

# The FENCE POST

Fall/Winter 2022 Issue No. 5



MANITOBA  
CROP  
ALLIANCE

## The TASTE *of* TEAMWORK

*Manitoba craft beer is  
the product of passionate  
people at every step  
of the value chain*



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Gene editing and Canadian crops p. 13

Managing extremes of moisture p. 20

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## The FENCE POST

**Editor-in-Chief**  
Cole Christensen

**Creative Director**  
Brent Morrison

**Contributing Writers**  
Ashley Ammeter,  
Darcelle Graham, Alison  
Inglis, Robert Misko, Pam de  
Rocquigny, Delaney Seiferling,  
Katherine Stanley

**Cover Photos**  
Courtesy Trans Canada  
Brewing Company

**Publisher**  
Cole's Ag Communications

**Printing**  
Houghton Boston

**Distribution**  
Houghton Boston



**Chief Executive Officer**  
Pam de Rocquigny

**General Inquiries**

Phone: 204-745-6661

Fax: 204-745-6122

Email: [hello@mbcropalliance.ca](mailto:hello@mbcropalliance.ca)

Address: P.O. Box 188, 38 4th Ave.  
NE, Carman, Manitoba, ROG 0J0

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# Farmers are resilient

The 2022 growing season presented challenges that have forced the agricultural industry to adapt, but farmers are resilient.

As I write this message, the crop is starting to come off. Overall, the crops will be average. Commodity prices are down, but I think most farms will be able to cover their expenses for this year. However, farmers' risk levels are rising. There are concerns about fertilizer shortages and prices, as well as the overall cost of farming and the rate at which the costs are increasing.

According to Statistics Canada, Manitoba is one province bucking the trend of larger farms, with more small operations than other provinces. Being a young farmer starting out is becoming more difficult, thanks to the drastic increase in costs. This is disappointing to see, which is why Manitoba Crop Alliance (MCA) is striving to address the problem by ensuring farmer voices are heard.

We direct our advocacy efforts through our value-chain partners, such as Cereals Canada and Grain Growers of Canada. We are making the concerns we hear from our farmer members very clear to these organizations.

It is encouraging that investment in the agriculture and agri-food sector will be 25 per cent higher under the Next Policy Framework. We want to be efficient with farmers' money and the research we invest in must be valuable to growers' operations. With that in mind, the goal is to spend the majority of our budget (60-70 per cent) on research.

Speaking of research, the Whole Farm Research program picked up this



year. This cross-commodity research approach allows us to collaborate with our industry partners to deliver research that is of value to the whole farm. Three projects have been funded through this program after the inaugural call for proposals, which are detailed on [page 7](#).

During Ag in Motion this summer, MCA staff and directors were able to meet in person with organizations like the Canadian Wheat Research Coalition, Canadian Barley Research Coalition, Western Grains Research Foundation and SaskFlax to discuss the current state of agriculture. It was very valuable to sit around the table together again. We were also able to tour plots at the University of Saskatchewan's Crop Development Centre as it celebrated its 50th anniversary.

MCA staff and partners collaborated on several crop tours and events this summer, including the Manitoba 2022 Malt Barley Variety Trial Field Day and two Combine College workshops in Dauphin and Portage la Prairie. Thank you to all the farmer members who

attended – we hope you found them valuable.

In August, MCA celebrated its second anniversary, and I was curious to hear the opinions of the crop committee delegates about the new system. There was a general agreement among delegates that they appreciated their ability to be involved in making research decisions, without having to be directly on the board of directors. A couple of delegates even mentioned they would consider joining the board down the road.

This was the desired outcome when the amalgamation was proposed: to get more people involved. I also believe the smaller organizations have merged quite seamlessly. Delegates from the smaller crop committees are very pleased the majority of their check-off goes towards research, not administration and the other costs they had before amalgamation. This efficient use of check-off dollars allows us to do more work that directly impacts your bottom line, including research, agronomy and extension.

I hope everyone has had a successful harvest and I am looking forward to seeing many of you at different meetings and events this winter. I wish you all a safe and happy holiday season with family and friends. 🍷

**Robert Misko**  
Chair  
Manitoba Crop Alliance



# Celebrating two years working Stronger Together



This August, Manitoba Crop Alliance (MCA) celebrated our second anniversary. In the consultation period leading up to the amalgamation, we presented a proposal outlining a number of commitments to you, our farmer members. I would like to take some time together to reflect on these first two years of operations and review those commitments. Consider this question: have we delivered on the promises we made?

**Commitment:** The mandate of the organization will maintain and strengthen the mandates of our founding organizations.

This was reaffirmed in MCA's Strategic Plan released in February 2022. We have five strategic objectives focusing on:

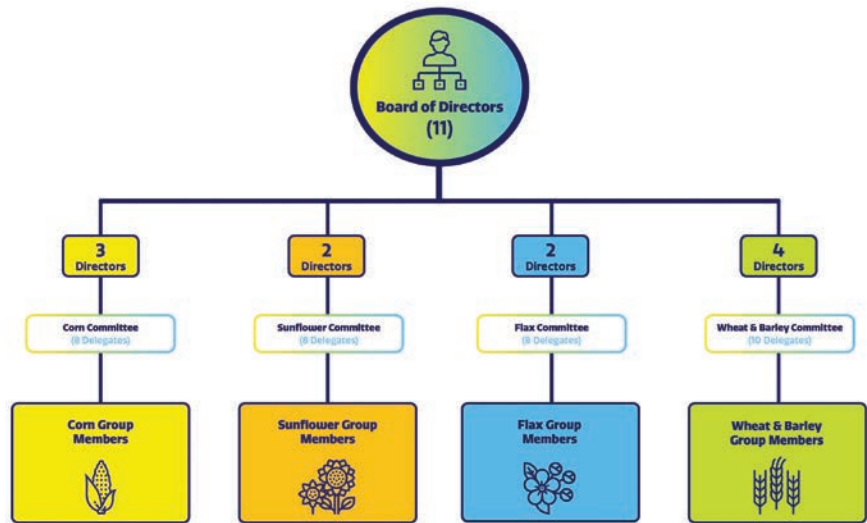
- **Research, production and extension services** – make a clear impact on the farms of our members.
- **Market development and access** – support work that directly benefits farmer members.
- **Advocacy** – focus on being a voice for Manitoba farmers.
- **Communication** – produce information to help farmer members make productive and sustainable decisions.
- **Administrative efficiency** – be a lean and efficient operation with farmer input to inform and shape our decisions.

Read the complete strategic plan at [mbcropalliance.ca/about/strategic-plan](http://mbcropalliance.ca/about/strategic-plan).

**Commitment:** Deliver improved, independent, farmer-driven research and agronomy support.

Sixty-four per cent of our 2022-23 budget is spent on research and production.

- The four crop committees have been instrumental in setting priorities and recommending projects for funding. New projects have been funded in most crop types, including 17 new wheat and barley projects in 2021-22.



- Our Whole Farm Research program follows a whole-farm, cross-commodity approach to research that is not crop-specific and recognizes the research needs of diverse cropping systems across Manitoba.
  - ◊ MCA has successfully funded three projects through the Whole Farm Research Program that began in 2022. The total value of this research, which will be conducted over the next five years (2022-27), is \$1,506,047. MCA's contributions to the projects will total \$476,470 over that period.

**“MCA research is more focused on cropping systems and looking at the whole farm, much like farmers do.”**

– **Fred Greig,**  
delegate on the  
Wheat & Barley Committee

**“The formation of MCA has resulted in a breath of life to the smaller crop types. Staff resources are dedicated to them, ensuring they are well represented by the organization, both from an individual crop perspective and a whole farm perspective.”**

— **Fred Greig**,  
delegate on the  
Wheat & Barley Committee

- We expanded the Research on the Farm program to include flax and sunflowers, in addition to spring wheat, barley and grain corn. This program allows farmers to evaluate practices and new technologies on their farms with their production systems.
- We maintained support for Manitoba Corn Committee trials, Sunflower Variety Performance Trials and Manitoba Crop Variety Evaluation Trials (MCVET), providing third-party, independent variety evaluation data for Manitoba farmers.
- Our two agronomy extension specialists created numerous articles and factsheets, providing valuable information to our farmer members to help them make productive and sustainable decisions.
- Continued funding of research and market development across our six crop types ensures a diversity of cropping options are available to Manitoba farmers. This diversity is important, as it assists with crop rotation options, mitigates risk from pest pressure and market issues, and builds resiliency and sustainability into cropping systems.
- Entering longer-term funding agreements also mitigates risk from production and pricing fluctuations to ensure continuous research funding and ensures the research and innovation pipeline remains full.

**Commitment:** Work with key industry stakeholders to develop new markets and support existing markets.

Eleven per cent of our 2022-23 budget is spent on market development and access, as well as consumer outreach initiatives.

- We continue to be members of Cereals Canada, Canadian Malting Barley Technical Centre, Barley Council of Canada and Flax Council of Canada to provide support to those organizations as they establish, develop and grow markets and access.
- A couple new exciting initiatives include:
  - ◇ Habitat-Friendly Winter Wheat Ecolabel program [habitatwheat.ca](http://habitatwheat.ca)
  - ◇ What About Wheat? [whataboutwheat.ca](http://whataboutwheat.ca)
- We've increased consumer understanding and awareness of the great work farmers do through Fields to Forks, Great Tastes of Manitoba (new in 2022: an MCA-sponsored episode!) and Agriculture in the Classroom – Manitoba.



**“I appreciate the consistency of the Heads Up newsletter. I know every month a newsletter is coming, and it’s consistently packed with good, timely content. MCA nailed it.”**

— **Doug Martin**,  
delegate on the  
Wheat & Barley Committee

**Commitment:** Deliver research results and information to farmer members through a cohesive communications strategy.

Six per cent of our 2022-23 budget is spent on communications to deliver research results and information on all crop types.

- Monthly Heads Up e-newsletters deliver timely, valuable information the second Wednesday of every month, including special editions focused on winter wheat. Subscribe at [mbcropalliance.ca](http://mbcropalliance.ca).
- Annual Focal Point magazine delivers in-depth information and results from farmer-funded research projects.
- Biannual Fence Post magazine has recently transitioned to magazine style due to the amount of great work we need to communicate.
- Market intelligence information for all crop types is delivered to farmer members in the monthly Grain Marketing Insights e-newsletter, produced in partnership with LeftField Commodity Research.

*Continued on next page*

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**Commitment:** Administration – be a lean and efficient operation with farmer member input to inform and shape our decisions.

- **Board governance:** MCA has been a true governance board with the fiduciary duties of budgets, financial reporting and setting strategic priorities.
- **Crop committees:** The committees play the largest role in determining how the 64 per cent of MCA's budget earmarked for research is allocated, as they determine research and production priorities and recommend projects for funding.
- **Grassroots involvement:** In the 2020 election, we had 17 open delegate positions across the four committees. We received 18 nominations, where 13 were new farmer members who hadn't been involved at the board level with the five founding organizations. We hope to see that engagement continue in the 2022 election cycle.
- **Lean and efficient:** 16 per cent of the 2022-23 budget is allocated to administration costs. We have high-performing staff, which has allowed programming to continue to grow in all areas, and we've added a research program manager for special crops, strengthening staff support on research.
- **Advance Payments Program:** We continue to deliver the Advance Payments Program, providing Manitoba farmers with service they deserve in accessing dollars quickly.

Since the amalgamation, there has been no increase in refunds. This is just one more indicator of support for the work MCA is doing on behalf of farmer members.

So, has the board of directors

**“MCA promised and has delivered on the point that customer service will not be reduced. Someone still answers the phone, not a recording. Cash advance (Advance Payments Program) fees are still extremely affordable and continue to have a very quick turnaround time, no drop in service there.”**

– Myron Krahn, farmer member

achieved what the proposal promised? I would say yes, but there is still work to do! Stay tuned for our reimagined annual report, which will highlight more of our activities from 2022.

MCA was built on the premise that we are Stronger Together. We will continue to grow this culture of collaboration as we strive to achieve MCA's vision, mission and strategic objectives for the benefit of our farmer members. 🌱



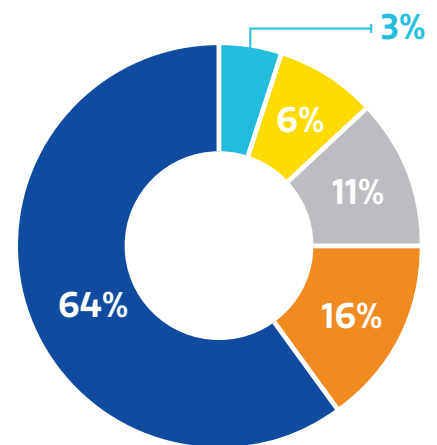
**Pam de Rocquigny**  
CEO  
Manitoba Crop Alliance






# Fiscal year budget

Manitoba Crop Alliance's board of directors approved the 2022-23 budget at the board meeting on July 14. For the 2022-23 fiscal year, the board of directors are projecting revenues at \$7,656,584 and total expenses of \$7,085,931. A positive net balance of \$570,853 is projected.

To meet the board's fiduciary responsibility, a full review of the budget vs. current will take place at the December board meeting, following the harvest of the 2022 crop, to ensure revenues align with levy projections and determine if any revenue/expenditure adjustments should be made.

## BUDGET ALLOCATION



-  Research & Production
-  General Administration
-  Market Development & Access
-  Communications
-  Advance Payments Program (APP)

## Know someone studying agriculture?

MCA has established a bursary to assist with the financial needs of students who are enrolled in a post-secondary agricultural program within the province of Manitoba. **Six bursaries valued at \$2,000 each** are available for the 2022-23 school year. Visit [mbcropalliance.ca/news/manitoba-crop-alliance-2022-23-bursary](http://mbcropalliance.ca/news/manitoba-crop-alliance-2022-23-bursary) to review eligibility requirements and application information.

Applications can be emailed to Katherine Stanley ([katherine@mbcropalliance.ca](mailto:katherine@mbcropalliance.ca)) with the subject line **"MCA Bursary Application 2022-23"** on or before **Jan. 13, 2023 at 4:30 p.m. CST**. Successful applicants will be notified by **Feb. 10, 2023**.

## Three research projects funded through Whole Farm Research program

Manitoba Crop Alliance (MCA) has successfully funded three research projects through the Whole Farm Research Program. The total value of this research, which will be conducted over the next five years (2022-27), is \$1,506,047. MCA's contributions to the projects will total \$476,470 over that five-year period.

The following research projects were funded in the inaugural call:

- **Optimizing Crop Rotations to Enhance Agronomic, Economic and Environmental Performance**
  - ◇ Principal Investigator: Dr. Ramona Mohr, AAFC Brandon Research and Development Centre
  - ◇ Co-funders: Manitoba Pulse & Soybean Growers, Manitoba Canola Growers Association
- **Evaluating the Potential Benefits of End-of-Pipe Treatments for Tile Drainage Discharge in Southwestern Manitoba Undulating Landscapes**
  - ◇ Principal Investigator: David Whetter, Agri-Earth Consulting
- **Making Cover Crops Work with Grain Cropping Systems in the Canadian Prairies**
  - ◇ Principal Investigator: Dr. Maryse Bourgault
  - ◇ Co-funders: Western Grains Research Foundation, Saskatchewan Forage Seed Development Commission, Results Driven Agriculture Research, Saskatchewan Wheat Development Commission

Developed in 2021, the Whole Farm Research Program allows for a whole-farm, cross-commodity approach to research. The Whole Farm Research Program is not crop-specific and leads to innovative solutions for the benefit of Manitoba producers now and into the future.

The second call for proposals is complete and reviews are underway. The second round of successfully funded proposals will be announced in 2023 – stay tuned!



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Advance  
Payments  
PROGRAM



Agriculture and  
Agri-Food Canada  
Advance Payments  
Program

Agriculture et  
Agroalimentaire Canada  
Programme de  
paiements anticipés

Manitoba Crop Alliance offers advances on more than *35 crop kinds and honey* with a one-time application fee and competitive interest rates. Our knowledgeable staff will go above and beyond to get you your advance in as little as *3-5 business days*.

For more information about the Advance Payments Program, contact us directly:



Phone: 204-745-6661



Toll-Free: 1-877-598-5685



[mbcropalliance.ca](http://mbcropalliance.ca)



Tammy Cote: [tammy@mbcropalliance.ca](mailto:tammy@mbcropalliance.ca)



Rae Jackson: [rae@mbcropalliance.ca](mailto:rae@mbcropalliance.ca)

**NEW FOR THE  
2022 AND 2023  
PROGRAM YEAR**  
The interest-free portion  
of cash advances has  
increased from \$100,000  
to \$250,000

The Advance Payments Program is a federal program, delivered and administered by Manitoba Crop Alliance. It offers Canadian farmers marketing flexibility through interest-free and low-interest cash advances.



# Five questions

with **Darcelle Graham**

Manitoba Crop Alliance chief operating officer

## 1. Why did you choose to work in Manitoba's agriculture industry?

Growing up on a mixed family farm, I found my love for agriculture and farm life. Harvest is my favourite time of year – **growing up spending time in the combine with my dad and grandpa** and enjoying family meals in the field hold special memories for me. This love for agriculture led me to pursue my degree in agribusiness.



## 2. What do you love most about Manitoba ag?

I love the **diverse cropping options** of Manitoba and taking in the beauty of the various crop types when driving across the province. I also appreciate the variety of food that is grown in our province.



## 3. What do you think are the greatest challenges and opportunities the industry faces?

Canadian agriculture and producers are currently faced with the challenge of meeting global food demands while balancing government regulation, all while trying to run **profitable businesses**. Being part of Manitoba Crop Alliance brings me a sense of pride, as we work on behalf of our farmer members to invest in meaningful research and market development that will allow our members to be more productive and sustainable in their farming operations.



## 4. What is your favourite place in the world and why?

Coming in second to life on the farm, our little piece of paradise at North East Bay, Lake life allows our family time to get away from the hustle of the farm and enjoy time on the water or ice with great friends!



## 5. What's a fun fact about yourself that people might not know or that might surprise them?

When I was 17, I was one of six young women who won the **Women's Enterprise Centre of Manitoba youth awards** for a business plan that I developed. 🌱



## Combine to Customer nominations now open

For more than 20 years, Cereals Canada has welcomed farmers from Alberta, Saskatchewan and Manitoba to its Winnipeg headquarters for its annual Combine to Customer program. This year, the program is expanding to Eastern Canada and inviting farmers from Ontario and Quebec to attend as well.

In 2021 and 2022, the COVID-19 pandemic forced the cancellation of the program. However, these two-and-a-half-day information sessions on the needs of global grain customers and the operation of the cereal value chain will once again be held in-person in Winnipeg at the Cereals Canada facilities in 2023.

Farmers can choose from three sessions to be nominated:

1. **Feb. 5-8, 2023**
2. **Feb. 21-24, 2023**
3. **March 5-8, 2023**

Attendees are nominated by individual crop commissions and there are spots for 20 farmers to attend each session.

"The Combine to Customer program offers the opportunity for learning, dialogue and engagement to take place with growers," said Lisa Nemeth, director of market support and training with Cereals Canada. "We are excited to welcome growers back to in-person opportunities at Cereals Canada."

In classroom presentations, participants will receive a broad overview of grain industry operations. Topics will include:



**Dough demonstration at Cereals Canada's Winnipeg HQ.**

*Photo courtesy Cereals Canada.*

- The workings of the Canadian Grain Commission grading process, the quality assurance system, and the development and registration process for new varieties.
- The performance of Canadian wheat in food production.
- End-product uses by global customers.
- Why customers prefer Canadian wheat over wheat from Canada's competitors.
- How Cereals Canada technical experts provide market support.

Additionally, hands-on technology demonstration sessions will be presented in the Cereals Canada analytical services lab, pilot mill, pilot bakery, pasta plant and noodle lab.

"I found the program to be valuable. It connects me to the whole value chain from what I grow on my farm to what the customers want when it comes to buying Canadian wheat," said a Manitoba Combine to Customer alumnus.

Combine to Customer nominations for the 2023 sessions are now open.

For more information, contact MCA staff or Chloe Wolstencroft at [cwolstencroft@cerealscanada.ca](mailto:cwolstencroft@cerealscanada.ca)

## Manitoba Crop Alliance Sponsored Speaker Session, Manitoba Ag Days

**Wednesday, Jan. 18, 2023** from 1 p.m. to 4 p.m. at the Keystone Centre, Brandon, MB; for admission and visitor information, visit [agdays.com](http://agdays.com)

### Speakers

**Chuck Penner, LeftField Commodity Research**  
Topic: [Grain market update](#)

**Krista Thomas, Canada Grains Council**  
Topic: [Plant breeding innovations – can farmers reap the benefits and maintain market access?](#)

**Xiben Wang, Agriculture and Agri-Food Canada**  
Topic: [Soil microbiology and the effect of crop rotation on disease suppressing soil microbes](#)

**Lorne Grieger and Charley Sprenger, Prairie Agricultural Machinery Institute**  
Topic: [Research in agricultural machinery](#)

**SAVE THE DATE!**

**CropConnect Conference 2023**

**February 15 & 16**

**Victoria Inn Hotel and Convention Centre in Winnipeg, MB.**

[www.cropconnectconference.ca](http://www.cropconnectconference.ca)



*You  
need  
people  
who  
care*





**Opposite page:** Jeff and Sheila Elder stand in the barn on their farm near Wawanesa, MB.

**Left:** Trans Canada Brewing Company in Winnipeg, MB.

Photos courtesy Trans Canada Brewing Company and MCA.

# Manitoba's malt value chain is a labour of love from grain to glass

**By Delaney Seiferling**  
Communications Specialist, Cole's Ag

**W**hen it comes to brewing great craft beer in Manitoba, it's a team effort.

In fact, the dedication and passion of the entire Manitoba agriculture value chain was one of the things that has most struck Sheila Elder since she began farming full-time in 1998.

"I didn't grow up on a farm and had no idea of the many levels involved in producing and getting the products to the end users," says Elder, who farms with her husband Jeff near Wawanesa, MB.

"It has amazed me at the incredible amount of collaboration and co-operation needed."

In order to help showcase this

collaboration and co-operation to consumers, Sheila — who is also a delegate on Manitoba Crop Alliance's (MCA) wheat and barley crop committee — and Jeff took part in the Fields to Forks program earlier this year. The program aims to showcase the farm-to-plate food production journey to a consumer audience unfamiliar with the ins and outs of agriculture.

With support from MCA, Sheila and Jeff's farm was featured as part of a video about malting barley production in Manitoba.

"The experience was incredible!" Sheila says.

"We love to learn and share our passion of producing food, so combining that with a crew of awesome people from CTV and the support of MCA staff made it quite easy, really."

These types of initiatives are important for the brewing industry, too, says Scott Sawatzky, brewer for Trans Canada Brewing Compa-

ny (TCB), located in Winnipeg.

Not only do they help tell the story of craft beer to consumers, they also strengthen the relationships within the value chain, which are crucial to end-product quality.

"We need quality ingredients to make quality beer," says Sawatzky, who has been brewing for TCB — one of the three largest Winnipeg craft breweries — for four years now.

"There's no way around it."

This is one of the reasons why TCB creates a special Harvest Sky beer each year, made exclusively with ingredients grown right here on the Canadian Prairies by family owned and operated farms.

The 2021 Harvest Sky pale ale was made with barley grown by the Elders, hops grown by Prairie Gem Hops in Rosser, MB, and malt from Maker's Malt in Rosthern, SK. The artwork for the label was created by Manitoba artist Janelle Regalbuto.

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Projects like the Harvest Sky beer and the Fields to Forks program will be increasingly important to the craft beer industry going forward, Sawatzky says, because they promote industry cohesion and product quality.

"I really wish there were more brewery involvement in these things because, ultimately, without the farmers who are dedicated to growing malting barley, we can't make beer. We rely on them."

Sawatzky also values having close relationships with maltsters. Although most of their malt comes from international malting company Country Malt Group's Calgary operations, TCB also sources supply from independent Prairie maltsters, including Maker's Malt, when possible.

"Maker's Malt has been incredible to work with," he says, adding that in his experience, they are completely devoted to turning around the highest-quality product.

"Good enough isn't good enough for them. That's the kind of relationship we want."

Without the passion and dedication that comes from local suppliers who take pride in their products, the industry couldn't be successful, he adds.

"You need people who care and quality ingredients in order to make a world-class product."

This sentiment is shared by Elder. She says on her farm, many steps are taken to ensure the quality of their malting barley crops. These include employing strong crop rotations, staying up to date on the best variety options, having their soil tested annually, carefully considering seeding time and conditions, and crop scouting throughout the year.

They are also very vigilant about chemical use, she says.

"We are very careful of any chemicals that go on the crop, so that only acceptable ones are used, and only at the acceptable stages. Most years our cereals (including barley) are sprayed



## **"We need quality ingredients to make quality beer."**

— **Scott Sawatzky**, brewer,  
Trans Canada Brewing Company

with fungicide, so that risks of Fusarium head blight are lowered."

At harvest time, they straight cut the barley when they've verified the crop is at the right stage, to prevent it from laying and decrease chances of sprouting. They also carefully monitor storage conditions to ensure grain is kept cool and clean.

At the end of the day, all these efforts are well worth it, Elder says.

"We care about the food we produce, and we take a lot of pride in any job we do, so it is very rewarding to have it selected for malt."

This passion among industry members is also what makes Canadian barley world renowned, says Peter Watts, managing director of the Canadian Malting Barley Technical Centre (CMBTC).

Another reason for this reputation is the work done by the CMBTC, a not-for-profit research facility located in Winnipeg dedicated to supporting and strengthening the Canadian malting barley supply chain through research, technical support and marketing services.

"At the CMBTC, we work closely with our partners in the value chain," Watts says.

"In addition to the quality evaluation and promotional work that we do in the international market, we offer training and education programs for producers, grain company staff, maltsters and brewers, so that everyone understands each other's business, the challenges and requirements, and to reinforce Canada as the world leader in the production and supply of high-quality malting barley and malt."

Elder says she's still amazed with how much goes on behind the scenes in the craft beer industry — as well as the Canadian agriculture industry in general — and she hopes projects that showcase this impressive value chain continue.

"We all need each other to do our jobs and I think everyone sees that, from the researchers who develop the different crop varieties, to farmers, agronomists, specialists and retailers, to name a few," she says.

"I really believe that people want to know where their food comes from and would be as impressed as I am with the dedication and teamwork that goes into producing food." 🌱

# Plant innovation

Wendy Lyzenga using digital polymerase chain reactions (PCR) to analyze DNA.

Photo courtesy David Stobbe.

## Unlocking the genetic potential of Canadian crops

By Alison Inglis

Public Relations Specialist, Freelance

The creation of improved crop varieties occurs primarily through plant breeding. At a foundational level, plant breeding is simply crossing top varieties with other varieties to generate even better varieties. However, in the last five to eight years, a new technique called gene editing has rapidly gained traction in plant science because of its potential to advance crop improvement.

Despite the promise and usefulness of the tool, some argue regulation of gene editing is required to prevent endangerment to human health, the environment or animal health.

At our AGM in February, a resolution was brought forward regarding regulatory requirements for gene edited crops in Canada.

Following this resolution, our board got to work on becoming informed on the issue. They heard from national experts, including the Canada Grains Council, CropLife Canada, Cereals Canada and Health Canada, and reviewed information available from the industry. Principles were developed and approved by the board in April that highlight the following core beliefs:

- Seeds produced using any plant breeding technique, including gene editing, should be subject to science-based regulations and policies related to health and safety.
- All value-chain participants must abide by the appropriate science-based regulations and policies/best management practices when launching products of plant breeding innovations in Canada to our export and domestic markets.
- All value-chain participants, including federal regulatory agencies and seed developers, are fully transparent in implementing regulations around plant breeding technologies, in order to maintain trust and reputation in domestic and global markets.

These principles guide MCA's participation in conversations around the topic of gene editing. We are a member of Cereals Canada, whose vision is that plant breeding innovation is an important step for the future of the grain sector. Through this membership, we are able to share information and updates on recent plant breeding innovation efforts.

We are also funding research that will allow us to understand more about genetics and learn how we can utilize gene editing in breeding programs in the future.

Researchers Leon Kochian and Wendy Lyzenga from the Global Institute for Food Security (GIFS) are leading the *Discovery of favourable alleles to increase phosphorus and nitrogen use efficiency in wheat (Triticum aestivum L.)* project. This project has co-funding through the Agricultural Development Fund (ADF), Western Grains Research Foundation (WGRF), Saskatchewan Wheat Development Commission (Sask Wheat) and Alberta Wheat Commission (AWC).

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Cont. from previous page

For farmers in Canada and around the world, fertilizer composed primarily of nitrogen, phosphorus and potassium (N, P and K, respectively) is critically important to yield. Many plant functions that are important to plant growth, yield and quality require the elements nitrogen and phosphorus.

It is estimated that synthetic nitrogen fertilizer supports 30 to 50 per cent of the world's population, making it a critical part of crop production<sup>1</sup>.

Although fertilizer contributes to higher yields and higher-quality grain, it does come at a cost to farmers (who have to buy it) and to the environment. Depending on the crop, soil type and rainfall, only a fraction of nitrogen and phosphate fertilizer (approximately 30 to 50 percent) is taken up by the crop. The residual fertilizer is left behind in the soil and can leach into waterways and be converted into nitrous oxide (a greenhouse gas), which is released into the atmosphere.

"One of the ways we can move to solve this problem is to improve the genetics of the crop," explains Lyzenga. "Through this project, we are aiming to identify gene sequences that enable wheat plants to take up more nutrients from the soil. These gene sequences can ultimately be used to generate improved wheat varieties with higher nutrient use efficiency, while maintaining yield, grain quality and protein content."

To achieve this goal, Kochian and Lyzenga are searching for variations or alterations in specific genes that naturally occur in Canadian and international wheat lines.

In the last few years, there has been an explosion in the amount of genomic sequence data available for wheat.

"In this project, we are pulling together metadata (data from many studies) and building off of research that has already been funded through the ADF, MCA, WGRF, Sask Wheat and AWC to try to achieve these goals for farmers," says Lyzenga. "In wheat, there is always collaboration."



*"While gene editing technology shows potential, it alone will not build the house. We have to use this powerful new tool at the right time and right place for the right trait."*

Curtis Pozniak,

University of Saskatchewan researcher and plant breeder

Kochian and Lyzenga are using gene editing as a validation tool to assess the alteration of specific genes or naturally occurring variation that exists in natural wheat cultivars to see which ones will be most beneficial to nitrogen and phosphorus use efficiency. This includes looking to improve nutrient uptake by targeting genes that affect root system architecture. Kochian says larger root systems with more and longer lateral roots have more surface area in contact with the soil and are better able to take up nutrients.

Ultimately, breeders will be able to use the information from this research to develop varieties that produce more yield per unit of fertilizer.

Lyzenga notes that since gene editing is being used as a validation tool only,

genetic information from this project would fit into a conventional breeding program. She adds that this research is one way to capitalize on gene editing technology for crop improvement, while being cognizant of market demands.

*In the 4D Wheat: Diversity, Domestication, Discovery, Delivery* project, lead researchers Curtis Pozniak and Sylvie Cloutier are looking to develop a platform for gene editing technology in wheat to be used for both research and, ultimately, plant breeding.

There are a lot of technical pieces that have to come together in order for gene editing to work. "First of all, you need to know the gene you want to edit and you need to decide on the change you would like to make within the plant," explains Pozniak.

1. Erisman, J., Sutton, M., Galloway J., Klimont Z, Winiwarer W. 2008. *How a century of ammonia synthesis changed the world*. Nature Geoscience 1, 636–639.



That is not as straightforward as it sounds, because there are about 130,000 genes in wheat and for the vast majority of these, we don't know their role in influencing traits of agronomic importance.

The second part of this project involves taking advantage of the genetic diversity that exists in wheat and its related species. "We know those wild relatives carry a number of useful genes that we can use in the context of plant breeding. In fact, some of the genes used today in wheat breeding for disease resistance came from wild relatives," says Pozniak.

There are around 500,000 different lines of wild wheat relatives and diverse collections from around the globe. "The wild relatives are not adapted to agriculture, so often,

when we do crosses, we get linkage drag, which is when we are trying to transfer a desirable trait, but we also bring undesirable traits along with it," explains Pozniak.

Pozniak and Cloutier, in partnership with scientists at the National Research Council of Canada, are trying to eliminate the linkage drag and re-domesticate wild relatives, so they look more like adapted wheat.

"We are doing this in a number of different genetic backgrounds, but we are focusing on those wild relatives that have known resistance to Fusarium head blight (FHB)," says Pozniak. "We have spent a lot of time screening accessions from around the world and have identified lines that do carry very good levels of resistance.

"We still do not know which genes confer Fusarium resistance, so we are not in a position to edit those just yet. But we do know the genes that can be changed to convert a wild wheat plant with FHB tolerance to one that is semi-wild, and thus a plant that is more amenable to plant breeding. We can convert a wild plant so that it flowers on time, or one that does not shatter and lose its grain."

One of the five large research activities within the 4D Wheat project is focused on GE3LS (genetics, economics, environment, ethics law and society) research. GE3LS has three research areas, each designed to support genomics and breeding for the benefit of farmers.

The first area deals with understanding the value that Canadian farmers derive from genetics obtained from international sources.

"For this research, we look at the parentage of all the wheat varieties grown in Western Canada, and we quantify which institutions and parts of the world have added value to wheat grown by farmers through yield or disease resistance," says Richard Gray, professor and grain policy chair in the department of agricultural and resource economics at the University of Saskatchewan.

"Identifying and quantifying the value of these germplasm flows can help

Curtis (Pozniak) and the other breeders identify the most important sources when looking at new genetics to introduce into their breeding lines."

The second GE3LS area deals with the rapidly changing regulation of gene-edited crops in the world. "This research will help the breeders and policy makers in Ottawa stay in step with regulations, so farmers do not run into trade barriers related to gene-edited crops," says Gray.

The third GE3LS area is examining the rate of the wheat genetic gain in several comparable countries (UK, France, Australia, U.S.) around the world, with a focus on the time to market and the rate of farmer adoption. "This analysis will help Canada identify the ways it can improve the regulation and governance of the wheat breeding system to speed up the rate of genetic gain for farmers in Canada," says Gray.

There are signals that gene-editing technology will be acceptable in some form(s), depending on the change made within the plant. "That implies to me that as plant breeders, we need to start thinking about how best to use the technology in the context of all of the other things that we are doing," says Pozniak, adding that this technology is just another tool in the toolbox.

"Sometimes you use a screwdriver, sometimes you use a hammer and sometimes you use a chainsaw. While gene editing technology shows potential, it alone will not build the house. We have to use this powerful new tool at the right time and right place for the right trait.

"I think it's important that farmers know we are working on the technology, so that we are ready to deploy gene editing in the context of breeding when the time comes. Thank you for your funding and for sharing this vision with us." 🌱

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**4D Wheat is funded by the Canadian Wheat Research Coalition, WGRF, Sask Wheat, AWC, MCA, the Government of Saskatchewan, AAFC Partnership, Viterra, Illumina and the Ontario Ministry of Economic Development, Job Creation & Trade (MED)CT.**

# What is 4R Nutrient Stewardship?

**By Ashley Ammeter**  
*Agronomy Extension Specialist –  
Cereal Crops, MCA*

Nutrients are essential inputs for crop production. 4R Nutrient Stewardship

(Right Source @ Right Rate, Right Time, Right Place®) provides a guideline for best management practices (BMPs) that optimize fertilizer use efficiency and minimize losses, while improving crop productivity.

How these principles are put into place will vary from farm to farm based on the soil, crops, climate, weather, equipment and logistics.

When making nutrient management decisions on

your farm, consider each of the 4Rs and how they interact with one another, as well as other management practices, including tillage, crop rotation and weed control.



Photo courtesy MCA.

## Right Source

*Select nutrients in more plant-available forms that can minimize losses, taking your crop, soil and farm logistics into consideration.*

Example 4R management practices:

- Use of enhanced efficiency fertilizers, such as nitrification inhibitors (e.g., N-Serve, eNtrench, Centuro), to prevent leaching and denitrification; urease inhibitors (e.g., Agrotain Ultra) to prevent volatilization; controlled-release products (e.g., ESN) to prevent volatilization, leaching and denitrification; or dual inhibitors (e.g., SuperU, Agrotain Plus) to prevent volatilization, leaching and denitrification.



Photo courtesy John Heard.

## Right Place

*Place nutrients to maximize crop uptake, manage variability within fields and improve nutrient availability.*

Example 4R management practices:

- Timely incorporation of nutrients when broadcast application is necessary. (For urea or UAN, shallow incorporation by harrowing is usually insufficient to prevent losses. Incorporation to 2-3 inches is best.)
- Placement of fertilizer in sub-surface bands.





Photo courtesy John Heard.

## Right Time

*Apply nutrients based on the timing of crop uptake, risk of nutrient loss and field operation logistics.*

Example 4R management practices:

- Use of split application of nitrogen to match nutrient availability with critical growth stages.
- Application of fertilizer late in the fall to minimize nutrient losses (while following provincial guidelines).



Photo courtesy MCA.

## Right Rate

*Apply nutrients to meet crop requirements, taking into account the nutrients already present in the soil.*

Example 4R management practices:

- Use of soil sampling to help determine nutrient application needs.
- Use of variable nutrient rates according to estimates or measurements of in-field variability.

MCA has funded several research projects to help farmer members learn more about the 4R management practices. [Learn more at \*mbcropalliance.ca/news/crop-nutrient-management-research-roundup\*](https://mbcropalliance.ca/news/crop-nutrient-management-research-roundup).

## Did you know many Manitoba farmers are already using these principles and practices on their farms?\*



- **33 per cent of spring wheat** farmers tailor their fertilizer program field-by-field — more than any other province in Western Canada.



- **62 per cent of spring wheat** acres in Manitoba follow 4R BMPs. An additional 23 per cent follow 4R BMPs and work with a 4R-designated agronomist.



- **20 per cent** of the total nitrogen fertilizer volume applied to **corn** in 2021 was applied as an enhanced efficiency fertilizer.



- Nitrogen fertilizer was applied in the spring on **65 per cent of sunflower** acres in Manitoba.



- **11 per cent of flax** growers use variable rate technology on their flax fields.

- **11 per cent** of Manitoba's total crop acres are under the 4R Designation Program.
- There are **1,277,609 total 4R-designated acres** in Manitoba.

- There are **57 4R-designated agronomists** in Manitoba.
- **80 per cent of farmers in Manitoba** are practicing the right rate by soil sampling their fields at the recommended timing of every 1-3 years.

*\*Based on the 2021 Fertilizer Use Survey performed by Fertilizer Canada. The Manitoba survey was funded by Manitoba Crop Alliance.*

**Learn more about 4R Nutrient Stewardship at [mbcropalliance.ca/resources/4r-nutrient-stewardship-in-manitoba](https://mbcropalliance.ca/resources/4r-nutrient-stewardship-in-manitoba) and the 2021 Fertilizer Use Survey at [fertilizercanada.ca/our-focus/stewardship/fertilizer-use-survey/](https://fertilizercanada.ca/our-focus/stewardship/fertilizer-use-survey/).**

# The basics of biologicals



## “Niche” products are attracting new investment and attention

**By Katherine Stanley**

*Research Program Manager  
— Special Crops, MCA*

The agricultural industry has recently observed a steady increase in interest by both farmers and industry in products termed as “biologicals.” Commonly used biological products, such as rhizobial inoculants, which facilitate nitrogen fixation in legumes, and composted livestock or urban waste, have been widely studied and accepted for use. There is a diversity of biological amendments that have been around for decades, but these have historically been “niche” products utilized in horticultural production and are not widely studied for suitability in grain production.

Pressure on the agricultural industry to improve nutrient use

efficiencies and environmental impacts has created a reinvigoration of the biologicals industry. Major investments and developments in a range of biological amendments from major input companies have only served to direct even more widespread attention to these traditionally niche products. In 2018, the agricultural biological market was valued at US\$7.42 billion and is anticipated to reach US\$20.59 billion by 2026 (Fortune Business Insights, 2019). The rapid growth in industry interest and investment has increased the number of available products, all with unique formulations and modes of action (MOA).

Currently, third-party testing of biological products is limited and there is very little published data on the efficacy of novel biological amendments in grain production. Ideally, along with the increase in products available, we will see growth in robust experimental analysis, which can provide results to help agronomists, commodity groups and farmers evaluate the agronomic and economic viability of biological amendments in Prairie soils.

## What is an agricultural biological?

Agricultural biologicals are derived from living organisms or naturally occurring chemicals. The chemical, organism or formulation has a beneficial impact on the plant and provides a level of protection to abiotic and biotic stress. Agricultural biologicals can be microbial or non-microbial.

Biological amendments are typically not recommended to replace traditional fertilizers or crop protection products, but they can complement an existing Integrated Pest Management (IPM) strategy.

## What are the main types of biologicals?

Biological amendments can be generally classified into three categories. However, due to the nature of the materials, a biological can fall into more than one of these categories depending on the MOA.

**Biocontrol** — A biological product that provides plant protection against insect pests or disease.

**Biofertilizer** — Biofertilizers include well known products such as compost from animal or urban sources. Biofertilizers provide nutrients through biological means for utilization by plants.

**Biostimulants** — A biological product that stimulates plant growth independently of the nutrient content of the product. According to regulations developed by the European Union (2019), a biostimulant will improve one or more of the following: (i) nutrient use efficiency, (ii) tolerance to biotic stress, (iii) quality traits or (iv) availability of nutrients.

## How are biological products applied?

Current formulation of products allows for foliar spray, soil treatment or seed treatment.

## How to determine what, and how much, to apply?

Unlike soil nutrients, there are currently no soil tests calibrated to Manitoban growing conditions to accurately provide a picture of the microbial communities and their function in the soil. With recent advances in scientific methods and technologies, we are more able to characterize the soil microbial community, but there are limitations to quantifying abundance

or activity of specific microbes. Unlike our standardized soil tests, which can provide accurate recommendations for fertilizer rates based on targeted crop yields, similar tests for biologicals are in their infancy. If you are interested in trying soil biological products on your farm, it is recommended to work with a trusted crop adviser or agronomist, and to leave a representative untreated "test strip," so you can evaluate the product.

## Soil management vs. amendment?

There is currently healthy debate on the topic of biological amendments and whether these products are the answer to soil health, or if the focus should be on good agronomic practices that foster a habitable environment for beneficial soil communities to thrive. There remains a need for research on the effect of agronomic management practices on the soil microbiome and whether there is a legacy effect on plant productivity.

## Research, research, research

Many studies demonstrating agronomic potential of biological amendments have been conducted under controlled conditions, in petri dishes, growth mediums or in the greenhouse. Currently there is little understanding of how these products would perform under uncontrolled growing conditions or in the natural soil environment.

Growth in interest and investment towards the formulation of biological products for grain production systems requires extensive research to create robust recommendations that will provide a positive agronomic and economic benefit for farmers.

## How is MCA engaging in this area?

MCA invests in research that will make every Manitoba farmer member more productive and sustainable. We strive to fund research that provides data to support farmer members in making decisions for their operations. Soil health and soil biology has been identified by MCA crop committee members as an important area to invest in research to gain further understanding of these complex, below-ground interactions. MCA is currently funding several research projects to gain insight into interactions between soil health, the soil biology, and crop- and land-management decisions. With support from our crop committee delegates, as more third-party research is conducted on biologicals, MCA's Research on the Farm program could provide a good avenue to test promising products on a large scale across a number of soil types and regions in Manitoba. In all research, MCA strives to evaluate new practices and products, utilizing robust and repeated scientific methods to ensure recommendations provided to farmers in Manitoba are supported with reliable data. 🌱

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# Water world

## Tools and techniques to help manage extremes of moisture

**By Ashley Ammeter**

*Agronomy Extension Specialist  
— Cereal Crops, MCA*

As the past two years have demonstrated, Manitoba farmers are no strangers to extremes of moisture. From drought conditions in 2021 to excess moisture in 2022, farmers across the province have had to cope with both sides of the extremes of moisture issue in quick succession. Over the past three years, Manitoba Crop Alliance, in collaboration with Manitoba Pulse and Soybean Growers and Manitoba Canola Growers, has supported multidisciplinary research aimed at developing tools and techniques to help Manitoba farmers manage extremes of moisture.

The issue of extreme moisture conditions in Manitoba is a complex one that no single management practice alone can solve. When considering management practices to tackle excess and/or lack of moisture, it can be helpful to imagine toolboxes. Within the "Extremes of Moisture" toolbox are drawers that contain tools that can be valuable on farm when making management decisions (Figure 1). The goal of this project was to expand the range of tools available to farmers to mitigate risk and manage issues associated with excess moisture and drought conditions.

The projects in this initiative fill a range of important roles, from testing the effectiveness of management practices, to considering the economic impact of those choices, to assisting farmers in variety and crop choice.

### Drainage in heavy soils

*Evaluating tile drainage/water management effects on wheat, canola and soybean productivity in heavy clay soils.*

**Project description:** Testing tile drainage systems in heavy soils to develop an understanding of how different soils and soil combinations respond.

**Results preview:** In drought conditions, tile drainage did not negatively impact wheat yields.

**Toolboxes:** Measures and predictions of moisture and capacity, field activity.

### Genetic selection

*Assessment of genetic resilience and excess moisture from a subset of MCVET crop varieties.*

**Project description:** Evaluation of the moisture resilience of different varieties of crops tested within the Manitoba Crop Variety Evaluation Trials (MCVET).

**Results preview:** Early flooding of wheat resulted in taller plants and increased yield, while late flooding resulted in shorter plants, greater lodging and reduced yield.

**Toolbox:** Crop selection.

### Genetic resilience

*Enhancing excess moisture tolerance in barley through manipulation of phytooglobins.*

**Project description:** Using phytooglobins (a plant protein that is involved in response to stress) as an indicator to select barley varieties that have greater tolerance to excess moisture.

**Results preview:** Higher levels of phytooglobins improve barley tolerance to excess moisture and may be used to select more tolerant varieties.

**Toolbox:** Crop selection.

### Soil moisture monitoring

*A system for real-time soil moisture monitoring and forecasting in Manitoba.*

**Project description:** Development of measuring and modelling tools and evaluation of the ground truthing required to model soil moisture and support crop production decisions.

**Results preview:** A model was developed that was able to replicate and forecast soil moisture at different depths in multiple soil types.

**Toolbox:** Measures and predictions of moisture and capacity.

### Soil moisture capacity

*Innovative soil management practices to rebuild the long-term productivity and profitability of eroded land in Manitoba.*

**Project description:** Testing a landscape restoration method to rebuild soil organic matter and therefore improve soil moisture holding capacity by moving topsoil from lower slopes onto eroded hilltops.

**Results preview:** Under dry conditions, moving topsoil upslope did not create water ponding in depressions and did not transfer weed seeds upslope to germinate. Future work will continue to track performance over time.

**Toolbox:** Field activity.

### Cropping systems

*Soil water dynamics in long-term, integrated crop rotation studies: Developing water-smart cropping systems.*

**Project description:** Deeper understanding of the effect of various long-term crop rotations on soil moisture.

**Results preview:** In the Carman no-till study, corn used more soil water in the 0 to 120 cm depth than wheat.

**Toolbox:** Crop selection.

### Cover crops: Using plants to manage extreme moisture

**Project description:** Exploring the benefits and challenges of using cover crops for moisture management in Manitoba cropping systems.

**Results preview:** Using winter cereal cover crops ahead of soybeans to manage extreme moisture and maintain soybean yield is a promising practice.

**Toolbox:** Crop selection.

### Optimum nutrient

*Optimizing nitrogen management under conditions of extreme moisture.*

**Project description:** Development of a decision support tool to help assess and manage risk associated with fall nitrogen fertilizer application under extreme moisture scenarios.

**Results preview:** Based on historical weather data from across Manitoba, risk tables have been produced to help determine the risk of nitrogen loss based on current soil moisture and the likelihood of future precipitation.

**Toolboxes:** Measures and predictions of moisture and capacity, pests and fertility.

### Science to socioeconomic

*An economic estimation of costs and benefits for farm level management of excess moisture.*

**Project description:** Assessment of the impact of excess moisture on crop yield and farm income, as well as the downstream costs and benefits of an excess moisture event.

**Results preview:** Based on this study, the use of water reservoirs, tile drainage, land grading and cover cropping for managing excess moisture all provided more benefits than costs.

**Toolboxes:** Measures and predictions of moisture and capacity, crop selection, field activity, pests and fertility.

### Trafficability

*Effect of using low ground pressure traffic systems for seeding on soil compaction and cereal yields in heavy clay soils affected by extreme moisture conditions.*

**Project description:** Determine the effect of tracks and low-pressure tires on compaction during seeding and develop decision-making tools for equipment investment and management decisions based on economics and logistics.

**Results preview:** This project began in 2021, stay tuned for results.

**Toolboxes:** Measures and predictions of moisture and capacity, field activity.

### Drainage modeling

*Beneficial practices for soil and water quality, excess water management and drought resiliency in an undulating landscape in southwestern Manitoba.*

**Project description:** Establishment of a field-scale tile drainage research and demonstration site to evaluate best management practices for soil and water management in undulating landscapes.

**Results preview:** Based on data collected in 2022, salt concentration in tile drainage discharge is higher in lower slopes than mid and upper slopes.

**Toolboxes:** Measures and predictions of moisture and capacity, crop selection, field activity, pests and fertility.

The Extremes of Moisture initiative has been a unique opportunity to bring together researchers from many different disciplines in a collaborative and innovative way. Look out for future articles and extension as we share more results from each of the Extremes of Moisture projects. 🌱

## MANAGING EXTREMES of MOISTURE

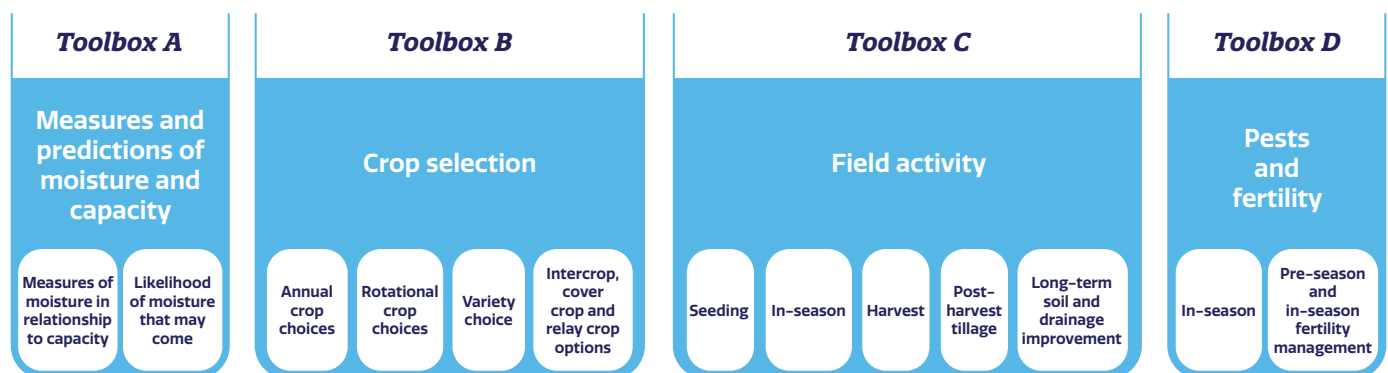


Figure 1: Toolboxes and drawers for managing extremes of moisture.

Grain Marketing Insights

# A season of transition



Prairie crops transition from extremely short to more normal supplies

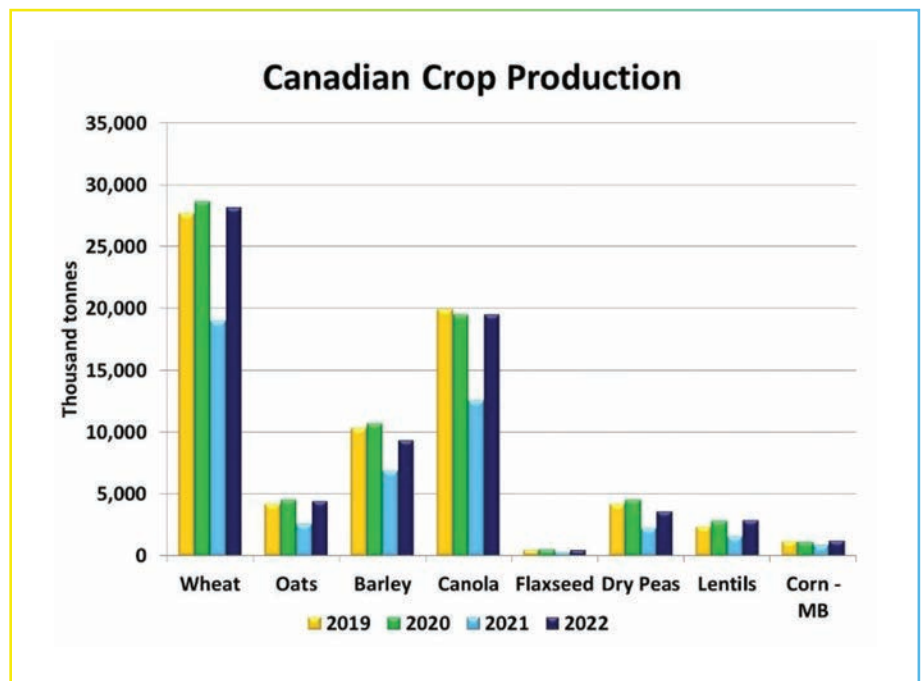
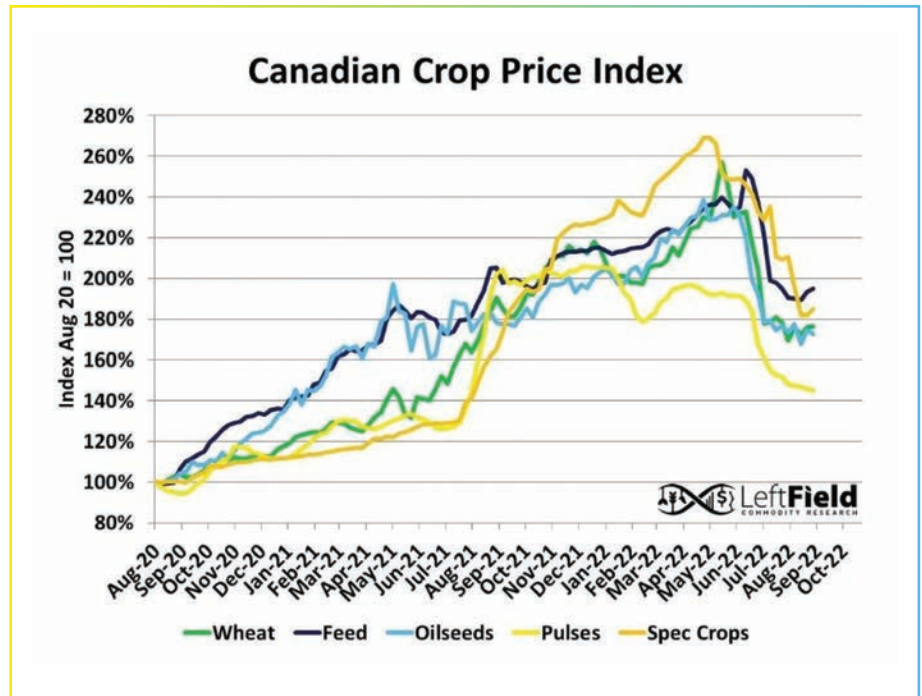
By Leftfield Commodity Research

The western Canadian harvest turned out to be refreshingly normal this fall. Of course, there were regions that struggled with being excessively dry, too wet or other challenges. But coming off the extreme drought that gripped most of the Prairies in 2021 and a perilous start to the 2022 planting season (much too dry in the western half of the Prairies and a wet, delayed spring in the east), most crops will have a more “typical” harvest than was feared six months ago.

Statistics Canada will give a final production estimate in early December, but initial projections point to Canadian wheat production being up by approximately 50 per cent. Crops like barley, flax and canola will be 30 to 40 per cent higher. Total corn production may only be modestly higher, since most is grown in the east where conditions were better in 2021, but Manitoba’s crop could be up by 50 per cent.

## Prices transition with the increase in supply

Crop prices are primarily driven by supply and demand. Naturally, when stocks fall as dramatically as they did in 2021, values surge upward. Virtually every crop grown in Western Canada experienced prices that were at multi-year and even all-time highs. The reverse is also true, with most markets now well off the peak of this past spring, as the extreme tightness was alleviated with the new harvest.



It's often said that commodity prices are determined "at the margins." This refers to the concept that the availability, or lack of, those last few bushels to fill final demand slots has an outsized impact on values. For example, if the total demand for a crop is 20 million tonnes, the price swing if supply is 19.5 million tonnes or 20.5 million tonnes can be enormous, even though the difference in stocks is not that large. While this concept is a bit oversimplified, there is much truth to it. So, it's no surprise prices are behaving as they have over the past year, both at the peaks and now at lower levels.

Yet even with the big rebound in production, many crops are still at a price that would be considered very high less than two years ago. There are a few factors contributing to this. First, supplies were extremely tight coming into the growing season, so even with the larger production, most crops won't have stocks that would be described as "heavy."

Second, end users had a very challenging year due to the difficulty in securing supplies. This has made them more aggressive in sourcing stocks. Finally, the current environment is highly uncertain on numerous fronts, whether it's conflict in Ukraine, rising

inflation, reduced confidence in the reliability of supply chains or an increasingly opaque China, to name just a few. Not all these factors are necessarily positive for grain prices directly, but they do further push end users to make sure supplies are secured in the event of another shock.

### **Each crop's story is different**

The uncertainty that encourages end users to secure supplies also impacts farm businesses. And while many of the broader dynamics affect all grain markets, each crop also has its own unique factors that need to be considered. This is not just in terms of the extent to which production rebounded, since some crops saw a bigger jump than others. Of greater importance is the overall structure of each individual market.

For example, wheat prices are primarily driven by what is happening outside of Canada, with no single country dominating export markets and imports going to a wide range of countries. Prairie production has a more direct impact on barley and flax, but these markets are also heavily influenced by factors beyond our

borders, including production in the Black Sea region and Chinese demand.

Sunflower production in North America is relatively small within a global context, yet local prices tend to be more focused on the balance of domestic supply and domestic demand. There may be no crop that has a bigger influence on the wider grain complex than corn, but the Manitoba market is heavily driven by what is happening in our own backyard.

Farmers need to be attuned to the unique structure of the market for each crop they grow when making marketing and risk management decisions.

### **Increased diligence needed**

Farmers are being forced to adjust to a new environment. Prices are unlikely to revisit the peak of last winter, but values may stay at levels that are historically high for many crops. Price volatility will remain elevated, since this era of heightened uncertainty is unlikely to end anytime soon, and the risks of running an operation are higher, given interest rates and increased costs for fertilizer, fuel and most other inputs.

No one could reliably predict the future before 2020 and that's even more so the case today. But we can arm ourselves with good marketing and risk management plans and be prepared ahead of time to respond to changing events. The cynic might suggest planning doesn't have much benefit when things are changing so rapidly — it was Mike Tyson that said, "Everybody has a plan until they get punched in the face," and I think we've all felt like we've been punched in the face over the past few years.

But there is also a military saying that states, "Plans are worthless, but planning is everything." Risk management and marketing planning isn't about seeing the future, but rather about understanding the dynamics around each crop grown on your farm and being prepared to respond to whatever the market deals us. 🌱



**Prices are unlikely to revisit the peak of last winter, but values may stay at levels that are historically high for many crops.** Photo courtesy MCA.

# New marketing stream in the works for oilseed sunflowers

## Sunflower protein isolates could shake up market

By **Darcelle Graham**

Chief Operating Officer, MCA

and **Alison Inglis**

Public Relations Specialist, Freelance

Ninety per cent of the sunflowers grown in Canada are grown in Manitoba. Recently, we have seen a swing from confectionary sunflower acres to oilseed acres across the province. Based on 2022 planted acreage from Manitoba Agricultural Services Corporation (92 per cent keyed in), 94 per cent of acres were planted to oilseed sunflowers.

Current marketing opportunities for oilseed sunflowers include bird food, oil crush market and kernel for the baking industries. But with an increase in oilseed sunflowers and the recent announcement of Burcon NutraScience Corporation (Burcon) receiving a co-investment from Protein Industries Canada to develop food-grade, high purity proteins, a new marketing opportunity is on the horizon.

Burcon has partnered with Pristine Gourmet to further develop their novel process for the extraction and purification of sunflower protein ingredients. A premium sunflower protein isolate with greater than 90 per cent protein purity and an exceptional, delicate taste will offer a new class of plant-based protein product to the market.

This is an exciting opportunity for Manitoba and Canadian sunflower growers to make a mark in the plant-based protein space.

"What we are aiming to achieve is to scale up our unique, clean extraction technology to produce high-purity protein isolates



**Top to bottom: Sunflower seed, sunflower meal and Burcon's high-purity sunflower protein.**

Photo courtesy Burcon NutraScience Corporation.

from sunflower meal, which, historically, has always been a low-value byproduct of the sunflower oil industry," says Benoit Keppenne, director of business development at Burcon.

Burcon achieved excellent results from their preliminary trials and are screening different types of sunflowers to identify the ideal seed.

"In terms of producing food-grade protein, we need to begin by identifying higher-protein hybrids. That would create a new quality parameter for farmers to focus on when producing sunflowers, as market demand shifts from the oil to protein as the high-value product," explains Paul Lam, director of investor relations at Burcon.

Burcon uses a method called membrane filtration where they separate the soluble and insoluble protein fractions from the seeds. A similar technology is used for soybeans, canola and peas. Burcon has produced a sunflower protein isolate prototype and is encouraged by the feedback received so far.

Sunflower protein will have an advantage as a non-allergenic, non-GMO, clean label ingredient that is high in sulphur-containing amino acids (similar to canola), which many other plant-based proteins lack. "We think we can introduce a new class of sunflower protein isolates because there are none on the market today," says Lam.

Food formulators will love this product because of its many advantages. Burcon expects them to use the protein in products such as dairy alternative beverages, ready-to-drink and ready-to-mix applications, bars, and possibly meat alternatives.

"It works extremely well in formulations that require delicate flavour due to its clean and neutral taste," says Lam. "Sometimes with other proteins we need to remove the unpleasant flavours or mask them, but we don't believe we will need to do that with sunflowers, as they come off clean and sweet with no bitter aftertaste."

Phase one of the project is set to be completed March 31, 2023. The second phase will look at commercialization and scaling up operations. 🌻

[Learn more at burcon.ca.](https://www.burcon.ca)





Sheila and Jeff Elder, pictured here on their farm near Wawanesa, MB, were featured in MCA's 2022 Fields to Forks video. Photo courtesy MCA.

## Connecting consumers to our crops

Several recent initiatives aim to further market development, consumer advocacy efforts

**By Delaney Seiferling**

*Communications Specialist, Cole's Ag*

### Fields to Forks

This year, we are once again taking part in Bell Media's Fields to Forks program, which aims to give consumers an inside look at the Canadian agriculture industry and tell the stories of the passionate farmers who feed us all.

Our 2022 Fields to Forks video segment features Sheila and Jeff Elder, who farm near Wawanesa, MB. Sheila is currently a delegate on our wheat and barley crop committee.

During filming, which took place in early August, Sheila spoke to several

aspects of farming that are of key interest to today's consumers. She mentioned the importance of Canadian agriculture research to producing high-quality crops, as well as how she and her husband strive to be as efficient and responsible as possible with the fertilizer use on their farm.

She also discussed how much work goes into growing malt barley that is of the highest quality to meet the needs of domestic maltsters and brewers. The Elders have unique experience in this regard, as they grew the barley for a special custom brew project at Trans Canada Brewing last summer.

Sheila believes programs such as Fields to Forks are important because they demonstrate the dedication of Canadian farmers and the sophistication of our industry to food consumers.

"I really believe that people want to know where their food comes from and would be as impressed as I am with the dedication and teamwork that goes into producing food," she says.

"We all need each other to do our jobs and I think everyone sees that, from the

researchers who develop the different crop varieties, to farmers, agronomists, specialists and retailers, to name a few."

Our Fields to Forks video will run on CTV Winnipeg throughout October and is also available on our website.

### Great Tastes of Manitoba

This year, we are taking part in the 33rd season of Great Tastes of Manitoba (GTOM), a farm-to-table cooking series showcasing nutritious, affordable, delicious foods grown by Manitoba's farmers.

We sponsored an episode of the program featuring dietitian Jessica Penner, who created three recipes for easy and healthy dishes that use a variety of MCA crops. The episode also featured a Before the Plate segment centred around the farm story of MCA sunflower crop committee delegate Sally Parsonage and her family.

The full episode is available on our website and can also be found at [greattastesmb.ca](http://greattastesmb.ca).

*Continued on next page*



*The Manitoba Seed Kit helps students across the province learn about Manitoba crops. Photo courtesy Agriculture in the Classroom – Manitoba.*

Cont. from previous page

## Agriculture in the Classroom – Manitoba

MCA supports a variety of programs and resources from Ag in the Classroom – Manitoba (AITC-M), a not-for-profit which aims to foster agricultural literacy in school-aged children.

This year, we have supported the following AITC-M initiatives.

**Manitoba Seed Kit:** A highly anticipated and requested resource that helps students learn about Manitoba crops. Each kit contains the seeds of 15 Manitoba crops, including barley, flax, corn, sunflower and wheat seeds. Students and teachers learn to recognize these crops, where they are grown and processed in Manitoba, what they are used for and their economic importance to Canada and the world.

**Foundations of Manitoba Agriculture Resource:** A virtual resource that highlights all major crop and livestock commodities in Manitoba, with a focus this year on barley, flax, corn, sunflower and wheat. This resource highlights the importance of agriculture in Manitoba, links to other programs and resources that help teachers reach their curriculum goals and provides opportunities to deliver an engaging experience for students,

while increasing agriculture literacy in classrooms.

"Follow the Farmers" virtual farm tours: This year, we supported AITC-M's virtual farm tour project, which aims to give students access to local farms and allow them to engage with farmers about where their food comes from – all without leaving their classroom. In August, our own Ashley Ammeter (agronomy extension specialist for cereal crops) was on hand at Rempel Family Farm in southeast Manitoba to help film a wheat-focused "Follow the Farmers" video.

The virtual farm tours are meant to be as close to an in-person farm tour as possible, where the students experience visuals of things up close and get to learn right from the farmer.

## Cereals Canada tour with Korey Peters

In August, MCA sunflower crop committee delegate Korey Peters hosted a group of Indonesian buyers and millers on his farm as part of a Cereals Canada Technical Exchange Program crop tour. Korey took the time to explain on-farm practices, such as grain handling and storage systems, and shared his insights and expertise about Manitoba's agriculture industry. 🌾

# Being a voice for Manitoba farmers

Our involvement in recent advocacy activities and consultations (May through Sept.)

**By Pam de Rocquigny**

*Chief Executive Officer, MCA*

**and Alison Inglis**

*Public Relations Specialist, Freelance*

## AgriInsurance Programming

MCA requested Manitoba Agricultural Services Corporation (MASC) review the coverage levels available under their Excess Moisture Insurance (EMI) due to increases in production costs since the last review of coverage levels.

- EMI compensates farmer clients who are unable to seed their crops on or before June 20 due to excessively wet conditions. The EMI program also has a High Dollar Value Option that allows farmers to increase coverage from the basic \$50 per acre to \$75 or \$100 per acre.

We requested MASC add the crop types MCA represents to their Contract Price Option (CPO). MCA provided a phased-in strategy with a focus on adding malt barley and sunflower to the CPO for the 2023 production year, followed by spring wheat, winter wheat, flax and grain corn.

## Code of Practice 2.0

MCA continues to be engaged in the process as the Canadian Roundtable for Sustainable Crops (CRSC) looks to revise the code of practice, taking into consideration farmer feedback received in the first consultation phase. There will be additional consultations with farmers in the fall/winter months. MCA commits to providing information to our farmer members on how they can engage. To review our submission to the first consultation, please visit our website [mbcropalliance.ca/assets/uploads/images/Manitoba-Crop-Alliance\\_Update-on-Responsible-Grain\\_March-2021\\_Final.pdf](http://mbcropalliance.ca/assets/uploads/images/Manitoba-Crop-Alliance_Update-on-Responsible-Grain_March-2021_Final.pdf).

## Discussion document: Reducing emissions arising from the application of fertilizer in Canada's agriculture sector

MCA provided input through our collaborative memberships in various organizations, including the Grain Growers of Canada (GGC), to Agriculture and Agri-Food Canada's discussion document. We encourage our members to read GGC's full submission, available at [ggcroado2050.ca/wp-content/uploads/2022/08/GGC-Fertilizer-Emissions-Reduction-Discussion-Document-Response.pdf](http://ggcroado2050.ca/wp-content/uploads/2022/08/GGC-Fertilizer-Emissions-Reduction-Discussion-Document-Response.pdf).

## Manitoba Agriculture Engagement

MCA engaged in Manitoba Agriculture's "Consultation to Modernize the Crop Diversification Centre Model," which occurred in 2021. MCA is supportive of the Crop Diversification Centres, as they provide invaluable research support to farmers across Manitoba, particularly on small-acreage crop types. We are also supportive of the centres' stated goals, which are to:

- Increase the profitability, sustainability and adaptability of farms;
- Accelerate adoption or commercialization of research innovations at the farm level;
- Facilitate the adoption of technical innovations or practices from outside the province/country; and
- Improve the overall growth of the agriculture, agri-food and agri-product sector.

With the release of the seven recommendations by the consultants in August 2022, based on feedback received during the 2021 consultation, MCA continues discussions with Manitoba Agriculture to ensure the Crop Diversification Centres play a critical role in the research landscape of Manitoba for the benefit of our farmer members.

## MCA also participated in two consultations with Manitoba Agriculture on the Next Policy Framework, or the Sustainable Canadian Agricultural Partnership (SCAP).

### In those consultations we:

- Advocated for provincial and federal funding for research and innovation in crop production and variety development at increased levels. We need Manitoba Agriculture to be our partner to advocate to the federal government the need for continued investment in research and innovation, particularly variety development.
- Advocated for provincial and federal funding programs to meet the research and innovation needs as identified by farmers and national strategic research priorities, and not be limited to governments' policy positions.
- Requested Manitoba Agriculture improve their process for funding programming under future policy frameworks. This will ensure farmers and researchers are not put at a disadvantage compared with other provinces that have more robust and reliable funding programs for research and innovation.
- Advocated for provincial and federal funding for business risk management (BRM) programming at increased levels.
- Advocated for BRM programming that supports Manitoba farmers in a reliable and predictable fashion to help mitigate production risks. There should be continued flexibility at a provincial level to allow programming tailored to Manitoba.
- Conveyed our support for national organizations we are members of that have strong concerns about cross compliance of BRM programming to sustainability measures. 🌱

**Manitoba Crop Alliance**

# 2023 ANNUAL GENERAL MEETING

**Thursday, Feb. 16, 2023**  
Wellington Room (A), Victoria Inn Hotel & Convention Centre, Winnipeg, MB

**SAVE THE DATE!**  
Our AGM will be hybrid – in-person and virtual.

## Call for resolutions!

Deadline to submit is **Jan. 5, 2023**



**MANITOBA  
CROP  
ALLIANCE**

*@mb\_cropalliance*



hello@mbcropalliance.ca P: 204-745-6661 F: 204-745-6122 mbcropalliance.ca

P.O. Box 188 38 4th Avenue NE Carman, Manitoba Canada R0G 0J0