

pulsebeat

Issue 82 • Fall/Winter 2017 • manitobapulse.ca



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2017 Membership Survey***
p. 16

**Commodity Groups
Amalgamation Update**
p. 17

Brazil
*Insider Access to a
Global Soybean Giant*
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**From the Canadian Prairies
to the Cities of China**
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The Bean Report
2017 Growing Season Review
p. 27



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Cover photo by Cassandra Tkachuk, MSPG

Manitoba Pulse & Soybean Growers – 2017 Board of Directors and Staff

Elected Farmer Directors

- Chair – Jason Voth – *Altona*
- Vice Chair – John Preun – *St. Andrews*
- Bryce MacMillan – *Marquette*
- Ben Martens – *Boissevain*
- Calvin Penner – *Elm Creek*
- Frank Prince – *Deloraine*
- Melvin Rattai – *Beausejour*
- Ernie Sirski – *Dauphin*
- Albert Turski – *La Salle*
- Rick Vaags – *Dugald*

Advisory Directors

- Anfu Hou, Agriculture and Agri-Food Canada – Cereal Research Centre
- Dennis Lange, Manitoba Agriculture
- Yvonne Lawley, Department of Plant Science, University of Manitoba

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- Extension Coordinator** – Laura Schmidt
Email – laura@manitobapulse.ca
- Program Administrator** – Wendy Voogt
Email – wendy@manitobapulse.ca

Don't miss this year's
pulse session!

Current and Emerging
Nematode and Disease Issues
of Soybean and Pulses in
Canada

with

Albert Tenuta

Field Crop Extension Plant Pathologist,
Ontario Ministry of Agriculture,
Food and Rural Affairs

Dr. Mario Tenuta

Assistant Professor, Department of Soil
Science, University of Manitoba

Wednesday, February 14, 2018
10:10 – 10:50 a.m.



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David Frum
Senior Editor – The Atlantic



David Mead
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Facilitator*



Banquet Speaker

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Greg Johnson, Tornado Hunter
February 14, 2018



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Message from Board Chair

Jason Voth, Chair

THE 2017 GROWING season is behind us – at least, I hope it is for you. It's time to take stock.

It's continually amazing how no two growing seasons are identical. It's easy to trick yourself into thinking that the kinds of yields, prices or weather we experience in a given year is the new normal. This is not the case. As many years as I have been farming, that's how many unique conditions I have had to farm under. I suspect you're no different.

The soybeans came off the field, averaging mid-thirties. They were dry. Those late August rains that gave them a boost last year never came this year. Some farmers out there had yields nearing crop failure levels, and others had slightly above average.

There is still tremendous optimism surrounding soybean production in Manitoba. While 2018 may see acres stabilize or slightly decline, in my opinion the hiccup of an average year here and there is not going to change the growth trajectory of soybeans in Manitoba.

We've been hearing reports of above average dry bean yields and are encouraged by the news. As Manitoba Pulse & Soybean Growers (MPSG) looks to increase pulse acres in the province, it's great to have years where farmers' expectations are not only met, but exceeded.

There is a lot of new and renewed interest in dry bean production in Manitoba, and MPSG's research and production team has been working hard in that regard.

This year, MPSG is introducing a dry bean staging guide resource. Being able to properly stage your crop is a critical part of making sure it'll be as profitable as possible. MPSG's agronomy engagement intern heard from growers across the province that this is some-

thing farmers would find valuable. Look for your guide with this issue of *Pulse Beat*.

Also, we've been receiving a lot of questions about aphids. Farmers are curious about aphid count thresholds for spraying. Aphids were an issue this year. Perhaps because it was a little drier than last growing season. MPSG research and production staff is working together with the province of Manitoba on updating aphid-related information and recommendations. Watch for this.

Our research docket is full of interesting projects and we look forward to hearing from you about what we should be focusing on next.

Collaboration talks are moving along nicely. There is a report that will be made public in December.

I have been a part of these talks and am encouraged by the progress. No two meetings have been the same. We're plodding ahead. But we can't do so without your feedback. Rob Hannam, the consultant facilitating this working group has created an email address specific to this initiative. Please send

your thoughts, comments or concerns to rob@mbcrops.ca.

I urge you to email Rob, but I also urge you to attend one of the four regional farmer consultation meetings scheduled to take place in early 2018. Also, take a look at the CropConnect program and plan to attend the AGM of the commodity group you're a member of.

Discussion continues surrounding a potential soybean crush plant in Manitoba. It's worth repeating – only because it frequently comes up – that MPSG's involvement in this process is to provide expertise and information to those parties interested in putting up such a plant. We are not going to tell anyone where it should be built. We believe and hope that whichever company investing the capital for such a project will choose the best possible location in Manitoba. That's not our place to say.

MPSG continues to rely on organizations such as Soy Canada, Pulse Canada, Grain Growers of Canada (GGC) and KAP to represent its best interests on policy issues. And, many of those groups have been busy putting responses together on transportation, carbon pricing, the Trudeau government's proposed tax changes, market access and continually updating maximum residue limit (MRL) recommendations.

MPSG is a busy place.

I hope all of you have a great Christmas and I look forward to seeing you at Getting it Right and CropConnect!

– Jason ■



Soybean Scout

What is the name of each weed?



A



B

Answers can be found on page 47

Do you have a production question related to pulse or soybean crops? Maybe you're looking for an opinion or advice? Write to us! Email cassandra@manitobapulse.ca



Notice of Annual General Meeting 2018

NOTICE IS HEREBY GIVEN that a meeting of the members of Manitoba Pulse & Soybean Growers (MPSG) will be held at the Victoria Inn Hotel and Convention Centre, 1808 Wellington Avenue, Winnipeg, MB during the CropConnect Conference on **February 14, 2018 from 8:00 a.m. to 9:00 a.m.**

The purpose of the meeting is to:

1. approve the minutes of the 2017 members meeting
2. receive the financial statements of MPSG for the current fiscal year
3. appoint the auditor of MPSG
4. receive the board and executive director's report
5. elect directors to the MPSG Board of Directors

Nominations to serve on the Board of Directors can be made by submitting the candidate's name to the Nominating Committee or the MPSG office prior to the commencement of the meeting.

CALL FOR DIRECTOR NOMINATIONS

Each year director positions come up for election.

If you are interested in becoming a director on the MPSG board, now is your opportunity. This year, the director terms of Ben Martens, Albert Turski and Rick Vaags are expiring.

If you are a farmer of pulse and/or soybean crops and are in good standing with MPSG (you have not requested a check-off refund but have sold a pulse/soybean crop in the past two years), and would like more information on becoming a director, contact:

NOMINATION COMMITTEE

- Cal Penner – cgpenner@inetlink.ca
- Melvin Rattai – cjmb@mymts.net
- Bryce MacMillan – bryce_mac3@hotmail.com

Elections will be held at the MPSG Annual General Meeting February 14, 2018.

2017 MPSG COMMITTEES AND REPRESENTATIVES

MPSG COMMITTEES – The first named is chair

Executive – J. Voth, J. Preun, E. Sirski, F. Labelle

Governance/HR – F. Prince, E. Sirski, F. Labelle

Finance – J. Preun, M. Rattai, F. Labelle, S. Robinson

Resolutions – C. Penner, M. Rattai, B. MacMillan

Nominations – C. Penner, M. Rattai, B. MacMillan

Communications/Member Relations/Market

Development – E. Sirski, R. Vaags, C. Penner, B. MacMillan, F. Labelle, T. Dyck, L. Stevenson, S. Robinson, L. Schmidt

Research – F. Prince, B. Martens, A. Turski, J. Preun, C. Penner, F. Labelle, L. Stevenson, G. Bartley, C. Tkachuk, W. Voogt, L. Schmidt, B. Wiebe, industry advisors

MPSG REPRESENTATIVES

Canadian Grain Commission Pulse Sub-Committee – F. Labelle

Grain Growers of Canada – B. Martens

Keystone Agricultural Producers – R. Vaags, C. Penner, F. Labelle

• **General Council** – F. Labelle

• **Pulse/Oilseed Sub-Committee** – F. Labelle

• **Commodity Group** – R. Vaags, C. Penner

• **Safety Group** – F. Labelle

MCVET – L. Stevenson, D. Lange

PGDC/PRCPSC – B. Martens, L. Stevenson, D. Lange

Pulse Canada – R. Vaags, B. Martens (alt), F. Prince (alt)

• **Sustainability** – F. Prince

Soy Canada – E. Sirski

Western Canadian Pulse Growers Association

• **WGRF** – C. Loessin (SPG)

• **CGC Western Grain Standards Committee** – E. Sirski (exp. 2018) *This is a four-year term that rotates between APG, SPG and MPSG.*



Message from Executive Director

François Labelle, Executive Director

IT'S WINTER, a time to reflect, review and plan for the exciting years ahead.

The weather this year was a mixed bag. It's a good thing we had lots of soil moisture in reserve, as the hot dry weather, which affected most of the province this summer, could have resulted in crop failures. There were a few weather challenges in early fall, but the crop came off in good shape, and for the most part yields were amazing. What can we take away from this year? We need to remain mindful of how erratic our weather can be.

Looking deeper into the weather, this year was the closest we came to a drought in a long time. Many farmers do not remember the droughts from the '80s when hot dry winds and greatly reduced yields had some devastating effects on farms. Add to the equation the wet years in the recent past and we need to ask the question – is this wild weather ride the new normal?

Farms, businesses and associations need to place a high priority on risk planning and management, in case it is.

But, let's not only focus on doom and gloom. With the good yields of 2017 and many positive things happening in agriculture, we have much to be thankful for. Plans are in place or being

finalized for 2018 and there are lots of good reasons to include pulses and soybeans in your rotation.

ROQUETTE

It was great to experience the Roquette ground-breaking ceremony on September 28, 2017. It was a historic day for pulse processing in Manitoba and western Canada. With a local processor buying peas, it will get farmers interested in growing the crop. I have met farmers who used to grow peas. They like growing peas, but stopped when some of the local markets disappeared. They have said peas will come back into the rotations if it pencils out. And they themselves have pledged to grow them again, if the market conditions are favourable.

Manitoba Pulse & Soybean Growers (MPSG) looks forward to working with Roquette to offer agronomic and industry expertise and increase pea acres in Manitoba.

Roquette is one facility that has been announced in western Canada that will process peas, but there are more that have been started and that are being developed. If all these come into existence, we could be processing up to 800,000 MT of peas in the country,

which is a dramatic shift from an industry that has been built on exports and hopefully a more stable market and price.

CANADIAN AGRICULTURAL PARTNERSHIP

The Next Policy Framework, now formally named the Canadian Agricultural Partnership, has been signed by the province and the federal government. We are expecting the programs to start rolling out soon, as government works to ensure ongoing commitments flow smoothly from one program to the next.

Efforts continue on three science clusters – Pulse Science Cluster; Integrated Agronomy Science Cluster; and the Canadian Field Crops Science Cluster. MPSG's director of research and production, Laryssa Stevenson, has been the lead on this. It has taken a tremendous amount of time, reviewing proposals, providing input, attending meetings and then having to negotiate how much MPSG will fund, making certain our projects are included and financed. It's ongoing and has been for some time, but we hope the process finishes early in 2018.

NAFTA

I'm not sure if anyone ever believed the rhetoric that we would be doing only a minor tweak to the agreement. We have enjoyed free movement of soybeans and pulses into the U.S. for years, and some of us will remember that NAFTA opened the door to duty-free movement of edible beans to Mexico, which was very important at the time.

continued on page 6

Wild Oats Grain Market Advisory

This weekly newsletter covers crops grown in Manitoba – *canola, wheat, oats, flax, soybeans, peas, canary and barley.*

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Pulse Canada has done some tremendous work to align our priorities with our U.S. counterparts in order to increase pulse consumption and utilization in the food industry across North America. An open border with free-flowing goods is important for industry success. Now, we all need to ask and wonder will that remain or will we run across duties, non-tariff trade barriers or any other speed bumps on the road?

INDIA

India is an important market for the pulse industry. Pulse Canada has worked on this file for years and continues to do so. There is still a trade barrier, but the government of India has temporarily relaxed its strict stance to allow the import of pulses with reduced requirements for fumigation. Every three to six months, these trade negotiations start over again, though.

MRLS

There are other market-access issues, but by far the most important one has

to do with the maximum residue limits (MRLs). There are three main issues that jump out: increased amount of testing worldwide that is able to identify very low levels; ever-changing acceptable levels in countries around the world; and, finally, the proper use of farm products.

I have mentioned MRLs in almost every edition of *Pulse Beat*. So, not to sound repetitious, but this is extremely important and could be devastating to the pulse and soybean industry. Lots of attention has been dedicated to this issue and growers need to do their part, watching advisories, following labels and staying informed.

TRANSPORTATION

This file has moved. In the last edition of *Pulse Beat*, I said the transportation file was stalled, but it is now moving ahead. On May 16, 2017 government tabled the Transportation Modernization Act (Bill C-49). Minister Marc Garneau said this act would make the rail network more reliable, more competitive and better

able to handle increased traffic. This is extremely important when we consider the increasing production of our crops in western Canada. The ag industry has been involved in many consultations and reviews of the proposed act – and input has resulted in some changes. It is moving through the legislation process, albeit slowly.

We need to keep pressure on this issue, so government does not drop it. This needs to get passed so we can see some improvements in accountability and service.

Once the act is passed, the work still won't be done. Some of the next steps are already underway, such as ensuring the regulations for the act serve our industry well.

With all the trade discussions, let's hope the attention is not refocused elsewhere and this does not get forgotten. We are always concerned about this.

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BROWN-BAGGING: a risk you shouldn't take

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AMALGAMATION DISCUSSION

The process keeps moving forward and there will be a report available to the public shortly, but I do need to say a few things on this in advance of its release: there is lots of work being done by directors and staff on this potential amalgamation. Everyone involved believes in it and it's moving ahead. But we need your input. Please let your association(s) know what you think about this. We want to know your thoughts, positive or negative. Call, email or visit me, in-person, to share your thoughts on this. Also, consider attending the MPSG AGM at CropConnect to voice your opinion.

SOYBEAN PROCESSING

The conversation continues about when, where, what size, do we have enough beans and whether or not a soybean processing plant will be built in the province. MPSG wants to see a plant built in Manitoba, there is no doubt about that, and we have made a clear statement on our position regarding

location (though, that will not be our call to make): we believe it should be built in the best location possible. According to most investors with expertise in this area, Manitoba and the surrounding regions do not yet meet the production thresholds to justify such a facility.

We will continue working to attract a plant to Manitoba, but let's hope that we are the best place in the world to build a plant when the time comes. Because for companies with the capital to invest in a soybean processing plant, setting up a new one is a global consideration.

STAFF, R&P, ADMIN

Jake Ayre, an agriculture diploma graduate from the University of Manitoba, worked as MPSG's agronomy engagement intern this past summer. Jake had a lot of enthusiasm and ideas. He asked many questions and was eager to learn more about the industry. He spent the summer travelling through rural Manitoba meeting with farmers and agri-retailers, pointing them

towards MPSG resources and letting them know what we do. We were happy to have him and wish him the best as he has returned to university to pursue his degree in Agribusiness.

MPSG also added new staff member Brent Wiebe as our on-farm technician to work alongside Greg Bartley in our ever-expanding On-Farm Network program.

Our On-Farm research program was larger this summer, resulting in more projects and lots of great information. Check out our website for reports. What we really like about the program is it empowers you, the farmer, to do research on your farm and answer questions you have. Sometimes the process can seem like it leads to more questions than answers, but that is the nature of research. And what better place to ask questions and conduct relevant research than on your own farm.

There were many other research projects going on this summer, as well. The board places a high priority on research and we invest the largest portion of check-off dollars in that area. There is lots of activity on managing this research, from applying for matching funds to leveraging dollars to getting status updates and final reports. It's a lot to manage.

Once we have the reports – the next step is getting the information out to you, so you can use it to hopefully improve your operations and see a return. The production and extension staff have done a good job getting that info out, be it in *Pulse Beat – The Science Edition*, *The Bean Report* and events.

Speaking of *The Bean Report*. From all the comments on our survey, meetings and conversation, *The Bean Report* is one of the most important communication tools you, our farmers, pay attention to and look for. We get lots of comments that people read every issue top to bottom – make certain you are receiving it. Visit our website to sign-up.

On behalf of myself and the MPSG team, we hope you have a great, relaxing winter. And we hope to see you at Ag Days, Getting it Right and CropConnect.

– François ■

2017 MPSG Scholarship Award Recipients



Sheena Meggison

I grew up on a grain and beef farm near Goodlands, located in the southwest corner of Manitoba. I am the fifth generation to grow up on my family farm, along with my four younger

siblings. Music, community, 4-H and agriculture have always been interests of mine. I am a fourth-year Agribusiness student at the University of Manitoba, having lots of fun, learning a lot and making new friends. This Manitoba Pulse & Soybean Growers scholarship has been a huge help to me, allowing me to take a full course load and focus on completing my degree in four years. I'm excited to see where my future will lead. I look forward to exploring the many opportunities available in the agribusiness industry and finding a career that will make a difference in the world. Thank you so much!



Brian Archibald

I grew up on a grain and cattle farm in Killarney, Manitoba. We grow a variety of cereal and oilseed crops, mainly wheat, oats, canola and soybeans. In addition to this, we also run a

cow-calf operation. Growing up on a farm, I developed a passion for agriculture (and sports). Following my junior hockey career, I decided to pursue this path by getting an Agriculture Diploma, and am now working on a degree in Agribusiness. I would like to thank Manitoba Pulse & Soybean Growers for awarding me this scholarship. It has helped me to pursue my goal of further educating myself about the world's most important industry – agriculture. Following graduation, I plan to work in the industry before taking over our family's farm. Thanks!

Congratulations Sheena and Brian.

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Fall 2017 Ottawa – Tax Harvest



TWO YEARS INTO their mandate and the Liberal government is not showing any signs of slowing down as they move forward with countless consultations and new legislation. While many of these items have been either expected (Pest Management Regulatory Agency review results) or requested (Transportation Modernization Act), others such as the rapid reopening of the North American Free Trade Agreement (NAFTA) caught us by surprise.

Of note were two significant tax consultations that dominated farmer kitchen tables this past spring and summer – both of which were neither expected nor uncomplicated.

The 2017 Federal Budget launched a review of the use of cash purchase ticket

deferrals for listed grains, something farmers have relied upon for decades and suddenly had to demonstrate the value of. Several similar tax deferral mechanisms utilized by other industries were cancelled outright, and cash purchase tickets deferral was the only one to receive a consultation. Working with our Safety Nets Committee and drawing from MNP LLP’s accounting expertise, Grain Growers of Canada (GGC) prepared a submission, which laid out the value of the deferral mechanism as a business planning tool and a way of smoothing out income over good and bad years. Prior to the finalization of the submission, we had the opportunity to meet with high-level officials at the Department of Finance and Agriculture and Agri-Food Canada.

They were able to provide insight into the details they required to conduct a robust and meaningful review. As of now, no final decision has been announced.

Far more public attention has been paid to the larger-scale review of the use of private corporations. Announced quietly on July 18, 2017, this represents the most significant review of the *Tax Code* in decades.

Three elements of the proposed changes are of particular concern: changes to income sprinkling; capital gains, affecting family farm transfers; and passive investments. These changes would affect all incorporated small businesses and, if left as proposed, would have significant impacts on the future of family farming in Canada.

The groundswell of grassroots advocacy on the part of farmers in opposition to these changes was remarkable. Taking to Twitter, media, Facebook and all other avenues, farmers

continued on page 11

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The Year of Free Trade

Ron Davidson, Executive Director, Soy Canada



2017 HAS PROVEN to be an important year for the expansion and preservation of free trade and international free trade agreements. As an export-oriented commodity, the Canadian soybean industry and several other crop sectors have been heavily engaged in the various discussions taking place as an effort to make sure the Canadian soybean industry has the essential tools and resources available to get our products to market.

Preserving the existing free trade environment with the United States has been a top priority for the Canadian soybean sector as negotiators edge toward a renewed North American Free Trade Agreement (NAFTA). Soy Canada has called on the federal government to protect the current zero-tariff trade environment on the export of soybeans and soy products, as well as continue efforts surrounding the harmonization of biotechnology approvals and maximum residue levels. The United States has consistently remained the second largest export market for

Canadian soybeans, representing approximately 11 per cent of total soybean exports in 2016.

Securing market access to the soybean sector's largest export market for commodity soybeans is also top priority for Soy Canada, as exploratory talks towards a potential Canada-China Free Trade Agreement (FTA) continue to unfold. The Government of Canada has collected the views and positions of Canadian stakeholders to shape its decision on how to proceed with Chinese negotiators. Soy Canada stressed the need for a prospective Canada-China FTA to promote expeditious and predictable considerations of biotechnology applications; eliminating the three per cent import tariff on soybeans, nine per cent tariff on soy oil and five per cent tariff on soybean meal; and managing issues involving low-level presence of GM materials in shipments of food-grade soybeans. Last year, Canada sold roughly \$1 billion of soybeans and soy products to China.

Leaders of the 11 remaining Trans-Pacific Partnership (TPP) countries have agreed to forge ahead with the free trade agreement without the United States. In a recent public consultation, Soy Canada urged Global Affairs Canada to maintain many of the previously-negotiated market access provisions in the former TPP document, including the establishment of a biotechnology working group to better regulate new plant breeding technologies. Also, the Canada-European Comprehensive and Economic Free Trade Agreement – or CETA – came into force earlier this year. Canadian soybean exports to the European Union are now tariff-free, allowing value-chain members to expand on the roughly \$650 million in trade done with EU countries in 2016.

Not all is positive, however. Soy Canada will also, from time to time, express lack of support for FTAs with countries of low priority to the Canadian soybean industry. This is done in an effort to ensure scarce negotiation resources are assigned to high priority FTAs and not watered down because of negotiating lower priority FTAs that have little or no positive impact on Canada's soy industry. An example of this is the Mercosur region of South

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from across the country expressed their opposition to being labelled tax cheats or having their farms called tax havens.

Joining with other national and regional groups representing small businesses, GGC was a founding member of the Coalition for Small Business Tax Fairness – www.smallbiztaxfairness.ca. This group worked together to send letters to Minister Bill Morneau, place ads in the *Hill Times* and publicly demonstrate the collective concern of small- and medium-sized business owners through the hashtag #unfairtaxchanges.

GGC's outreach consisted of top-level meetings with the Prime Minister's Office, outreach to Liberal Members of Parliament and the commissioning,

in partnership with our members like Manitoba Pulse & Soybean Growers, of a model farm study by MNP LLP. We were fortunate that some members commissioned other valuable reports and we were able to leverage additional insight to inform our comments. Despite calls from many sides, including a House of Commons motion by the Conservative Party, an extension to consultations was not granted and we submitted our comments on October 2, 2017.

On October 16, the government announced that it had heard the concerns and was moving forward with changes to the draft legislation and proposals. These included eliminating proposed limitations to the use of

the lifetime capital gains exemption, reworking the income sprinkling draft legislation and re-examining the scope of the passive income proposal. While we await final legislation over the next few months to have tax professionals analyze the full impact of the changes, the government's response indicates that they listened and that farmer voices truly do matter.

Throughout the fall, we will meet with MPs in Ottawa to go through our submission, the MNP study and our recommendations. These one-on-one meetings will provide an opportunity to give clarity on the tax changes, lay out the top issues for Canada's grain sector and hear directly from MPs on what they can do in Ottawa for farmers. ■



PMRA Re-evaluations Overview

Pulse industry provides submission to PMRA's proposal for lambda-cyhalothrin

PULSE CANADA AND the provincial pulse grower associations have submitted a joint response on behalf of the pulse industry to the Pest Management Regulatory Agency (PMRA)'s proposal to terminate the use of lambda-cyhalothrin in food and feed commodities.

In June 2017, the PMRA published a proposed re-evaluation decision to cancel use of lambda-cyhalothrin, the active ingredient in the insecticides Matador, Silencer and Warrior. These products are used for the post-emergent control of various insects in pulses and soybean crops. The PMRA's decision for lambda-cyhalothrin recommends cancelling the registrations for products containing lambda-cyhalothrin by commercial applicators and growers for food and feed commodities. This would affect all formulations containing lambda-cyhalothrin used as post-emergent applications on dry bean, chickpea, faba bean, lentil, soybean and dry pea crops in Canada.

The PMRA began the process of re-evaluating lambda-cyhalothrin in 2011. Under the Pest Control Products Act of 2006, the PMRA is required to re-evaluate registered pesticides on a 15-year cycle, based on either the chemical's original registration or the

most recent major decision affecting registration. Upon completion of a re-evaluation, the PMRA releases a proposed re-evaluation decision for public consultation. Industry stakeholders are given 90 days from the date of the publication to respond to the decision and provide new data to demonstrate that a crop protection product is safe for use in Canada.

The PMRA's decision for lambda-cyhalothrin cites human health risks that do not meet current safety standards, and potential risks of concern from dietary and certain residential exposures to lambda-cyhalothrin. The PMRA also proposes that Canadian Maximum Residue Limits (MRLs) for lambda-cyhalothrin be revoked. The PMRA's environmental assessment identified potential risks to pollinators, beneficial arthropods, mammals, amphibians, aquatic invertebrates and freshwater and marine fish. The registrant and the pulse industry anticipated that the PMRA would propose label guidelines to mitigate potential risks to the environment rather than a complete cancellation of use.

As the only Group 3 insecticide available to Canadian pulse producers, lambda-cyhalothrin plays an important

role in pest management practices in Canada. The pulse industry submission outlines the implications of revoking lambda-cyhalothrin for producers – including the reduced ability to control specific insect pests and the lack of viable alternatives for rotation of chemicals used for insect resistance management. The submission also requests that the PMRA accept and review new toxicological data from the Pyrethroid Human Health Risk Assessment (CAPHRA) pertaining to lambda-cyhalothrin that is currently being finalized. The PMRA's target date for publication of a final decision on lambda-cyhalothrin is March 2019.

The PMRA's proposed re-evaluation decision for lambda-cyhalothrin comes less than a year after the PMRA published a proposed re-evaluation decision for the insecticide imidacloprid in November 2016. That review recommended phasing out the use of the chemical over the next three to five years. Pulse Canada and its members provided a joint submission on the re-evaluation of imidacloprid and its impact on the industry in March 2017. The PMRA confirmed receipt of the submission but has not provided additional feedback on this submission at time of press. A final decision from the PMRA on imidacloprid is expected by late 2018.

It is in the best interest of the pulse industry to use crop protection products that are safe and effective. Equally important is that regulators ensure science-based decisions regarding pesticide regulation and application rely on the most recent data, and that regulators work together in a coordinated approach to ensure the ongoing safety of human health and the environment. ■

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America – predominantly a competitor region rather than a market region.

In addition to Soy Canada efforts, the Canadian Agri-Food Trade Alliance (CAFTA) has been an influential organization working with federal and international regulators towards advancing the trade interests of the Canadian oilseed industry and

other agriculture sectors. Soy Canada welcomes comments or questions readers may have related to market access and free trade for Canadian soybeans.

Soy Canada, led by its new full-time executive director Ron Davidson (rdavidson@soycanada.ca), will be working to promote the development of free trade agreements with priority

and developing export markets. We invite readers to get in touch with any questions they may have related to soybean trade, market access, innovation or market development. Contact us at www.soycanada.ca or info@soycanada.ca. ■

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Eat North Dinner

Pulses were on the menu. And, oh boy, what a menu it was. On October 5, a handful of acclaimed chefs from the Canadian prairies pooled their collective talents and served Manitobans a five-course meal made from locally sourced ingredients, including pulses. The meal and the whole experience was their creative take on traditional, prairie cuisine. It was delicious.



This event, which was held at Winnipeg's Kitchen Sync, was the last stop of the Prairie Grid Dinner Series put on by a collective called Eat North. This roving group of chefs, all of whom were cherry-picked from

their respective restaurants, put the same dinner on in Calgary, Edmonton and Saskatoon.

Lentils and dry beans were a prevalent part of the menu, every element of which was interesting and tasty. Prior to each course, the chefs involved in making the dish spoke briefly on their inspiration for the recipe, its connection to the prairies and where the ingredients they used came from. There were about 60 people in attendance, some of whom were also chefs, but the event was open to the public, as well.

Manitoba Pulse & Soybean Growers, as well as other commodity groups and organizations, supported the initiative, believing that promoting the use of pulses among chefs and consumers will help strengthen domestic markets.

The tablecloths were made locally. The cutting boards on each of our tables were in the shape of the prairie provinces and also made locally. The knives the chefs used were made by Manitoba's Marc Liss and many of the dishes were made by Mud and Stone's Jenn McCurry.

MPSG Interactive Display

Manitoba Pulse & Soybean Growers (MPSG) recently unveiled an agriculture-themed installation at the Bruce D. Campbell Farm and Food Discovery Centre in Glenlea, Manitoba.

The display, which was designed in partnership with Vantage Studios and Imprint Media Services, features illustrations and information about the soybean nitrogen cycle, how pulses are an important part of a balanced diet, how sustainability is a key focus of the industry and much more.

"Education and awareness are paramount to a thriving agriculture sector and were what motivated us to invest in this display," says François Labelle, executive director of MPSG. "The Farm and Food Discovery Centre has done an excellent job at making agriculture accessible and interesting to children, families and everyone else curious about where their food comes from and the great things Manitoba farmers are doing. We hope you enjoy the exhibit."

The display features a large removable kidney bean, which further comes apart to show the plant's inner workings. And those wishing to test their knowledge of pulses and soybeans are encouraged to play the Check Your Pulses game on the iPad in front of the wall.

"We are excited to welcome the new pulse and soybean exhibit, just in time for hundreds of visitors coming to Open Farm Day," says Myrna Grahm, manager, Bruce D. Campbell Farm and Food Discovery Centre. "At the Discovery Centre, our priority is for hands-on and engaging learning and the MPSG display is a wonderful example of that. I know it will be popular with the many school field trips that we host in the fall."

Stop in and check it out!



Amazing Agriculture Adventure

Agricultural education remains a priority for Manitoba Pulse & Soybean Growers (MPSG).

As part of this ongoing commitment, in June and September of this year, MPSG participated in the Amazing Agriculture Adventure, a hands-on and interactive series of events that incorporate ag into Grade 4 and 5 science curriculum.



More than 1,400 children took part in the event, which was put on by Agriculture in the Classroom, a non-profit organization delivering ag-related programming to teachers and students.

Students learned about agriculture and the environment, as they moved through 18 interactive stations, one of which was focused on pulses.

Laura Schmidt, MPSG's extension coordinator, helped the students answer questions such as, what are pulses, what do pulses do for your body and how do you eat pulses in your daily lives?

Students also learned that pulses are high in protein, fibre and other nutrients. And they played a matching game to learn which pulses are used in the everyday foods they eat.



MPSG Website Gets Facelift

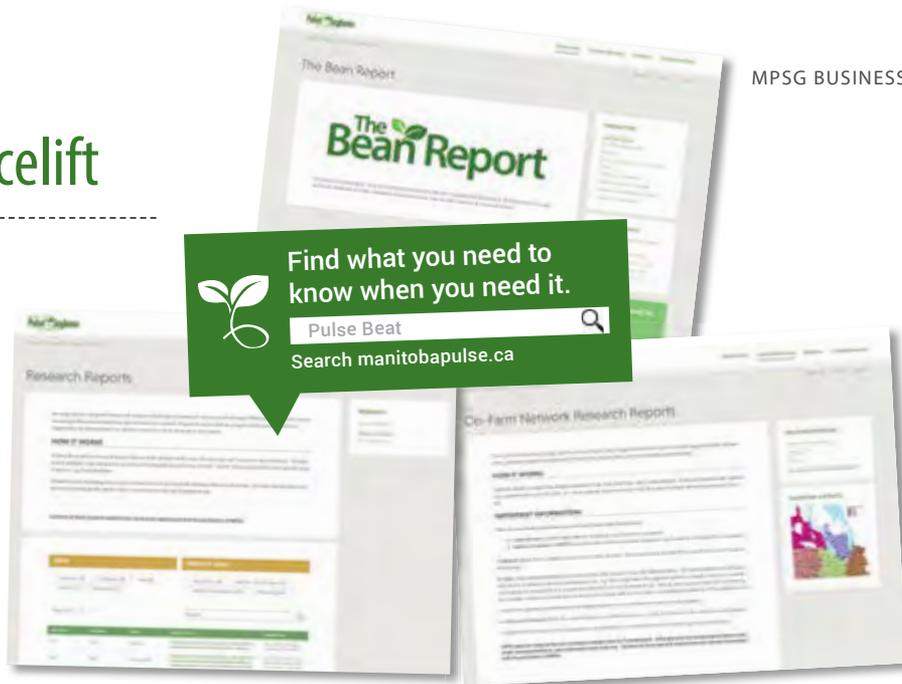
MANITOBAPULSE.CA GOT A makeover in 2017. In fact, it got much more than that. I think you're going to like it. We sure do.

Manitoba Pulse & Soybean Growers (MPSG) is a busy place. The research department is actively filing reports. The On-Farm Network is rapidly growing. And a new production resource is never far away.

It's important to MPSG that farmers have access to the valuable resources the association produces.

Information needs to be presented in a readable format. Information needs to be searchable. Farmers need to be able to find what they need to make their farms more profitable, more sustainable, more productive.

MPSG's research, production tools and On-Farm Network information are now more accessible to farmers.



"It's now a leading-edge website," says Director of Communications Toban Dyck. "The research and On-Farm Network sections are user-friendly and fully searchable using filters, categories and keywords. Our production tools are more accessible than ever."

The new website will also make it easier for individual *Pulse Beat* articles to be showcased in an attractive, shareable format.

So, when you have second, take a trip through manitobapulse.ca, sign up for *The Bean Report* and add your email to our news and events list. ■

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The Results Are In – 2017 Membership

SURVEY

IN SPRING OF this year, Manitoba Pulse & Soybean Growers (MPSG) conducted a member satisfaction survey to determine if the association’s mission and vision are in-keeping with the wants and needs of you, the farmers we represent. The last time MPSG surveyed its membership was in 2013.

Insightrix, a market research and survey company out of Saskatchewan, worked together with MPSG staff in developing the questions and distributing the survey, which farmers were able to fill out online or in print.

Of the possible 3,730 respondents, 372 MPSG members completed the survey by mail and 80 filled it out online, making the response rate 12 per cent, which is considered to be a good and significant representation.

MPSG would like to thank everyone who took the time to fill it out and help shape the future of the association.

RESULTS

Soybeans are the primary crop grown by the majority of farmers, with about nine in 10 dedicating between one and 50 per cent of their total farming acres to the cultivation of soybeans.

Most commonly, according to the survey, farmers find pulse and soybean

crops to be important for crop rotation. The most important reasons cited for planting soybeans and pulse crops were market demand and good or fair prices for crops.

The number one production-related issue for most farmers is excess water. Other issues they reported relate to delayed planting, diseases and suitable varieties.

Overall, most farmers hold a positive impression of MPSG. However, most believe that improving communication, transparency, and relevant research would help improve overall membership value.

A majority of farmers believe that MPSG should prioritize the provision of crop production-related knowledge, followed by investment in research and market development. Other suggestions include agronomy and crop production.

Most farmers are accessing MPSG research results from *Pulse Beat*, followed by *The Bean Report* and the MPSG website.

A majority of farmers believe it is important for MPSG to be a member of Pulse Canada and Soy Canada in order to benefit from industry partnerships and strategic linkages. Farmers also believe that collaborating with other associations would be valuable.

According to the survey, the most important market development item to most MPSG members is increasing value-added processing in Manitoba.

Based on communications and impressions, the majority of farmers believe that they receive high value from MPSG and it is of high importance that an organization like MPSG exists.

Roughly one-half of farmers feel that MPSG’s communication with members is just enough. No farmers cite that it is too often and only about one in ten say it is too little.

Both of MPSG’s extension events, SMART Day and Getting it Right, are perceived as valuable to a lot of farmers. And increasing market demand and delivering production information/support are the most important core areas that farmers believe MPSG should focus on.

There are areas in which MPSG can improve, and we will work on those. There are also areas in which we can back away from. We will do that, too.

MPSG is encouraged by these results and will use them to work at delivering even more value to you, the farmers. Once again, MPSG would like to thank those who took the time to fill out the survey. It’s an honour to represent you. We have heard from you, and we will listen. ■





Getting it Right
CROP PRODUCTION MEETING

Don't miss it!

Tuesday, January 30, 2018
9:00 AM – 3:30 PM
Registration – 8:30 AM
Networking Session – 3:30 PM

Victoria Inn Hotel, Brandon, MB
3550 Victoria Avenue

Look for your invitation included with this mailing.





This farmer-exclusive event is free to attend. To register, please visit www.manitobapulse.ca, visit our booth at Ag Days or contact Laura at 204.751.0538. Registration closes January 26, 2018

Commodity Groups Amalgamation Update



THE FIVE COMMODITY groups that signed an MOU in May to explore an amalgamation are pleased to announce the upcoming launch of their official proposal and their comprehensive consultation plan.

The proposal will include information on board/governance structure of the new or combined organization, a list of farmer member benefits, as well as a potential operations structure.

The proposal will also include information surrounding check-off, as well as an explanation of the whole-farm approach, which will improve agricultural research, improve innovation and increase member value for Manitoba growers producing these crops.

“Farmers growing wheat and sunflowers and soybeans, for example, will be able to not only receive agronomic support for each crop, but they will also have access to comprehensive resources on what growing those crops (and many others) means for the long-term sustainability and profitability of their farms,” said MPSG’s Executive Director François Labelle. “This whole-farm approach to representing growers makes so much sense. There are successful examples of this approach in other provinces, as well as all over the world. And that’s what we are working towards here in Manitoba.”

Manitoba Pulse & Soybean Growers (MPSG) adopted this whole-farm approach when it made the decision to

start representing soybeans and peas, a move that greatly improved research capacity for those crops. In some ways, this next step is just a natural extension of what MPSG has already been doing successfully for the past several years.

Representatives from Manitoba Wheat and Barley Growers, Manitoba Flax Growers, the National Sunflower Association of Canada, Manitoba Corn Growers and Manitoba Pulse & Soybean Growers have been working with Synthesis Agri-Food Network consultant Rob Hannam on developing a commodity group amalgamation proposal to present to the province’s farmers.

The proposal will be released to the public in December of 2017. And member feedback meetings have been planned across the province for the month of January, providing fair opportunity for farmers from all over Manitoba to have their voices heard.

On January 10, Mr. Hannam and a working group delegation will present at

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St. Jean Farm Days. And on January 16, the amalgamation proposal will be presented at Ag Days in Brandon. Check the website of the event that's closest to you for presentation details.

Regional consultation meetings are also being planned for Stonewall and Dauphin. The working group will send out details related to those dates before the end of the year.

Since the MOU was signed in the spring, the working group, consisting of staff representatives from each of the five groups involved, has met on a regular basis to develop questions for the steering committee, made up of board and staff representatives, as well as develop a consultation plan that ensures this process and decision remains driven by Manitoba's farmers.

In September, the steering committee met with the Minister of Agriculture Ralph Eichler and members of his office to bring the province up to speed on the MOU and the nature of the upcoming proposal.

The committee was met with optimism and enthusiasm over the project. Working together to reduce overlap, increase efficiencies and increase research and agronomy capacity is consistent with the province's commitment to reducing red tape and improving agricultural research and innovation.

The committee met again in October to discuss the legal pathways involved in amalgamating organizations. These talks have helped anticipate and answer questions that the group and/

or committee is likely to receive. And each of these talks/meetings will be represented in the soon-to-be-released proposal.

We strongly encourage farmers to attend the regional consultation meeting or presentation scheduled for your area. We want to hear your thoughts, take your questions and chat face-to-face. We also encourage farmers to attend your organization's Annual General Meeting (AGM) at CropConnect this winter to discuss the proposal.

Feedback from members on this process is always welcome. Please email your questions or comments or thoughts directly to Rob Hannam at rob@mbcrops.ca. ■

In collaboration with three other commodity groups, MPSG hosted two tours this summer.



Plot Stop Tour



Dr. Don Flaten and M.Sc. student Megan Bourns discussing potassium fertility for soybeans in Manitoba.

On June 30, MPSG, in collaboration with MCGA and MWBGA, hosted *Plot Stop*, a tour of four On-Farm Network research trials showing how on-farm research is conducted and the current research questions under investigation.

Two soybean trials were included as stops on the tour. The first focusing on soybean potassium fertilization strategies, comparing an on-farm trial with current small plot research at the same site. Dr. Don Flaten and M.Sc. student Megan Bourns discussed the first year of their MPSG-funded research project to investigate soybean response to different potassium fertilization strategies.

The second investigated different inoculation strategies for soybean, specifically contrasting seed-applied inoculant (single inoculation) vs. no inoculant applied. This inoculant trial was studied at sites in Manitoba with a minimum history of three previous soybean crops.

The other stops along the tour included corn on-farm trials evaluating in-season nitrogen application strategies, as well as a spring wheat on-farm trial assessing the optimum fungicide application timing for fusarium head blight management.

Twilight Tour

On August 9, MPSG, in collaboration with MCGA, MWBGA and MFGA, hosted an evening tour at the University of Manitoba research farm in Carman. Over 60 participants visited seven different research plots to tour ongoing corn, wheat, flax, soybean and dry bean research. The tour kicked off with a delicious barbecue from Manitoba Pork and a corn roast donated by John Heard.



- 1 John Heard, Manitoba Agriculture, shows despite a dry year, how soils are able to store much of the water that crops need.
- 2 Rachael Evans, Flax Council of Canada, demonstrating the symptoms of Pasma disease in flax.
- 3 Dr. Yvonne Lawley, University of Manitoba, talks corn row spacing and planting density in front of her MCGA-funded research trials. She also presented her MPSG-funded soybean crop rotation study, which has ongoing collaborations with other researchers to investigate soybean diseases and rhizobia populations with different rotational strategies.
- 4 Laura Schmidt, Manitoba Pulse & Soybean Growers, discusses the results of her MPSG-funded project on optimal dry bean row spacing and planting density combinations.
- 5 Kristen MacMillan, University of Manitoba, showcases her MPSG-funded research on soybean seeding dates and seeding depths.
- 6 Amy Mangin, University of Manitoba, and her MWBGA-funded research project focusing on nitrogen and lodging management in spring wheat.

Brazil

Insider access to a global soybean giant

Toban Dyck, Director of Communications, MSPG



THE BRAZILIAN STATE of Mato Grosso processes about six million tonnes of soybeans per year. It grows about 35 million hectares of soy per year. Inside the city limits of Rondonópolis, there are four main soybean crush facilities. In the city's greater area that total rises to six. And in the state there are more than 10.

Brazil itself is the second largest soybean producer in the world, behind the U.S. But forecasters expect that to change in the near future.

In Mato Grosso, the largest soybean producing state in Brazil, they are able

to triple their farmable acres without any deforestation.

Brazil is a contender. They do things on an unimaginable scale. The story of farming in Brazil should not temper the optimism we feel over rising acres in Manitoba. No. Instead, the information contained in the following paragraphs serve as perspective. Brazil is different than Manitoba. And, while their implement dealers look like ours, it's rare to see a farm in Manitoba that has more than 350,000 metric tonnes of on-farm storage.

At the end of May of this year, someone by the name of Carlos Vieira tried to contact me via Facebook. He wasn't a friend, so I had to approve the message before I could read it. He had looked at my LinkedIn profile a week prior, so, curious about who this guy was all about, I accepted.

His message was brief. He had something to send me and needed my email address.

Minutes later, I received an all-expenses paid invite to attend the International Pork and Poultry Show in Sao Paulo, Brazil at the end of August. The invite came on behalf of Brazil's Association of Animal Protein, a group that deals a lot with soybeans. After an email thread that I'm sure has at least 50 messages, I came to the conclusion that the invite was legitimate.

Brazil's meat industry has been making headlines this year over allegations of scandal, bribery, selling rotten meat to the public and much more.

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INNOVATORS IN THE FIELD

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They invited 50 journalists from more than 40 countries to attend the conference.

I went, both as a writer and as representative of the pulse and soybean industry. After the conference, I spent a few days touring farms in the Mato Grosso region with retired Brazilian farmer Christopher Ward, who, even though he was in his late 70s, had more energy than most people half his age.

Ward moved to Brazil from New Zealand 30 years ago. His English is impeccable, as is his Portuguese.

BRAZIL'S SOYBEAN ASSOCIATION

Aprosoja Mato Grosso is Brazil's version of Manitoba Pulse & Soybean Growers (MPSG). It was formed 12 years ago and uses check-off dollars to represent growers in the area. They, too, are independent and unbiased. And they, too, work towards delivering value back to the farmers.



I sat in their boardroom and felt at home. Despite the language barrier, it felt as though I was talking to MPSG's board of directors.

At the start, they had more questions than I did. At just over an hour into the meeting, I began firing away. What I learned there, I won't soon forget.

The state produces about 31 million metric tonnes of soybeans per year, and it moves that product to market with trucks and barges.

There were railroads in Brazil before agriculture took off in the country about 30 years ago. Then, farmers lobbied for a better highway network, forcing the European companies running the passenger rail lines to leave. Those rail-lines are now mostly beyond repair. And now, farmers want the country to strengthen its rail network. About 15 years ago, rail in Brazil was

privatized. Farmers are optimistic this move will bring positive change.

Preserved lands and the lack of political focus and funds are major transportation roadblocks. But, farmers in Brazil are used to doing things on their own. Some of the larger farms built their own highways using the private-public partnership model. And I got laughed at when I mentioned crop insurance.

Ward estimated it cost about \$100 USD per acre to insure soybeans. And, he added, the chance of crop failure due to weather in Brazil is one in a million. Farmers insure themselves.

Transportation costs for many farmers are about \$85 USD per tonne – depending on where you're situated in the country – and that's reflected in a commodity price that starts at Chicago values, minus social tax, minus environmental levies, minus transportation costs.

"You're much closer to China than we are," they said.

Though it has a strong domestic market for oil and meal, Brazil would like to export more soybeans, but it is largely paralyzed by environmental laws that prevent the building of additional ports on preserved lands.

Brazil has some of the most stringent environmental laws in the world. Every farmer in Brazil is mandated to set aside 30 per cent of his or her land. They are not allowed to touch this land. Nor are they allowed to profit from it. It's commonly referred to as set-aside. If the farm is near a waterway, this percentage increases and the rules get stricter.

For farm inside the Amazon biome, which is an incredibly large area, the set-aside increases to 60 per cent.

"The world thinks we're waiting at the edge of the Amazon with chainsaws," said Ward. "Yeah, some people break the rules, but our environmental laws are stricter than anywhere else. And, besides, soybeans wouldn't grow in the Amazon. It's too wet."

The Aprosoja association works on files such as these environmental restrictions. They lobby the government and represent growers on policy files like labour, transportation, tax and

much more. Some of the group's efforts have been focused on the increasing number of farmers growing non-GM soybeans. In Mato Grosso, the association predicts that roughly 11 per cent of the soy produced will be non-GM.

Growers are receiving a premium for it in the EU market, and the input costs are comparable to conventional varieties.

Aprosoja has setup a research and support division to accommodate these growers.

The group's office is in a large heavily windowed building not unintentionally situated near where state government conducts its affairs in the Mato Grosso capital city of Cuiba.

Over the last five years, Aprosoja has been doing what Manitoba Pulse & Soybean Growers are just starting to do: working together with other associations. They built their building together with cotton and other groups. They lobby government as one unit and do a lot of other things together.

This has been a tremendously effective move for agriculture in Mato Grosso.

FARMING IN BRAZIL

Most of the soybean land operates on a soy/corn/soy rotation with a mandatory three-month sanitation period between plantings. This is a legislated way to limit the spread and development of disease, pests and weeds. It gives the land a rest. Some farmers grow cotton or sugarcane, but in Mato Grosso, soybeans are king.

The sanitation period ends mid-September. Soys are planted then and harvested in mid-February. Then, typically corn will be planted anytime between then and mid-March, which is the second-crop seeding deadline.

Corn is treated like a cover crop in Brazil. Some of it is even left to



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deteriorate on the field. The country lacks the infrastructure to properly deal with it as a cash crop. Corn yields are too high for their current system. It wouldn't be cost effective.

Brazil is looking into new crop types, but they need to high-value/low-volume. Soybeans check those boxes, and they can handle the between 1,300 and 2,300 mm of moisture some parts of Mato Grossa receive every year.

When I asked the group what kinds of seed treatments farmers use and what kinds of pests farmers deal with, they responded with unanimous laughter: "I don't think you have enough time for us to answer that one."

Soybean input costs eat up more than 80 per cent of their market value. Soy farmers in the state with spray their fields up to nine times per single growing season. Three times with Roundup. Three times with fungicide. Three times with insecticide. And their seed comes treated with a systemic insecticide and a systemic fungicide. And, while glyphosate-resistant weed varieties are growing and growing in Brazil, many farmers still consider the chemical an effective tool.

Asian Soybean Rust has been a devastating issue for soy in Brazil, and it's because of it and ubiquity of soybean cyst nematode that the sanitation window is so heavily policed. They deal with white fly and stink bugs, as well. But I got the sense that they deal with a lot more than that.



"Nobody plants untreated seed. It's the tropics. Every living thing can exist here and every living thing wants to eat what you're growing," said Ward. "The difference between you and us is input costs. And that's why we have



economies of scale. Our fight is the same."

It takes about three months for a full, unharvested corn crop to completely decompose.

The soil in Mato Grosso is sandy. According to Ward, it's largely infertile and the tropical sun doesn't help. Neither does erosion.

"We have to build our soil. It's an inert entity. It contains no phosphorous; no potash; and very little calcium," said Ward, who said on average farmers are putting on about 1,500 kilograms of fertilizer every year. "Everything we want out of it, we have to put in."

Much of Brazil's fertilizer is imported. They receive potash from Canada and Israel, for instance.

Most soy farmers in the area will direct-drill their soybeans into corn or millet chaff, though on land dealing with soybean cyst nematode, they have found the cover crop of crotalaria to be quite effective.

They don't till, preserving what little nutrients root systems leave in the soil and limiting the amount of erosion (also, diesel is an expensive input cost).

Brazil has begun turning away from planting long-season soybean, as the market doesn't pay for increased oil or protein. The move to a shorter season has also allowed more time for corn production to strengthen.

Farmers aim to plant 110- to 120-day soybeans with a maturity rating of about seven to eight and a half. Using soys that meet these criteria, many of them will shoot for a population of about 200,000 per acre at about an inch and a half deep.

Brazil experiences a fluctuation of only about 1.5 hours of sunlight, and that's with daylight savings time. At the height, they'll get 13 hours of sun. As such, northern hemisphere soybean varieties will not grow properly in Brazil due to physiological confusion induced by the lack of variation in temperature and sunlight.

BOM FUTURO FARM

Bom Futuro, the name of a farm in Mato Grosso, is the largest soybean farm in the world. It's also the largest cotton-producing farm in the world. It relies heavily on Aprosoja for policy support.

Bom Futuro seeds one million acres per year.

I met with two of their chief staff, one of whom had been in Winnipeg earlier this year to tour MacDon's plant.

The farm employs 25 agronomists, 250 technical staff and has 750 employees in total. The farmyard I visited had multiple houses for employees and their families to live, as well as dorms for single workers. This yard had a church, a movie theatre and daycare. There are also a few larger houses for when the bosses show up.

All of the food served to their employees is grown and/or raised on the farm, which uses the money it receives from recycling to fund on-site community programs, such as soccer and more.



Each of the farm's yards has a paved landing strip, and Bom Futuro itself owns six spray planes and one Cherokee 6. The farm runs hundreds of combines. It runs hundreds of everything. Its storage sheds are open-sided sheds and each one is large enough to hold dozens of combines.

It has about 800,000 metric tonnes of total on-farm storage across various sites and has the capacity to dry 400 tonnes of grain by three percent per hour.

All the farms I visited had their own grain dryers and all of them used wood from eucalyptus trees for fuel. They

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grow tens of metres per year and can be cut three times.

Bom Futuro has and manages its own 1,400-hectare eucalyptus forest, a common practice among large-scale farmers in Mato Grosso.



Each farm has its own industrial and heavily staffed weigh station. “It’s not uncommon to see upwards of 100 trucks waiting outside the gate on a Monday morning,” said Ward.

CAROLINA FARMS

Carolina Farms seeds about 250,000 acres. It runs about 90 combines, 30 of which it replaces each year. On the site we visited, there was 360,000 metric tonnes of on-farm storage.

The average field size in the area is about 2,500 acres. When the bulk of the land was broken 30 years ago, farmers cut their own roads through the area. They made the fields as large as they

wanted. And, because the landscape is fairly open, they made the fields big.

It’s the scale of things that sticks with you. The farms in Mato Grosso are large and they do things on a large scale. Some of them have even formed buying co-ops with a few other farms to get better deals on chemicals, equipment, and other things that chip away at their margins. Some of the larger cotton farmers have done similar things, pooling their resources with others to build spinning mills or cotton gins.

By the end, I was exhausted and I was worried about retaining all the information I had consumed. We covered a lot of ground. Thankfully, I

had recorded what I needed to and took notes the rest of the time.

Farming in Brazil is a fascinating enterprise. The scale is unfamiliar, but everything else felt like home. The people were friendly. Brazilian barbecue is some of the best I’ve ever tasted. And the farmers there are no different than the farmers here: they’re out there making the best decisions they can with the tools they have.

Brazil’s will be an interesting market to watch over the years. I see big things for them in corn and soy. Agriculture Minister and soybean farmer Blairo Maggi said as much. I met him on day one. What a trip. ■



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Shanghai, China

From the Canadian Prairies to the Cities of China

Fiona Jochum, Junior Team Canada member

THIS SPRING, I applied for and was selected to join Global Vision on a trade mission to China. Our team is called Junior Team Canada and we are made up of 30 students and young professionals from across Canada, each representing different sectors. I had the honour of representing Canada's agricultural industry on this mission.

Currently, the vast majority of our agriculture commodities and agri-food products are exported to the United States. We have an excellent trading relationship with our North American partners. But, let's be honest, we have largely placed our eggs in one basket. It is time to diversify our portfolio. This is achieved through trade missions, such as the Global Vision mission to China I just returned from.

While in China I had the opportunity to meet with both Canadian and Chinese government representatives, and Chinese businesses working in a variety of industries. I really enjoyed speaking about growing up on my family farm and answering questions about Canada's agricultural industry. My counterparts got a kick out of the *old school* photo album I brought to share pictures of life on the farm.

Throughout my networking, I learned that Canada's agricultural industry has a lot of work to do to increase our brand awareness in China. For example, Canada is becoming a large producer of commodity soybeans. When I spoke with an importer, he

was more familiar with importing soybeans from Argentina and did not even think Canada could be an option. With proper marketing we can change this view for many agricultural products. Although meat consumption is on the rise in China, consumption of alternative protein continues to be popular because meat is expensive and it is believed that protein from a variety of sources is important for a healthy diet. This creates an opportunity for other Canadian pulses in China.

However, to access the market we need to understand Chinese culture. For example, pork and beans would be a flop. Savoury beans are largely unheard of in China and do not suit the consumer's palette. Pulses are enjoyed as a sweet dish for dessert or sometimes in rice porridge for breakfast – very different from what we are accustomed to in Canada. Having the ability to understand consumer preferences is essential to becoming a trusted food supplier for China.

China is extremely technologically advanced in its developed cities, especially in the financial sector.

Most people only need to have their phone and the WeChat app to get through the day. Everything (I'm not exaggerating) is done on WeChat, from communicating with colleagues, to online banking and shopping. In Chengdu, we went on a food tour and stopped at the local Wet Market. A Wet Market could be loosely compared to a farmers' market in Canada. All fresh produce including fruits, vegetables, meats, grains and spices are purchased here year round. It could seem somewhat primitive compared to the grocery stores we are used to shopping in at home. But, what is interesting is that each vendor has a QR code and a smartphone to facilitate transactions. Hard cash is rarely exchanged. I think in a way this environment illustrates China as a whole. Some cities are advanced far beyond Canadian cities and the population enjoys a high standard of living, but there is a vast landscape to the west that is still in a primitive state and does not enjoy the same quality of life. This duality is important to keep in mind when developing a relationship with China.

China is an exciting market and I think it is imperative for the Canadian agricultural industry to be a

part of it. I am so grateful

I had the opportunity to participate in the Global Vision trade mission to take one step in building our relationship across the Pacific. It is important for us to continue embarking on trade missions, engaging consumers and learning to understand

China's culture. We need to demonstrate that Canada is committed to building a relationship with China and show that they can trust us to provide food for their country. ■



Wet Market, Chengdu, China

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Clancey's Stats

Pulse market analysis

Brian Clancey, Senior Market Analyst and Publisher, STAT Communications

DROUGHT-LIKE CONDITIONS IN key growing areas has had an impact on the quantity of pulses produced in North America this year. Current official forecasts are looking for output to drop 21% to 9.73 million metric tons while seeded areas were down just 8% at 13.44 million acres.

However, some market participants believe production is much higher because pulses are generally more drought hardy than oilseeds or cereal grains.

This is reflected in yield estimates by provincial agricultural departments, which are mostly higher than Statistics Canada's initial reports. In the United States, anecdotal reports suggest the

USDA was also too pessimistic about the impact of the drought on yields.

Bigger than initially expected crops are a potential problem for field pea and lentil markets because of reduced demand from the Indian subcontinent and increased competition from other origins.

Opening season movement of red lentils and yellow peas was relatively strong as exporters from Canada tried to load vessels for India before the end of September. On September 30, Canada's exemption from penalties for failing to fumigate cargoes with methyl bromide ended. Movement from other countries, however, has been strong because of fear India's government will bring back import duties for peas, lentils and chickpeas or impose some kind of quota on the quantities that can be imported. Other than the actions taken earlier with pulses that are not shipped from North America, there is no concrete indication either event will happen.

It is important to note that cargoes can be shipped to India and fumigated with methyl bromide on arrival. However, since September 30, if the cargo is not fumigated in Canada, importers are fined for having non-compliant phytosanitary certificates. Interestingly, the same rule will not apply to other countries until after December 31. That gives them a short-term competitive advantage.

The bigger issue is not the fumigation exemption or the risk of import duties or quotas. It is the fact that India is not short of pulses relative to the dietary needs of the population. Land in all categories of pulses was higher than expected this summer, which suggests the decline in the coming rabi season area will be smaller than initially expected. The implication is that demand from India could remain smaller than normal well into 2018.

Short-term import needs are not helped by the government's decision to sell some of the 1.8 million metric ton buffer stock it accumulated during the previous fiscal year. It will sell 550,000 MT. Of the total, 350,000 MT will be sold to state governments in Karnataka, Gujarat, Tamil Nadu,

Andhra Pradesh and Telangana. The balance will go to central welfare schemes such as the midday meal program. Another 200,000 MT has already been sold via auction to the private sector, with the government planning to auction another 200,000 MT.

Though prices being paid to Canadian growers remain relatively strong, the gross income potential of lentils and peas relative to grains and oilseeds are currently below their recent three-year averages. The implication is that if grower bids trend lower through March, there is a 65% chance land in field peas will decline next spring and an 80% chance fewer lentils will be planted. On the other hand, chickpea values are expected to remain firm through at least February or March, which could result in a further increase in seeded area in Canada and the United States. By contrast, the outlook for dry edible beans is mixed.

Available supplies of pinto beans are expected to increase relative to prospective demand. By contrast, black and white bean stocks should be more closely aligned to North American domestic needs and potential exports.

White bean demand is being helped by persistent issues with white alubia bean production in Argentina. While this year's harvest is significantly better than last year from a quality perspective, the country is again short of medium-calibre product. To the possible extent, some packagers and canners will substitute Great Northern beans for medium-calibre white alubias. In turn, that should push some demand into navy beans. Depending on the extent that happens, prices for both classes should be supported. ■

Farmer Profile

Melvin Rattai

Toban Dyck, Director of Communications, MSPG



Mel and Bernice Rattai

IT TOOK ME a minute to realize that the kitten only had three legs. It was making quick and efficient work out of a Calvin Klein reusable shopping bag. Then it darted across the floor faster than the human brain can process information.

“We rescued it from a barn on the farm,” said Bernice. “Its leg was stuck. The vet had to amputate. And we decided to keep the kitten.”

It was a heartwarming and earnest way to start the interview.

Melvin and Bernice Rattai live in Beausejour, Manitoba. They, along with their son and daughter and her husband, farm 2,500 acres in a prime swath of land situated between the Brokenhead River and the Agassiz Provincial Forrest. In that area, it’s the eastern most point of cultivated land in Manitoba.

The Rattai family has been farming in that area for more than 100 years.

“My great-grandfather bought the farm’s original quarter from the Hudson’s Bay Company through the Dominion Lands Act and now my son actually bought that piece from my uncle,” said Mel.

In 1984, Mel and Bernice moved from Winnipeg to Beausejour to begin

farming with Mel’s father. The farm was about 700 acres at the time, and both Mel and his father had off-farm jobs in the construction industry.

“My dad and I farmed together for 30 years,” said Mel. “He kept his farm and we bought up a bunch of land in the area. He farmed until he was 85. He’s 87 now.”

Mel and I drove by a field his father was cultivating. “He still likes to get on the machines for a few hours a day.”

Land prices in the area have begun rising over the last five years, and families who are disconnected from the farm by a generation are starting to sell. Mel and Bernice have been able to grow their operation as a result.

“We have 2,500 now. That is enough,” said Mel. And Bernice agreed. Through theirs and their kids’ land purchases, they have four yard sites (some they rent out) over 12 miles.

Harvest for their farm was scheduled to wrap up the day of this interview. They had about 20 acres left. I apologized for keeping him from the field. He reassured me that his son and son-in-law had it under control. And, when we visited the farm site, which required crossing a bridge with a snapping turtle crossing sign, we

observed that his boys most certainly had everything under control.

They were going to tackle those final soybean acres with an old self-propelled Massey Ferguson that came with his son and son-in-law’s purchase of the original farmstead.



“It’s a small field,” said Mel. “It’s the only combine we have that will fit between the trees.”

Mel began growing soybeans in 2007, pushing flax out of their wheat and canola rotation.

“We grew Prudence. It yielded about 25 bu/acre, which, at the time, was enough for us to give the crop a place in our rotation. It fits in very well.”

This year, Mel and his boys, Cory and Chris, grew more soybeans than their farm ever had.

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Their yields weren't what they were in 2016, and, while Mel predicts soybean acres may drop slightly in 2018, he maintains soybeans will still be a solid rotation crop for farmers in the area.

Their area is susceptible to lake effect weather and lake effect rains. Mel and Bernice reminisced about their 2010 canola crop that only yielded a couple bushels per acre.

"We didn't take the canola to swimming lessons," said Bernice. "We got 30 inches of rain that year."

Since they began farming in '84, they have tried out some interesting crops.

White millet did well for them, briefly. Birdsfoot Trefoil did, as well.

Bernice remembers driving to Lac du Bonnet with bags of trefoil seed in the back of her Lincoln. It was clean-out from the combine, so the bags contained seed but also a bunch of leaves and a strong aroma. It was near the end of September at the time. There happened to be a huge drug bust in Lac du Bonnet that day.

"The RCMP are just swarming around in Lac du Bonnet," recalls Bernice. "There were roadblocks and all that sort of stuff."

"Oh no. How are we going to explain this," recalls Mel. "Here we have this Lincoln with four large bags of smelly seed in the trunk."

In the end, after Bernice jokingly contemplated a life in prison, she realized that the route she was taking missed the roadblock by five miles.

They mentioned the Lincoln by name because Mel owns a variety of cars. He's a collector. It's a hobby of his.

"I have a '77 Mustang Cobra that I ran in the local car show in '79 and '80. It has a custom paint job," said Mel. "I've also got an '87 Ford Thunderbird Coupe and that '93 Lincoln. I have collected a few interesting cars over the years."

Mel officially joined the Manitoba Pulse & Soybean Growers board in

February of 2017. He brings with him a wealth of board and community experience (including UGG and Agricore), as well as expertise in navigating municipal and provincial politics.

He also brings to the board additional experience in running an off-farm construction business, BJ Drywall, a company he enjoyed running until government red-tape forced him to spend his time behind a computer handling a steadily increasing amount of paperwork demands.

Mel sat on the local minor hockey board for many years and was instrumental in the building of a new arena in Beausejour.

"After that, about 10 years ago, I got on local council," said Mel. "I was there for two terms and spent five years as deputy reeve for the R.M. of Brokenhead."

When Mel retired from politics, he soon became antsy to find something else to sink his teeth into. He met current MPSG board member Ben Martens, who told him about a board opening.

"We need to stay engaged with the politicians of the day," said Mel, referring to the future of MPSG. "We need to keep that pressure up, as a commodity group as well through all the other associations MPSG is a part of."

"By population, farmers make up only two or three per cent, but we bring a lot of revenue to the country. Our voice needs to be loud and strong. It needs to stand out."

Campaigns such as fighting to keep the farmer safety-net program alive and strong are important for Mel.

And he is encouraged by the expertise and experience around the MPSG board table.

"MPSG has the ability to do a lot. And I look forward to getting more involved." ■



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2017 Growing Season Review

Cassandra Tkachuk, MSc, Production Specialist, MPSPG

The Bean Report

Your source for soybean and pulse crop agronomy and research.

THE 2017 GROWING season looked very different from 2016, reminding us to be ready for the unexpected when dealing with Mother Nature. The most notable difference between these two seasons was perhaps moisture. However, other unique challenges faced in 2017 made it memorable. This article will discuss the top three in-season production issues for soybeans in 2017, their impact on yield and management considerations for the future.

DROUGHT STRESS

Where 2016 left us with an excess of soil moisture, crops grown in 2017 thrived on it. Accumulated rainfall from May 1 to June 11, 2017 ranged from 22 to 51% of normal for select locations across Manitoba. In general, the month of June is a stressful time for soybeans – plants are already establishing themselves

through vegetative growth, combatting iron deficiency chlorosis and developing nodules – processes that consume a great deal of energy and resources. Add dry conditions to the mix and plants are really struggling.

Accumulated rainfall later in the season was much more variable across Manitoba. From May 1 to August 13, 2017, locations such as Emerson accumulated only 38% of normal rainfall, whereas Dauphin reached 90%. Timely rains throughout the growing season were observed in areas of eastern Manitoba. Greater residual soil moisture from the previous year was reported in southwestern Manitoba. These are two scenarios

that may have boosted soybean yield in 2017. However, it is difficult to know the yield impact of drought stress alone, due to the interaction of several factors. We can speculate that poor soil moisture exacerbated the effects of other production issues and contributed to reduced yields where they did occur.

One issue to be conscious of in 2018 due to dry conditions is the risk of residual herbicide carryover. Some herbicides can injure crops planted the following year. Residual herbicides with two-year re-cropping restrictions for soybeans are listed in Table 1.

Chemicals degrade in the soil by two primary mechanisms: microbial

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▼ Figure 1. Drought-stressed soybean plants with bowed stems and wilted leaves at the 2nd trifoliolate (V2) stage on June 13, 2017.



Table 1. Herbicides with re-cropping restrictions for soybeans.

Herbicide Group	Active Ingredient	Trade Name
1	clodinafop	Signal FSU, TraxosTwo
	pinoxaden	TraxosTwo
	thifensulfuron	Barricade II, Predicade, Retain SG, Signal FSU, Prestige XC
2	tribenuron	Barricade II, Predicade, Retain SG, Signal FSU, Prestige XC
	thiencarbazone	Predicade
	2,4-D	Retain SG
4	clopyralid	Curtail M, Prestige XC/XL
	dicamba	Pulsar
	fluroxypyr	Barricade, Predicade, Retain SG, Signal FSU, TraxosTwo, Prestige XC/XL, Pulsar
	MCPA	Curtail M, Predicade, TraxosTwo, Prestige XC/XL

*Consult the Manitoba Agriculture Guide to Field Crop Protection and product label for details.

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and chemical hydrolysis. Herbicides that require microbes to break down (e.g., clopyralid) also require warm temperatures and soil moisture. Under dry conditions, these chemicals may not break down properly. Therefore, it is recommended to examine field records, environmental conditions and other contributing factors (e.g., soil pH) when planning your rotation this winter. Soybeans are not the only crop susceptible to herbicide carryover.

IRON DEFICIENCY CHLOROSIS

The most frequently asked soybean questions in 2017 surrounded iron deficiency chlorosis (IDC) – a condition caused by temporary iron (Fe) deficiency. Symptoms of IDC include interveinal chlorosis of new soybean leaves, appearing as early as the first trifoliate (V1) stage. Widespread symptoms noticed across the province in June were the cause for concern, leaving many farmers wondering why this year was so bad for IDC, especially when symptoms were seen in some of the more tolerant soybean varieties, as well.

During early development, the seed acts as a source of iron for the young soybean plant. Plants at the first trifoliate stage must switch to soil Fe once the seed source becomes depleted, sometimes causing a lag because Fe is immobile within the plant. Manitoba soils have adequate Fe supplies for soybean production, but certain environmental conditions can reduce the availability and uptake of iron by the plant. Factors that increase

▼ Figure 2. Soybean plants exhibiting symptoms of IDC at the second trifoliate stage on June 19, 2017.



the risk of IDC include high levels of calcium carbonate (CaCO₃), soluble salt, moisture and nitrate in the soil. Guidelines for IDC risk based on soil test soluble salt and carbonate levels are summarized in Table 2 (also available in the *MPSG Soybean Fertility Fact Sheet*).

One explanation for widespread IDC in 2017 might be the high concentration of soluble salts brought closer to the soil surface in 2016 by soil moisture. Without timely rains in the spring of 2017, this salt concentration likely stayed in place. Regardless of IDC risk, soybeans are ill-suited to saline conditions and soybean production should be avoided on these fields. For more information on remediation of soil salinity, refer to Dave Franzen's article in this issue of *Pulse Beat* (page 39). Excess soil moisture can also increase the level of bicarbonate (HCO₃⁻) in the soil, which interferes with Fe uptake and transport.

The best method for controlling IDC is prevention, beginning with field selection. It is recommended to choose

well-drained fields with low IDC risk, based on low soluble salt, carbonate and nitrate levels. Variety selection is the next line of defence. If fields are at moderate to high risk, select a more IDC-tolerant soybean variety (refer to these resources – *Seed Manitoba, MPSG Pulse and Soybean Variety Guide*). According to research, IDC can also be reduced by in-furrow iron chelate (FeEDDHA) products and cover cropping.¹ However, field and variety selection are the superior methods for IDC prevention.

SOYBEAN APHIDS

Another significant production issue this past year was the infestation of soybean aphids. Aphids are not considered a soybean pest every year in Manitoba because they are not known to overwinter here. Agronomists have been questioning if this is still true for Manitoba, which may be important for researchers to address in the near-future. But to date, we do know that they overwinter on buckthorn in areas of the United States, such as southern Minnesota, southern Wisconsin, Iowa, Illinois, Indiana, Ohio and Michigan.² It is likely that winters in Manitoba are too cold for egg survival. When soybean aphids are present in Manitoba, it means they arrived by southern winds in July to August. Some also speculated that soybean aphids arrived earlier than normal in 2017. This is possible due to the hot, dry conditions ideal for aphid movement and reproduction.

A new tool called the *Aphid Advisor App* was added to our arsenal in 2017. It was developed by the University

Table 2. Field risk of IDC based on carbonate and soluble salt soil test levels.

Soluble Salt (mmhos/cm)	Carbonate (%)		
	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

Source: Agvise Laboratories

continued on page 29

of Guelph and OMAFRA. This tool generates a recommendation to *spray* or *don't spray*, based on population counts of aphids and beneficial insects.

Thresholds have been well-established in the literature. The established action threshold is 250 soybean aphids per plant and increasing across 80% of the field. This threshold was designed to allow a one-week window for control before aphid populations exceed the economic injury level (i.e., economic threshold) of 670 aphids per plant. The economic threshold is defined as the point in which the cost of control is equal to yield loss. However, both thresholds do not account for beneficial insects that consume aphids. The main predatory insects are accounted for in the app, including lady beetle adults and larvae, lacewing larvae and adults, hover fly larvae (syrphids), minute pirate bugs (orius), the aphidoletes fly and parasitic wasps, which cause aphid mummies. These insects can also be found in

▼ Figure 3. Beneficial insects – hover fly adult and lady beetle pupae, in an aphid-infested soybean field with sticky, shiny leaves on August 2, 2017.



Manitoba, confirming the relevance of this app.

A relatively new concept for some farmers and agronomists this year was “aphid days,” discussed by John Gavloski of Manitoba Agriculture in the *Insect and Disease Report* this past season. Aphid days are a unit of measure used to estimate yield loss from soybean aphids. One aphid day refers to one aphid feeding for one day. Therefore, 10 aphid days could mean 10 aphids feeding for one day, or one aphid feeding for 10 days. Research has shown that soybean yield may be reduced by 6.88% for every 10,000 aphid days accumulated.³ For example, if 500 aphids per plant on average feed for 15 days (7,500 aphid days), 5.2% yield loss could be expected. This puts into perspective the excessive amount of aphid feeding required to cause economic yield loss and warrant foliar insecticide.

An integrated pest management approach is the best long-term strategy for avoiding economic loss from aphids. This includes timely scouting, following thresholds and conserving beneficial species, both predatory and non-predatory (e.g., honey bees) in crop and non-crop habitats. Plans for a soybean aphid fact sheet are in the works at MSPG and Manitoba Agriculture. The goal is to provide improved scouting, threshold and management information for emerging topics such as pyrethroid resistance, variety resistance and neonicotinoid insecticide seed treatments, based on recent research. For example, previous research reported that insecticide seed treatment can

persist for 46 to 49 days in soybean plants.^{4,5} More recently, a robust study conducted across seven midwestern states, determined that neonicotinoid levels declined dramatically within 20 days of planting.⁶ Overall, seed treatments are not recommended for control of aphids due to the late date of their arrival in Manitoba.

MPSG PLANS

At MSPG, the research and production team has been busy working with other soybean and pulse specialists at the University of Manitoba and Manitoba Agriculture to create more production resources. The latest resources available to you are the *Dry Bean Growth Staging Guide* and the *MPSG Bean App Harvest Loss Assessor* for soybeans. Resources to watch for in the future include detailed fact sheets for soybean insects and diseases, a field pea staging guide and a fact sheet for managing volunteer canola in soybeans. Suggestions for new, agronomic decision-making tools are always welcome. ■

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GROW SOMETHING GREAT





Field Research is Like Farming

An update from the soybean and pulse agronomy lab at the University of Manitoba

Kristen Podolsky MacMillan, MSc, PAg, Research Agronomist, University of Manitoba

THE FIRST SUMMER of a research program is like farming new land on the farm – you're pressed to figure out drainage, soil and crop history before seeding and you expect some surprises to show up mid-way through the season. Or maybe it's more like buying a farm altogether, because we also had new (to us) equipment to use and new people to work with. This first field season was really about getting to know the lay of the land, people, equipment and infrastructure resources at each research farm.

The first challenge was a very dry spring. At Portage, we were dealing with a dry, cloddy clay loam soil. Seeding at two inches was required for dry beans to achieve good seed-soil contact away from the clods. In another trial, corn and beans were seeded too shallow and were re-seeded in June. It takes a dry year to really understand the importance of seeding depth and moisture holding capacity of soil. It turned out to be a good year to start a soybean seeding depth trial at Carman and Arborg where we compared seeding depth from 1/4 to 2 1/2 inches.

Equipment can be a limiting factor in achieving optimum agronomic practices, and I've often suggested we should collaborate more with engineers and equipment manufacturers. Just recently, we saw more options for narrow row planters, tillage and residue management, mechanical weed control, dual and autonomous systems. Farmers are often those creating innovations and modifications. At the research farm, we are also trying to keep pace with technology and configure equipment to meet our agronomic goals. At seeding, we were navigating row spacing, seed and fertilizer delivery options and openers for each trial. This was

particularly interesting for the dry bean crop sequence trial, where we planted four crop types with three different seeders that will all be planted to dry beans next year. In September, the challenge was configuring equipment for various intercrop and relay-crop combinations, with varying fertility and planting arrangements. It may seem impractical at times, but it's important we aren't limited by equipment when it comes to designing and testing cropping systems.

Harvest came along and existing plot combines turned out to be no match for dry beans. I had accurately predicted it would be difficult. Header losses were high and cylinder speed was a challenge to slow down enough to prevent cracking. To address this, we hand-harvested and used our new stationary belt thresher that produced a sample worth bragging about. Research equipment needs is an ongoing and evolving conversation – are we up to date with technology as we should be? How many units do we need? Can we transport and store them? Research farms need a combination of basic and leading-edge equipment and technology, enough units to ensure timely operations for everyone and sufficient storage. It's like a custom sprayer – who gets it before the rain?

Expansion, growth and change is often on the minds of farmers and researchers, too – for equipment, but also land. On research farms, land is only available for research trials one in four years. "Break" years are used for cash cropping and are required to dilute the treatment effects that were imposed in research experiments. Most research farms have owned land that is rotated, but others rent land from farmers and rotate sites each year. With this new

research program and other programs expanding, it's apparent that resources are being stretched. But this is a good problem to have. It means that questions are being asked and we have researchers eager to examine them.

To be successful at field research, you need to have a similar mindset to farmers and crop advisors: working when the conditions are right; long days during seeding and harvest, early days during spraying; and regular scouting when pest pressure is high. Yes, we dealt with soybean aphids too. Throughout the summer, my team was out collecting data – emergence counts, soybean growth staging, white mould ratings in dry beans, plant productivity, maturity ratings and so on. A large part of this first field season was training staff on soybean and dry bean production and experimental protocols related to agronomy. In my program, students will acquire knowledge and skills in crop production and agronomy research, which will prepare them for working in the industry and on the farm.

Time this summer was divided between research sites, my office and lab and extension events. You may have seen me in Melita, Arborg, Portage or Carman discussing the work that is underway. This fall presents a new season – it is now time to review data, reflect on the year's challenges, brainstorm new ideas and interact with the student community. And like you, it will be important to attend meetings to share the results of my program and also to hear from others and get inspired. The next report will bring you preliminary results of this year's trials. In the meantime, start thinking about what meetings you will attend to connect with researchers this winter and get inspired. ■



Potassium Fertilization for Soybeans

John Heard, PAg, Crop Nutrition Specialist, Manitoba Agriculture

POTASSIUM (K) IS finally getting some overdue attention on Manitoba soils and it has been soybeans that have highlighted these soils, which are generally already known to be low in potassium.

HIGH K REMOVAL

Of all the grain crops we currently grow, soybeans remove the highest concentration of potassium in the grain. Each bushel of soybeans removes about 1.4 lb K₂O per bushel produced. So, a 50 bu/ac crop is removing 70 lb K₂O/acre/year. Since soybeans are taking up a greater proportion of the rotation, this can mean high removals in short rotations.

Some 10 years ago, we measured nutrient uptake by soybeans through the season (Figure 1). The final yield was approximately 46 bu/ac. Potassium uptake peaked in mid-August, after which much of the leaf K was translocated to the seed. Similarly, fall rains leached potassium from senescing leaves into the soil.

EXPANSION OF SOYBEANS ONTO LIGHT TEXTURED SOILS

Our clay and clay loam soils tend to have naturally high to very high exchangeable potassium levels. Exchangeable potassium is those atoms that are held on the negatively charged exchange surfaces of clay and organic matter – known as cation exchange capacity or CEC. Some of our clay soils never seem to decline much in K because soil minerals are weathering and releasing K at a pace that matches generally frugal prairie crop removal.

But of course, as soybeans move onto lighter textured (sandy) soils, these K reserves are much less (Figure 2). And too many of these sandy soils have also faced years of hay removal with round balers without adequate manure or potash application to make up for the depletion.

VISUAL DEFICIENCY SYMPTOMS AND CANOLA SWATH SYNDROME

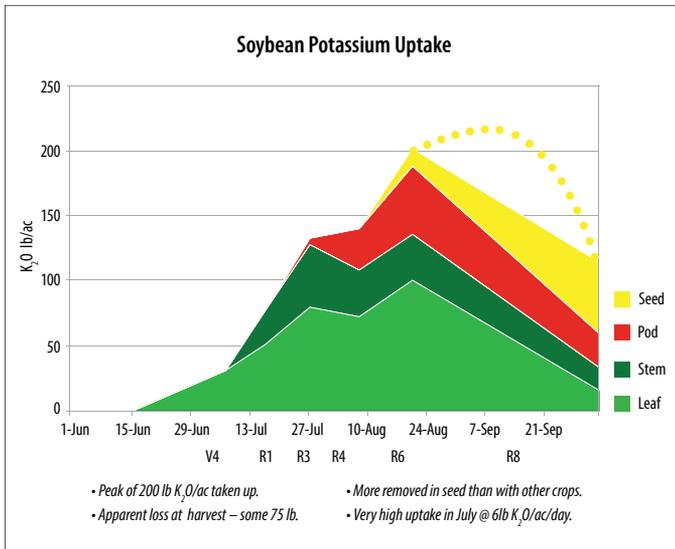
The visual symptoms of potassium deficiency are telltale. Early in the season, the lower leaves start yellowing, then browning along the leaf margins. This occurs in the lower leaves since K that is mobile in the plant is moved from older growth to the youngest parts of the plant (Figure 3).

Later in the season, K deficiency can be seen in leaves as the plant starts mobilizing K from the leaf tissue for the seed. In this case, deficiencies are most noticeable on the upper leaves. Again, they start as yellowing, then leaf browning. Leaves senesce and fall to the ground soon afterward.

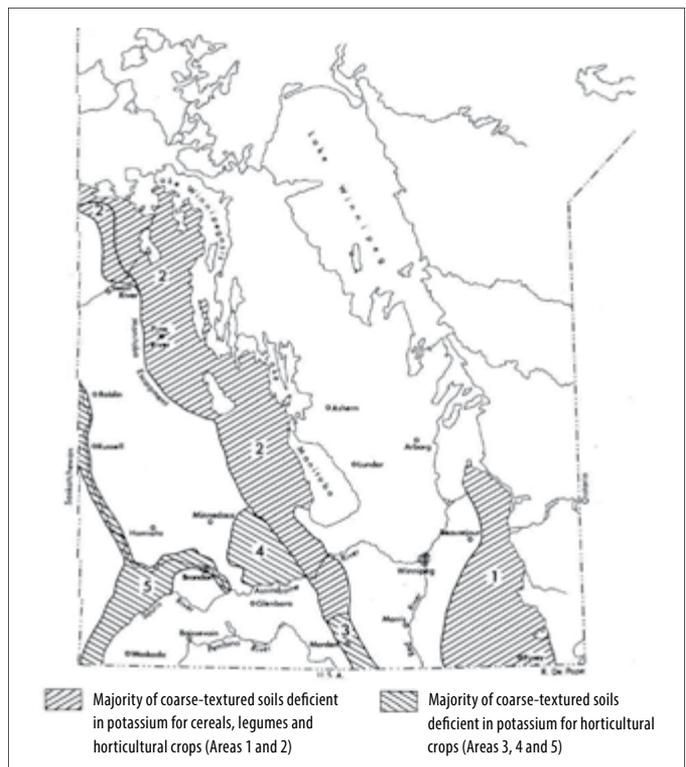
This late-season K deficiency leads to one of Manitoba's unique nutrient phenomena – what I call the *canola*

continued on page 33

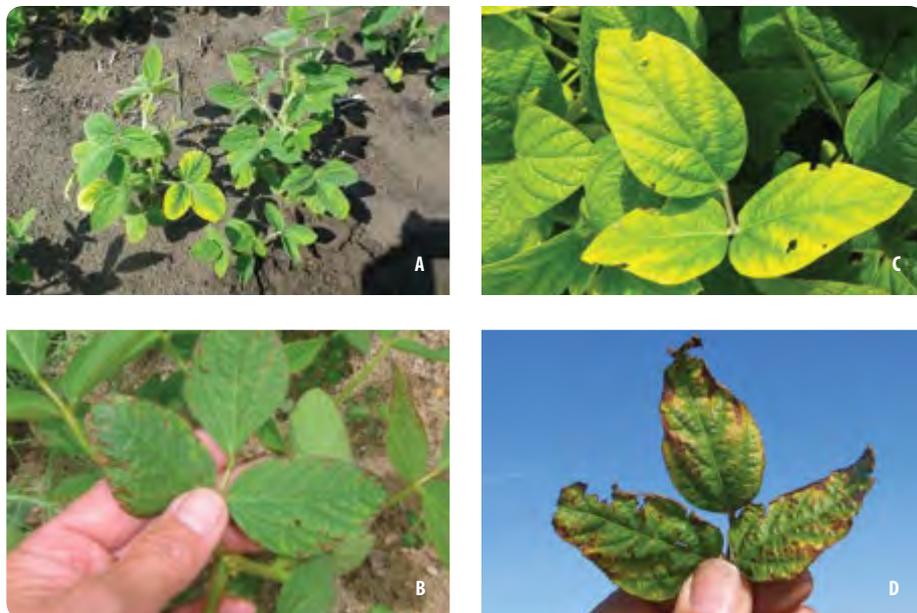
▼ Figure 1. Potassium uptake by soybeans in Manitoba.



▼ Figure 2. Areas of coarse soils in Manitoba with low potassium levels.



▼ Figure 3. Potassium deficiency in soybeans.



A Early-season deficiency as yellowing of margins of lower leaves.
 B Advanced deficiency of lower leaves with senescence of leaf margins.

C Deficiency of upper leaves during seed fill in August
 D Severe deficiency of upper leaves during seed fill.

swath syndrome. This is observed in late August in many fields with low K levels (i.e., sandy textured) that follow a previous canola crop that was swathed and let sit through rains before combining. During that canola curing phase, rainfall can leach the K out of the canola straw into the soil below. So, this soil under the swath is marginally more replenished in K than the areas between swaths. Next year's soybean (and sometimes wheat and barley) crop shows deficiencies in strips across the field (Figure 4). Tissue testing confirms the diagnosis and soil testing provides the cure for next year.

POTASSIUM APPLICATIONS AND PLACEMENT

Potassium application is, of course, the cure for deficient soils. But it must be placed safely, meaning away from the seed. A farmer cooperator I worked with put down some fertilizer K with the seed of soybeans on his sandy land. The seed-placed K reduced the crop

continued on page 34

MANITOBA CORN GROWERS ASSOCIATION (MCGA) provides Cash Advance loans on most crops grown in Manitoba.

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Canola	Kidney Beans	Soybeans
Chickpeas, Desi	Lentils	Sunflowers, Confectionary
Chickpeas, Kabuli	Millet	Sunflowers, Oil
Corn – grain only	Mustard	Triticale
Cranberry Beans	Mustard, Ethiopian	Turf Grass-Sod
Durum	Oats	Winter Wheat
Fababeans	Other Coloured Beans	Wheat
Flax	Peas	White Pea Beans (Navy)

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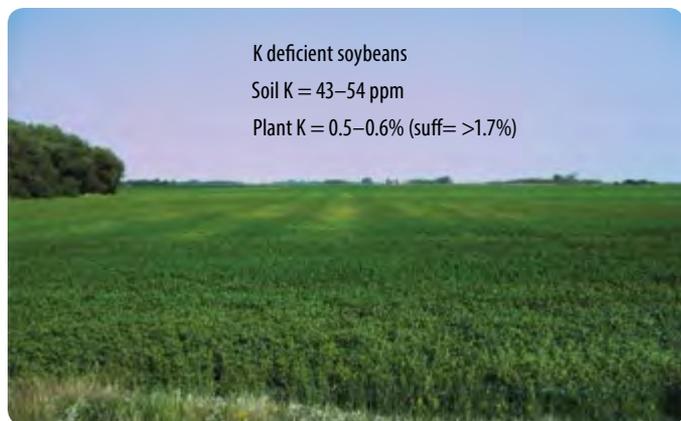


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▼ Figure 4. Late-season potassium deficiency most visible between last year's canola swaths.



▼ Figure 5. Soybean response to applied potassium fertilizer placed with the seed (on right). Unfertilized soybeans are to the left.

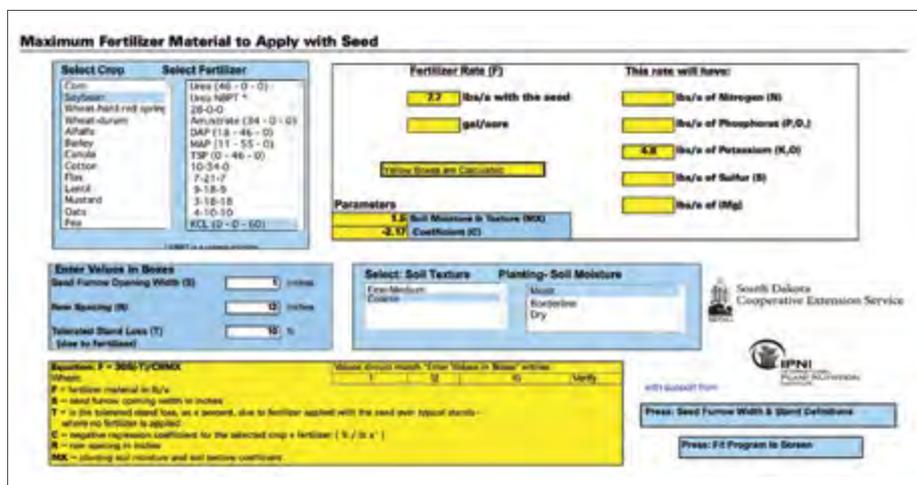


stand but still increased yield (Figure 5). Next year, you can bet his soybeans received K, but not with the seed.

The SDSU Seed fertilizer calculator suggests that on a moist, but sandy soil, some 5 lb K₂O/ac seed-placed may cause 10% stand thinning (Figure 6). I suggest you try this calculator with your own soil and seeding equipment to assess seed-placed risks. (Available at www.ipni.net/article/IPNI-3268).

So, seed-placing the removal amounts of potassium is out of the question and growers should look to other strategies to fertilize safely through the rotation. Current MPSPG On-Farm trials and University of Manitoba studies are evaluating K rates and placements for soybeans,

▼ Figure 6. Screen shot of the SDSU Seed Placed Fertilizer Decision Aid.



particularly on our sandy Almasippi-type soils. Such soils have demonstrated band placement efficiency two and six times greater than broadcast K for sunflowers and wheat, respectively.

Manure is very rich in potassium and a very good way to replenish depleted soils.

POTASSIUM AND THE SOYBEAN APHID

Some 10 years ago, I was scouting my father's soybean field in southern Ontario and found my pants became sticky with the "honey dew" from the high soybean aphid populations. Interestingly to me was that those areas with the greatest "honey dew" and aphid population were in the sandy areas of the field, which also showed potassium deficiency. This is a well-recognized phenomenon. Research in Wisconsin and Michigan established

that potassium deficient plants produce more of a certain amino acid in the plant sap. This amino acid (asparagine) provides more dietary N to the aphid than normal and hence promotes earlier aphid reproduction and higher numbers of aphid nymphs per mother on plants. The bottom line is – low plant K may lead to greater aphid reproduction and populations. More information on this topic is available here: bit.ly/2gKt0uW

In summary, soybeans are the crop that will force many Manitoba farmers into managing potassium closer – through tissue and soil testing. Very few of the above photos would have been available had a standard soil test been taken and fertilization recommendations followed. Stay tuned to our ongoing research on most appropriate potassium placement and rate options. ■

DATES TO REMEMBER

- **Getting it Right – Crop Production Meeting**
January 30 – Victoria Inn Hotel, Brandon, MB
- **CropSphere** – January 9–10
Saskatoon, SK
- **Ag Days** – January 16–18
Brandon, MB
- **FarmTech Conference**
January 30 – February 1
Edmonton, AB
- **Edible Bean Meetings**
Feb. 7 – Portage, MB | Feb. 8 – Altona, MB
- **CropConnect Conference**
February 14–15
Victoria Inn Hotel and Convention Centre,
Winnipeg, MB
- **Great Tastes of Manitoba**
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On-Farm Evaluation of Direct Harvesting Pinto Beans

THE SUITABILITY OF select pinto bean varieties was evaluated for direct harvesting compared to undercutting and windrowing from 2014 to 2017 near Carman, MB. Pinto varieties with increased upright architecture – La Paz, Maverick, Monterrey, and PIN1314 – were tested against the standard bushy variety, Windbreaker.

The objective of this On-Farm trial was to compare harvest methods (undercut vs. direct harvest) across pinto varieties to determine if plant architecture reduced harvest losses and resulted in yield differences. In all years, pinto beans were planted at 75,000 seeds/ac with a Case IH vacuum planter on 30-inch rows between May 26 and June 7.

Weed management and fertility followed typical agronomic practices. From 2015 to 2017, the fields were rolled soon after planting. Varieties were desiccated prior to harvest with glyphosate and heat. Direct harvest equipment was a 635F flex header in 2014, and a MacDon FD70 FlexDraper from 2015 to 2017. A CWS wind bar was also used in 2014 and 2017.

Our hypothesis was that the yield difference between harvest methods would be minimized with upright varieties compared to the bushy variety. However, the yield difference between undercutting and direct harvesting was not affected by variety in three out of four years (Table 1). Differences in

Table 1. Variety, harvest method and the interaction between variety and harvest method on pinto bean yield from 2014 to 2017.

Factor		2014	2015	2016	2017
Variety					
La Paz		1980 a	2907 b	2589 ab	2684 b
Windbreaker		1905 a	3309 a	2659 a	2763 a
Maverick		1773 b	–	–	–
Monterrey		–	2908 b	2767 a	2666 b
PIN1314		–	–	2430 b	–
P Value		0.0034	<.0001	0.0091	0.0022
Harvest Method					
Undercut		2071 a	3051	2891 a	2708
Direct harvest		1701 b	3031	2331 b	2700
P Value		<.0001	0.3754	<.0001	0.7103
Variety x Harvest Method					
La Paz	Undercut	2079 ab	2891	2932	2667
	Direct harvest	1882 c	2924	2247	2702
Windbreaker	Undercut	2155 a	3359	3044	2803
	Direct harvest	1655 d	3258	2273	2723
Maverick	Undercut	1979 bc	–	–	–
	Direct harvest	1567 d	–	–	–
Monterrey	Undercut	–	2904	3012	2655
	Direct harvest	–	2912	2522	2677
PIN1314	Undercut	–	–	2576	–
	Direct harvest	–	–	2283	–
P Value		0.0292	0.0546	0.0687	0.0724
Mean		1886	3041	2611	2704
% C.V.		13.1	7.6	16.1	3.3

Values followed by the same letter are not statistically different at 95% confidence interval.

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plant architecture appeared to have less of an effect than what was initially hypothesized. These results demonstrate the strong influence of environment on plant architecture.

In 2017, there was no significant difference between undercutting and direct harvesting for all varieties. Growing conditions were good at the beginning of the growing season, and plants were generally taller overall compared to other years. This allowed for ideal direct harvest conditions for all varieties. On average, Windbreaker had a significantly higher yield (2,763 lbs/ac) compared to La Paz (2,684 lbs/ac) and Monterrey (2,666 lbs/ac). These trends are also observed during the 2015 growing season.

In 2016, a wet growing season contributed to short plants overall, which likely masked any varietal differences in yield between harvest method. There was a significant difference between undercutting and direct harvesting (average 560 lbs/ac). In other words, all varieties showed

a similar advantage to undercutting compared to direct harvest (ranging from 293 to 771 lbs/ac) in 2016.

The only year where the yield differences between harvest methods was influenced by variety was in 2014. In that year, undercutting Windbreaker yielded 500 lbs/ac more than direct harvest, while the difference between undercutting and direct harvesting La Paz, an upright variety, was only 197 lb/ac. This is what would be expected based on plant architecture and pod height characteristics of each variety. The tolerable amount of harvest losses for direct harvest is likely in the range of 200–300 lbs/ac at \$0.30/lb to offset the additional labour and equipment costs associated with cutting and windrowing.

Based on these results at Carman, the potential does exist for direct harvest of pinto beans. Variety choice can help minimize direct harvest losses, but did not have a large influence as initially expected. The overall yield potential of varieties should be

considered first before choosing an upright variety for direct harvest.

When harvest method is not influenced by variety, Windbreaker consistently yields the same or higher than other varieties tested. Ultimately, the growing season seems to have the greatest effect on plant architecture; therefore, direct harvesting decisions should be assessed as the season progresses.

MPSG would like to thank Brent VanKoughnet of Agri Skills Inc. for conducting this trial. ■

MPSG's On-Farm Network

The overall goal of MPSG's On-Farm Network is to test new products and practices for pulse and soybean production, while empowering farmers to conduct simple, reliable research on their farms.



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SPG introduces seed royalties for CDC-developed varieties sold outside of Saskatchewan



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MPSG HAS BEEN making a financial contribution to the Variety Release Program, managed by Saskatchewan Pulse Growers (SPG). This has given Manitoba Select Seed Growers access to breeder seed of new varieties developed by plant breeders at the Crop Development Centre (CDC) at the University of Saskatchewan. This arrangement also gave Manitoba commercial farmers access to CDC varieties, royalty-free.

Saskatchewan pulse farmers contribute significant upfront funding towards the development of CDC varieties through the check-off they pay to SPG. Saskatchewan farmers will continue to have royalty-free access to CDC varieties as a result of SPG's long-term pulse breeding agreement with the CDC. By licensing the distribution of these varieties outside of Saskatchewan, SPG is ensuring that farmers in other provinces are paying to access varieties developed by the CDC.

The CDC pea varieties that have been selected for licensing and royalty collection (under PBR '91) in Manitoba are listed below by distributor.

Distributed by SeedNet

- CDC Inca

Distributed by SeCan

- CDC Spectrum • CDC Forest
- CDC Athabasca • CDC Jasper
- CDC Canary • CDC Blazer
- CDC Spruce

To learn more about CDC varieties selected for licensing outside Saskatchewan, visit www.saskpulse.com/growing/varieties

Saskatchewan seed growers cannot sell seed of these varieties to seed growers or commercial farmers outside of the province unless they have a signed agreement with the licensed agent and royalties are collected and remitted to the agent.

MANITOBA SEED GROWERS

Seed growers who are already members of SeCan or SeedNet will be able to access the varieties through the existing *continued on page 39*

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Image courtesy of Dr. Abbey Wick, NDSU Extension Specialist

▲ One of thousands of salty soils in the Northern Plains.

Remediation of Soil Salinity for Pulse and Soybean Production

Dave Franzen, PhD, Extension Soil Specialist, North Dakota State University, Fargo

SOIL SALINITY IS a huge problem in the Canadian prairies, as it is in the U.S. states of Montana and North Dakota that border Canada. In the simplest terms, plant roots attract and take up water because the interior of the plants is saltier than the water outside the roots. Water always moves from a concentration of low salt to the concentration of high salt. If the interior of a plant is saltier than the soil water, water passively moves into the plant and costs the plant low energy. With increasing soil salts, plants have to expend a great deal more energy to move water into the roots. This is why plants in salty soils will be the first to show drought symptoms, even when the soil around them appears moist.

The source of the salts is the salty groundwater in the region. Lack of leaching beyond possible plant rooting depth keeps the salts in contact with

crop roots. In dry years, the water table depth is greater, and the capillary pull from drier soil may not bring salts in contact with roots. Following wet years, the water table depth is closer to the soil surface, and if the soils dry, the capillary movement of water with its salt load moves closer to the surface, and often reaches the surface giving the soil a white appearance when severely affected soils are dry.

All pulse crops, field pea, lentil and chickpea, are very sensitive to salts. If there is any salt (EC) in the soil, yield reduction will occur. Recent work in North Dakota demonstrated that there is no true 'critical' salt level before yield reductions occur. Any level of salt above 0 mmohs/cm (or deci Siemens per cm) will result in some yield reduction. Future circulars produced in North Dakota will reflect these findings. Soybeans are also very sensitive to soil

salinity. In addition to salt-imposed yield reduction, in wetter years in soils with carbonates, the iron deficiency chlorosis (IDC) that is possible in soybean is made much more severe if salts are present. The greater the EC, the greater the IDC if soil carbonates are present. Salts are a severe stress that increases the difficulty of soybean to overcome IDC.

So the question is what to do about it? There are a number of strategies that might be used to manage salinity and to remediate salinity over time.

1. Determine the level of salinity you are dealing with. This is only possible with soil sampling. If you have access to a soil salinity sensor such as the Veris EC sensor (Veris Technologies, Salina, KS, USA) or the EM-38 (Geonics Ltd, Mississauga, ON, CA), one can map the relative salts within the field, then take directed soil sampling to determine levels of salts that equal a value from the sensor. Without a sensor, zone sample based on crop injury and make lines using the yield map, or aerial/drone/satellite image of the field during plant growth. All crops will show degrees of stress from the salinity even if they don't die.
2. If the soil EC is greater than two, don't grow a pulse crop or soybeans in that area of the field or avoid the field altogether. If a farmer goes ahead with a fantasy that somehow the sensitive crop will survive and produce potential yield, what will happen is that the crop will be

continued on page 40

continued from page 38

framework developed by the company. Growers who are not members, but already have pedigreed seed of the licensed varieties, will be given the opportunity to become members and continue to grow and sell seed of the licensed varieties. This would involve signing an agreement that would obligate the seed grower to collect and remit royalty revenue to the licensed company. The licensed agent will determine the details of these agreements. Seed growers who are not members and have

not previously purchased seed of the licensed varieties should contact SeCan or SeedNet regarding the potential to become members.

MANITOBA COMMERCIAL GROWERS

The process for farmers to acquire seed will remain similar to the current approach, and will depend on the retail strategy used by the company. In some cases, it will be directly from the seed grower who will collect the royalty payment and remit it to the company.

As well, some seed may be sold through dealers and retail centres who are members of the company. It is advised that farmers contact SeCan or SeedNet for more information on how to obtain access to certified seed. Farmers will be able to save their own seed if they have purchased a variety that is licensed to SeCan and/or SeedNet, but they will not be authorized to sell that seed to their neighbour or others, as is consistent with Plant Breeders' Rights (PBR) and as determined by the rights holder (CDC). ■



Photo by David Franzen

▲ Alfalfa strip along a road that intercepts ditch water before it enters the field.

stunted and yield will be reduced. When crop growth in salty areas is reduced, the plants do not use water and the result will be a 'mounded' water table underneath the stressed crop. Essentially what the farmer does is produce a fallow effect. The area will then be saltier for the next crop, reducing water use and further mounding the water table. As water will do, it can only 'mound' so much, then it spreads to the sides. The area affected by salts increases. Instead, plant salt tolerant crops, such as barley, spring wheat or sunflower, will use far more water than the pulse/soybean crop and start to draw down the water table and begin to shrink the area affected by salts.

3. Use cover crops after short-season crop harvest. Our work with cover crops in North Dakota shows that six weeks of cover crop growth (cereal rye – 40 lb/acre and forage radish – 4 lb/acre) after an earlier cereal grain harvest can result in the use of over three inches of water before freeze up. The result is that any water falling during or after freeze up can move salts lower and not produce as shallow a water table as otherwise possible.
4. Use a cereal cover crop when at soybean planting. Planting oats or barley at the same time as soybean planting decreases the water content of the soil and uses residual soil nitrate (which also increases the severity of IDC physiologically), resulting in a much healthier plant. The cereal is killed out early if the weather is dry, and up to the five-leaf stage if the season is wet.
5. If the salinity is starting near a roadside ditch, plant an alfalfa strip about 30 feet wide along the ditch to intercept ditch water before it reaches into the field. Planting an alfalfa barrier can also be helpful around potholes or other in-field waterlogged areas, so long as the salts are not high enough to interfere with alfalfa seedling growth. Alfalfa will drown out, so do not plant alfalfa where flooding is likely.
6. Tile drainage can be installed with proper guidance from government officials and private industry to lower water tables. A grower should use care to know what the sodium levels are in the field, so that when the soluble calcium salts leave through the tile, the sodium remaining behind doesn't ruin the soil and make it unfarmable.

Finally, there is no amendment that can be applied that can neutralize salt. Salty soil is a water table problem. Managing the soil water is the only way to remediate the problem. In the meanwhile, monitor your efforts with soil sampling and do not plant a pulse/soybean crop into these soils until the salts are reduced enough so that a decent yield is possible, utilizing rotation to make sure the problem does not reoccur. ■



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Intercrop Research at WADO

Scott Chalmers, PAg, Diversification Specialist, Westman Agricultural Diversification Organization Inc.

THE WESTMAN AGRICULTURAL

Diversification Organization (WADO) is a non-profit applied research group in Melita and is one of four Diversification Centres in Manitoba. WADO has been researching companion cropping since 2009 starting with intercropping peas and canola. From that time, WADO has been building on its own research, others research and ideas and observations from farmers.

The benefits for intercropping are many, however, benefits are usually positive and goal oriented. Understanding or researching behaviour of intercrops helps understand not only the benefits of intercrops but also, just as important, their drawbacks.

This year in 2017, WADO has several companion crop research projects including the following:

1. Evaluating the response of pea-canola intercrops to nitrogen and phosphorus fertilizer rates (year two of two);
2. Intercropping of soybean and flax in mixed or single rows;
3. Relay cropping of legumes in hemp grain production;
4. Relay cropping of soybean in winter wheat stands.

Over the years, WADO has found pea-canola intercrops over-yield their monocrop counterparts by an average of 20%. Reasons for over-yielding

range from greater water use, possible nutrient efficiencies, such as peas giving excessive fixed nitrogen to canola, peas climbing on canola and, as seen in 2017, possibly even fewer pea aphids in intercrops compared to monocrops. With greater yield demand from intercrops comes greater nutrient use. That is why WADO wanted to have a greater understanding of the limiting nutrients, nitrogen and phosphorous. Peas biologically fix nitrogen, but canola does not, and both crops require phosphorus. So far, the research suggests that any applied nitrogen will reduce nitrogen fixation (nodules) in peas. Any applied phosphorus has increased yields and may increase nodulation. Trials in 2017 will be the second year of this research and, combined with previous years' research, WADO should have a pretty good idea of what is happening.

Intercropping soybean and flax is a new project for WADO. The hope is to see some sort of over-yielding in one or both crops. The thinking that goes into finding fitting intercrops with soybean and flax must consider maturity date, crop height, herbicide compatibility, rooting depths and and potential biological associations (e.g., mycorrhizae), such that both crops can co-benefit from one another. WADO realizes that one aspect that does not fit well with the soybean-

flax intercrop is the harvest integrity of soybean during threshing of flax. WADO suspects that the cylinder speed used in flax may be too fast for soybean and may cause significant seed breakage. During the summer season, it appeared that when the crops are in the same row, soybean suffered from competition from the flax, whereas in separate rows soybean appeared to grow taller and more robust than if in mixed rows. Yet, intercropping soybean with flax was still dramatically less robust than monocrop soybean. Unfortunately, for 2017, the deer got most of the plot and results will be skewed.

For the first time in 2017, WADO has been experimenting with legumes such as red clover, sweet clover, alfalfa, hairy vetch and field peas as intercrops with hemp. Initial observations vary widely between crops. Red clover was difficult to establish, as rain was in short supply, while both sweet clover and alfalfa did quite well tolerating drought conditions and the competitive nature of hemp. Hairy vetch also did well, except the climbing behaviour of vetch caused some potentially cumbersome vining near the seed heads of the hemp. WADO was able to separate the field peas from the hemp and yield results will be available over the winter season. The variety of hemp used was 'Katani' a relatively short high-yielding variety. Field pea, alfalfa and clover benefited well with this short stature in terms of competition and harvestability. A taller hemp to this variety would have competed properly with the hairy vetch,

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▲ Pea-canola intercrop research investigating nitrogen and phosphorus fertilization at WADO in 2017.



▲ Hairy vetch-hemp intercrop at WADO in 2017



▲ Every third row of winter wheat was terminated for soybean seeding.

while taller varieties may have shaded out sweet clover and alfalfa. Yield results of the hemp with and without legume covers will be available during the winter months.

Social media has been illustrating U.S. farmers relay-cropping soybeans into winter wheat stands. In 2016, WADO seeded winter wheat on 10-inch row spacing and in mid-May of 2017, terminated every third row with glyphosate after in-crop herbicides for winter wheat. Then, soybeans were

planted with a row-crop planter on those 30-inch rows. Soybeans grew while winter wheat was harvested above the growing soybeans. By fall, well after the wheat harvest, the soybeans were harvested on September 29. However, during the critical pod filling season in July and August, conditions were very dry. It appears that the soybeans suffered more from the lack of rainfall growing with winter wheat than on their own as a monocrop. Results are pending, but the principle is promising.

One thing WADO wishes they had done differently was to seed the winter wheat strips during early May, rather than later when the winter wheat was booting to reduce compaction damage on the wheat by tire tracks. Another improvement may be to skip herbicide termination of the wheat row and not seed a row at all, this may conserve moisture for the soybean that will use it later in the season. ■



▲ Soybean-flax intercrop research at WADO, new for 2017.



▲ Soybeans growing in 30-inch rows among winter wheat seeded in 10-inch rows.



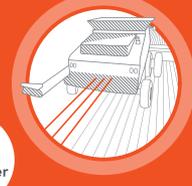
▲ Harvesting winter wheat above the growing soybean crop.



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SMART DAY

SOYBEAN MANAGEMENT & RESEARCH TRANSFER

HIGHLIGHTS



On Wednesday, July 19, the third annual SMART Day was held at the Canada-Manitoba Crop Diversification Centre in Portage la Prairie, MB. It was a chilly day, but that didn't deter the spirit of attendees. Enjoy a few highlights from the day!



Participants toured MSPG's soybean variety evaluation trials. Dennis Lange, Manitoba Agriculture, discussed how to use MSPG's variety evaluation guide to select high-yielding varieties suited to each maturity zone with appropriate IDC tolerance and phytophthora resistance.



Dr. Ramona Mohr, AAFC, shared results of her MSPG-funded research investigating soybean response to different moisture conditions. Excess moisture and rainfed conditions resulted in similar performance and influenced root rots levels, but drought tolerance differences between varieties may be an important player in the future.



Doug Wilcox, MASC, pointed out hail "hot spots" around the province in the last few years. Doug answered questions about hail insurance premiums, deferrals and assessment techniques.



Kristen Podolsky MacMillan, U of M, shared results of MSPG-funded research that shows soybean yield loss due to node removal. Damage induced in vegetative stages has been negligible compared to reproductive stages.



Contrasting leaf defoliation treatments simulating different levels of hail damage.



Harvey Chorney, PAMI, discussed how harvesting speeds, direction and headers affect the most common type of harvest losses: header loss. Enns Bros. generously provided the featured combine and their team's expertise for the afternoon.



Savoury chocolate black bean tarts for dessert, created and donated by Joel Lamoureux from Red River College, showcasing culinary research results of a MPSG-funded recipe development project.

Thank you to everyone.
See you in 2018!



Marla Riekman, Manitoba Agriculture, demonstrated different methods of alleviating soil compaction. After seeing a deep ripper in action, participants compared cover crop rooting structures as an alternative means of soil fracturing.



Curtis Cavers, AAFC, manned the soil pit, digging into the characteristics of healthy soil.



Participants learned how to diagnose compacted soil and how it can affect soybean crops. Soil aggregates and plenty of pore space (left) allows for both effective water penetration and drainage compared to compacted soils (right).

ULTIMATE SOYBEAN CHALLENGE



Cassandra Tkachuk, MPSG, utilized the Ultimate Soybean Challenge to walk through farmers' decisions for individual inputs like inoculant or seed treatment. Cassandra shared MPSG's production recommendations for each input.

Greg Bartley, MPSG, backed-up those production recommendations with results from MPSG's On-Farm Network. Data from many individual farms is aggregated to form recommendations, but on-farm testing is important to validate those recommendations locally.



Dr. Rob Gulden and Jon Rosset, U of M, were stationed among soybean demo plots showcasing how row spacing and seeding rate can affect the length of soybean's critical weed free period.



Dr. Rob Gulden, U of M, discussed the efficacy of different pre- and post-emergent herbicides for volunteer canola control. Fast acting modes of action were more effective at preventing soybean yield loss from volunteer canola.



Manitoba Pulse & Soybean Buyer List – November 2017

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGULATED
Agassiz Global Trading	✓				✓	204-745-6655	Homewood, MB	
Agri-Tel Grain Ltd.				✓	✓	204-268-1415	Beausejour, MB	✓
AGT Foods	✓		✓	✓	✓	306-525-4490	Regina, SK	✓
• SaskCan Pulse Trading – Parent Division	✓		✓	✓	✓	204-737-2625	St. Joseph, MB	✓
All Commodities			✓	✓		204-339-8001	Winnipeg, MB	✓
B.P. & Sons Grain and Storage Inc.					✓	204-822-4815	Morden, MB	✓
Belle Pulses Ltd.				✓		306-423-5202	Bellevue, SK	✓
Besco Grain Ltd.	✓	✓	✓	✓	✓	204-745-3662	Carman, MB	✓
Best Cooking Pulses Inc.			✓	✓		204-857-4451	Portage la Prairie, MB	✓
Brett-Young Seeds				✓	✓	204-261-7932	Winnipeg, MB	
BroadGrain Commodities Inc.	✓	✓	✓	✓	✓	416-504-0070	Toronto, ON	✓
C.B. Constantini				✓		604-669-1212	Vancouver, BC	✓
Canadian Grain Inc.	✓	✓	✓	✓	✓	905-257-6200	Oakville, ON	✓
Cargill Ltd.				✓	✓	204-947-6219	Winnipeg, MB	✓
Delmar Commodities				✓	✓	204-331-3696	Winkler, MB	✓
Farmer Direct Co-operative Ltd.	✓	✓	✓	✓		306-352-2444	Regina, SK	
Fill-More Seeds Inc.			✓	✓		306-722-3353	Filmore, SK	✓
G3 Canada Limited				✓		204-983-0239	Winnipeg, MB	✓
Gavilon Grain LLC					✓	816-584-2210	Omaha, NB	✓
Global Grain Canada	✓					204-829-3641	Plum Coulee, MB	✓
Hensall District Co-op	✓					204-295-3938	Winnipeg, MB	✓
Horizon Agro					✓	204-746-2026	Morris, MB	
ILTA Grain Inc.	✓	✓	✓	✓	✓	604-597-5060	Surrey, BC	✓
J.K. Milling Canada Ltd.				✓		306-586-6111	Regina, SK	✓
Knight Seeds			✓	✓		204-764-2450	Hamiota, MB	
Kalshea Commodities Inc.				✓		204-272-3773	Winnipeg, MB	✓
Lansing Olam Canada Commodities ULC					✓	877-747-7599	Chatam, ON	✓
Linear Grain	✓			✓	✓	204-745-6747	Carman, MB	✓
Louis Dreyfus Company Canada ULC					✓	403-205-3322	Calgary, AB	✓
Masterfeeds				✓		403-327-2555	Lethbridge, AB	
Marina Commodities Inc.			✓	✓		204-937-2300	Roblin, MB	✓
Maviga NA., Inc.		✓	✓	✓		306-721-8900	Regina, SK	✓
Monsanto					✓	-	Winnipeg, MB	
Natural Proteins					✓	204-355-5040	Blumenort, MB	✓
North American Food Ingredients					✓	204-272-5510	Winnipeg, MB	✓
Nutri-Pea Ltd.				✓		204-239-5995	Portage la Prairie, MB	
Nu-Vision Commodities	✓					204-758-3401	St. Jean Baptiste, MB	
Parrish & Heimbecker Ltd.					✓	204-987-4320	Winnipeg, MB	✓
Paterson Grain				✓	✓	204-956-2090	Winnipeg, MB	✓
• FeedMax Corp.				✓		204-523-0682	Killarney, MB	✓
Providence Grain Group	✓	✓	✓	✓	✓	780-997-0211	Fort Saskatchewan, AB	✓
Pipeline Foods, ULC				✓		204-997-2480	Winnipeg, MB	✓
Quarry Seed					✓	204-467-8877	Stonewall, MB	
Richardson International				✓		204-934-5627	Winnipeg, MB	✓

continued on page 47



COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGULATED
• Richardson Pioneer Ltd.				✓	✓	204-934-5627	Winnipeg, MB	✓
• Tri Lake Agri				✓		204-523-5380	Killarney, MB	✓
S.S. Johnson Seeds	✓			✓		204-376-5228	Arborg, MB	✓
Scouler Canada Ltd.	✓	✓	✓	✓	✓	403-720-9050	Calgary, AB	✓
Seaboard Overseas		✓	✓	✓		306-565-3934	Regina, SK	
Seed-Ex Inc.					✓	204-737-2000	Letellier, MB	✓
Shafer Commodities					✓	204-822-6275	Morden, MB	✓
Simpson Seeds			✓			306-693-2132	Moose Jaw, SK	✓
Southland Pulse			✓	✓		306-634-8008	Estevan, SK	✓
Sunrich LLC					✓	507-446-5642	Hope, MN	
Thompsons Limited	✓		✓	✓		519-676-5411	Blenheim, ON	✓
Vanderveen Commodity Services					✓	204-745-6444	Carman, MB	✓
Viterra Inc.	✓	✓	✓	✓	✓	Contact your local Viterra sales representative		✓
Walhalla Bean Co. (Canada Ltd.)	✓					701-549-3721	Walhalla, ND	✓
• Winkler Receiving	✓					204-325-0767	Winkler, MB	✓
Wilbur Ellis	✓		✓	✓		204-867-8163	Minnedosa, MB	✓
Zeghers Seeds Inc.			✓	✓		204-526-2145	Holland, MB	✓

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 that do not purchase grain and feed mills do not have to be licensed. The pulse and soybean crop buyers listing includes only companies that are licensed and secured by the CGC (or exempted by regulation), and who are registered to submit check-off to MPSG. It is the responsibility of the farmer to ensure the company they are dealing with is reliable. Questions regarding licensing and security should be directed to the CGC at 1-800-853-6705 or 204-983-2770. To be included on MPSG's pulse and soybean crop buyers list, contact the MPSG office at 204-745-6488 for the buyers registration package.

Soybean Scout ANSWERS



A – Waterhemp (*Amaranthus rudis* – common or *Amaranthus tuberculatus* – tall)

Waterhemp is a relatively new weed to Manitoba. It is an annual plant that belongs to the pigweed (*Amaranth*) family. Common and tall waterhemp are often grouped together due to genetic similarities. Its main distinguishing feature from other pigweeds is the waxy or glossy appearance of leaves. Like Palmer amaranth, waterhemp plants also have hairless stems. Waterhemp is of concern in Manitoba due to group 2 and 9 (glyphosate) herbicide resistance across Minnesota, North Dakota and Ontario. It is also a prolific seed-producer and can range from 4 inches to 12 feet tall.



B – Giant ragweed (*Ambrosia trifida*)

Giant ragweed is another relatively new weed to Manitoba. It is an annual plant that belongs to the Composite or Aster family. The main distinguishing features of giant ragweed include deeply-lobed leaves with stiff hairs that point toward the tip, and large seeds encased in a woody hull. Pollen from these plants is a trigger for allergies. Glyphosate-resistant giant ragweed has been confirmed in Minnesota, and resistance of its close relative, common ragweed, to glyphosate has been confirmed in Ontario. Similar to waterhemp, it is a prolific seed-producer that can grow very tall (up to 17 feet).

Photo source: Weed Science Society of America

Recipe Corner

Black Bean Burgers

Serves: 4 | Preparation time: 5 minutes | Cooking time: 20 minutes

- | | |
|--------------------------------------------------------------|--------------------------------------|
| 1–19 oz (540 mL) can black beans , rinsed and drained | 1/4 cup (60mL) bread crumbs |
| 1 cup (250 mL) brown rice, cooked | 6 tbsp (90 mL) salsa (divided) |
| 1 small onion, chopped | 4 hamburger buns |
| 2 green onions, chopped | 1/4 cup (60 mL) low-fat plain yogurt |
| 1/2 tsp (2mL) hot sauce (optional) | 4 Romaine lettuce leaves |
| 1 egg | 1 avocado, sliced (optional) |



Directions

- 1 In large bowl, coarsely mash beans with a potato masher or fork. Add rice, onions, Tabasco sauce if desired, egg, bread crumbs and two tablespoons of salsa. Mix well.
- 2 Divide mixture into 4 and form into patties that are about 1-inch thick.
- 3 Preheat oven to 350°F (180°C). In a non-stick pan, cook burgers over medium heat for 4–5 minutes each side, or until lightly browned. Transfer to an oven-safe tray and bake in preheated oven for about 10 minutes.
- 4 In a small bowl, combine remaining salsa and yogurt. Serve with lettuce and avocado (if desired) as a condiment to your burger.

Five-Minute Dips

Makes: 2 cups – 6 servings | Serving size: 1/3 cup

- 1–19 oz. can (540 mL) **black or navy beans***, rinsed and drained
- 1/2 cup (125 mL) fat-free ranch dressing
- 1/2 tsp (2 mL) cumin**
- 2 garlic cloves

**For lentil dip, use lentils instead of beans*

***For lentil dip, use 1 tsp curry powder instead of 1/2 tsp cumin*

Directions

- 1 Place all ingredients into food processor or blender. Blend to desired consistency.



BUILD A STRONGER SOYBEAN PROGRAM

Getting weeds out of the way early in the season will set up your soybeans for stronger performance, better yields and a better bottom line. Nufarm's portfolio of weed solutions provides the options you need to build a *Soybeans for Success Program* for both pre-seed and in-crop applications.

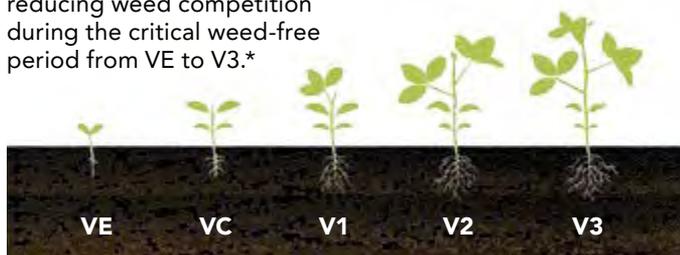
BIGGER YIELDS

Extensive trials¹ have shown a 4-9 bu./ac. **yield gain** when you use a pre-emergent herbicide before a post glyphosate application, compared to only using a post-emergent application of glyphosate.



REDUCE THE COMPETITION

Keep your soybeans clean by reducing weed competition during the critical weed-free period from VE to V3.*



STRONGER STEWARDSHIP

Using multiple modes of action makes for a stronger stewardship plan – reducing the risk of weeds developing resistance to glyphosate and dicamba, and helping to protect the integrity of traits like Roundup Ready 2 Xtend[®] soybeans.

For more information, visit Nufarm.ca or call 1.800.868.5444 to Ask a Nufarmer.



¹Data from Purdue Extension Weed Science and Ohio State horticulture and crop science extension fact sheet "The benefits of Preemergence herbicides in Roundup Ready soybean" April 2008.

*Fickett et al., 2009, Jeschke et al., 2011, Ali et al., 2013

Always read and follow label directions.

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SOYBEANS FOR SUCCESS DECISION GUIDE

PRE-SEED HERBICIDE	ROUNDUP READY 2 XTEND SOYBEANS	
	Pre-seed application of Roundup XTEND VaporGrip	In-crop application of XTENDIMAX VaporGrip
Valtera[™]	<ul style="list-style-type: none"> Multiple Mode of Action defense strategy Improved control of kochia, cleavers, mustard, pigweeds and suppression of volunteer canola Longer residual control 	Glyphosate + Bifecta[™] – or – Fierce[®] (for grasses) ADD BlackHawk[®] (for exceptionally dirty fields)
PRODUCT USE MATRIX	Pre-seed application tank mix	Pre-seed application tank mix
If volunteer HT canola is present 	Valtera[™] + Roundup XTEND VaporGrip	Valtera[™] + BlackHawk[®] + Glyphosate
If cleavers are present 	Valtera[™] + Roundup XTEND VaporGrip	Valtera[™] + BlackHawk[®] + Glyphosate
If glyphosate-tolerant kochia is present 	Valtera[™] + Roundup XTEND VaporGrip	Valtera[™] + BlackHawk[®] + Glyphosate
PLANNED IN CROP HERBICIDE	Glyphosate	Roundup XTEND VaporGrip XTENDIMAX VaporGrip



Grow a better tomorrow.

HAVE YOU SEEN THIS BEAN?

DIDN'T COME HOME WITH THE HARVEST



Species:
Soybean

Colour:
Fuzzy golden coat

Last seen:
Dangling low on the home section

REWARD OFFERED!!

NOTUS^{R2}

2300 CHU
00.1 Relative Maturity

AKRAS^{R2}

2375 CHU
00.3 Relative Maturity

LONO^{R2}

2450 CHU
00.5 Relative Maturity

Higher pods mean higher yields.

Elite[®] soybeans from BrettYoung deliver higher pods ensuring every bean makes it home with the harvest.

BrettYoung[™]
DISTINCT BY DESIGN

ELITE

brettyoung.ca/soybeans

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BrettYoung[™] is a trademark of Brett-Young Seeds Limited. Elite[®] is a registered trademark (owned by La Coop fédérée).

Always follow grain marketing and all other stewardship practices and pesticide label directions. Details of these requirements can be found in the Trait Stewardship Responsibilities Notice to Farmers printed in this publication. Genuity and Design[®], Roundup Ready 2 Yield[®], Roundup Ready[®] and Roundup[®] are registered trademarks of Monsanto Technology LLC, Monsanto Canada Inc. licensee.

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