

# pulse *beat*

Spring • No. 71, 2014

**THREE AUSSIES ABROAD**  
Pulse Agronomy Team Study Tour  
to North Dakota and Canada

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**Organic Soybean  
Production  
in Manitoba**

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**ANTHRACNOSE**  
What Edible Bean Growers  
Need to Remember

➤ page 41



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Vice President\* – n/a at time of printing

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Dennis Lange, Manitoba Agriculture, Food and Rural Development

Yvonne Lawley, Department of Plant Science, University of Manitoba

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**François Labelle**  
Interim Executive  
Director

## FRANÇOIS LABELLE APPOINTED INTERIM EXECUTIVE DIRECTOR

Manitoba Pulse Growers Association is pleased to announce the appointment of François Labelle as Interim Executive Director effective immediately. François has significant experience in the grain industry having been involved in various aspects of production, marketing and processing of pulse crops for 35 years and notes that working with growers is his favourite aspect. Throughout his career, he has been active on various boards including Prairie Fruit Growers Association, Canadian Special Crops Association,

Pulse Canada and was a founding director of Manitoba Pulse Growers Association. François has been involved with the MPGA board since its inception in 1984. His experience working with the MPGA board, knowledge of the pulse industry and experience in agriculture make him well-suited as interim executive director of MPGA. François lives on a farm in Carman where he raises miniature donkeys with his wife Janice. He is also the Manitoba rep for the Canadian Donkey and Mule Association.

## RESEARCH COMMITTEE MEETINGS

In November, MPGA's soybean, edible bean and pea/faba bean/lentil committees met to review research proposals. The soybean committee in particular is pleased with the new, multi-year projects that will help develop best management practices for soybeans both in eastern and western Manitoba. A total of 23 soybean, edible bean and pea research projects were approved. Nine of these projects have been put forward for matching funding

through Growing Forward 2: Agri-Food Research and Development Initiative (ARDI). Growing Forward 2 is a five-year agricultural policy framework agreement among federal-provincial-territorial governments. The ARDI program aims to accelerate the pace of innovation in market development, production and proactive risk management by supporting industry-led research and development activities. We hope to obtain matching dollars for our research projects and increase the value

of soybean levy by 100%. A full list of MPGA approved projects will appear in the summer issue of *Pulse Beat*.

## STRATEGIC PLANNING

MPGA held its annual review of our strategic plan during our December board meeting to ensure that our goals remain relevant given the expanding soybean acres. Some of the goals coming out of the planning session include an increased effort to

*continued on page 4*



## Soybean Scout

Can you identify these soybean symptoms?  
(HINT: Both are related to soil nutrients)

A



B



Answers can be found on page 50

Do you have a production question related to pulse crops that you just can't find the answer to? Maybe you're looking for an opinion or advice? Write to us! Email: [kristen@manitobapulse.ca](mailto:kristen@manitobapulse.ca)

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initiate research in western Manitoba, advocate to have agriculture included in the school curriculum, increase communication to our members and to expand on-farm research. The MPGA board also emphasized the importance of remaining focused on market development and research efforts for edible beans, peas, faba beans and other pulse crops despite the continued expansion of soybeans. Our production specialist has been assigned the task to increase the capacity of MPGA funded agronomy research for edible beans and peas. Further, our new communications and member relations director will focus a part of their time on local awareness and market development on the consumption of pulse crops.

#### INDUSTRY MEETING – EDIBLE BEANS

At both the soybean and edible bean industry meetings, a lot of discussion centred on the Manitoba Crop Variety Evaluation Trials: 2013 marked the first year that results became available in November, which is more timely to aid growers in making decisions on variety selection. There was a consensus from the edible bean industry representatives that acres would increase in 2014 due to good return on investment relative to other crops as well as renewed interest in non-traditional areas. They cautioned that growers should remain committed to segregation and that there may be an increased contamination risk due to the increase in soybean production on land previously used for edibles. Growers should be proactive and communicate any potential contamination risks with their buyer. Suggestions from the edible bean industry for MPGA were to focus research on direct harvest and harvest losses.

#### INDUSTRY MEETING – SOYBEANS

The majority of participants agreed that soybean acres will continue to increase in 2014 due to interest in western Manitoba and commodity price relative to corn and canola. In 2013, there was a relatively high incidence of white mould compared to previous years and anecdotal reports

suggested substantial differences in susceptibility among varieties. A discussion was held surrounding the idea of conducting white mould ratings either in existing variety trials or a separate irrigated trial. While there was no opposition from seed companies, the largest concern was logistics; for example, variability of disease by year and within field would present a challenge for consistent, accurate ratings. Some of the research and development gaps that were brought forward included developing knowledge of *Phytophthora* races that exist in Manitoba, to complement varietal resistance traits. A five-year MPGA funded project “Prevalence, incidence and virulence of *Phytophthora* root rot of soybean in Manitoba soybean fields” is currently being conducted by Dr. Debra McLaren from 2013–2018. Another gap brought forward was the understanding of Manitoba soybean quality parameters. For example, why are Manitoba soybeans at a consistently lower protein, and are there any marketable advantages that we can identify and promote? MPGA agrees that this is an interesting area of research and will keep it in mind for future years. Presentations on soybean

cyst nematode and neonicotinoid seed treatments were also part of the soybean industry meeting.

#### DEVELOPMENT OF A NATIONAL SOY ASSOCIATION

Manitoba growers continue to shift acres to soybeans and this same trend is occurring across the country. Given this trend, soybeans are becoming a national crop and as such we need to begin to look more closely at our export markets and the trade agreements that are being negotiated with various countries to ensure maximum market opportunities. As our total Canadian acreage of soybeans grows it is important to ensure that there is an equally increasing demand for our soybeans which have an enviable reputation of quality, safety and sustainability. To foster these new market relationships MPGA is on a steering committee that is evaluating the potential development of a new national organization which would represent soybeans nationally. Such a “Soy Canada” entity would include all of the value-chain industry participants and as such better reflect the changing and growing needs of the entire soybean industry across Canada. It will be MPGA’s role to ensure that the

*continued on page 5*





growing priorities of western Canadian soybean growers are addressed in this new national organization.

### UNIVERSITY OF MANITOBA SCHOLARSHIP

Manitoba Pulse Growers Association is participating in an Industrial Post Graduate scholarship for graduate student Greg Bartley at the University of Manitoba in conjunction with the Natural Sciences and Engineering Research Council of Canada (NSERC). U of M agronomy researcher, Dr. Yvonne Lawley, was able to match a portion of her project money from MPGA to fund Greg's scholarship. As part of the scholarship, Greg is required to spend part of his time at the sponsoring organization. This is a win-win for both parties. MPGA is able to leverage project money into supporting a graduate student who can then assist our production specialist with agronomy and research related activities. Meanwhile the student is able to gain

valuable work experience. We look forward to welcoming Greg Bartley on board this spring. Greg is from Roland, Manitoba and is working on a graduate project investigating soybean residue management.

### 30TH ANNIVERSARY

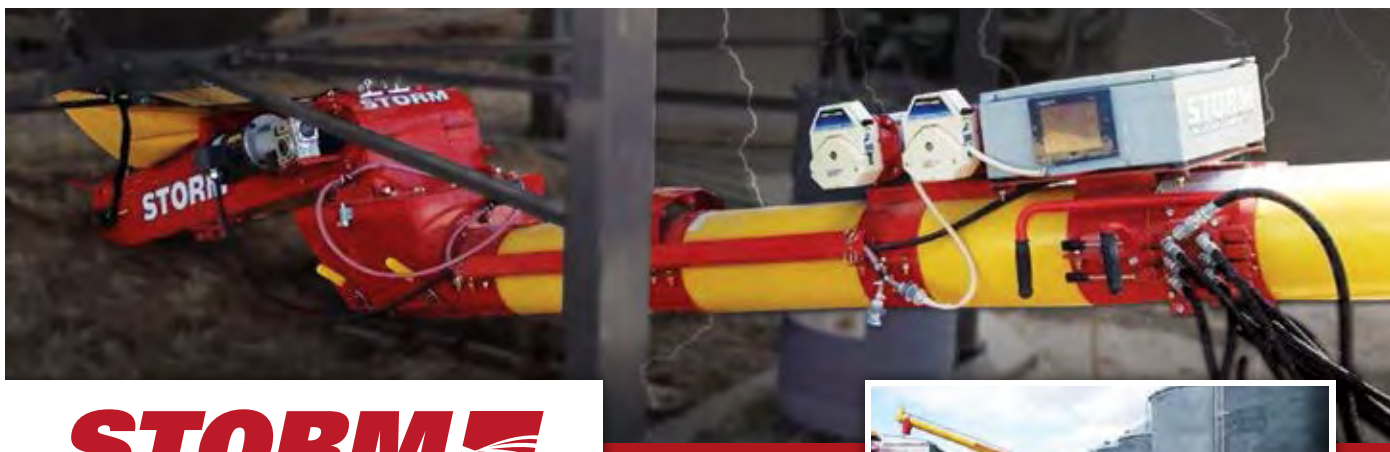
Three decades have passed since the inception of the MPGA. March 13, 2014 will mark the 30th anniversary of MPGA. The founding directors include:

- Don McIntosh, Carberry
- Frank Sissons, Portage la Prairie
- John Rogalsky, Winnipeg
- Bob McCallister, Portage la Prairie
- Elgin Drayson, Neepawa
- Reg Stow, Carman
- John Dueck, Lowe Farm
- Neil Stewart, Roblin
- W.E. Awmack, Winnipeg
- Peter McVetty, Winnipeg
- Ferdinand Kiehn, Morden
- François Labelle, Carman



It is hard to believe how the organization has grown and evolved over the past 30 years starting with acreage of about 60,000 total acres of all pulse crops, and now representing over 3,000 growers who grow about 1.3 million total acres of pulse crops and soybeans – what an evolution! MPGA is in planning mode to put together celebration events to honour this momentous occasion – please stay tuned! 🎉

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# 2013 MPGA COMMITTEES AND REPRESENTATIVES

## MPGA COMMITTEES – The first listed is chairperson

**Executive** – K. Friesen, J. Voth, R. Froese, R. Lewko

**Finance** – J. Voth, R. Froese, R. Lewko, S. Robinson

**Edible Beans** – J. Voth, R. Froese, J. Sawatzky,  
D. Lange, F. Labelle, A. Hou, Y. Lawley, B. Conner

**Peas, Faba Beans & Lentils** – F. Prince, D. Lange,  
F. Labelle, B. Conner, Y. Lawley

**Soybeans** – A. Turski, M. Chorney, R. Froese,  
R. Vaags, A. Knowles, J. Sawatzky, A. Saramaga  
D. Lange, A. Hou, Y. Lawley

**MASC** – M. Chorney, R. Froese, J. Voth, R. Vaags,  
D. Lange (adv.)

## MPGA REPRESENTATIVES

**Canadian Grain Commission Pulse Sub-Committee**  
– F. Labelle, R. Lewko (alt.)

**Canadian Soybean Council** – R. Lewko, A. Knowles,  
M. Chorney, R. Vaags

**Grain Growers of Canada** – K. Friesen, R. Vaags (alt.),  
R. Froese (alt.)

**Keystone Agricultural Producers** – M. Chorney,  
R. Vaags, R. Lewko

- General Council – R. Lewko
- Pulse/Oilseed Sub-Committee – R. Lewko
- Commodity Group – M. Chorney, R. Vaags

**MCVET** – J. Sawatzky, D. Lange (adv.)

**OOPSCC** – J. Sawatzky, D. Lange (alt.)

**PGDC/PRCPSC** – J. Sawatzky, D. Lange (adv.)

**Pulse Canada** – R. Froese, R. Vaags (alt.),  
R. Lewko (adv.)

**Western Canadian Pulse Growers Association**

- WGRF – D. Hilgartner (APG)
- CGC Western Grain Standards Committee\*  
– R. Krikke (APG, expires 2014)

\*4-year term that rotates between: APG, SPG and MPGA

**2014 MPGA COMMITTEES** Restructured committees for 2014 were not available at time of printing.  
Listing will be available on the MPGA website – [www.manitobapulse.ca](http://www.manitobapulse.ca) – and published in the next issue of *Pulse Beat*.

## THANK YOU TO OUR OUTGOING DIRECTORS



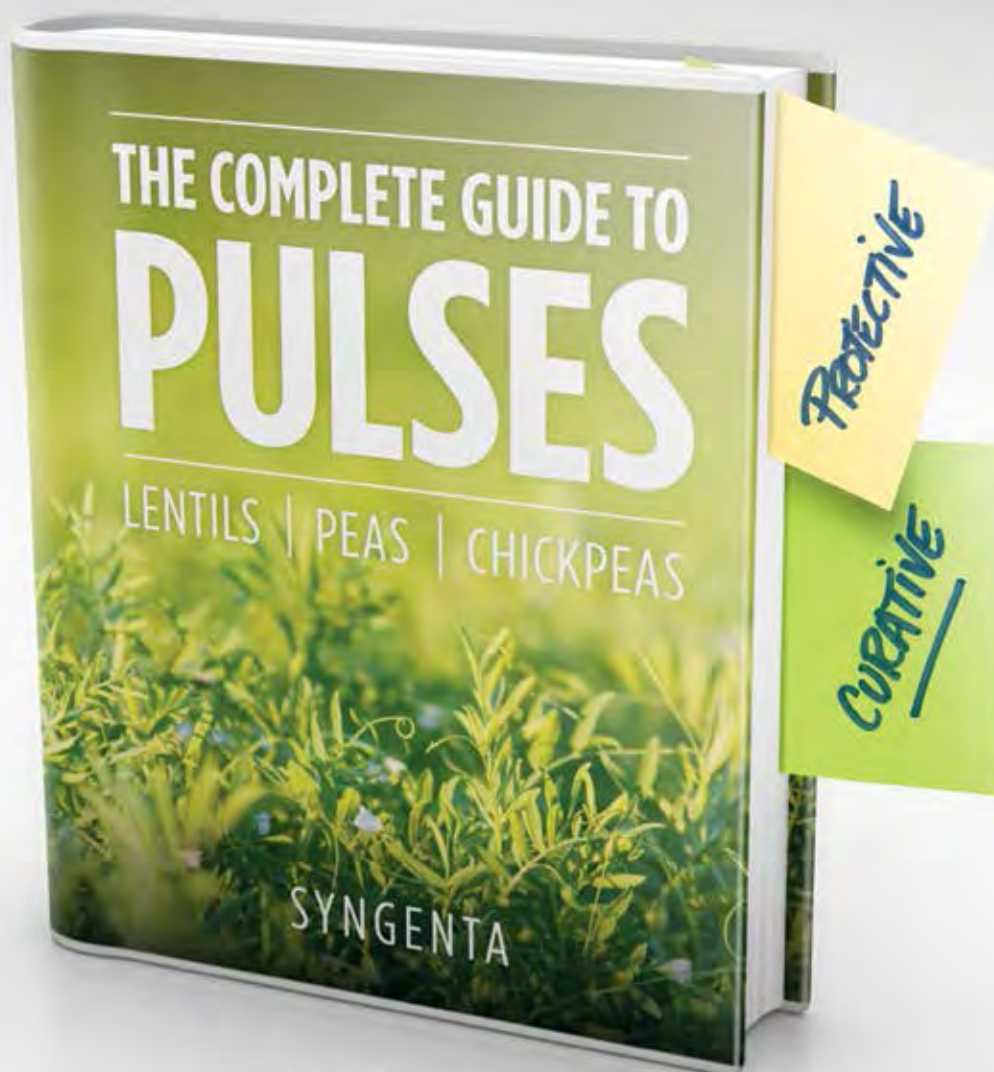
Murray Chorney and Randy Froese

**Murray Chorney** has stepped down from MPGA's board of directors after **six years**. His input, wisdom and insight into issues and opportunities facing soybean production has been very valuable over the years, and Murray brought a unique perspective to our association. He was chair of the MASC committee, a key member on the soybean committee, and one of our KAP representatives. His professionally-worded opinions in board emails and discussions were always highly regarded and respected. We sincerely appreciate the dedication Murray displayed during his time as a director; his ideas around the board table will be missed.

**Randy Froese** has stepped down from MPGA's board of directors after **three years**. In that time, he has made a tremendous impact on the pulse industry and on our association. Randy was very engaged in MPGA activities and energetically participated on the executive, finance, soybean and edible bean committees. Randy was also one of our alternate Grain Growers of Canada representatives and will likely be missed the most as our Pulse Canada representative. Being MPGA's Pulse Canada representative is a very time-consuming and demanding position, and Randy did a tremendous job at fulfilling that role and representing MPGA. His opinions and unique insights will be greatly missed.

*MPGA extends a big and sincere thank you to Murray and Randy for their time served on the board. Best wishes to you both!*





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## “What, if any, other core activities should MPGA focus on to provide better service to its members?”

**A**s mentioned in the fall/winter issue of *Pulse Beat*, we would like to provide a response to some of the questions and comments voiced by our members in the 2012 membership survey. In this second installment, we will address a common response from members when asked, “What, if any, other core activities should MPGA focus on to provide better service to its members?": **increased/better communication with members.**

It's easy for MPGA's board of directors and staff to think that the level of communication with our members is at its best, since we carry out association business on a daily basis. While we are well aware of what's happening, we sometimes lose sight of the fact that our members may not be fully informed of everything we are working on.

Historically, MPGA has sent out news releases, been quoted in print media, maintained a website and published *Pulse Beat* magazine. We also hosted a summer tour, co-hosted the Special Crops Symposium and had presence at Ag Days in Brandon and other events related to pulse promotion (for example, Discover Ag in the City and the Manitoba Home Economists SAGE Conference). MPGA has a Facebook page, although with over 460 followers, we are much more active on our Twitter account, @MbPulseGrowers.

2013 brought about some worthy and notable changes to our communication efforts. In May we hired a production specialist, Kristen Podolsky, to provide members with crop production information and agronomy support. This position has not only provided value to members in terms of in-season

field visits across all pulse and soybean growing areas of Manitoba, but also in the area of communication. In her position, Kristen developed and distributed *The Bean Report* every two weeks. The report is a combination of audio and print: a two-minute radio interview featured on Golden West Radio highlights the timely information found in the written report posted on our website, emailed to those signed up for distribution, and tweeted about. *The Bean Report* has become a highly respected, informative piece that both growers and industry have come to expect and enjoy. It is also quite interactive and gets readers engaged. Kristen incorporated surveys and multiple-choice quizzes into the report and featured the responses and correct answers in subsequent issues. She has since established Soybean Scout in *Pulse Beat*, which highlights soybean agronomy issues using images from the field. (If you're not signed up to receive *The Bean Report*, please visit [www.manitobapulse.ca](http://www.manitobapulse.ca) and sign up today! All 2013 reports and audio clips can be found under the 'For Producers' tab.)

In 2013, staff took the initiative to keep our website fresh and current with regularly updated relevant information. We aim to post new material on the website on a weekly basis, and depending on what's going on, we sometimes exceed that amount. Tweets help us direct traffic back to our website, and the increase in visits to [www.manitobapulse.ca](http://www.manitobapulse.ca) have been tremendous. In 2013, we also made our website both smartphone and tablet friendly, knowing that most of our members are accessing it from their tractor cabs and combines.

We're very pleased with the progress we've made over the past year, but there is even more we want to do. To that end, in January 2014, we advertised a job posting for the position of Director of Communications and Member



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*continued on page 10*



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Relations. We really want to improve our communication efforts, increase our member relation activities, and become more visible to our members and to the general public. Primary responsibilities of this new staff person will be to initiate, develop and execute all communication and member relation activities, with a focus on showing MPGA members value through print materials, events, website, market development opportunities and more.

The second most common response to the question, "What, if any, other core activities should MPGA focus on to provide better service to its members?" was **market development/marketing/more market demand information**. Most of the market development initiatives we fund are managed by Pulse Canada because they have the knowledge, resources and expertise to address issues on national and global levels. However, we believe the response in our survey relates more to crop pricing and farm gate marketing info, and to address that need, the

new director of communications and member relations will be tasked with compiling that type of marketing information for members (for Kristen to distribute with *The Bean Report*) and posting it on MPGA's website. Another area of market development is the consumption side, so the new director will also be managing requests related to pulse consumption, recipe development and demonstration, and initiating ideas to improve public awareness of pulse health benefits and to increase pulse consumption (for example, getting pulses on school curriculum and exhibiting at farmers' markets). The possibilities seem endless.

In 2014, MPGA will be revamping the research section on our website as a means to improve the research knowledge transfer to our members. Currently, we post research project summaries and reports on our website, but we realize the delivery method needs improvement and we want to make the database more searchable and user-friendly. After all, what good

is pumping hundreds of thousands of dollars into research if the results are not being communicated as effectively as possible? The board has also approved funding to develop a few mobile applications for our members – a plant stand assessor, an aphid advisor and a yield estimator, which should all be in place by seeding time. *The Bean Report* will also be broadcast on Saskatchewan radio stations so members on the most western side of Manitoba have access to the useful and advantageous audio report.

In the membership survey, just over 6 in 10 feel MPGA is communicating just enough and receiving sufficient communications from MPGA was rated 4.8 out of 7, which suggests that increased and more strategic communication initiatives may be necessary. MPGA is striving to meet that suggestion and our goal is to see a vast improvement in our communication initiatives by 2015. 🌱

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# MPGA—Working for You!

*Throughout the year the staff and directors of MPGA are hard at work managing the association to bring the most possible value to our membership. This includes such activities as: supporting and funding research and initiatives, market development, advocating in response to key industry issues and communicating and networking with industry leaders. The following are some of our recent activities that support these objectives:*

## Research and Production

- Research committee meetings were held in November and decisions for 2014 funding were made for soybeans, edible beans and peas. Strategic direction was also discussed to address agronomic research gaps in edible beans and field peas.
- Met with Cigi researchers, Peter Frolich and Heather Mascus, to discuss the status of their respective pulse programs. The two programs are: the pulse milling program and the MPGA/SPG funded value/add pulse program.
- Hosted the pulse and soybean industry meeting on December 18th in Winnipeg. Many thanks to the industry representatives who attended and provided their valuable input. This meeting provides great value to MPGA staff and board in providing direction for future activities. Of particular note is that the majority of attendees agreed that Manitoba soybean acres will increase again in 2014.
- K. Podolsky attended Ag Days in Brandon and presented on soybean agronomy and production.
- Met with officials at the Canadian Grain Commission to discuss 2013 pulse crop quality. The CGC developed a report authored by Dr. Ning Wang that details the CGC assessed 2013 quality of peas and lentils in western Canada; this report is available on our website, [www.manitobapulse.ca](http://www.manitobapulse.ca).
- K. Podolsky attended the Iowa Soybean Association's On-Farm Network® Conference in Ames, Iowa to learn about results from their on-farm research. She also met with a research agronomist and operations manager-analytics to discuss the details of developing protocols and analyzing data. This knowledge will be used to expand on-farm pulse crop research in Manitoba.

## Market Development and Sustainability

- K. Podolsky attended a Growing Forward 2 (GF2) meeting and workshop at the University of Manitoba where senior directors from MAFRD

attended to present program information and handle stakeholder questions on the concept and programs available in the new GF2 funding model recently unveiled. MPGA plans to utilize this new federal-provincial-territorial policy framework program to leverage grower levy and increase research capacity in Manitoba.

- Participated in the Round Table on Responsible Soy (RTRS) consultation meeting in Toronto. The session was hosted by GFO to develop a national interpretation document that will fit with Canadian soybean production practices and the global RTRS sustainability certification process for export soybeans. RTRS is a certification based upon a set of accepted procedures and standards that some companies and countries are considering to implement to identify soybean sources produced under accepted "sustainable" production practices. The RTRS session was well attended by global leaders from ADM, Sobeys, World Wildlife Fund (WWF), Ducks Unlimited, CSTA, MPGA and GFO.
- Attended meetings with Economic Development Winnipeg to determine MPGA interest in a pulse crop project designed to use certain pulse ingredient combinations in food products designed and shown to successfully counter diabetes. The project is seen to be of particular value in vulnerable World areas such as Mexico. The project is called *Food and Agriculture for Diabetes Elimination* (FADE) and is a collaborative project between the Richardson Centre, Kansas State University and Grupo Grouma in Mexico. The results of the unique pulse crop combinations for tortilla and pizza crusts is showing very positive health results in recent Manitoba clinical trials. The objective is to create market and processing opportunities for such unique products for the Manitoba pulse industry.
- Attended the Inter-American Institute for Cooperation on Agriculture (IICA) meeting at the Richardson Centre. The IICA is a global agency that develops technical innovation and specialized knowledge to support sustainable agricultural production practices.

## Communication

- Staff and directors attended the Confidential Conversations workshop and seminar in Calgary hosted by CropLife. The session was designed to coach attendees how to handle difficult questions

*We've been busy! ...continued on page 13*



and discussions regarding challenging agricultural issues that we may face in the conduct of our respective leadership positions in agriculture.

- Staff and directors attended and participated in the Grain Growers of Canada (GGC) board meeting in Calgary in early December and provided a 2013 MPGA association update and crop year overview for the GGC board members.
- Participated in the Pulse Industry Round Table (PIRT) meetings that were held in Winnipeg in mid-December. An update presentation was provided on MPGA marketing initiatives conducted in 2013 and ones anticipated for implementation in 2014.
- Staff and directors attended and participated in the Pulse Canada board meetings in Winnipeg. The meeting overviewed the Pulse Canada plans and strategies for 2014.
- Attended a Soy Canada steering committee meeting held in Toronto in mid-December. A Soy Canada concept document was discussed and industry

stakeholders invited to revise the proposed Mission, Vision, Structure and Budget. Target date for finalization of recommendations for the potential Soy Canada entity is March 1, 2014.

- MPGA and representatives from GFO participated in the Western Grain Elevator Association (WGEA) board meeting to provide an overview presentation of the potential formation of a Soy Canada entity.
- K. Podolsky coordinated the development of a position statement regarding the “Neonic” insecticide and bee health issues and the MPGA position. The letter was provided to the PMRA to further voice our view that the decision process must deal with this issue utilizing sound science based information.
- Worked with Pulse Canada and Grain Growers of Canada on the pulse industry positioning statement to be included in the PM’s letter in regards to the Free Trade Agreement negotiations with Korea. 🇰🇷

**For updated information check the website ([www.manitobapulse.ca](http://www.manitobapulse.ca)) or call the office at (204) 745-6488.**

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## Proposed Changes to the Agricultural Marketing Programs Act (AMPA)

*An excerpt from  
Agriculture and Agri-Food Canada  
News Release – December 9, 2013*

**T**he Advance Payments Program (APP) is designed to increase marketing opportunities for eligible producers of agricultural products by improving their cash flow. This is achieved through guaranteeing the repayment of cash advances issued to producers against their agricultural product(s). The APP is delivered by administrators (i.e. third- party organizations – primarily producer organizations), through agreements between them, a financial institution and Agriculture and Agri-Food Canada.

Under the APP, the federal government guarantees repayment of cash advances issued to farmers by the producer organization. These guarantees help the administrator to borrow money from financial institutions at lower interest rates and issue producers a cash advance on the anticipated value of their farm product that is being produced and/or that is in storage.

The APP helps crop and livestock producers meet their short-term financial obligations by providing them with a cash advance based on 50% of the market value of their agricultural products. The APP cash advance is provided at preferential interest rates, and allows them to base their sales decisions on market conditions rather than immediate cash flow needs.

Producers are eligible to receive up to \$400,000 where the first \$100,000 is interest free.

Proposed amendments to the AMPA have been introduced in Parliament to simplify the administration of the APP, reduce red tape, and enhance program flexibility and accessibility.

The proposed changes will:

- Simplify delivery and ease access to the APP for producers by allowing all administrators to issue advances on any type of agricultural product, not just those they market. For producers this means they could have the option of obtaining advances on all their eligible commodities from a single window.
- Allow for multi-year advance guarantee agreements and repayment agreements with administrators to reduce red tape for producers and improve program delivery.
- Provide greater flexibility and options for what will be accepted as security. This means producers could qualify for larger advances by putting up additional security.
- Provide flexibility, through the regulations, to allow breeding animals to be eligible under the program.
- Clarify definitions of a “producer,” such as removing the requirement that an applicant be principally occupied in farming under the Act, so that the APP is reflective of the realities of the sector today.

- Adjust the rules for the repayment of advances, producers who default, default penalties, and stays of default. For producers these changes will increase flexibility and provide more consistency and predictability under the APP.
- Allow the Minister to participate in a mediation under the Farm Debt Mediation Act as a guarantor of the APP advance for better service delivery. For producers this means expedited processing under the Farm Debt Mediation Act and, with the right people at the table to negotiate repayment arrangements, producers will have quicker resolution of their situation.

These amendments follow extensive consultations with producers and industry and will be cost-neutral for the industry.

Existing program rules will remain in place while the Act is before Parliament and until the final authorities are in place. 📄

### MPGA MISSION

To provide Manitoba pulse grower members with production knowledge and market development support, through focused research, advocacy and linkages with industry partners.

## Wild Oats Grain Market Advisory

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# The Bean Report

The Bean Report is your source for soybean and pulse crop agronomy and research. This seasonal three-page bi-weekly publication was initiated in spring 2013 with the goal of delivering timely, independent crop production information and research results directly to farmers. Sign up for it at [manitobapulse.ca](http://manitobapulse.ca).



## Pre-Seeding Agronomy Decisions for the New and Experienced Soybean Grower

**Kristen Podolsky, MSc**

*Production Specialist, MPGA*

**M**anitoba farmers (and agronomists) range in their experience and knowledge of soybean production. Early adopters have been growing soybeans for nearly 10 years and others will be first-time adopters in 2014. This can make it difficult to provide the right agronomy information. This article will provide fundamental information as well as describe new thinking.

### INOCULANTS

There are three types of inoculant available: liquid, peat and granular. For drills, the most common is liquid on seed + granular in furrow. For planters, 2x liquid on seed or liquid in furrow (if planter is equipped with liquid kit) are common practices. Double inoculation increases the bacterial population in the soil and can improve nodulation, especially in fields with no history of soybeans. For experienced growers, the question of whether granular inoculant is required in addition to liquid can come down to a savings of \$12/ac (based on 5 lbs/ac). This question is currently being explored through on-farm field trials by Tone Ag, funded by MPGA. In the first year of the study (2013), the probability of break-even economic return for using liquid + granular was 30%. In other words, 7 out of 10 on-farm trials showed no economic advantage to

using liquid + granular compared to liquid only. These trials were conducted on fields with a 1–3 year history of previous soybean production. While there is currently no method to analyze soil for bacterial populations, this may come in the future. For now, the decision on whether to use one or two types of inoculant should be based on field history. As the number of years a particular field has had well-nodulated soybeans on it, the need for double inoculation will decrease. In parts of the US Midwest, the question of whether or not inoculant is required at all is being asked, but we are not quite there yet.

### PLANT POPULATION

Current recommendations are to achieve a plant population of 150,000 plants/ac. The seeding rate required to get there can depend on the implement being used. For air drills and seeders, 200–210,000 seeds/ac is generally

required because seed survival can range from 60–70%. For planters, only 170–180,000 seeds/ac is usually required because seed survival is often higher compared to drills, ranging from 70–80%. Seed survival at first trifoliolate is affected by germination %, cracked seeds, root rot diseases, competition from weeds and between plants etc. Planters generally have better depth control and seed placement within the row, improving emergence and plant survival. Seed cost is the greatest input expense (approx. \$95/ac), so growers may be wondering if there are any shortcuts. Soybeans, in fact, have an amazing ability to branch out and compensate for reduced plant populations. For example, 100% of yield has been shown to be achieved at plant populations of 120–160,000 plants/ac. MPGA funded research is also exploring

*continued on page 17*

Soybean roots with (left) and without (right) nodulation.





the option to reduce seeding rates by 30,000 seeds/ac for cost savings of \$12/ac. On 17 farms from 2012–2013, farmers compared their normal seeding rates vs. normal less 30,000 seeds/ac in replicated strip trials, coordinated by Tone Ag. The average yield gain from using their normal seeding rate was 0.4 bu/ac, which does not cover the cost of the additional 30,000 seeds. These preliminary results suggest that seeding rate recommendations may be lowered in the near future. This data is supported by a study being conducted by Agriculture and Agri-Food Canada across seven locations in Manitoba which is showing that yield response levels off somewhere between seeding rates of 160 and 200,000 seeds/ac. *The key to making decisions on your farm about seeding rates, is knowing what final plant populations you have achieved in previous years.* If you consistently achieve plant populations greater than 150,000 plants/ac, you may consider reducing your seeding rate. Plant populations should be evaluated at first trifoliolate and again pre-harvest.

### SEED TREATMENT

There are three options for seed treatments when it comes to planting soybeans: fungicide + insecticide, fungicide only, or no seed treatment. Dr. John Gavloski does a great job of describing when it is appropriate to use seed treatment with an insecticide component (i.e. Cruiser Maxx) in this magazine (page 36), so I will only discuss fungicide seed treatments here. If wireworms or seedcorn maggot are not a problem in your field, a fungicide only seed treatment (i.e. Apron Maxx) is a logical option for you, and a lower expense. A fungicide seed treatment can protect against early-season fungal pathogens including *Phytophthora*, *Pythium*, *Rhizoctonia spp.* and *Fusarium*. Seed treatments can improve plant population and minimize root lesions caused by these pathogens, which can lead to higher yield. Calculations from Wisconsin show that the probability of a break-even response when using Apron Maxx ranges from 72–84% and Cruiser Maxx ranges from 56–88%

Use the hula hoop method to assess plant population in solid-seeded soybeans or linear row method for row cropped beans.



with 40 bu/ac soybeans ranging in price from \$9–12/bu (Esler and Conley 2012). Thus, the use of a seed treatment does not always result in a positive economic return. Keep in mind that environment plays a significant factor when it comes to crop response to seed treatments; a positive response is more likely when planting into cool soils with precipitation in the forecast. Independent studies investigating the use of seed treatment on soybeans in Manitoba growing conditions are currently lacking but MPGA plans to address this gap in the coming years.

### NOTICE OF NEW REGULATION ON SEED FLOW LUBRICANTS

Health Canada's Pesticide Management Regulatory Agency (PMRA) issued a Notice of Intent in September 2013, *Action to Protect Bees from Exposure to Neonicotinoid Pesticides*. A 90-day consultation period was held for the public to provide comments. After an in-depth consultation with industry and researchers, Manitoba Pulse Growers Association submitted comments in January 2014. In brief, we emphasized that neonicotinoid is an important management tool for growers (to protect soybeans against wireworms and seedcorn maggot) and also that the factors affecting bee health include, but are certainly not limited, to insecticides. Going forward, MPGA respects PMRA's decision to implement additional protective measures and emphasizes that a resolution must

meet the needs of both crop producers and pollinator providers. One of these additional protective measures includes *requiring the use of safer dust-reducing seed flow lubricants*. In other words, talc and graphite will not be permitted for use with neonicotinoid seed treatments (i.e. Cruiser Maxx); the new product *Fluency Agent* by Bayer Crop Science will be the only product allowed to be used. This product will come at a cost of approx. \$0.19/ac and will be available from your seed supplier. Keep in mind that talc and graphite may still be used as seed flow lubricants with seed that is not treated with an insecticide component, for example, Apron Maxx fungicide seed treatment. Going forward, we encourage producers to adopt responsible use practices. For example, producers should only use neonicotinoid seed treatment when there is a risk of wireworm or seedcorn maggot damage in your field and ensure proper handling and storage to minimize dust and exposure. Using neonicotinoid seed treatments appropriately is important in order to preserve our access to this technology. In this issue of *Pulse Beat* (page 36), Dr. John Gavloski describes in detail when it is appropriate to use an insecticide seed treatment.

The Bean Report is continued on page 18



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## Soybean Research from MPGA – Where We Have Been and Where We Are Going

Soybean acres reached 600,000 acres in Manitoba in 2011 and have since increased linearly, topping nearly 1.1 million in 2013. A conservative increase of 20% is projected for 2014. This growth can create a sizeable dilemma for any type of business or industry. Prior to 2011, investment into soybean research was limited and it was still uncertain whether soybeans were here to stay. When a new crop comes into a region, you have to look to other growing regions for fundamental production advice to get started: seeding rate, disease threats, harvest timing etc. The Midwest US and southern Ontario have provided much of this data for us, but this type of data will only take us so far. We know that production practices have a significant interaction with environment. In other words, optimum production practices will vary depending on soil type, climate etc. This is why it is critical to have research conducted locally to optimize production recommendations for farmers in our region. As production specialist with MPGA, my job is not only to deliver production information to growers and industry, but also to facilitate research to provide local answers. Due to the linear growth in acres, the cart may be in front of the horse when it comes to soybean research. As of now, we have more questions than answers:

- What are the optimum phosphorus fertilization practices for soybeans in Manitoba?
- How much yield loss is caused by volunteer canola in soybeans?
- Can we reduce seeding rates similar to levels being recommended in Iowa? Will this affect maturity?
- What is the best crop to grow before and after soybeans?
- Can we direct seed soybeans into corn and wheat stubble like Ontario and North Dakota?
- Are heat units the best way to describe soybean maturity in Manitoba, how important is day length sensitivity?
- Does it make economic sense to use both liquid and granular inoculant or is liquid inoculant sufficient?
- When is Soybean Cyst Nematode going to impact production in Manitoba?

I'm glad to report that all of these questions are currently being investigated by Manitoba researchers, or is set to begin in 2014. The number of soybean research projects funded by MPGA, and dollar investment has tripled since 2011. It's no secret that publicly-funded agricultural research is decreasing in Canada, which makes investment by grower groups (producer levy) even more important. It is these research projects that will support the growth of soybean acres into western

Canada and sustain production levels. In the next five years, I see collaborative soybean research continuing to extend into western Manitoba and Saskatchewan, facilitating a robust data set across a range of environments. Manitoba Pulse Growers Association also sees value in on-farm research. Investment into on-farm research began in 2010 and has continued to increase each year forming into what we will now call our *On-Farm Network*. We have three on-farm researchers set to conduct trials in 2014 and for the first time, our network will be expanding into western Manitoba. New research will explore residue management with field-scale equipment. Down the road, it may be possible for us to help you facilitate your own on-farm research and contribute to the power of "Big Data." Clearly, MPGA has a lot of research in the works over the next five years, it's exciting stuff!

In the end, the development of a scientific agronomy database will facilitate an increase in production levels (and profitability) by optimizing management practices. Developing best management practices for crop establishment, fertility management, pest management, harvest management and crop rotation in concert with continued breeding efforts will pave the way for a vibrant, profitable and sustainable soybean industry in Manitoba. 

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## Pulse Canada

### THE EVOLUTION OF QUALITY STANDARDS

The definition of pulse “quality” is evolving. As the use of pulses expands from being a soup ingredient, a salad or part of a curry, to being used in other everyday foods like pasta, bread and breakfast cereals, the definition of quality is being pushed to new levels. The quality for a pulse used in soup might be defined differently than a pulse used for a snack or breakfast cereal. Quality measures are also becoming more complex with the use of pulses in different forms. Pulses are most often consumed whole, but they can also be ground, precooked, flaked, fractioned or puréed to make convenient and quick-cooking ingredients. Pulse fractions like flours, fibres, proteins and starches can all differ in purity and performance

expectations. This diversification of products and ingredients has brought with it different ways to look at quality.

This is all good news! Pulse ingredients are gaining traction in the food industry. New product launches containing pulse ingredients have increased 10-fold in North America over the last decade, from 160 new pulse products in 2002, to 1750 in 2012 (Innova, 2013). Not only are pulses making their way into a diverse range of new applications, the number of companies and manufacturers introducing pulses to their product lines is also increasing. The food processing industries in countries like India, China and the Middle East are including pulse ingredients in noodles, biscuits and salty snacks. Examples of North American food product launches include products such as Rice & Bean Triscuits by Mondelez, Fibre One Cereal by General Mills, and the LaraBar by Small Planet Foods.

### IMPORTANCE OF PULSE QUALITY ATTRIBUTES

Quality specifications for pulses when traded as raw commodities look very different than the specifications required of pulses that are used as food ingredients. Traditionally the commodity trade has been focused on physical quality attributes like size, shape and colour. Seed integrity and degree of wrinkling are also important in commodity breeds. When pulses are processed in commercial food manufacturing environments, parameters such as cooking time, rate of water hydration and gelling properties become important for the efficient operation of the plant.

Food companies that are required to label nutritional value want the guarantee that they are getting superior quality in food ingredients and that they are getting a consistent value for nutrients like protein, fibre, vitamins and minerals. From a food

*continued on page 20*

# Can you handle larger soybean yields?

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manufacturing perspective, the product developer needs assurance that the ingredients will function consistently to their processing standards. For instance, they will want to ensure that the pulse ingredient can properly thicken, absorb water, emulsify, foam or dissolve within their process formulation to achieve the desired body, texture and taste in the final food product. As consumers expect food to be the same every time they buy items like a loaf of bread, pasta noodles or crispy crackers, parameters like starch damage, flour granulation and particle size suddenly become determining factors that will help food manufacturers deliver the quality foods consumers expect.

#### HOW IS PULSE INDUSTRY ADAPTING TO THESE CHANGING MARKETS?

The evolving market requirements for quality standards pose both opportunities and challenges for the pulse industry. To capture the opportunities in the processed food sector, the pulse industry will need

to create the capacity to supply pulse products that satisfy the exacting quality requirements of the end user. "We are witnessing an emergence of pulse ingredients that are distinct in both form and performance and there will be a need for ways to measure the quality of these ingredients," says Tanya Der, Manager of Food Innovation & Marketing with Pulse Canada.

The pulse industry is currently working to ensure a) consistency in assessing pulse quality attributes, and b) that the methods for quality evaluation are available and accessible to organizations and labs around the world. Because the makeup of pulses is different than other grains, traditional tests used to characterize quality in the wheat or soy industry may not necessarily work for pulses. For instance, measuring the water absorption capacity of pea flour using the method intended for soy flour could cause issues with gelation and skew readings. Therefore, modifications of existing methods are needed to accurately analyze pulse ingredients. Modifications could include stating a specific granulation in the sample prep or adjusting water addition and tempering conditions.


#### HARMONIZATION OF PULSE QUALITY EVALUATION METHODS

CICILS, the international pulse association, is currently undertaking a project, Harmonization of Pulse Quality Evaluation Methods, to assess the potential for developing uniform standards for pulse quality test methods. The food and ingredient industry will be surveyed to determine the level of interest by the 'end user' of pulse ingredients in establishing international standards for characterization of pulses. Examples of survey questions include: which pulse ingredients are being tested, what quality measurements and methodologies are being used (or being

requested of their suppliers), are there any challenges to quality testing, and would their company benefit from standardization of methods specific for pulses. The survey will be completed by the end of 2013.

An international strategy for harmonization of methods to determine pulse quality is important to the industry as it will ensure marketing messages on pulse quality parameters are consistent and comparable between products.

There are various associations focused on standardization of analytical methods. One association is the American Association of Cereal Chemists (AACC) Technical Methods Committees, a group that originated in 1922 when food scientists found the need to standardize methods in the wheat industry. In 2002, the AACC expanded to include a methods committee specific for pulses and legumes. This Pulses and Grain Legumes Technical Committee develops new methods and is a respected source for methodology in the international food industry. Recently approved methods include, *Determining Cooking Time for Pulses*, and *Determining Firmness of Cooked Pulses*. Cook time and seed firmness are important quality characteristics that are of interest to researchers for assessing cook quality (e.g. hard to cook phenomena) and particularly to those processing or canning whole pulses. The committee agreed that *Water Hydration Capacity* (WHC) should be the next method of focus. WHC analysis will be important as pulse flours and fractions become more prominent as a functional food ingredient.

The pulse industry has a broad range of diverse markets it caters to. Defining the tolerances requires an agreement on how that tolerance will be evaluated so that both buyer and seller can have the assurance that what is being traded meets everyone's needs. Harmonized testing and availability of standard methods will be integral for the industry in accommodating the needs of these ever growing and changing markets. 

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Land that has been through some rough times or has not had soybeans for a few years requires special attention when it comes to inoculation. The goal is to

supercharge the soil with a heavy load of rhizobia to ensure the best possible nodulation and soybean performance. Land with no history or many years between soybean crops and land that has been flooded or had longer periods of drought, is not conducive to rhizobia survival. It is in these soils that farmers will benefit most from the application of both Optimize and TagTeam.

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## Rail Service Needs Long-Term Solution

**Janet Krayden**

*Public Affairs Manager  
Grain Growers of Canada*

As of the writing of this column, rail service in Canada has rapidly become a pressing and urgent concern. A CN rail strike was averted late February 5th after an emergency debate in Parliament. Labour Minister Leitch had also committed to introducing back to work legislation.

The labour dispute close call only highlights the frustration to farmers that after harvesting the best bumper crop in history, grain is backed up all the way to port. Carryover stocks for several of the grains will be large. In many cases, this could mean farmers not being paid for last year's harvest until after spring planting, translating into a serious cash flow issue for many farmers.

Other industries are feeling the economic impact of not enough rail cars. And the rail service issues are not just related to export needs. The availability of livestock feed in the Fraser Valley, British Columbia is being affected. And reports also indicate that poor rail service is affecting the national food supply as both millers and maltsters indicate unsatisfactory service to move grain to mill and malt locations and to market. Extra shipping costs are being applied.

Grain Growers of Canada farmer directors were invited to participate

in a Ministerial Round Table with railway officials and grain companies Monday, January 21st to find solutions related to the grain backlog addressing the immediate need. At the meeting, Grain Growers farmers asked the railways if they have a plan short term or long term.

Manitoba Pulse Growers Association president and GGC director, Kyle Friesen, played a major role in this meeting with the railways and a meeting following with Grain Growers' farmers and Minister Ritz. Cash flow issues for farmers this spring remains a concern for most producers.

Grain Growers has continued its dialogue with the railways, with the grain companies and with the federal government encouraging better communication for everyone in order to get the grain moving. More regular measurement and public reporting will shine a light on the issue. The railways gearing up to alleviate the grain backlog needs to translate into long-term service solutions in the future so that rail service is responsive to the expanding business that farmers, as rail customers, are offering.

GGC supports the leadership of Pulse Canada with their new project, which will help to measure rail service supply chain efficiency by providing good data to help communicate long-standing rail service issues to be used in the upcoming 2015 rail service review process as a means to turn things around in the long term.

Canada is the fourth largest agri-food exporter in the world. So it is a concern that rail service issues are hurting Canada's international reputation as an exporting nation, which is what Grain Growers directors are hearing while on trade missions.

Farmers had a record crop last year with a significant increase in yields. A buoyant farm economy, better genetics, increased usage of new and better fungicides, overall better agronomics, and better utilization of micro-nutrients in fertilizer application were all contributing factors. While good crops are always weather dependent – because of these new technologies and better and more sustainable farming practices, there is no doubt that farmers' yields will continue to increase.

### MORE ACTION IS NEEDED.

The railways need to add serious capacity because this is the new reality. Adapting to larger grain shipments combined with the needs of the oil industry and other commodities is a priority for the Canadian economy.

Commercially, more traffic should be good news financially for the railways. So if the railways have a plan to add capacity, farmers need to hear about it. Because with better crop genetics and good weather, Canadian farmers will conceivably have more grain to ship next year and in years ahead.

When it comes to volume, this is the new normal. 🌾

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KAP founders Bert Hall (left), Jack Penner and Earle Geddes in a 2009 photograph taken at KAP's 25th annual meeting.



**A**lmost a decade ago, when the Manitoba government decided to hold public consultations on expanding the Red River Floodway, Doug Chorney and other local producers went to an open house to voice concerns about the possible impact on their land. Government officials listened politely but nobody took notes and Chorney felt they really weren't all that interested in what farmers had to say.

Then Chorney asked Keystone Agricultural Producers to get involved. Suddenly, things began to happen.

Meetings were held. Agendas were drawn up. Minutes were taken. Questions were asked. All of a sudden, the government was taking producers and their concerns very seriously indeed.

For Chorney, who previously knew very little about KAP, it was an eye-opener.

"That's when I realized the power of the organization," said Chorney, who has since risen to the position of KAP president. "We became the voice of every farmer who was concerned about how the floodway was going to affect their flooding conditions, groundwater, you name it."

For 30 years, KAP has dealt with nuts-and-bolts matters that affect individual producers on their farms. Often operating under the radar with little publicity, KAP influences government policy on a range of issues many people never even think about but which directly influence the way farm operations run.

Just this past summer, KAP's two-year long lobby effort to delay the provincial coal ban achieved success. The government had originally set January 1, 2014 as the date for banning the use of coal for space and water heating. KAP persuaded the province to delay enforcing the ban until 2017 to give producers more time to switch to alternate heating systems.

*continued on page 24*

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**Tracey Drabyk-Zirk**

*Rural Leadership Specialist  
Manitoba Agriculture, Food and  
Rural Development, Beausejour*

*Adapted from a media release by  
Mary Carver, P.H.Ec. of the Ontario Home  
Economics Association – 1/6/2014*

## HAPPY 2014 TO FAMILY FARMERS

Those who have stopped by my workspace will have likely noted a sign on the door. It reads, “If you ate today, THANK A FARMER.” It sums up the respect that we should

hold for farmers. The United Nations has done more than that. The United Nations has declared 2014 as the *International Year of Family Farming*.

According to the United Nations website, family farming is important for three main reasons:

- it is linked to world food security
- it promotes balanced diets and helps protect biodiversity
- it promotes strong local economies when coupled with other policies which serve to protect the well-being of communities

The proclamation aims to increase awareness of the importance of family farming in addressing world issues such as poverty, food security and protection of the environment.


Many agricultural organizations will support the United Nation’s focus on the family farm. In turn, we trust that

the special recognition will translate into improved public understanding of the role family farms play in society.

While each generation seems farther removed from the farm that produces its food, farmers know the breadth of their plight as they struggle to compete in global markets against rising costs and climate challenges. Too often as consumers, we take food security for granted.

The International Year of Family Farming reminds us that sustainability of the family farm depends on informed consumers. What role can you play in getting the word out?

Let us celebrate 2014 by supporting local farmers, their families and by informing consumers!

<http://www.fao.org/family-farming-2014/home/en/> 

continued from page 23

Early in 2013, KAP was instrumental in getting the Manitoba Office of the Fire Commissioner to ease requirements for venting on-farm grain dryers which were inconveniencing hundreds of producers.

Giving individual farmers a voice was uppermost in the minds of organizers who fanned out across the province in 1984 to gauge support for a new farm organization. By January 15, 1985 the acting chair, Bert Hall, raised the gavel in the banquet room of a downtown Winnipeg hotel to call the first meeting of Keystone Agricultural Producers to order.

Prior to this event, proposed concepts on structure, funding and fees were approved. General council representatives and local delegates were elected. And now, at this January 15 historic event, KAP was off and running with Jack Penner elected as its first president.

It was important for the new organization to establish credibility early on. That came when KAP almost single-handedly took on Revenue Canada over its investment tax credit (ITC) review for agriculture. KAP

considered the situation so patently unfair to farmers that it lobbied federal politicians to have ITC policy reversed. And that’s exactly what eventually happened.

It was a major win for KAP and a huge boost for the fledgling organization. It soon became obvious, however, that KAP’s success was coming at a cost to its elected officials. Membership numbers were still low and operating money was limited.

Gradually, the idea of a membership check-off to provide stable funding began to take hold. However, even the strongest KAP supporters admit the initial check-off – which was and is refundable – never quite worked the way it was intended.


Much of the difficulty lies at the grain elevators and other purchasers of agricultural commodities, where a percentage of the value of a delivery is supposed to be automatically deducted and applied toward KAP membership fees. Purchasers are sometimes reluctant to comply, either because of negative customer reaction or because their accounting systems are not set up to handle the deduction.

Today, out of roughly 100 active designated purchasers of agricultural commodities in Manitoba, only 26 are collecting KAP check-offs. KAP officials say its membership would be at least twice its current level if the check-off were applied uniformly.

To counter this, Chorney these days is actively selling farmers on the advantages of being a KAP member. “The best thing we can possibly do for the future of KAP is to describe its value to farm operations, big or small, so they will come forward and voluntarily pay their memberships.”

To this end, Chorney says KAP’s strategy is to describe in detail how its efforts to influence government policies affect producers’ everyday lives – from truck inspections to drainage licensing.

“We’re not just going to a bunch of meetings talking about big policies that might come to fruition years down the road. We’re dealing with front and centre issues that affect producers on a daily basis.”

And he anticipates KAP will still be doing this another 30 years down the road. 





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In January, a Canadian soybean delegation participated in a market development program in Tokyo and Osaka, Japan. The week-long program that took place January 18th to 25th, was focused on further enhancing Canada's strong relationship with industry associations, government officials and private corporations in

## Do you know about The Bean Report Scouting Network?

The Bean Report Scouting Network is a representative sample of farmers from across the province that allows MPGA's production specialist to survey their fields throughout the summer, as well as monitor crop conditions and pest pressure.

To join the network for 2014, contact Kristen.  
[kristen@manitobapulse.ca](mailto:kristen@manitobapulse.ca)

Japan. Additional focus was also on promoting Canadian soybeans for food uses to potential international buyers, gathering market intelligence from end-users and government officials on soybean market trends in Japan and to gain knowledge of new market opportunities for Canadian soybeans. The delegation included representatives from across the western and eastern Canadian soybean value chain including; a producer, soybean exporters and government officials. The producer participant in this program was Jacob Mann who is a soybean grower from Manitoba. His presentations highlighting his family farm and soybean management practices were very well received at both of the seminar events.

The program events included two large industry seminars in both Tokyo and Osaka. In total, over 180 representatives across the soybean value chain in Japan attended including researchers, whole sellers and soybean

processors. The seminars were titled *Canadian Soybeans: A Success Story*, and highlighted Canada's ability and commitment to delivering a high quality and safe soybean product to our customers. The delegation also visited with several soy food manufacturing companies where they received facility tours and gained a much better understanding of the changing trends and dynamics in the soybean processing industry in Japan.

Japan is Canada's largest market for food grade soybeans and third largest market overall. On average over 350,000 metric tonnes are exported each year valued at over \$225 million. Canada continues to be the largest exporting country for food grade soybeans exported to Japan ahead of the United States, Brazil and Argentina.

A more detailed report on this very interesting soybean market development program in Japan will be highlighted in the summer edition of *Pulse Beat* so please stay tuned. 🌱

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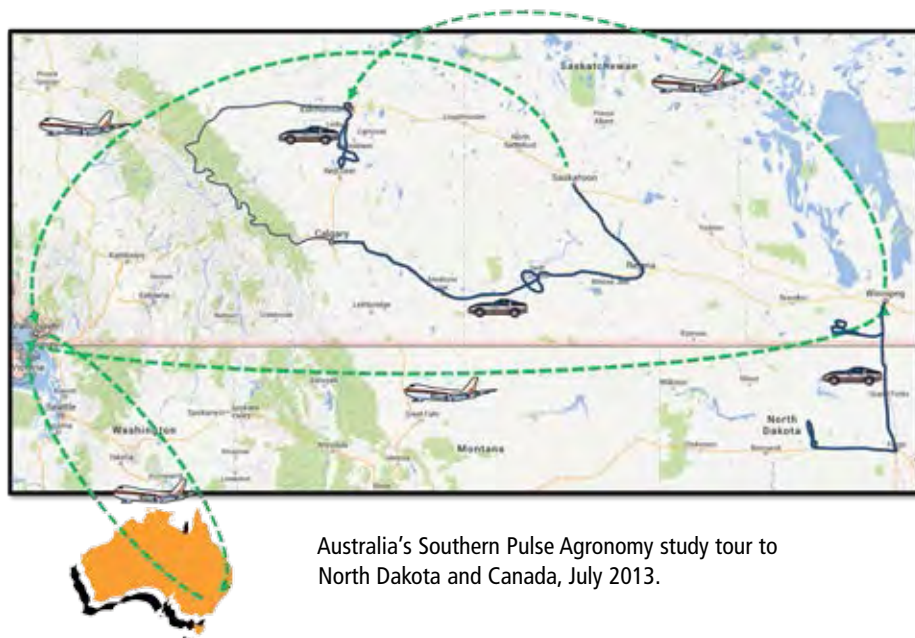
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## Pulse Agronomy Team Study Tour to North Dakota and Canada



Australia's Southern Pulse Agronomy study tour to North Dakota and Canada, July 2013.

**Jason Brand, Mick Lines and Luke Gaynor, Australia's Southern Pulse Agronomy Research Program**

*Editor's Note: This article has not been changed to reflect Canadian spelling. It's proper Aussie spelling!*

**M**ore than 3,000 km by car, 30,000 km in the air in 19 days; tiring yet energising, educational and enlightening; it was fantastic to share with our neighbours on the opposite side of the world in the pulse industry the triumphs and struggles in the research and production of pulses. We just wish to thank all those who contributed their time

to making our study tour such an enjoyable and educational experience.

In July, we (the southern Australian Pulse Agronomy research team) visited leading pulse research groups, industry representatives, agronomists and growers in North Dakota, Manitoba, Saskatchewan and Alberta. It was a great opportunity to learn about the various pulse research programs, the role of pulses in Canadian and North American farming systems. In addition, we were able to present work associated with our research program in various forums, whilst developing relationships that may lead to collaborative opportunities for further research.

The map outlines our journey, starting in North Dakota and southern Manitoba, then on to Alberta before finishing with a drive through southern Saskatchewan to Saskatoon.

### SOME KEY HIGHLIGHTS FROM OUR TOUR

I don't think any of us really understood how BIG Canada is. For starters, it's hard to compare them in the atlas since they are in totally different corners of the page. So when I excitedly told a Canadian friend from Toronto how I was visiting Alberta, Saskatoon and Manitoba I was surprised by her response: "Them's places I ain't never been before, brother." And the size and expanse became so apparent that on returning my standard response to the question, "How was Canada?" became one word: "Big!" *Big* country, *big* landscapes, *big* oil reserves, *big* farms, *big* machinery, *big* pickups, *big* days, *big* humour, but most memorable was people with BIG hearts who opened up their *big* homes to us three Aussies.

The scenery in Canada was amazing, and we had to limit the number of photos to conserve phone storage. The mountains were immensely impressive. Imagine our surprise to find that in this country where big things are even

*continued on page 28*

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bigger, an “escarpment” in Manitoba looks more like a bike jump than a cliff.

Over the trip we gained an appreciation for some of the Canadian soil types, so that what we call in our lingo “black dirt” (which we have very little of), over time became various shades of “black dirt” – black, dark grey, grey, dark brown, and brown. In Australia we have lots of “red dirt,” which is often duplex, having strong horizons. Often the subsoil is a strong clay or limestone, which is difficult for plant roots to penetrate, and can vary in depth from a couple of centimetres to a couple of feet below the surface. Our dirt tends to be much shallower, older and more fragile than your soils.

It was great to see a number of agronomy trials, interspersed with growers, advisors and industry professionals. The enthusiasm of people in the pulse and agricultural industries was infectious. There is some great research ongoing and delivering real results to industry. We hope that moving forward we will be able to develop some

partnerships, sharing results and outcomes across Australia and Canada.

#### THE SPREAD OR SCOURGE OF SOYBEANS...COMPARED WITH AUSTRALIA

As a soybean agronomist in Australia, Luke couldn’t believe his eyes of the amount of soybean crop after soybean crop. A big soybean crop in Australia is around 50–60,000 acres, which we basically saw on our first day. Luke’s enthusiasm for the crop soon grew on Michael and Jason as they too developed a passion for the crop (just kidding).

On a lighter note, where are the bears in Canada? Are they nocturnal? Do they hide in the massive pea crops around Edmonton (our field pea crops are so small in comparison a brown snake would struggle to hide)? Do the myriad of small squirrel-like creatures evolve into bears? Do they avoid people with Australian accents? Do they even exist? We went driving through mountains and walking through ski

fields, stopping at every remotely “bear-like” object. In our desperation to see one of these threatened creatures we were nearly locked into a ski field in our hire car. Finally the best we could manage was an underweight and heavily immobilised bear in the main street of Jasper (see photo).



Mick with the only bear we saw – Where are they all?

*continued on page 29*

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We applaud the Canadian ingenuity of confusing tourists. Cars are made left-hand drive, to be driven on roads where the majority of people (yes we did occasionally transgress) drive on the wrong side of the road. A sign in Manitoba could be written in miles or kilometres only several hundred YARDS apart (yes that was an attempt to imitate). Not to mention the ability to rattle off figures in various metric, imperial and “impetric” combinations in style (lb/ac, kg/ha, bu/ac, t/ac, c/lb). Is it the French influence? It was both confusing and impressive at the same time.



We may work on pulses, but our passion is profitable farming systems – so we were happy to look at some other crops... ‘The yellow peril’ in southern Manitoba, sharing with Kyle Freisen.

We have heard that you have had a good snowfall this winter, indicating potential for a good season in 2014. Snowfall, as a form of indicator, must be very valuable as an indicator prior to the start of the season. For us in southern Australia our only season indicators are stored soil moisture (negligible), summer rainfall (bugger all) and great aunt Edna’s arthritis pain (which always seems to predict weather changes but is rarely accurate).

#### SOUTHERN PULSE AGRONOMY – WHO WE ARE AND WHAT WE DO!

Jason Brand is a senior research agronomist with the Department of Environment and Primary Industries – Victoria. He has over 15 years experience with pulse research, particularly in the areas of agronomy, breeding and nutrition. He leads the Southern Pulse Agronomy Program.

Mick Lines is a research agronomist with the South Australian Research and Development Institute, based in


the Clare Valley wine region. Mick has six years’ experience with pulse research and breeding, and is passionate about stubble management and herbicide tolerance for maximising profitability of pulses in farming systems.

Luke Gaynor is a research leader of grain research in dryland and irrigated crops in southern NSW farming systems. Crops include wheat, canola, barley, fababeans, field peas, chickpeas, lentils, lupins, vetch, soybeans, cotton and rice.

Southern Pulse Agronomy is a tri-state research program in Australia, funded through the Grains Research

and Development Corporation, and the Victorian, South Australian and New South Wales State governments. The program undertakes research aimed at increasing on-farm productivity, reliability and profitability of lentil, field pea, chickpea, fababean and lupin in south eastern Australia. It closely links with the respective national breeding programs under Pulse Breeding Australia (PBA) delivering:

1. **Variety specific agronomy packages (VSAP)** – delivering benefits of new varieties to growers. Targeted agronomic research to produce data for new pulse varieties which will be synthesised into management packages for the southern Australian cropping regions in collaboration with PBA and other pulse breeding organisations.
2. **Profitable pulses for modern farming systems** – matching best genotypes to best farming systems. Strategic genotype x management research that provides: direction to PBA on potential genes/traits that confer advantage in new farming systems; information on how to agronomically maximise the benefits of new traits/genes currently recognised in the breeding program and the impacts of the genotype x management interaction on soil moisture. More specifically, research will be focussed on two areas:
  - a. Understanding the agronomic importance of traits linked with weed management, eg. early maturity, herbicide tolerance, competitive plant types including forage types.
  - b. Identification of traits that are required to maximise production in modern minimum or no-till farming systems.

The collaboration between breeding and agronomy aids with the efficient uptake of new varieties, ensuring that the breeding program maximises its cost benefit returns through the development of new varieties. 

Australia’s Southern Region Pulse Agronomy team: (L–R) Luke Gaynor (NSWDPI), Michael Lines (SARDI) and project leader Jason Brand (VIC DEPI) on the Athabasca Glacier, Alberta, Canada.



**Brian Clancey***Senior Market Analyst and Publisher*

**A**lmost across the board, pulses are registering a better performance for many North American farmers than grains and oilseeds this season. In Canada, growers and processors have seen somewhat better movement than they have for grains and oilseeds. More significantly, prices have not fallen as far as for the other field crops. This combination will pull land back into pulses this year. Dry edible bean, lentil and field pea seedings are expected to rise, while

chickpea area in Canada, the United States and Mexico is expected to drop.

With the exception of chickpeas, pulses have registered a relatively better price performance than grains and oilseeds. Agriculture Canada's average price forecasts for wheat are down 25% from last season, while average prices paid for durum are expected to slide 22%, barley 32% and canola to fall 22%.

In Canada, average growers bids for large green lentils are down 4% compared to the same six-month period during the 2012–13 marketing year. Average bids for medium green lentils are down around 9% and small

green down 20%. Yellow pea bids have fallen more quickly than green, sinking almost 20% from last season, while green peas are down around 8%, and chickpeas down 20%. Only red lentils and the dry edible bean complex are moving the opposite direction. Prices paid to red lentil growers in Saskatchewan are up 5% over last year, while average prices paid to North American farmers for dry edible beans are 15% higher.

Dry edible bean prices are outperforming other pulses because of tight supply fundamentals caused by last year's weather problems. Drought devastated Argentina's crop, especially white alubia beans. Wet conditions prevented North Dakota farmers from planting all the beans they hoped. Meanwhile, China managed to increase land in white beans in response to world market conditions, but flooding in key production areas caused a sharp reduction in the harvest.

The net result is that farmers in many countries are expected to try to increase land in edible beans this year. This has already been seen in Egypt, which boosted large white bean output, but not enough to materially affect supply fundamentals. Ethiopia is expected to increase seeded area, as will farmers in Canada and the United States.

Last year's North American harvest was down 24% at 1.32 million metric tons, while seeded area was down 22% at 1.56 million acres. Canada's harvest ended up at 206,100 metric tons from 245,000 acres; while the U.S. harvest totalled 1.11 million metric tons from 1.35 million acres. Land in beans is expected to rise at least 13% to 1.81 million acres, with the potential for a larger increase in cereal and oilseed values to continue to weaken relative to beans and other pulses. This is especially true of North Dakota, the most important producing region in either Canada or the United States.

Combined dry edible bean output in Canada and the United States now sits at 1.317 million MT in 2013, down



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per acre

**RETURN  
ON INVESTMENT**  
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per acre

Based on a soybean price of \$12.00/bu



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24% from 2012. Though ending stocks were up sharply, the available supply of beans is down 15% at 1.527 million MT, compared to the recent five-year average of 1.595 million MT. While inventory should be more than adequate to meet North American domestic needs, bullish markets conditions for white beans and some classes of coloured beans outside North America have had a positive impact on both grower bids and inter-dealer markets so far this season. The implication is that it will be easier to convince growers to stick with or increase land in beans in 2014.

In North Dakota, field peas, along with pinto, black and navy beans are generating better gross returns per acre relative to wheat, corn or soybeans than at any time in the past decade. Compared to corn, lentils are doing better than normal, but not as good as normal compared to wheat and soybeans.

It is extremely difficult to convince farmers to start growing edible beans

for the first time, but the numbers suggest that farmers with experience growing beans could return to the crop and/or expand area.

Getting North Dakota and Montana farmers to try growing peas for the first time is made easier by the fact the crop is now covered by the U.S. Farm Bill and actively bought by the USDA for shipment as food aid. Among experienced growers, processors in the United States report excellent uptake on new crop production contracts, bolstering the thought area will expand for the third consecutive year. In fact, there is a chance total field pea area in the United States could push past 925,000 acres to set a new single season record.

Land in field peas and edible beans is also expected to increase in Canada this year. One wrinkle in the new crop outlook is that Saskatchewan farmers are still in the expansion phase for soybeans, which has increased competition for land use among crops

in southeastern Saskatchewan. This is expected to have more impact on lentils than peas.

In the case of dry edible beans, combined area in Canada and the United States is expected to rise at least 13% to 1.81 million acres. Average yields would result in a 24% jump in production to 1.4 million metric tons. However, market sentiment favours a bigger increase.

Without crop production problems in a key producing area, average trading levels for dry edible bean will be lower than this season. Markets for large calibre white beans are expected to remain strong because production is not expected to match demand until 2015, suggesting they will experience the smallest decline. Coloured bean values are expected to experience a stronger downward shift unless there are unexpected problems with crops in Brazil, Mexico or China. 🌱

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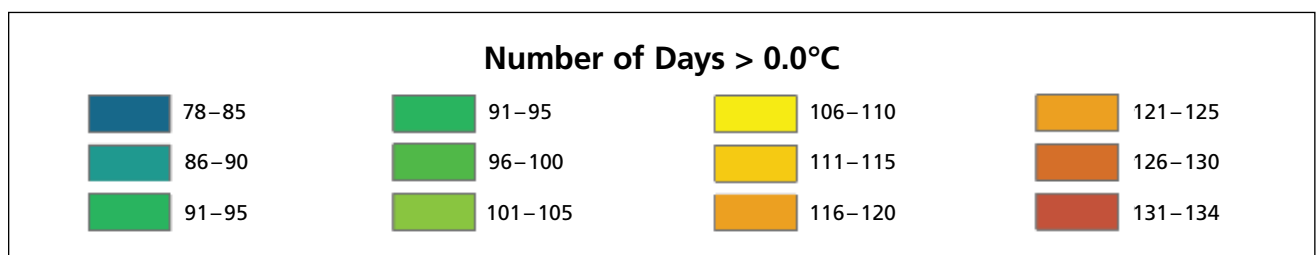
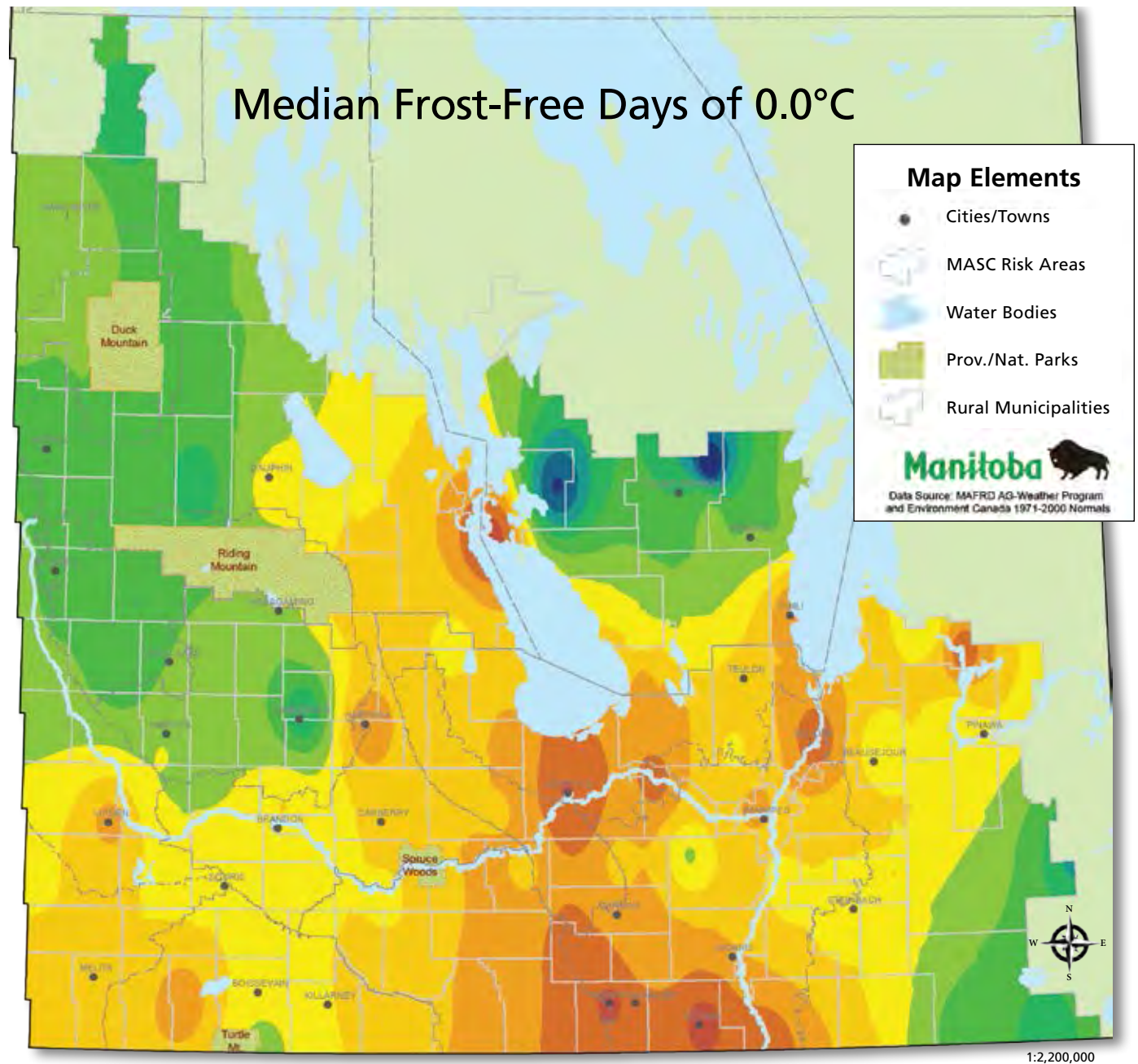


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Mike Wroblewski – [mike.wroblewski@gov.mb.ca](mailto:mike.wroblewski@gov.mb.ca)

## Farmers Rethinking Their Rotations

**Jennifer Stow**

*General Manager, Manitoba Seed Growers Association*

It takes a special kind of crop to make farmers rethink their rotations these days, and by all indications, soybeans in Manitoba, like canola did in the 1970s, are doing just that. The crop has many significant benefits including its nitrogen fixing capabilities meaning lower inputs, relatively few pests, new varieties that perform well in northern regions of North America, flexibility in growing practices (solid-seeded or in rows and harvestability), and appealing returns in the marketplace are making soybeans an integral part of the Manitoba picture. What was once a landscape in Manitoba of solid yellow canola fields, year after year, is increasingly being replaced with soybeans. Like all new crops,

however, there is still some risk, and as acres increase the potential for pests will also increase. Added to this, the possibility of an early frost could spell disaster for producers.

According to Dennis Lange (acting provincial pulse specialist) with Manitoba Agriculture Food and Rural Development (MAFRD), “Over the last five years we have seen an exponential growth of soybeans topping out at a million acres in 2013. Given a nice open fall with a late frost, I anticipate this to continue to increase over time. Growers still need to be diligent on variety selection and choosing varieties that are suited for their growing region.”

The growth can't be argued, as evidenced by Manitoba crop insurance records. Acres of soybeans grown in Manitoba have been increasing significantly over the last five years (includes Pedigreed production).

2013	1 million acres planted
2012	831,000 harvested
2011	580,000 harvested
2010	523,000 harvested
2009	423,000 harvested

*\*Source: MASC records provided by Dennis Lange (MAFRI)*

This hasn't gone unnoticed by the provincial crop insurance agency and successful lobbying by the Manitoba Seed Growers' together with the Manitoba Pulse Growers' has resulted in favourable results for Manitoba growers in regards to coverage areas. For the 2013 crop year, Manitoba Agricultural Services Corporation (MASC), the body that administers the provincial Crop Insurance program, announced an insurance test area to cover all parts of the growing area in Manitoba.

### WHAT ABOUT PEDIGREED PRODUCTION COVERAGE?

Clearly this acreage increase translates into the seed industry, as the bulk of commercial production grown in Manitoba comes from Pedigreed seed also produced in Manitoba. According to CSGA records, acres of soybean seed production has also been growing

and mimics the significant rise in MASC figures. Below is the same time frame of five years as listed for MASC figures previously:


2013	109,291
2012	79,390
2011	46,386
2010	39,962
2009	34,626

*\*Source: CSGA Inter-provincial reports prepared in November annually*

While there is no argument from the MASC board of directors to the necessity of a Pedigreed coverage program for soybean seed production, it has been a battle for the MSGA to achieve this for our members. The MSGA board has, since 2009, (once it became apparent that soybean production was on the rise), been asking for Pedigreed coverage from the MASC board. Soybean seed production is very close to acres of Pedigreed wheat (127,709 acres in 2013). Wheat has traditionally been the highest acre Pedigreed crop in the province.

### SO, WHY NOT?

The hold up, we are told, is the Provincial Treasury Board and Budgetary approval. The MSGA argument is that while soybean acres are increasing, Pedigreed acres in Manitoba on the whole are staying fairly static, so soybeans are simply replacing other crop types – and the bottom line to the provincial budget wouldn't change by implementing a Pedigreed coverage program. It remains to be seen if Pedigreed coverage for soybeans will be successful for the 2014 growing season.

If soybeans are being considered for your crop rotation, it is vital that producers keep in mind the specific growing conditions for their region. The *Manitoba Seed Guide* is a tremendous resource for third-party unbiased data for growers wishing to source varieties based on heat units. Your local seed retailer can also help you pick the right variety for your geographic location. 

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# WHEN DOES IT PAY TO USE INSECTICIDE-TREATED SEED?

**John Gavloski**

*Entomologist, Manitoba Agriculture,  
Food and Rural Development*

All farm inputs will have both costs and benefits for their use. It is often difficult to make decisions on what inputs are the most economical and beneficial for a certain crop and field because this requires careful consideration of the benefits that could be gained from use of the input, and potential costs and risks associated with its use.

Although not widespread, wireworms and seedcorn maggots can occasionally be of economic concern in pulse crops. Knowing the previous history of these insects in a particular field or area, and a consideration of conditions that might increase the risk of crops being damaged by these insects can help in deciding whether a seed treatment that would reduce damage by these insects would be economical. Current seed treatments that control wireworms and seedcorn maggots in pulse crops, such



Figure 1. Wireworms



Figure 2. Seedcorn maggot

as Cruiser and Stress Shield, contain insecticides belonging to a group of insecticides known as neonicotinoids. There are both potential benefits and costs and risks associated with the use of seed treatments containing these insecticides, so it is often helpful to have some guidelines for determining in what fields use of these seed treatments is going to make economic and practical sense.

The following were developed as “guidelines for responsible use of neo-

nicotinoid seed treatments.” These are based on studies of neonicotinoid insecticides and the management of the key early-season insects on pulse crops in Manitoba.

The “guidelines for responsible use of neonicotinoid seed treatments” can be presented as a cost/benefit equation or analysis, which contains the following components:

## Potential Benefits

1. Reduced injury to crop from economic populations of insects that may be managed by the insecticide.
2. Potential increase in early-season vigour of the crop under some growing conditions.

## Risks (costs)

1. Increase in selection pressure to develop resistant insect populations if technology is overused.
2. Potential increase in secondary pest populations.
3. Potential non-target impacts of the insecticide.
4. Increased cost to producer.

When all components of the equation and the science to support them are considered, a neonicotinoid-based seed treatment is most likely to be beneficial when there is a high risk of wireworms or seedcorn maggots causing economic damage to the crop. Using neonicotinoids as “insurance” if the risk of damage by these insects is low is not likely to be the most economical choice in most years. Some agricultural organizations, including the National Farmers Union, have expressed concern over seed treatments containing

*continued on page 37*

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neonicotinoid insecticides being widely used as a prophylactic, regardless of insect pressure.

#### **POTENTIAL INCREASE IN EARLY-SEASON VIGOUR**

Regarding potential vigour-effects of neonicotinoid seed treatments, there are studies that do show some increased early season-vigour, regardless of whether insects are present (Cataneo et al., 2010), and other studies where this vigour effect could not be detected (Wilde et al. 2013). So a potential increase in crop vigour may occur, but may be dependent on growing conditions. Using a neonicotinoid-based seed treatment for the primary purpose of increasing seedling vigour may not be the best use of the technology either economically or sustainably. In a risk/benefit analysis, the four potential costs mentioned above need to be weighed against a potential increase in early-season vigour when deciding on a seed treatment. The other factor, and possibly the most

important in the equation, is what is the risk of damage from insects, in this case wireworms or seedcorn maggots, that the seed treatment may control.

#### **POTENTIAL INCREASE OF SECONDARY PESTS**

Regarding the potential increase of secondary pests, this is probably of greatest concern in corn and soybeans in drier years, where neonicotinoid seed treatments can potentially increase the risk of spider mites (Henry and Szczepanec, 2013).

#### **POTENTIAL NON-TARGET IMPACTS OF THE INSECTICIDE**

A lot of attention has recently been given to the role of seed treatments containing neonicotinoid insecticides in bee kills in Ontario, Quebec and Manitoba. The exposure of the bees to the seed treatment is likely through exposure to contaminated dust generated through the planting of treated corn or soybean seeds. A report by the Pest Management Regulatory

Agency in September 2013 concluded that "current agricultural practices related to the use of neonicotinoid treated corn and soybean seed are not sustainable" (PMRA, 2013). For the 2014 planting season, additional protective measures for corn and soybean production have been proposed. One of the key solutions is the use of safer dust-reducing seed flow lubricants.

#### **INCREASE IN SELECTION PRESSURE TO DEVELOP RESISTANT INSECT POPULATIONS**

Exposing populations of potential pest insects that are below economic levels to an insecticide on a regular basis is discouraged because it increases the risk of the insects developing resistance to products in that insecticide grouping. To date, resistance has not developed in Canadian wireworm populations to neonicotinoid insecticides. A cautionary note, however, that Colorado potato beetle resistance to neonicotinoids

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has been documented in some parts of North America (Szendrei et al., 2012). Insecticides of any type are most effectively used to manage insects when populations pose a real threat to the crop.

#### COULD SEED TREATMENTS REDUCE THE RISK OF SOYBEAN APHIDS IN MANITOBA?

Seed treatments reducing the risk from soybean aphids may be possible in some parts of North America, although most pest management specialists do not recommend it as a primary reason to consider using a seed treatment. However, the odds of reducing the risk of soybean aphids getting to economic levels by using a seed treatment is very low in Manitoba. Soybean aphids are not known to overwinter in Manitoba, and the earliest that soybean aphid has been found in Manitoba in our outbreak years is early-July. For neonicotinoid-based seed treatments, the residual effect capable of providing control reaches levels that would be ineffective at killing

aphids between 35 and 49 days after planting (McCormack and Ragsdale 2006, Johnson et al. 2008, Tomizawa and Casida, 2003). So decisions on seed treatments in soybeans and pulse crops in Manitoba would most appropriately be based on the risk of wireworms or seedcorn maggot.

Through a responsible use program and careful attention to how seeds are applied, many of the risks of neonicotinoid insecticides can be minimized. What farmers and commodity groups need to be concerned with is the overuse of the products when risk of potentially damaging insects the seed treatments can control are low, and that all efforts are made to reduce the drift of dust from seed treatments when planting corn and soybeans. When weighing the potential benefits against the potential costs and risks, a neonicotinoid-based seed treatment is most likely to be beneficial to growers of pulse crops when there is a high risk of wireworms or seedcorn maggots causing economic damage to the crop. 

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**Martin Entz and the  
Natural Systems Agriculture Team  
University of Manitoba**

**T**here are currently only three organic farmers growing soybeans in Manitoba. So why encourage pulse growers to think about growing organic soybeans? The answer is that organic soybeans are a doable crop in Manitoba, given our growing season and the excellent management skills of Manitoba farmers. Can “conventional” farmers seriously consider organic soybeans? Our answer is yes, but more on that later.

After visiting organic soybean fields in NW Minnesota about 10 years ago, I decided to try some here. We established a six-year crop rotation (explained in Table 1), and one of those crops was soybean. The soybean variety OAC Prudence was grown at 18-inch row spacing for seven years within this rotation. The 18-inch spacing was wide enough to allow inter-row tillage but narrow enough to provide good ground cover. Our target plant population density was 180,000 plants/acre, quite similar to conventional levels. The average soybean yield was 29 bu/acre (1956 kg/ha). We also observed that our soybean yield was quite stable over the seven years, ranging from a low of 22.9 bu/ac to a high of 32 bu/ac. The plots at Carman were two acres in size and the yield was determined from the whole area, not just a small plot. It was also interesting to observe that the organic yields of other crops in this six-year rotation were very respectable. The economic analysis was conducted by Dr. Jared Carlberg and Stephanie Fryza of the U of M agribusiness department.

Based on this seven-year experience, plus other small plot experiments that we conducted in the last eight years (sponsored in part by the Manitoba Pulse Growers Association), we have learned some important lessons of production.

1. Wide rows work better for organic soybean production under most conditions than narrow rows, mainly because of the extra weed control that it offers through inter-row cultivation.

**Table 1. Yield of green manure (kg ha<sup>-1</sup> dry matter) and grain crops (kg ha<sup>-1</sup>), plus net returns for a seven-year period at the Ian N. Morrison Research Farm, Carman, Manitoba. The six-year rotation is: green manure (grazed)–wheat-soybean-green manure-flax-oat.**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Green Manure <sup>z</sup>	Spring Wheat	Soybean	Green Manure <sup>y</sup>	Flax	Oat <sup>x</sup>
Year	Kg ha <sup>-1</sup>					
2004	5397					
2005	4171	2470	2232	2729	1251	709
2006	3483	4148	1558	1994	1621	2612
2007	8480	3056	2128	7902	1188	3568
2008	5800	3625	1839	7593	1189	1838
2009	6165	4070	1919	7905	2265	3831
2010	3930	3310	2157	9058	1804	2633
2011	3352	1803	1862	8921	684	3404
<b>Average</b>	5097	3212	1956	6586	1429	2656
<b>Net return (\$ acre<sup>-1</sup>)</b>	-168 (30) <sup>w</sup>	215	317	-166	357	111

<sup>z</sup> Year 1 green manure crops were pea/oat in 2004 and 2007–2011 and chickling vetch in 2005 and 2006. Green manure biomass weights include weed biomass, which was less than 10%.

<sup>y</sup> Year 4 green manure crops were berseem clover in 2005–2006, hairy vetch/oat in 2007, and hairy vetch/barley in 2008–2011. Green manure biomass weights include weed biomass (less than 10%).

<sup>x</sup> Fall rye was grown in place of oat in 2007.

<sup>w</sup> Value in parentheses when pea/oat green manure is grazed with sheep. The net return of \$-168 is if the green manure is not grazed; just soil incorporated.

2. Light soil disturbance with tillage in early spring stimulates weed germination – these weeds can then be killed during the pre-seeding tillage operation. In our study, we seeded soybeans about the third week of May and conducted the pre-seeding tillage immediately before seeding.
3. Pre-emergence harrowing is important to kill newly germinated weeds, even when you don't think

they are there. We use a light weeding harrow and harrow up to the hook stage of soybean development.

4. Post-emergence harrowing is something we did most years. Again, we used the light “Lely” weeding harrow (see photo). I recently attended a meeting in Minnesota where farmers were showing pictures of their modified soybean harrows.

*continued on page 40*

Post-emergence “blind harrowing” soybeans with a Lely tine harrow.





Pre-emergence tillage with rotary hoe  
– May 2010



Blind harrowing in soybeans with a Lely  
tine harrow – June 2010




Inter-row cultivation in soybeans  
– June 2010

5. Inter-row cultivation with shields allows a good thorough between-row weeding.

If the spring is wet, harrowing does not effectively kill weeds. In such cases, on-row flamers are effective for creating a weed-free condition for the soybeans to emerge. Flaming can be done up to the hook stage and this is something the Minnesota farmers have experience with.

The Carman rotation is an example of an effective organic system. It contains a green manure crop every third year,

which provides excellent control of wild oats and other weeds. Grazing one of the two green manure crops really improves the economics of the system. The high level of crop diversity reduces disease risk. These are the types of rotations needed for long-term sustainable organic grain production. Within this rotation, late fall tillage is important for Canada thistle control. Wild oats are controlled by using a diverse rotation; we use fall rye instead of oats if wild oats are a problem in the flax crop.

Many farmers who have visited the Carman plots wonder if they could switch just a small portion of their farm to organic – in order to create some market diversity. This is entirely possible. The organic “division” of the farm will have to be its own business unit. While this may seem a hassle, it can be worth the effort. Having an organic division on the farm would also allow farmers to practice non-herbicidal weed management, something that will be more necessary in future. 



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Producers interested in learning more should contact the Natural Systems Agriculture by visiting their website – <http://umanitoba.ca/outreach/naturalagriculture/>



**Dennis Lange, PAg**  
*Farm Production Advisor – Crops  
Manitoba Agriculture Food  
and Development*



**A**nthrachnose is a disease that Manitoba edible bean producers have seen in small outbreaks in a few regions within the province during the last 15 years. Economic losses were seen in 2000 and 2005. Over the last few years, we have not had any major issues with anthracnose with the last reported case being back in 2011, which was not of economic concern. Generally, Manitoba growers have been quite

successful in the management of the disease, which includes one key practice of avoiding the bean, snow, bean rotation. If we haven't seen any recent problems, you might be wondering why the report on anthracnose. Well, with the changing commodity prices as of late, interest in growing edible beans has risen and this article will outline some of the key points to remember about this disease. Keep in mind it is not yield loss that is of greatest concern, it is quality and loss of value of the beans.

Why should producers be concerned about anthracnose? The answer to this is a simple one. Lower cash returns. Anthracnose is a disease that not only affects the yield, but also the quality of the bean. In severely infected beans where the percent damage is higher than 10%, the value of the crop may drop to a level where the producer may not be able to sell. Since beans are traditionally a high return, high input crop, a producer can ill afford to have a crop that has lost value or has no value. What can a producer do to help reduce

the risk of an anthracnose outbreak? Let's have a closer look.

The fungus that causes anthracnose is seed- and stubble-borne. The production of spores and initial infection are favoured by temperatures of 13°C to 26°C with an optimum of 17°C. Relative humidity above 92% and free moisture also favours infection. High temperatures can reduce disease but in Manitoba this is offset by our cooler nights. The disease can be spread by movement of equipment in the field when plants are wet and epidemics are brought on by frequent showers especially accompanied by driving winds.

## IDENTIFYING AND DIAGNOSING ANTHRACNOSE

Lesions on stems and pods are crater-like, initially dark brown. In wet weather, light orange masses of spores are produced in the centre of the lesions leading to secondary spread by rain splash. Prior to flowering, consider the

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use of a fungicide such as Quadris or Headline on years when anthracnose pressure is high in your growing region. If you do find anthracnose, make sure that what you find is anthracnose and not a look-alike disease like bacterial blight or environmental damage from wind. Bacterial blight lesions are not sunken like anthracnose lesions and are more reddish than black. Wind damage looks more like an abrasion to the surface of the stems or leaves. If you observe symptoms evenly across the field, it is likely NOT anthracnose.

Once the crop is planted and actively growing, it's time for crop scouting and watching for any disease symptoms. Watch for angular lesions that may

Anthracnose symptoms



Pod lesions



Sunken veins of anthracnose (Source: NDSU)



be evident on the upper surfaces of the leaves. Look for the early onset of infection by turning over leaves of plants and looking for black sunken veins (see picture). When scouting a field, start at field edges and move inwards. Look at low spots and where the crop is adjacent to the stubble of a previous year's bean crop.

In order to verify your diagnosis, send a plant sample to the MAFRD diagnostic lab in Winnipeg for verification. In the meantime, mark the spots where the suspect plants were pulled to see if the disease spreads. Monitor the area a few times during the week. If it does not spread, chances are it's not anthracnose. To avoid spreading the disease, stay away from travelling through edible bean fields when the plants are wet.

If conditions remain hot and dry after early infection, the disease may dry up and not have an effect on seed quality. If this is the case, a producer should still bury the stubble through cultivation after harvest to help it deteriorate over time and to prevent future crop infections.

#### PREVENTING ANTHRACNOSE BEFORE IT HAPPENS

The first step in controlling anthracnose is to choose a resistant bean variety whenever possible. In Manitoba, the predominant race is Race 73. Varieties such as Envoy and T9903 have resistance to this strain. Manitoba also has a less prevalent strain called Race 105. Since there are few varieties that have resistance to Race 73, a producer should always plant certified, disease-free bean seed and ask if the seed has been tested for anthracnose. Using bin run seed to save a few bucks could hurt you in the end, especially in years where anthracnose is prevalent in your growing region.

Table 1 lists some of the more commonly grown varieties in Manitoba and their reaction to anthracnose.

Once you have decided to plant certified disease-free seed, the second step is to use a seed treatment such as Apron Maxx (fungicide only), Cruiser Maxx Vibrance (fungicide and

**Table 1. Commonly grown varieties in Manitoba and their reaction to anthracnose.**

Variety	Bean Type	Race 73	Race 105
Envoy	Navy	R	S
T9905	Navy	S	S
T9903	Navy	R	S
Portage	Navy	S	S
Windbreaker	Pinto	S	S
Maverick	Pinto	S	S
Pink Panther	Light Red Kidney	R	n/a
Red Hawk	Dark Red Kidney	R	R
Eclipse	Black Bean	S	S
CDC Jet	Black	S	S

insecticide) or VitaFlo 280 (fungicide only) to help protect the seed against low-level infections. Low levels mean zero or less than zero but it does not mean 1,2,3 % etc. Planting seed that is known to have anthracnose is a recipe for disaster.

The third step is to watch your rotation. A good control measure is to keep to three years between bean crops. Doing this will allow any diseased bean residue to break down and reduce the risk for potential infection for any successive crops.

In conclusion, producers should be vigilant of seed selection making sure they are using certified disease-free seed. Planting resistant varieties when possible and using a registered seed treatment are keys to a successful start to the bean crop. Throughout the season, producers should be scouting their fields and watching for symptoms of the disease. The use of a fungicide in crop will also help to prevent the spread of the disease. Finally, after harvest bury your stubble to help in the decomposition of the infected straw. Above all else, maintain the three-year rotation between bean crops. These steps will help to ensure a long-term bean industry for you and the entire province. 🍲



# PINTO BEAN FUNGICIDE TRIAL

**Brent VanKoughnet, MSc, PAg**  
Agri Skills Inc.

**B**rent VanKoughnet of Agri Skills Inc. was contracted to explore the effect of four different white mould fungicide strategies compared to an untreated control on pinto bean production in a full field scale environment in 2013. Treatments included:

- Allegro @ .405 litres per acre
- Lance @ .257 kg per acre
- Acapela @ .350 litres per acre
- Propulse @ .305 litres per acre
- Untreated

The field scale trial was located just south and east of Carman, Manitoba and was completed in collaboration with McCutcheon Farms. Certified Windbreaker pinto beans were planted on May 21, 2013 with a Case IH vacuum planter on 30-inch spacing into good soil conditions at 75,000 seeds per acre.

The field had 60 lbs of N and 40 lbs of P broadcast and incorporated before seeding, as well as 1.3 litres of Edge.

Fungicide applications were made July 15 with the majority of plants showing the first sign of pin beans. Fungicide applications were made in 60 ft passes with 10 gallons of water per acre. The 30-inch rows were within a few days of closing in for complete ground cover.

Each harvested treatment included the centre 16 rows (40 ft out of the 60 ft fungicide application) or one round of eight 30-inch rows undercut and directly picked up. Harvest took place on September 7.

The following table summarizes average yields for each treatment.

## Average yields for treatments.

	Yield (lbs/ac)
Allegro	2770
Acapela	2637
Propulse	2764
Lance	2882
Untreated	2472



Canopy at fungicide timing



Crop staging at fungicide timing

## Disease Evaluations – August 19, 2013

Treatment	Major Damage/25	Medium Damage/25	Minor Damage/25
Allegro	0	3	3
Acapela	0	4	5
Propulse	0	6	4
Lance	0	2	7
Untreated	5	9	6

## KEY GROWING SEASON OBSERVATIONS

There were excellent growing conditions from seeding through to fungicide application. Timely and modest rainfall created relatively low disease pressure in the early part of the growing season and supported the decision for a single fungicide application within the later stages of the application window. The majority of plants were at the early pin bean stage at the time of application. Growing conditions following the single application brought higher disease pressure. Although the field was never puddled, frequent rain showers modest in amount, created a number of occasions when the crop canopy and

soil surface were each wet for more than 48 hours at a time.

Weed control measures of Edge and Basagran were effective. Harvest conditions for undercutting and combining were ideal with very low harvest losses.

Observations prior to harvest provided clear evidence of white mould. Yield differences were expected to be more significant considering 80% of untreated plants had visible white mould damage. The timing of the mould damage still allowed for many bean seeds to mature and contribute to yield.

*continued on page 44*

Acapela



Lance



**Kristine A. Waddell, MSc and  
Dr. Rob H. Gulden**  
*Department of Plant Science  
University of Manitoba*

**E**dible beans are an important pulse crop for Manitoba producers. Seed maturity at the time of harvest is an important consideration in edible bean production. Field variability and an indeterminate growth habit can often lead to uneven maturity of bean plants in a field. To help alleviate this uneven maturation, a non-selective, broad spectrum herbicide can be used to rapidly desiccate bean plants and provide late season weed control. Herbicides currently registered for application as a harvest aid for edible beans are glyphosate, carfentrazone-ethyl (Aim), diquat (Reglone), glufosinate ammonium (Ignite – registered in Eastern Canada only for edible bean desiccation) and saflufenacil (Heat). Glyphosate is the most commonly used harvest aid and provides uniform dry down of beans, excellent weed control, controls regrowth of bean plants, but is slow acting which can lead to untimely applications.

Application timing of harvest aid herbicides is critical as it may affect the final yield or result in unacceptable herbicide residues in the harvested bean seed. Glyphosate residues are an important consideration for Manitoban producers, especially when the harvested product is intended for export markets. Japan and the European Union (EU) maintain stricter



Late season weed control with saflufenacil/glyphosate tank-mix (left) and saflufenacil alone (right) 12 days after harvest aid application in 2010.



Late season weed control with saflufenacil/glyphosate tank-mix (left) and an untreated check (right) 12 days after harvest aid application in 2010.

allowable glyphosate residue limits than the Canadian market for edible beans. Japan/EU have a maximum residue limit (MRL) of 2 parts per million (ppm) while Canada's MRL is 4 ppm for glyphosate.

The purpose of this research was to evaluate new and existing harvest aid herbicides that will provide edible bean growers fast, uniform dry down of bean plants, effective control of late season weeds present at the time of application and ensure that chemical residues in the seed are consistently below MRLs. Field experiments were conducted in 2010 and 2011 in Carman, Manitoba to determine the effect of tank-mixing different contact herbicides (carfentrazone-ethyl, diquat, flumioxazin [Valtera], glufosinate and saflufenacil) with glyphosate on pinto bean yield, seed quality, residue accumulation and weed control and the effect of time of application of glyphosate and saflufenacil on yield, seed quality and residue accumulation.

## RESULTS

**Effect of tank-mixes on yield, seed quality, residue accumulation and weed control.**

Glyphosate tank-mixed with carfentrazone-ethyl, diquat, flumioxazin, glufosinate or saflufenacil did not adversely affect yield or seed quality when applied to pinto beans at 80% pod colour change (PCC) (physiological maturity of edible beans). Carfentrazone-ethyl tank-mixed with glyphosate was the least effective harvest aid treatment and was the only treatment that did not fully desiccate bean plants or reduce the level of glyphosate residue in the seed to below the international standards for Japan/EU of 2 ppm. Saflufenacil, diquat, flumioxazin, and glufosinate tank-mixed with glyphosate fully desiccated bean plants and effectively reduced glyphosate residues in the seed compared to the carfentrazone-ethyl/

*continued on page 45*

*continued from page 43*

## CONCLUSIONS

Yield differences ranged from 165–410 lbs/ac between the fungicide treatments and untreated this year. Given the continued moist conditions after the fungicide application it was surprising that there was not a more significant response.

From visual inspection it was expected that each of the fungicide options would provide a similar yield response with some expectation that

perhaps Propulse may be at a slight disadvantage. In reality, the older technology product Lance consistently demonstrated a yield advantage over the other choices and Acapela lagged marginally under these conditions.

As conditions got wetter following application, we second-guessed whether we should have made a first application earlier and then followed up with a second application. In the end, the difference between the untreated and

the treated were significant yet not spectacular. As it turned out, a multiple application treatment would likely not have added much benefit, although one more rain or one bigger rain could have changed that.

It will be important for future trials to leave the option open for multiple applications if, in our best judgment, conditions justify. ☞



glyphosate tank-mix or glyphosate applied alone. Saflufenacil (Heat) tank-mixed with glyphosate provided the most consistent weed control.

#### Effect of time of application on yield, seed quality and residue accumulation.


Pinto beans were treated with saflufenacil, glyphosate or a saflufenacil/glyphosate tank-mix at 0, 25, 50, 75 or 100% PCC. Glyphosate applied alone at the 0 and 25% PCC desiccated pinto beans significantly slower than any treatment containing saflufenacil. Applying any treatment prior to 75% PCC affected final seed yield and overall seed quality. The level of glyphosate residue in the bean seed decreased as harvest aid herbicide treatments were applied at later stages of crop development in both site years of this study (Figure 1). These results indicate

that the addition of an effective contact, non-selective herbicide may improve the overall efficacy of glyphosate and reduce the risk of potential residues in the seed when applied at the proper stage of crop development.

#### CONCLUSIONS

Saflufenacil, flumioxazin, glufosinate and diquat tank-mixed with glyphosate all seem to be reasonable desiccant options in terms of consistency, efficacy and the ability to potentially reduce glyphosate accumulation in the seed. Time of application had a significant influence on residue accumulation of glyphosate in the bean seed. As bean plants approached physiological maturity (80% PCC), glyphosate residues were significantly reduced when pinto beans were treated with a saflufenacil/glyphosate tank-mix and

the treatments were applied after 50% PCC. By determining an appropriate contact herbicide for use in mixture with glyphosate, producers have the ability to manage the quality of their edible bean crop through weed control and plant desiccation.

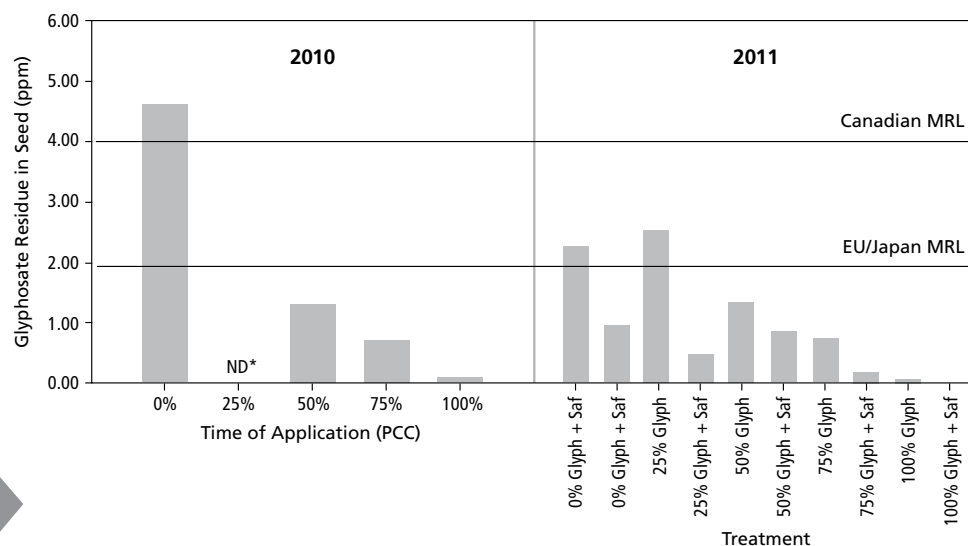
These experiments demonstrated that diquat (Reglone), glufosinate (Ignite –registered in Eastern Canada only for edible bean desiccation) and saflufenacil (Heat) tank-mixed with glyphosate provided the most consistent results for preventing glyphosate residue accumulation in dry bean seed while facilitating desiccation and providing adequate late season weed control. 

#### Reference

Waddell K. 2013. The evaluation of new harvest aid herbicides for dry bean (*Phaseolus vulgaris* L.) production in Manitoba. MSc Thesis, University of Manitoba, Winnipeg, Print.

**Figure 1**

Level of glyphosate residue in harvested pinto bean seed in 2010 and 2011. Treatments include glyphosate alone, saflufenacil alone and a saflufenacil/glyphosate tank-mix. Treatments were applied at 0, 25, 50, 75 and 100% pod colour change (PCC). No treatment was applied at the 25% PCC time of application in 2010 (ND\*). (Adapted from Waddell 2013).



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WHEN YOU NEED TO BE SURE



# PINTO BEAN HARVEST METHODS

**Brent VanKoughnet, MSc, PAg**  
*Agri Skills Inc.*

**B**rent VanKoughnet of Agri Skills Inc. was contracted to explore the effect of harvest methods on pinto bean production in a full field scale environment. Harvest methods included:

- 30-inch rows harvested by flex header
- 30-inch rows harvested by flex header with air-reel
- 30-inch rows harvested by flex header (newer technology)
- 30-inch rows harvested by undercutting

The field scale trial was located just south and east of Carman, Manitoba. Certified Windbreaker pinto beans were planted on June 6 with a Case IH vacuum planter into good soil conditions at 80,000 seeds per acre.

Harvested treatments within each 160 ft replicated block were as follows:

- Three passes of eight 30-inch rows and one pass of six 30-inch rows undercut on September 18 and picked up with

a Sund pickup on September 22 – undercutting provided by Warren McCutcheon.

- One pass of twelve 30-inch rows with the standard John Deere 935 flex header plus air-reel working from the north side of each replicated block, weighing at each end and alternating direction of travel – harvested September 21 with the help of Norm Veenendaal.
- One pass of twelve 30-inch rows with the same John Deere 935 flex header, with the air-reel turned off, working from the south side of each replicated block, weighing at each end and alternating direction of travel – harvested September 21 with the help of Norm Veenendaal.
- One pass of ten 30-inch rows with the newer technology John Deere 635 flex header capturing the remaining rows, weighing at each end and alternating direction of travel – harvested September 26 with the help of Mike Kippen and Greenland Equipment.

Treatment lengths varied from 800 to 1800 ft replicated six times.

Table 1 summarizes average yields for each treatment in lbs per acre. Adjustments have been made for the average foreign material. Foreign material in the undercut treatments were a consistent 1% in comparison to the flex header samples that were highly variable between 4% and 11%. With an average of 7% for the standard flex header (with and without the air-reel) and an average of 6% with the newer flex header.

**Table 1. Average yields for each treatment.**

Treatment	Gross Yield	Foreign Matter Adjusted	Yield (lbs/ac)
Cut	2438	0.99	2413
Air	2341	0.93	2177
New	2305	0.94	2167
Flex	2342	0.93	2178

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John Deere 535 flex header

### KEY GROWING SEASON OBSERVATIONS

There were excellent growing conditions through most of the growing season. The combination of pre-emergent Edge and Viper plus Basagran mostly did a good job with the exception of some late escape wild buckwheat. The crop canopy was very dense. At fungicide timing, July 22 (early pin beans), 30-inch rows were completely closed in and the application of Acapela was made by air. The dense canopy and weather conditions led to conditions of noticeable white mould and other yield limiting conditions in patches throughout the field. The variable maturity and crop condition at harvest warranted the application of glyphosate on September 8 to accelerate drying down on the patches that were delayed and to attempt to control some of the wild buckwheat escapes.

At cutting time there were areas of the field where plants were not very upright, were grayish black and remained viney and wirey. There were also areas with wild buckwheat escapes. As a result, undercutting was challenging and frustrating. Although in the end undercutting did a very good job, there were many trips down the tractor ladder to clean off the knife and redistribute piles of vines.

The three flex headers worked relatively well with few stops or delays. The ground was dry and the headers slid without building up mud. It was clear however that there were higher losses (misses) in the areas where the crop was less upright and not as healthy looking.

Table 2 provides estimates of the number of beans found on the ground (individually and/or within pods) in a representatively good area of the field.

**Table 2. Number of seeds on the ground.**

	Seeds within five square ft Numbers in ( ) represent number of pods with seeds				Average	Losses (lbs/ac)
<b>Cut</b>	20	9	28	25 (1)	20.5	120
<b>Air-reel</b>	66 (4)	25 (1)	55 (4)	31 (2)	44.3	258
<b>New flex</b>	42 (2)	40 (4)	51 (5)	24 (3)	39.3	229
<b>Flex</b>	51 (2)	47 (3)	48 (2)	44 (7)	47.5	277

### GROUND LOSSES



Cut



Air-reel



New Flex




Flex

### CONCLUSIONS

There were virtually no yield differences between any of the flex header combinations. The newer technology flex header may have been at a slight disadvantage given the delay of an additional four days. Undercutting was the most frustrating and time-consuming, particularly given the crop conditions, yet it gave close to a 250 lb yield advantage over the flex headers. This yield difference is consistent with navy bean projects in previous years. With 250 lbs at \$0.40/lb there is another \$100 per acre to compensate for the inconvenience.

The undercutting also provided a consistently cleaner sample. One of

the biggest surprises was the range of foreign material in the flex header samples. It is expected that some of the variability was due to changing field conditions and some was due to challenges of collecting a representative sample.

Future projects will need to look at a more dependable sampling technique for foreign material and should consider the potential influence of variety selection. Although the field was relatively smooth, consideration could also be given to the benefit of rolling the field if direct harvesting is being considered. 

**Kevin McPhee**

*Department of Plant Sciences  
North Dakota State University*

**D**ry pea serves an important role in cereal-based cropping systems worldwide providing opportunities for improved soil tilth and overall fertility through symbiotic nitrogen fixation as well as allowing grassy weed control and breaking cereal disease cycles. Traditional production of dry pea has been as a spring-sown crop, especially in North America. Internationally, this has been the case as well, however, a modest acreage of dry pea is planted as a winter annual in Europe, especially France. More recently, production of winter peas has increased marginally in the US Pacific Northwest and lower Alberta, Canada where conditions are sufficiently mild to allow consistent winter survival from year to year. Experimentation with fall-sown winter peas has expanded across Montana and into North Dakota where winter conditions are significantly harsher.

Interest in fall-sown winter peas has increased among producers and stems from challenges faced during spring planting periods. Challenges including narrow planting windows and wet soil conditions that often prohibit timely sowing or prevent spring sowing altogether may be overcome through the ability to plant the pea crop in the fall. The ability to plant the crop in the fall will maintain the legume (pea) crop in the rotation and its well-known agronomic benefit. The challenge to



Adequate snow cover beginning in December and January is critical for winter pea survival.

successful production of a fall-sown winter pea is having adequate winter hardiness in a variety to allow consistent survival, especially in the more harsh environments characteristic of the Midwest. In the late 1990s, the USDA-ARS developed winter hardy peas by crossing the Austrian Winter Pea (AWP) with traditional spring-sown dry pea and selecting types with seed traits resembling the spring-sown parent and with winter hardiness of the AWP parent. These varieties have been well received in the US Pacific Northwest (PNW) with limited production in Montana and lower Alberta, Canada. Evaluation of these varieties and other breeding lines and populations in North Dakota has been done with limited success.

Trials conducted in 2010–2013 in Minot and Fargo, ND, resulted in one year (2010) having near complete survival of all tested materials, one year (2011) showing excellent differential selection among genotypes for survival and two years (2012 and 2013) having limited survival of even the most hardy types. Trials in 2010 and 2011 were conducted at Minot and Fargo, ND while only the Fargo location was used in 2012 and 2013. Similar results were observed between the locations. Seed yield ranged from 807 to 1859 lbs/ac at Minot and from 2749 to 3598 lbs/ac at Fargo in 2010 while in 2011 seed yield ranged from 289 lbs/ac to 1589 lbs/ac at Fargo. The variable yield performance underscores the hesitation toward production and the need for additional research. Despite the sporadic yield results, each trial provided slightly different conditions and yielded many preliminary observations that will be important to the future success of winter pea breeding for the Midwest.

Establishment of the winter crop must be in standing stubble from a previous cereal crop to allow snow capture and protection from cold, desiccating winds. Snow cover has been critically important in the trials conducted thus far. It is important to have snow cover during the coldest temperatures typical of December and January. The winter of 2012–2013 had very little snow cover until early January 2013 resulting in significantly higher winter kill. Years characterized by snow cover being maintained late into the spring to avoid exposure of plants to

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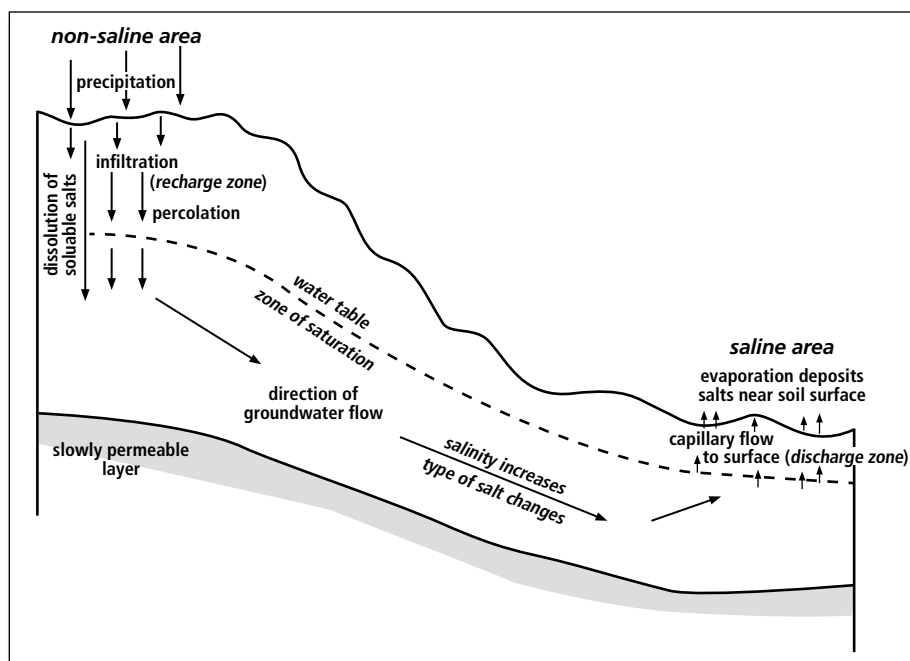
## When do I have a problem and what can I do about it?

**Marla Riekman**  
Manitoba Agriculture, Food and  
Rural Development

**S**oil salinity is a problem for crop production, especially when considering low tolerance crops such as soybeans. However, at its core, salinity is a water problem – if you manage your water table, you may manage your salts.

There are two things necessary for soil salinity to be a problem: soluble salts in the soil (or groundwater) and a high water table. As the water table gets close to the soil surface, capillary rise “wicks” salts to the surface causing a white crust on the soil. Salinity is usually seen around lower points in the landscape, or “discharge zones” where evaporation draws salts to the surface. The “recharge zones” in the upper landscape position are non-saline; however, these areas are just as important when considering salinity management...but we’ll get back to management options later.

Salinity fluctuates from year to year as it is influenced by moisture conditions. We may not see salinity



in “wet” years, but it is during these years that high precipitation brings the water table close to the surface, drawing salts up with it. Salinity will be most prominent as we move into the “dry” part of the cycle, when evaporation deposits salt on the soil surface. Eventually, near the end of the “dry”

cycle, the water table drops down and precipitation washes salts back down into the soil. The salt problem seems to go away; however, once we enter into another “wet” cycle, the water table comes back up and we go through the whole process again.

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warming and freezing cycles has resulted in greater survival (2010, 2011 and 2013). It is often the freezing conditions in the spring, right after the crop has broken dormancy, that results in the greatest winter kill.

Fall establishment is also critical to successful winter pea production. In addition to planting in standing stubble the crop should be planted early enough to allow adequate root growth without excessive vegetative development that might limit physiological acclimation of the plant prior to entering the dormancy growth phase. Planting depth is recommended at 3–5 cm and sowing dates in early- to mid-September have resulted in successful survival. Planting too early may limit acclimation while planting too late may prevent

adequate root growth and establishment. Inadequate root growth has resulted in heaving of the small plants as the soil freezes and thaws over the winter and spring.

The harsh conditions of the Midwest offer an opportunity to evaluate varieties and select improved breeding lines that may not be possible in other regions. Selection in the US PNW is limited by infrequent test years while the Midwest experiences excellent test conditions nearly every year. This is viewed as a significant advantage. Disease pressure is also a concern and incorporation of resistance in new varieties will be important. There are many good reasons to consider winter pea as a rotation crop in the Midwest region extending into lower Manitoba, however,

many details of production practices and selection of improved varieties compared to those currently available must be studied and accomplished before winter pea will be a viable crop in rotations of the Midwest. We plan to continue evaluating available varieties and selecting new breeding lines with the intent of developing new varieties of winter peas with adequate winter hardiness to survive Midwest conditions. 

A small amount of winter pea seed has been received from NDSU and will be planted in Manitoba in fall 2014. One of MPGA's goals is to explore new cropping opportunities for Manitoba pulse producers.

Crops affected by salinity look like they are suffering from drought conditions, even though the soil is moist. Salts in the soil restrict the plant's ability to take up water and, in some cases, may cause nutrient imbalances in the plant. Soybeans grown on saline soil will typically show signs of Iron Deficiency Chlorosis (yellowing between the veins). These symptoms will be seen along the edges of fields or around low lying areas or potholes; places where soil salinity is typically seen.

#### MPGA'S AGRONOMIST NOTE


One management option for growing soybeans in fields with saline areas is to choose a variety that is more tolerant of Iron Deficiency Chlorosis (IDC). An "IDC rating" is given to each soybean variety. The lower the rating, the more tolerant it is to yellowing. Look for the ratings in the 2013 Variety Trial Evaluation data, available on our website, [www.manitobapulse.ca](http://www.manitobapulse.ca) or in *Seed Manitoba* 2014.

We can test for soil salinity a few different ways, but the most common form uses a 1:1 soil:water mixture to analyze for electrical conductivity (EC). Researchers and soil surveyors will use a more intense form of analysis called the saturated paste test (note that "intense" also means "more expensive"! ). These two tests will not give you the same EC reading, but there is a relationship between the two. The saturated paste test will be approximately two times higher than that of the 1:1 test. This is important to note when comparing the salinity tolerance level of a crop to your soil test results – often the crop tolerance will be based on the saturated paste test, not the 1:1 test seen on your soil test report. So take note of the analysis used and do the conversion where necessary to make sure you are comparing apples to apples.

Data from North Dakota State University, when converted to the 1:1 test, shows that soybean yield potential begins to diminish at an EC of 2 deciSiemens/metre (dS/m); and by 4 dS/m, yield potential is cut in half. In comparison, canola yield only becomes severely affected around an EC of 6–7 dS/m. So, given that soybeans are so sensitive to salinity, they are a good indicator of a salinity problem; however, growing soybeans might not be the way for you to test for salinity!

#### CAN I FIX SALINITY?

The quick answer is no. Salinity will continue to cycle along with wet and dry climatic conditions; however, you can manage salinity by managing the water table. On a landscape scale, you can grow high water using crops in the recharge areas (upper landscape) of the field, thereby using up precipitation before it reaches the water table. In the discharge areas (saline areas), you may need to grow a saline tolerant forage to try to draw down the water table and decrease the spread of salinity further into the field. There has also been success in decreasing salinity through tile drainage, but this is an expensive option that still requires precipitation to wash the salts down through the soil over time.

In the end, you may have some fields (or parts of fields) that just aren't able to grow soybeans. You might even have some areas that aren't fit for annual crop production at all! This isn't completely negative; there are still ways to use that land in crop production, it just might not be the way you would hope to use it! If you consider your "problem areas" as a part of the larger landscape, see where your "recharge" and "discharge" areas are and manage them accordingly, you will be better able to manage your saline areas. 



## Soybean Scout ANSWERS



**A** – Iron Deficiency Chlorosis. Plants affected by iron chlorosis appear yellow and stunted. A key feature is inter-veinal chlorosis, meaning that leaf tissue turns yellow but the leaf veins remain green. Iron is an important micronutrient in chlorophyll production. There are several soil characteristics that can interfere with the soybean plant's ability to take up iron. These include high carbonates, salinity, high soil moisture and high soil nitrate levels. It is important to identify fields that may be at risk for iron chlorosis and not to mistake these symptoms for other nutrient deficiencies.



**B** – Potassium Deficiency. Symptoms of potassium (K) deficiency usually show up during late July and August, when the plant is taking up large amounts of K. Potassium is mobile within the plant so symptoms will appear on lower leaves first, as K moves to new growth. Yellowing appears on leaf margins and in severe cases, becomes brown. Soybeans take up and remove a large amount of K [approx. 1.2 lbs/bu are removed at harvest (Heard, 2005)]. You may be at risk of potassium deficiency if you have light textured soils or are growing soybeans frequently on the same piece of land.



# MANITOBA PULSE BUYER LIST – FEBRUARY 2014

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGISTERED
Agassiz Global Trading	✓				✓	204-745-6655	Homewood, MB	
AgriTel Grain Ltd.				✓	✓	204-268-1415	Beausejour, MB	
Alliance Pulse Processors Inc.	✓		✓	✓	✓	306-525-4490	Regina, SK	✓
• SaskCan Pulse Trading – Parent Division	✓		✓	✓	✓	204-737-2625	St. Joseph, MB	✓
All Commodities			✓	✓		204-339-8001	Winnipeg, MB	✓
B.B.F. Enterprises Ltd.					✓	204-737-2245	Letellier, MB	
B.P. & Sons Grain and Storage Inc.					✓	204-822-4815	Morden, MB	
Belle Pulses Ltd.				✓		306-423-5202	Bellevue, SK	✓
Best Cooking Pulses Inc.			✓	✓		204-857-4451	Portage la Prairie, MB	✓
Brett-Young Seeds				✓	✓	204-261-7932	Winnipeg, MB	
CB Constantini				✓		604-669-1212	Vancouver, BC	✓
Cargill Ltd.				✓		204-947-6219	Winnipeg, MB	✓
Delmar Commodities				✓	✓	204-331-3696	Winkler, MB	✓
Farmer Direct Co-operative Ltd.	✓	✓	✓	✓		306-352+2444	Regina, SK	
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	✓
JK Milling Canada Ltd.				✓		306-586-6111	Regina, SK	✓
Kalshea Commodities Inc.				✓		204-737-2400	Altona, MB	✓
Kelley Bean Co. Inc.	✓					308-635-6438	Scottsbluff, NE	
Lansing Olam Canada Commodities ULC					✓	877-747-7599	Chatum, ON	✓
Legumex Walker	✓	✓	✓	✓	✓	204-829-2326	Plum Coulee, MB	✓
• Walker Seeds Ltd.				✓		306-873-3777	Tisdale, SK	✓
Linear Grain	✓			✓	✓	204-745-6747	Carman, MB	✓
Monsanto					✓	–	Winnipeg, MB	
Natural Proteins					✓	204-355-5040	Blumenort, MB	
Nebraska Bean	✓					402-887-5335	Clearwater, NE	
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	✓
Quarry Grain Commodities					✓	204-467-8877	Stonewall, MB	
Richardson International				✓		204-934-5627	Winnipeg, MB	✓
• 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	✓
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	✓

To be included on our Manitoba Buyers List, companies should contact the MPGA office at 204-745-6488 to register.

**NOTE** – These companies are authorized to deduct and remit levy to MPGA. This list is provided by MPGA as a convenience to our members.

**MPGA accepts no responsibility or liability for the accuracy of the completeness of the information provided.** It is your personal responsibility to satisfy yourself that any company you deal with is financially sound. Questions regarding licensing and security should be directed to the Canadian Grain Commission at 1-800-853-6705 or 1-204-983-2770.

# Recipe Corner

## Magnificent Minestrone

*Preparation time: 25 minutes / Cooking time: 40 minutes / Makes 6 Litres*

2 cups (500 mL) short pasta of your choice, cooked

2 tbsp (30 mL) canola oil

6 garlic cloves, minced

2 large carrots, chopped

3 celery stalks, chopped

1 large yellow onion, chopped

1 tbsp (15 mL) thyme leaves, finely chopped

1 bay leaf

1 – 19 oz can (540 mL) red kidney beans, rinsed and drained

1 – 19 oz can (540 mL) white kidney or great northern beans, rinsed and drained

1 – 19 oz can (540 mL) chickpeas, rinsed and drained

1 – 19 oz can (540 mL) diced tomatoes

1 cup (250 mL) green cabbage, shredded

2 medium zucchini, chopped

8 cups (2 L) reduced sodium chicken or veggie broth

1 tbsp (15 mL) pepper

1. Cook pasta according to directions on package. Cook until al dente, drain and toss with half the oil. Set aside.
2. In a large saucepan, heat remaining oil on high. Add garlic and sauté until golden. Lower heat to medium and add carrots, celery and onion. Cook until soft, stirring often, about 10 minutes. Add thyme and bay leaf and raise heat to high. Add beans, chickpeas,

tomatoes, cabbage, zucchini and bay leaf. Add chicken stock and bring to a boil.

3. Lower heat and simmer for 15–20 minutes, skimming foam from top.
4. Season with pepper and remove bay leaf. Add cooked pasta and enjoy!



## Lentil Calzones

*Makes 8 servings*

13.8 oz (391 g) prepared pizza dough (or enough for 1 large pizza)

1 – 19 oz can (540 mL) lentils, rinsed and drained

1/2 cup (125 mL) EACH sundried tomatoes, sliced black olives

1 medium onion, chopped

1 cup (250 mL) pepperoni slices, halved

2 cups (500 mL) light shredded mozzarella

1 ½ cups (375 mL) pizza sauce

1. Preheat oven to 350°F (180°C). Divide dough into 8 equal parts, cover and let rest for 10 minutes. Using a rolling pin, roll dough into 6–8" circles.
2. In a medium bowl, combine lentils, tomatoes, black olives, onion, pepperoni and pizza sauce. Put 1/3 cup of lentil mixture into centre of dough and top with 1/4 cup

cheese. Fold over dough to enclose lentil and cheese mixture and pinch dough together where you see any openings.

3. Grease baking pan and place calzones 2" apart. Pierce tops with fork and lightly coat tops with egg white. Bake at 350°F (180°C) for 35 minutes.





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