola into a very attractive option for many farmers. In Western Europe, canola has proven to be a very good broadleaf break crop to wheat-dominated rotations. (*Editor: In Europe, the crop name is rapeseed or oilseed rape, but we'll call it canola for this article.*) Not only has canola been much more profitable than other broadleaf break crop options, but it has even been competitive with wheat. It has not been uncommon for European farmers to include canola in their rotation one year in three or, in some cases, every other year in combination with wheat.

Of course, in large parts of Canada it is also quite common for canola to be grown every second year. For Canadian farmers, however, the situation European producers are now facing offers a potential snapshot into the agronomic issues that can arise with such narrow rotations, especially if the management tools and crop care products used to keep those issues suppressed become more regulated and restricted.

In Europe, canola is now facing some quite serious agronomic issues, especially with pests and diseases, that in some cases are making canola very difficult to grow on a regular basis.

A workshop conducted at the International Rapeseed Congress in Berlin in 2019 brought together production and agronomic experts from a number of major rapeseed-producing countries, including Canada, Germany, France, U.K., Poland and Australia, to discuss agronomic issues in global canola.

One of the clear findings from the workshop was the extent of the pest issues being faced in Europe, and the limited chemical options available to fight them. In Germany and U.K., cabbage stem flea beetle, in particular, is now a major concern that threatens the viability of growing canola altogether in some areas. In the U.K., year on year declines of 10 per cent have been recorded over

"In Germany and U.K., cabbage stem flea beetle, in particular, is now a major concern that threatens the viability of growing canola altogether in some areas."

Figure 1. Current, historical and future expectations of canola share in the rotation

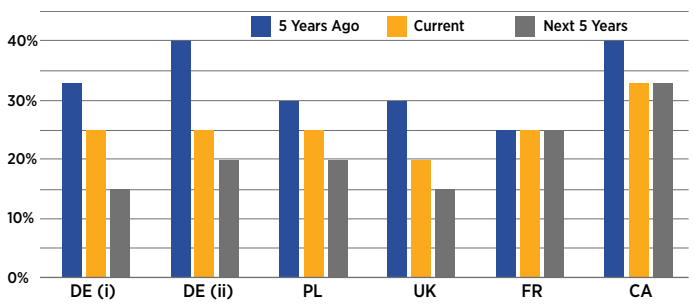


Figure 1 shows that experts from various canola-growing countries expect the share of canola in the rotation to decrease from its current position, which itself is lower than five years ago in the peak of its production. The graph shows forecasts for two experts from Germany (DEi and DEii) and one each from Poland (PL), United Kingdom (UK), France (FR) and Canada (CA)

Source: agri benchmark (2019)

Flea beetles need to feed on canola plants in order to take up the pesticide, making seed treatments a highly targeted approach to insect pest management.

the past three years, but that doesn't factor in those crops that are planted in the autumn, only to fail and be ripped up in favour of spring crops. Anecdotal evidence therefore suggests the harvest area declines have been closer to 20 per cent year on year.

In all European countries, agronomic experts all cited the EU ban on neonic pesticide in 2015 as being a key factor behind these increased pest pressures. Alternative chemical options to neonics include pyrethroids, but these do not provide the same level of effectiveness against the likes of cabbage stem flea beetle, seed weevil, gall midge, pollen beetle and aphids, with issues of resistance becoming more prevalent.

This increased insect pest pressure has also invited greater incidence of disease, as damaged plants are weakened and therefore more susceptible to infection. As an example, turnip yellow virus has become a more notable problem in Europe, having benefited from the greater amounts of damage done by aphids since the removal of neonic treatments. All European experts also cited the sharp increase in sclerotinia and verticillium as being at least partly as a result of pest damage "opening the door" to infection where this had not previously been such an issue.

In addition to a greater occurrence of diseases through infection after pest damage, tight rotations have also been highlighted as a key reason for the spread of disease. This is particularly the case with clubroot, which many experts believe has benefited from favourable climatic conditions of warm, wet soils at seeding time.

Because existing chemical fungicide treatments are not effective at treating clubroot, European farmers are using an integrated approach to management, including lime spreading and widening rotations. Development and use of clubroot-resistant varieties is also seen as being a key strategy, but without the availability of GM varieties, their effectiveness and the ability to maintain yields at current levels is a concern.

"The alternative options for European farmers in many instances now include more radical changes that would impact on the entire production system."

CANADA STILL HAS THE TOOLS

While it is clear that many of the same insect and disease issues are present in Canada and Australia, the key difference is the variety of tools currently available to combat the issue.

In Canada and Australia, both chemical and GM options are available for pest management in general, which help to moderate the impact of these infestations. Whereas in Europe, the primary chemical options have been much reduced in recent years, and those that remain are limited in number, subject to resistance, and under threat of removal as well. The alternative options for European farmers in many instances now include more radical changes that would impact on the entire production system.

The implication for this in Europe is that less canola would be grown each year with alternative break crops such as spring beans introduced instead. Alternative crops are often less profitable, which will result in reduced farm profits overall.

The alternative would be to carry on trying to grow canola, using the limited chemical options that are still available, but on a much more opportunistic basis. The problem with such an approach is that canola in Europe is a high investment crop – it is high risk but high reward.

↑↓ Increase/decrease 10% - 20% ↑↓ Increase/decrease 0% - 10% → Stays the same

Country	Hot Spot Region	Anticipated Tillage system	Fertilizer Usage	Crop Care Costs	Impact on Yields
Germany	N. Germany	Conservation tillage Some more ploughing	↓	↑	↑
	W. Germany		↓	→	→
Poland	W. Poland	Ploughing mulch and strip till	↓	↑	↑
UK	E. Anglia, Midlands, S. Yorkshire	Minimum tillage but some more ploughing too	↓	↑	→
Russia	Volga, Ural, Siberia	Minimum tillage	↑	↑	↑
Australia	W. Australia HRZ	Minimum tillage but some strategic tillage	↑	↑	→
	W. Australia MRZ	Minimum tillage	→	↑	→
	W. Australia LRZ	Minimum tillage	↓	↑	→
Canada	Prairie states	Minimum tillage	↑	↑	↑

Figure 2. Future Expectations on Management Practices in Canola

Experts in the agri benchmark study forecast fertilizer use, crop protection costs and yields for their regions. Fertilizer use in Europe is expected to go down – except in Russia.

The implication for this in Europe is that less canola would be grown each year with alternative break crops such as spring beans introduced instead. Alternative crops are often less profitable, which will result in reduced farm profits overall.

Source: agri benchmark (2019)

Are farmers likely to persist with investing in an increasingly high-risk crop across large parts of their acreage?

Due to climatic conditions, Australian producers tend to view canola as an opportunistic crop – it is only planted when the growing conditions at the point of seeding are suited to a good establishment – so pre-meditated rotational share is not a common strategy.

Figure 2 shows the expectations on practices in canola production in the future. Most experts involved in the agri benchmark report believed that crop care costs will also go up, both as pest pressures continue to increase, but also as the product list diminishes further through regulation. In both the U.K. and Germany, yields are not expected to improve to compensate for this, although there is still yield potential in Poland as issues of winterkill are overcome both with changing climate and improved varieties.

While the Canadian experts also believed crop care costs would increase, there was also the expectation of significant further yield growth to offset this, partly through fertilizer usage, which is currently lower than in Europe.

In all countries, we are likely to see an increase in integrated management systems, whereby a combination of chemical, biological and mechanical strategies will be implemented together. Occasional changes to tillage practices, widening rotations and removal of green bridges (such as mustard crops, which host canola pests and reduce the benefit of crop rotation) were all suggested as combined strategies to combat pests in canola, both in the European countries and in Canada and Australia.

There appeared to be a realization that while Europe appears to be at the forefront when it comes to regulatory pressure on traditional chemical management options, Canada and Australia are not immune from the same issues becoming a threat in the near future. Negative perceptions persist around neonics, and this provides a major concern to Canadian producers given the impact the ban appears to have had in Europe in a relatively short space of time.

"While the Canadian experts also believed crop care costs would increase, there was also the expectation of significant further yield growth to offset this, partly through fertilizer usage, which is currently lower than in Europe."

FERTILIZER RESTRICTIONS

Use of nitrogen fertilizers is also a growing issue in Europe; policy makers are keen to reduce nitrogen surpluses in the nutrient balance. Therefore, legislation has been passed in Germany that heavily restricts autumn application of nitrogen, and canola is particularly under threat due to the nitrogen surplus commonly left in the soil. The expectation is that other European countries will follow suit as part of the nitrate directives to improve water quality. The consequence will be lower yields and reduced profitability of canola and lower shares of canola in European rotations.

What does seem clear is that the peak years for canola production in Europe appear to be behind us, with acreage and production likely to go down especially in Western Europe. This may present opportunities for the likes of Canada and Australia, although many of the same issues could well manifest, especially if tight rotations continue and regulatory restrictions on crop care chemical options are applied.

A note on Russia. Thus far, canola provides only a relatively small share of its national crop output, with production knowhow and infrastructure both holding back expansion of production in many regions. However, there is scope for significant increases that could well be capable of fulfilling the reduction in Western European production, and more besides. The same pest pressures, or potential regulatory restrictions, do not appear to be such an issue there.

—Tom Arthey is project manager for agri benchmark Cash Crop, a global non-profit global network of agricultural economists, coordinated by the German Thünen Institute and the non-profit company global networks. Its aim is to generate and disseminate reliable and usable analysis of major trends in global crop production for decision makers. For more information please visit ***www.agribenchmark.org****.*

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What do you grow and why?

Our six panelists list the crops they grow and explain the decision to grow these crops and not other ones. We also asked about any recent changes to their crop list and the motivation behind that change.

BY JAY WHETTER

LANDON FRIESEN CRYSTAL CITY, MAN.

Landon Friesen says their rotation will continue to stay pretty diverse for 2020, possibly adding oats to what is already a long list of crops: canola, soybeans, sunflowers, yellow peas, black beans, navy beans, corn, ryegrass, barley and wheat.

"I grow them all each year, but adjust acres based on profitability," Friesen says. "I talk to other farmers and market analysts to gather realistic averages for yields, input cost and price forecasts, and work on a spreadsheet for each crop each year."

Friesen's motivation to grow so many crops is all about marketing advantages, he says. "We're pushing into edible markets, like food-grade peas, edible beans and confectionary sunflowers. These are possibly higher risk, but the rewards are far better."

Another benefit of a diverse rotation is that it spreads out the seeding and harvest seasons so they can do more with the same line of equipment. "We're seeding from April to June, and harvest starts early with peas, barley and ryegrass and ends late with sunflowers and corn."

The trickiest part of a diverse rotation is herbicide rotation and residuals. Friesen has to keep excellent records and keep in mind what crops are sensitive to what herbicides. "If it was a dry year, there will be certain crops I shouldn't grow on certain fields," he says.

With his rotation, he ends up with at least a three-year break between canola crops, which would be good for disease management, except he has to keep in mind that sunflowers are also susceptible to some of the same diseases.

With experience growing so many crops, Friesen has the knowledge and confidence to grow whatever crops show the most promise in any given year. "I'm not afraid of a little extra work in planning if it means more profitability for the farm," he says.

"Canola volunteers are also a challenge in flax, and these volunteers are hosts for clubroot – which means you lose the benefit of the rotation for clubroot management."

–Keith Fournier

"We're seeding from April to June, and harvest starts early with peas, barley and ryegrass and ends late with sunflowers and corn."

–Landon Friesen

KEITH FOURNIER LONE ROCK, SASK.

Keith Fournier's rotation of late has been wheat-canola-wheat-canola-wheat-peas.

"Disease is the main reason for this rotation," he says. Cereal on cereal often means more leaf disease. Canola on canola is a risk for blackleg and now clubroot. "I'm hoping the longer break every second time I grow canola is enough to let the diseased residue break down." Peas are at risk from aphanomyces, so the five-year break helps. The pulse crop in rotation, even if only one year in six, allows for the longer break for canola. He also likes the other benefits that a pulse crop provides.

"Peas are so good for the soil, they fix their own nitrogen and they mature earlier," Fournier says. But peas also have their challenges, which is why he'll try a quarter section of fababeans this year.

"With fababeans, we give up the earlier maturity of peas, but they're not a host of aphanomyces, and the fababean crops in my area in 2019 went through a snow fall and stood up." Fournier's peas didn't stand up and had fairly bad disease in some of the wetter areas. As a result, his peas in 2019 yielded 40 per cent of what they normally do.

Flax and barley are other crops he could use to expand his rotation. "We want to have a cereal every second year, so barley would be easy to put in," he says. As for flax, he says the 2019 flax harvest was really difficult for growers in his area. "Canola volunteers are also a challenge in flax, and these volunteers are hosts for clubroot – which means you lose the benefit of the rotation for clubroot management."

For canola, Fournier rotates between Roundup Ready and Liberty Link herbicide tolerance systems. He says clubroot and blackleg resistance "are a must." He will also put a priority on maturity this year. "We've had four consecutive challenging harvests with last year probably the most difficult. Sometimes chasing that last couple of bushels isn't worth the risk," he says. He also likes the pod shatter resistance trait. "At the very least, it widens the swathing window and allows us to delay swathing to give us more seed colour change and hopefully more yield."

BROOKE PARKER
STRATHMORE, ALTA.

Brooke Parker grows yellow peas, hard red spring wheat, canola and malt barley, preferably in that order.

"In a perfect world, I'd have the acres divided evenly among those four crops, but some of our fields are not suited to peas because of weeds and rocks, and the breakeven price for peas is nowhere near the market price right now," Parker says.

Even so, she does consider the benefits that peas provide to the whole rotation when making final decisions. "Peas do improve protein for the following hard red spring crop," she says.

Peas and malt barley are relatively new additions to the farm, both added around 2014 or 2015. They had been growing feed barley, but the malt varieties – they grow Copeland and Synergy – have very good yield potential and Parker's barley has been selected for malt four of the past five years. "Even if the barley doesn't make malt, the varieties are so good that they still do well in the feed market."

The farm recently stopped growing CPS wheat because, for them, economics favour hard red spring.

An important trait for canola, now that the farm straight combines 100 per cent of its canola, is "definitely pod shatter resistance," Parker says. Varieties they're considering for 2020 are from a few brands.

"Sometimes when I hear all the buzz about what crops I should grow, I do the opposite."

–Roger Chevraux

"In a perfect world, I'd have the acres divided evenly among those four crops, but some of our fields are not suited to peas because of weeds and rocks, and the breakeven price for peas is nowhere near the market price right now."

–Brooke Parker

ROGER CHEVRAUX
KILLAM, ALTA.

Roger Chevraux grows canola, barley and hard red spring wheat. "The only change I make each year is to alternate the number of acres for each crop," he says. "Generally I try for a two-year break between canola crops on a field, but it doesn't always happen."

He grows malt barley under contract and contract acres each year don't always cover one third of the farm.

"I like to keep the rotation simple. I know these three crops and have a good understanding of how to grow them," Chevraux says.

He says he's maxed out on the number of acres he can handle with his current line of equipment, and he doesn't want any extra challenges in the spring – such as having to switch crops – that can slow the seeding progress. "If I have to change over the drill to seed a different crop, I can lose half a day."

He has tried peas, but with the high seeding rate he wasn't getting the number of acres done in a day that he needed to. "They also go flat and can be a challenge to harvest," he says. Lots of people are getting into fababeans, he adds, but for him that's a reason not to. "Sometimes when I hear all the buzz about what crops I should grow, I do the opposite."

For canola, Chevraux chooses clubroot resistance and usually Liberty Link to add another group to the rotation for weed resistance prevention. "Since I seed my canola last, I also look for an early maturity variety," he says.

Credit: iStock.com/valio845/
Diana Taliun/popovaphoto/
Alasdair James

For more on the value of crop rotation for canola, search the topic at **canolaencyclopedia.ca**.

ANTHONY ELIASON
OUTLOOK, SASK.

Anthony Eliason grew flax, canola, spring wheat, fababeans and yellow peas in 2019. "We always try to keep a pulse in the rotation, but we recently dropped lentils and may drop peas in 2020," he says.

Eliason's farm has a mix of irrigated and dryland fields. Fababeans are not great in dryland, he says, which is unfortunate because he likes crops that perform well in both situations. But peas aren't doing that for him either lately. "I'm not happy with the latest variety we tried. It didn't stand up as advertised," he says. "So I might take a year off peas."

He has been growing Pasteur spring wheat, a variety with very good lodging resistance, high yield potential, and low protein for the feed market and some specialty food market opportunities. He looks forward to a new high protein hard red variety that can beat AAC Brandon, but he says that's still a year or two away.

Eliason grew flax in 2019 after a long break from the crop. Results were "not bad," he says. It grows well in dryland and irrigated situations and leaves some trash behind, which is what he wants. He'll grow flax again in 2020.

His canola varieties include Roundup Ready with a rotation of Liberty Link every second time canola is grown on a field. "So kind of a six-year herbicide rotation," he says.

"I would like to have three crops, but I need something suited to the climate and that is marketable in the area."

–John Sandborn

"I'm not happy with the latest variety we tried. It didn't stand up as advertised. So I might take a year off peas."

–Anthony Eliason

JOHN SANDBORN
BENITO, MAN.

John Sandborn grows wheat and canola. "I would like to have three crops, but I need something suited to the climate and that is marketable in the area," he says.

Sandborn's farm is in the Duck Mountains and with a lot of rolling hills, a cooler climate and heavier soils. These factors make soybeans a challenge. "With a damp fall and our clay soils, you can't run a header along the ground because it will get stuck in the mud." For pulses in general, the investment in headers just isn't worth it for him, he says.

He used to grow barley but stopped after BSE reduced the local feed market in the 2000s. Now feed barley has to go to mills in Brandon or Winnipeg, with transportation reducing the profitability of the crop. "We never make malt in the area," he adds. "We'd be pleased to get selected for malt once every 20 years." He also says the older barley varieties used to yield more, in his experience, than the new ones. "Now barley can't outyield wheat."

Speaking of wheat, Sandborn's favourite variety Domain will be dropped from the CWRS class as of August 1, 2021, so he will have to find another variety. "Domain has been a great variety for this area – it matures earlier, stands up well and has good yield and protein," he says. "I have been trying a couple other CWRS varieties over the past two years to find a replacement. Unfortunately these varieties are four to five days later ripening than Domain."

He has also been going to a few presentations on flax, but he's still not convinced to go back to that crop. "I quit growing flax in the late '90s because I couldn't get any yield," he says. "Our climate is just not conducive."

For canola, Sandborn rotates Roundup Ready and Liberty Link varieties. He swaths all his canola, but will buy some with the pod shatter trait so he can leave it to cut later. "Sometimes you have to change your combine settings with pod shatter varieties, especially if conditions are cool and damp, to get them to thresh out."

—Jay Whetter is the editor of Canola Digest.

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Canadian Canola Growers Association started in 1984, when a group of canola farmers from Western Canada came together to give farmers access to the same financing program that had been available on cereal grains for many years.

CCGA: 35 YEARS OF HELPING FARMERS SUCCEED

FROM THE CANADIAN CANOLA GROWERS ASSOCIATION

During the last three and a half decades, a lot has changed in Canadian agriculture. The '90s saw NAFTA come into force and a transition to zero-till farming. The last decade saw Canada's canola crushing output nearly triple and the introduction of new technologies, like precision agriculture, that are changing the way Canadians farm.

Through it all, one thing has never changed: Canadian Canola Growers Association's (CCGA) vision of Helping Farmers Succeed. It's the reason canola farmers trust CCGA to provide leadership on moving important agriculture policy issues forward. It's also why every year more than 10,000 farmers across Western Canada look to CCGA to support their grain marketing and farm financing plans through the organization's administration of the Advance Payments Program. The Advance Payments Program is a federal program, delivered and administered by CCGA. Under the program, the Government of Canada provides the loan guarantee, funds the interest-free portion of advances and helps to make low interest rates on the remainder for Canadian producers.

FINANCING OPTIONS FOR FARMERS

The CCGA story started in 1984, when a group of canola farmers from Western Canada came together to give farmers access to the same financing program that had been available on cereal grains for many years. At the time, canola was an expanding crop and having access to a cash advance meant that farmers had more flexibility to market their canola, while having access to cash flow before the crop was sold.

Over time, the program offered by CCGA has expanded to include over 50 commodities, providing farmers with peace of mind and allowing them the time they need to execute their marketing plans most effectively.

"Our team is committed to improving the advance experience for farmers," says Rick White, chief executive officer at CCGA. "We're constantly striving to deliver a better cash advance program, including improving our phone and online services, as well as streamlining the application process and making the program more accessible for those who use it."

"We're constantly striving to deliver a better cash advance program... and making the program more accessible for those who use it."

–Rick White, CEO at CCGA

A STRONG VOICE ON POLICY ISSUES

Building core expertise in agricultural policy areas, such as transportation, trade, business risk management and sustainability, has been critical to bringing a credible voice for canola farmers to policy conversations in Canada and abroad.

"When CCGA began working in ag policy, we wanted to enter the space and build relationships with government and heads of industry," says White. "Our goal was to become a trusted resource and a trusted partner for both farmers and legislators."

The experience and expertise that CCGA has cultivated in these areas, coupled with a grassroots farmer voice at the CCGA board, has helped the organization affect policy and legislative changes for the benefit of farmers.

"It's about reflecting the views of the people we represent and very responsibly using our voice to ensure that industry and government leaders are considering the challenges farmers face, as well as the economic environment they operate in," says White.

Trades shows provide an opportunity for CCGA staff to talk with farmers about cash advances and ag policy issues impacting their farms.

A board of farmers

CCGA is guided by 10 farmer directors who represent Canada's provincial canola associations, including Alberta Canola, B.C. Grain Producers Association, Manitoba Canola Growers, Ontario Canola Growers Association and SaskCanola.

"Without good policy, investments in agronomy and research may be limited by policy barriers that impede our ability to use new technologies, manage farm risk, or even efficiently transport our grain."

–Bernie McClean, president of CCGA

AFFECTING REAL CHANGE

Bernie McClean, a farmer from Saskatchewan and president of CCGA, has experienced first-hand how working in policy development and advocacy impacts farm operations.

"The policy work of CCGA has a real and lasting effect on our farms," says McClean. "Without good policy, investments in agronomy and research may be limited by policy barriers that impede our ability to use new technologies, manage farm risk, or even efficiently transport our grain."

Building the voice of canola farmers is a journey that continues today. Over the past 35 years, CCGA has effectively brought the farmer voice to policy conversations on rail transportation, renewable fuels, crop inputs, farm sustainability, and trade, among many others.

FIVE IPM DISCOVERIES FROM CDF 2019

CCC agronomy specialist Justine Cornelsen was the lead organizer for Canola Discovery Forum 2019, which was in Winnipeg in November. The event theme focused on the integrated pest management (IPM) pillar from the CCC's strategic plan. The pillar goal is to gain 2 bu./ac. from improved pest management by the year 2025. The following are Cornelsen's top five forum discoveries – including some that could contribute immediately to the goal and some that are more long-term:

1. Patch management for clubroot control

Clubroot management is focused on reducing the number spores within the field. Mary Ruth McDonald, professor at University of Guelph, has been assessing practical ways to isolate and control clubroot patches within a field. When patches are located in a canola field, her recommendation is to pull plants outward in a circle until you no longer pull up clubbed roots. The roots from these plants must be destroyed, and that area should be sown to a non-brassica cover crop. Once the cover crop is established, no equipment should move throughout the area so resting spores cannot be transferred out. After a two- to three-year period, the spore levels in the soil should have decreased but diligent scouting and pulling up of plants in and around the patch remains important.

2. Hairy canola to disrupt flea beetle feeding

This isn't the first time hearing about "hairy" canola. Agriculture and Agri-Food Canada research scientist Dwayne Hegedus explained how hairy canola deters flea beetles and why this technology is not in farmer's fields. During feeding, flea beetles will circle on the leaf but if this circling process is interrupted, they will leave the plant. When trichomes (hairs) are produced on young brassica plants, this is enough to disrupt the flea beetles and deter them from feeding on the plant. Previous attempts to introduce this trait into canola required two transgenic events to first develop the trichomes, and secondly to fix developmental issues with producing a strong hairy brassica species. With the cost associated with development and registration of transgenic products, hairy canola remained on the shelf. However, current producer-funded (CARP) projects have identified non-transgenic sources of the trait and are currently being integrated into canola lines.

3. RNAi technologies to control pests

Steven Whyard, professor at the University of Manitoba, introduced the idea of gene specific double-stranded RNA (dsRNA) as a means to control pests. With species-specific dsRNA pesticides, no harm is seen in other species such as beneficial insects. Whyard's lab has shown effective control of flea beetles and sclerotinia stem rot in canola with the use of RNAi tools through both foliar sprays and transgenic plants. This type of technology will provide diversity in crop protection options.

4. The mysterious case of aster yellows

Aster yellows is caused by a phytoplasma – an unculturable bacteria and obligate parasite. Aster yellows affects the plant hormones and transforms the floral parts of the plant into leaf-like structures and causes bladder-like pods. Tyler Wist, Agriculture and Agri-Food Canada research scientist, explained that aster yellows is a unique disease as the phytoplasma can only survive within the plant or through its vector, the aster leafhopper. While observing aster yellows symptoms across the Prairies in 2019, Wist and others wonder whether leaf hoppers are bringing in the phytoplasma from the south or picking it up locally from disease reservoirs like alfalfa and moving it around.

This image captures several early stage aster yellows symptoms, including purpling and yellowing of leaves, transformation of what should be yellow flowers into weird, green leaf-like flowers, short internodes and prolific branching of the racemes and bud swelling. Credit: Tyler Wist, AAFC

5. Crop rotation decisions – dollars and sense

We all know that a diverse crop rotation can minimize pest pressure. Retired Alberta Agriculture oilseed specialist Murray Hartman shared his insights around the economics of managing pests. Hartman highlighted that longer rotations mean lower disease incidence, severity and yield loss. Short rotations with less crop diversity may be easier to manage in the short term but increase the risk of pesticide and genetic resistance, a risk that can difficult to quantify economically.

Find the all the Canola Discovery Forum presentations and proceedings at **canoladiscoveryforum.ca.**

LAST MINUTE SEED DECISIONS? CHECK CPTs

Results for the 2019 Canola Performance Trials are available online at **canolaperformancetrials.ca**. Read the PDF report or use the online searchable database, both of which are found on the homepage of the site. CPTs use small plot trials to compare varieties based on yield, days to maturity, height and lodging scores. Data is also organized by location and season zones (short, mid and long). Field scale trials compare yields.

ENTER **SEED WEIGHT** INTO CALCULATOR TO GET SEEDING RATE

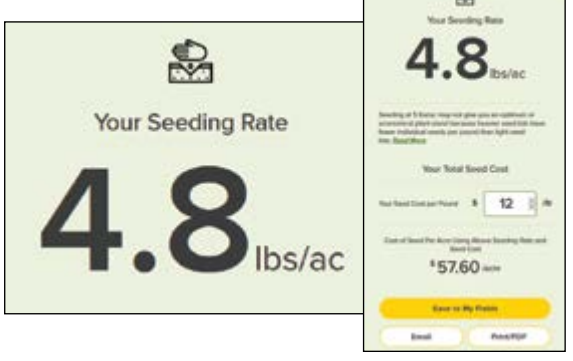
The seeding rate and seed cost calculator at **canolacalculator.ca** will help farmers set an appropriate seeding rate based on the thousand seed weight (TSW) of a seed lot along with their target plant density and estimated emergence percentage.

The calculator also provides a seed cost per acre based on the seeding rate and seed cost per pound. With the seed cost calculator, farmers can see the economic impact of factors such as seed size, percent emergence and target plant density.

The calculator also has a target plant density tool that suggests a target plant density based on a farmer's own assessment of the risk factors that stress canola stands post-emergence. These factors include stand uniformity, early season frost risk, weed control, in-season insect damage and length of the growing season.

The CCC recommends a target plant density of five to eight plants per square foot (50-80 per square metre) at the two- to four-leaf stage. Growers can use the target density calculator to determine where in that range they want their individual fields to be, and then use the seeding rate and seed cost calculator to measure the economic impact of that density. Under three to four plants per square foot, canola shows a drop in yield stability, predictability and average. Extra plants provide some buffer for in-season plant losses, optimum maturity and competition with weeds.

www.canolacalculator.ca/seeding-rate
Enter seed weight into calculator to get seeding rate



REGISTER FOR **SEEDER & SPRAYER** COLLEGE

This all-day practical educational event, to be held March 25 at the Keystone Centre in Brandon, Man., is a follow up to the popular 2019 Combine College. Attendees choose from 12 different expert-led breakout sessions, network in the Aftermarket & Equipment showcase, and take in two keynote speakers, including Tom Wolf (@nozzle_guy) of Agrimetrix Research and Training. Session topics include variable rate seeding, phosphorous 4R strategies, nozzle selection, dealing with sprayer rinsate, optimizing planters across the rotation, novel weed control technology, preparing the seedbed in 2020 and more. Members of the Manitoba Canola Growers, Manitoba Corn Growers, Manitoba Wheat and Barley Growers, and/or National Sunflower Associations qualify for a post event rebate of $20 per association. Please check the associations that you are a member of during the on-line registration process. The link for registration is at **canolacouncil.org** in the Events section under the "What we do" tab.

PALOOZAS 2020

Mark your calendars for these outdoor interactive agronomy events in Alberta, Saskatchewan and Manitoba.

Alberta canolaPALOOZA
July 8, AAFC Research Centre, Lacombe

Saskatchewan CanolaPalooza
July 14, Saskatoon. New for 2020, SaskCanola offers a Top Notch Farming Diagnostics option to provide more directed learning, diagnostic tips, and CCA credits.

Manitoba Crops-A-Palooza
July 28, Carberry

Get the Canola Watch advantage!

Sign up to receive timely Canola Watch updates during the growing season. Canola Watch alerts subscribers about insect and disease outbreaks and the management tips required for those pests. The weekly quiz is a great way to learn and have fun at the same time. Canola Watch is provided free as a service to the Canadian canola industry. Subscribe at: **canolawatch.org/signup**.

CANOLAWATCH

Jason Fockler and Warren Pridham use their variable-rate fertilizer maps to also apply variable-rate canola seed. With more seed applied to higher mortality areas, the result is a more even stand.

VR CANOLA SEEDING
ACHIEVES MORE CONSISTENT STANDS

BY JAY WHETTER

Jason Fockler already had field maps for variable-rate fertilizer, so using those field maps to set up a variable canola seeding rate was fairly simple.

Fockler, who farms with Warren Pridham at Carrot River, Sask., saw clear economic value for VR fertilizer. They bought the drill and worked with CropPro Consulting on maps to make the right fertilizer investment for each zone of each field, based on productivity and potential returns.

"Making the move to VR seed wasn't a big step," he says.

Their adviser is Kerrie de Gooijer, agronomy manager for CropPro Consulting. "The foundation for all our recommendations and prescriptions is a soil, water and topography map (SWATMAP)," she says. "We use the same map for everything. We can make as many layers for different products as the controller and tank are capable of handling."

To make a map, CropPro collects the electro-conductivity and elevation base layers for the field, then ground truths the field to identify 10 zones. Hilltops – the water-shedding areas with the lowest organic matter content and lightest textured soils – are grouped together in Zone 1. Depressions that collect water and typically have the highest organic matter are Zones 9 and 10. Salinity is grouped in its own zone so it can be managed differently.

"We have the flexibility to apply 10 different rates across the field if we feel each of the 10 zones should be treated differently," de Gooijer says.

The yearly fees that Fockler and Pridham pay to CropPro include one VR prescription per year, which they use for fall-applied nitrogen. Their VR seeding plan, which includes seed, phosphorus, potash and sulphur, has an add-on cost of $50 per field.

CHOOSING THE RIGHT SEEDING RATE FOR EACH ZONE

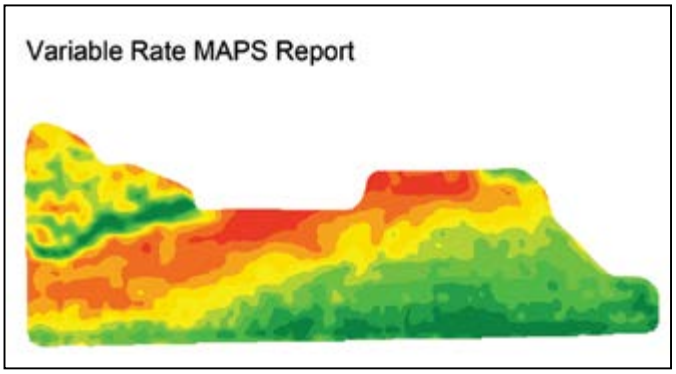
"Our goal is to have the same number of plants per square foot across the field," Fockler says. "With an even crop, this helps with timing decisions for fungicide application and harvest."

Typically the hilltops and depressions have higher mortalities than the midslope areas. "So these areas get a higher seeding rate," de Gooijer says. "For the midslopes, which generally have the best emergence, we may cut back the seeding rate slightly."

Seed size, seed-placed fertilizer, drill and opener type, and seeding conditions also factor into the seeding rates. For Fockler and Pridham, their target is 5.5 plants per square foot and they assume average seed survival for canola of around 70 per cent.

"If your recommended seeding rate is 5 lb./ac., the VR seed prescription will bring the field average to 5 lb./ac. but may be

Jason Fockler (right) and Warren Pridham, who farm together at Carrot River, Sask., are using variable canola seeding rates to achieve a more consistent plant population across the field.



Here is the VR canola seeding prescription for one of Jason Fockler and Warren Pridham's fields for 2019. The seeding rate ranged from 4.8 lb./ac. in the midslopes to 5.8 lb./ac. in the low spots. A plant stand assessment the first week of June showed a range of 4.1 to 5.0 plants per square foot across the entire field.

applying 20 per cent more on those higher mortality areas," de Gooijer says.

As an example, Fockler had one canola field in 2019 with an average seeding rate of 4.9 lb./ac., but rates were 5.8 lb./ac. in the lowest elevation areas and 5.4 lb./ac. on the hill tops. With a dry start to the season in 2019, he says canola germination was overall lower than average, but variability in plant stand across the field was still within 10 per cent.

At the end of the day, is there enough benefit to justify VR canola seed? "A consistent canola stand across a field can have benefits for fungicide and harvest timing, but economically, canola responds so well to so many different plant stand densities," says Shawn Senko, agronomy specialist and precision farming lead for the Canola Council of Canada. "Research has shown a clear benefit to variable seeding rates for corn, for example, but we may need more work to show clear economic benefits for canola."

"Our goal is to have the same number of plants per square foot across the field. With an even crop, this helps with timing decisions for fungicide and harvest."

–Jason Fockler

He says that for canola, the economic benefits from an investment in a VR drill and maps will more likely come from the improved fertilizer utility, which growers can use to drive more profit from the best zones of the field.

Fockler thinks VR canola seed does provide a benefit, even if it's not obvious when comparing fields from a distance. De Gooijer notes a particular benefit for saline areas. "If the salinity is extremely high and there is no hope of anything growing in that area, there is opportunity for seed savings because we may decide to cut back the seed in that area."

—Jay Whetter is the editor of Canola Digest.

Levels of plant-available phosphorus are drifting lower in many fields of Western Canada, and this "hidden hunger" will be hurting yields. Phosphorus rates that at least match crop removal are necessary to maintain soil productivity.

WHAT SHOULD YOU DO ABOUT PHOSPHORUS RATES?

BY JAY WHETTER

Cindy Grant, who co-authored a 255-page report on basically everything we know about phosphorus fertilizer in Canada, sighs when she acknowledges that with all that research, the key practice boils down to one line: Apply enough fertilizer phosphorus to meet crop removal, preferably as an in-soil band near the seed row.

"In the short term, crops can still yield well if they get just a small starter rate with the seed," says Grant, who recently retired from a long career studying soil fertility with Agriculture and Agri-Food Canada in Brandon, Man., "but applying those low rates over time is reducing soil fertility and crop yield potential."

Over the decades, farmers have been able to get away with rates well below crop removal because Western Canadian soils, which are relatively young, have large pools of phosphorus. Plant-available phosphorus in the soil solution accounts for only about 0.1% of soil phosphorus, as noted in "4R Management of Phosphorus Fertilizer in the Northern Great Plains: A Review of the Scientific Literature", the report Grant co-authored with University of Manitoba professor and soil scientist Don Flaten. As plants take up this available phosphorus, the pools release more into the soil solution to maintain the balance.

The problem is that decades of lower-than-removal rates are reducing the size of the pools and the actual amount of available phosphorus is going down. Another factor is that canola, soybeans and corn are big phosphorus users, so as acres of these crops increase, the drawdown of soil reserves can be that much faster if rates are below the level of crop removal.

"The majority of soils in Western Canada are testing low for phosphorus unless they have a history of manure application," Grant says. "That is why farmers can expect a response to phosphorus fertilizer in soils with low test results." (See table 2.)

Warren Ward, agronomy specialist and fertilizer lead for the Canola Council of Canada, says, "The simple practice of setting rates to match crop removal helps to maintain soil health and ensures that available phosphorus is not limiting for yield."

HOW MUCH PHOSPHORUS DOES A CROP NEED?

Canola takes up 1.31 to 1.63 pounds of fertilizer phosphorus (P_2O_5) for each bushel, and around one pound per bushel is removed in the seed, on average. A 50 bu./ac. canola crop will therefore remove about 50 lb./ac. of P_2O_5, which, for example, is equivalent to 100 lb./ac. of monoammonium phosphate fertilizer. The rest stays in crop residue and is returned to the field.

This is based on old research done before the introduction of hybrid canola, and many suspect that hybrid canola has improved nutrient use efficiency. But John Heard, soil fertility specialist with Manitoba Agriculture, says that until a new removal ratio is verified, the best management practice is to stick with the current one to one.

Soybeans remove about 0.90 pounds of P_2O_5 per bushel, based on the mid point between the minimum and maximums shown in Table 1. Peas are 0.69 pounds per bushel, wheat is 0.59 and barley is 0.42. Corn is also fairly low, at 0.44 pounds per bushel of yield, but with its high yields, the actual amounts removed with corn are probably the highest of any crop grown in Western Canada. (See Table 1.)

Read more about phosphorus and canola in the Fertilizer Management section at **canolaencyclopedia.ca**.

Phosphorus plays a critical role from the initial reactions in the germinating seed, throughout plant growth, to formation of crop yield. An adequate supply of phosphorus is essential from the earliest stages of plant growth.

Table 1. Phosphorus uptake and removal by crop (per bushel)

Crop	Uptake		Removal	
	Minimum	Maximum	Minimum	Maximum
Canola	1.31	1.63	0.94	1.14
Spring wheat	0.73	0.88	0.53	0.65
Barley	0.50	0.61	0.38	0.46
Oats	0.36	0.45	0.26	0.28
Peas	0.76	0.92	0.62	0.76
Lentils	0.76	0.92	0.60	0.66
Fababeans	1.78	2.19	1.10	1.34
Corn	0.57	0.69	0.39	0.48
Soybeans	1.10	1.32	0.80	1.00

Source: Canadian Fertilizer Institute, 2001. In their report, Grant and Flaten include this note: Much of the data contributing to this table was collected using older cultivars and management practices. Efforts are currently underway to update uptake and removal values using more current information.

THE EFFECT OF SOIL PH

Soil pH is a factor in phosphorus availability. "Availability of phosphorus is optimized with pH around 6.5. Above that, calcium and magnesium can tie up phosphorus in the soil. Below that, aluminum and iron can tie up phosphorus," Grant says. She adds that farmers can expect a bigger benefit from higher phosphorus rates overall and from seed-row placement of starter rates when pH is at the extremes.

To get a proper picture of pH influence on soil test recommendations, make sure to use a test that is suited to the predominant soil pH in the area. Grant says the Olsen test is effective across a wide range of soils, including the high pH calcareous soils common in Manitoba and Saskatchewan, while the Bray test is effective only in neutral to lower pH, non-calcareous soil as are found in parts of Alberta and Saskatchewan. Kelowna and modified Kelowna tests are also considered effective in the pH range on most of the soils in the Northern Great Plains.

Why do plants need phosphorus?

Cindy Grant and Don Flaten describe the role of phosphorus in their report, "4R Management of Phosphorus Fertilizer in the Northern Great Plains: A Review of the Scientific Literature".

Here is an excerpt:

Phosphorus plays a critical role in all stages of plant growth. After nitrogen, phosphorus is the nutrient most frequently limiting to crop production in the Northern Great Plains. Phosphorus is required for photosynthesis as a component of the molecules that capture the energy harvested from sunlight in the chloroplasts. Phosphorus is also a structural component of the nucleic acids of DNA, RNA, genes and chromosomes and of many coenzymes, phosphoproteins and phospholipids. ... The importance of phosphorus in all energy transfers, photosynthesis, and cell division means that phosphorus plays a critical role from the initial reactions in the germinating seed, throughout plant growth, to formation of crop yield. ... Therefore, an adequate supply of phosphorus is essential from the earliest stages of plant growth. Early season limitations in phosphorus availability can result in restrictions in crop growth from which the plant will not recover, even when phosphorus supply is increased to adequate levels.

NEW IDEAS ON PLACEMENT

The pop-up benefit of seed placement is particularly common in cold soils that are low in available phosphorus. Cereals can tolerate higher seed-placed rates, which means the removal-matching rate of phosphorus for cereals can be safely seed placed. The same can't be said for canola, which is much more sensitive to seed-placed fertilizer. The recommended practice for canola is to place no more than 20 lb./ac. of phosphate (40 lb./ac. of MAP, for example) with the seed and put all other fertilizer outside the seed row.

As Grant and Flaten describe, the seed and seedling damage from phosphorus fertilizer is related to damage from the fertilizer salt in the soil solution and to ammonia toxicity from the ammonium applied with the phosphate. "Increasing nitrogen in the fertilizer increases the risk of seedling toxicity," they write.

Warren Ward knows that some farmers are using much higher seed-placed rates. "We often hear about farmers getting away with high-rates of seed-placed fertilizer," he says. "Moist soils and high seed-bed utilization can reduce the risk, but thinning is likely happening – it just may not be noticed."

A research project led by Grant and repeated at various locations in Canada showed that going from 20 lb./ac. to 40 lb./ac. of ammonium phosphate (liquid or dry formulations) in the seed row thinned stands by about 20 per cent. Adding 20 lb./ac. of sulphur as ammonium sulphate (dry) or thiosulphate (liquid) took it down by another 20 per cent or so. (These results are highlighted in the article "Product and placement", which is in the 2013 Science Edition posted at **canoladigest.ca**.)

"Canola can still yield well with a 40 per cent drop in stand – as long as seeding rates were high enough to keep plant counts above five per square root – so the real management decision is whether the reduced seed return on investment is offset by improved fertilizer logistics," Ward says.

New research by Jessica Pratchler and Stewart Brandt with the Northeast Agriculture Research Foundation at Scott, Sask., suggests that one option is to put all the phosphorus fertilizer in a band outside the seedrow. That way farmers can apply the target removal rate without sacrificing seedling emergence. Overall, the researchers found no evidence of better responses associated with seed-placed versus side-band, even at low rates, and that high rates of side-banded phosphate were always equal to or greater than seed-placed. This could be especially effective if soils are warm, which means young canola plants are growing faster and better able to forage for the phosphorus it needs in those early days. (These results are highlighted in the article "Placement outside the seed row is fine for phosphate", which is in the 2019 Science Edition posted at **canoladigest.ca**.)

"We need phosphorus fertilizer rates to keep pace with our yield targets, and this is a good option," says Ward. "It also helps from an environmental standpoint that the phosphorus is not being broadcast for the amounts over the safe seed-placed rate."

A final consideration in setting rates that match removal is to take a whole farm approach. Phosphorus is fairly immobile in the soil, binding closely to soil particles. That means it won't move much over time. "It also means you can band large single applications, say in the fall, in a year when the price is better or with a crop that is less sensitive to high seed-placed rates," Ward says. This can maintain the overall crop removal balance across the whole rotation while not having to put high rates into the canola seed row.

Table 2. Phosphorus fertilizer recommendations based on soil test

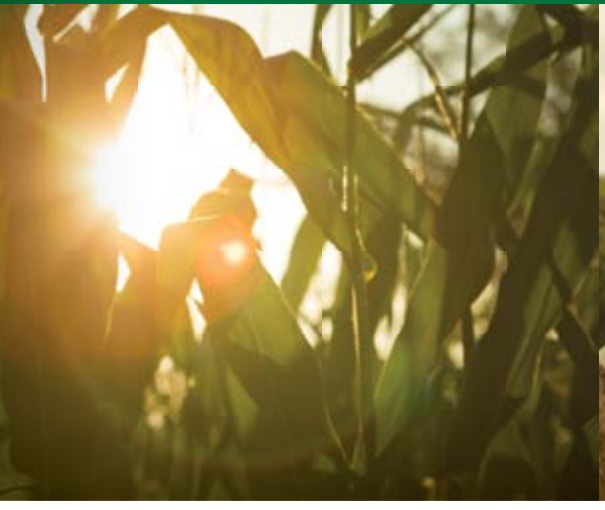
Soil Test P (ppm)	Recommended rate of P fertilizer (pounds of P_2O_5 per acre)	Probability of a yield response (%)
0-5	35-40	>75
5-10	25-30	50-75
10-15	20-25	50
15-30	15-20	25-50
>30	5-10	<25

Source: Grant and Flaten posted this in their report, with information adapted from Saskatchewan Ministry of Agriculture.

Jeff Schoenau studies in-season rescue treatments of phosphorus

University of Saskatchewan soil scientist Jeff Schoenau and Masters student Stephen Froese recently completed a study called "Crop response to foliar-applied phosphorus fertilizers". They evaluated the response to foliar phosphorus fertilization of canola, pea and wheat grown in Brown, Dark Brown and Black soils in Saskatchewan. While the study did show a yield response for foliar-applied phosphorus when compared to a control without any phosphorus fertilizer, the best practice is still to meet crop needs with fertilizer applications before or at the time of seeding. Read more about the study in the Canola Digest Science Edition 2019 at **canoladigest.ca**.

NO ONE CARES MORE ABOUT PRESERVING THE LAND THAN THE PEOPLE WHOSE LIVELIHOODS DEPEND UPON IT.



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AGRONOMIC SERVICES

Keep it Clean! is a joint initiative of the Canola Council of Canada, Cereals Canada and Pulse Canada, working together to provide growers like you with tools and resources for growing crops that meet the requirements of our domestic and export customers.

UNDERSTANDING **MRLs AND PHIs** TO *KEEP IT CLEAN!*

BY *KEEP IT CLEAN!*

You work hard to grow crops to the highest standard. *Keep it Clean!* can help by providing timely updates and simple tips you can use to help keep your crops ready for market – crops that won't cause any trade concerns due to unacceptable residues. You may have heard the acronyms MRL and PHI. These are two terms that frequently come up when talking about growing a market-ready crop.

WHAT IS AN MRL?

MRL stands for "maximum residue limit." This refers to the maximum amount of pesticide residue that is expected to remain on harvested grain when the pesticide is used according to label directions.

Our domestic processors, grain buyers and export customers are increasingly testing shipments for residues with highly sensitive equipment, detecting levels as low as parts per billion and in some cases parts per trillion. If a shipment is turned back because of unacceptable residues, it could result in millions of dollars of lost revenue and damage to Canada's reputation for consistency and quality.

The Canola Council, Cereals Canada and Pulse Canada continuously monitor potential risks surrounding MRLs in major export markets. These guidelines are communicated to growers and ag retailers through the *Keep it Clean!* website, social media and farm publications.

As guidelines may change, visit **keepingitclean.ca** and check with your grain buyer to get the most up-to-date information before applying any crop protection product.

WHAT IS A PHI?

A pre-harvest interval, or PHI, is the minimum number of days that must pass between spraying pesticides or desiccants and swathing or straight-cutting the crop to ensure the active ingredient has enough time to break down in the plant and not leave unacceptable residues behind.

It's important to remember that the pre-harvest interval is based on when the crop is cut, whether that's through swathing or straight combining. And, if more than one product is sprayed, you must observe the longest PHI indicated. If the crop is harvested too soon, too much residue may remain on the harvested grain, which could put the crop's marketability at risk.

Always read the label to verify the PHI before spraying; complying is not just a good practice, it's a legal requirement. To help make crop protection product decisions that fit a specific timeline, or to check PHI information on-the-go, try the interactive *Keep it Clean!* Spray-to-Swath tool at **spraytoswath.ca**.

A common misconception is that the MRL is a safe consumption limit. In fact, MRLs are set much lower than what is safe for consumption. While it is true that safety testing is the first step in determining an MRL, the safety margin for an MRL is often 100s of times higher than a level where risk could occur.

HOW CAN I KEEP IT CLEAN?

As a grower, you play an important role in protecting valuable markets and maintaining Canada's global reputation as a supplier of high-quality canola. You can ensure your harvested grain stays ready for market by following these *Keep it Clean!* best practices:

- Make sure that the products you are applying are registered for use on your crop and won't create trade concerns. Check with your grain buyer before spraying to ensure the products you plan to use are acceptable to domestic and export customers.

Credit: iStock.com/dabjola

- Always read and follow the label for rate of application, timing and PHI. Applying a crop protection product at a higher rate or before the crop has reached maturity can result in unacceptable residue levels in the harvest seed.

- Grow disease-resistant varieties and use practices that reduce infection. Blackleg in canola can cause yield and quality losses, impact profitability and may create a market risk. To protect your investment and the marketability of your crop, plant only varieties that are rated R (resistant) or MR (moderately resistant) and rotate varieties to bring a mix of blackleg resistance genes to your field over time. Maintain a break between canola crops to allow crop residue to decompose – two to three years is recommended if blackleg becomes established – and be sure to control volunteer canola and other Brassica weeds during non-canola years.

- Keep canola bins malathion free. Never use malathion to treat canola seed prior to storage and do not store canola in bins that were treated with malathion in the current growing season. Malathion can transfer to the seed, making it unacceptable for export.

- Deliver what you declare. By signing the *Declaration of Eligibility affidavit*, you are making a legal assertation that your crop is the variety and/or class you have designated. It also states whether your grain may contain residues of any crop input product specified in the Declaration.

Pre-harvest glyphosate should only be applied once seed moisture is less than 30 per cent in the least mature areas of the crop. Applications made before the correct stage increase the risk of unacceptable residue in the seed. Check the visual staging guide at **keepingitclean.ca/glyphosate**.

WHY KEEP IT CLEAN?

We all benefit when we have stable and open trade. From seed selection to delivery, the choices you make along the way can impact market access for Canadian canola, cereals and pulses. That's why it's vital to keep market-readiness top of mind at every step in the growing season.

If you have any questions about MRLs, PHI or any of the best practices discussed here, please reach out to your Canola Council agronomy specialist and be sure to visit **keepingitclean.ca** for the latest updates on market access and MRLs for canola, cereals and pulses.

We are all in this together – let's all do our part to *Keep it Clean!*

—Keep it Clean! *is partially funded through the AgriMarketing Program through the Canadian Agricultural Partnership, a federal, provincial, territorial initiative.*

Is your canola on the "No-Grow" list? Seeding de-registered varieties can create market risk for Canadian canola exports. Visit **keepingitclean.ca/canola** for the full list of de-registered varieties over the past 20 years.

The Canola Council of Canada and Canadian Canola Growers Association partnered to survey wetlands for neonic residue, providing the data to the PMRA for its review of neonic seed treatments. Of the 157 samples taken, 80 per cent had no neonics detected and the other 20 per cent had extremely low levels.

WETLAND MONITORING DEMONSTRATES PESTICIDE STEWARDSHIP

BY ÉMILIE BERGERON AND MARK WALKER

Farmers know seed treatments on canola seeds are valuable to defend against flea beetles. But concern about seed treatments ending up in wetlands and affecting aquatic insects has been cited as a reason they should be phased out.

A water quality survey of 17 different wetlands in 2019 generated more data for the Pest Management Regulatory Agency (PMRA) review of neonicotinoid seed treatments. Funded by the Canadian Canola Growers Association (CCGA) and supported by the Canola Council of Canada (CCC) and product registrants, this initiative was in response to the potential loss of flea beetle seed treatments that include Prosper, Poncho, Helix and Cruiser Maxx. The monitoring showed that the practices Western Canadian canola growers use are protecting wetlands from seed treatment runoff.

"Science-based decision-making is key for our industry," says Bernie McClean, a farmer from Glaslyn Sask., and CCGA president.

"With these water monitoring survey results, we created comprehensive and scientific real-world data that shows how we can use seed treatments and protect aquatic insects," says Curtis Rempel, vice president, crop production & innovation with the CCC.

McClean describes the value in doing this work and relates it to on-farm practices. "Because crop protection products continue to face pressure from activists and the general public, the need for real-life data that supports science-based decisions will continue," he says, adding, "We need to be prepared for that." That means more surveys. It also means close attention to how wetlands and other sensitive areas are managed, as well as increased attention to how label uses and restrictions are followed.

"The practices we use on our farms are an important part of what regulators consider when reviewing crop protection products," says McClean. "What farmers do is important to have the innovative products we need to farm sustainably and remain competitive."

In fact, the potential risk of neonic seed treatments to aquatic invertebrates from seed treatments running off into wetlands was an important consideration that led the PMRA to propose phasing them out in 2018.

"A ban on neonic seed treatments could result in $700 million in losses each year for Canadian canola farmers, which is why neonics have been the top regulatory focus for the Canola Council over the past two years," says Rempel.

A lack of real-life data demonstrating how seed treatments affect wetlands was cited by the PMRA in its decisions. A year and a half later, the PMRA is reviewing the information received during the consultation process – including the water monitoring data for wetlands around canola fields. Final decisions are expected in 2020.

SURVEY RESULTS

The 17 wetland sites, including five in Alberta and 12 in Saskatchewan, were sampled weekly from the end of May until the second week of July. Extra sampling was done

"The practices we use on our farms are an important part of what regulators consider when reviewing crop protection products. What farmers do is important to have the innovative products we need to farm sustainably and remain competitive."

–Bernie McClean

Curtis Rempel, vice president, crop production & innovation with the CCC, says a ban on neonic seed treatments could result in $700 million in losses each year for Canadian canola farmers. "Which is why neonics have been the top regulatory focus for the Canola Council over the past two years," he says.

immediately after major rainfall events. A Government of Canada certified laboratory analyzed the samples and of the 157 samples taken, 80 per cent of them had no neonics detected. The other 20 per cent had extremely low levels, well below the PMRA's established points of regulatory concern. Even after heavy rainfall, significant accumulation was not detected.

These results align with results from the 2017 and 2018 water monitoring programs undertaken under the Agriculture and Agri-Food Canada Multi-Stakeholder Forum Environmental Water Monitoring Working Group. While waiting for the PMRA's review and final decisions, CCC and CCGA will continue advocating for a national water monitoring program that will provide regulators with the data they need for evidence-based regulation of crop protection products in the future.

EFFECTIVE PRACTICES

The results of the water monitoring show that good on-farm practices help keep crop protection products out of wetlands. Conservation tillage limits soil movement, increases surface moisture and increases organic matter – all important to slow the movement of crop protection products and improve residual breakdown. The final step in keeping crop protection product residue out of wetlands is to maintain buffer strips. These vegetative buffer strips are effective tools to filter out crop protection products and keep them out of wetlands. Even in dry spring conditions when seeding into these areas may be possible, growers are still advised to leave these vegetative boundaries alone as they serve an important protective buffer between the field and the wetland.

Canada's canola farmers continue to learn new ways to manage pesticides, and their continued use of best practices is proving effective at limiting pesticide runoff into wetlands. While the 2019 water monitoring survey results will help PMRA with its decision, these results also demonstrate the environmental responsibility of Canadian farmers.

—Émilie Bergeron is director, public affairs with the Canola Council of Canada in Ottawa. Mark Walker is policy manager with the Canadian Canola Growers Association in Winnipeg.

Winter canola would benefit farmers in southern Ontario looking for a profitable crop to expand the rotation, but corn and soybeans are harvested too late to get the crop established. A new concept – winter canola and soybeans harvested the same year – is getting some attention.

ONTARIO GROWERS TEST **CANOLA-SOYBEANS DOUBLE CROP**

BY MEGHAN MORAN

Ontario producers are finding a new place for canola in their crop rotations. The hope is that it will not only benefit their bottom line, but diversify rotations, balance the workload and provide opportunities to manage herbicide-resistant weeds. The trick is that they are growing winter canola, which is planted in September and harvested in June or July.

In the southernmost counties in Ontario, where winter canola has the best winter survival, soybeans dominate the landscape. "We need to diversify crop rotations and find new ways to manage glyphosate-resistant and multiple-resistant weeds" says Eric Page, research scientist with Agriculture and Agri-Food Canada in Harrow, Ont. Canola is highly competitive with weeds, and he feels the fall-planted crop can offer suppression of problematic Canada fleabane.

Inserting winter canola in the rotation is not exactly straightforward. Corn and soybeans are harvested too late, so the canola is planted following winter wheat harvest. This limits the crop to fewer acres because of wheat's lower profitability compared to corn and soybean. There are also concerns with putting winter canola behind the typical corn-soybean-wheat rotation. If corn is planted again after canola, phosphorus uptake issues could occur because canola does not host the mycorrhiza that corn requires to take up that nutrient. However, this could be mitigated by planting a cover crop after canola harvest to bring up mycorrhiza populations. Oats would be a good choice. But expanding to five crops to solve corn-soybean rotation issues is a stretch.

AAFC research scientist Eric Page (left) and Ontario farmer Nathan Van Overloop (right).

A bigger draw for many producers is the opportunity to plant soybeans directly after winter canola and harvest two crops in one season. If soybeans are planted by around July 10, they could quite possibly pull off soybeans yields of 30 bu./ac. or more. Page says the opportunity to double-crop soybeans after canola may be easier to achieve than after winter wheat. In the southernmost counties, harvest of winter canola is about seven to 10 days earlier than winter wheat. "We have also been looking at some early-maturing winter canola varieties, which could be harvested an additional five to seven days earlier, giving more time to capture high yields in double-crop soybeans," Page says.

Dennis Drieger from Essex county rented a sandy field to a local potato grower, then planted winter canola after the potato harvest. He followed up with double-crop soybeans planted on July 10, the day after winter canola came off. Drieger was surprised at how much the canola shattered at harvest, and how the seed moisture dropped from 12 per cent to seven per cent overnight. "Our first canola experience was interesting. We had about 10 bushels more than others in the region who planted on heavier soils, so it's hard to say if this will work on all of our land. The real draw is the double-crop soybeans." Drieger had a successful season with 3,250 lb./ac. (65 bu./ac.) canola and 40 bu./ac. soybeans. Even so, he says the ideal situation would be to harvest canola and plant soybeans in June.

Winter canola yields averaged over 2,700 lb./ac. (54 bu./ac.) in Ontario in 2019, so there is no doubt the crop has potential. A producer who grew canola for the first time, Nathan Van Overloop, won the Ontario Canola Growers yield challenge with 4,199 lb./ac. (84 bu./ac.). Van Overloop also seeded the canola into a sandy soil type, but the prolonged, wet spring still caused plant loss in a patch where there was standing water. Overall the crop looked fantastic but was slow to dry down. He harvested on July 23, so there was not enough time to plant soybeans.

Harold Fisher, a long-time spring canola grower, also tried winter canola for the first time and placed sixth in the yield challenge with 3,412 lb./ac. (68 bu./ac.) This is particularly exciting because Fisher had one of the northernmost winter canola fields, and with the winter crop he avoided challenges with swede midge. "I actually had a fairly thin stand because of the incredibly wet and slow spring," says Fisher, "but we let it stand because we know canola can fill in, and we weren't planning on putting in the work to prepare that field for spring planting." Fisher also noted the winter canola pods seemed to be much longer than what he normally sees in spring canola, and this was his best canola yield yet.

Producers that are new to canola are willing to do things a bit differently. Many are planting on 15-inch rows with an air seeder or a corn planter with after-market canola seed plates. Seed savings are being realized because of higher rates of emergence with a precision planter, and because lower seeding rates are recommended on the wider rows to reduce crowding of plants. Page advises that "we want plant crowns to be snug to the soil surface where they are more protected. If seedlings are too close together they compete, resulting in long hypocotyls and crowns exposed well above the soil surface." This is not a problem in spring canola, but increases risk of winter kill for the fall planted crop.

While interest in winter canola is on the rise, growers still have questions and concerns. Long herbicide carryover intervals from products used in soybeans and winter wheat are a limiting factor. More information is also needed on planting date by region, particularly at distances far from where Page is conducting his research. "We know high yields can be achieved in southern Ontario," Page says, "and we hope to continue conducting research to answer producer's questions."

"We have also been looking at some early-maturing winter canola varieties, which could be harvested an additional five to seven days earlier, giving more time to capture high yields in double crop soybeans".

–Eric Page

—Meghan Moran is the canola and edible bean specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs. Email meghan.moran@ontario.ca.

TEAMS ARE BETTER AT SEEING AHEAD

Three brains are better than one. Use a team approach to set business goals and outline the plan to achieve them. Business futurist Bob Treadway explains that effective teams have more collective experiences, generate more ideas, ask better questions and challenge each other. Teams are smarter than individuals.

BY JAY WHETTER

Bob Treadway says survival in business depends not so much on being lucky enough to *predict what will* happen, but being broad-minded enough to *forecast all the things that could* happen.

"Do not try to predict. This is dangerous," says Treadway, a futurist who runs strategy sessions on business planning and forecasting. Treadway says predicting is like taking a bet on an outcome. The better approach is to do as much as you can to reduce the gamble. That means trying to think of all the risks and opportunities facing the business over the near and long term, then working on ways to protect the farm from those risks and to participate in the opportunities. "You want to be able to see around corners and forecast

Bob Treadway recommends the daily email newsletters Quartz and Morning Brew to keep a pulse on business news and societal shifts. For all of his favourites, go to his website **trendtalk.com** and click "What/who we like" under the Insights tab.

the things that might profoundly affect the future of the business," he says.

He recommends that anyone in business keep up with the news, listen to what consumers and influencers are saying, and use that information to see where business is going. How will demographics change food demand? How will the environment shift productivity here and in other countries? Will former Soviet Union countries start to produce crop in line with their potential? What is happening with biofuel consumption? Will anti-science protesters influence demand, regulation and policy? Are we entering a protectionist cycle? Is plant-based protein a fad or a trend? These are just some of the big questions that create risks or opportunities or both – "from risk comes opportunity" – for a farm business.

Treadway recommends that farms take time each year or a few times a year for a sit-down meeting to think about trends and the future direction of the business. This should be a team effort, he adds. "Teams are much better than individuals at seeing ahead," he says. That's because teams – effective teams – have more collective experiences, generate more ideas, ask better questions and challenge each other.

"Back when I first started in consulting and training I had the thought that groups, even ad hoc, possessed the combined ability beyond genius-level IQ. Of course the genius level has been debunked to a large extent, but in general, teams are smarter than individuals," he says. "I used to demonstrate this by administering some short 10-question quizzes that had been developed by Mensa. They were screening tests for people who aspired to join the society. I never had a group of four or more people fail to get at least seven of the 10 answers correct."

"You want to be able to see around corners and forecast the things that might profoundly affect the future of the business."

–Bob Treadway

WHO IS ON THE TEAM?

Canola Digest asked Treadway for his definition of "team". His answer: "I think any group of three or more people who bring some level of interest, commitment and especially independent opinion can be a team."

For a farm, that would include a nucleus of owners and family members along with some outside help. "Multiple generations strengthen a team, in my opinion," he says. "A diversity of viewpoints can be very useful."

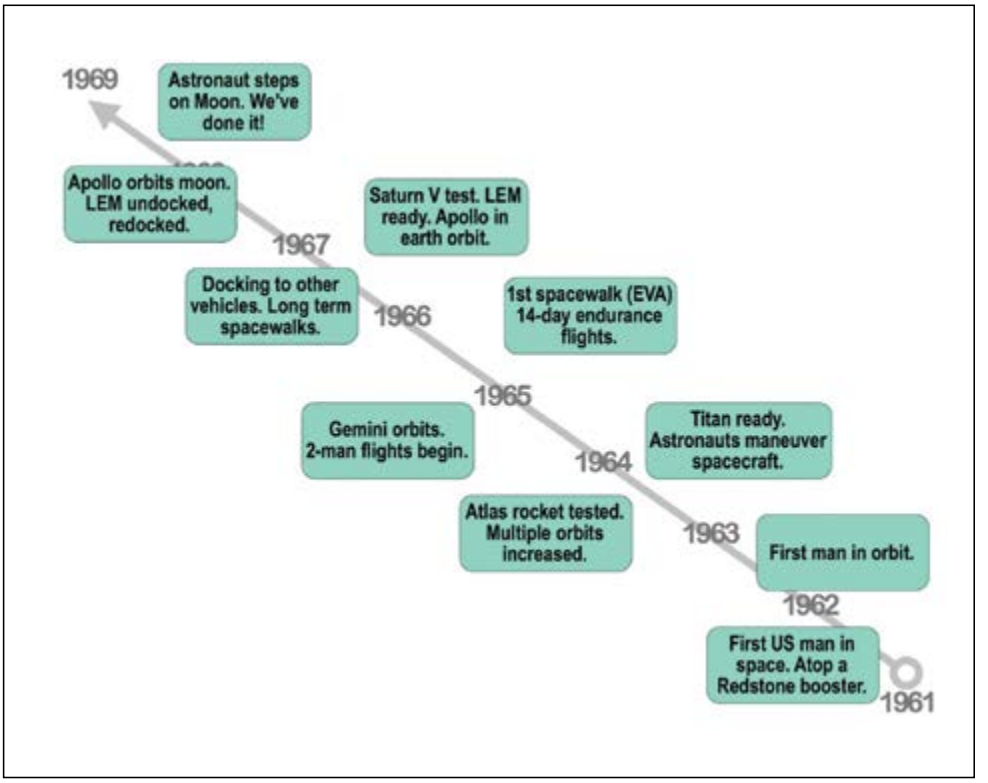
He describes a strategy session he once did with a family farm corporation in South Dakota. It was a team of 14: Four brothers and a brother-in-law were the nucleus. The mother of the four brothers was peripherally involved. A second

generation of four sons was included along with the most essential employee Over a two-day period of discussions, they also added their accountant, attorney and a contact from the primary lender. Each appeared for specific discussions.

"That was one of the most robust teams I've worked with in a farming setting," he says, and it gives an idea of who could be at the table. Daughters- and sons-in-law who are married into the business can also provide new ideas and insights. You might even include a neighbour.

"For one of my sessions, a couple brought along one of their neighbours who, despite being an abrasive guy to me, contributed some excellent perspective for their operation and the options they'll face in the future. I think that's a useful model," Treadway says.

A team does not necessarily need to be a group with some pre-established power, like a board of directors, he says. "It's a group brought together for the task of forecasting."



Treadway says gathering a group for forecasting and business planning isn't that complicated. "Do some advanced planning, discuss who might be invited, and set aside enough time for the process," he says. "It's often useful to have a guide or facilitator. You could hire someone or it could be a family friend or a mentor." You just want someone to describe the objectives and keep the conversation somewhat on track and moving toward the meeting's goal.

BACKCASTING

In his presentations, Treadway explains the idea of backcasting. As part of the business discussion, the team thinks of a big opportunity for the business and sets a lofty goal – say with a 10-year time horizon. Then it works back through all the steps, year by year and in reverse order, that will be needed to achieve that goal. That's backcasting.

He uses the NASA first moon mission as an example. In the early 1960s, U.S. President John F. Kennedy said he wanted to have an American man on the moon by the end of the decade, which was a huge stretch goal. NASA then used backcasting to work backward through all the steps needed to achieve that goal, and it worked.

Some of the examples that came up in one of Treadway's recent brainstorming backcasting exercises included goals for individual farms ("double profits on the same land base"), goals for a while ag sector ("double pulse processing and consumption in Canada") and major game-changers ("what happens if we lose the use of glyphosate?"). With the goal to double Canadian pulse crop production and consumption by 2034, the group thought through all the steps required to get there, from consumer perceptions, restaurant menus, retailer shelf space, transportation, processing capacity, seed variety traits, on-farm profitability and agronomy challenges. The backcasting process works backward through these steps until you have a plan for what needs to happen this year, next year and each year for the next 10 years to make sure all of those steps can happen on time.

In the early 1960s, U.S. President John F. Kennedy said he wanted to have an American man on the moon by the end of the decade. NASA used backcasting to work backward through all the steps needed to achieve that goal, and it worked.

Bob Treadway shares the Noah principle: "Forecasting rain doesn't count. Building arks does."

Treadway encourages farmers to take advantage of opportunities to expand their network and be active participants in leadership and business training opportunities. Look for ways to meet and connect with people from other businesses outside of agriculture or from a different agriculture sector. He says these experiences will enhance your value to a team and make connections with people who might participate in your own forecasting and backcasting team exercise.

The bottom line is to forecast challenges and opportunities, then to take actions that move the business in a direction that satisfies your goals and ambitions. Action directed by forecast is good business. Treadway describes this as the Noah principle, which he learned from Warren Buffet, chairman and CEO of Berkshire Hathaway. "Forecasting rain doesn't count. Building arks does." With a good team, you get a more accurate forecast and you build a better ark.

—Jay Whetter is the editor of Canola Digest.

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Photo: Brian Gould

Left: Farmer Will Bergmann with home economist and TV personality Mairlyn Smith

Right: Katie Fowler, food stylist, with her "I heart farmers" T-shirt.

Wear your heart on a sleeve

The Canola Eat Well program, supported by canola farmer organizations in Manitoba, Saskatchewan and Alberta, encourages farmers to wear their heart on a shirt to build conversations, connections and community.

BY ELLEN PRUDEN

We've all heard the saying 'wearing your heart on your sleeve'. It usually refers to a person who openly shares their feelings or emotions, but for Canola Eat Well, it's literally wearing your heart on your chest.

Branded clothing is part of the Canola Eat Well (CEW) marketing strategy. CEW wants to grow a community of key opinion leaders who inform their audiences about choosing canola oil.

Wearing a branded clothing item is nothing new for companies. We all wear clothing with big name logos, like the Nike swoosh, but for agriculture it tends to be a bit boring, basic and masculine. Agriculture brands, especially for work apparel, are aimed at the farmer and foster farmer-to-farmer recognition and conversation. The "I heart farmers" CEW gear is an agriculture brand but has a different target in mind: the Canadian end user. The branding is fun, engaging and connects with the people who use our canola while keeping the focus on the farmer. The brand becomes the calling card for choosing canola oil and supporting Canadian canola farmers. It provides CEW community members a visible item to wear while proudly promoting canola oil and the farmers that grow the crop.

The CEW community of dietitians, chefs, home economists, food communicators and some farmers proudly wear the "I heart farmers" shirt because they believe in the statement. How can you not love farmers? Farmers grow food, look after the land and support rural communities. But for some farmers, it makes them feel uncomfortable to wear that label. That's OK because it's not about you. It's about the end consumer wanting to build a connection to you as a farmer. Be proud, wear the shirt. It tells the world that:

1. You want to connect to the end canola oil consumer
2. You love yourself and your fellow farmer
3. And you are proud of your canola provincial organization.

Next time you see someone wearing an I heart farmer shirt, celebrate them and tell the person that you are a farmer. It might just open a dialogue of connection and conversations.

If you want to order a shirt, go to **www.canolaeatwell.com** and select "Get the gear", which is one of the boxes on the home page. Enter "CANOLAFARMER" for your special rate.

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.

*—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**.*

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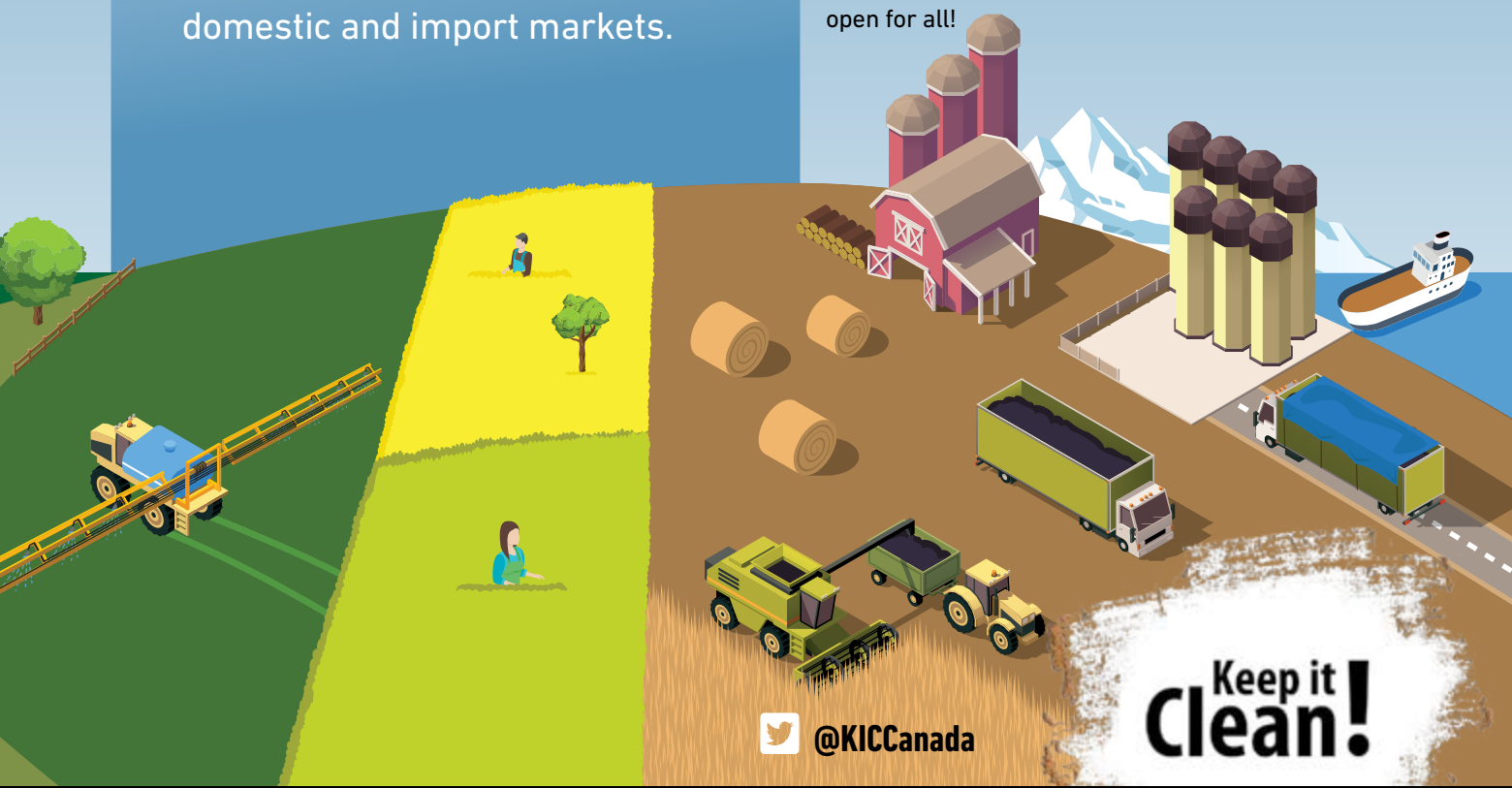
WHAT IS KEEP IT CLEAN?

Keep it Clean! is a cross-commodity initiative that provides growers with tips and tools for growing crops that meet the requirements of our domestic and import markets.

You can find helpful information on the use of crop protection products, along with agronomic practices to reduce market risk, at **keepingitclean.ca**.

Everyone benefits when markets are open to Canadian canola, cereal and pulses. Let's all do our part to ***Keep it Clean!*** and keep markets open for all!



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