



CANOLA DIGEST



Inside

Five highlights from AgriTechnica | **22**

Aussie rules: Canola production soars down under | **24**

Make better decisions with OODA loop | **30**



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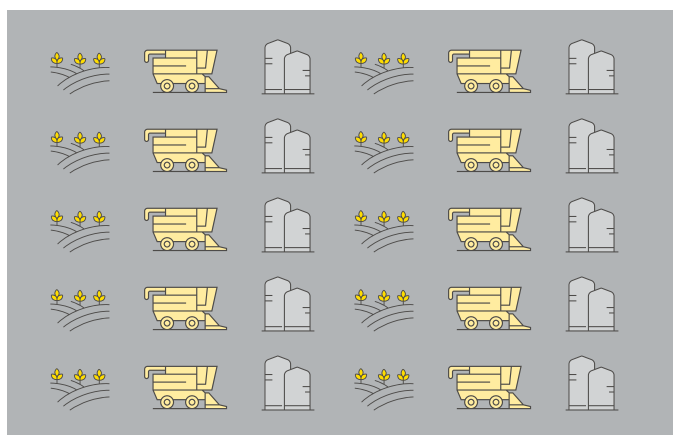
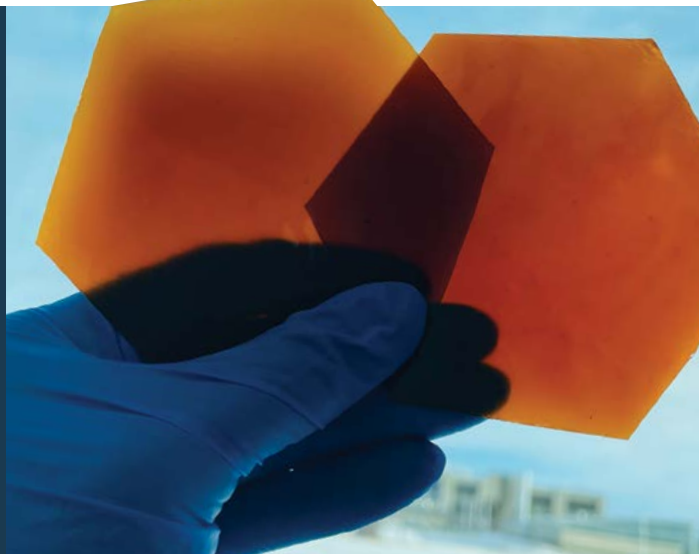
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10

Stronger canola plastics, enhanced canola fibre and more

Canola Week, December 5-7 in Calgary, included state-of-the-industry updates, agronomy research, and innovations in breeding, production and processing. Attendees learned about work to enhance canola-based plastics and canola meal for chickens, and the goal to improve canola's carbon intensity.



15 Canada's Clean Fuel Regulations boost canola demand

New regulations to reduce the carbon intensity of Canada's gasoline and diesel supply have helped drive the boom in canola processing capacity on the Prairies.

16 New verticillium committee to guide agronomy and research

At the Canola Council of Canada verticillium stripe workshop, attendees discussed observations from 2023, ongoing challenges and a new verticillium stripe steering committee.

20 New pests on the horizon

Canola Council of Canada staff recently published a paper looking at the future of pests we already see on the Prairies and pests identified in other canola growing regions around the world.

22 Five highlights from AgriTechnica

CCC agronomy specialist Jason Casselman saw a lot at AgriTechnica in November, including next stage crop sensors, optical spraying retrofits, automatic seeding rate adjustment for drills and instant AI analysis of crop imagery.

24 Aussie rules

Australia's contribution to global canola and rapeseed supply reached a record 8.3 million in 2022. Rainfall was the key factor. Agronomy was another. Could Australian rules for better canola productivity help improve productivity in Canada?



Provincial Bulletins



4

Alberta Canola welcomes new board member Jeff Frost. Scientific Research and Experimental Development tax credit for Alberta Canola levy payers is 12.49 per cent. Visit the redesigned website at albertacanola.com.



6

SaskCanola's on-farm, field scale research program tested the foliar nitrogen-fixing biological product, Envita. Scientific Research and Experimental Development tax credit for SaskCanola levy payers is 29.0 per cent. SaskCanola and SaskFlax merger approved.



8

Pat and Paul Orsak earn the Manitoba Canola Growers "Canola Award of Excellence" for 2024. MCGA welcomes new board members Darren Nykoliati, Evan Gillis, Jason Kehler and Jay Derkah. Grade 12 students can apply for \$1,000 scholarships.

Departments

18 AGRONOMY INSIGHT

New ways to assess sclerotinia risk

New research, sensors and tools make it easier to assess the key risk factors for sclerotinia stem rot: canopy moisture levels and presence of sufficient spores. Find the new Sclerotinia Risk Assessment Tool at canolacalculator.ca.

28 CANOLA RESEARCH HUB

Better estimate emergence this spring to hit your target plant population

Canola rates may need to be increased when seeding at a later seeding date, and when high average temperatures or low precipitation are observed before seeding or are expected after seeding.

29 CANOLA IN OTTAWA

COP28 in Dubai, IOPD in Argentina

The Canola Council of Canada attended the 28th Conference of the Parties (COP28), the global climate change conference, in Dubai. Canadian Canola Growers Association attended the International Oilseed Producer Dialogue (IOPD) in Rosario, Argentina.

30 BUSINESS MANAGEMENT

Make better decisions with OODA Loop

How can an air force strategy to improve combat results help a farm make better marketing decisions? It's about the process - including a constant looping back to test the validity of each decision.

33 NATIONAL CANOLA MARKETING PROGRAM

De-bunking myths and educating audiences

Hello Canola has partnered with four strong Canadian voices - Emma Choo, Devan Rajkumar, Abbey Sharp and Darryl Wiebe - who can amplify the "canola love" message.

34 FARMER PANEL

The money makers

Canola Digest asks its six farmer panelists to name their most profitable crop in 2023. Canola was at or near the top for many of them. We also ask what they can do to increase profits.

THE CANOLA DIGEST IS A JOINT PUBLICATION OF:

ALBERTA CANOLA OFFICE

Karla Bergstrom, Alberta Canola Producers Commission
14560 116 Avenue NW
Edmonton, AB T5M 3E9
(780) 454-0844 Fax: (780) 451-6933
Email: karla@albertacanola.com

SASKCANOLA OFFICE

Tracy Broughton, SaskCanola
212 - 111 Research Drive
Saskatoon, SK S7N 3R2
(306) 975-0262
Email: tbroughton@saskcanola.com

MANITOBA CANOLA GROWERS OFFICE

Delaney Ross Burtnack,
Manitoba Canola Growers Association
400 - 167 Lombard Avenue
Winnipeg, MB R3B 0T6
(204) 982-2120 Fax: (204) 942-1841
Email: delaney@canolagrowers.com

CANOLA COUNCIL OF CANADA

Publisher
400 - 167 Lombard Avenue
Winnipeg, MB R3B 0T6
(204) 982-2100 Fax: (204) 942-1841

EDITORIAL OFFICE

Jay Whetter, Editor
Canola Council of Canada
400 - 167 Lombard Avenue
Winnipeg, MB R3B 0T6 | (807) 466-3025
Email: whetterj@canolacouncil.org

DESIGN: Marshal Yard

(204) 452-9446
Email: connect@marshalyard.ca
www.marshalyard.ca

ADVERTISING SALES: WTR Media Sales Inc.

1024 - 17 Avenue SE, Calgary, AB T2G 1J8
Robert Samletski (403) 296-1346
Toll free: 1-888-296-1987
Email: robert@wtrmedia.com
Linda Samletski (403) 296-1349
Toll free: 1-888-296-1987
Email: linda@wtrmedia.com

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British Columbia 250-262-6585
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Canadian Crops Convention

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Winnipeg, Manitoba
canadiancrops.ca



Seed right

BY JAY WHETTER

A drill is for seeding. So, do one-pass air drills that apply both seed and all fertilizer do a disservice to canola stand establishment?

That question came up during a Canola Council of Canada (CCC) agronomy team discussion on yield-limiting factors and what we can do about them. Summer heat, flea beetles and low plant counts are three major reasons for lower yields, and rapid emergence of a uniform crop of five to eight plants per square foot might help reduce risk for all three. More plants reduce the flea beetle risk. Rapid growth reduces the flea beetle risk. Vigorous crop establishment could mean the crop flowers before the hottest days of summer. And low plant counts, perhaps due to varying seed depth or too much seed-placed fertilizer, mean the crop cannot reach its yield potential.

Our modern seeding tools can achieve these objectives... if operators put a priority on the seeding operation. Farmers have one chance (assuming re-seeding is less than ideal) to achieve the critical stand objectives: uniform depth, firm moist seed bed and ideal timing.

Manitoba agronomist Tanis Sirski, in her January Canola Digest article, shared her key to higher canola yield: "Growers who achieve consistent top-level yields have the machinery prepped and inputs on hand so they're ready when good seeding, spraying and harvest conditions come along."

If field conditions are perfect for canola seeding, but the farm is waiting on an anhydrous tank or sulphur fertilizer, do they seed anyway and top up the missing fertilizer with in-season application? If a farm plans to apply 250 pounds per acre of urea, could they achieve more timely seeding by deep banding some of that urea in the fall or pre-seed broadcast with an enhanced-efficiency treatment? If a farm has a single shoot openers with all seed and fertilizer going into the same band, should that fertilizer be applied by other means to protect those precious seeds? I'm not saying the answer to these questions has to be "yes." But if seed survival and plant stands are subpar, a farm may want to explore their answers to these questions.

In the CCC agronomy team discussion on yield-limiting factors, I asked CCC agronomy specialist and fertilizer lead Warren Ward whether we could achieve 4R and emissions objectives by moving

Farmers have one chance (assuming re-seeding is less than ideal) to achieve the critical stand objectives: uniform depth, firm moist seed bed and ideal timing.

some fertilizer application off the drill. He said the move to deep banding in the fall or pre-seed broadcast after spring thaw would be "lateral" in terms of 4R best management practices, even with all precautions to limit losses. In-season application better matches fertilizer placement with crop uptake but, like the other options, requires a second pass.

CCC agronomy specialist and crop establishment lead Jason Casselman was at AgriTechnica in Germany in November. Many companies promoted modern drills that featured a "train" of seedbed prep tools, seed openers, packers and soil smoothers. Though some seed drills could apply some fertilizer, that was not the priority. "These drills provided precise seed metering and perfect seed placement," Casselman says. "The key is that they don't hurt any sensitive seed with fertilizer."

These tools, Casselman noted, fit with the worked ground and multiple passes ingrained in European agriculture. For the Canadian Prairies, in general, Casselman says, "The one-pass system with super-low disturbance is the right way to do it."

Chris Holzapfel is research manager at the Indian Head Agricultural Research Foundation in Saskatchewan. Holzapfel presented on "Seeding canola: Getting it right" at Ag Days in Brandon, Manitoba, in January. I asked Holzapfel what treatments or factors tended to improve seed survival? His answer: "Seeding into warmer soils, narrower row spacing, and minimal or no seed-placed fertilizer."

However, Holzapfel says a separate pass for fertilizer may not be the right move. "Putting fertilizer into the ground in a separate pass often makes the seed bed worse and broadcasting nitrogen often results in poor uptake, lost nitrogen and lower yields," he says. "I'd suggest that the drill is also a fertilizing machine as alternative options frequently come with drawbacks of their own."

Short of moving fertilizer to a separate pass, how do we make sure the drill does its seeding job as well as possible? Have all fertilizer ready so seeding can proceed when fields are ready. Place seed into a firm seedbed not fractured by a deeper fertilizer shoot. Set the drill for uniform seed distribution and depth. Place all fertilizer, except perhaps a small starter rate of phosphate if soils are moist, in bands outside the seed row. When new air drill tanks can hold over 1,000 bushels of fertilizer, this should not take away from the fact that the drill is, first and foremost, a seeding tool. ✿

Jay Whetter

Alberta Canola Board of Directors



Missing from photo: Justin Nanninga

Alberta Canola is pleased to announce the newest addition to the Alberta Canola board of directors, Jeff Frost from Olds, who takes over the role previously held by Ian Chitwood, representing region 8.

Following the 34th annual general meeting on January 24 in Grande Prairie, the board has re-elected Roger Chevraux of Killam as the chair and Charles Simoneau of Guy was elected as the vice chair.

Expressing gratitude for his dedicated service over the past six years, Chevraux acknowledges outgoing director Ian Chitwood for his hard work. "Chitwood's representation of Alberta's canola growers and advocacy for the unique needs of his region played a crucial role in the board's ability to exercise sound judgment and make informed decisions."

For more information on the board of directors, the guiding committees and details about Alberta Canola's regions, please visit albertacanola.com.

Visit the redesigned albertacanola.com

Visit the new Alberta Canola website today at albertacanola.com to explore the revamped platform and discover the wealth of resources available.

Alberta Canola is excited to announce the official launch of our redesigned website, aimed at providing a more user-friendly and informative experience for our stakeholders.

The new website features a modern design, improved navigation and enhanced functionality to better serve the needs of farmers, industry professionals and the public. Our goal is to create a seamless online environment that reflects our commitment to innovation, sustainability and supporting the success of Alberta's canola industry.





Celebrating farm leadership in the Peace

At the second annual Alberta Canola Conference, held this January in Grande Prairie, Alberta Canola recognized the years of leadership provided by the past directors representing the three Alberta Canola Regions in the Peace River Region. Their commitment and dedication has always ensured that the needs of this unique region of Alberta were well represented at the Board of Director meetings.

Alberta Canola also honoured Mr. Walter Paszkowski for his lifetime of leadership in the canola industry, the peace region, and the province of Alberta.

Alberta Canola also introduced the Walter Paszkowski Farm Leadership Award that will provide one canola grower in Alberta a \$5000 bursary to assist with the cost of participating in the Farm Management Canada's National Farm Leadership Program powered by Leadershift. Details on the program will be announced in the fall with the first award winner expected to attend the program in 2025.



Tax credit for the 2023 tax year available to canola farmers in Alberta

Canola growers in Alberta, who do not request a refund of their check-off from the Alberta Canola Producers Commission, are eligible for a tax credit during the 2023 tax year. The Scientific Research and Experimental Development (SR&ED) tax credit enables canola growers to claim a credit for the portion of their check-off utilized to support qualifying research.

Alan Hampton, a farmer from Rowley, Alberta and chair of Alberta Canola's research committee, highlights the additional benefit for growers who contribute a check-off on canola.

"This contribution funds research aimed at enhancing canola cultivation, addressing agronomic challenges such as blackleg and clubroot disease management, and studying insect pests' susceptibility and resistance to insecticides," Hampton says.

"The SR&ED tax credit allows farmers to recoup a portion of their investment come tax time."

For the 2023 tax year, the tax credit rate for canola growers in Alberta is set at 12.49 per cent. For example, an individual grower who paid \$1,000.00 in check-off to Alberta Canola in 2023 would be eligible for a tax credit of \$124.90.

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 three years to reduce federal taxes paid in those years.

Individual growers must file a T2038 (IND).

Farm corporations must file form T2SCH31.

Historical SR&ED percentages for Alberta Canola, along with additional information from the Canada Revenue Agency, can be accessed at:

albertacanola.com/SRED.




TRIAL DATA

SaskCanola's 2023 on-farm research trial results

Foliar N-fixing biological trial for canola



The 2023 growing season marked the first year of SaskCanola's Top Notch Farming Trials – a new on-farm, field scale research program.

The focus for this year was testing a foliar nitrogen-fixing biological product, Envita. The program had eight producer cooperators from around the province. Locations included Carrot River, Davidson, two sites at Indian Head (one at IHARF), Luseland, Maidstone, Shaunavon, Vibank and Wynyard. The eight participants were given the choice between two different protocol options. Option A consisted of two treatments – no foliar nitrogen-fixing biological compared to Envita at the recommended rate and timing – replicated four times. Option B had four treatments – a normal nitrogen (N) rate with and without Envita and a reduced N rate with and without Envita – replicated three times. The normal N rate was determined by the cooperator and their agronomist as per their usual practice and yield goal. The reduced N rate for

option B was 90 per cent of the normal N rate. Each field was managed in the same way, except for the treatments.

Cooperators and their trial site managers worked with the project coordinator to ensure that tweaks being made to each trial would still ensure usable data. Data was collected prior to seeding and throughout the growing season, as were samples from each replication at harvest for protein and oil content testing.

Despite having trials throughout most of the province, there were no significant differences in yield from the Envita application regardless of the N rate used. The Davidson site saw differences in protein and oil content because of the N rate, but not from the Envita application. The Wynyard site showed variations in yield and protein due to N rates, not the Envita application.

For detailed summaries, including the data collected and stats for each of the trial sites, go to saskcanola.com and click "On-farm & field scale research" under the Research tab.

Research tax credits available to SK canola farmers

The Scientific Research and Experimental Development (SR&ED) tax incentive program is the largest government initiative designed to encourage and support research and development in Canada. To qualify, research must align with one of the following core objectives: advancing scientific knowledge or achieving technological progress, or engaging in systematic investigation or exploration

in a scientific or technological domain through experimentation or analysis. Work categories encompass basic research, applied research and experimental development. Notably, SaskCanola strategically invests farmer levy dollars into research and development. As a result, farmers who retain their levy with SaskCanola gain the advantage of claiming the SR&ED tax credit on their income tax. For the

2023 crop/tax year, 29.0 per cent of producers' levy is eligible for the federal SR&ED tax credit.

In addition, farm corporations may also claim 20.1 per cent of their levy contributions as a qualifying expenditure towards the Saskatchewan Research and Development Tax Credit program for the 2023 crop/tax year. Visit saskcanola.com/research-tax-credits for more information.



SaskCanola and SaskFlax merger approved at AGMs

SaskCanola and SaskFlax are pleased to announce the successful approval of their amalgamation.

The decision comes after resolutions were passed at both organizations' annual general meetings (AGMs) in January 2023, calling for the two organizations to explore options for potential amalgamation over the past year.

On January 9, 2024, SaskCanola and SaskFlax jointly held their AGMs to share the outcomes of feedback gathered through an online consultation survey from Saskatchewan's canola and flax growers. The responses were overwhelmingly supportive of amalgamation.

Formal voting on the proposed amalgamation took place during these meetings and was met with widespread approval, marking a historic moment for the canola and flax industries in Saskatchewan.

"The collaborative efforts are expected to streamline operations, enhance research initiatives and provide a more



↑ SaskFlax director John Burns votes on the amalgamation motion at the SaskCanola AGM.

cohesive voice for oilseed growers in the province," says Tracy Broughton, SaskCanola executive director. "Both commissions will now work with Agri-Food Council to amend regulations as the amalgamation will officially commence at the start of the next crop year on August 1, 2024."

Both boards will continue to provide their respective leadership until the final audits are complete, at which point the single entity will emerge with one board and one staff.

A fall election will determine the individuals who will fill the available positions on the newly formed board of directors for the single commission. Interested individuals are encouraged to connect with current directors to explore this impactful opportunity further to help shape the future of the oilseed industry.

Remembering Dave Marsh



We were deeply saddened by the sudden passing of our friend and colleague Dave Marsh on April 24, 2023.

Dave was our long-time Controller, hired in 2010. He was a cheerful and friendly person to be around every day and we miss his presence dearly. Humble in nature, he would often say, "I'm just here to pay the bills and keep the lights on," but he was so much more than that. He had a wonderful sense of humour and enjoyed a good visit over coffee and some form of chocolate. He was such a source of calm for our team, even in stressful times. He was the strong man in the storm and a quiet leader.

It has been a tough year for all of us as reality sets in that an integral part of our team is gone too soon. Dave had a profound impact on those that knew him, and we are forever grateful for his

leadership and friendship.

On an annual basis, SaskCanola identifies an individual who has had a significant impact on the Saskatchewan canola industry and recognizes them for their leadership by bestowing them with the Canola Influencer Award. The recipients of these awards have made distinguished and exceptional contributions of knowledge, education, and ongoing efforts to promote canola. Dave Marsh was posthumously bestowed our Canola Influencer Award for 2023, including a donation made to the Heart & Stroke Foundation to acknowledge his impact. See more at saskcanola.com/leadership

Celebrating excellence: Farm family recognized with 2024 Canola Award of Excellence



There is something magical about the connections formed at summer camp. Combined with the magic of a prairie harvest, the idea behind Harvest Camp grew. What began as a modest initiative quickly became an annual event that bridged the gap between urban Canadians and farmers, fostering understanding and building lasting relationships.

The idea traces back to conversations between Pat Orsak, professional home economist and partner at Orsak Farms Ltd., Ellen Pruden, former Manitoba Canola Growers Association (MCGA) staff and Jennifer Dyck, market development director at MCGA, around bringing urban Canadians to the farm.

Each September from 2012 to 2019, a group of campers, including influential food writers, digital content creators, scientists, dietitians and chefs, were invited to hop on a bus for three days and visit a variety of farms, including a mixed grain and cattle farm (Jacksons), a bison operation (Millers), a family-owned grain storage facility (Derkachs), a honey operation (Wendell Estate Honey) as well as two grain and oilseed farms (Orsaks and Dalgarnos). As Camp evolved, more stops were added, focusing on additional topics like soil health and science.

"It was about people wanting to learn," Pat emphasizes, reflecting on the camp's nature. The event wasn't just about showcasing modern, sustainable agricultural practices; it was a platform for mutual understanding, where chefs, dietitians, food writers and farmers could find common ground and relate to each other as individuals with similar concerns.

A highlight for Pat was lunch in the field where campers got to make the connection between farm and food.

"We ate bison burgers and locally raised (garden) vegetables, and the campers got to ride in the combine and grain cart."

In February, Manitoba Canola Growers honoured Pat and Paul Orsak with the 2024 Canola Award of Excellence at the CropConnect Conference banquet in Winnipeg.

"The Orsaks played an integral role in the success of Harvest Camp," says Dyck. "It's the trust and respect the Orsaks have in their local community that allowed our group to learn and visit local farms in the Russell, Inglis and Binscarth area. Asking a farmer to take time out at harvest to allow urban Canadians to experience the beauty and wonder of farming firsthand, is a big request. The Orsaks' care and commitment were instrumental to the success of Harvest Camp."

Appreciative and overwhelmed, the Orsaks were genuinely touched to be recognized for their contributions to the organization, something they refer to as 'just what we do'.

"We certainly weren't expecting this recognition," says Paul. "Harvest Camp was a great experience for us. It was a time to pause and share our farm with people who hadn't had the opportunity to see what we do. Overall, we found everyone was respectful and eager to learn."

Expressing gratitude for the recognition, Pat emphasizes that it was a group effort. "It wouldn't have flown without the families in the area that were so generous and willing to participate,

the help and support of our family, and the trust that the Canola Growers put in us as the event evolved."

"I attended Harvest Camp in 2013 where Paul and Pat opened their home and farm to a group of farm newbies," says Erin MacGregor, dietitian.

"I thought I would be learning about canola production, but what I learned was so much more. I learned about the passion Canadian farmers have for their products, their land, the environment and the legacy they're building for future farming generations. During my visit to the farm and ever since, my questions around farming and our food system have been welcomed without judgement by the Orsak family. They have become part of my 'food community' and have helped me become an advocate for truth and transparency in food communication."

The relationships formed and the lessons learned through this program created the necessary building blocks to embark on the new campaign brand, Hello Canola, launched in the fall of last year.

Paul and Pat Orsak are the second generation on Orsak Farms Ltd. and are parents to five adults; Laura, Owen (who is part of the farming operation), Lynn, Leah and Alanna. Pat loves to garden, cook and ski, and some of Paul's passions include farming, flying and skiing.

Manitoba Canola Growers are proud to celebrate the Orsak family with the Canola Award of Excellence and extend a heartfelt thank you to Paul and Pat for their unwavering contributions, leaving a lasting mark on the canola industry.



MCGA welcomes new directors



Darren Nykoliation | CARMAN, MANITOBA

Growing up on the farm near Crandall was the catalyst that nurtured my deep-rooted connection to farming on the Prairies. Agriculture has always been my inherent passion and that lead me to study at the University of Manitoba. Following that, my wife and I bought our land in the Red River Valley near Domain to begin the farm portion of my career. Off the farm, I've spent my time working in roles

that have allowed me to meet farmers from all over Manitoba and beyond. While farmers have common goals, each farmer differs in their approach in their own unique ways. I'm continually driven by my passion for agriculture and a desire to contribute to its advancement. I am excited to connect with like-minded professionals, collaborate on industry initiatives and make a lasting impact in the field.



Evan Gillis | MORDEN, MANITOBA

I grew up on a small mixed farm south of Morden, which I currently operate with my dad. We are excited to celebrate heritage status in 2024. I have also spent 12 years in canola research and development as a Canadian Seed Growers Association plant breeder. Through this time, I have been involved in committees such as Manitoba Rural Adaptation Council, Canola Performance Trials and the implementation of the Canola Council of Canada

pod shatter rating scale. I have worked through many challenges around disease resistance, improved yield and seed quality on my own farm as well as in variety development and field testing. The canola industry has huge potential, and I believe I can bring a unique perspective as both a grower and canola developer. I look forward to the opportunity to expand my work in the ag industry and ensure canola remains a profitable crop for farmers.



Jason Kehler | CARMAN, MANITOBA

I'm a fourth generation farmer. Together with my wife Laura, we operate Kehler Farms Ltd, a potato and grain operation based in Carman. The farm produces potatoes, canola, corn, wheat, oats, ryegrass and peas. Additionally, we own a small commercial herd of purebred Hereford cows. We have two children, Paisley and Wyatt. Paisley is 12 and in grade seven. She is an avid gymnast and gifted equestrian. Wyatt is nine and in grade four.

He loves his dirt bike and hockey. Our kids are both active members of 4-H and we enjoy supporting our community through ag-related farm tours, potato donations and serving our local agricultural society. Farm work and family activities keep us busy, but we enjoy traveling with our kids or taking the Harley out for a drive when time allows. I'm honoured to serve Manitoba Canola Growers and look forward to #Plant2024.



Jay Derkach | RUSSELL, MANITOBA

I am a grain farmer from Russell. I farm with my wife, Jade, and our four children, Tucker, Tyne, Tave and Tori, who are 13, 12, 11 and nine years old respectively. I am interested in learning about the many areas that exist in the canola business. I bring a pleasant and logical approach to decision making and I am a committed individual who will take the role seriously. I look forward to representing my farm, my town and my fellow canola growers with the utmost respect and professionalism.

Graduating from High School?



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Stronger canola plastics, enhanced canola fibre and more

BY JAY WHETTER

The Canola Council of Canada co-hosted Canola Week December 5-7 in Calgary. The program included state-of-the-industry updates, agronomy research and innovations in breeding, production and processing. Here are a few topics that made the Canola Digest editor sit up and take notice.

How does research pay?

Doug Heath, research manager with SaskCanola, provided some napkin math to show the low cost of research and potential high return to farmers on a per-farmer per-project basis.

SaskCanola's levy is 75¢ per tonne of delivered canola seed. A farmer who plants 5,000 acres of canola and achieves yields of one tonne per acre (44 bu./ac.) would pay \$3,750 annually to SaskCanola. Total revenue to the farm for that canola is \$3.5 million, based on \$700 per tonne selling price.



Doug Heath

SaskCanola funds dozens of research projects per year, including pre-breeding germplasm development research to find disease resistance genes and other traits. The average germplasm development project costs SaskCanola about \$100,000 per year. This is 1.25 per cent of SaskCanola's annual budget of around \$8 million. For the farmer above, 1.25 per cent of their \$3,750 annual levy is \$47. If the project takes three years, the farmer

invests \$141 in a project that could ultimately lead to a new disease resistance trait. If that trait provides as little as a one per cent yield gain, the annual return on investment would be \$35,000 on the farmer's 5,000 canola acres.

"Pre-breeding genetics research helps drive the whole seed breeding industry forward at minimal cost to farmers," Heath concludes.

The new Sustainable Canadian Agriculture Partnership makes return on investment calculations a mandatory activity for research funding. Curtis Rempel, Vice President, Crop Production and innovation with the Canola Council of Canada, says the return on investment calculation is based on probability of success divided by time. Probability of success has two components: What is the likelihood that a research project will provide a valuable best management practice (technical success) or valuable new product (commercial success)? And how many years will the research take?

"We're still considering how many farms or how many acres need to adopt a practice or product for it to be considered a success," Rempel says. "Overall, we want to apply a more disciplined approach to value chain decisions on which research projects to fund."



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Why does canola carbon intensity matter?

Bob Larocque began his presentation naming two things he wanted everyone to remember: “We love canola and we’re going to need a lot more of it” and “Remember carbon intensity, because that’s the game changer.” Larocque is president and CEO of the Canadian Fuels Association. Larocque says biodiesel will be replaced, for the most part, by renewable diesel. Renewable diesel is made from hydrotreating vegetable oils or animal fats, and is fully compatible with diesel engines. A tractor can burn 100 per cent renewable diesel.

Dozens of renewable processing facilities are on stream or announced across North America, mostly in the United States. Tidewater in B.C. is the first renewable diesel processor in Canada, starting production in October 2023. Larocque expects demand for renewable diesel feedstock will increase tenfold by 2030. Canola is currently the top feedstock in Canada. One facility can produce one billion litres of renewable diesel per year. It would take about 2.5 million tonnes of canola seed to supply that one plant, assuming that plant relied entirely on canola as a feedstock. “This isn’t likely,” Vervaeke says, “but with canola readily available in our backyard, it’s safe to assume the plants in Canada will be looking to source low carbon canola for their operations.” Canada’s total canola production in 2023 was around 18 million tonnes.

Carbon intensity. Clean Fuel Regulations and biofuel rules in B.C. and California include carbon intensity standards. The lower the carbon intensity of a feedstock, the less of it a facility needs to blend to reach the carbon reduction standards. Canola oil has a higher carbon intensity than other sources, including used cooking oil and animal fat, which makes canola oil a more expensive feedstock option. Canola oil has good supply, which helps, but lower carbon intensity would strengthen its appeal. “There is always room for continuous improvement and I think that is something we’re committed to doing as an industry,” says Chris Vervaeke, executive director of the Canadian Oilseed Processors Association.

Carbon intensity is net emissions divided by tonnes of crop produced. Over half of canola’s carbon footprint comes in the production phase, and fertilizer accounts for most of the carbon-equivalent emissions in this phase. Largest shares of fertilizer emission comes in nitrogen fertilizer manufacturing and in nitrous oxide emissions at the field level. Canola can improve its carbon intensity score by reducing nitrous oxide emissions and by increasing nitrogen use efficiency – more production from the same amount of fertilizer. Anything farmers and researchers do to increase yield should help, Vervaeke says. More yield also means more supply, which is essential to sector growth.

“Remember carbon intensity, because that’s the game changer.”

– Bob Larocque

Fibre is bad for animals? Not necessarily

Anna Rogiewicz, nutritional biochemist at the University of Manitoba, demonstrated the potential of canola meal fibre in poultry nutrition. Previous work by fellow University of Manitoba researcher Bogdan Slominski showed that canola meal could be fed to poultry at inclusion rates of 15 to 20 per cent with no loss in performance compared to soybean meal. U of M researchers, including Rogiewicz and Slominski, took the research a step further, exploring options to make better use of the large fibre components of canola meal.

“In animal nutrition, when something goes wrong with canola meal in diets, people say it’s because of the fibre,” Rogiewicz says. But fibre isn’t necessarily bad. We just need to understand it better, she says.

Canola meal is 35 to 40 per cent fibre. The largest fibre components are non-starch polysaccharides, which have “great prebiotic potential,” Rogiewicz says. Next are lignins and polyphenols, which have low nutritional value for animals. And finally, glycoproteins, the “ugly” fractions of fibre that result from the heating step in canola processing. Excess heat creates these glycoprotein pieces

that bind with the amino acid lysine, making the lysine unavailable to animals. The good news, Rogiewicz says, is that processors have made big improvements to reduce the heat damage, improving the protein availability for animals.

Rogiewicz’s research is treating canola meal with enzymes to enhance the fibre components. With these treatments, total dietary fibre goes way down as the non-starch polysaccharides are partially hydrolyzed into bioactive components, crude protein goes up and, due to the spontaneous fermentation during the processing, pH goes down.

Lower pH is good for animal feed. The fibre components of this treated meal exert the probiotic effect that improves gut health and good biota, and that substantially reduces pathogenic bacteria such as *E. coli* and Salmonella. This could achieve the same objective as growth-promoting antibiotic use without the need for antibiotics, Rogiewicz says. These enhanced canola meals also show good results in weaned piglet diets.



↑ Water soluble fraction of enzymatically-modified and fermented canola meal

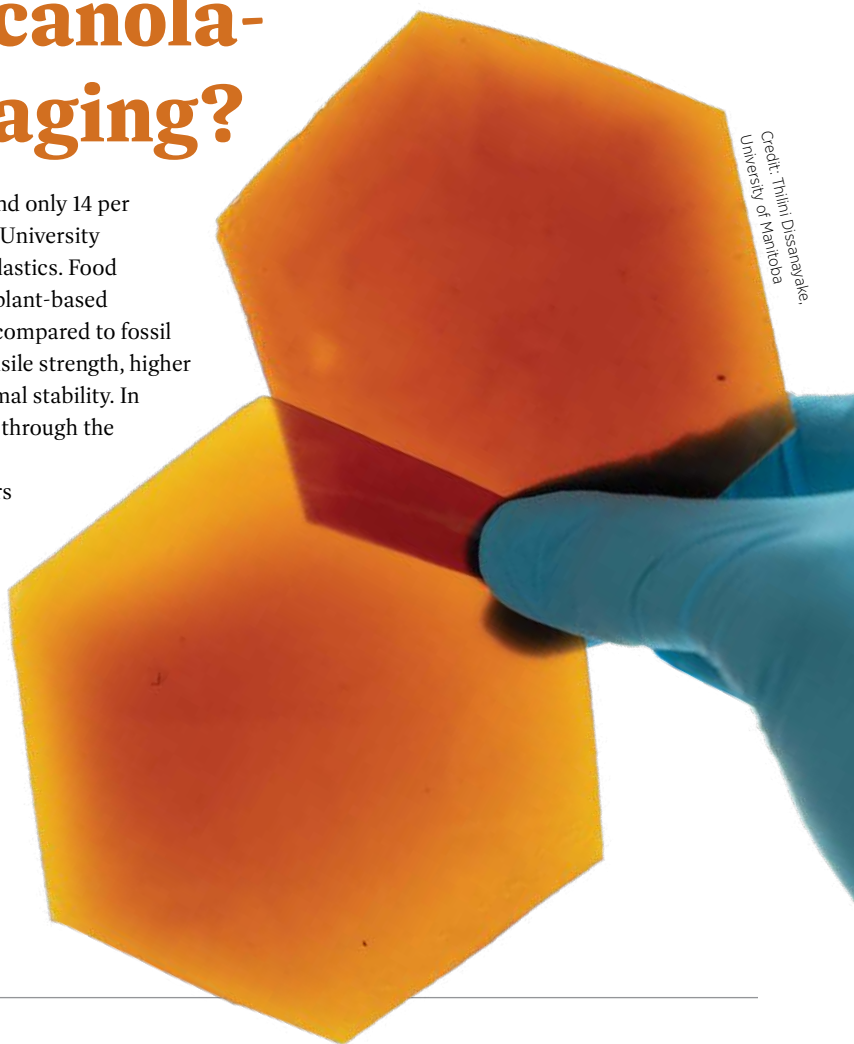


← ECM- Enzymatically-modified and fermented canola meal

How to improve canola-based food packaging?

Food packaging uses 78 million tonnes of plastic annually, and only 14 per cent is recycled, says Nandika Bandara, a researcher at the University of Manitoba. Countries are also looking at bans on single-use plastics. Food packaging presents a large market potential for biodegradable plant-based plastics and polymers. However, biopolymers have limitations compared to fossil fuel-based plastics: biopolymers have low or less consistent tensile strength, higher water permeability, higher oxygen permeability and lower thermal stability. In short, they are weaker and let too much water and oxygen pass through the package for safe long-term storage.

Bandara's lab has tried various methods to improve polymers derived from canola protein. Adding five per cent oxidized nanocrystalline cellulose, which is commercially available from Innotech Alberta, doubled the tensile strength versus the control. The control is a canola meal polymer without the five per cent nanocrystalline cellulose. Nanocrystalline cellulose also increased thermal stability, which is tolerance to heating, important in a microwave. But this didn't improve water permeability. However, adding nanocrystalline cellulose-oleic acid conjugates, also in small amounts, greatly reduced water permeability. Finally, adding graphite oxide showed a sixfold reduction in oxygen permeability. Bandara's work moves us toward a canola-based biopolymer with functionality closer to fossil fuel-based products.



Credit: Thilini Disanayake,
University of Manitoba

How are RNAi insecticides better for biodiversity?

Jeff Bertholet, who recently joined Greenlight BioSciences after a long career with BASF, spoke at Canola Week about a new RNAi-based insecticide called Calantha. At the time of his presentation, Greenlight was seeking – but did not have – approval from the U.S. Environmental Protection Agency for use on Colorado potato beetle. Approval from the EPA and several potato-growing states came in early January, and Calantha will be available to growers in the United States for use on potatoes in the upcoming crop year.

Deoxyribonucleic acid (DNA) is the genetic code for growth and function of an organism. Ribonucleic acid (RNA) grabs sections of code to deliver specific messages to target areas within the organism. By chemically interfering with these messages, RNA interference (RNAi) active ingredients can stop critical growth and function pathways within the target pest. Through a process of double-stranding, chemists make the RNAi molecules much more stable and suitable for commercial storage, packing and application.

In its media release, Greenlight wrote that “consumption of the dsRNA (double-stranded ribonucleic acid) by the Colorado potato beetle – and only the beetle – causes it to stop eating and die from its own toxins. Even when tested at 100 times the rate that it will be used in agricultural fields, it has no effect on tested species other than the Colorado potato beetle.” This specificity is a key benefit of RNAi-based pesticides.

Calantha, Greenlight says, also degrades within three days “leaving no harmful residue on plants or in the environment, soil or waterways,” works with regular sprayer tools, and provides farmers with an alternative mode of action. The active ingredient, ledprona, is designated as a Group 35 insecticide.

Calantha is the first registration in the United States of a foliar-applied product with an RNA ingredient. Greenlight says its next RNAi solution targets varroa mites, a pest of honeybees, and was submitted to the EPA for regulatory review in early 2023.

How does the CFIA support gene editing?

New guidance from the Canadian Food Inspection Agency (CFIA) makes it easier to bring gene-edited cultivars into commercial production. The government's list of new "non-novel products of plant breeding" includes a potato cultivar from Simplot. Breeders used CRISPR-Cas9 to reduce expression of a gene that limited tuber set. The cultivar will therefore produce more tubers. Another company, Pairwise Plant Services, used CRISPR-Cas12a to reduce expression of genes that conferred pungency in *Brassica juncea* mustard greens, a leafy green used in salads. The gene-edited greens are less spicy.

Heather Shearer, policy and programs manager with the Canadian Food Inspection Agency, described in a Canola Week presentation the new guidance, published in May 2023, that supports the introduction of these and other gene-edited products in the Canadian market. With gene editing, canola breeders can amplify genes or turn off genes as needed to, for example, make the crop more resilient to pests and climate, and improve yields.

In its guidance document, the CFIA writes: "It is the scientific opinion of the CFIA that gene editing technologies do not present any unique or specifically identifiable environmental or human health safety concerns as compared to other technologies of plant development."

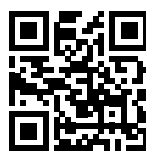
CFIA notes that cultivars with a herbicide resistance trait or foreign DNA still fall under the "plants with novel traits" (PNT) regulations. "Breeders are expected to be certain that there is no foreign DNA in any product that is commercialized or field-tested, and should fully participate in transparency mechanisms," Shearer says.

Chad Koscielny, North American canola breeding lead at Corteva Agriscience, says the new CFIA guidance "will help us continue to investigate gene-edited solutions for canola growers and do so more easily and efficiently."

However, he adds, commercial launch of gene-edited cultivars will depend on regulations in export markets. "Therefore, this doesn't allow us to deliver gene-edited product to farmers right away," Koscielny says. "We appreciate that the Canadian government is moving this direction. It illustrates it can be done. We can be an example to the rest of the world."

Dave Kelner, North America canola portfolio manager for Bayer, says, "The new CFIA guidance should inspire Bayer canola advancements since all breeding technologies, including the use of multiple genome edits, can be efficiently tested in Canada without the additional isolation, inspection and post-harvest monitoring resources needed for PNTs. Given the guidance on gene editing in Canada, we're cautiously optimistic on the path forward as we await other export markets to complete their assessments." Bayer has very early, proof of concept gene-edited efforts within its canola pipeline and will begin field testing them in 2024.

Credit: Taylor Dzikowski, AAFC Saskatoon



↑ The Canola Week 2023 playlist, when available, will be featured at youtube.com/canolacouncil

Why could grasshoppers be worse in 2024?

Meaghan Vankosky, research scientist and insect specialist with Agriculture and Agri-Food Canada in Saskatoon, provided a pest insect year in review. Her presentation included a photo of 1,788 grasshoppers captured in 25 sweeps in a ditch near Kindersley, Saskatchewan in June 2023. Vankosky credited her summer student Taylor Dzikowski for doing the counting. It was a bad year for grasshoppers, Vankosky says, and 2024 could be worse.

"Grasshopper densities in late summer and early fall of one year are indicative of the potential for grasshopper risk in the following season, assuming that weather conditions remain favourable," Vankosky says. "Areas with high grasshopper densities in 2023 are at high risk in 2024, unless spring weather is cool and wet."

In warm, dry years, grasshopper eggs develop quickly in the spring and nymphs mature quickly to adulthood. This scenario created a large and early population of hungry adults in 2023. Prairie Pest Monitoring Network has a grasshopper distribution map for 2023, which growers and agronomists can use to forecast risk areas for 2024. Find the map at prairiepest.ca 🌻

—Jay Whetter is the editor of *Canola Digest*.

Canada's Clean Fuel Regulations boost canola demand

BY CHRIS VERVAET

New regulations support the use of biofuel to reduce the carbon intensity of Canada's gasoline and diesel supply. This has helped drive the boom in canola processing capacity on the Prairies. Compliance and farmer participation in the market is a streamlined process requiring a few simple steps.

The Government of Canada's Clean Fuel Regulations provide incentives, through carbon credits, to develop and adopt clean fuels, technologies and processes. The goal is to gradually reduce the carbon intensity of gasoline and diesel fuel to 15 per cent below 2016 levels by 2030. Lower carbon intensity means lower emissions.

The regulations are not a tax, but a technology-enabling regulation. Industry, not consumers, are required to reduce emissions from transportation fuels sold in Canada. Fuels that are below the carbon intensity mandate earn credits, and the lower a fuel's carbon intensity, the more credits it can earn. This supports investments in emission reduction technologies.

Carbon intensity and the credits generated are the de facto currency of the Clean Fuel Regulations, driving market competition to adopt the most efficient greenhouse-gas-reducing technologies. While the Clean Fuel Regulations do not specify the technology that must be used to achieve those reductions, supported technologies include carbon capture and storage, low carbon hydrogen, electrification and biofuels.

Clean fuel regulations in Canada and other countries, particularly

production facility with annual production of one billion litres would require one million tonnes of canola oil to run at full capacity. This is equivalent to 2.5 million tonnes of seed.

To meet this burgeoning demand, five new canola processing investments have been announced in Canada since 2021, adding nearly seven million tonnes of canola processing capacity, a 60 per cent increase from current capacity. Three are under construction. Combined, these investments exceed \$2.5 billion, adding 400 new direct jobs and thousands of new indirect/induced jobs to local communities.

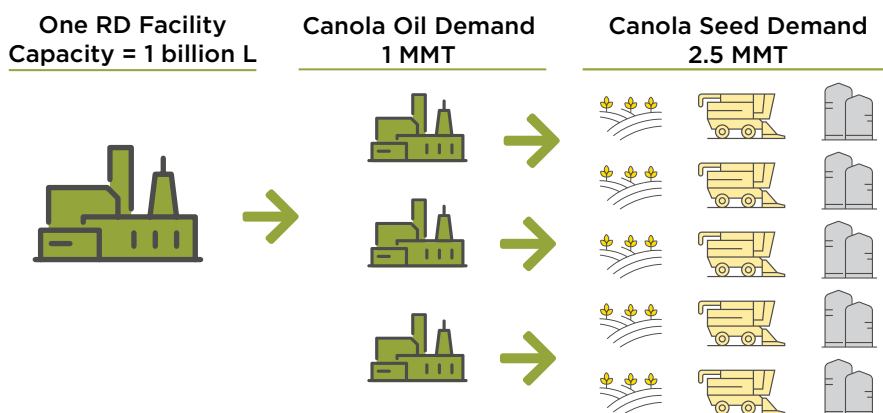
The rules of engagement

The most notable rule of engagement for the Clean Fuel Regulations is that any crop feedstock must be traced through the supply chain via an attestation to ensure it complies with the land use and biodiversity (LUB) criteria and is eligible.

Crops grown in Canada already meet the LUB criteria, through exemptions and provisions in the regulations that recognize crops in Canada as sustainable. This significantly streamlines the attestation requirements for Canadian farmers. A farmer needs to provide only three items to confirm compliance and support traceability:

1. A statement confirming the crop was grown in Canada and therefore eligible for the exemptions and provisions in the regulation.
2. A single set of GPS coordinates to represent the harvested area. Examples include the farmyard or where the bins are located.
3. A statement recognizing that the attestation may be subject to third-party verification.

Putting feedstock demand into perspective



the United States and Europe, have been a catalyst for private sector investment in low carbon fuel production. More than \$8 billion in capital projects are under construction or announced in Canada. Biofuels derived from low carbon feedstock like canola are among the largest areas of investment, particularly in renewable diesel production.

Renewable diesel can replace up to 100 per cent of conventional diesel used in a diesel engine. This includes tractors and trucks.

Renewable diesel production capacity in Canada could exceed four billion litres by the end of this decade, creating new opportunities for canola demand. To put this into perspective, a single renewable diesel

↑ A single renewable diesel production facility with annual production of one billion litres would require one million tonnes of canola oil to run at full capacity. This is equivalent to 2.5 million tonnes of seed.

The industry is working with the grain value chain, including farm organizations, to develop attestation content that is simple and consistent for everyone to use.

Once complete, the content can be incorporated into standard contracts, added to the existing grain producer declaration or serve as a standalone document.

We are optimistic about the opportunities the Clean Fuel Regulations has initiated for our industry and look forward to working with our fuel and farm customers to maximize participation. ✨

—Chris Vervaeet is executive director of the Canadian Oilseed Processors Association.

New verticillium committee to guide agronomy and research

The Canola Council of Canada hosted a verticillium stripe workshop on December 4. Discussions included observations from 2023, ongoing challenges and research. It also set the groundwork for a new verticillium stripe steering committee.

BY COURTNEY ROSS

Verticillium stripe is a relatively new disease to Western Canada. Since it was first found in Manitoba in 2014, it has slowly grown to be one of Manitoba's more problematic diseases and is moving west across the Prairies.

Caused by the fungus *Verticillium longisporum*, the disease starts to present itself close to harvest timing with various symptoms such as half stem senescence, shredding of the stem tissue, a greyish-hue starburst pattern at the stem base when a cross section is taken and, finally, with the presence of microsclerotia. The disease can have an intense impact on yield when the conditions are right.

Surveying efforts have been more consistent since 2018 and results show that infection has spread from isolated pockets in Manitoba to all across Manitoba and now Saskatchewan and Alberta. After four growing seasons where verticillium infection levels have increased and spread significantly, the Canadian canola industry wants to know how much this disease affects yield and quality across the growing region and have more conversations on gaps in our knowledge and what research needs to be done.

While research efforts have been ongoing since the arrival of *V. longisporum*, the Canola Council of Canada (CCC) felt it was time to bring the industry together to discuss the disease and establish some collective direction. On December 4, 2023, on the eve of Canola Week, the CCC hosted a workshop for leaders in verticillium stripe research, testing and surveying. Workshop objectives were

to bring the industry together, receive an overview of the 2023 growing season survey results, hear from the testing labs on what they saw for infection on samples submitted by producers and agronomists, review the latest research progress from the top verticillium stripe researchers across Western Canada, hear from the current working group on a rating scale and finally, to start developing a verticillium stripe steering committee.

Workshop discussions included observations from 2023, challenges producers faced when it came to combatting verticillium stripe, ongoing research and research priorities and gaps.

A couple of research gaps, as noted at the workshop, are understanding the disease lineage, identifying the diseases impact on yield and further exploring control options. In addition, understanding the interaction between verticillium and blackleg, and how or if current

harvest management practices are impacting infection levels are also on the list of current research priorities.

The steering committee, which will be established in early 2024, will lead the industry on key messaging surrounding the disease as well as updated research priorities for the 2024 growing season. The workshop and the steering committee bring us closer to solving the puzzle that is verticillium stripe. ✨

—Courtney Ross is an agronomy specialist and verticillium stripe lead for the Canola Council of Canada. Email rossc@canolacouncil.org.



To help with verticillium stripe scouting in 2024, read the "How to identify verticillium stripe" fundamentals article at CanolaWatch.org



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New ways to assess sclerotinia risk

New research, sensors and tools make it easier to assess the key risk factors for sclerotinia stem rot: canopy moisture levels and presence of sufficient spores. Also look for the Canola Council of Canada's new Sclerotinia Risk Assessment Tool at canolacalculator.ca.

BY CHRIS MANCHUR

When late June-early July comes around, the thought on many minds is getting out to the lake or taking some much-needed rest now that the canola crop has finally cabbaged over and is filling in. However, one of the greatest yield robbers is getting ready to rear its ugly head, requiring us to get out into those fields with a sprayer and fungicide.

In some cases, the decision to spray or not spray is simple. The recent drought bias across much of the Prairies often reduced yield potential to the point where a fungicide isn't economical. Easy no. On the other hand, when yield looks greater than 50 bu./ac. and the area has had some rain, fungicide will help you take as much crop as possible with you to the bin. Easy yes.

But what if the choice is less certain? Here's a guide to help make that decision, and all the available tools, scouting practices and information you can use to make the correct choice.

The three elements of sclerotinia infection

A good plant pathologist always considers the disease triangle. Three components need to come together to have infection and subsequent yield loss: favourable environment, presence of the pathogen and a susceptible host.

Moisture

For sclerotinia stem rot in canola, the most important factor by far is the environment. Sclerotinia requires a wet and humid microclimate in the plant canopy for a prolonged

period from germination of resting spores to infection of the leaves. When you walk through your crop and your pants get soaked, this is a good risk indicator. Agriculture and Agri-Food Canada research scientist Kelly Turkington completed a recent research project, funded through the Canadian Agricultural Partnership, that confirmed a more scientific approach: relative humidity of 80 per cent for at least 21 hours per day is required to have an elevated risk.

Other good indicators of moisture are precipitation (recent rains and what's forecasted), soil moisture and leaf wetness. If you have a weather station on site, keep track of when you receive rain and how much, as prolonged rainfall over two weeks gives a higher risk than one thunderstorm. Note that weather stations may not accurately track how much rain landed a few miles away, especially in spotty thunderstorm conditions, so use this data as a guide rather than as a hard fact.

The pathogen itself

You can find one of the most recognizable steps in the sclerotinia life cycle, the sclerotia, in a post-harvest scout of canola stubble. These tiny raisin or mouse dropping-looking sclerotia initiate the cycle in future years, so accurate record keeping on fields with many sclerotia could indicate risk the next time you grow canola on that field.

Sclerotia produce the apothecia that, when they form under moist summer conditions, release the disease-causing ascospores. The small mushroom-like apothecia can be tough to find at times but are a great indicator that ascospores are likely being released through your crop canopy. These ascospores are microscopic, but technologies can help you measure the quantity of spores in the air. For example, Spornado (available through 20/20 Seed Labs) and a recent technology developed by Susie Li at Innotech Alberta, also funded through the Canadian Agricultural Partnership, can count spores in the air. If you suspect canola petals are infected with spores, another test option is the DNA-based testing kit from companies such as Quantum Genetix and Discovery Seed Labs.



↑ The new Sclerotinia Risk Assessment Tool, when ready, will be added to canolacalculator.ca



Read the chapter on sclerotinia stem rot in the "Diseases" section at CanolaEncyclopedia.ca. →



← Sclerotia produce the small mushroom-like apothecia that, when they form under moist summer conditions, release the disease-causing ascospores.

Credit: Lone Buchwaldt



Host-based factors

The last key to the puzzle is the interaction between the pathogen and the host. While almost all canola cultivars are susceptible in some capacity to sclerotinia, some have greater levels of resistance. Corteva cultivars P505MSL, P510G and B3014, available for 2024, have moderate levels of resistance which, when paired with a fungicide, can provide superior protection in very high-risk situations.

Canola plant density also has a role in the level of sclerotinia risk. A dense stand could produce a more favourable microclimate, and single-branching plants may be at more risk for lodging. Lastly, consider rotation; sclerotinia doesn't just infect canola, but also other broadleaved plants like soybeans, potatoes and sunflowers. Gap years with non-susceptible plants or managing sclerotinia effectively each year will lower the risk of severe infection.

The updated risk assessment tool

Sclerotinia isn't a simple pathogen, and many factors can influence the fungicide decision. To simplify the decision, the Canola Council of Canada (CCC) has created a new Sclerotinia Risk Assessment Tool expected to go live for the 2024 season. The tool includes factors such as precipitation, plant stand, crop rotation and scouting for apothecia to determine if a field meets the threshold for

a fungicide application. The tool includes an economics calculator, where fungicide price, expected yield, crop price and suspected infection rate all provide an approximate rate of return on that fungicide application. Beta-testing based on current crop and input prices over the past two years suggests it pays to spray if a field has one in 10 plants infected.

The tool, when ready, will be added to the suite of tools at canolacalculator.ca.

Beyond the CCC's Sclerotinia Risk Assessment Tool, several companies are developing their own models and tools based on similar factors and tested on canola grown across the Prairies. When deciding which tool to use, don't forget to consider the timing of the assessment (predictions made a month or two ahead of spraying won't be as reliable), and how it can be integrated into your farming operation.

Another option to consider is selective application of fungicides to high-risk areas within a field, such as low spots or areas with dense vegetation.

Making that spray decision doesn't have to be difficult, and keeping these factors in mind will help you protect your yields and keep the money in your wallet as you kick back and relax at the lake. ☘

—Chris Manchur is an agronomy specialist and sclerotinia stem rot lead for the Canola Council of Canada. Email manchurc@canolacouncil.org.

↑ Agronomists and growers have various tools to check on the presence of spores. One is a petal test from companies such as Quantum Genetix and Discovery Seed Labs. When spore-infested petals drop into the canopy, they create a start point for new infection.

← These black sclerotia, found during a post-harvest scout of canola stems, are an essential step in the sclerotinia stem rot life cycle.



New pests on the horizon

BY IAN EPP

What's the biggest yield robber on your farm? Sometimes growing canola seems like a big game of whack a mole. Plan to better manage flea beetles, and herbicide-resistant kochia takes off. Growing a clubroot resistant variety is great, but doesn't solve a sclerotinia or grasshopper problem. The list of pests to scout for in canola only seems to grow. We have thresholds, best management practices (BMPs) and a litany of scientific research guiding us to make the best possible recommendations. The harder question to answer is what will be the biggest yield robber in years to come? In the future, climate change will impact canola yield and quality, directly through abiotic stress and indirectly by impacting pest behaviour, distribution and survivability. Understanding current and potential biotic production threats is essential for the Canadian canola industry to remain sustainable and profitable.

As a part of an effort to better prepare for the future, the Canola Council of Canada staff recently published a paper looking at the future of pests we already see on the Prairies and pests identified in other canola growing regions around the world. The paper, "Current and potential pest threats for canola in the Canadian Prairies," was published in *Pest Management Science*, October 2023. Here are a few highlights:

Insects

The cool climate of Western Canada mean the Prairie provinces have a somewhat reduced collection of problematic insect pests in comparison with other regions of the world. More favourable overwintering conditions could increase the survival of existing or newly introduced insects. Insect pests may also begin their life cycle and feeding earlier in the growing season because of warmer spring temperatures.

Swede midge currently causes damage to canola in Eastern Canada. The predicted adaptation of swede midge across the Canadian Prairies, should it be introduced, is dependent on climate. Misidentification of swede midge in the Prairies from 2012 to 2019 has been attributed to a newly discovered species, *Contarinia brassicola*, which does not seem to cause significant yield loss. Common pollen beetle, and bronzed pollen beetle, are considered invasive pest species for Canadian canola production. Bronzed pollen beetle is present in

Eastern Canada, but has not established in Western Canada. Successful introduction of the pollen beetle has the potential to be very detrimental to Prairie canola production because of the damage larvae can do to flower buds. To mitigate risk, researchers are examining established populations in Eastern Canada to check on the pest's biology and control.

Plant pathogens

Plant pathogens that cause disease are significant threats to canola production in Canada. Changing environmental conditions, adapting plant pathogens and an increase in canola seeded area have resulted in significant yield losses. Established diseases like blackleg and clubroot continue to evolve, while newer diseases like

verticillium stripe, first discovered in 2014, continue to spread.

Verticillium stripe is a soil-borne disease that prefers warmer soil temperatures to accelerate its spread into stem vascular tissue and its characteristic striping. The pathogen latency period, influenced by temperature, can impact disease expression and population aggressiveness. Research is needed to better understand the spread and severity of

verticillium stripe within Canada, along with how to best manage the disease under changing climate conditions.

Weeds

Herbicide-resistant canola was introduced into Western Canada in 1996 and weed control was simplified. Fast forward to today. Despite improved weed control and more flexible application timing, weed populations remain a constant yield threat in canola. The threat of weeds can be divided into two classes, those emerging from herbicide resistance and those newly introduced into a region.

Herbicide resistance is well documented and has increase tenfold from 2001 to 2017. Kochia resistant to many modes of action, including glyphosate, continues to rapidly spread through the Prairies. Wild oat is already resistant to several modes of action, which puts additional selection pressure on glyphosate. Should wild oats develop resistance to glyphosate this would require a foundational change in how we produce canola. ✖

—Ian Epp is an agronomy specialist with the Canola Council of Canada and co-author of the threats paper. Email epi@canolacouncil.org.



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Five highlights from AgriTechnica

CCC agronomy specialist Jason Casselman saw a lot at AgriTechnica in November, including next stage crop sensors, optical spraying retrofits, automatic seeding rate adjustment for drills and instant AI analysis of crop imagery.

BY JASON CASSELMAN

walked at least 10 km and 20,000 steps every day of AgriTechnica, seeing new tools and talking farm machinery with people from all over the globe. The “world’s leading trade fair for agricultural machinery” attracted 2,813 exhibitors and 473,687 visitors for a week in November in Hanover, Germany. Here is just a sample of tools that caught my eye.

CropScan Ag scans grain to create quality map

I talked to the folks at the CropScan Ag booth about their near infrared analyzer and mapping system that maps moisture, protein, oil, starch and fibre of grain while being harvested. Rocky Mountain Equipment, Vantage Canada and Webbs Machinery currently offer this technology in Canada as an add-on system to pretty much any combine brand or type.

CropScan Ag representatives from Australia were very familiar with Western Canadian farmers and cropping systems as Canadian farmers have used the technology for a number of years now. Farmers can use the maps from multiple seasons of data to fine tune nitrogen fertilizer application and improve fertilizer efficiency and profitability. The representatives showed me how, in a canola-wheat rotation, their variable-rate fertilizer system could improve yields and reduce grain quality variability. The Olds College Smart Farm is evaluating this technology as well. cropscanag.com

BeeLeap adds optical spraying as a retrofit

Sprayer controls and spot spraying technology were a common theme at AgriTechnica 2023 with many different companies in this space. I talked to representatives from BeeLeap and got some insight into how this technology is evolving and what farmers should be looking at when considering adoption of these systems. BeeLeap offers an integrated system of sprayer controls, cameras and cloud solutions to do a better job of spraying.

The ability to control spray application from broad-acre applications to plant specific applications is the goal for growers who want to spray only the right amount of product and only where it is needed. Government regulations in Europe are driving the adoption of this tech, but farmers in Western Canada are likely to see agronomic return on investment through improved product performance and reduced product applied.

BeeLeap offers the cameras, rate controllers and artificial intelligence (AI) deep learning algorithms as retrofits compatible with any ISO-BUS equipped sprayer. Real-time detection and spraying combined with the ability to use historical map layers and record application information is how farmers can use this technology to help improve their bottom line. beeleap.com



↑ Jason Casselman talks with a BeeLeap rep about the cameras, rate controllers and artificial intelligence algorithms available as retrofits for any ISO-BUS equipped sprayer.



↑ CropScan Ag demonstrates how the tool can make VR fertilizer prescriptions based on combine-based grain protein maps.

Sensor-based agronomy advice from Doktor

Ag-tech company Doktor leverages sensor technology to provide agronomic advice. I was particularly curious about their SoilScanner, which provides digital soil analysis, PestTrap, a digital pest tracking station, and Filiz, a soil and moisture sensor station.

My neighbours and I have been using the SoilScanner, available through ATP Nutrition in Western Canada, on our farms since April 2023. I was curious about any insights the Doktor representatives had about this tool. Their experience was very similar to mine, with the sensor providing instant analysis of soil nutrients and fertility recommendations right in the field.

PestTrap uses machine learning to identify and count pests in real-time. PestTrap has sticky paper and an integrated camera accessed through the “internet of things” IoTrack mobile app. It captures daily imagery and accurately identifies pest types. It will also send notifications when pest levels reach a risk threshold. Farmers and agronomists in Western Canada will be very interested to see how this technology adapts to canola pests to help with field scouting.

Filiz agricultural sensor station monitors soil and weather conditions in the field to help forecast disease risk status, irrigation scheduling and crop phenology stages. It also connects to the IoTrack mobile app to review data and receive notifications from the device in the field.

Sensor technology in the field won't replace good crop scouting, but I think canola growers in Western Canada who adopt sensor technology to improve scouting and increase efficiency in the field will realize the benefits offered by these products. doktar.com/en



← A Väderstad rep demonstrated SeedEye sensor technology, which automatically adjusts seed rate based on seed size and weight, to hit the grower's target.

Väderstad SeedEye automatically hits target seed rate

After walking through the Kanada booth in Hall 12, I spent some time talking with a Väderstad representative who gave me a demonstration of the SeedEye sensor technology. The operator sets a target number of seeds per square foot, and SeedEye automatically adjusts seed rate to hit that target. The farmer doesn't have to make any calculations based on seed weight, seed lot, seed bag weight or seed size. With SeedEye, the farmer gets the exact number of seeds in the field. The technology is available on Väderstad seed drill models Spirit 600-900S and Rapid A 600-800C/J.

Canola growers know how critical it is to establish a uniform plant stand of five to eight plant per square foot. With technology like SeedEye adapted to air-seeder systems, growers will have more confidence in their ability to achieve that target stand and start the growing season correctly. vaderstad.com/ca-en

Proofminder analyzes field imagery for crop stage, weeds and more

At the Start-Up Stage at AgriTechnica, I saw an interesting presentation titled “How can we use AI to help agronomists obtain leaf-level information from large fields and improve profitability?” The presenter from Proofminder discussed AI tools available right now to help agronomists with in-field evaluation of crop ripeness and maturity, weed detection, variable rate spot spraying and statistical analysis of the crop. The Proofminder model uses aerial drone imagery with RGB cameras to evaluate and generate maps that provide these insights.

Improvements in high resolution image analysis, machine learning and data analytics will bring these tools closer to farmers and agronomists in Western Canada and help them scout more acres more efficiently with accuracy and reliability. proofminder.com ✨

← Filiz is one of many field sensors from Doktor. The Filiz station monitors soil and weather conditions in the field to help forecast disease risk status, irrigation scheduling and crop phenology stages.

—Jason Casselman is an agronomy specialist with the Canola Council of Canada. Email casselmanj@canolacouncil.org.

Aussie rules

Australia's contribution to global canola and rapeseed supply jumped from a decadal average of 3.3 million tonnes to 4.8 million in 2020, 6.8 million in 2021 and 8.3 million in 2022. Rainfall was the key factor. Agronomy was another. Could Australian rules for better canola productivity help improve productivity in Canada?

BY JAY WHETTER

Good moisture powered a run of record canola yields and production in Australia, the land of red soils and often harsh growing conditions. Everything came together in 2022. Building on decent production and prices the previous two years, Australian farmers planted a record 9.6 million acres and achieved the rare two-fer with record yields of 37.8 bu./ac. The winning combination produced a mammoth crop, by Australian standards, of over eight million tonnes, according to figures from the United States Department of Agriculture's Foreign Agriculture Service. (See the table.)

While forecasts for 2023 are down from 2021 and 2022, mostly due to a return to hot, dry weather, Australia may be at a new threshold for canola productivity. This article describes common agronomy practices and yield robbers in Australia, and may inspire some ideas for Canadian production in warm, dry scenarios.

Seeding and crop establishment

Seed genetics. Australia lifted its ban on genetically modified canola in all states, except Tasmania. Western Australia, which accounts for about half the national canola area and production, has fully adopted herbicide tolerance – especially to manage herbicide-resistant ryegrass and radish weeds. Herbicide-tolerant stacks are common. Stack options include cultivars with both triazine and glyphosate tolerance and combinations that include Clearfield or Liberty Link systems.

Michael Hickey, market development manager for Nuseed in Western Australia, says stacks are also a management tool for carryover of Group 2 herbicides, which are widely used in barley, wheat and pulses. The re-cropping restriction for canola after Group 2s is 34 months. “Due to our low organic carbon combined with low rainfall, the breakdown of Group 2 chemicals can be extremely slow,” Hickey says. Clearfield stacked with glyphosate tolerance, for example, protects establishing canola from Group 2 carryover and provides the glyphosate system for weed control. Roger Rotariu, Nuseed's North American Marketing Lead, based in Calgary, isn't sure the Group 2 carryover risk is high enough in Canada to justify this stack.

Australia is also switching rapidly to hybrids. “We see a strong decline of open-pollinated seed being used in Australia due to the high yield penalty compared to hybrid seed, sometimes up to a 20 per cent difference,” Hickey says. Hybrids now account for 60 to 70 per cent of canola market share nationally, according to a 2023 report *Canola In Australia: 21st century progress* from the Australian Oilseeds Federation and New South Wales Department of Primary Industries.

The top-selling hybrid cultivar in Western Australia in 2023 was Pioneer 44Y27 RR. Peter Bostock is technical support manager, west, for GenTech Seeds, exclusive producer and distributor of Pioneer Hi-Bred seed in Australia. The hybrid has performed consistently across a wide range of environments and “is the quickest hybrid in our current commercial lineup,” Bostock says.

Australian Canola Production

YEAR	PRODUCTION (million tonnes)	YIELD (t/ha)	YIELD (bu./ac.)
2010/11 - 2019/20 avg	3.3	1.29	22.8
2020/21	4.8	1.82	32.4
2021/22	6.8	2.10	37.4
2022/23	8.4	2.12	37.8
2023/24	5.5	1.57	28.0

Source: USDA Foreign Agricultural Service

The landscape as seen from Galore Hill, west of Wagga Wagga, New South Wales. Photo credit: Gregory Sekulic

CLINT'S CALLOUTS

Canola Digest asked Clint Jurke, the Canola Council of Canada's agronomy director, to pick two Australian agronomy practices he'd like to see used more in Canada.

- 1. Blackleg management.** Think strategically about what blackleg resistance is needed for each field, Jurke says. Blackleg was Canada's number one canola disease in 2023.
- 2. Weed management.** Do what it takes to maximize herbicide efficacy, including tank mixes and timing, Jurke says, and employ other approaches to reduce herbicide resistance risk. (See Australia's "Big 6" recommended practices at weedsmart.org.au/big-6.)

"Quickness" is a thing in Australia, a maturity factor related to how fast cultivars advance from emergence to flowering. Australia's canola seed industry divides cultivars into four phenological groups based on their rate of development from germination to flowering. *Canola In Australia* describes the four groups:

1. Fast developing spring types which are preferred in low rainfall zones
2. Fast to mid developing spring types suited to low to medium rainfall zones
3. Mid to slow spring types for medium to high rainfall zones
4. Slow spring to winter types for high rainfall zones and for grazing.

Australia's canola regions have full-year rainfall of 325mm (13") to 600mm (24"). This is similar to Prairies precipitation, which ranges from less than 300mm annually in the semiarid grassland to about 700mm in central Manitoba.

Seed treatment. Blackleg is the most significant disease in Australia and protecting seedlings is important, Bostock says. Saltro Duo is a popular fungicide seed treatment, with actives pydiflumetofen, fludioxonil and metalaxyl-M to protect against early blackleg infection as well as damping off diseases. Poncho Plus is a popular insecticide seed treatment with clothianidin and imidacloprid to protect against various insects, including red-legged earth mite, lucerne flea, cutworm, wireworm and aphids. Australian farmers pay the equivalent of Cdn\$12 to \$20 per pound for top hybrids with seed treatment.

Seeding date. Australian farmers grow most of their annual crops in the winter, which is cooler and tends to have more rainfall, but these are not winter cultivars. Farmers plant spring canola cultivars in March to May, their fall, and harvest in November, their spring.

Australian farmers often set a seeding date based on "optimal start of flowering," a regionally adjusted date based on heat stress, water stress, frost risk and yield potential. The optimal start seems to be getting earlier and earlier. "Early sowing makes use of early rain and better matches growth with favourable conditions - less heat stress at end of flowering since flowering finishing earlier and less effect of terminal drought," says Jackie Bucat, senior research scientist for Western Australia's Department of Primary Industries and Regional Development.

Adapting to the climate. Australia's infamous "millennium drought" lasted from 1997 to 2009 and changed farm production practices, reports *Canola In Australia*. Farmers started to retain crop stubble, which provides critical ground cover, and adopted off-season weed control to conserve soil moisture and nutrients. Crop rotation often now includes a legume - vetch, field peas, lentils or faba beans - the year before canola. From *Canola In Australia*: "This system provides a double break for weed control for Australia's main grain crop, wheat, and reduces off-farm nitrogen fertilizer costs."

Kathi Hertel, oilseeds specialist with the New South Wales Department of Primary Industries, provides regular canola crop updates to the Australian Oilseeds Federation. Hertel says the latest growing season was one of the warmest on record for New South Wales. This hastened crop growth and development. "For most of Australia, harvest was several weeks earlier than usual - a first for us," she says. It was also a drier growing season. The weather combination meant lower yields than in the previous three years, but Hertel says agronomy prevented the situation from being worse.

Specifically, rainfall in late March and early April promoted early seeding. This improved germination and emergence, which produced uniform crops with rapid shoot and root growth, Hertel says. "Water use efficiency in some of our more marginal areas was probably the highest achieved, largely due to our greater attention to retain as much soil moisture as possible during our fallow period (timely weed control, zero soil disturbance and maintaining ground cover) combined with timely rainfall events that enabled early sowing," Hertel adds. "The impressive rooting depth of some of these

crops contributed to the outstanding yields. Crops sown later in the sowing window have shallower root depths.”

Yield limiting factors

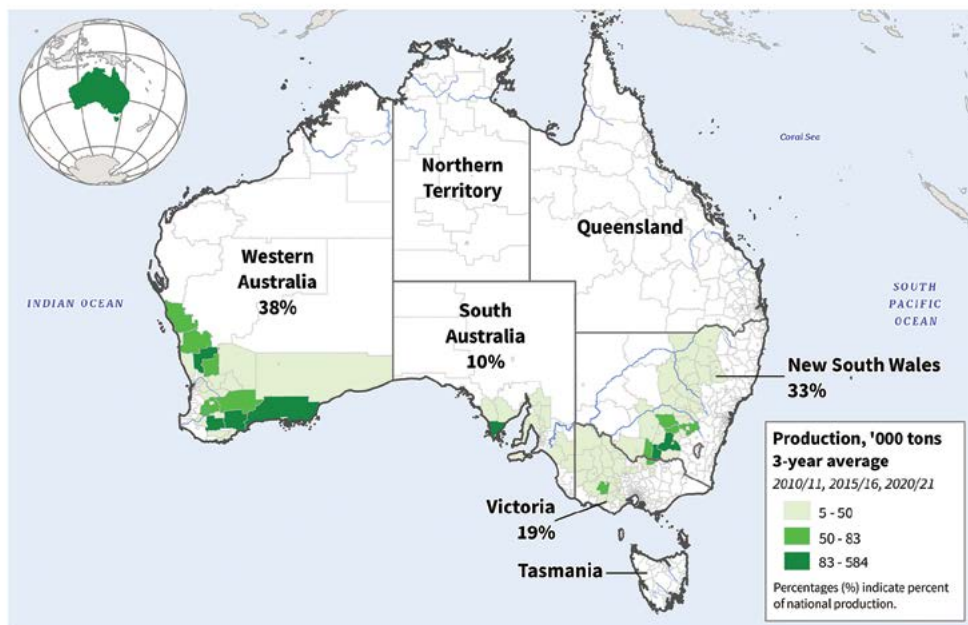
Rainfall. “Rainfall is our major yield limiting factor,” Bucat says. “Secondary factors are hot weather at flowering and terminal drought.” While good moisture in recent years has improved yields, dry conditions returned in 2023. “Australia’s highly variable climate is projected to become warmer and generally drier in the future,” wrote Robert Wilson, president of the Global Council for Innovation in Rapeseed and Canola, in his introduction for *Canola in Australia*. “Adapting to this future climate is one of the major challenges for Australian agriculture.”

Soil constraints. *Canola in Australia* has a whole section on soil constraints, noting that, “due to the continent’s age and extensive weathering, Australia has some of the least fertile soils in the world.” Bostock lists a few key constraints: toxicity (aluminum, sodicity, boron), low pH and hard pans. “Lime and gypsum are critical, and deep ripping allows roots to penetrate further,” Bostock says. “Australian farmers invest a huge amount of money into making sure that crops can access as much of the soil as possible.” Bucat calls this “increasing the bucket size.” Plants need access to moisture at depth to be more resilient to harsher conditions at the end of the season. “Our warming conditions at the end of the season can align very closely to pod fill, so ability to have a larger root zone to access moisture can lead to huge benefits,” Bostock says.

Higher-risk areas. As written in *Canola in Australia*, “with the recent surge in area, canola is now being widely grown in less suitable soils with single or multiple soil constraints.” While more canola does reduce cereal disease risk, more canola increases the risk for canola diseases.

Nitrogen loss. Farmers in Australia make two to five fertilizer applications per year. “This is due to poor soils and nitrogen loss due to water logging, volatilization and

Australia: Rapeseed Production



USDA Foreign Agricultural Service
U.S. DEPARTMENT OF AGRICULTURE

Source: Australian Bureau of Statistics, Agricultural Censuses of 2010/11, 2015/16, and 2020/21 (2021 SA2 Boundaries)

“Rainfall is our major yield limiting factor. Secondary factors are hot weather at flowering and terminal drought.”

—Jackie Bucat

leaching,” Bostock says. The more nitrogen they apply in one shot, the lower their nitrogen efficiency.

Weeds. Weed competition is a big issue in Australia. Farmers have been dealing with troublesome herbicide-resistant weeds for decades. In addition to herbicide-tolerant stacks, farmers also use combine-mounted weed seed destroyers – invented in Australia – to crush weed seeds coming out the back of the combine. These pulverizers are a recommended weed management practice.

Blackleg. Blackleg is the most costly canola disease in Australia. The pathogen *L. maculans* is everywhere. Farmers use blackleg-resistant varieties, crop rotation, seed treatments and foliar sprays to manage the disease. Bucat says the disease is generally well managed.

Insects and other munchers. Australia has a few unique pests not seen in other canola-growing regions of the world. These include lucerne flea, cabbage webworm, native budworm, blue oat mite and red-legged earth mite. They also have the familiar diamondback moth larvae, cutworms and aphids. “Aphids can be troublesome and green peach aphid is often resistant to major chemicals, which is an issue for us,” Bucat says. “Thankfully we still have seed treatments so emergence pests are generally well controlled.” Insects are not the only crop munchers. Bucat adds slugs, snails and mice to the pests list.

Do you think any of the practices adopted in Australia should be considered in Canada? Please email the author and let him know. ✨

—Jay Whetter is the editor of *Canola Digest*.
Email whetterj@canolacouncil.org.



← Canola growing near Lockhart, New South Wales.

Photo credit:
Gregory Sekulic

DE-REGISTERED VARIETIES ARE A NO-GROW

Growing registered canola varieties is an important part of assuring our export customers that the oil and meal quality, biotech traits and disease resistance in our canola crop meets their requirements.



Learn more and find a list of de-registered varieties at KeepItClean.ca/canola

Better estimate emergence this spring to hit your target plant population

BY TARYN DICKSON



↑ Visit CanolaCalculator.ca to use the target plant density, seeding rate and seed cost calculator, and Canola Counts survey tools to support your seeding plans and assessments this growing season.

Canola seeding rates may require adjusting under certain conditions to optimize plant populations and maximize yields, according to research. Seeding rates may need to be increased when seeding at a later seeding date, when high average temperatures or low precipitation are observed before seeding, or expected after seeding.

The Canola Council of Canada recommends targeting a canola plant population of five to eight plants per square foot to balance yield potential and economics. To achieve a target plant density, you need to know the seeding rate, thousand seed weight (TSW) and estimated emergence percentage. But with an average of 60.7 per cent and a range of 20-90 per cent, canola emergence rates can vary by management practices and field conditions. Quantifying these values could help farmers better adjust their rates under certain conditions.

Christiane Catellier's project, 'A meta-analysis of small-plot trial data to examine the relationship between crop development and environmental conditions in canola,' aimed to address this. (Find the report at canolaresearch.ca.) The research used archived small-plot canola agronomic trial data (from 12 projects conducted across 47 site-years in Saskatchewan and Manitoba from 2013-22) and corresponding regional weather data to investigate the relationship between environmental conditions and canola emergence.

Key outcomes

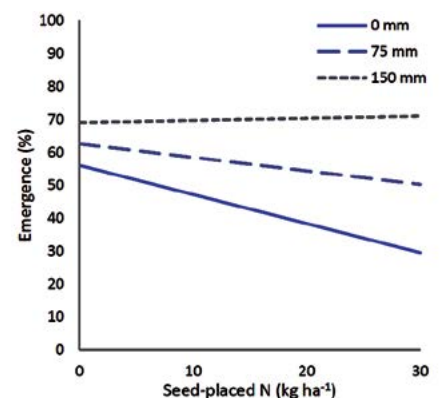
- Seeding date and average air temperature before and after seeding had the most influence on emergence and appeared to be related to soil moisture.
- Seeding density, seeding date, seed-placed fertilizer and average pre- and

post-seeding air temperature all had negative effects on emergence percentages, while pre- and post-seeding precipitation had positive effects on emergence.

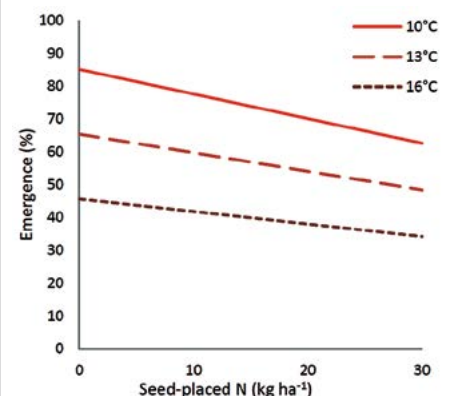
- Pre-seed precipitation was more influential on emergence (varying from 53 to 72 per cent) than post-seed precipitation (varying from 57 to 73 per cent).
- The effect of seed-placed fertilizer (nitrogen, phosphorous, and/or sulphur) on emergence varied with seeding date, pre-seed precipitation and post-seeding temperature. Seed-placed fertilizer had little effect on canola emergence when seeded later. When seeded earlier, there was a significant reduction in emergence with increasing rates of seed-placed fertilizer.
- The effect of seeding density varied with seeding date, pre-seed precipitation and pre-seed temperature.
- Interacting effects between management and environmental variables were more likely under more ideal conditions of the most influential variables, specifically earlier seeding dates, lower average temperatures and higher precipitation.
- Seeding later appeared to have a stronger effect on canola emergence than seed-placed fertilizer. ✖

—Taryn Dickson is resource manager for Crop Production & Innovation with the Canola Council of Canada. Taryn also manages the Canola Research Hub.

This graph from the final report depicts the effect of seed-placed nitrogen on canola emergence at different pre-seed precipitation amounts. ↓



The effect of seed-placed nitrogen on canola emergence at different average pre-seed temperatures is depicted in this graph from the final report. ↓



COP28 in Dubai, IOPD in Argentina

BY TENESHA LAWSON AND TROY SHERMAN



Troy Sherman at COP28 (left); Roger Chevrax at IOPD (right)

Canola Council at COP28

In December, the Canola Council of Canada (CCC) was in Dubai to represent the canola value chain at the 28th Conference of the Parties (COP28) – the global climate change conference organized by the United Nations. As the host country for COP28, the United Arab Emirates emphasized food systems as one of its priorities and also included trade as part of the agenda for the first time in COP history. With these focal points in mind, CCC collaborated with other value chain participants to advance policy positions and priorities to senior domestic and international policymakers both leading up to and during COP28.

COP28 featured several new initiatives and commitments from industry and governments related to climate change. This included the launch of the World Trade Organization's Trade Policy Tools for Climate Action and the release of the Food and Agriculture Organization's roadmap to achieving Sustainable Development Goal 2 (Zero Hunger) without breaching the 1.5°C threshold agreed to in the Paris Agreement.

CCC's advocacy leading up to COP28 and in Dubai focused on the following priorities:

- Inform the definition of sustainable trade and its impact on agriculture
- Advance biotech and gene-editing technologies as climate solutions
- Address global food security through sustainable supply
- Increase recognition of biofuels as an important part of climate change mitigation in the transportation sector

Countries will convene in Baku, Azerbaijan in November 2024 for COP29 to continue negotiations and advance efforts to achieve emissions reduction goals outlined in the Paris Agreement. The CCC will continue to work with allied partners and government to ensure that canola industry positions are well represented.

Key CCC meetings at COP28 included the World Trade Organization, the U.N. Food and Agriculture Organization, U.S. Special Envoy for Global Food Security, U.S. Department of Agriculture, United Arab Emirates Undersecretary for the Ministry of Climate Change and the Environment, and the Inter-American Institute for Cooperation on Agriculture.

The International Oilseed Producer Dialogue (IOPD),

consisting of 15 global members, including Canadian Canola Growers Association (CCGA) and other oilseed farmer associations from around the world, issued the final resolution from its XXV meeting in Rosario, Argentina. Compared to 2022, where global challenges related to the COVID-19 pandemic and the war in Ukraine were centre stage, main topics in 2023 were challenges related to food security, biofuel production and climate change.

At the meeting, CCGA chair Roger Chevrax shared issues impacting Canada's canola farmers. These include the need for predictable market access and clear rules of trade, for science-based decision-making in domestic regulations, and for environmental programming that builds on farmers' sustainability practices and recognizes their contributions to global climate change goals.

"It never ceases to amaze me the number of issues that Canadian farmers have in common with oilseed farmers from around the globe," says Chevrax. "With the strength of a unified voice by IOPD members from nine countries, we can reach both domestic and international governments on priority issues, including the importance that innovation plays in global food and energy security, the need for trade liberalization to enhance food security, the role that crop inputs play in food availability and accessibility, and the need to address climate and production challenges with reasonable locally-adapted solutions that are based on science."

Use the QR code to read the final resolution of the International Oilseed Producers' Dialogue. 🌻



—Tenesha Lawson is manager of stakeholder communications for Canadian Canola Growers Association. Troy Sherman is senior director, government & industry relations for the Canola Council of Canada.



Make better decisions with OODA Loop

BY JAY WHETTER

How can an air force strategy to improve combat results help a farm make better marketing decisions? It's about the process – including a constant looping back to test the validity of each decision.

OODA is an acronym for a four-step process in decision making

– observe, orient, decide, act. American fighter pilot John Boyd developed the OODA Loop after tracking U.S. Air Force success in the Korean War in the early 1950s. Ed Broschinski has adopted OODA Loop for farm marketing.

Broschinski, lead market analyst with Cargill Marketsense, based in North Battleford, Saskatchewan, presented “The OODA Loop – How to cut out the noise and make better decisions” at Farm Management Canada’s Agricultural Excellence Conference in Guelph in November.

Broschinski follows a lot of financial podcasts, and came across the OODA Loop concept. “I hadn’t heard it applied to farm decisions – such as marketing grain, buying new land or bringing in a partner,” Broschinski says. So he shaped it into a farm decision-making tool.

Broschinski provides an abbreviated version of the OODA Loop history: Boyd noticed that U.S. Air Force pilots were shooting down Korean MiG-15s at a 10:1 ratio, even though MiG-15s were considered superior to the American F-86 fighter jets. Boyd noted that F-86s had a larger bubble cockpit, which gave the pilots better sight lines – better observation. F-86s also had a hydraulic control system that would orient quicker and better against a technologically superior enemy. Boyd summarized the process: “If you can observe and orient better, you can make better decisions, and better decisions lead to wins.”

The “loop” comes from the constant review and feedback of the process and final decisions. “OODA Loop should make high pressure decisions easier and faster,” Broschinski says.

Dean Roberts, SaskCanola vice chair who farms at Coleville, Saskatchewan, heard Broschinski’s presentation at the conference. Since the conference, Roberts has looked into formal decisions making processes like OODA Loop. “It is easy for farmers to own their successful decisions. It is harder to look objectively at our failed

For the “observe” step, Edward Broschinski suggests Canada Grain Commission export data and StatCan merchant trade data. Find that data here:



Canadian Grain Commission (CGC) weekly grain statistics ↓



Canadian International Merchandise Trade (CIMI) database ↓



decisions, identify what went wrong, and learn from them,” Roberts says. “Using a consistent tool like OODA makes it harder to ignore a bad process.”

OODA Loop on the farm

Farmers can use OODA Loop to add structure to decision making. “This is something we inherently want to do, but until we explicitly call it out, we can’t repeat it effectively,” Broschinski says. “We don’t want repeatability to happen by chance.”

Observe

Set up a mechanism to gather a diverse set of information, Broschinski says. He lists a few good sources:

- Coffee row for the local market situation
 - A trusted advisor for national and international perspectives
 - Newsletters for diverse viewpoints, including opinions of people you don’t really agree with.
 - Unbiased data on weather and export figures.
- Broschinski suggests Canada Grain Commission export data and StatCan merchant trade data.

Orient

This step considers goals, financial constraints and commitments, and your emotional state. “This is, in my opinion, the most important step,” Broschinski says. “It doesn’t change based on weather in Europe.”

- What are your goals?
- What are the goals of your partners – family, investors, business partners?
- What are your cash flow constraints, bills to pay, storage risks?
- What is your emotional state? Results from the previous action might have you feeling regret, euphoria or fear. This emotional state can affect the next decision. Ask yourself, how am I oriented today relative to incoming data?, Broschinski says.



If you have to ask who, when and how before acting, that can lead to missed opportunities or second guessing. “Farms can get tripped up with multiple decision makers.”

– Ed Broschinski

Decide

Once you’ve observed the market and have an idea of prices – for grain, for land, for machinery – and your goals, cash flow and emotional state are accounted for, the next step is making a decision. Before making the decision, Broschinski suggests you think about:

- What would success feel like?
- How do I measure if I’m wrong?
- What happens if I’m wrong?

Decisions will be different depending on answers to these questions. “There are many ways to sell grain,” Broschinski says.

Act

Once the decision is made, you have to act. “This part can trip us up the worst,” Broschinski says.

It helps if decision-makers feel free to make the final call. Broschinski identifies one other possible advantage for U.S. fighter pilots. “U.S. soldiers are empowered to make individual decisions,” Broschinski says. They are trained to act individually and quickly once they’ve made a decision.



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This can be a challenge for a farm with a number of partners or stakeholders. If you have to ask who, when and how before acting, that can lead to missed opportunities or second guessing. “Farms can get tripped up with multiple decision makers,” Broschinski says. It would be better to have all partners involved at the orient step to set the groundwork and goals, and assign one person responsible to decide and act when opportunities come along that align with the agreed orientation. If an action leads to a loss, the decision process loops back to the team for improved observation and orientation.

Test your habits, values and intuitions

To make one final point, Broschinski points to a study from Sweden. Bo Öhlmer, economist at the Swedish University of Agricultural Science in Uppsala, co-wrote “Understanding farmers’ decision making process and improving managerial assistance,” printed in *Agricultural Economics* in 1998.

The researchers studied real farmers in Sweden to see how they would approach 18 case studies. The researchers identified four phases of decision making: problem detection, problem definition, analysis and choice, which are very much in line with the OODA Loop steps.

Farm managers’ “consciousness of their values” was higher than expected,” the researchers wrote.

Broschinski thinks values are important in decision making. “A lot of decision making we do is based on habit, tradition and values,” he says. “Intuitive farmers make decisions based on many years of experience, which allows them to consistently go-with-their-gut and be successful.”

But he has a challenge for farmers. Have you given your habits, values and intuitions the OODA Loop test? Regular review can test whether they’re still current. Are they leading to repeatable results? If yes, keep doing them. If not, try something different.

The OODA Loop gives a name and process to decision making practices that farmers often follow intuitively, as the Swedish study showed. Looping back to refine and improve the farm’s decision-making process will lead to faster, better informed and more profitable decisions that also align with your values. ✿

—Jay Whetter is the editor of *Canola Digest*.

De-bunking educating a

Hello Canola has partnered with four strong Canadian voices – Emma Choo, Devan Rajkumar, Abbey Sharp and Darryl Wiebe – who can amplify the “canola love” message.



Abbey Sharp is a registered dietician and a long-time supporter of canola. Abbey is a knowledgeable and credible resource for those wanting to learn more about the benefits of canola, and can help us demystify some of the misconceptions around canola and its health and nutrition qualities. @abbeyskitchen



Darryl Wiebe is a farmer from MacGregor, Manitoba. Farmers are such a critical part of the canola story, and many Canadians may not have as much opportunity to learn about their work and the role they play in our economy and bringing important food products to Canadian shelves. By working with Darryl to tell his story, we are able to amplify it to broader audiences to help bring awareness to more Canadians and educate on the important role of canola.

@Beavercreekfarmsltd

myths and audiences

Canadians love authenticity. So, to talk about the impact and importance of canola, *Hello Canola* looked to others – a farmer, a registered dietitian, a lifestyle leader and a chef – to help tell the canola story.

The *Hello Canola* campaign has partnered with four strong voices across different spaces and backgrounds to create authentic opportunities to engage and educate Canadians across the country without a farming background.

The campaign, which began with a soft launch in August 2023, aims to bring people across the country closer to canola, instilling pride and increasing knowledge and appreciation for the Canadian crop. It shares all that canola provides, from products we use every day, to its environmental impact and its contribution to the Canadian economy.

“For the first year of this campaign, we wanted to ensure we partnered with influential Canadians who could help us tell the full story of canola and bring together some of the most important aspects and uses through their content,” says Jennifer Dyck, market development director with Manitoba Canola Growers.

Through these influencer partners, the campaign has the ability to reach more Canadians with canola stories and content by not only reaching the creators’ own followers, but by amplifying their content to reach a broader group of Canadians interested in the subject matter.

The partners are Emma Choo, Devan Rajkumar, Abbey Sharp and Darryl Wiebe. (See their profiles and images from some of their recent *Hello Canola* content.) Feel free to follow them on social media to see future campaign content and share or comment to strengthen their reach.

The provincial canola associations – Alberta Canola, SaskCanola and Manitoba Canola Growers – fund the new campaign through their joint National Canola Marketing Program. Team leaders are Lynn Weaver, market development manager with SaskCanola, Louise Labonte, public engagement and promotions coordinator with Alberta Canola, and Jennifer Dyck. The grower organizations hired FleishmanHillard HighRoad, a strategic communications and public relations agency, to develop the strategy and bring *Hello Canola* to life.

The central hub for information for this campaign is the new website at hellocanola.ca. The consumer-targeted site has resources and information on the benefits of canola, canola in our daily lives, and recipes, along with a learning centre for anyone curious about canola. Also look for and engage with @hellocanola on Twitter (X), YouTube and Facebook, and @hello_canola on Instagram. 🌻

Watch for Hello Canola

Audiences can continue to see *Hello Canola* content being amplified on social media, through Google ads on YouTube and search ads, as well as digital video on connected TV and online video that run before, during, and after video content playing on premium streaming platforms and websites.



Emma Choo is a lifestyle influencer and self-proclaimed “foodie.” Emma is the perfect bridge to showcase the full story of canola, from its use in cooking, to personal and pet care products and more. We were also very pleased to welcome Emma to Grow Canada with the Hello Canola team this year to learn more about canola and engage further in the agricultural community.
@vancouverfoodie

Devan Rajkumar, professional chef, is already very familiar with using canola oil in recipes and its benefits and versatility in the kitchen. Leveraging him as an expert in the cooking space will help us amplify cooking use-cases with Canadian audiences and inspire them to make canola their go-to cooking oil.
@chevdevan

The money makers



Canola Digest asks its six farmer panelists to name their most profitable crop in 2023. Canola was at or near the top for many of them. We also ask what they can do to increase profits.



Margaret Rigetti

Langbank, Saskatchewan

Canola was the most profitable crop on Margaret Rigetti's farm again in 2023. It usually is, she says. The farm grows three primary crops – canola, spring wheat and malt barley. “Canola grows so well in our area, in our soils, and it adapts to many growing conditions,” Rigetti says.

A tweak to phosphorus rates is one way to possibly improve canola profitability, she says. “Phosphorus might be a limitation for us. Our agronomist looked more closely at our removal rates, and what we thought was an adequate rate maybe wasn't,” she says. “Thus, in 2023 we embarked on a multi-year phosphorus building program.”

The farm, as always, will try to control costs, grow more bushels and “market as well as we can,” Rigetti says. With prices down from their highs, cost management becomes more important, but when the farm's other objective is to grow more bushels, “there's only so much we can do,” she says.

The farm usually buys fertilizer in July because it “saves headaches” trying to sort it out any other time of year and prices are usually better than average in July. “Last year it was the wrong time, but our strategy usually works and we try not to switch it up, even if it ends up being wrong some of the time,” Rigetti says.

The farm takes the same approach to marketing. They have a strategy that factors in cost of production, cash flow needs, input from market advisory newsletters and averaging throughout the market year. “We do a variety of things, and we try to be consistent,” she says.

“Phosphorus might be a limitation for us. Our agronomist looked more closely at our removal rates, and what we thought was an adequate rate maybe wasn't.”

– Margaret Rigetti

“We set up for the best crop possible and let Mother Nature take care of the rest.”

– Jeff Frost



Jeff Frost

Olds, Alberta

Jeff Frost had record-breaking yields for all three of his crops in 2023. Barley was the most profitable with “ridiculous yields” and malt grade. Canola was close behind, he says. Wheat also did well.

“We were always a couple of days from a complete wreck in 2023, but got timely rains and no hail,” Frost says. “Canola looked good all year. Lots of plant material and lots of bushels, too. It was worth the fight at harvest.”

Frost does not skimp on inputs to cut costs. “We set up for the best crop possible and let Mother Nature take care of the rest.” The budget includes “aggressive” fertilize rates, two applications of Liberty and fungicide for sclerotinia stem rot. “We have seen some wrecks from sclerotinia stem rot,” he says.

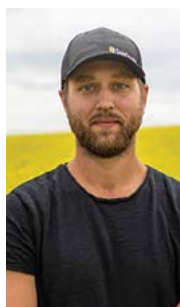
The high inputs approach works out very well on years like 2023. “But the previous few years our canola has been a dog, with high inputs, low yields and hail.”

Frost always buys hail insurance. “It is necessary to sleep at night.”

He doesn't have any major profit-enhancing changes in mind. He currently floats on elemental sulphur and might consider trying MicroEssentials S15 in the seed row. The granular fertilizer contains nitrogen, phosphorus and sulphur, with the analysis 13-33-0-15. He says their fields are not sulphur deficient, but S15 provides more precise and uniform distribution than the floated elemental.

Frost wishes he had been more aggressive selling canola this year. By mid December, canola prices had fallen to about \$14 per bushel, down from \$20 a few months earlier. “Canola is still profitable at \$14 as long as you get the yield,” he says.

He keeps his rotation consistent. “We take a whole farm approach and won't switch up acres to chase last year's prices.”



Evan Michel

St. Gregor, Saskatchewan

Canola was Evan Michel's most profitable crop in 2023. "It was looking average all year, and ended up better than expected," he says. "It was nice to see."

Even with prices in early January lower than at harvest, canola will still be "reasonably profitable," Michel says.

Second place, for him, went to red lentils. He used to grow green peas as his pulse crop, and two years ago tried red lentils for the first time. This year he made a full switch. His father-in-law, who farms in southern Saskatchewan near Lafleche, encouraged him to try the lentils. His other crops are wheat and barley.

When asked how he could make canola more profitable, Michel mentioned fungicide to manage sclerotinia stem rot. He sprayed this year, but being such a dry July, he says "it helped a little, but on years with more disease pressure it can help more."

Another big factor in profitability is marketing. "It doesn't matter how much you grow if you don't market it well," Michel says. He pre-sold some canola before harvest, but "not enough," he says. "I'm not used to seeing the price drop this much."

He doesn't plan to change his marketing approach, which is to forward-contract a percentage of the anticipated crop. However, the lower canola price does make him more mindful of his break-even point.

"It doesn't matter how much you grow if you don't market it well."

- Evan Michel

"We have always had blackleg pressure, not severe but costing yield."

- Sheldon Guthrie



Andrea and Sheldon Guthrie

Reston, Manitoba

The Guthrie's were in the "have not" zone for moisture in 2023, with 2" of growing season rainfall around the home farm. "Some crops only got an 1" of rain after planting," Sheldon says.

Not counting insurance payments, their 2023 crops, ranked by profitability, were corn, wheat, canola, peas and soybeans. "Corn did well despite the lack of rainfall, and wheat was better than expected, by far," Sheldon says. Canola didn't do well and peas and soybeans were "terrible."

Guthrie is testing longer breaks between canola crops to see if that improves profitability. A few years ago, canola on a two-year rotation was dying prematurely. He didn't get it tested, but assumed disease. Then it happened again two years later and he got it tested. The canola had verticillium stripe and blackleg. "We have always had blackleg pressure, not severe but costing yield," he says. So they want back to a four-year rotation on fields that had been in the two-year rotation. Those fields are just coming back into canola in 2024, so the Guthries haven't had a chance to test the rotation benefit.

"When you look at the health of canola plants going into land that hasn't had canola for 10 or 15 years, because the land was in forage, you can see how longer breaks can help with disease management," Sheldon says.

Canola farmers can manage tight rotations with fertilizer and fungicides, and many farmers do that. Going north from Reston, canola yields and profitability go way up, Sheldon says, while corn becomes inconsistent. With fewer profitable rotation crops, this drives tighter canola rotations.

As seed growers and agronomy specialists, the Guthries see value in a more diverse rotation. And corn seems to like the growing conditions around Reston. "I've been growing corn for 12 years and it has been my most profitable crop every year I've grown it," Sheldon says. "It is resilient in our environment. It does well in heat." His worst year for corn was a wet fall. The crop came off really tough and "drying costs were through the roof."



Cheryl Westman

Vermilion, Alberta

Cheryl Westman's most profitable crop in 2023 was hard red spring wheat. "That surprised us," she says. "We thought it would be soft white

wheat." Most years their most profitable crop is canola. She and her husband Kyle went through the numbers in preparation for this panel topic. They calculated their hard red spring average yield at 90 bu./ac. Soft white was about the same, but hard red prices are better.

Oats were second, also driven by very good yields. "We had to bag some of our oats this year because we ran out of bin space on the farm," Westman says. It was a good cereal growing year for many farms within central Alberta, especially in the clay soils around Vermilion.

Canola was third, in a tight cluster with soft white wheat and barley. Canola yields are usually 50 to 55 bu./ac. on the Westman farm. They were 40 bu./ac. in 2023. "Our canola got some heat during flowering, so we're thinking that is why yields were lower," Westman says.

Better marketing could have improved their canola profitability this year, Westman says. Marketing often includes some hindsight regret, and this year the Westmans wish they would have sold some canola into the summer rallies. January 2024 canola futures, for example, were over \$800 per tonne for most of the summer then began a long slide to around \$650 on December 20. "If we had set some better price targets, maybe we would have taken advantage of those prices."

Even at current prices, Westman says their 2023 canola is still profitable. "We know what we need to cover for input costs and we should be able to sell above that, even though prices have dropped off."

"If we had set some better price targets, maybe we would have taken advantage of those prices."

– Cheryl Westman

"We don't have a lot of experience with kochia here, and it's something I want to keep on top of."

– John Bergen



John Bergen

Carman, Manitoba

Canola was John Bergen's most profitable crop in 2023. Yields were near 60 bu./ac. – "much better than anticipated," Bergen says. "The crop did really well in conditions you wouldn't think it would." The farm

got about 5" of in-season rainfall and the crop tapped into decent soil moisture reserves. Canola benefited from a cooler July – cool weather at flowering contributes to better seed set and higher yield potential – and long dry fall that allowed Bergen to take his time at harvest.

His soybeans, on the other hand, looked "all right for a while" but yield comes down to seed size, Bergen says, and the dry fall did not provide the required moisture to fill the seeds. "Harvest conditions good for soybean yield would be considered awful for canola and cereals," Bergen says. And since harvest conditions were great for canola and cereals, it means soybeans suffered.

When asked about canola practices he may look to improve in 2024, Bergen highlighted a few practices he "did right" in 2023 and will keep doing. One was later seeding. Canola seeds planted into warm soils really took off after a timely, though not huge, June rain. This may have been a factor in lower flea beetle pressure. Bergen also applied pre-harvest diquat desiccant using their own ground sprayer equipped with crop dividers to reduce trampling. Choosing this over custom aerial application "put the money in our own pocket," he says.

Bergen will more closely scrutinize fungicide applications. In the Red River Valley, farmers will usually spray to protect canola from sclerotinia stem rot without much consideration for risk factors. Granted, the risk is usually there. However, in 2023, Bergen left some untreated checks because he wasn't sure the drier conditions would provide a return on investment for fungicide. His hunch was correct. There was "zero difference" between treated and untreated strips.

Bergen will also "spice up" his weed control, especially to target kochia, a relatively new problem. "We don't have a lot of experience with kochia here, and it's something I want to keep on top of." ✖

—Jay Whetter is the editor of *Canola Digest*.



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