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Issue 99 • Spring 2024



The Global Politics of Manitoba Pulses and Soybeans P.34



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Manitoba Pulse & Soybean Growers 2024 Board of Directors and Staff

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Vice Chair – Brendan Phillips – Hartney
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 Ben Martens – Boissevain
 Robbie Misko – Roblin

Bryce Pallister – Portage la Prairie
 John Preun – St. Andrews
 Frank Prince – Waskada
 Garrett Sawatzky – Altona
 Ernie Sirski – Dauphin

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Agronomy Intern
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Manitoba Pulse & Soybean Growers 2024 Committees and Representatives

MPSG Committees – The first named is chair.

Executive – M. Rattai, B. Phillips, E. Sirski
Governance/HR – F. Prince, G. Sawatzky
Ag Policy & Market Development – B. Phillips, E. Sirski, A. Burgess, J. Preun, B. Pallister, R. Misko
Finance/Audit – J. Preun, B. Phillips, M. Rattai
Resolutions & Nominating – A. Burgess, G. Sawatzky
Research & Communications – G. Sawatzky, A. Burgess, B. Pallister, F. Prince, R. Misko, B. Martens, M. Rattai

MPSG Representatives

Canadian Grain Commission Pulse Sub-Committee – A. Burgess
Grain Growers of Canada – B. Phillips
Keystone Agricultural Producers:
 • **Grains, Oilseeds and Pulse Sector Representative to KAP Board** – A. Burgess
 • **Advisory Council** - D. Domitruk
MCVET – J. McCombe-Theroux
PGDC/PRCPSC - C. Tkachuk, J. McCombe-Theroux
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Message from Board Chair

Melvin Rattai, Chair, MPSG

FOOD – IT MEANS DIFFERENT THINGS to different people. For some, food is just that – food. They need it, they buy it, they cook it, they eat it. And that’s the cycle. For others, food is so intertwined with their culture and daily routine that it means much more than just basic sustenance. When you’re a farmer, your world basically revolves around food. You need it, you eat it, you grow it, you sell it, and all the rest in between. Food means work. Food means family. Food means nutrition.

As a farmer, it’s easy to forget when you’re sitting in the combine at harvest that this crop you’ve just spent the last few months prepping, seeding, managing, and relentlessly checking is going to

eventually end up on someone’s dinner plate. “Plugged the header again,” “When’s the truck going to get here? We’re almost full,” and “Make sure you pick up that part before the shop closes” are all things that are more likely to run through your head. But yes, at the end of the day, this crop you’ve cared for all season is going to be sold into the market and will end up on someone’s plate, whether that is in Canada, or around the world.

I was lucky to attend a trade mission to Asia earlier this year, read more about it on page 25. I visited Thailand and Japan. In both countries, food is an important part of the culture and they choose to purchase Canadian soybeans for their high quality

and production standards. In Thailand, I saw the processing factories and climate-controlled warehouses that keep the quality of soybeans in check. In Japan, I really got a sense for how important quality is to all aspects of Japanese culture – especially food. As a Canadian producer, I feel proud that our crops meet most of Japan’s high-quality standards. I believe that a big reason why Canadian farmers produce such high-quality products is that most farms in Canada are family-owned and operated. We take pride in our product and how it’s handled, and our customers appreciate that.

One of the best things about being on the Manitoba Pulse & Soybean Growers (MPSG) Board of Directors is that I get to learn about what happens after I bring my crops to the elevator. I’ve gained a new perspective on the challenges with getting our crops into different markets, and why we have those challenges. Another major benefit is that I get a front row seat to some of the research and development findings and decisions that are made to enhance Canadian farmers productivity and crop quality. It’s eye opening to see how much goes into getting our crops into the hands of consumers.

I think it’s important to serve on a board and give back to your community. By serving on the MPSG board, I’ve also benefitted. I’ve improved my farm in ways I might not have thought about had I not joined. I look at food through a new lens now. I’ve always seen my part of the story, but now I’ve seen a lot more. Whatever food means to you, I hope this issue of *Pulse Beat* gives you a good glimpse into the food world that I get to be a part of on so many levels. ■

— Melvin

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Message from Executive Director

Daryl Domitruk, PhD. P.Ag, Executive Director, MPSG

LAST ISSUE I OUTLINED the various stages of research Manitoba Pulse & Soybean (MPSG) supports. All of it, I claimed, was to improve the short- and long-term bottom lines for farmers.

But, what about research that improves food?

That’s a tougher chew. Compared to research that improves the yield of crops, it’s more difficult to show the return to the farm from cooking and health traits. So, why should farmers pay for research on food?

Manitoba hosts a large and skilled food research and development workforce. Historically, MPSG’s check-off supported their work. However, an increasing focus on farm gate outcomes put food research on the back burner. We reasoned farmers’ jobs are to make money supplying crops to the market. What our customers do with the crops is their business.

While that reasoning still stands, we can’t avoid the fact that the end-use qualities of our soybean, pea and bean crops matter a great deal to our customers. If we lack specific qualities, we forfeit our place in the market. The emergence of foods made from purified plant proteins has put an even sharper point on this fact. So, yes, we’re in food research – the kind that truly impacts the farm gate.

Of course, there’s way more to food than science. Another of MPSG’s focus areas is

market development. Efforts in this area are revealing some interesting opportunities.

From trade missions to Japan to a school lunch program in Neepawa, MB the need for Manitoba to supply pulses and soybeans is clear. In those places we’re learning the food market is a mosaic of tastes and traditions. Whether centuries old or the product of the latest trend, people’s diets demand specific qualities in foods – not just protein but foods of a particular size, shape and colour across a range of tastes, smells and processing attributes.

The mosaic of diets around every corner makes the task of breaking into and maintaining markets very complex. Fortunately, our partners at Soy Canada and Pulse Canada have the experience and connections to make it happen. Governments too are always opening doors to new markets. It’s a trick to orchestrate but these groups are instrumental in demonstrating to prospective customers the value of Canadian pulses and soybeans.

Pulses, and even some soybeans, don’t always fit with our ingrained image of Prairie farms exporting boat loads of nearly identical grain. Our higher value crops are shipped in smaller quantities with qualities tailored to specific markets. Food grade soybeans is a significant global business and we have the opportunity to sell our soybeans into that marketplace. Our challenge is to reach the

desired protein levels as well as the seed sizes and shapes customers prefer. This won’t be easy for our small industry. We will absolutely need the help of government research labs.

No farm product exudes diversity like dry edible beans. We ship beans with a wide range of colours and sizes to over 40 countries. Lately, though, our market growth strategy has focused on the bean eating habits of Canadians.

Diets are rooted in culture. Beans were once revered in the culture of our young country. That’s changed for a whole bunch of reasons, but a detailed study by Pulse Canada suggests we can bring beans back to the centre of Canada’s culinary culture. It seems beans have the taste, health and environmental qualities consumers want. Beans are also comforting; they’re Grandma in the kitchen. What’s stopping a full embrace of beans is that they’re time consuming to prepare and have a reputation for being a bit boring.

That takes us back to food research. This time the lab coats are worn by chefs. Check out MPSG-funded *Great Tastes of Manitoba* episodes and you’ll see how the science in the bean gets combined with the art of the chef to change the way we think about beans – not as farmers or scientists or exporters but as consumers reshaping Canadian culture through an ever-expanding dietary mosaic. ■

— Daryl

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Say Hello to MPSG's 2024 Summer Students



Grace Thomson

My name is Grace Thomson, and I'm so excited to have the opportunity to work for Manitoba Pulse & Soybean Growers this summer. I'm currently working towards my bachelor of science in agroecology. I'm looking forward to learning more about the pulse and soybean industry in Manitoba, talking to growers and gaining more hands-on experience. This summer I'm looking forward to spending time outside camping and hiking with my friends and family.



Ashlyn Kropp

My name is Ashlyn Kropp, and I am in my fourth year of a bachelor of agricultural sciences at the University of Manitoba, majoring in plant biotechnology. I've been enjoying all my classes and labs over the school year getting to learn more about agriculture all the time. This summer I am looking forward to my second year as a summer student with Manitoba Pulse & Soybean Growers, and I'm ready to get out there and do some more plant counts and see more of our beautiful province again. My dog Zuri and I are looking forward to the warmer weather to enjoy more adventures and camping this summer, and I'm planning to gear up and get ready for the 2024 Ducks Unlimited Duck and Run 5K to conserve and restore our wetlands!



Brendan Friesen

MPSG's 2023-2024 Scholarship Recipient

Manitoba Pulse & Soybean Growers (MPSG) has awarded one University of Manitoba agriculture student with a bursary for the 2023-2024 academic year. Brendan Friesen was the recipient of \$1,000 through the MPSG Diploma Scholarship. Supporting students pursuing an education in agriculture is a priority for MPSG and its farmer members, and we look forward to seeing how Brendan will undoubtedly improve the industry.

Meet Brendan Friesen:

I am from Blumenfeld, MB I was raised on a grain farm that grows primarily edible beans and corn. I am passionate about my faith, farming and various sports. I am graduating from University of Manitoba with my agricultural diploma in crop management this spring and I look forward to returning to the family farm after graduation.

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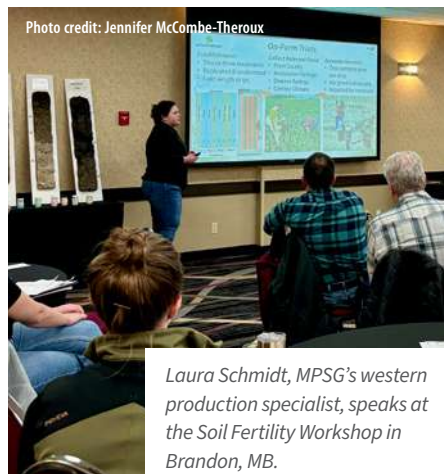
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MPSG Events



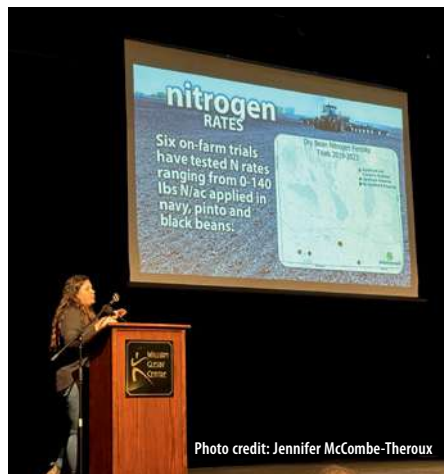
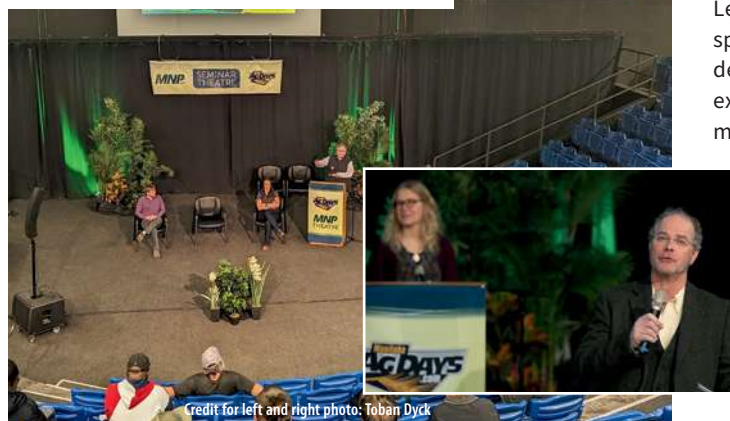
Laura Schmidt, MPSG's western production specialist, speaks at the Soil Fertility Workshop in Brandon, MB.

SOIL FERTILITY WORKSHOP

There was a focus on soil with a pair of Soil Fertility Workshops Manitoba Pulse & Soybean Growers (MPSG) hosted in collaboration with Manitoba Crop Alliance and Manitoba Canola Growers. The two-day workshops were held at the end of January in Brandon and Selkirk. The popular, farmer-focused workshops included an expert speaker lineup and proved to be extremely educational and of high value to attendees.

Image, bottom left: Panel discussion, Soil Is a Busy Place. What's Going on Down There? at Manitoba Ag Days on Jan. 18, 2024 as part of the morning MPSG-sponsored sessions at the MNP Theatre at the Keystone Centre in Brandon, MB.

Image, bottom right: MPSG Executive Director Daryl Domitruk addresses the Manitoba Ag Days audience on Jan. 18, 2024 as part of the morning MPSG-sponsored sessions at the MNP Theatre at the Keystone Centre in Brandon, MB.



DRY BEAN MEETINGS

MPSG assisted in hosting two Dry Bean Meetings at the beginning of February, one in Portage la Prairie and another in Altona, MB. Laura Schmidt, MPSG's western production specialist, presented research results from the On-Farm Network dry bean trials. MPSG Executive Director Daryl Domitruk provided attendees with a dry bean specific MPSG research update. These annual meetings are popular with the Manitoba dry bean community. MPSG also launched Dry Bean Bulletin, its new bi-annual newsletter, at the meetings. Sign up for the newsletter [here](#)



CROPCONNECT/AGSM

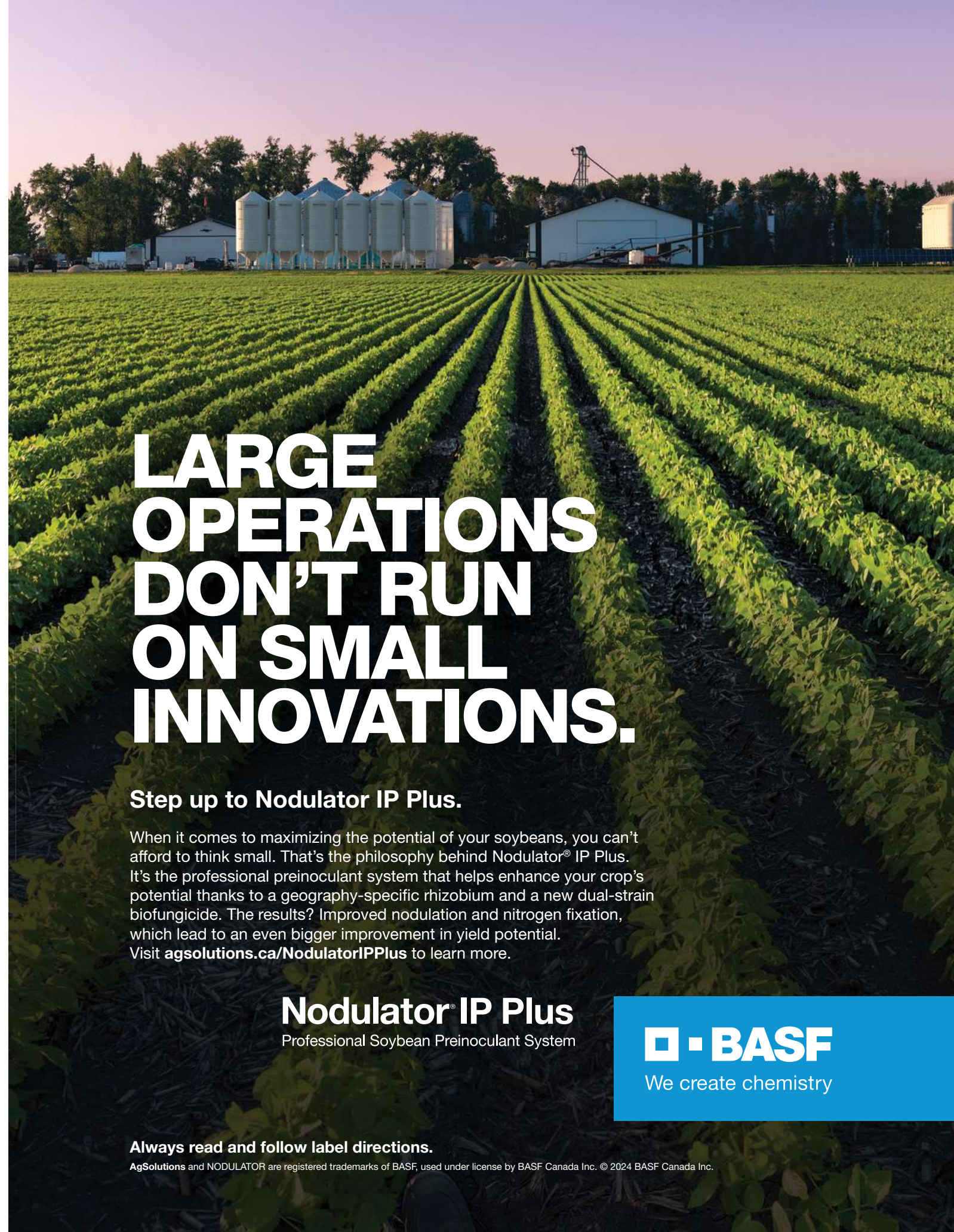
MPSG hosted its 2024 Annual General and Special Meeting (AGSM) at the CropConnect Conference in Winnipeg, MB on Feb. 14, 2024. The AGSM was well attended by industry and farmer-members. CropConnect was filled with informative sessions and captivating keynote speakers. Every year MPSG looks forward to the quality time spent meeting and talking with farmer members during these simultaneous events.

Top Middle: Laura Schmidt, MPSG's western production specialist, speaks at the Dry Bean Meetings in Portage la Prairie, MB on Feb. 8, 2024.

Top Right: MPSG Board Chair Melvin Rattai opens the 2024 AGSM at the Victoria Inn Hotel & Convention Centre in Winnipeg, MB on Feb. 14, 2024.

MANITOBA AG DAYS

Once again, MPSG jumped at the opportunity to host a morning session at Manitoba Ag Days. This year's session, Profit from Legumes and Healthy Soil, included an impressive lineup of speakers. Yvonne Lawley, an assistant professor in the plant science department at the University of Manitoba, started the morning off exploring critical functions of our soils and the tools we have to manage soil health. Syama Chatterton, plant pathologist for pulse and special crops with Agriculture and Agri-Food Canada (AAFC) Lethbridge, discussed the threat of Aphanomyces and Fusarium root rots. To finish off the session, we welcomed Matthew Bakker, an assistant professor in the department of microbiology at the University of Manitoba; Steve Crittenden, research scientist in soil nutrient management at AAFC Brandon; and Charley Sprenger, ag research engineer at Prairie Agricultural Machinery Institute, for a panel discussion about soil health and management.



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“
I know from my own experience, food is a great way to start the conversation.
”

Getty Stewart is professional home economist and food educator.

Getty Stewart

Educating Consumers on the Benefits of Beans

Ashley Robinson

GETTY STEWART IS a professional home economist and food educator, and she is the new face of Manitoba Pulse & Soybean Growers (MPSG) on the TV show *Great Tastes of Manitoba*. She grew up on a grain farm in southwestern Manitoba and has family members who farm to this day. The *Pulse Beat* team sat down with Stewart to learn more about the work she does to teach consumers about beans. To read more about her and the work she does, visit her website – www.gettystewart.com – where she shares information about local fresh food.

Pulse Beat (PB): As a home economist, what are some of the harder questions you've received from consumers in regards to beans as a food choice?

Getty Stewart (GS): I think probably the biggest concern people have is about digesting beans and possibly experiencing some bloating or gas. The carbohydrates and fibres of beans can be challenging for some people. Some can experience those symptoms. Beans can make you toot. Fun fact on that, everyone toots on average about 14 times a day. It's a natural part of who we are. Beans, because of their high fiber, can contribute to that.

PB: Do you incorporate the work farmers do to grow beans into your consumer education? If so, how?

GS: I'm such a big fan of our local farmers and sharing the Farm to Fork journey is definitely something I've tried to talk about whenever I can. Most of my work in my freelance business and as a food educator focuses on using our locally grown foods, whether it's from our local farmers or from our own gardens. I share what I learned having grown up

on a grain farm where we grew cereal crops, oilseeds, soybeans and lentils.

PB: Are you ever asked about where beans come from by consumers? If so, how do you respond when you're asked?

GS: Very few people out a start a conversation asking about where beans come from. I think that's important for us in the promotion and communication about beans to acknowledge that people aren't actually asking that question. But once we start the conversation and say, “Hey, those beans that you're eating, they actually came from within a 100-mile radius of here.” That's when they sort of perk up and go, “What? Like I had no idea.”

PB: What impact has the Love CDN Beans campaign had on consumers? How has it impacted your education work with consumers?

GS: I know that from my own experience, that food is a great way to start the conversation. If people aren't asking me questions necessarily about, “Hey, where's this from?” the recipes and sites like Love CDN Beans help showcase how versatile and delicious beans can be just through photography and the stories that are being told. That's whetting the appetite and encouraging Canadians to use our homegrown beans and an opportunity to share information on how and where beans are grown.

PB: Are there any messaging challenges when it comes to promoting beans as a food choice?

GS: There's the perception that beans take a lot of work to cook and just not a general sense of awareness of what do I do with them. My challenge to you would be name three bean dishes that you enjoy repeatedly. That's the challenge right there as many people who grew up on a traditional Prairie diet have limited experience using beans in everyday cooking. You can probably think of, “Oh, I love chili.” That's not all beans are good for, there are many more opportunities that people just don't know about. ■

Keep it Clean and Keep Your Crops Market Ready

PULSE CANADA

Greg Bartley, Director of Crop Protection and Crop Quality, Pulse Canada

ACROSS THE GLOBE, Canadian pulses are known for their quality and consistency. To maintain this reputation, growers need access to the latest information on the standards of domestic and export customers. That's why, along with Canola Council of Canada, Cereals Canada and the Prairie Oat Growers Association, Pulse Canada is a core member of Keep it Clean – an initiative to ensure growers have the necessary resources to produce market-ready crops.

As we move into a new growing season, the Keep it Clean initiative is highlighting five tips for market-ready crops.

TIP#1 | USE ACCEPTABLE PESTICIDES ONLY

Only apply pesticides that are registered for use in Canada on your crop and are acceptable to both domestic and export customers. Refer to the annual product advisory available at keepitclean.ca for information on market considerations and classifications on specific crop protection products.

TIP #2 | ALWAYS READ AND FOLLOW THE LABEL

Before you spray, always read and follow the crop protection label for application rate, timing and pre-harvest interval (PHI). Applying pesticides or desiccants without following label directions is illegal and may result in unacceptable residues, putting market access at risk.

TIP #3 | MANAGE DISEASE PRESSURES

An integrated disease management plan is important to maintain yield and profitability and can help protect Canada's reputation as a supplier of high-quality pulses, cereals and canola.

TIP #4 | STORE YOUR CROP PROPERLY

Proper storage helps maintain crop quality and keeps the bulk free of harmful cross-contaminants.

TIP #5 | DELIVER WHAT YOU DECLARE

The Declaration of Eligibility affidavit is a legal assertion that your crop is the variety

and/or class you have designated and was not treated with the crop input products specified in the declaration.

For more information on these tips plus additional tools to keep your crops ready for market, head to keepitclean.ca/tools, follow Keep it Clean on Twitter at [@KICCanada](https://twitter.com/KICCanada), or sign up for the free newsletter on the website.

For any questions on this initiative or for more information, please contact me at gbartley@pulsecanada.com

Keep it Clean is a joint initiative of the Canola Council of Canada, Cereals Canada, Pulse Canada and the Prairie Oat Growers Association, providing growers and crop advisers with resources for growing market-ready crops. This includes providing timely updates on potential market risks and resources for on-farm practices to ensure crops meet the standards of domestic and export customers.

5 SIMPLE TIPS visit keepitclean.ca for all 5 Simple Tips

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Growing Agriculture Literacy

John Gaudes, Communications Manager, AITC-M

IN THE HEART of Manitoba, a movement is underway to sow the seeds of agricultural knowledge and appreciation in the minds of young Manitobans – and Manitoba’s pulse and soybean growers are key partners.

Led by Agriculture in the Classroom-Manitoba (AITC-M), this initiative isn’t just about preparing students for life outside the classroom. It’s ensuring the next generation knows agriculture and feels connected to its importance in Manitoba.

Manitoba Pulse & Soybean Growers (MPSG) has worked in lockstep with AITC-M to strengthen that connection by funding resources such as the Manitoba Seed Kit and Foundations of Manitoba Agriculture, as well as collaborating on innovative campaigns to educate students about pulses and soybeans.

For instance, in early March AITC-M invited MPSG to stage a “takeover” of its social media channels for Pulse and Soybean Week, a campaign aimed at educating teachers and students about the importance of pulses and soybeans to the Manitoba economy.

Public awareness campaigns like these are especially important as the disconnect between farm fields and dinner tables continues to widen. In just a few years, today’s Grade 6 students will graduate as tomorrow’s voters, consumers and workforce. Because it’s trusted by industry and educators alike, AITC-M is uniquely positioned to foster a deeper understanding of our industry’s challenges and provide opportunities in classrooms across our province.

“Securing the future of the agriculture and food industry depends on shepherding Manitoba students through a staircase of literacy, from awareness in early years to exploring career options in high school,” says Katharine Cherewyk, executive director of AITC-M. “We want every Manitoba student to leave high school understanding how many options exist for them in this amazing industry.”

Pulse and Soybean Week featured fun facts about pulses and soybeans, a pop quiz to test student knowledge, and reinforced

pulse and soybean connections in AITC-M resources.

The week culminated in Follow the Soybean Farmer, the latest installment in a virtual farm tour series created by AITC-M, now in its third year. Over 500 Grade 3 to 5 students took part in a virtual visit with Lyle Peters at Henervic Farms, where they learned about planting, crop care, harvest and soybean nutrition. After a live Q&A, teachers had the option of extending the learning with a fun classroom activity where students produced bioplastic using soybean oil and household ingredients.

Teacher feedback on Follow the Farmers has been overwhelmingly positive and Follow the Soybean Farmer was no exception. Students filled the live chat with questions for Peters. Those in Cheryl McQueen’s class at Victory School in Winnipeg were amazed to learn that Henervic Farms produces about 8.3 billion soybean seeds a year.

“Memorable moments like these bring students closer to the farm, and even combat misconceptions that may have already formed about the size of modern farms,” says Cherewyk.

MPSG has recognized how important moments like these are in forming young minds.

“Agriculture education helps students connect with that pride and clearly see the connection between the food on their dinner plate and the work of the farmers who grew it,” says Daryl Domitruk, executive director of MPSG. “We’re fortunate to live in a country where food is readily available and affordable. Opening students’ eyes to agriculture’s local and global realities builds an appreciation of how agriculture impacts our everyday lives.”

Beyond pulses and soybeans, it’s been a year of inspiring growth at AITC-M. The organization provided over 37,000 student experiences in 2023 from in-person and virtual programs. That number marks almost a 30 per cent increase from 2022.

Growth like this is only possible when commodity and industry partners row in the same direction: increased, long-term



funding allows AITC-M to develop more high-quality, curriculum-connected resources to reach classrooms and meet teacher demand.

“Support from the agricultural community has never been more critical,” says Cherewyk. “I’m issuing a call to action for crop farmers and others within the industry to engage with and support AITC-M’s mission. Participation can take many forms, from advocacy and volunteering to financial contributions, all of which are vital for the continuation and expansion of our educational efforts.”

To join Agriculture in the Classroom-Manitoba’s movement to raise agriculture awareness, visit www.aitc.mb.ca.



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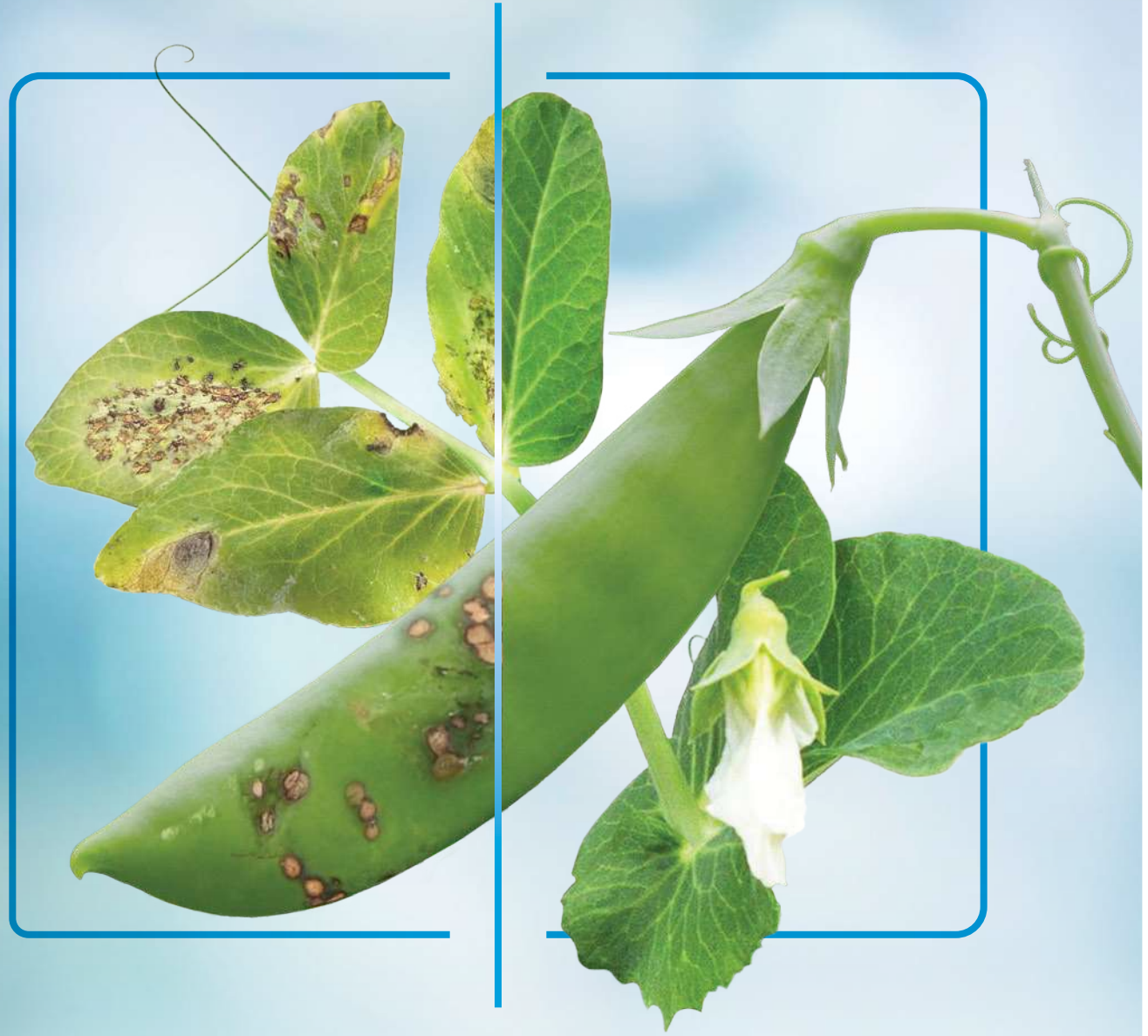
FUGITIVE OF THE WEEK

NAME: **Waterhemp**
 No. **700**

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Harvesting Opportunities Amidst Global Challenges

GRAIN GROWERS OF CANADA

Kyle Larkin, Executive Director, Grain Growers of Canada

AT GRAINS GROWERS of Canada (GGC), we are committed to ensuring that the dietary staples produced by Canadian farmers reach global markets without unnecessary trade barriers.

In the current international climate, marked by nationalism and protectionism, achieving this isn't easy. With 90 governments having introduced more than 200 trade restrictions, navigating the global agricultural marketplace has become increasingly complex for Canadian farmers and exporters.

Despite these hurdles, I'm happy to report, we have made strides in representing Canadian farmers and advancing their interests.

One notable success has been the establishment of the Indo-Pacific Agricultural and Agri-Food Office in Manila, Philippines. This initiative, supported by GGC following the launch of Canada's Indo-Pacific Strategy in 2022, aims to improve market access for Canadian exports in the region. We supported this request because we know the presence of a dedicated team in the region is crucial for fostering long-term relationships and expanding opportunities in emerging markets, such as Indonesia, Malaysia, Thailand, and the Philippines.

One item that remains our top priority is ensuring Canada's existing and new regulatory measures avoid impeding trade. We must ensure Canada continues to play a leadership role within the World Trade Organization (WTO) in establishing regulations and promoting transparent, rules-based trade. That's why we were present at the WTO's 13th Ministerial Conference at the end of February to advocate for more liberalized trade. Despite little progress on key issues such as regulatory cooperation to address technical barriers to trade, other countries that would rather reverse rules-based trade also didn't have their way.

Another issue that has only become more imminent in recent years is ensuring there's resiliency in the Canadian supply chain. We're recognized around the world as a sustainable supplier of high-quality cereals, pulses and oilseeds, but we also know our international customers are increasingly concerned about Canada's ability to deliver those products promptly. Inconsistent service due to weather conditions, congested ports and labour disruptions over the past few years has exposed weaknesses in our system and has made it increasingly difficult for Canada to maintain its reputation as a sustainable and reliable shipper. Customers abroad have one primary concern – getting their product on time in a reliable fashion.

To address this shortcoming, we continue to advocate for a strong commitment to building responsive and nimble supply chains. This includes investments in our trade-enabling infrastructure, including the Port of Vancouver, and working with unions proactively to prevent labour disruptions. It's more important than ever that we address these vulnerabilities to safeguard the food security that will be so critical in years to come – at home and abroad.

We can also address many of these weaknesses through legislative and regulatory solutions for issues within the Canadian rail system. Last year, we submitted recommendations to the federal government as part of Transport Canada's rail review. Our recommendations were centred on increasing transportation options through extended interswitching, while maintaining price protection for shippers through the Maximum Revenue Entitlement Program. We also touched on the need to address increases in fuel surcharges and the ability for carriers to contract out legal provisions.

“
...we have made strides in representing Canadian farmers and advancing their interests
”

We'll continue to advocate for these solutions and will stay vocal in ongoing consultations regarding the Canada Transportation Act.

In February, we met with federal representatives, including Minister of Agriculture and Agri-Food Lawrence MacAulay, Deputy Minister of Agriculture and Agri-Food Stefanie Beck, and Canadian Food Inspection Agency President Paul MacKinnon. At this meeting, we brought forward our concerns and, with them, a concise list of recommendations from our industry. Meetings like this are vital for ensuring our industry concerns and suggestions are top-of-mind for key decision makers and are considered in policy making.

At GGC, we'll continue to ensure our industry has a seat at the table and that farmers' voices are heard in conversations about market access and development, supply chains and labour disruptions, and Canada's transportation network.

We'll also remain persistent in our core mission that continues to unite us all in this industry – the production and delivery of sustainable and reliable food supplies that the world depends on. ■

Industry Collaboration to Move the Needle on Soybean Value

SOY CANADA

Brian Innes, Executive Director, Soy Canada

THE VALUE OF soybeans for Western Canada is in focus thanks to industry-wide collaboration on research and market development activities.

Melvin Rattai a Beausejour, MB farmer who has been growing soybeans for 12 years has seen a lot of changes in the industry over the years and credits shorter season varieties as the key reason acres are increasing. He grows soybeans because, as he said, “They fit nicely into our crop rotations, offer another source of income and provide extra agronomic benefits by breaking up weed and disease cycles.”

Rattai presented his experience growing soybeans as part of the second Northern Soybean Summit, a virtual event hosted by Soy Canada in late 2023. The event highlighted the latest soybean research on the feeding value of western Canadian soy, along with grower, exporter and industry insights on the performance and potential of soybeans in northern and western Canadian climates.

WESTWARD EXPANSION

The summit showcased initiatives elevating the market position for northern soybeans, while creating a space for industry collaboration in support of expanded market opportunities.

“Focusing on the value our customers see for northern soybeans will bring more opportunities for the value chain, from growers right through to end users,” explained Brian Innes, executive director of Soy Canada, and event host. “Together, we’re working to better understand the value of our northern soybeans and how they can best serve our domestic and international customers.”

In his summit update on soybean expansion in Manitoba, Daryl Domitruk, executive director of Manitoba Pulse & Soybean Growers (MPSG) reported soybean acres are growing across the province, with approximately 1.6 million acres reported

in 2023. He explained more than 100 registered varieties are being tested annually in regional variety trials with 98 per cent reaching full maturity.

“Our industry is dedicated to continuing research to develop varieties that will serve the westward expansion of soybeans and deliver the quality and consistency required to meet and serve producer and customer needs,” assured Domitruk.

GROWER AND INDUSTRY INSIGHTS

The virtual event featured panel discussions with western Canadian soybean growers, exporters and processors. Ernie Sirski has also been growing soybeans for 12 years in Dauphin, MB. The greatest advantage he’s realized is cost savings on fertilizer. As a nitrogen-fixing crop, adding soybeans to his crop rotation pays off in a variety of ways. “Soybeans have been profitable for us, and they break up the disease cycles with wheat and canola, offering another form of economic and management efficiencies.”

Industry panelists discussed the growing international demand for western Canadian soybeans and their fit as a cost-effective supply for large crush plants. The discussion noted that despite being discounted relative to other soybean origins there is a fit for them in the international market for all that Western Canada can produce.

Dale Heide of Delmar Commodities noted variability in protein content and seed size, especially soybeans with extremely low protein, are challenges for both processors and exporters. Soybean merchandisers from Viterra and Paterson Grain also participated in the panel and shared their experience marketing to global customers, including how customers currently perceive western Canadian soybeans. The panel shared that there’s plenty of opportunity for western Canadian soybeans, it’s just a matter of timing with supply from other origins. All panellists agreed that consistency in production volume, seed size and protein

are key to maximizing the value of western Canadian soybeans.

QUALITY AND MARKET DEVELOPMENT RESEARCH

James House, professor and Manitoba strategic research chair in sustainable protein at the University of Manitoba, also provided an overview of the latest research supported by MPSG on protein quality of Manitoba soybeans, sharing that as protein content declines the amount of critical amino acids important for livestock nutrition goes up. He’s working to develop and evaluate a near-infrared reflectance (NIR) technique for measuring the protein and amino acid content of Manitoba-grown soybeans. While laboratory methods can currently assess the critical amino acid value of soybeans, NIR technology would allow rapid and cost-effective testing for feed formulators.

Jeff Bond, manager of nutrition and business development at PMT, provided his insights on enhancing the value of northern soybean meal. One of the areas Bond focused on was the metabolizable energy value of Manitoba expeller soybean meal in livestock rations, identifying areas for more research to better indicate expected performance to feed formulators. He also presented an assessment of Manitoba soybean meal, livestock nutrient needs and industry feed requirements along with considerations and opportunities for growers and processors.

LOOKING AHEAD

As research continues and new varieties become available to support the expansion of western-grown soybeans, the Canadian industry can expect new growth opportunities throughout the value chain. “Over the next two years we’ll be rolling out more activities to add value to our northern soybeans,” said Innes. “These are exciting times for Canada’s soybean industry.” ■



Brian Innes, executive director of Soy Canada, speaks at the Northern Soybean Summit, a virtual event hosted by Soy Canada in late 2023.

National Soy Research Conference

On Jan. 24, Soy Canada convened a meeting of soybean scientists, technicians, and experts from across the nation to share solutions, regional insights, and exchange contact information.



The National Soy Research Conference was held in London, Ont. and featured the following speakers and insights:

- Brian Innes, executive director of Soy Canada — the industry’s growth prospects and the strategic considerations for research and market competitiveness.
- Eric Fedosejevs, seed biology scientist at Agriculture and Agri-Food Canada (AAFC) Harrow’s Soy Quality Program — the challenge of maintaining quality in Canadian food-grade soybeans.
- Albert Tenuta, field crop pathologist with the Ontario Ministry of Agriculture, Food and Rural Affairs — soybean cyst nematode’s (SCN) impact on production and the need for the industry to continue developing and implementing innovative resistance strategies.
- Julie Daum, nematologist and senior program leader with BASF — the diminishing effectiveness of existing SCN resistance genetics and the necessity for alternative control methods.
- Benjamin Mimee, nematologist with AAFC Saint-Jean-Sur-Richelieu — the genetic variation within SCN, particularly in the face of climate change, predicting an alarming increase in the pest’s reproductive cycles.
- Elroy Cober, research scientist with AAFC Ottawa — historical growth of soybean production in Canada and the efforts to adapt the crop to different environmental conditions.
- Nadia Krashenninnik, research scientist with Corteva — the commitment to develop robust, high-yield soybean varieties.
- Hugh Earl, associate professor at the University of Guelph — innovative agronomic practices that could potentially elevate soybean yields and bolster their stress tolerance.
- Tanya Copley, plant pathologist with Centre de recherche sur les grains (CÉROM) — need for a comprehensive and insightful strategy in disease management that transcends conventional agronomic methods.
- Tom Eickhoff, chief science officer – climate with Bayer — the pressures of achieving consistent food production and meeting consumer demands for sustainability.



VIEW FROM THE FIELD

Laura Schmidt, Production Specialist – West, MPSG

IRON DEFICIENCY CHLOROSIS – EXPLORING A NEW ON-FARM TRIAL TYPE

Soybeans in Manitoba are no stranger to iron deficiency chlorosis (IDC), thanks to many of our high calcium carbonate soils. Soybeans acidify their root zone to access iron in a plant-available form from the soil. Excess calcium carbonates, moisture, soluble salts and high residual nitrate levels can all negatively impact iron uptake in the field.

Soybean varieties vary in their ability to tolerate IDC. Choosing a more tolerant variety is the best management tool when faced with high-risk fields (Table 1). As a result, as part of the variety testing program, IDC tolerance is assessed at an IDC-prone site near Winnipeg, MB each year. These ratings are averaged over time and reported in MPSG’s Pulse and Soybean Variety Guide. Looking at the yield implications of these changes in IDC score, each 0.1 increase in IDC score has been estimated to reduce soybean yield by 1.5–2.8 bu/ac, depending on the year.¹

TABLE 1. Field Risk of IDC based on carbonate and soluble salt soil test levels.

SOLUBLE SALTS (mmhos/cm)	CARBONATE LEVEL (%)		
	0 to 2.5	2.6 to 5	>5.0
0 to 0.25	Low	Low	Moderate
0.26 to 0.50	Low	Moderate	High
0.50 to 1.0	Moderate	High	Very High
>1.0	High	Very High	Extreme

Adapted from Agvise Laboratories

Iron chelate products are also on the market for IDC prevention. Research from North Dakota has shown that in-furrow iron chelate products can offer some additional protection. In 2024, we’d like to explore this further by conducting on-farm trials with interested farmers on medium to high-risk fields. If you’re interested in testing this on your fields, please reach out to our On-Farm Network Agronomist Chris at 204-751-0439.

¹MacMillan, K. P., Soybean and Pulse Agronomy Lab Annual Report. 2023.



Photo credit: Laura Schmidt



Photo credit: Laura Schmidt



Photo credit: Laura Schmidt

Photos at right, clockwise: IDC symptoms include interveinal yellowing of new growth where leaf veins remain green. IDC will often be patchy in a field, affecting 10–25 per cent of the field on average. Severe IDC symptoms with leaf browning (necrosis) and stunted growth.

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Photo credit: Laura Schmidt



Photo credit: Laura Schmidt

What’s causing these bleaching symptoms in soybeans and peas?

Answers can be found on page 49

Adjusting to New Realities

LeftField Commodity Research

AFTER A FEW years of extremely high prices across nearly all crops, markets have been trending down as supply transitions from being very tight to having a cushion. Weather will still be important, particularly in Western Canada where much of the area is dry going into the 2024 season, but barring a major setback in key growing regions, the overall trend is more likely to reflect pre-2021 levels than what we've seen the past two years.

DRY BEANS SEEING VERY STRONG EXPORT DEMAND

Through the first half of 2023-24, demand for Canadian dry beans has been very favourable. Exports have increased to a number of countries, but the major boost is seen in volumes to Mexico due to its ongoing drought conditions. From August to December, Canada exported over 27,000 tonnes of dry beans to Mexico compared to less than 4,000 tonnes the year before. Dry bean exports by the U.S. have also boomed to meet Mexican demand. North American supplies will be very low by the end of 2023-24.

As most dry beans are purchased via forward contracts, spot bids during the rest of the year aren't very active. As a result, posted bids (where available) aren't showing much response to the shrinking supplies in Canada and the U.S. For the few

uncontracted beans still out there, over-the-phone bids have been strong. The heavy demand from Mexico isn't expected to slow down any time soon, with very dry conditions in the north of the country damaging its upcoming 2024 winter harvest.

There's been lots of interest in contracting dry beans this spring, with some companies' programs already full. As a result, Canadian seeded area is expected to rise in 2024 and could hit 400,000 acres after a couple of years of smaller plantings. Odds are that seeded area will also rebound in the U.S. Whether this North American acreage will be enough to rebuild supplies will depend on yields, and it's far too early to know how that will turn out. If there are any glitches in yields or further problems with the Mexican summer bean crop, prices for uncontracted beans (especially pintos and blacks) should remain quite strong.

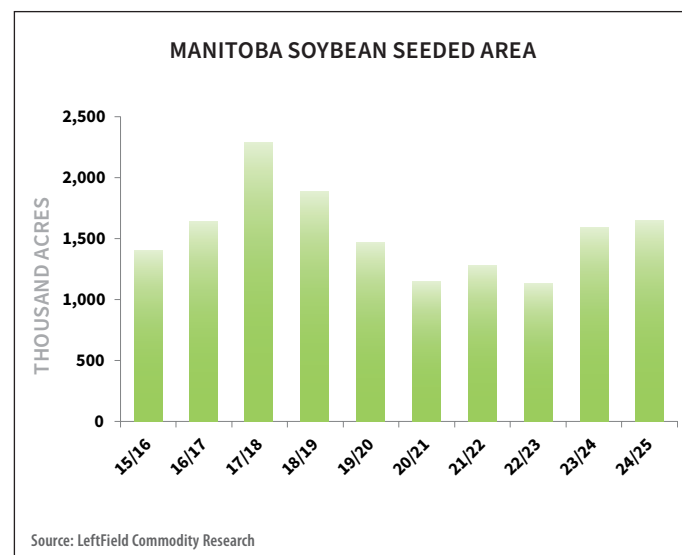
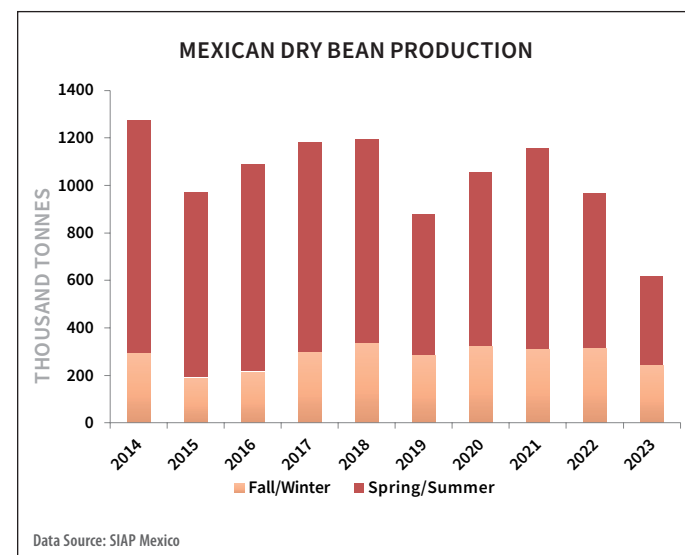
SOYBEAN MARKETS CAUGHT BETWEEN BIG CRUSH, EXPORT COMPETITION AND RISING PRODUCTION

Soybean prices have been trending lower in recent months, similar to most other crop markets. U.S. crush volumes have been running at a record pace, but export markets remain highly competitive. Brazil's crop will be lower this season, but a rebound in Argentina's yields means production

in the region will still be record breaking. Markets are also anticipating higher seeded area in the U.S. in 2024. Initial expectations are that this will further add to larger stocks at the end of the 2024-25 crop year, although that will depend on yields and the longer-term export outlook. China's import demand will continue to be a key factor, both in aggregate and in how much is purchased from the U.S. specifically.

One bright spot is the growing demand for soy oil from the biofuel sector. The U.S. Department of Agriculture figures suggest nearly 50 per cent of U.S. soy oil use will be for biodiesel, a trend that's encouraging investment in additional crush capacity. The growth may not happen in a straight line, but this looks to be a tailwind for the industry in the coming years. The spillover effects will be beneficial for Canadian soybeans as well, even if the focus for the Prairies is on adding canola processing.

Manitoba may see a small increase in soybean plantings in 2024 from last season's 1.6 million acres, which was the highest since 2018. Prices are down slightly, but soybeans are still a good option on many farms. The larger production in 2023 allowed for a bigger export program out of Vancouver, B.C. something that may be the case again the coming season, which can provide good marketing opportunities for growers. ■



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(L-R) Grain Farmers of Ontario Board Member Scott Persall and Manitoba Pulse & Soybean Growers Board Chair Melvin Rattai at Lactasoy, at a soy milk manufacturer in Nagoya, Japan.



FEATURE

MPSG Abroad: Trade Missions

Ashley Robinson, writer and Toban Dyck, writer and farmer

THE CONNECTION BETWEEN a Manitoba soybean field and chocolate soy milk dispenser in Tokyo, Japan may be tenuous. That is, until you see it for yourself and hear from the buyer who ordered the product from Canada. Suddenly, the fog lifts, and your brain is able to draw a clear line between the crops we grow and the global customers who buy them, eat them, reject them and praise them. The pulses and soybeans we plant, bring to maturity and sell are interwoven into the cultures of millions – if not billions – of people around the globe. The following stories from directors at Manitoba Pulse & Soybean Growers (MPSG) illustrate the connection farmers have to people, places and identity.

Photo credit: Soy Canada

MELVIN RATTAI
Trade mission: Thailand and Japan
When: January 2024

Beausejour, MB farmer and MSPG Board Chair Melvin Rattai hadn't tried Wagyu beef before he went to Asia. He also didn't truly comprehend the huge opportunity Asia represents to Canada and Manitoba's soybean market.

In January, Rattai joined a Soy Canada delegation on a trade mission to Asia. Representing MSPG, Rattai's perspective was about to expand.

"We are starting to grow Identity Preserved (IP) soybeans here in Manitoba, and it's important to know where they are going and what is expected from us," says Rattai, reflecting on his purpose for agreeing to the two-week trip. "These markets are looking for specific lines of conventional soybeans, which we can start growing in Manitoba, so that's a brand-new market for us farmers."

Landing first in Bangkok, Thailand, Rattai was immediately immersed in learning about the demands importers have on the soy products they bring in from Canada and elsewhere. Hearing this directly from international buyers struck a chord with Rattai. The link between his farm and Asia became clear and meaningful. The discovery that these beans were transformed into a variety of products underscored the versatility and global reach of the crops he and others grow in Manitoba.

"We went to a factory where they bought a fair amount of Canadian conventional soybeans. They made soy milk and soy chocolate milk, and even a form of yogurt from it, which tasted quite good," explains



Photo credit: Soy Canada

The Canadian team who travelled to Bangkok, Thailand on a trade mission.

Rattai. "That was one of the highlights of this part of the trip. We had a pretty good crowd, probably about 50 people, that we presented to in Bangkok. These were people who were buying our soybeans."

Moving into February, the mission continued to Tokyo, Japan, where Rattai presented to an audience of about 100 tradespeople at the Canadian Embassy.

"It was impressive to see the interest in our methods of farming, the quality of crops we produce, and the stringent standards we adhere to back in Manitoba," recalls Rattai. "In Japan, the factories we went to and the people we talked to were using conventional soybeans from Canada and the U.S."

These presentations and the engagement that happened in and around them revealed a strong and growing demand for non-GMO soybeans in Asia, with a clear preference for quality over quantity.

"It's a restrictive market," says Rattai. "They want to see 40 per cent protein and a larger and consistent seed size. Also, the oil content should be around 19 per cent, and they wanted their soybeans to be at 14 per cent moisture or drier. They're looking for quality and they are paying a premium for it. Soy is everywhere. You can go to a dispenser, put your change in and get a can of soy milk or chocolate soy milk. That's their regular milk. It's all soy products."

Rattai discovered the Japanese market, in particular, has an interest in the

quality-assurance practices implemented by Canadian farmers.

"We presented a slideshow of pictures showing them where the beans are grown, the equipment we use, where and how we store them, and the various steps we take to make sure the crops we grow are of the highest quality possible," says Rattai.

He also recalls there being a lot of interest in the fact that his farm is multi-generational and has been around for 125 years. This, he adds, "Seemed to carry a lot of weight."

The mission highlighted the challenges and opportunities shared among the global agricultural industry. "We saw firsthand the need for small- and medium-scale farmers to innovate and meet international demands, as well as the importance of maintaining high standards to stay competitive in the global market," says Rattai.

The experience reinforced the importance of direct connections between growers and international buyers. The story of the crop – from seed to harvest – is as vital as the quality of the grain itself. But Rattai's trip to Asia also resulted in a directive Manitoba's pulse and soybean industry shouldn't take lightly – markets are looking for specific varieties and they are looking for quality and consistency.

continued on page 28

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The Petronas Towers in Kuala Lumpur, Malaysia



Photo credit: John Preun

John Preun, Manitoba Pulse & Soybean board member, in Tokyo, Japan as part of a trade mission in 2023.



Photo credit: John Preun

JOHN PREUN
Trade mission: Japan, Vietnam and Malaysia
When: February 2023

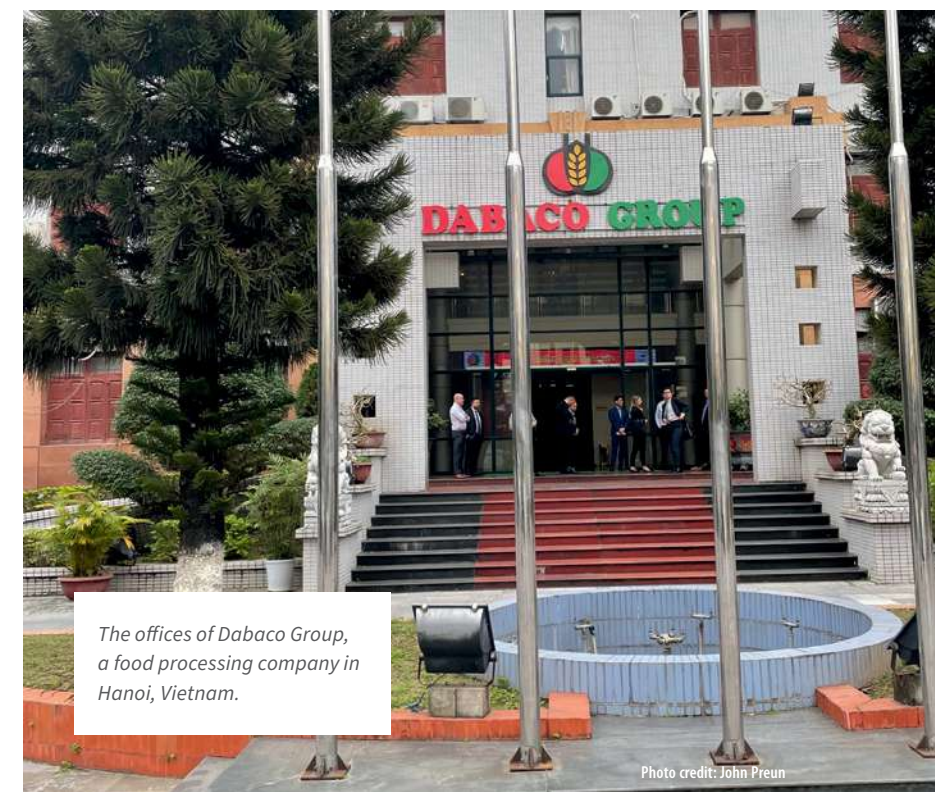
St. Andrews, MB farmer John Preun didn't fully understand how important Japan, Vietnam and Malaysia were as trade partners until he stepped foot in the Asian nations. In February 2023 he joined a Soy Canada trade mission to Asia as a representative for Manitoba.

"You don't know what [the country's] parameters are for specifications. Going there, I learned a lot on how that relates to agriculture here back at home and what they are looking for to try and get them to buy more of our [crops]," Preun says.

The MPSG board member travelled to Tokyo, Japan; Ho Chi Minh City, Vietnam; Hanoi, Vietnam; and Kuala Lumpur, Malaysia. While Preun was learning about the crop import needs and wants of the countries he visited, he also found himself teaching about crop production in Canada.

"I was asked about sustainability, what do we do on our farm that makes agriculture sustainable now and into the future," Preun explains. "I actually showed them some slides on how we collect data, how we interpret and use that data. And then also all the information from our machinery, like how many hours we're wasting driving on the road or idling the combines too long. We get all that information so that we can figure out how to be more efficient farmers."

Preun also cleared up confusion with the grain buyers he spoke to. In Vietnam, he learned, they have a zero-tolerance policy for crop shipments with Canada thistle in them. The importers believed Canada thistle grew wild all over Canada and were



The offices of Dabaco Group, a food processing company in Hanoi, Vietnam.

Photo credit: John Preun

quite concerned it would make its way into grain shipments.

"What I could bring to the table is I could tell them that this is our class one noxious weed in Canada. It's a weed that everybody's supposed to go after, whether it's farmers or municipalities," Preun says. "It was important for me to bring that message forward."

For Preun, his main takeaway from the trip was the market opportunities for Manitoba soybeans in Asia. He was asked by buyers if Manitoba farmers would grow more food grade soybeans. Preun shared that farmers would be happy to grow more of this crop as long as the dollars and cents are provided.

Throughout the trip Preun was able to try many bean-based dishes. He hadn't known what to expect foodwise but he found himself surprised by the delicious dishes he ate.

"I've never tasted food as good as there. Soybeans in tofu – you can buy tofu here but it's pretty crappy compared to what you can get in Japan especially. Trying different foods there that contained our

beans – there was nothing that I couldn't eat," he says.

Since returning from his trip, Preun wants to add more food grade soybeans into his seeding plans. This past winter he sat down and looked closely at what it would take to include food grade soybeans into his planting plans, but after careful consideration he realized it wasn't yet the right time.

"It's the knowledge that you come back with. The old story is there's no sense growing something that nobody wants to buy," Preun says.

continued on page 31

A trade session meeting with the Vietnamese government in Ho Chi Minh City, Vietnam where John Preun and other members of the trade mission presented.



Photo credit: John Preun

Don't hit snooze on Pythium

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(L-R) Corey Loessin, Ben Martens, Kevin Auch, Greg Bartley, and Mark Walker at the Charlemagne Building in Brussels, Belgium.

Photo credit: Greg Bartley, Pulse Canada

(L-R) Greg Bartley, Janelle Carlin, Ben Martens, Canadian Ambassador to the European Union Ailish Campbell, Corey Loessin, and Kevin Auch at the Embassy of Canada in Brussels, Belgium.

BEN MARTENS Trade mission: European Union and United Kingdom When: December 2023

Boissevain, MB farmer Ben Martens didn't know exactly what to expect when he arrived in Brussels, Belgium in December 2023. The MPSG board member was taking part in a trade mission to the European Union (EU) with Pulse Canada.

"When we hear about EU, we generally hear a lot about subsidies and restrictions. Becoming more restrictive in some of their policies in regards to pesticides and (maximum residue limits). There's always a lot of back and forth in regards to that, and whether or not we can access their markets," Martens says.

Once he arrived in Belgium, he found himself learning that EU farmer concerns were similar to their Canadian counterparts. EU farmers aren't getting enough for their products to make farming feasible or economically sustainable. On the flipside EU consumers are dealing with inflationary pressures and finding it increasingly difficult to buy the groceries and food they want.

"A lot of people are concerned about farm ag issues and how to make the small and moderate size farmer more economically viable. The interesting part was that there were very few farmers there.

It was a lot of people discussing farm issues, but there was only a handful of farmers," Martens says.

The trade mission team attended the Canada-EU Comprehensive Economic and Trade Agreement Agriculture Dialogue Sustainability Workshops. This was the last round of workshops; the previous sessions were held online over the past two years. Martens attended sessions focusing on soil health where he shared information about how ag research is done in Canada through the checkoff system that funds grower organizations such as MPSG to complete research on behalf of farmers.

The second part of the trade mission saw the Pulse Canada team visit the United Kingdom to meet with crop buyers there and discuss gene editing regulations. The group met with buyers who import Manitoba edible beans into the UK to learn about potential import issues.

"The most common issue encountered by them was contamination. Whether it'd be the odd little stone or whatever, those are issues that are very important to the buyers there," Martens explains. "Edible beans, for example, is something that they don't grow in Britain. It's a really good market for us and we want to do a good job of that.

It's important for us to send product there that's above and beyond."

Martens learned how much buyers want to meet the farmers growing the crops in Manitoba. The way crops are grown in Manitoba is very different from practices used in Europe.

"The cultural practices that we've engaged mainly in the Prairies — zero till, minimum till, saving moisture — those are really important in today's world. They were very interested in how we were doing that," he says. "We visited a couple of producers there, and some of the practices that they use were still really intensive in the cultivation and the way they work their soils."

Through the trade mission Martens realized the importance of the Canadian ag industry's sustainability work. While there may be a lot of questions and changing issues when it comes to sustainability, Martens says it's crucial to continue learning.

"I think it's something that we want to continue to highlight and learn from other people and also provide some education and some knowledge that we can pick up," he adds. ■



The Dry Bean Journey

• The most commonly grown dry bean types in Manitoba include pinto, navy and black beans.

**Source: MPSG*

• As of 2023, Manitoba was the largest producer of dry beans in Canada with 142,300 acres planted and 121,895 tonnes produced.

**Source: Statistics Canada*

• Manitoba farmers sell their beans to a broker, buyer or processor who is licensed and bonded by the Canadian Grain Commission. Buyers include Hensall Co-op, Viterra, ETG, Western Harvest, Columbia Grain and AGT. Dry beans are trucked from farmers' fields to the dry bean handling facility.

• Manitoba dry beans are eaten locally and are processed locally. One local processor is Avena Foods in Portage la Prairie, MB who sources and mills Manitoba navy beans. Avena Foods is a specialty miller for food, beverages, pet food and nutraceutical manufacturers. These products are sold domestically or internationally in the United States and European Union.

• Dry Beans from Manitoba are processed into the following food categories:

- Bakery products
- Snacks
- Meals and meal centers
- Side dishes
- Dairy products
- Fish, meat and egg products
- Soup
- Deserts and ice-cream
- Breakfast cereals
- Pet food

**Source: Mintel GNDP*

• **To Mexico**
As of 2022, 13 per cent of Canada-Mexico grain trade is transported via rail. The rest is sent through Canadian sea ports. Since then the merger of Canadian Pacific and Kansas City Southern has happened creating the first single line railway from Canada to Mexico.

• **To the United Kingdom**
Shipped by rail to the Port of Thunder Bay and then through the St. Lawrence Seaway to the United Kingdom to be processed into food products.

• **2023 Manitoba dry bean exports:**

NAVY AND WHITE PEA BEANS

- United Kingdom — 6,731 tones valued at \$10,976,523
- Italy — 1,828 tonnes valued at \$2,478,617
- Belgium — 1,682 tonnes valued at \$2,337,108
- Korea — 1,217 tonnes valued at \$1,444,968
- Colombia — 1,062 tonnes valued at \$1,383,942

BLACK BEANS

- Mexico — 18,496 tonnes valued at \$21,054,234

PINTO BEANS

- Mexico — 14,938 tonnes valued at \$22,168,991
- Angola — 7,008 tonnes valued at \$10,697,560
- Italy — 3,301 tonnes valued at \$5,057,332
- Chile — 3,595 tonnes valued at \$4,872,366
- Portugal — 3,018 tonnes valued at \$4,144,366

**Source: Global Trade Tracker*

• Dry beans are a prominent feature in Mexican cuisine, embraced for their nutritional value, affordability, and rich flavor. They are used in a wide range of dishes, from hearty stews and soups to comforting bean-based spreads like refried beans.

• In the United Kingdom most people eat beans at least once a week, usually as a quick evening meal, but they are also popular for breakfast and lunch. To try baked beans, British-style, heat them in a pan and serve them on top of a slice of hot buttered toast – maybe with some grated Cheddar cheese on top.

• **UK dry bean stats:**

- Brits eat 540 million cans of beans per year

MANITOBA FIELDS

BUYERS

DOMESTIC USE

EXPORTING

MANITOBA DRY BEAN EXPORTS

FOODS EATEN IN EXPORT COUNTRIES



The Global Politics of Manitoba Pulses and Soybeans

Toban Dyck, writer and farmer

STARTING IN APRIL, India will hold the world's largest election. With nearly one billion eligible voters, it will be a long, seven-stage process running from April 19 to June 1.

And Canada's agriculture industry is watching this election.

As a consistent customer, India helped create the conditions for Canada's pulse sector to flourish. Any policy changes in India – a country of 1.4 billion people – have the ability to impact our pulse sector.

More than 50 countries have or will hold national elections in 2024, shifting balances of power, affecting trade relationships, and potentially impacting prices and demand for Manitoba's pulse and soybean crops.

The story of Manitoba's crops being on plates around the world is a political one that involves real people, living in countries all over the globe.

The uncertainty and impact of election outcomes, along with the seemingly irrational trade disruptions the agriculture industry has endured over the past number of years, points to an unsettling connection between the crops farmers grow and the political weapons governments use against others and against their own. These conditions reveal how vulnerable the pulse and soybean markets are to political whims.

Pulse Canada believes, regardless of political outcomes, the pulse industry can play a role pushing progress to the benefit



Neil Townsend,
senior market
analyst for
GreenFox

of both sides. While Canadians may be able to ship their peas to China, the market is still closed to Canadian lentils, chickpeas, faba beans and adzuki beans. Pulse Canada President Greg Cherewyk says there is a market for the crops there.

"In China, there's demand for a wider range of plant-based proteins," Cherewyk explains. "They do have an advanced food industry, and they have an interest, for example, in accessing faba beans for their neutral flavour profile and high protein content."

In 2018, Pulse Canada submitted pest risk assessment documentation that would allow Chinese officials to determine on their own that there's no risk associated with importing these crops. But, by the end of that year political tensions between Canada and China had escalated and it became very difficult to advance market access priorities. Despite the holdup Cherewyk knows there is still opportunity in the market.

"Maybe this is the low-hanging-fruit opportunity for both the Chinese government and the Canadian government to start working together at an operational level – at a plant protection agency level. We could get back to the table for the first time in seven years and check off one box – get one little win that demonstrates we can still find ways to work together," he adds.

China is a country Canada can't afford to ignore. It imports around one million tonnes of Canadian soybeans every year. They use soybean oil, and eat soybeans in tofu, edamame and other dishes. Domestically, China can produce only a fraction of what they need – roughly 15 per cent. Trade is shifting though with other countries undercutting Canadian crop prices.

"Russia and Ukraine are beginning to export peas at cheaper prices and both China and India are open for business," says Cherewyk.

This means two of the world's largest markets are now importing

To learn more about ProteinMB scan this QR code to watch our full interview with Jillian.



peas from Russia, a country that is reportedly growing more peas than ever before.

"Market competition is increasing," explains Cherewyk. "This is the first year Australia will export more lentils to India than Canada. That competition is not going away. And, unless something dramatically changes in Russia and Ukraine, there's going to be more peas produced there, too."

"There is more production coming out of Kazakhstan, too. All of this has an impact on our traditional markets, so it's important we have a plan and execute against it."

These anecdotes point to a sentiment shared among a growing chorus of people championing collaborations between industry and government on common challenges to create smart, agile solutions. The marketplace is no longer what it once was and requires the swift seizure of opportunities and the stamina to keep driving forward.

The need for industry and government to work together is just as relevant to India's market as it is to China's.

"India is a country to watch very carefully," says Neil Townsend, chief market analyst at GrainFox. "Fiscal disparities are increasing. There are a lot of poor people in rural and urban areas. The average farm size is decreasing, bucking the global trend of growing farming operations. Crop productivity is not increasing a lot, either, like it has in Canada or other countries."

India is Canada's largest importer of lentils. It's also a country with which Canada has had a complex relationship. Domestic policies in India have spurred devastating tariffs on Canadian pulse imports in the past.

Regardless of politics, the reality is that India, the most populous country in the world, is a place where citizens eat pulses at nearly every meal, and they rely on imports to do so.

While India's election will take place over the course of a few months, last October,

Argentina elected its new president, Javier Milei. His next moves in power could also affect Canada's soybean exports.

"He's quite extreme, and he's a bit of an outsider," explains Townsend. "He doesn't have a majority of support in the Argentinian political system. He has to negotiate to get things through, but there could be some drastic changes that happen with their export tax regime, which could speed up or slow down soybean trade."

Argentina's export regulations have spurred growth in the country's soybean processing capacity. Their tax system favours the export of soybean oil and meal instead of the raw commodity, potentially creating, according to Townsend, a one million tonne opportunity for Canadian soybeans in the market.

"There's potential for change in Argentina," adds Townsend. "Argentina, as a soybean-producing country, is worth watching and being mindful of, and that goes for their pulses, too. They produce a lot of pulses."

And then there's the United States election.

On Nov. 5, 2024 U.S. voters will choose between former President Donald Trump or current President Joe Biden.

"I think that leading up into the election, there'll be a lot of nervousness in the market," Townsend says – referring to the volatility Trump represents and the ongoing conflict between Gaza and Israel and the Russian invasion of Ukraine.

However, there is work back home in Manitoba to fight back against the instability. Last fall, ProteinMB launched as a way to mobilize and bring together all the actors in Manitoba's protein value chain – from farmer to processor to customer and all the people in between.

"The vision of ProteinMB is that Manitoba proudly leads Canada and the world as an innovative model for high value, sustainable protein that nurtures and benefits all people, the local environment and the climate," says ProteinMB's Managing Director Jillian Einaron. "We drive collaboration of the value chain and the sector through our engagement opportunities surrounding identifying and addressing common issues and opportunities.

On April 19, ProteinMB will host a partnership forum, which is open to anybody who wants to get involved with the implementation of the organization's protein strategy.

"During this event, we'll be bringing industry together to delve deeper into protein partnership model. We'll share different participation opportunities and facilitate discussions around priorities. And then we'll begin to establish roundtables, sustainable protein consortiums, and working groups. We've been created by industry and we're here to support our industry and empower industry growth."

ProteinMB is in phase one of its development right now – visit www.proteinmb.ca for more information – but the next stage of its strategy is to tackle initiatives such as increasing trade and access to foreign markets.

The food Manitoba's pulse and soybean farmers grow is global, political, and affected by and vulnerable to election outcomes. This food is needed and feeds people from all over the world. Refresh your news pages often this growing season. What you grow is part of stories you've never dreamt of. ■



VIEW FROM THE FIELD

Laura Schmidt, Production
Specialist – West, MPSG

DEPTH VARIABILITY ACROSS THE DRILL

With spring around the corner, one important consideration to make when it comes to maximizing plant emergence and establishment is seeding depth. Have you assessed the variability in seed depth across your seeding implement?

Here's an example from one farm, where swings of over an inch were occurring among shanks. For a crop like peas, this wasn't much of an issue other than placing seed shallower than we'd like to see. Luckily, these peas had enough soil moisture for germination and emergence to not be impacted much by the shallow placement.

For soybeans, however, this swing in depth was less than ideal. Stress

MacMillan, K. P., Soybean and Pulse Agronomy Lab Annual Report. 2021.

symptoms due to deep seeding were evident. Soybeans need to drag their cotyledons up through the soil to emerge, unlike peas that leave their cotyledons below ground and just need to snake a tendril through the ground. Soybean cotyledons were very yellow in some of these rows, and hypocotyls (stems) were very swollen – two signs that those seedlings struggled to emerge through the soil from that deeper depth.

What's the ideal seeding depth for these two crops? Research has found the optimum seed depth for soybeans in Manitoba to be $\frac{3}{4}$ to $1\frac{3}{4}$ inch, regardless of if moisture is sitting deeper.¹ The trade-off of seeding deep to chase moisture is stressed seedlings that are less resilient to other challenges early in the season. For

peas, aim to seed 1.5 to 2 inches deep and into moisture. Since pea cotyledons remain below ground, they can tolerate deeper seeding. 🌱



One pea plant from each adjacent row was dug up to show the variation in depth across the drill.



2023 Disease Survey Results & Overview

Disease Surveillance Results in Soybeans, Peas and Dry Beans

Jennifer McCombe-Theroux, Production Specialist – East, MPSG

Photo credit: MPSG

Phytophthora root rot in soybeans.

EACH YEAR, DISEASE surveys are conducted across Manitoba to assess root, foliar and stem diseases in a representative sample of soybean, field pea and dry bean fields. These surveys are a collaborative effort between Agriculture and Agri-Food Canada (AAFC), Manitoba Agriculture, and Manitoba Pulse & Soybean Growers (MPSG). The annual surveillance of crops allows us to monitor and follow diseases each year and over time. This keeps us informed on

any emerging issues to help update research priorities and identify areas that may need further support.

SOYBEAN DISEASE SURVEY

In 2023, 67 soybean fields in Manitoba were surveyed for foliar and stem diseases during late July to late August at the R4 (full pod) to R5 (beginning seed) stages. Roots were collected from 58 fields and submitted to AAFC for root disease analysis. New this

year, soils were also collected from soybean fields for Phytophthora root rot (PRR) pathotype identification. Soybeans were visually assessed for infection by bacterial blight, septoria brown spot, downy mildew, frogeye leaf spot, northern stem canker, white mould, phomopsis pod/stem blight and anthracnose.

Bacterial blight and septoria brown spot continue to be the most common foliar diseases found in soybeans, infecting 76 per cent and 85 per cent of fields surveyed in 2023, respectively (Figure 1). Severity levels of these two diseases were below 1.0 (scale 0–5), indicating that only trace symptoms of disease were found. Fusarium root rot was found in every field surveyed, the severity of infection ranged from 2.2 to 5.6 and was 4.0 on average (scale 0–9). A root rot severity above 4.0 signifies where we anticipate yield loss to occur. This represents when symptoms are present on half of the root system and plants have visible stunting. Although Fusarium root rot prevalence was at a threshold of impacting yield, the growing season conditions supported good

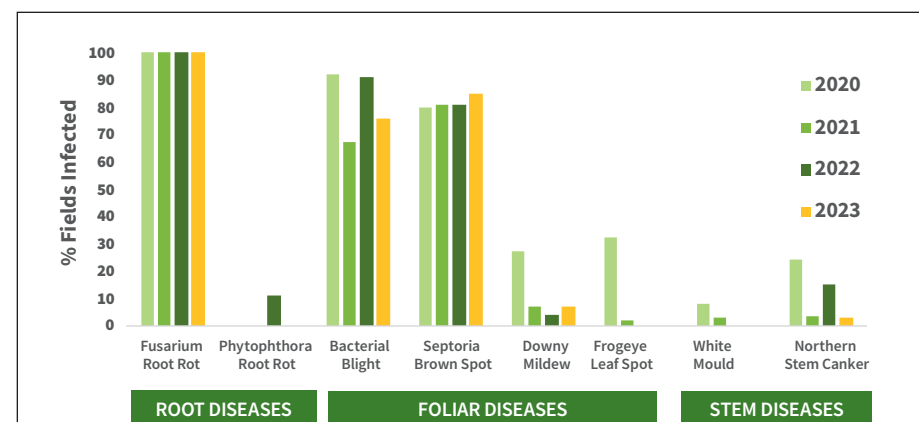


Figure 1. Per cent of surveyed soybean fields infected with diseases in Manitoba from 2020–2023.

In 2023, 100 per cent of dry bean fields tested positive for Fusarium root rot.



Photo credit: MPSG

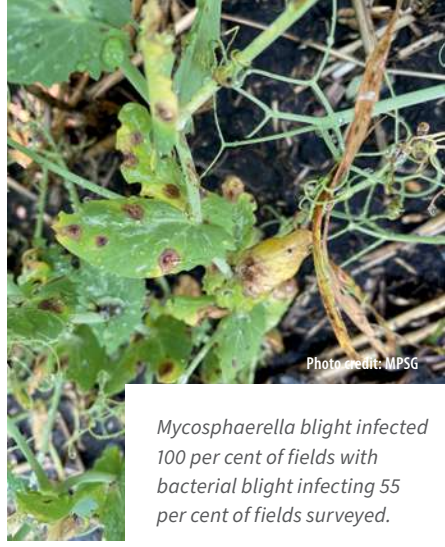


Photo credit: MPSG

Mycosphaerella blight infected 100 per cent of fields with bacterial blight infecting 55 per cent of fields surveyed.

soybean yields in areas where adequate rain was provided during seed fill. PRR was not found in 2023.

Northern stem canker was the most prevalent stem disease found in 2023, infecting only three per cent of fields. White mould was found at trace levels in a single field and otherwise stem diseases weren't found. Frogeye leaf spot, phomopsis pod/stem blight and anthracnose weren't found in 2023.

PHYTOPHTHORA ROOT ROT SOIL SAMPLING FOR PATHOTYPE IDENTIFICATION

Soybean varieties have major gene resistance as a tool to help combat PRR. However, the missing link is testing the soil in each field to understand what pathotypes are present. This will help farmers select a variety based on the major gene resistance it carries. Currently there are no commercial labs in Manitoba that offer this test, however, a lab in Quebec offers this service.

2022 was MPSG's first year piloting a commercial soil test to identify PRR pathotypes in farmers' fields. Twelve fields with suspected PRR presence were tested. In 2023, we tested 24 fields that were part of the On-Farm Network program, regardless of if PRR was suspected or not. The summary of both years is found in Table 1.

These results show that in 2022, of the 11 fields where PRR was confirmed, 100 per cent had PRR pathotypes that overcame soybean Resistance to Phytophthora sojae (Rps) genes 1a and 1c. Rps genes 1k and 3a were defeated at 55 per cent and 64 per cent of the fields tested, respectively, and Rps gene 6 was defeated at 27 per cent of these fields.

In 2023, 100 per cent of the fields had PRR pathotypes that overcame soybean

Rps gene 1a. The second highest resistant gene defeated was Rps 6 with 92 per cent of fields affected. Rps genes 1c, 1k and 3a were defeated at 67 per cent, 67 per cent and 29 per cent, respectively. Rps genes 8 and 11, which aren't commercially available, were tested in 2023 resulting in 29 per cent and 83 per cent of fields being resistant.

The differences between 2022 and 2023 results show how specific PRR pathotypes are to each field. This highlights the

importance of having soil tested to properly identify the PRR pathotypes present in each field planned for soybeans. This will support farmers in making informed decisions on variety selection to choose the right Rps genes to combat the PRR pathotype(s) in their field. Research is ongoing to improve our understanding of PRR, including testing varieties for field tolerance, also called partial resistance. These are controlled by minor genes that allow soybeans to better withstand infection to PRR without incurring severe symptoms or death. Work is on-going and more information is to come!

DRY BEAN DISEASE SURVEY

In 2023, 41 dry bean fields were surveyed for root, foliar and stem diseases. Surveying for root diseases occurred during mid-July to early August and foliar and stem diseases were surveyed late August (Figure 2).

Common bacterial blight (CBB) was the most common foliar disease found,

continued on page 38

Table 1. Summary of soybean Resistance to Phytophthora sojae (Rps) genes defeated by Phytophthora root rot pathogens identified in 11 fields in 2022 and 24 fields in 2023.

YEAR	% of Rps Gene Defeated					Other (research lines)	
	1A	1C	1K	3A	6	8	11
2023	100%	67%	67%	29%	92%	29%	83%
2022	100%	100%	55%	64%	27%	N/A	N/A

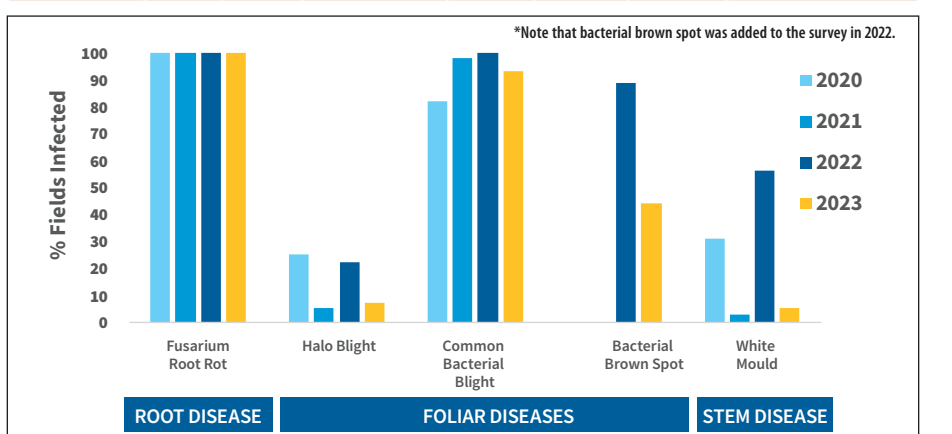


Figure 2. Per cent of surveyed dry bean fields infected with diseases in Manitoba from 2020–2023.

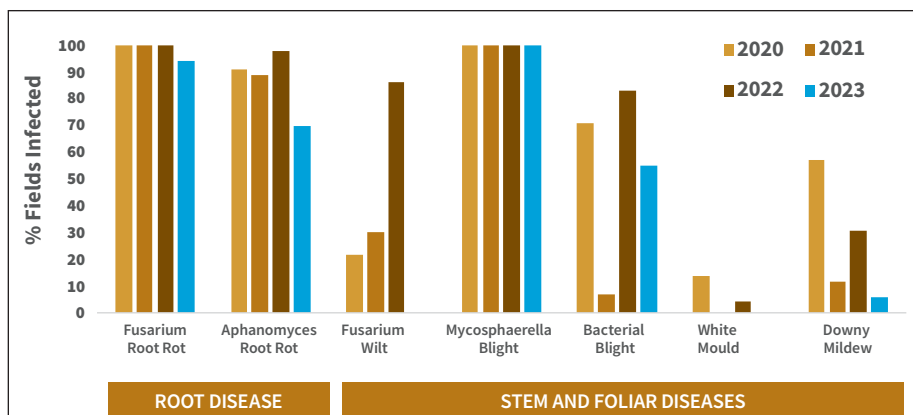


Figure 3. Per cent of surveyed pea fields infected with diseases in Manitoba from 2020 – 2023.

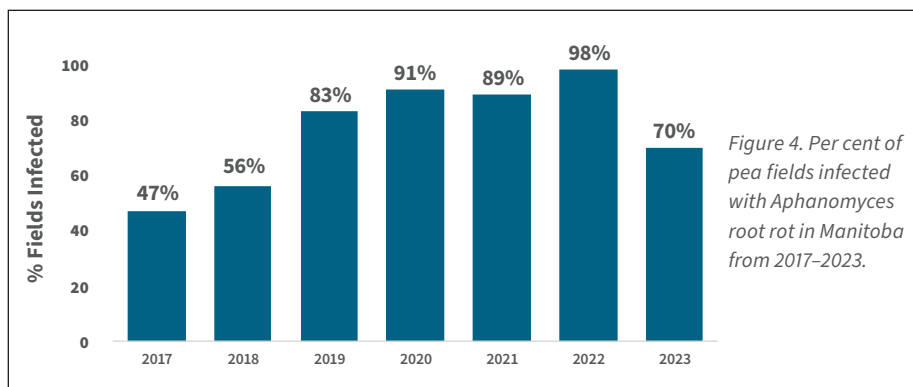


Figure 4. Per cent of pea fields infected with Aphanomyces root rot in Manitoba from 2017–2023.

infecting 93 per cent of the fields surveyed, severity ranged from 0.3 to 3.7 and was 1.9 on average (scale 0–5). CBB infects wounds from environmental damage such as hail or strong winds as well through natural leaf openings. Bacterial brown spot was added to the survey in 2022. In 2023, it was the second most common foliar disease, infecting 44 per cent of fields, with an average severity of 0.9 (scale 0–5). White mould and halo blight were also found in five per cent and seven per cent of fields, respectively, however, both were at low severity levels.

Fusarium root rot was found in every field surveyed. Severity ranged from 1.4 to 5.4 and was 2.9, on average (scale 0–9). Rhizoctonia and pythium root rot have not been found in the survey since 2016.

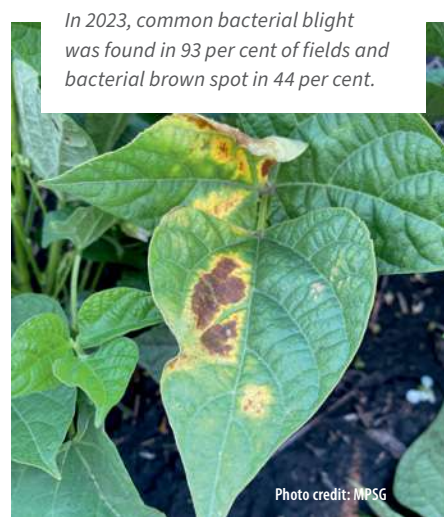
FIELD PEA DISEASE SURVEY

In 2023, 47 pea fields were surveyed for root, foliar and stem diseases. Surveying for root diseases occurred at R1-2 (early to mid-flower), and foliar and stem diseases were surveyed at R4 (full pod). Field peas were visually assessed for infection of

mycosphaerella blight, bacterial blight, white mould, powdery mildew, downy mildew, anthracnose, rust and septoria leaf blotch. Soil and root samples were also collected for Aphanomyces root rot testing at AAFC-Brandon.

Root rots were found in every pea crop surveyed; ranging in severity from 1.3 to 6.8 with an average severity of 3.3 (scale 0–9). Fusarium root rot was the most common root rot, found in 93 per cent of the fields surveyed. Aphanomyces root rot was found in 70 per cent of the fields tested in 2023 (Figure 3).

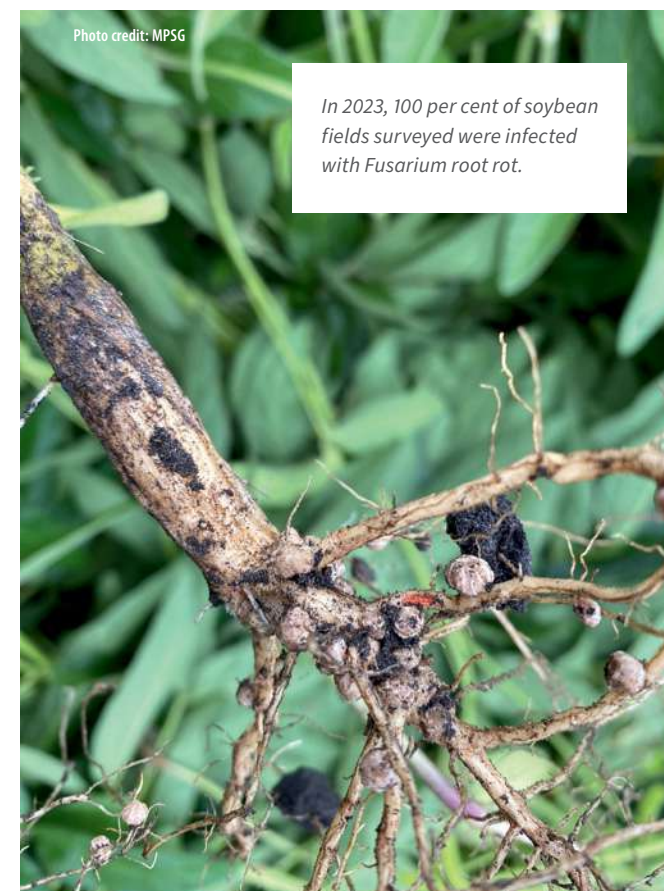
Mycosphaerella blight continues to be the most common foliar disease found in field peas, it has been found in 100 per cent of the fields surveyed at varying levels of severity in recent years. In 2023, severity ranged from 1.4 to 5.8 with an average severity of 3.0 (scale 0–9). Bacterial blight was present in 55 per cent of fields and downy mildew was found in six per cent of fields. Rust, anthracnose and white mould were not seen in any of the fields surveyed in 2023.



GROWING PEAS IN 2024? THINK BACK TO THE LAST TIME YOU GREW THEM

Aphanomyces root rot is a significant risk to field peas and is prevalent across Manitoba (Figure 4). Each year, more and more fields are found to have this devastating root disease lurking in the soil. Aphanomyces is a long-lived soil-borne pathogen. Its resting oospores have incredibly thick cell walls that are extremely resilient to environmental conditions. They can also remain dormant more than 10 years in the absence of host plants. A significant investment has been made towards Aphanomyces root rot research as management options are limited. Currently, the only effective tool is through crop rotation and taking a longer break between susceptible host crops like peas.

Although soil moisture conditions are fairly dry entering the upcoming growing season, it's important to have Aphanomyces as a top consideration for pea crops. Farmers growing field peas this year, should take into consideration what the environment was like the last time peas grew on that field. Was there root rot in the pea field, what was the level of root rot like and how wet were conditions? Aphanomyces is a water mould that thrives in wet conditions, in wet years, such as 2020 and 2022, your level of oospore build-up is higher. A longer rotation away from peas and other susceptible crops will be needed. To walk through considerations before returning a field to pea production following a positive Aphanomyces diagnosis, consult Saskatchewan Pulse Growers Aphanomyces Risk Checklist. ■



ON-FARM NETWORK – DIGGING EVEN DEEPER

Using Technology to Enhance On-Farm Research Is Gaining Ground

Christopher Forsythe, On-Farm Network Agronomist, MPSG



THROUGH FIELD-SCALE REPLICATED

and randomized research, MPSG's On-Farm Network (OFN) works to answer questions that impact the profitability of a farm. Reliable and unbiased results are made available to the participating farmer and the public.

Since the launch of OFN in 2014 there have been over 520 trials completed, and over time the program has evolved.

One deliberate change made in 2019 was moving away from conducting an ever-increasing number of trials to capping trial numbers and collecting more detailed information from each trial. This approach helps to explain why a yield response occurred and to better predict if the same response would happen on other farms.

An example of needing to provide a good answer for the why is seen in our soybean trials. Out of the 26 soybean biological trials OFN has conducted to date, none have resulted in a yield benefit. Further investigation is required to learn why there was no yield benefit, and the only way to find out is by digging deeper.

There are two ways to collect data in a field. One way is to put people in the field, and another way is to use technology such as remote sensing. As staff is limited, using more technology in our operation is required to efficiently increase in-depth data collection.

In 2024, OFN purchased new equipment, such as weather stations and drones (Figure 1). On-Farm Network Research Assistant Mikayla Melnick is dedicated to equipment operation and collecting more in-depth data.

Drones equipped with high-resolution multi-spectral cameras will be used for in-season monitoring. Normalized Difference Vegetation Index (NDVI) combines measures of light reflectance and may be correlated to plant biomass, chlorophyll content and crop stress. Stressed crop



Photo credit: Ian Kirby

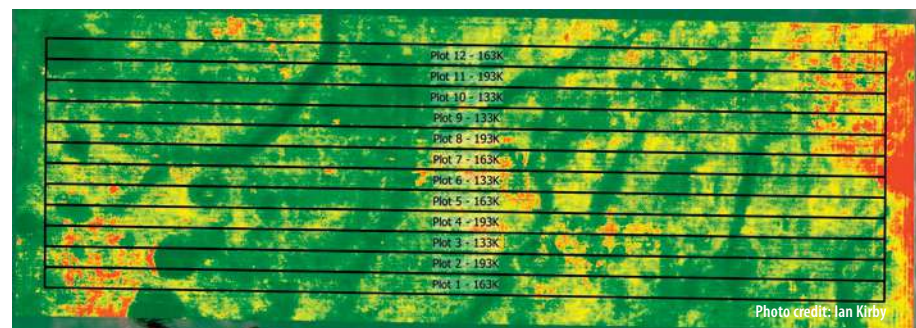


Photo credit: Ian Kirby

Top, Figure 1. Drones equipped with high-resolution, multispectral cameras are now being used in On-Farm Network program.

Bottom, Figure 2. Strip trial boundaries overlaid onto a drone image with Normalized Difference Vegetation Index (NDVI) to show vegetation health.

patches are closely evaluated and precisely mapped allowing us to get a good view from above of the effect of treatments in a trial (Figure 2).

With the addition of advanced weather stations, we can get data back in real-time. Having real-time feedback allows for faster responses to sites when extreme weather events occur, such as hail and extreme wind. Sensors that measure soil parameters, such as soil moisture, can be added to the station and the data can provide more clues into a particular response.

OFN is utilizing a near-infrared (NIR) spectroscopy with an instrument called SCiO Cup that measures seed protein, moisture and oil percentage. We will

learn if these seed attributes are affected by treatments such as inoculation and nitrogen fertility. Higher seed protein and oil percentage provide more value to a crop.

Smartphone apps, such as Canopeo, can be used to quantify crop canopy closure. We are working to determine how much earlier narrow row spacing provides crop canopy closure than wider row spacings. A closed canopy, compared to one that has not yet fully closed, has agronomic consequences such as weed pressure.

Precision technology using variable rate equipment is going to be incorporated into OFN as a trial option this season. An example is varying nitrogen rates across a field to discover which nitrogen rate is

most profitable (Figure 3). This technology is leveraged to design unique and robust trials.

The results of our on-farm research have helped farmers make informed decisions by being able to test various management practices on their farm before committing to every acre. By using more technology, we hope to answer more questions and provide more value back to the farmer.

With the increasing availability of new applications, artificial intelligence, machine learning and new technology, the sky is the limit towards incorporating technology in the daily trial data collection and analysis workload. While there's still no substitute for in-person field visits, technology will be an important tool we use moving forward. ■

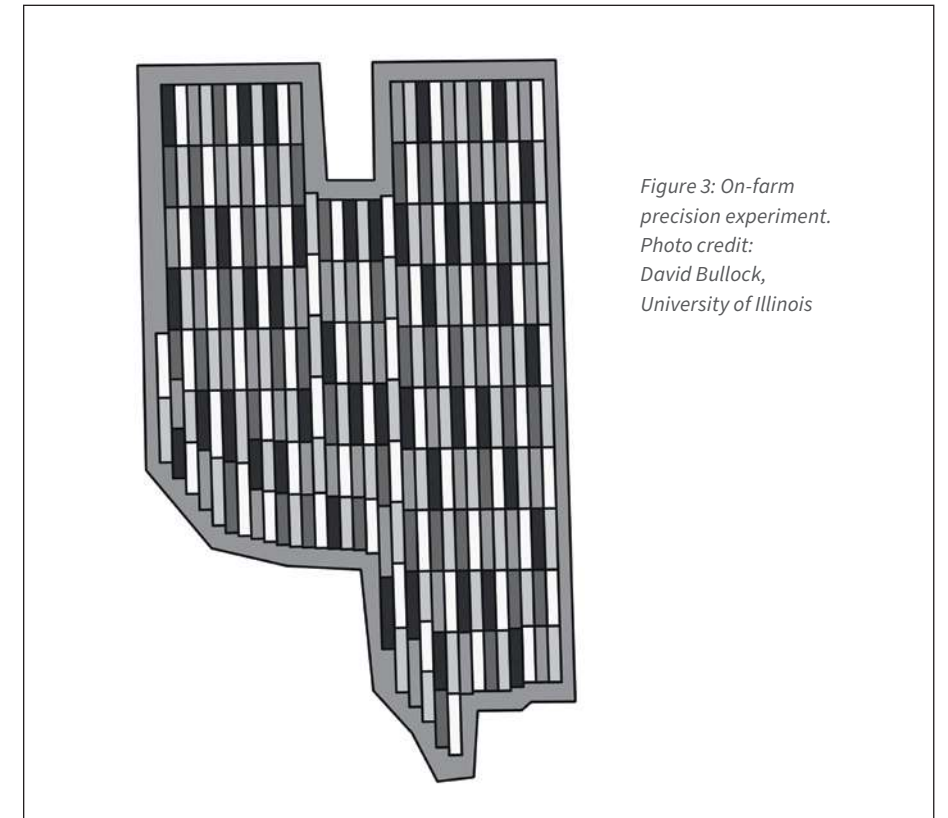


Figure 3: On-farm precision experiment. Photo credit: David Bullock, University of Illinois



VIEW FROM THE FIELD

Laura Schmidt, Production Specialist – West, MPSG

PLANT COUNTS, PLANT COUNTS, PLANT COUNTS!

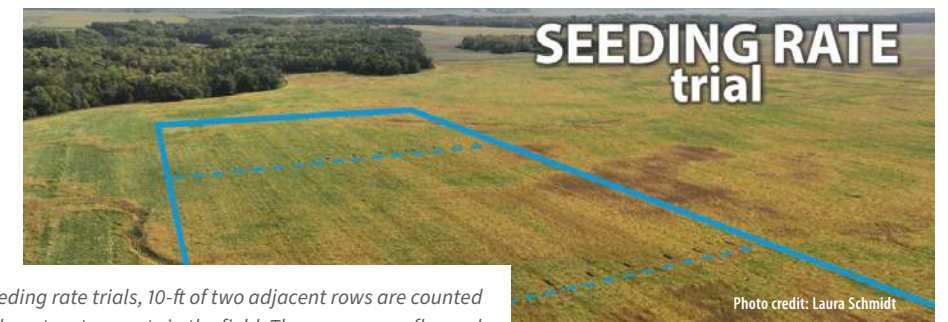
If you were to ask one of our agronomy interns what they were up to in June – you'd have a snappy answer, "Plant counts!"

Characterizing plant stands at on-farm trials helps us interpret yield results and the dynamics of what's happening with the crop in response to different seeding rates or row spacings. They're pretty critical!

Early in the season, we're evaluating plant establishment. We ask the question: Of the seeds we put in the ground, how many actually emerge and produce a living plant? I'd encourage every farm to evaluate their early-season plant stands to determine if there's somewhere to improve establishment.

Taking into account germination rates and plant vigour, we often see fewer plants establish than we would expect. Investigate the factors that impact this on your operation – it could be seed depth, crop residue distribution, soil moisture or many other factors. With seed costs being quite high, understanding what we put in the ground compared to what comes up to produce a living plant is a simple step to fine tune your seeding rates and ultimately evaluate seed costs.

Later, at the end of the season near crop maturity, we're also taking late-season plant counts in seeding rate and row spacing trials. In many cases, we'll see a loss of plants in the same area due to the crop competing with itself throughout the growing season (self-thinning). More of this self-thinning occurs at higher seeding rates (>190,000 seeds/ac) or wider row spacings (30 inches) than at low-to-medium seeding rates or narrower rows. 🍃



At on-farm seeding rate trials, 10-ft of two adjacent rows are counted in each plot along two transects in the field. These areas are flagged and pinned on GPS so we can revisit the same spot later in the season.

Photo credit: Laura Schmidt

BECOME PART OF THE ON-FARM NETWORK



on-farm network
PARTICIPATORY • PRECISE • PROACTIVE

By farmers, for farmers

All On-Farm Network (OFN) research is based on these important principles:

- 1. Participatory** – Actively engages farmers in the research process.
- 2. Precise** – OFN trials produce robust and statistically sound data.
- 3. Proactive** – Results from the OFN guide management decisions, aiming to improve productivity and profitability of the farm operation.

HOW IT WORKS

*Your fields, your farm, your findings**

YOU

- Let us know what kind of trial you are interested in or what kind of agronomy question you have.
- Tell us when you are ready to establish your trial (e.g., at seeding or spraying, depending on trial type) and provide us with basic agronomic information for the field.
- Tell us when you are ready to harvest.
- Use the results to guide future management decisions for your farm.

WE

- Design an easy-to-implement trial to investigate your question.
- Provide support to ensure smooth trial establishment.
- Collect data and observations throughout the season.
- Provide harvest support and our weigh wagon, to get accurate harvest results (or you can use your grain cart if it has an appropriate scale).
- Compile the observations and data into a short report of trial results.

*You must be a member in good standing with MPSG to participate.

WHAT IT DOES FOR YOU

Farm productivity and profitability, optimized

- The OFN empowers you to evaluate agronomic and economic outcomes of management decisions on your farm, in your fields, under your growing season conditions, using your own equipment.
- As a participant, you become a part of a larger network of research across years and regions, which can be used to investigate bigger picture questions.

2024

PULSE AND SOYBEAN TRIAL TOPICS

- Residue management
- Seed treatment
- Inoculants
- Seeding rate
- Row Spacing
- Dry Bean N Fertility
- Biologicals
- Fungicides

Have a different trial idea? Let us know!



To participate in the trials, contact
Chris@manitobapulse.ca 204.751.0439
or sign up at **manitobapulse.ca/on-farm-network**

Current Research Projects from 2023 Onward

PROJECTS CONTINUE TO come in under the current five-year Sustainable Canadian Agricultural Partnership (Sustainable CAP). Manitoba's component of Sustainable CAP has been a particularly good source of funds for Manitoba Pulse & Soybean Growers. As well, projects under the federal Science Clusters program within that same five-year framework are off and running. We've also been fortunate to work with researchers who have been awarded funds from Genome Canada and from the Saskatchewan government's Strategic Research Initiative. Project groupings have recently been tweaked to describe the overall objective.

Project Title	Principal Investigator(s)	Institution or Company
Reduce Losses to Pests		
Accelerating solutions to root rot of pea and lentil using a multifaceted and integrative approach	Syama Chatterton	AAFC-Lethbridge
Towards a better understanding of dry bean root rot and soybean cyst nematode management	Owen Wally	AAFC-Harrow
The prairie weed monitoring network: surveillance, risk assessment, and forecasting	Charles Geddes	AAFC-Lethbridge
Protecting Manitoba's soybean industry from soybean cyst nematode	Mario Tenuta	University of Manitoba
Staying on top of soybean root diseases under climate change in Manitoba	Yong Min Kim	AAFC-Brandon
Investigating pea crop rotation length and sequence for sustainable protein production in Manitoba	Kristen MacMillan	University of Manitoba – MPSG Agronomist in Residence
Pea leaf weevil seed treatment comparison	Laura Schmidt	MPSG
Zidua herbicide crop tolerance	Laura Schmidt	MPSG
Accelerate discovery of root rot solutions for pea and lentil	Sabine Banniza	University of Saskatchewan
Enhance Yield and Capture New Markets		
Breed for top-performing field pea varieties and develop SNP-based markers for marker-assisted selection for grain and protein yield, maturity, standability and seed size	D.J. Bing	AAFC-Lacombe
Accelerated genetic gain and improvement in dry beans	Jamie Larsen, Anfu Hou	AAFC-Harrow, AAFC-Morden
Diversity set for genomic improvement of faba bean	Nicholas Larkin	AAFC-Saskatoon
Development of improved pea cultivars to enhance Canada's leading role in international pea markets	Tom Warkentin	University of Saskatchewan
Reducing GHG emissions by lengthening short season crop rotations with soybean	Elroy Cober	AAFC-Ottawa
Characterizing the protein and amino acid composition of Manitoba-grown soybean to support commercial value-added applications	Jim House	University of Manitoba
Can we improve the GHG footprint and profitability of dry beans by reducing nitrogen fertilizer use?	Kristen MacMillan	University of Manitoba – MPSG Agronomist in Residence
Mitigating soybean production risks to stabilize production at a level that fully captures soybean's economic and environmental benefits	Kristen MacMillan	University of Manitoba – MPSG Agronomist in Residence
Developing bio-inoculants for dry beans using a genomics driven approach to promote N-fixation	Ivan Oresnik, George diCenzo	University of Manitoba, Queens University
Improve Soil Quality and Agroecosystem Health		
Building resilient soils with cover crops in Manitoba	Afua Mante	University of Manitoba
Soil and water management R&D site in an undulating landscape	David Whetter, Bruce Shewfelt	AgriEarth Consulting, PBS Water Engineering

Status of Weed Surveillance Efforts in Manitoba

Laura Schmidt, Production Specialist – West, MPSG

WEED SURVEYS HELP us understand changes in weed populations both geographically and over time. These surveys represent a huge collaborative effort between Manitoba Agriculture and Agriculture and Agri-Food Canada (AAFC) research scientists. Below summarizes the recent results of the weed abundance survey led by Julia Leeson, AAFC-Saskatoon and Kim Brown-Livingston, Manitoba Agriculture and the herbicide-resistant weeds survey led by Charles Geddes, AAFC-Lethbridge.

WEED ABUNDANCE SURVEY
The sixth weed abundance survey was conducted in Manitoba in 2022. Among 704 fields surveyed, 64 soybeans, 30 pea and 26 dry bean (specifically pinto bean) fields were surveyed. This was the first time that peas and dry beans have been included.

Fields were randomly selected and sampled. Fields were surveyed between late July to the end of August to capture the extent of troublesome weeds that escaped control measures. At 20 locations within each field, weeds were identified and counted within a 0.25 m² quadrat.

Of all crops surveyed, green foxtail remained the number one most abundant weed in Manitoba. It's consistently held that spot since the 1970s. It was followed by wild buckwheat, volunteer canola, lambsquarters and redroot pigweed. Compared to the previous survey, lambsquarters, redroot pigweed, yellow foxtail and kochia have been increasing over time while wild oats and Canada thistle have decreased.

Volunteer canola was the most abundant weed in soybeans and peas, escaping control in 42 per cent and 68 per cent of



Young kochia plants next to peas at V4 (four true leaf nodes).

Photo credit: Laura Schmidt

fields, respectively, while redroot pigweed was the most common weed in pinto beans, infesting 35 per cent of fields at the end of the season. Table 1 lists the top 10 most abundant weeds (based on frequency, field density and field uniformity) for the soybean, pea and dry bean crops surveyed in 2022. Among soybean and pulse crops, the top five most troublesome weeds were volunteer canola, wild buckwheat, green foxtail, redroot pigweed and lambsquarters. This is consistent with the overall view of

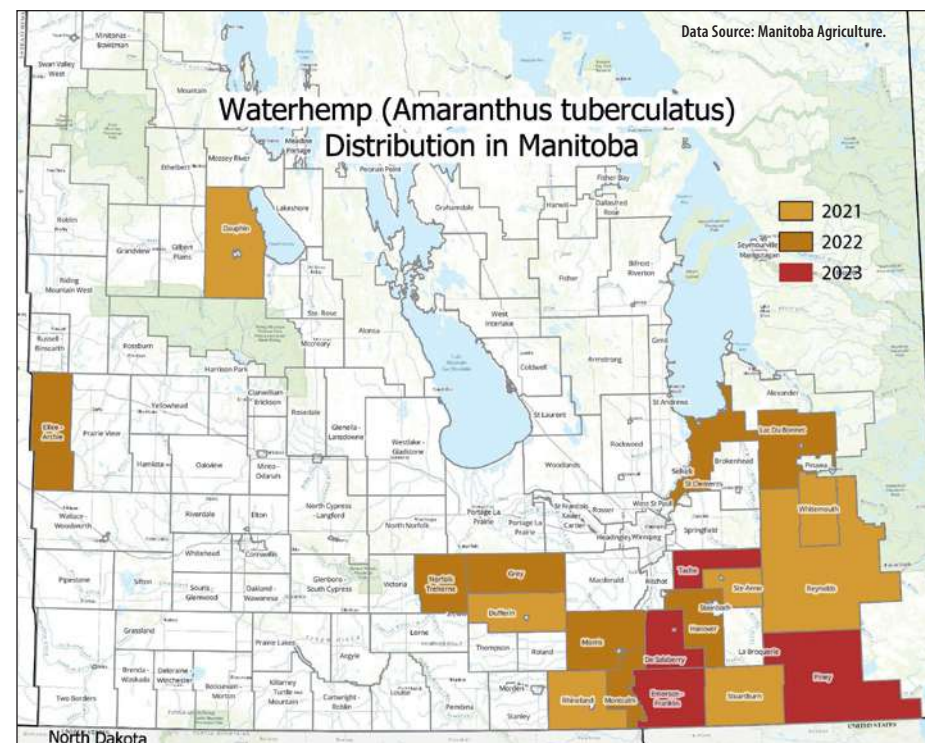
Rank ¹	Soybeans (64 fields)			Peas (30 fields)			Dry Beans (Pintos - 26 fields)		
	Weed	% of Fields	Field Density ² (weeds/m ²)	Weed	% of Fields	Field Density ² (weeds/m ²)	Weed	% of Fields	Field Density ² (weeds/m ²)
#1	Canola	42	3.9	Canola	68	6.6	Redroot pigweed	35	0.9
#2	Wild buckwheat	39	2.1	Green foxtail	52	7.1	White mustard	8	2.8
#3	Green foxtail	27	1.9	Wild buckwheat	39	11.4	Lambsquarters	22	0.4
#4	Round-leaved mallow	15	1.9	Wheat	22	3.0	Green pigweed	12	1.1
#5	Lambsquarters	14	1.0	Black medick	26	1.8	Green foxtail	7	1.0
#6	Ryegrass spp.	1	30.8	Lambsquarters	27	1.7	Canola	8	0.5
#7	Broad-leaved Plantain	8	2.7	Foxtail barley	12	11.8	Round-leaved mallow	4	1.8
#8	Wheat	8	2.2	Round-leaved mallow	18	2.1	Wheat	7	0.6
#9	Redroot pigweed	7	1.4	Canada thistle	25	0.7	Wild buckwheat	7	0.3
#10	Biennial wormwood	9	0.9	Night-flowering catchfly	7	10.7	Wild mustard	8	0.2

¹Ranked based on relative abundance (field frequency and the occurrence/density within the field).

²Field density is a measure of the number of plants of each species counted in a square meter in fields where the weed occurred.



Photo credit: Laura Schmidt



Left, Figure 1. Rural municipalities in Manitoba where waterhemp has been found, coloured by the year it was first identified in the area.

Above, Figure 2. Rural municipalities in Manitoba where waterhemp has been found, coloured by the year it was first identified in the area.

tough-to-manage weeds in all of the crops surveyed in Manitoba.

GROUP 1 AND 2 HERBICIDE-RESISTANT SURVEY

A subset of 155 fields was also surveyed for Group 1 and 2 herbicide-resistant weeds in 2022 (Table 2). All visible weeds with mature seeds were collected prior to harvest for assessment in the greenhouse. Overall, 75 per cent of fields surveyed had herbicide-resistant weeds in 2022. This is a continued increase compared to 68 per cent in 2016 and 48 per cent in 2008. The most common herbicide-resistant weed was wild oats, found in 37 per cent of fields. All wild oats tested were resistant to Group 1 and 82 per cent were also resistant to Group 2.

Kochia was the most common resistant broadleaf weed, occurring in 19 per cent of fields overall. At this point, all kochia populations are assumed to be resistant to Group 2 herbicides. Due to the timing of this survey in late August, there's limited amount of mature kochia seed to be collected. As a result, this survey is unable to test for glyphosate or Group 4 resistance in kochia.

New Group 1 and 2 resistance issues of concern identified in this survey for further

investigation include presumed Group 1-resistant barnyardgrass, quackgrass and stinkgrass as well as presumed Group 2-resistant quackgrass, spiny sowthistle, lambsquarters and Canada fleabane.

Based on this survey, an estimated 7.4 million acres of cropland were infested with an herbicide-resistant weed based on field area, representing an estimated increase in yield losses and weed control costs of roughly 81 million dollars each year for farmers in Manitoba.

CASES OF HERBICIDE RESISTANCE TO OTHER MODES OF ACTION

While the previous survey documents Group 1 and 2 resistance, other cases of herbicide resistance are known to occur in Manitoba (Table 3). We can also look to our neighbours, North Dakota and Saskatchewan, for other cases of herbicide resistance that may be on our future (included in grey).

Glyphosate-resistant kochia has been an ever-increasing problem since it was first reported. As of 2021, 74 per cent of kochia surveyed across the Canadian Prairies was confirmed to be resistant to glyphosate. In Manitoba, with our greater frequency of

growing Roundup Ready soybeans, corn and canola in rotation, we can expect that this number will quickly increase further.

In terms of Group 4-resistant kochia, that term is an over-generalization. Kochia populations in Manitoba have specifically been confirmed to be resistant to dicamba. For the most part, other Group 4 herbicides like fluroxypyr can still have efficacy on these dicamba-resistant kochia populations. However, fluroxypyr-resistant kochia has been reported in the other Western provinces and may develop here. In 2018, only one per cent of kochia populations in Manitoba had dicamba resistance.

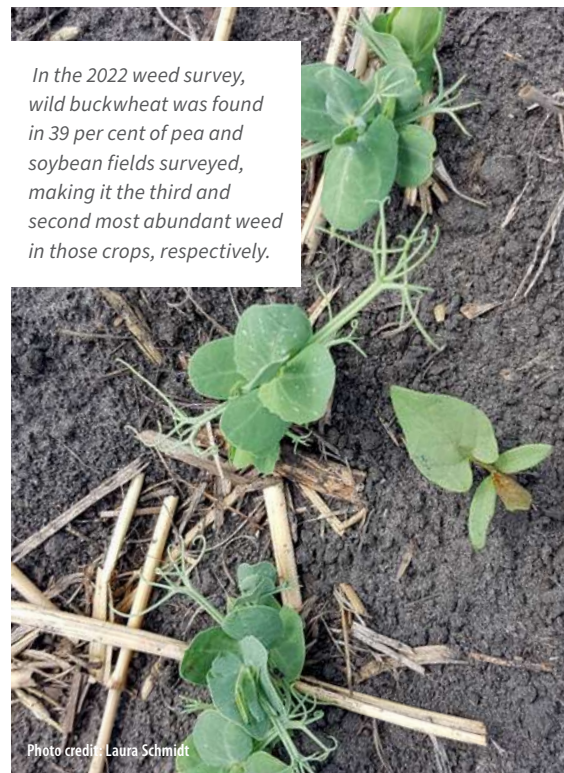
On the horizon for kochia is Group 14 resistance found in Saskatchewan in 2021 and North Dakota in 2022, as well as Group 5 resistance which occurs throughout the United States. Of particular note in our soybean and pulse crops is the potential of losing Group 14 efficacy – we rely fairly heavily on that mode of action due to limited in-crop herbicide options. Charles Geddes, a weed scientist at Agriculture and Agri-food Canada Lethbridge and his lab are investigating populations of Group 14

continued on page 48

Table 2. Weeds resistant to Group 1 and 2 herbicides that are known to occur in Manitoba or surrounding areas (coloured in grey) and their frequency in the 2022 Group 1 and 2 herbicide-resistant weed survey.

Herbicide Group (mode of action)	Resistant Weed	% fields with HR weed detected ² (2022 MB unless otherwise noted)
Group 1 (ACCase inhibitors like Puma, Achieve, etc.)	Wild oat ¹	37%
	Green foxtail ¹	27%
	Yellow foxtail ²	12%
	Barnyardgrass ²	11%
	Stinkgrass ²	3%
	Quackgrass ²	1%
Group 2 (ALS inhibitors like Solo, Refine, Pursuit, etc.)	Wild oats ¹	30%
	Barnyardgrass ²	29%
	Yellow foxtail ²	3%
	Quackgrass ²	1%
	Green foxtail ²	<1%
	Kochia ¹	19%
	Redroot pigweed ¹	13%
	Powell's amaranth ¹	13%
	Pale smartweed ¹	10%
	Spiny sowthistle ²	7%
	Lambsquarters ²	4%
	Wild mustard ¹	3% (SK)
	Stinkweed ¹	2% (SK)
	Shepherd's purse ²	1%
	Cleavers ¹	1%
	Canada fleabane ²	1%
	Hempnettle ¹	1% (SK)
	Chickweed ¹	<1%
	Waterhemp ⁴	-
	Eastern black nightshade ³ (ND)	-
Marshelder ³ (ND)	-	
Ragweed ³ (ND)	-	
Palmer amaranth ³ (ND)	-	
Russian thistle ² (SK)	4% (SK)	

¹Weedscience.org ²Geddes et al. 2024 ³2024 ND Weed Control Guide pg. 96 ⁴Personal communications



Right: Lambsquarters in mid-May.

Table 3. Other known cases of herbicide-resistant weeds in Manitoba and North Dakota (coloured in grey).

Herbicide Group (mode of action)	Resistant Weed
Group 3 (Mitotic inhibitors like Edge, Treflan)	Green foxtail ¹
	Redroot pigweed ⁴
Group 4 (Growth regulators like dicamba, 2,4-D or fluroxypyr, etc.)	Wild mustard ¹
	Kochia ²
Group 5 (PSII inhibitors like Sencor, atrazine, etc.)	Waterhemp ³ (ND)
	Wild mustard ¹
	Kochia ³ (ND)
Group 9 (EPSPS inhibitor - Glyphosate)	Palmer amaranth ³ (ND)
	Kochia ¹
	Waterhemp ⁴
	Canada fleabane ³ (ND)
Group 14 (PPO inhibitors like Heat, Aim, Reflex, Authority, etc.)	Common ragweed ³ (ND)
	Palmer amaranth ³ (ND)
	Wild oats ^{1*}
	Waterhemp ⁴
Group 15 (VLCFA inhibitors like Avadex, Zidua, etc.)	Kochia (ND ³ and SK ⁴)
	Ragweed ³ (ND)
	Wild oats ¹

*Wild oat resistance to Gr 14 herbicides was tested using Authority, which is not a product registered to control wild oat.

¹Weedscience.org,
²Geddes et al. 2024,
³2024 ND Weed Control Guide pg. 96,
⁴Personal communications



Top: Volunteer canola was the most abundant weed in soybeans and peas in 2022, infesting 42 per cent and 68 per cent of fields, respectively.

Middle: Young kochia plants next to soybeans at the VC (unifoliolate) stage.

Bottom: Kochia trails through a field of Roundup Ready soybeans. Of kochia populations collected from Manitoba in 2018, 58 per cent were glyphosate resistant, one per cent were resistant to dicamba and it's assumed all were resistant to Group 2 herbicides.

Tall waterhemp from a soybean field with a close-up of the flower panicle (A) and the smooth stem (B), a key characteristic of identification.



resistant kochia further to assess if there's broad cross-resistance to active ingredients within the Group 14 herbicides.

Waterhemp is currently a Tier 1 noxious weed in Manitoba and plants must be destroyed if discovered. Of those populations that have popped up in Manitoba (Figure 1) and been sent for testing, resistance to Group 2, 9 and 14 has been documented. These seeds are expected to have come into the province in many cases on Red River floodwaters, meaning we may also be seeing North Dakota's waterhemp resistance to Group 4 sometime soon.

If you're not already, it's time to start considering alternative, non-herbicidal methods of weed control on your farm and incorporating an integrated weed management strategy. We're not spraying our way out of these resistance issues. ■

References

Leeson et al. 2023. Prairie Weed Surveys Annual Report.
 Geddes et al. 2023. Manitoba survey of herbicide-resistant weeds in 2022.

Heap, I. 2024. Weedsience.org
 Ikley et al. 2024. North Dakota Weed Control Guide

VIEW FROM THE FIELD

Laura Schmidt, Production Specialist - West, MPSG

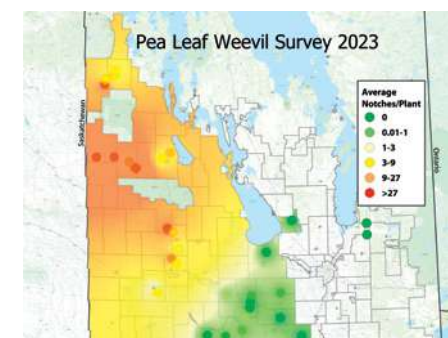
PEA LEAF WEEVIL PROBLEMS

Pea leaf weevil populations (PLW) are increasing in western Manitoba and are moving eastward in the province. Now, they've been found as far east as Elm Creek and Sperling.

We monitor PLW adults, but it's really the eggs they're laying in the field in the spring and the larvae that hatch that cause problems. PLW larvae burrow below ground to feed on pea root nodules, hollowing them out and robbing the plant of its nitrogen-fixing abilities.

While foliar insecticides are registered for their control, they are essentially ineffective since eggs have already been laid in the field once PLW adults have started feeding on their host crops (peas and faba beans). According to research from Saskatchewan, seed treatments remain one of the few tools with potential to manage this pest.

We want to determine at what PLW population will we see a return on investment for insecticide seed treatment. To that end, in 2023, we initiated small-plot research at Roblin and Swan River comparing different registered seed treatments. These trials are planned to continue through 2025. We simultaneously began on-farm seed treatment trials with interested farmers in northwest Manitoba. We hope to expand these on-farm trials as the PLW population continues to establish in Manitoba. If you're interested in hosting a trial on your farm, please let us know. 📧



Top right: Pea leaf weevil adults feed on leaf edges, leaving behind a distinct leaf notching pattern.

Bottom right: Leaf notching is a distinct sign of pea leaf weevils feeding on pea crops and can be used to estimate their populations.

DRY BEAN *Tour*

save the date!

Morning of August 7, 2024

Morden Research and Development Centre

Featuring research on dry bean breeding, variety development, pathology & more

hosted by



Question: What's causing these bleaching symptoms in soybeans and peas?

Answer:

These symptoms are caused by carryover of Group 27 herbicides. In the soybean pictures, this was carryover of Topramezone (*Armezon*) from the previous corn crop, and in the pea picture, these symptoms were caused by carryover of Pyrasulfotole (*Infinity*) from the previous wheat crop. Only portions of the field were affected in both cases.

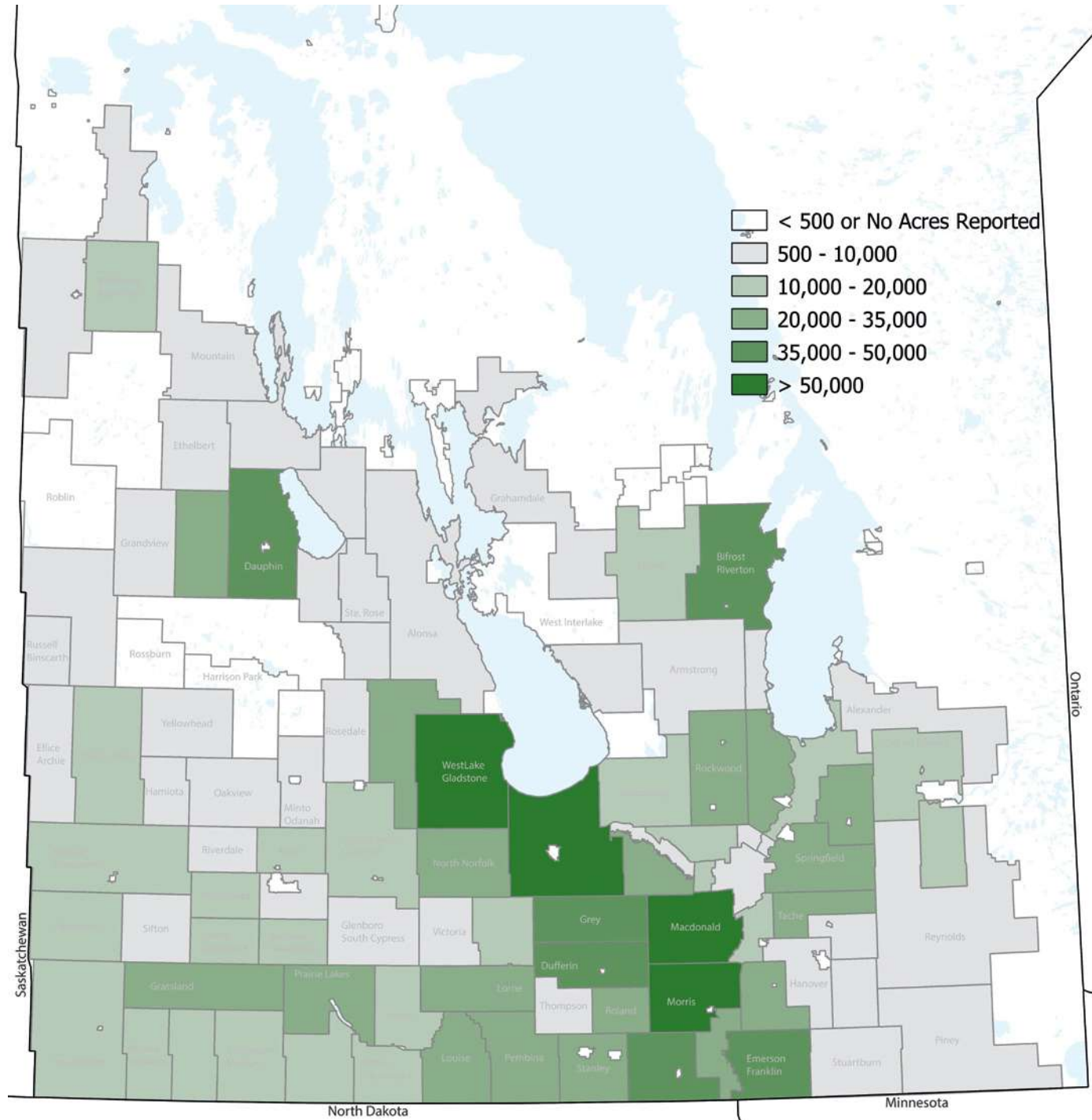
Group 27 herbicides are pigment inhibitors. They stop the production of carotenoids in the plant, which in turn destroys the chlorophyll. This is why they're also referred to as "bleachers" or "bleaching herbicides" since they cause new growth to appear white. While corn rapidly metabolizes *Armezon*, and wheat and barley rapidly

metabolize *Infinity*, soybean and pulse crops don't metabolize these herbicides the same way and injury occurs.

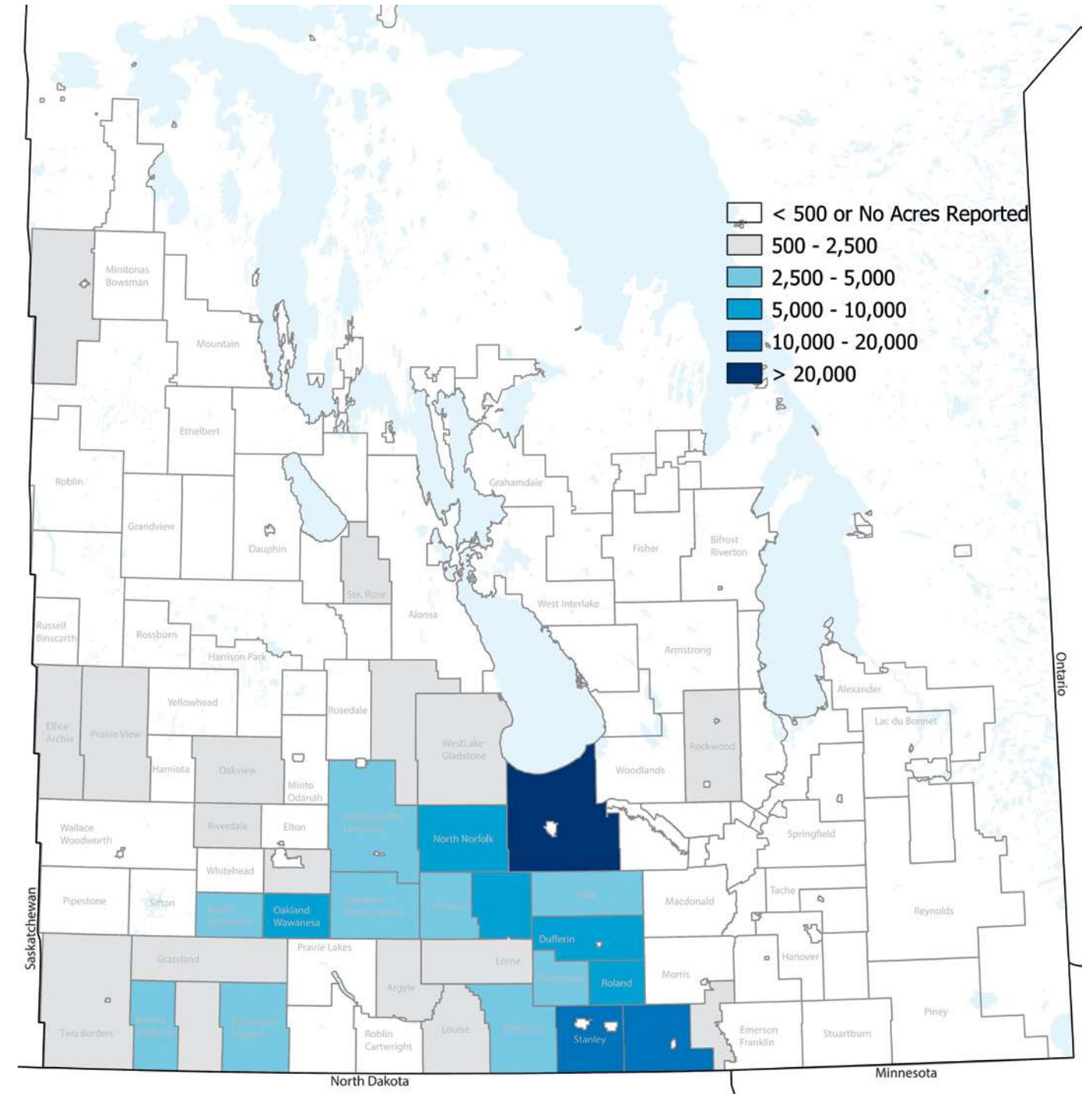
Residual activity of these herbicides is influenced by weather conditions, soil characteristics and soil microbial activity. Warm, moist soils result in faster microbial degradation and leaching may occur following heavy rainfall. These herbicides are also adsorbed more on high clay, organic matter and cation exchange capacity (CEC) soils. In dry conditions, the breakdown rate of these herbicides is much slower and can impact the following crops like they have in these two cases.



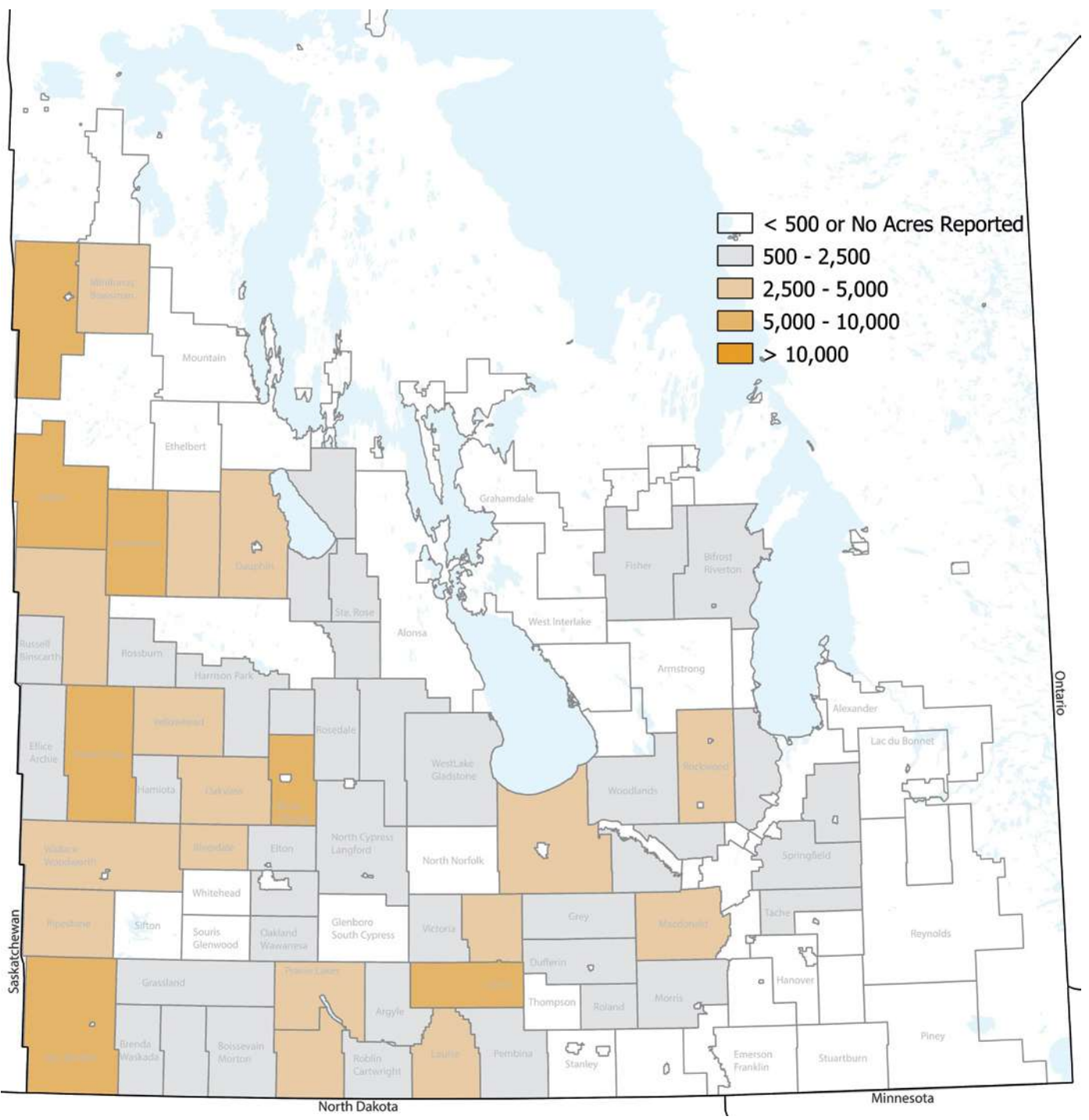
2023 Soybean Acres



2023 Dry Bean Acres



2023 Pea Acres



Data Sources: ESRI Map Service, © 2001 Her Majesty the Queen in Right of Manitoba, MASC. All rights reserved.

Manitoba Pulse and Soybean Buyer List - February 2024

The Canada Grain Act requires some elevators and grain dealers to have a Canadian Grain Commission (CGC) license and post security to cover their liabilities (what they owe) to farmers. Grain dealers and operators of primary, terminal, and process elevators in western Canada are licensed by the CGC. Seed cleaning plants, which do not purchase grain, and feed mills do not have to be licensed.

It is the responsibility of farmers to satisfy themselves that any company they deal with is financially sound. Questions regarding licencing and security should be directed to the CGC at 800-853-6705 or 204-983-2770.

MPSG's pulse crop buyers list contains the names of companies that have registered with MPSG and are actively purchasing pulse crops in Manitoba. The word registered does not imply endorsement. The complete list is available on our website manitobapulse.ca.

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGULATED
Adroit Overseas Enterprises Ltd.	✓	✓	✓	✓	✓	604-930-4855	Surrey, BC	✓
Agassiz Global Trading	✓			✓	✓	204-745-6655	Homewood, MB	
Alliance Pulse Processors Inc. dba AGT Foods Canada	✓	✓	✓	✓	✓	306-525-4490	Regina, SK	✓
All Commodities (AC) Trading Ltd.			✓	✓		204-339-8001	Winnipeg, MB	✓
Avena Foods Ltd. dba Best Cooking Pulses Inc.			✓	✓		306-586-7111	Rowatt, SK	✓
Bayer - Crop Science Monsanto Company					✓	314-694-5764	St. Louis, MO	
Belle Pulses Ltd.		✓		✓		306-423-5202	Bellevue, SK	✓
Besco Grain Ltd.		✓		✓		204-745-3662	Carman, MB	✓
Brett-Young Seeds Ltd.				✓	✓	204-478-2204	Winnipeg, MB	
Broadgrain Commodities Inc.	✓	✓	✓	✓	✓	416-504-0070	Toronto, ON	✓
C.B. Constantini Ltd.	✓	✓	✓	✓		604-669-1212	Vancouver, BC	✓
Cargill Ltd.					✓	204-947-0141	Winnipeg, MB	✓
Columbia Grain Inc. (CGI) (Walhalla Bean Co.)	✓					701-549-3721	Walhalla, ND	✓
Columbia Seed Co. Ltd	✓	✓		✓		306-525-2295	Regina, SK	
Delmar Commodities Ltd.	✓		✓	✓	✓	204-331-3696	Winkler, MB	✓
ETG Commodities	✓	✓	✓	✓	✓	416-900-4148	Mississauga, ON	✓
G3 Canada Limited				✓	✓	204-983-0239	Winnipeg, MB	✓
Gavilon Grain LLC					✓	816-584-2210	Omaha, NE	✓
Global Food and Ingredients Inc.	✓	✓	✓	✓		416-840-8590	Toronto, ON	✓
Grain St Laurent	✓	✓	✓	✓	✓	514-871-2037	Montreal, QC	✓
Hensall District Co-operative Inc.	✓			✓		204-750-0529	Winnipeg, MB	✓
Horizon Agro Inc.					✓	204-746-2026	Morris, MB	✓
Kalshea Commodities Inc.			✓		✓	204-488-0251	Winnipeg, MB	✓
Knight Seeds			✓		✓	204-764-2450	Hamiota, MB	
Lighthouse Commodities, LLC					✓	701-516-8024	Bismarck, ND	✓
Linear Grain Inc.	✓	✓		✓	✓	204-745-6747	Carman, MB	✓
Lyft Commodity Trading Ltd.	✓	✓	✓	✓	✓	604-355-4275	Vancouver, BC	✓
McDougall Acres Ltd.	✓	✓	✓	✓	✓	306-693-3649	Moose Jaw, SK	
Natural Proteins Inc.					✓	204-355-5040	Blumenort, MB	
Nutri-Pea				✓		204-239-5998	Portage la Prairie, MB	
NuVision Commodities Inc.	✓			✓	✓	204-758-3401	St. Jean Baptiste, MB	
Parrish & Heimbecker Ltd.				✓	✓	204-987-4329	Winnipeg, MB	✓
Paterson Grain	✓			✓	✓	204-956-2090	Winnipeg, MB	✓
Prairie Fava Ltd.		✓				204-721-4715	Glenboro, MB	✓
Prairie Premium Products Inc.				✓		204-252-2940	Portage la Prairie, MB	
Providence Grain Group			✓	✓	✓	780-997-0211	Fort Saskatchewan, AB	✓
PS International, LLC dba Seaboard Special Crops		✓	✓	✓		306-565-3934	Regina, SK	✓
Richardson International Ltd.			✓	✓		204-934-5652	Winnipeg, MB	✓
• Richardson Pioneer Limited				✓	✓	204-934-5627	Winnipeg, MB	✓
• Tri Lake Agri Limited				✓	✓	204-934-5652	Winnipeg, MB	✓
Roquette Canada Ltd.				✓		204-428-3722	Portage la Prairie, MB	✓
Rudy Agro Ltd.	✓		✓	✓		306-867-8667	Outlook, SK	✓
Scouler Canada Ltd.	✓	✓	✓	✓		403-349-5077	Calgary, AB	✓
Seed-Ex Inc.				✓	✓	204-737-2000	Letellier, MB	✓
Semences Prograin Inc.					✓	450-469-5744	Saint-Césaire, QC	✓
Sevita International					✓	613-989-3000	Inkerman, ON	
Shafer Commodities Inc.	✓	✓	✓	✓	✓	204-822-6275	Morden, MB	✓
Simpson Seeds Inc.			✓	✓		306-693-2132	Moose Jaw, SK	✓
Southland Pulse Inc.			✓	✓		306-634-8008	Estevan, SK	✓
Sunnydale Foods Inc		✓		✓		306-986-6180	Saskatoon, SK	
Sunrise Foods International Inc.					✓	306-657-4541	Saskatoon, SK	✓
SureSource Commodities, LLC				✓		866-697-5960	Petrolia, ON	✓
The Andersons Inc.			✓	✓		419-891-6464	Maumee, OH	✓
Vandaele Seeds Ltd.		✓		✓		204-665-2384	Medora, MB	✓
Vanderveen Commodity Services Ltd.				✓	✓	204-745-6444	Carman, MB	✓
Viterra Inc.	✓		✓	✓	✓	Contact your local Viterra Sales Rep		✓
Western Harvest Bean ULC	✓					204-515-7331	Winnipeg, MB	
Wilbur Ellis Company of Canada Ltd.	✓	✓	✓	✓		403-328-3311	Lethbridge County, AB	✓
XPT Grain Inc.	✓			✓		306-525-0205	Regina, SK	✓

Hoisin Black Bean Stir Fry

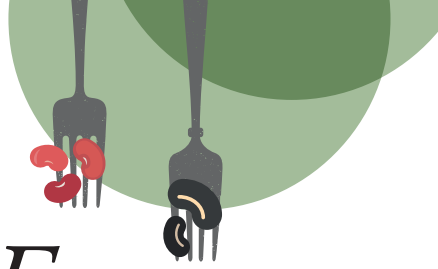


Photo Credit: Kampphotography

Courtesy of MPSG AND GREAT TASTES OF MANITOBA

SERVINGS: 4 | PREP TIME: 10 min | COOK TIME: 10 min | TOTAL TIME: 20 min

Ingredients

1 Tbsp (15 mL) canola oil	2 tsp (10 mL) sesame oil	3–4 cups (750 mL to 1 L) fresh veggies (broccoli, celery, carrots, cauliflower, bell peppers, onion, zucchini), chopped into bite-size pieces
3 cloves garlic, minced	¼ cup (60 mL) soy sauce	1 tsp (5 mL) corn starch
1 Tbsp (15 mL) ginger, minced	¼ cup (60 mL) water or stock	1 tsp (5 mL) water
½ cup (125 mL) hoisin sauce	¼ tsp (1 mL) chili flakes, optional	
2 tsp (10 mL) rice wine vinegar	1 19 oz-can (569 mL) black beans, drained and rinsed	

Method

1. Combine hoisin sauce, vinegar, sesame oil, soy, water and chili flakes in a large bowl or measuring cup. Set aside.
2. Heat canola oil in a large non-stick skillet over medium-high heat. Add veggies to pan and sauté for about five to eight minutes. The onion and zucchini (if using) should be turning soft but not coloured, and the broccoli should turn bright green. Add 1–2 Tbsp (15–30 mL) of water and cover the pan to steam for about two minutes.
3. Move veggies to one side of the pan and add 1 tsp (5 mL) canola oil to the open part of the pan. Add ginger and garlic and sauté for one minute until fragrant. Stir to combine with the veggies.
4. Add drained beans and sauce and stir to coat and combine. Mix water and cornstarch together to make a

paste and add to the sauce. Bring the sauce to a boil and thicken. Serve over rice.

View the recipe online:



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White Bean Chocolate Chip Cookies



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Courtesy of MSPG AND GREAT TASTES OF MANITOBA

SERVINGS: 72 cookies | PREP TIME: 10 min | COOK TIME: 10-12 min | TOTAL TIME: 22 min

Ingredients

1 cup (250 mL) butter or margarine, at room temperature
1 cup (250 mL) brown sugar
½ cup (125 mL) white sugar

2 eggs
1 19 oz-can (560 mL) white beans, drained and rinsed
1 ½ tsp (7mL) vanilla
1 ½ cup (375 mL) flour
½ cup (125 mL) oats

1 tsp (5 mL) baking soda
1 tsp (5 mL) cinnamon
½ tsp (2 mL) salt
1 ½ cup (375 mL) chocolate chips

Method

1. Preheat the oven to 350F (165C). Prepare baking sheets by greasing them or lining them with parchment paper.
2. In a blender, combine the white beans and eggs. Puree until smooth and creamy.
3. Combine flour, oats, baking soda, cinnamon and salt in a medium bowl. Stir to combine.
4. In a large mixing bowl, cream butter and sugars until well combined, about five minutes. Add bean mixture and vanilla to butter-sugar mixture and mix thoroughly.
5. Add flour mixture to the large mixing bowl in two to three parts. Mix until just barely combined. Fold in chocolate chips.
6. Drop cookie dough by rounded teaspoons onto cookie sheets.
7. Bake in a preheated oven for 10 to 12 minutes, or until the edges are golden brown.

View the recipe online:



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