Manitoba Pulse Growers Association www.manitobapulse.ca

pulse beat

Spring • No. 68, 2013

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pulse beat

Manitoba Pulse Growers Association

Spring • No. 68, 2013

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Cover photo courtesy of
Dennis Lange – Manitoba Agriculture, Food and Rural Initiatives

IN THIS ISSUE

MPGA OFFICE UPDATE

Michael Reimer
Acting Executive Director

The MPGA office was buried in two things this winter – snow and research proposals. Fortunately, we managed to dig through both and are now looking forward to the spring and another promising growing season for soybean and pulse growers.

RESEARCH

As I mentioned, research season is in full swing and we are involved in many research activities. Aside from MPGA's own research program, there is currently a major focus on research activities that relate to the Growing Forward 2 (GF2) programs. The GF2 programs are incredibly important because they allow MPGA and our partners to maximize our investment in research by accessing matching funds from the federal government. The funding secured allows researchers to establish or continue their research programs for up to five years and ensure that important research continues to be done.

MPGA REQUEST FOR PROPOSALS

Every year in early fall the MPGA puts out a request for proposals that invites researchers to submit research proposals that address one of three priorities related to Manitoba-grown soybean and pulses: (1) Agronomy (2) Disease and Insect Control (3) Utilization/Value-added. The details of the approved research projects are available on the MPGA website.

PULSE SCIENCE CLUSTER

In December, AAFC announced that the Canadian Agri-Science Clusters Initiative, which was introduced in Growing Forward 1 (GF1), would be included as a part of Growing Forward 2 (GF2). MPGA will once again be involved in the highly successful Pulse Science Cluster along with our sister organizations in Alberta, Saskatchewan, and Ontario. Researchers from across Canada submit research proposals to the Pulse Science Cluster and each provincial organization gets the opportunity to review the proposals and decide which projects they are interested in funding. If the Pulse Science Cluster application is successful, pulse industry contributions will be matched by the federal government. In GF1 project costs were matched 25% industry and 75% federal government – it is hoped that the federal government will continue with the same level of matching in GF2.

CFCRA SCIENCE CLUSTER

In addition to the Pulse Science Cluster, MPGA is also affiliated with the Canadian Field Crop Research Alliance (CFCRA), a cluster focused on soybean genetic improvement. The CFCRA includes representation from the three major soybean growing provinces – Ontario (Grain Farmers of Ontario), Quebec (Fédération des producteurs de cultures commerciales du Québec), and Manitoba (MPGA). The CFCRA cluster has received a number of proposals that include work related to the advancement of short-season soybean varieties as well as the development of tools to assist soybean breeders.

WGRF INTEGRATED CROP MANAGEMENT PROJECT

The Western Grains Research Foundation (WGRF) has also invited MPGA to be a part of their Integrated Crop Management (ICM) project. This ICM project seeks funding for multi-crop and multi-year agronomy research. Given the growth of soybean production in western Canada it seemed logical to examine the possibility of fitting soybean agronomic research into this project.

MPGA MEMBERSHIP SURVEY

In December, the MPGA membership survey was launched and approximately 2700 surveys were mailed out to any producer who has paid levy on soybeans or pulses in the last three years. The survey is part of an initiative to better connect with our members and get input into where levy contributors feel their dollars should be invested. The survey also gives soybean and pulse

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In Memoriam

On Sunday, December 2, 2012, Frank Galbraith Sissons passed away at the age of 89 years.

Frank was a founding director of the Manitoba Pulse Growers Association, which was incorporated on March 13, 1984.

Our condolences to the family.

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producers a chance to rate their satisfaction with the effectiveness of the MPGA. The information gathered from this survey will help shape our strategic direction as we move into a new era of agriculture.

INDUSTRY MEETING

In December, MPGA once again hosted our annual Industry day. This event gives anyone involved in the soybean and pulse industry the opportunity to come out and provide valuable feedback on the current state of the industry. Discussions included production issues, market development, and research gaps that need to be addressed. One of the recurring themes over the course of the day was the need for MPGA to do a better job of communicating research results and other activities with industry members. All of the feedback we received was invaluable and goes a long way in helping MPGA shape our strategic direction.

COMMITTEE MEETINGS

The soybean, edible bean, and pea/lentil/faba bean committees all met in December to review the research proposals that were received in response to the MPGA request for proposals. The respective crop committees brought forward their recommendations for funding to the Board of Directors for final approval. This year we received 34 proposals with 16 relating to soybeans, nine to dry beans, six to peas and three that involved a combination of soybean and pulses. After final review and discussion, 14 projects were approved – seven focused on soybeans, five on dry beans, and two on peas.

LOOKING AHEAD

This year is poised to be another record-breaking year for soybeans and western Canada has suddenly become abuzz with everything soybean. We are anticipating a lot of new soybean growers in the province and one of the key activities moving forward will be to provide new soybean growers with as much production information as possible. One exciting new way in which we hope to help producers have access to the most current production information is through a new partnership with Realagriculture.com. The plan is to release 10 production-related videos beginning this fall, which will focus on a broad range of production issues.

I am looking forward to all of the challenges ahead as the agriculture industry continues to evolve. There is a palpable sense of excitement mixed in with a little anxiousness, but the future is looking bright. I wish you all a successful planting season and hope we can all enjoy another prosperous year.

MPGA–*Working for You!*

Research

- M. Reimer and J. Voth attended Pulse Days in Saskatoon, SK on January 7th and 8th. Pulse Days is an annual conference, put on by Saskatchewan Pulse Growers (SPG) each January in Saskatoon, featuring sessions on pulse production methods and best practices, environmental issues, marketing and international trading, market outlook, and more.
- M. Reimer attended a Pulse Science Cluster meeting on Thursday, January 10th in Saskatoon, SK. Science clusters are programs within Growing Forward 2 that are national in scope and aim to coordinate scientific expertise in industry, academia and government. Three research themes have been identified as important to the continued growth and sustainability of the pulse sector: Genetic Improvement, Agronomy and Sustainable Production, Processing and Utilization.
- Dr. Mario Tenuta (University of Manitoba) attended the World Soybean Research Conference on February 17th–22nd on behalf of the MPGA. The event, which was held in Durban, South Africa, provides a global forum for the world's soybean researchers to exchange information and research findings across all segments of the soybean industry. Dr. Tenuta attended the conference along with researchers from Quebec and Ontario as part of a Canadian Soybean Council initiative.
- K. Friesen, R. Vaags and J. Voth attended the 38th annual Bean Day on January 18, 2013 in Fargo, ND.
- R. Froese, A. Turski and R. Vaags attended FarmTech 2013 on January 29th–31st in Edmonton.
- R. Froese and R. Vaags attended an *Opportunities for Public–Private Partnerships in Pulse Breeding for Western Canadian Pulse Growers* project meeting in Edmonton, AB on February 1st. The Manitoba, Alberta, and Saskatchewan Pulse Grower Associations are currently funding a study that examines the opportunities for public-private partnerships in pulse breeding as concern rises over cutbacks in public breeding programs.

Market Development

- R. Froese and R. Vaags attended a Pulse Canada board meeting in Winnipeg on December 12th.
- M. Reimer attended the Pulse Canada Food Seminar in Winnipeg on February 19th and 20th. The program included presentations on the functionality of pulses and their use in food product formulations, as well as the latest research on pulse nutrition, health and sustainability.

Advocacy

- K. Friesen and M. Reimer attended a Growing Forward 2 consultation that was hosted by MAFRI on December 18th in Winnipeg.
- M. Reimer attended the Keystone Agricultural Producers 29th Annual Meeting in Winnipeg on January 23rd–25th.
- MPGA had its annual meeting with MASC on February 25th in Portage la Prairie. Topics discussed at the meeting included: Soybean coverage areas, full coverage for soybeans in expanded areas, harvest cost deduction on soybeans, edible bean pricing methods, and hail coverage on soybeans.

Communication

- Approximately 2700 MPGA membership surveys were sent out in December to any Manitoba producer who has paid levy on pulses or soybeans in the past three years. The objectives of the survey were to gauge member awareness of MPGA activities as well as get member input on MPGA research priorities.
- MPGA and RealAgriculture.com have entered a partnership to produce a series of ten soybean production related videos as a part of a Western Soybean School.
- R. Froese, F. Greig, J. Sawatsky, A. Turski, R. Vaags, and J. Voth attended Ag Days in Brandon on January 15th–17th.
- The Manitoba Special Crops Symposium was held on February 6th and 7th in Winnipeg. There was an excellent line-up of speakers and the symposium was extremely well attended.

For updated information check the website (www.manitobapulse.ca) or call the office at (204) 745-6488.

2013 MPGA COMMITTEES – Restructured committees for 2013 were not available at time of printing. Listing will be available on the MPGA website – www.manitobapulse.ca – and published in the next issue of *Pulse Beat*.

2012/13 MEMBERSHIP SURVEY – PRELIMINARY RESULTS ARE IN!

The MPGA conducted a mail and online survey with current and past (within the past three years) members between December 2012 and February 2013. A total of 2,740 surveys were mailed and we were delighted to receive 459 as of January 31st! Thank you to everyone who has responded – we very much appreciate your feedback, whether you have been very engaged over the years, feel you know very little about the MPGA, or are even new to farming and the MPGA, all of your responses are very important. As was indicated in the survey to encourage responses, we randomly drew the names of three respondents who won 1 of 3 mini iPads valued at $329 each. These individuals were revealed at the Special Crops Symposium in Winnipeg on February 6th. Congratulations to our winners!

The survey included questions on the following topics:

- about producers' businesses, such as types of pulses grown and intention to grow pulses in the future
- knowledge and impressions of the MPGA and its core activities (research, market development, linkages with strategic industry partners, communications)
- membership value
- opportunities for improvement
- MPGA's current way of communicating with members – preference on how often, method, and topics

We are excited to share a few of the survey highlights. Please note the following results and corresponding charts are preliminary as they may change once all responses have been tallied and coded after the survey close date of March 1st, 2013. A summary report will be made available to all members on the MPGA website by April 2013, so please stay tuned!

According to survey respondents:

- Nearly all (94%) indicated that pulses in their crop rotation are important, including 59% who said they are very important.
- *Suitable varieties* was considered the NUMBER ONE pulse crops production related issue growers face (36%), followed by *disease* (17%), *equipment* (16%), and *crop insurance* (12%). Approximately 15% of respondents cited other issues, including *weather*, *weed control*, *excess moisture*, *seeding-related issues*, *insects*, and *price*.
- Nearly three-quarters of survey respondents have a positive impression of the MPGA – either very (20%) or somewhat (52%) positive, while over one-quarter either did not know (16%) or did not provide a response (11%).

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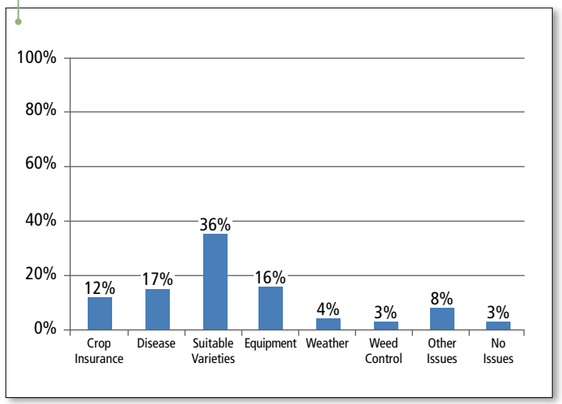
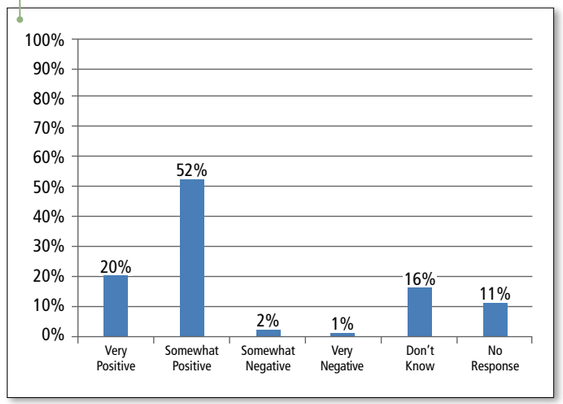
- Survey respondents feel they have an average level of awareness of the MPGA's core priorities with an average rating of 4 out of 7, although nearly 30% of respondents said they either did not know or did not provide a response.
- Two-thirds of respondents believe the 0.5% level of check-off levy against sales of pulse crops in Manitoba that funds the MPGA is *appropriate*, while another 13% feel it's *too high*. Nearly one-fifth did not know or provide a response.
- Most respondents believe it is important an organization like the MPGA exists (77%) and that they receive value from the MPGA (58%).
- Nearly two-thirds (62%) of respondents think the MPGA is communicating with them *just enough*, while 10% feel it's *too little* and 28% did not know or provide a response. Most respondents also said they regularly read *Pulse Beat* (average rating of 5.4 out of 7).
- Feelings of engagement with the MPGA and awareness of membership benefits received lower than average ratings (3.8 and 3.9 out of 7, respectively).
- The MPGA appears to be changing and keeping up with the times as ratings for considering it outdated are low (2.7 out of 7).

If you have any questions regarding these or the final survey results, please contact MPGA Acting Executive Director, Michael Reimer.

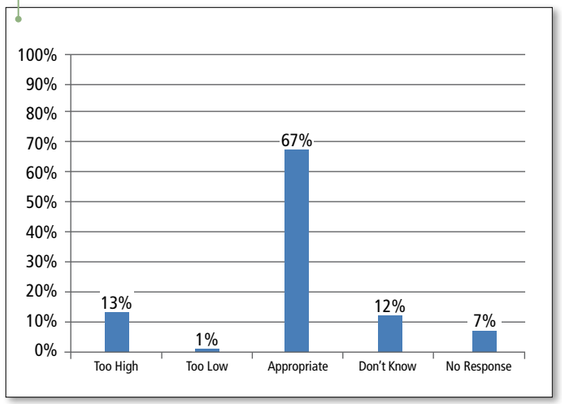
What is the NUMBER ONE pulse crops production-related issue you face as a grower?



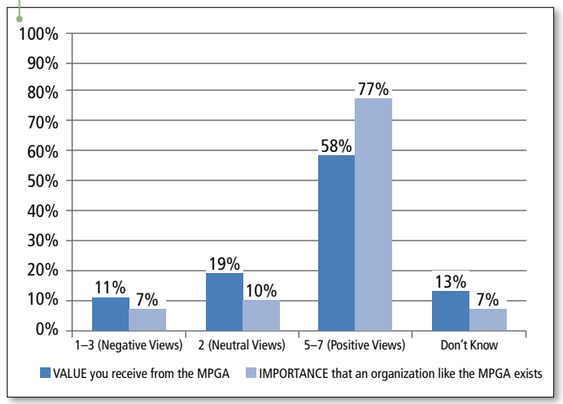
What impression do you have of the MPGA?



MPGA is funded by a 0.5% check-off levied against sales of pulse crops in Manitoba. All growers who contribute to the check-off funds become members of the MPGA. In your opinion, is this level:



VALUE you receive from MPGA and IMPORTANCE that an organization like the MPGA exists.



DEVELOPMENTS BECKON ALL PRODUCERS TO WORK TOGETHER

Doug Chorney, *President*
Keystone Agricultural Producers

We are immersed in a time of significant contrasts in agriculture – when many are enjoying great optimism about crop commodity prices, while others struggle to see how they might sustain the livestock sector as we have come to know it here in Manitoba.

Looking back at recent events, I would say now, more than ever, we need to work hard at our efforts to influence public policy. And we need to play a strong role in defining how we want primary production to succeed in the future.

The significant changes made to business risk management programs under the Growing Forward 2 agreement in September are certainly a clear indication of why we need to remain vigilant. We have seen BRM programs severely weakened as the result of concerns by government that increased reference margins could create unprecedented program dollar demands.

Through additional initiatives by the federal government that propose reforming the Canadian Grain Commission and increasing fees for its services, we are being told that the grain sector is doing well and can afford to pay more for public services.

Another alarming issue is that the collapse of the hog industry in Manitoba and Saskatchewan was merely observed and dismissed by all levels of government, with no meaningful support even considered. The family hog farm in Manitoba is nearly extinct; I know my community has witnessed most every farm cease production in the past few months.

Another concern is the Puratone collapse which resulted in many grain producers being unpaid for feed grain deliveries. I can assure you that producer payment security has been a top priority for KAP over the past several years, and a great deal of work has gone into reviewing the current bonding system and looking at alternatives, as well as more comprehensive protection.

On an industry conference call with most farm groups in Canada and CGC Commissioners, we insisted that this issue be addressed. Now that the federal government has made the decision to terminate the bonding system, we have an opportunity to expand the mandate of a flexible insurance-based security system. With the many new entrants into grain buying, we must ensure that this is not left as unfinished business.

Let's work together to tell our governments that agriculture must continue to have access to payment security, government services, and safety nets – because we don't know what the future will hold. Government inaction to the downturn in the hog industry tells us what we can expect if grain prices decline, if environmental disasters hit, or exports are threatened by some global issue. We need adequate programming and services in place.

Both levels of government have emphasized research and innovation as they prepare to implement Growing Forward 2. However, this is short-term thinking. Without long-term economic stability, producers will not have the ability to adopt new technology, try new crops and adapt to climate change.

KAP has emphasized this paradox, and we encourage commodity groups and individual producers to stress this as well.

Did You Know?

Less than 5% of Manitoba's pulse producers request levy refunds.

ADAPTING IN A TIME OF CHANGE

Michael Reimer
Acting Executive Director
Manitoba Pulse Growers Association

A quick look back in time reveals just how much has happened in the past year – the CWB lost its monopoly, amendments were made to the Canada Grain Act, Glencore bought out Viterra, cutbacks were made at several AAFC research centres, and the federal government made significant changes to the AgriStability and AgriInvest programs. These changes are unprecedented and in many instances are being considered 'once-in-a-generation' type of changes.

CHANGE IS EVERYWHERE

"Times are a-changin" was the tagline for the 2013 Keystone Agricultural Producers (KAP) annual general meeting – a tagline that could have been used for every meeting and conference that I have attended in the past ten months. In November, I attended both the Grain Industry Symposium and the Croplife/Grow Canada Conference in Ottawa and the underlying message at both of these events was that the agricultural industry is in the midst of a 'once-in-a-generation' period of change. All of the change in the agriculture industry has been met with an equal mix of optimism and anxiety.

In 2012 it was relatively easy to be optimistic – while a large part of the world experienced drought and crop failure, Canada had favourable growing conditions which generally led to good yields and quality across most crops. Anxiety on the other hand, comes from the unknown that typically is associated with change. There is always a period of uncertainty that accompanies change and even though 2012 was a successful year, there is always the reality that factors such as poor weather or a global recession can cause things to go sour.

> There is always a period of uncertainty that accompanies change.

THE CHANGING ROLE OF PRODUCER GROUPS

In meetings with other producer groups throughout Canada, there has been a great deal of discussion around the changing role of producer groups. With less money going into public breeding and research programs there are questions being raised as to the role producer organizations should play in ensuring these research programs remain viable. There is also a great deal of exploratory work being done to examine how producer groups could partner with private industry. The advantage of the public-private model is that producers continue to have access to new genetics while not having to bear the burden of fully funding a breeding program.

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CHANGE IN MANITOBA: THE EXPLOSION OF SOYBEAN PRODUCTION

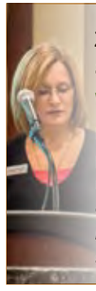
The MPGA has also experienced its fair share of change in 2012. Soybean production exceeded expectations and Manitoba became the number two soybean producing province in Canada. Edible bean production rebounded from a very wet 2011, but overall production remained below historical averages. The extreme shift from pulses to soybeans (technically an oilseed) presents an interesting conundrum for an organization that calls itself the Manitoba 'Pulse' Growers Association.

There is a dichotomy between soybeans and pulses research priorities that as a producer organization add a level of complexity. Soybeans are a global crop with steady demand and therefore attract a great deal of investment from the private sector for both breeding and market development. Pulses on the other hand, rely heavily on publicly-funded breeding and research programs, which in recent times have seen major cutbacks. The MPGA was built on pulse production and it is not unthinkable to consider that at some point in the future pulses acres in Manitoba will rival those of soybeans. In 2001, I do not think anyone would have imagined one million acres of soybeans in Manitoba, but in 2013 that will likely be the case – things can change quickly and unexpectedly. It is because of this, the MPGA remains committed to support pulses in the province.

ADAPTING IN THE FACE OF CHANGE

One of my all-time favourite movie quotes comes from the 2002 movie *Adaptation* where a character in the movie, John Laroche, states that "Adaptation is a profound process… means you figure out how to thrive in the world." The reason I love this line is that change is inevitable and the key to surviving change is often having the ability to adapt quickly. In the past year, there has been an abundance of change within the Canadian agricultural industry and regardless of whether it is producers, researchers, grain companies, or producer groups, there is a sense of urgency to not only adapt and survive, but adapt and thrive.

The views expressed in this article are those of the writer and do not necessarily reflect those of the Manitoba Pulse Growers Association.



2012 MPGA Financial Reports are available online at www.manitobapulse.ca

Due to changes in Canada Post publication mail agreement regulations, financial statements can no longer be published in *Pulse Beat* without incurring additional postage costs.

GET READY TO HEAD TO SOYBEAN SCHOOL

Soybean School

MPGA has partnered with RealAgriculture.com to provide a Western Canadian-focused online soybean production guide through the site's Soybean School.

Lyndsey Smith*
www.RealAgriculture.com

Let's face it, we live in the digital information age. While there's still a place and use for magazines, brochures and morning papers, certain types of the information we need is found more quickly and easily online. Being dependent on a newspaper for weather or market updates means you're a full 24 hours behind everybody else, maybe even more.

Like it or not, smartphones, tablets and the apps on them have changed the way we communicate, read the news and kill time in the elevator line-up, the drive thru and sitting at the airport. Add in readily available wireless networks and high-speed data, and, ta da!, your phone is nearly all you need for information, education and research. (There may even be some fun stuff thrown in there, too).

Farm-related information is no different. Speedy market updates and accurate, on-the-go weather updates are critical to making important production decisions, but, increasingly, farmers are using the Internet to research equipment purchases, compare crop protection options or even find grain bids.

For so many things – disease scouting, insect identification, crop staging and equipment comparisons – it's easier, faster and just plain better to see it rather than say it. Already, a high percentage of consumers list YouTube videos as a primary source of information when researching new products. Farming and farmers deserve the same kind of information. And that's where RealAgriculture.com and the Soybean School come in.

THE SOYBEAN SCHOOL

In 2013, MPGA and RealAgriculture.com will work together to provide 10 production-based videos specific to growing soybeans in Manitoba, in addition to 20 videos focused on eastern production through its Soybean School (www.SoybeanSchool.com). From variety selection and seeding tips, to pest control and combine settings, each video will feature timely and in-depth information essential for making production decisions. The video series will feature agronomists, extension staff and farmers offering their expertise on each subject.

FIELD DAYS AND MORE

RealAgriculture.com is working with MPGA to develop a comprehensive list of the production information Manitoba farmers are asking for in their quest to seed a million or more soybean acres for the first time. What's more, the Soybean School will attend field and research demo days this summer to capture the expert opinions and research findings you may not have the opportunity to see due to the busy nature of the growing season.

As a soybean grower in Manitoba, this series is yours to watch whenever you need the information and at your own pace or whenever you find yourself with just a few extra minutes. Because the series is web-based, it's with you wherever you've got an Internet connection. The Soybean School is also flexible and reactive – comments, questions and your involvement isn't just okay, it's encouraged. Commenting on posts is easy, as is sharing on Twitter and Facebook (Follow the school at @SoybeanSchool and @RealAgriculture.)

Video is a powerful tool for playing a grown-up version of show-and-tell. Want to know if what you're seeing is a nutrient deficiency? Or how to distinguish between similar insects? Or take a tour of the newest, biggest, shiniest piece of machinery? Video allows for a very fast, accurate and in-depth look at whatever it is you're interested in a way that print just can't bring to life. Keep watch on www.RealAgriculture.com for the online soybean production guide you've been waiting for.

Lyndsey Smith is the editor of www.RealAgriculture.com based at Winnipeg, Manitoba. A self-professed agronomy nerd, Lyndsey is probably too excited to start filming the Soybean School episodes. Follow her on Twitter as* *@realag_lyndsey*** *or email your questions and comments for the upcoming Soybean School to* ***lsmith@realagriculture.com*** *or by calling* ***204-417-3894****.*

Richard Phillips
Executive Director
Grain Growers of Canada

WHAT REALLY HAPPENS AT TRADE NEGOTIATIONS?

Recently, Richard Phillips of the Grain Growers of Canada was in New Zealand for Canada's first participation in the Trans-Pacific Partnership (TPP) trade talks with Mexico, United States, Peru, Chile, New Zealand, Australia, Malaysia, Vietnam and other countries.

Kathleen Sullivan (Canadian Agrifood Trade Alliance), John Masswohl (Canadian Cattlemen) and Richard attended 43 meetings over six days to both come up to speed on the talks and to promote our strong export interests to the other countries.

Meetings were with Canadian negotiators, provincial government observers, foreign negotiating teams and a number of foreign farm organizations who are supporting an ambitious outcome.

The Grain Growers of Canada and Canadian Cattlemen focused primarily on phytosanitary and non-phytosanitary trade barriers and harmonization issues.

We pushed for the entire TPP agreement to have equivalent maximum residue levels for each product, rather than each importer having different levels for each of the hundreds of active ingredients on the market. The pulse sector specifically has had past experiences with MRL issues in a number of other countries.

We also said there should be a TPP wide agreement on a low-level presence policy. Although there are no GM pulses or cereals, the reality is there is always a risk of other crop residues during the shipping and handling. It is nearly impossible to have zero as a tolerance, so there needs to be some low level set to allow trade to continue, especially as more GM crops enter the market and risk of even "dust" being detected increases.

The Grain Growers of Canada is drafting some language and then meeting with the U.S. in late January to build support for a very high level of ambition to resolve future trade irritants in advance.

The United States is driving negotiations hard, wanting the deal to close in 2013 or 2014. However, there are some large issues outstanding in agriculture and other sectors. U.S. sugar is very protectionist for example, while Australia has a large surplus of sugar to export.

This has a direct effect on Canada. We have a very substantial food processing industry; it would be very beneficial if within the TPP rules of origin we could import Australian sugar to add to Canadian baked goods and other food for export to the U.S. Given we don't produce a lot of sugar domestically this is key to expanding value-added food exports.

There are talks scheduled every two months going forward, and while that is ambitious there will need to be more flexibility from the U.S. for real progress to be made.

OTHER TRADE

We need to finalize a number of bilateral trade deals to lock in our preferential access terms.

The Canada–European Union trade talks are in the final stages of negotiation with the ministers for each side needing to make the political decisions on beef, pork and dairy to name a few. This opens the door more fully for Canada to sell to over 500 million consumers.

A lot of work has gone on behind the scenes to get the Canada–South Korea talks back on track after languishing for several years. Korea is a large market for many grains, plus beef and pork. The U.S. and the E.U. have signed agreements and we will rapidly be losing market share on tariff lines without a deal.

Thirdly, although it looks small, the Canada–Morocco talks are also progressing well and this market is also important for us. In addition to our pulse export interests, Morocco buys about one-third of our durum crop every year.

Richard Phillips (GGC) and Gilles Gauthier (lead AAFC negotiator) discussing trade with a Moroccan official

We also have talks at various stages with Japan, India, China and a number of other important markets.

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TRANSPORTATION

Another issue that will take substantial Grain Grower time is Bill C-52, the Fair Rail Freight Service Act which was introduced to Parliament last December and our goal is to see it passed before June 2013.

This legislation is designed to give shippers more negotiating power with railways for higher levels of service. Many of us (especially Pulse Canada) have worked for years on this file and were joined by the lumber, mining, fertilizer and manufacturing sectors who also had substantial service issues with rail.

MRL WORKING GROUP

The Grain Growers of Canada are formal members of the "Pulse Canada led" commodity associations group. Given the relatively slow pace at CODEX, especially in relation to the pace of innovation, work needs to be done in this field to ensure trade can flow smoothly.

RESEARCH

The Grain Growers have a formal working group on how to improve public research. This group is led by Leanne Fischbuch of the Alberta Pulse Growers and will first focus on improving the administrative challenges of clusters/diaps and then on better linking AAFC, provincial governments, universities and grower commissions to make best possible use of public resources.

BUSINESS RISK MANAGEMENT

Within the Grain Growers, the Canadian Canola Growers are taking the lead on planning for Growing Forward 3. As many of you know, the government is rapidly shifting its AAFC budget from support programs to marketing programs, and while many people were not happy with cuts to AgriInvest and AgriStability the fact is they are done.

So, we are now focusing well in advance on designing a whole farm revenue model. Any new ideas must be modeled and then tested extensively by AAFC before having a chance of acceptance and implementation by both federal and provincial governments.

SUSTAINABILITY AND SOUND SCIENCE

As a national voice for growers, we have been increasingly concerned over the misinformation about agriculture being spread by activists. Over the coming year, we will be working with groups like the Flour Millers and Bakers to correct myths about "wheat belly." We will also be doing some public relations with Crop Life and the Fertilizer Institute on the progress we have made on sustainability, and working on how to help consumers understand.

In summary, there is a lot of issues to work on, most of which filter down to the farm gate and either make you money, or cost you money.

We appreciate the good input we receive from both Kyle Friesen and Mike Reimer, in helping steer and set national direction for farm policy.

Denis Tremorin, *Director Sustainability at Pulse Canada*

Pulse Canada

Pepsico, General Mills, Nestlé, Unilever, Mars, Kraft, Coca-Cola, Kelloggs. Some of the biggest food companies in the world are setting their sights on sustainable agriculture. Consider this:

- Unilever has committed to sustainably source 100% of its agricultural raw materials by 2020, including canola and soybean oils.
- Walmart also plans to buy 70% of product sold in North America from organizations that utilize their "Sustainability Index."

Canadian agriculture is ready to meet the growing need for information about sustainable food production. Canadian farmers have adopted practices that improve the sustainability of their farms and have the data to quantify the impact of these changes to production practices. Crop rotations with pulses, conservation tillage and fertilizer management technologies are some of practices in place on Canadian farms that improve key sustainability measurements. Pulse Canada is working to make sure the Canadian agricultural industry has the tools and that food companies have the information that is required.

Since late 2010, Pulse Canada has been working with other Canadian agricultural associations, non-government associations and food companies to develop sustainability indicators and on-farm calculators for Canadian crop production. In December of 2011, Pulse Canada led the development of a report, *Application of Sustainable Agriculture Metrics to Selected Western Canadian Field Crops* (www.pulsecanada.com/fieldtomarket). Modeled on work that had previously been conducted in the U.S. by Field to Market, this report demonstrated that over 20 years, the production of eight Western Canadian crops has improved in the areas of greenhouse gas emissions, energy use, soil erosion and land use efficiency.

During the summer of 2012, Pulse Canada initiated a project with General Mills, the Canadian Canola Growers Association, CropLife Canada, Ducks Unlimited Canada and the Prairie Oat Growers Association to develop a *Canadian On-Farm Sustainability Calculator* for crop production. This calculator was launched in January of 2013, with a pilot project working with pea, oat, wheat and canola growers in Manitoba and Saskatchewan. This pilot project began with a kick-off meeting at Brandon Ag Days on January 16, which was attended by growers, as well as Cargill, Viterra, Paterson Grain, BASF and Syngenta. Participating growers have now been given a copy of the calculator and are inputting production information into the calculator.

The *Canadian On-Farm Sustainability Calculator* demonstrates how farmers' production practices are improving sustainability as measured by greenhouse gas emissions, energy use, soil loss and soil organic carbon. The On-Farm calculator will also demonstrate to farmers how changes in production practices can be both more economical, and improve the sustainability measures that are of interest to consumers and the food sector.

The future for the *Canadian On-Farm Sustainability Calculator* project is to expand the use of the calculator to other Canadian crops like soybeans, corn and barley, as well as other regions including Ontario, Quebec, Alberta and the Maritimes. The project will also continue to fine-tune its measurements using the latest in agricultural research, and will incorporate the newest technologies and practices employed on Canadian farms.

Canadian agriculture is committed to being responsive to market demands. The good news is that Canadian agriculture is also producing more, with less inputs. And that is a good thing!

Funding for this project has been provided by Agriculture and Agri-Food Canada through the Agricultural Flexibility Fund, as part of Canada's Economic Action Plan.

Tackling Whole Grain Confusion Head-On

Dr. Ravindra Chibbar, Ph.D*
Member, Scientific Advisory Council

In November 2012, just in time for the new year when many Canadians embark on their healthy eating resolutions or start a new fad diet, the Healthy Grains Institute (HGI) launched.

A not-for-profit institute guided by an independent Scientific Advisory Council, the HGI was formed to study and compile research on the benefits of eating whole grains – including weight management and chronic disease prevention – to help Canadians make educated, science-based decisions about the food they eat.

What we know is that misinformation about the health and nutritional benefits of whole grains, and fad diets that promote the elimination of entire food groups, could be putting Canadians' health at risk. Results of a recent survey conducted on behalf of the HGI by Nanos Research, show Canadians need some guidance on the whole grains front.

According to the survey, Canadians are confused about the role whole grains play in their diets. While a clear majority of Canadians (67%) said wheat-based products like bread and pasta contribute to weight gain, they also say they would feel less healthy if they eliminated wheat (57%) or gluten (46%) from their diet completely. As well, although there is no existing scientific or clinical data to support a weight loss claim for a gluten-free diet, just over 36 per cent of those surveyed believe that gluten-free diets help with weight loss.

So, while many Canadians report that they would feel less healthy if they eliminated whole grains from their diet, the misinformation about the health and nutritional benefits of whole grains coupled with media attention on fad diets and gluten-free diets, has caused people to act against their own beliefs.

While they may be popular, gluten-free diets are not designed for everyone, necessarily good for you. Less than one per cent of Canadians have celiac disease and only six per cent have gluten sensitivities. While those with celiac disease or non-celiac gluten sensitivity must observe a gluten-free diet to manage their condition, removing whole grains from your diet may rob you of essential nutrients and their proven benefits. In fact, whole grains, including wheat, are known for their ability to reduce the incidence of chronic diseases such as diabetes and heart disease, aid in healthy digestion, increase energy and assist in healthy weight management.

Several recent studies have investigated the impact of including whole grains in the diet for better weight control and researchers have found evidence to support the role whole grains play in weight management. Specifically, those who include whole grains as part of a healthy, well-balanced diet are less likely to gain weight over time. It is also important to note that foods are comprised of several components which fit together like puzzle pieces. Removing one significant food group could put you at risk of missing essential nutrients in your diet, which may be beneficial for normal body functions and weight management.

A number of industry partners have come together to provide funding to the Institute to ensure Canadians have science-backed information about the importance of whole grains in a healthy, balanced diet. The nutritional experts and scientists of the independent institute participate because they believe both personally and professionally in the time-tested science behind the health benefits of whole grains and the need for misinformation to be corrected.

Industry supporters of the institute include the Canadian National Millers Association, Baking Association of Canada, Canadian Pasta Manufacturers Association, Canada Bread Co. Ltd., and Weston Bakeries Ltd.

Through further research into the health and nutrition benefits of whole grains and advocacy for their importance within our diets, the Healthy Grains Institute will continue to serve as a credible resource by continuing to identify and direct Canadians toward scientific evidence that will assist them in making good decisions about their food choices.

For more information, visit www.HealthyGrains.ca

**Dr. Ravindra Chibbar, Ph.D. is a professor and Canada Research Chair, Crop Quality (Molecular Biology & Genetics), Department of Plant Sciences, College of Agriculture and Bioresources at the University of Saskatchewan. He has more than three decades of research experience in grain quality enhancements in cereals and pulses and a Fellow of the American Association of Cereal Chemists International (AACCI), St Paul, MN, USA and the International Association of Cereal Science and Technology (ICC), Vienna, Austria.*

Ron Pidskalny
Strategic Vision Consulting Ltd.

Declining public research investment and very recent budget cuts across the federal public service, specifically in agriculture, have underscored the need for an industry-wide plan to maintain and enhance pulse breeding in Canada in order to remain competitive against other cropping options. Currently, the Canadian pulse industry relies heavily upon publically generated varieties, predominantly those developed at Agriculture and Agri-Food Canada (AAFC) and the Crop Development Centre (CDC). Very few private pulse varieties are available in Canada. Fewer varieties mean less choice for growers and point towards a general long-term decline for the Canadian pulse industry.

In Canada, discussions regarding the future of crop research funding in Canada has focussed on the role of public plant breeders as public sector funding declines and as the level of participation in plant breeding research declines. One question may sum up the debate: Should the public sector be involved in crop breeding where variety development is feasible and profitable?

Debates over the roles of the public and private sector in plant breeding go back at least a decade, starting with a global move towards the privatization of a number of national plant breeding programs. Discussions centred on finding a balance between the public and the private sector. Many felt that maintaining public research programs at public expense had to provide a tangible public benefit and should not compete directly with the private sector. Those leading the discussion recognized that public sector plant breeders could provide benefits to society that would not be within the mandate of the private sector.

That said, many recognize a need to maintain a balance between public and private sector plant breeding operations. Producers are concerned that any shift in balance towards the private sector could create situations in which they lose their voice in crop development decisions, small acreage crops become neglected, and the level of collaboration and sharing of IP among researchers declines. Public-Private Partnerships (PPP) provide a model for exploring a balance between the interest of the public and the private sector.

ISSUES IN THE PULSE SECTOR

Alberta Pulse Growers commissioned a report about Public-Private Partnerships called *Impediments to Private Sector Investments in Canadian Pulse Breeding*, which tracked over $85 million in investments in pulse crop breeding over 10 years from 17 major funders of pulse breeding research in Western Canada. The report included an overview of Canadian pulse breeding capacity, the cost of pulse variety development in Canada, means of protecting intellectual property rights for plant breeders in Canada, and an examination of existing value capture systems for varieties and traits in nations against which Canadian producers compete.

The report showed a number of issues in the pulse sector. Some public sector Canadian plant breeders run programs that have been running with marginally sufficient or inadequate funding for years. Program funding for public sector plant breeders has not only dropped substantially for decades, inflation has reduced the spending power of plant breeders by almost 150 percent over 30 years, suggesting that inflation reduces the output of plant breeding programs by over three percent annually.

Not only is research funding for the public sector declining, so is research capacity as the public sector downsizes and rationalizes its research programs and as senior scientists retire. In addition, the industry is consolidating, and the field of genomics will soon have tremendous impact on the development of new technologies for agricultural crops, especially in the area of stress tolerance.

Alberta Pulse Growers, Manitoba Pulse Growers, and Saskatchewan Pulse Growers have worked hard to increase pulse acres since 1980. Western Canadian producers seeded 282,000 ac

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of dry beans (white and coloured), 180,000 ac of chickpeas, 2.6 million ac of lentils, and 3.5 million ac of dry peas in 2012. However, corn, soybean, and wheat production in the U.S. and canola production in Canada illustrate how technological advancements in some crops can have a significant impact on alternative cropping choices.

PRIVATE BREEDING SUCCESSES IN OTHER CROPS

In other crops, private sector plant breeders have introduced a number of newer, high value traits with development costs of up to $100 million per trait. Resistance to Corn Root Worm was one of the first high value traits introduced, with a total investment in excess of $300 million, which was an enormous sum relative to what would have been available in a public sector research budget.

Companies made the decision to develop and commercialize CRW resistant corn in anticipation of a good return on their investments. This created a situation in which acres seeded to CRW-resistant corn exceeded the area previously treated with CRW insecticides. As corn acres increased in response to demand from bioethanol producers, net benefits of the CRW-resistant technology to farmers and to the developer were double the initial expectations. Investments could be justified based on the high levels of protection afforded varietal traits in the corn market. The trait premium not only provided good returns to the plant breeders, the companies priced the trait below the actual value to the average farmer.

In comparison with corn breeders, wheat breeders in the U.S. are less able to protect their IP. In areas where farmers have traditionally saved seed, this has been a particularly serious impediment to investment in wheat breeding. Where wheat breeders have protected IP, they must take unilateral action to enforce their rights – and the potential cost of legal action, combined with the possibility of negative publicity, seems to have discouraged many wheat breeders from doing so. The shift in acreage of corn and wheat may reflect the issue of IP protection; the area sown to wheat in the U.S. has dropped 30 percent since the 1980s, although some of this reduction may be attributed to the competitiveness of high-yielding corn varieties in spite of the high price of seed corn.

As abiotic stress tolerance is added to new varieties, however, gross margin and contribution margin at the farm gate could rise in crops such as wheat and canola. Water Use Efficiency (WUE) may soon reach the field in varieties with tolerance to temperature extremes, tolerance to drought stress, and tolerance to salinity. Some nations are ahead of Canada in bringing these traits to the field. Australian plant breeders commercialized a WUE wheat variety in 2004 and expect to bring Nitrogen Use Efficiency (NUE) in wheat and barley to market within three years. WUE is in development as part of a public-private partnership in wheat in the U.S. and NUE is in development in canola in Canada.

These varieties have improved environmental stability, which also

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reduces on-farm risk and lowers the cost of risk management programs. In addition, this gives nations against which Canadian producers must compete the capacity to produce a greater range of commodities at a lower price. Assuming that these technologies eventually reach Canadian producers, barley, canola, and wheat may become more desirable crops as farmers realize higher gross margins and contribution margins. This, then, leads to the question: where does this leave pulse crops as rotational options in Western Canada if they become less profitable to grow relative to other rotational crops?

Advances in wheat genetics technology, the development of private sector wheat breeding programs in Canada, declining funding and support for publicly supported pulse breeding in Canada, and the cost of new genetic traits and technologies suggest that pulse crop contribution and gross margins may not keep pace with alternative crops at the farm gate. Producers are seeing more lucrative opportunities in crops other than pulses and are shifting acres to those crops with higher contribution and gross margins. If pulse margins fail to keep pace with those of other crops, pulse acres may decline.

Gains in pulse productivity realized over the past 30 years could decline without the infusion of innovative technological advances.

INVESTMENT IN PLANT BREEDING CRITICAL

Capturing the potential value of new traits may require higher levels of investment in plant breeding. Abiotic stress traits could take up to 15 years to move from gene discovery to commercial seed sales. The cost of development could range from $5 million to over $100 million.

Assuming that investments in pulse breeding continues at its present level of about $2.1 million annually per pulse crop, a trait valued at $5 million could be introduced to a single pulse crop within three years – but only if the all of the investment in that crop went towards that single trait. A $100 million trait would come around for a single pulse crop once every 47 years. One option for bringing more investment to pulse breeding is to encourage the private sector to invest in Canada; however, this may not be the only option.

Currently, the private sector is looking for opportunities to create value in traditionally public sector crops. At the same time, producers are looking for more investment in public plant breeding programs. In many cases, public plant breeding institutions lack of access to new technology and funding levels are declining. This has led to a number of cases in which the public and private sector have entered into collaborative plant breeding arrangements.

In one of the first partnerships, University of California Berkeley and Novartis Agricultural Discovery Institute entered into an agreement in which Novartis gave U of C Berkeley $25M over five years for agricultural genomics research. In return, U of C Berkley gave Novartis access to its DNA databases and some of its proprietary genetic technology U of C Berkley retained patent rights and earned royalties from its discoveries while Novartis had the first right to license inventions from the Department of Plant and Microbial Biology. If producers choose to do so, they have the opportunity to enter into a wide range of relationships with the private sector in order to procure access to new pulse technologies and traits.

ADAPTABLE, FLEXIBLE, AND ENABLING ENVIRONMENT

Existing seed policies and the slow pace of change continue to constrain the seed industry. Canadian producers have endured Canadian Seed Sector Review process that has taken place for over a decade, in addition to dealing with a wide range of other seed sector issues. A key requirement for both public and private sector plant breeders is an adaptable, flexible, and enabling regulatory environment.

When motivated, the private sector has proven that it can bring considerable resources to breeding programs relative to the public sector. As such, Western Canada's pulse growers are studying opportunities for a PPP in pulse breeding for the benefit of Western Canadian pulse growers over the next five to six months.

As the global agricultural sector changes and evolves rapidly, commercial frames of opportunity often open and close very quickly. Some argue that the country's seed regulatory system continues to be outdated and has left Canada's agricultural sector at risk. Policies are in need of modernization and must support entrepreneurial innovation.

**As published in* Pulse Crop News *and used by permission from Alberta Pulse Growers.*

Saving Lives on Farms and in Rural Communities

Val Ominski
Keystone Agricultural Producers

In terms of farming accidents, Jon Gogan has seen it all – from farm workers trapped under rolled-over tractors, to farmers crushed by falling or rolling hay bales. He has also witnessed many other kinds of accidents, injuries and illnesses during his nearly 1,000 flying medical missions to rural areas across Canada.

Gogan is a helicopter pilot and 11-year veteran with STARS – an air ambulance service that originated in Alberta and just recently moved into Manitoba. He is also the base director of this new service for rural Manitobans.

"We first came here on a one-time basis during the 2009 flooding, and we returned during the 2011 flood," he said. "At that time, the premier and health minister asked us to continue our service to Manitobans – and this has led to a 10-year agreement."

Located at the Winnipeg International Airport, Gogan and his team provide air ambulance service anywhere within two hours flying time from Winnipeg – which means all the way to eastern, western and southern borders, and as far north as Swan River.

For areas farther north, the Province sends its Life Flight jet – which can cover a plus-two-hour-distance faster than a helicopter.

"Between the two services, we cover critical patients in the whole province," said Gogan.

In the 18 months since STARS has been here in Manitoba, Gogan has personally witnessed dozens of incidents where people would not have survived ground transportation to hospital facilities.

"The back of the helicopter is both an intensive care unit and an emergency room that travels at 240 kilometres an hour," he explained. "We deliver critical care right to the farm or any other accident scene."

In addition to accident victims, STARS also transports critically ill patients from rural hospitals to Winnipeg hospitals on the recommendation of their doctors.

On each flight, there are two pilots, a nurse, a paramedic, and depending on the situation, a transport physician.

"Our people are highly trained – and very effective," said Gogan.

As well, while on a mission, the medical team is linked by satellite at all times to one of 12 STARS transport physicians in Winnipeg who can monitor a hospital patient (in conjunction with the rural physician), or provide medical advice in the case of an accident victim.

The physicians are also the ones who decide whether STARS will be used for inter-hospital transportation. For accidents, the 911 operator, using a list of physician-supplied criteria, is the one who determines whether STARS will be dispatched.

Using GPS, the STARS team know the exact time it will take to arrive at any location in its service area. Given the town of Vita as an example, Gogan advised that it would take 23 minutes to arrive there. Add another 15 minutes to board the accident victim (in the case of inter-hospital transportation, it's 30 minutes), and then another 23 minutes back to Winnipeg.

In one hour, a person who has suffered a serious accident can be in a Winnipeg hospital – and the highly specialized critical care will have started somewhere after 23 minutes.

Gogan said the most common farming accidents he has seen are related to machinery and farm equipment – including workers, farmers and children entrapped in drive shafts, caught under rolled-over implements,

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WHO KNOWS SOMEONE AFFECTED BY A FARM-RELATED INJURY?

Tracey Drabyk-Zirk
Rural Leadership Specialist
Manitoba Agriculture, Food and Rural Initiatives, Beausejour

Have you met a farmer who **does not know** someone who has been affected by a farm-related injury or death? To date, all those that I have had discussions with, know of a farmer who has either experienced an impacting injury or the farmer comments on the death of a fellow producer. Many will tell me about their own experiences or near misses.

Approximately 125 people are hospitalized in Manitoba each year for farm-work injuries and many, many more need medical treatment for farm-related injuries and illnesses. That means one out of every three farms in Manitoba could be affected by injury or death every year!

For those of you who attended the *Sleepless in Manitoba* education seminar, there was some "hit home" information that I think all of us should keep in mind.

Most accidents occur between midnight and 6 a.m. and in the afternoon, between 1:00 to 3:00 p.m., when people are tired. It is of no surprise that fatigue adds to the potential for accident and injury.

It is also known that the effects of fatigue can be similar to the effects of alcohol. WorkSafe BC reports that 17 hours awake results in an impairment equivalent to a 0.05 blood alcohol content, while 24–25 hours awake equates to impairment similar to a 0.10 blood alcohol content.

As you near this year's seeding season, keep sleep and other important precautions in mind.

Do others know where you are? Do you know where your workers or other family members are? A radio or cell phone will help only if an incident happens when you are close enough to use it or when there is adequate cell coverage.

If you have to call 911, telling them you are at "McLean's yard" will not help. How do you get there? Specifics of directions – section, township, range/RM road markers are key factors when time is of the essence. We all think that it is easy to give directions. Even emergency measures (EMS) workers tell their stories of emergencies and drawing a blank in life-threatening situations. One worker, who had a fire in her home and called 911, admitted that in the panic of it all, she could not give directions to her home. As she states, "I know the importance of time in an emergency; I drew a blank."

It is easy to put a sticker with specific directions on your phone in your home so they can be read out in an emergency or when a babysitter is in your home. What is your plan for the many fields that you work, should you or someone else have to call 911?

- a "master list" with direction details stored in each implement and truck?
- the necessary information on a piece of paper, which you or your workers' carry in a pocket?
- will the list be at home for the person you radio in an emergency?

TIME IS OF THE ESSENCE IN AN EMERGENCY!

What are the barriers/obstacles on the land that you work? You know them and in discussion could quickly tell me where they are. Knowing specific directions for each field is even more critical when there is a barrier that necessitates getting to a field a specific way. Fire personnel can all tell you many stories of watching fires burn and not being able to access it as there is a drainage ditch or natural barrier that could not be passed. Time is of the essence in an emergency!

With intuition, experience and knowledge you know where the greatest risks are… aren't those the ones that you warn your children about; the ones you tell young workers to leave certain tasks for you to do? Think about these and think more about what can be done to prevent injury or accidents on your farm.

Wishing you a lucrative and safe 2013 production season.

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run over by equipment or trucks, or falling from buildings or machinery.

However, the incidents he sees the most of on the farm are strokes or heart attacks caused by over exertion or some other existing medical condition.

"Knowing that we can change the outcomes of not only the lives we save, but also their families, is one of the things that keeps us going," said Gogan.

STARS has received full funding from the Manitoba government, but its model is to operate as a foundation with donor support similar to Saskatchewan and Alberta, so that eventually it will be greater than 60 per cent donor-funded here.

The organization, which was started in Calgary in 1985 by Dr. Greg Powell as a result of witnessing what happens when people can't reach medical care, originally operated on a "day-to-day survival" basis, said Gogan.

But survive it did – and became an essential medical service across Alberta, with expansion into Edmonton and Grande Prairie. In the last 18 months, STARS has also set up bases in Regina and Saskatoon, as well as Winnipeg.

Because its arrival in Manitoba was unanticipated, STARS is currently offering service 12 hours a day, but expects to be a full 24-hour service early in 2013. Gogan said it has already hired and trained the additional 12 air medical crew, three additional pilots and additional transport physicians to begin 24-hour operations in Manitoba.

He is quick to point out that all staff contribute to each and every trip – and not just those aboard the STARS helicopter.

"On every mission, the efforts of our engineers and support staff on the ground go up in that helicopter, too," he said.

In emergencies, STARS can be accessed for serious injuries or serious medical situations by calling 911.

STARS is currently seeking community partners to assist in helping it stage fund-raising events. Call Robyn Stewart at 204-786-4647 (rstewart@STARS.ca) for more information.

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Thank you! **for your continued support, cooperation and participation.**

The directors of Manitoba Pulse Growers Association thank everyone in the pulse, soybean, and special crops industry for the tremendous show of support during the seventh annual Manitoba Special Crops Symposium. Without the support provided by the businesses below, this event would not be possible. MPGA also acknowledges the cooperation and contributions of Manitoba Corn Growers Association, the National Sunflower Association of Canada, and MAFRI in creating this event.






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RESEARCHER PROFILE

Yvonne Lawley

Yvonne Lawley is a new assistant professor in the Plant Science Department at the University of Manitoba. Her area of research is agronomy and cropping systems. Since 2011, Yvonne has been conducting research with soybean, corn, wheat, and cover crops in Manitoba. She teaches cropping systems to undergraduate students and advises graduate students. Prior to joining the Department of Plant Science, Yvonne was a Research Agronomist at North Dakota State University's Carrington Research Extension Center.

Growing up in Winnipeg, Yvonne would often visit her grandparents on their farm near Manitou, MB. She surprised her family when she decided to study agriculture as a high school student. "It would be hard for me to have imagined where this decision would take me in life," she says. Yvonne indicated that she really enjoyed her time completing her bachelor's degree in agronomy at the University of Manitoba (class of 2002). As a summer student, Yvonne assisted graduate students with their research projects in the Plant Science and Soil Science departments and that's when she decided that she wanted to experience research first hand. She enrolled at the University of Saskatchewan for a MSc program in the Plant Science Department (class of 2004). Her MSc research focused on using pulse crops (lentil, field pea, and chickling vetch) as green manure crops.

Having met her future husband the summer they both worked at the Canadian Wheat Board as undergraduate students, they were married while they were both MSc students at the U of S. As graduation neared, they both decided to continue with their educations, but felt they were ready for some adventure at the same time. The adventurers moved to the U.S. to complete PhD programs at University of Maryland (class of 2010), located within the metropolitan area of Washington D.C. Yvonne's research focused on forage radish cover crops (now marketed as Tillage Radish) grown within conventional grain cropping systems (typically soybeans, winter wheat, and corn). The experience she had working with soybeans and corn in Maryland would prove very useful when she moved back to Manitoba.

As a new professor, Yvonne is at a very exciting point in her career. Her research program is really just taking shape and getting started. MPGA was the first group to award her a research grant. "Being awarded research funds from a check-off fund is especially meaningful, knowing that farmers are interested in supporting my research," says Yvonne. This first research grant also had a lot of practical importance, as it allowed her to hire summer and

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PHYTOFERRITIN AS A POTENTIAL IRON SUPPLEMENT

Rotimi Aluko, PhD.
Professor, Department of Human Nutritional Sciences
University of Manitoba

Iron is an essential micronutrient that must be supplied in the diet in order to enhance normal functioning of the human body. The most important role of iron is as an intrinsic part of hemoglobin, the component of red blood cells that transports and distributes oxygen throughout the body. Insufficient intake of iron can result in anemia, which is manifested as a decrease in the number of red blood cells and hemoglobin level in the blood. Decreased level of hemoglobin can lead to insufficient oxygen supply to muscles and vital organs such as heart, lungs, brain and kidneys. Approximately 3.5 billion people world-wide are believed to suffer from one form of iron deficiency anemia (IDA) or the other. IDA is particularly problematic during pregnancy and can lead to various health problems for the mother and the baby (especially fetal growth retardation), during or post-delivery. In children, IDA continues to be a major health challenge due to undernutrition or malnutrition and can cause negative effects on growth, motor and cognitive development as well as compromised immune function. It is believed that IDA in some children actually contributes to poor academic performance in school. In developed countries like Canada, increased consumption of whole grain products (high fibre diets) have become a popular dietary approach towards maintaining a healthy status. However, whole grains have high levels of compounds such as phytates, oxalates, and polyphenols that can bind iron and reduce bioavailability of dietary iron compounds. Thus in adults and especially vegetarians that consume high levels of whole grain vegetable products, there is increased potential for development of IDA and associated negative health problems. One novel approach is to provide iron-containing supplements to boost bioavailability and replace unavailable dietary iron. While inorganic iron sources have constituted the main type of supplement, there is a better alternative in using organic iron sources that have better potential for boosting plasma iron levels and prevent development of IDA. Phytoferritin is a well-known organic form of iron that can be isolated from plant sources, especially legume seeds for use as an ingredient in the manufacture of iron-containing nutraceutical supplements.

Phytoferritin is essentially a storage molecule that consists of a protein shell and an iron core; it is estimated that up to 4500 iron atoms in the form of hydrated ferric oxide can be enclosed within the core. Moreover, phytoferritin represents a slow-release form of iron and high dietary levels can help to sustain hemoglobin synthesis over a long period of time. Since the protein shell is susceptible to enzyme digestion in the gastrointestinal tract, dietary phytoferritin iron can be easily released and made available for absorption as already demonstrated by several studies. Another advantage of phytoferritin is that the iron is sequestered within a protein cage, which reduces the negative effects (low bioavailability) caused by metal-complexing food components such as phytates, oxalates and polyphenols. Phytoferritins have been shown to be highly bioavailable, hence can be used to boost plasma iron during deficiency. For example, soybean meal ferritin has been shown to be as efficient as ferrous sulfate in restoring hemoglobin levels while in vitro tests confirmed full release of iron following complete dissolution of kidney bean ferritin at gastric pH of 2.0 and temperature of 37°C. And even when complete dissolution did not occur, evidence suggests that digestion-resistant ferritin can be absorbed intact from the gastrointestinal tract through

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graduate students and have funds to pay for the fuel, seed, soil analysis, pin flags, and paper bags it takes to conduct field research. The research funds awarded by MPGA allowed Yvonne to apply for a second matching grant through ARDI, a federal government funding program, to double the value of the initial research project.

Yvonne's current research project funded by MPGA looks at the crop rotation benefits of soybeans. It will tackle some important agronomic questions within the context of Manitoba cropping systems: What is the best crop to plant before soybeans? What is the nitrogen contribution of soybeans to the next crop? It will also look at the impacts of crop rotation on mycorrhizal fungi and how this interacts with nitrogen fixing bacteria in soybean. "Soybeans are likely to be an important crop for the rest of my research career, as they have several characteristics that make them an attractive fit within Manitoba crop rotations," says Yvonne. Her future research interests for soybeans are to focus on unique aspects of our cropping systems that will impact soybean production. Yvonne says that training of graduate and undergraduate students is also very important to the future of soybeans in Manitoba. As students funded by MPGA research grants graduate and move into industry and government positions, they will bring along their knowledge of pulse crops and their unique production issues.

When asked to join the MPGA board as a rep for the University of Manitoba in December 2012, Yvonne didn't have to think twice about accepting the invitation. She knew that her involvement would be appreciated and that she will learn new things that will benefit her as a researcher. Yvonne is looking forward to her participation as a board member and to her future interaction with the community of growers that contribute to MPGA.

Welcome aboard Yvonne Lawley!

SOYBEAN SEED TESTING – AN IN-DEPTH LOOK

Holly Gelech
Manager, Business Development
BioVision Seed Labs

Seed testing diagnostic services provide insight into product performance and are also a requirement to sell Certified Seed, as legislated under the Seeds Act. Growing season challenges, such as disease, frost and drought stress, are etched into the seed and are often mirrored in the laboratory analysis result.

At BioVision Seed Labs' Winnipeg lab, soybean germination this testing season ranged from 55% to 95%. This high variability of seed quality is common when hot, dry weather conditions persist during harvest in Manitoba. As the seed moisture approaches critically low levels during the ripening stage, the seed coat becomes susceptible to hairline cracks. When the integrity of the seed coat becomes compromised during handling, the embryo can become damaged, which reduces the germination potential. The average soybean germination for the 2012 crop, as tested at BioVision, was 83%, compared to the average germination of 94% for the 2011 crop.

Sample 1: Germination 90%

Sample 2: Germination 60%

Germination is by far the most requested and valued test in the seed industry. Today's germination test methods have not changed significantly in the last 20 years and continue to be managed by the Canadian Food Inspection Agency. Through CFIA's *Canadian Methods and Procedures for Testing Seed* document, the planting media, the chamber temperatures and even analysis rules are outlined and to be followed. Accredited analysts are trained, and then tested by CFIA, to ensure competent analysis skills.

Soybeans are grown in a roll towel at 25°C for seven days for the germination test. At the end of the growing period, the analysis commences with division of seedlings into the various categories. The categories include normal seedlings, abnormal seedlings and dead/hard seeds. This is conducted on each of the four replicates. Final signoff of the test is wrapped up when all four replicates meet statistical tolerances and germination is calculated.

The image above is a comparison between a 90% germination result (sample 1) and a 60% germination result (sample 2) The low germination of sample 2, is on account of abnormal seedlings. These abnormal seedlings in fact sprouted during the test, but do not have adequate shoots and roots to form viable plants.

From a pulse standpoint, the most impactful farm operation that affects germination is handling. Seed coat cracks and embryo damage can occur quickly and with no visual symptoms, so be mindful when preparing your soybeans for seeding this spring.

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the mucosal cells. Due to the abundance of plant resources, plant ferritin (phytoferritin) could serve as a source of bioavailable iron for ameliorating iron-deficiency symptoms in humans. Another advantage of phytoferritins is their larger shell cavity, which can store 1.2–1.4 times as much iron as mammalian ferritins. In general legume seeds have higher levels of iron and ferritin than cereal grains. The high ferritin levels in legumes have been attributed in part to the large iron requirement during nitrogen fixation by nodules, from where ferritin is recycled to the seed during nodule senescence. Ferritin concentrations can vary between 8–80 µg/g of seed, with pea, mungbean and soybean reportedly among the highest. Because of the relatively low concentration of ferritin in legume seeds, consumption of whole seed products is not a feasible means of boosting solving the problem of IDA. Moreover, high levels of ferritin are present in seed hulls that are normally removed during various food processing protocols to improve taste of final products. Therefore, a more meaningful and practical approach is to use protein extraction methods that can isolate the phytoferritins as a concentrated product. The isolated phytoferritin can then be used as an ingredient to formulate nutraceutical iron supplements or to achieve iron fortification of foods. Based on previous studies, oral consumption of ~2.5 mg ferritin/day could be used to ameliorate iron deficiency symptoms in humans. The low dose is because each ferritin molecule can hold up to 4500 iron atoms (average is about 2500), making it a highly concentrated iron source. This is based on the fact that various experiments have shown that phytoferritin iron molecules are well absorbed into the blood circulatory system when orally consumed. Economically, the use of legume seeds to manufacture phytoferritin concentrates could boost the price of these seeds by as much as 100 times due to the high value nature of and global demand for organic iron supplements. Thus, there is a potential for higher economic returns (compared to current value of pulses) to pulse growers and processors if an appropriate technology can be developed to extract pulse ferritin and commercialize the extract as an organic form of iron supplement.

Ron Tone
Tone Ag Consulting Ltd.

The farmers in Manitoba use a variety of seeding rates and row spacing. There were 10 field scale soybean trials (table 1) that were set up in 2012 to determine what effect there would be on yield if the seeding rates were lowered by 30,000 seeds/acre. Seed costs are the single largest input cost for production of glyphosate tolerant soybeans.

In these farm trials the target seeding rates varied from 155,000 to 220,000 seeds/acre with row spacing from 7.5 to 20 inches. There were three planters and seven air drills used to plant the soybeans. In the trials, the high populations were what the farmer would normally plant for seeding rates. The low populations were 30,000 seeds/acre less than what each farmer would normally plant.

The following is a summary of the results:

1. The trial results showed an average 0.6-bushel/acre yield advantage for the higher seeding rates. The study did show that soybeans could have high yields even at low pre-harvest populations (table 1). Petersfield at second lowest pre-harvest population (100,000) had the second highest yield. It was within 1.4 bushels of the highest pre-harvest plant population (166,000).
2. A reduced seeding rate of 30,000 seeds/acre would mean a savings of approximately $11.00/acre, assuming a price of $50.00 per unit cost (a unit is 140,0000 seeds) for glyphosate tolerant seed with 3,022 seeds/pound.
3. The highest yield and the lowest yield were from a seeding rate of 210,000 and 220/210,000 respectively. Both had a pre-harvest population of 166,000.
4. The actual pre-harvest population was 69% and 67% of what was planted at the high and low population respectively with a range of 40% to 86% at the high population.
5. Soybean survival rate for planters was 16% and 21% better than air drills at the high and low populations respectively at the first trifoliate stage. This would mean savings of 34,440 seeds/acre @ $50/unit or about $12/acre at 21% survival. (MAFRI in 2010 field trials showed the survival rate was 17% with planter over air drill).
6. Row spacing (7.5-inch to 20-inch) did not correlate with yield meaning a 20-inch row spacing could yield as much as a 7.5-inch row or vice versa. The highest yield was on the 7.5-inch row spacing. There would need to be more years of data to confirm.
7. For this year, there seemed to be no correlation between yield and rainfall, even when looking at the crucial period of R4 (pod is .75 inches long at one of four uppermost nodes) to R6 (seed fills pod at one of four uppermost nodes).
8. % ground cover correlated with yield meaning that the quicker the ground was covered the higher potential for yield. The advantage being greater weed competition, soil moisture conservation and increased capture of light all potentially resulting in higher yield using narrower rows.
9. Soil P levels correlated well with yields meaning that generally higher soil P levels resulted in higher yields (see figure 1). The top three yielding fields had the highest soil P levels.
10. Combined losses were low (less than 2%). There was no apparent reduction in combine loss with the use of an air reel.

There will be another two years of on-farm research to determine what would be an economical rate for seeding soybeans. With this additional information we will then be able to build a response curve to show optimum seeding rates.

- For more information or if you want to participate in the trials, please contact Ron Tone at **204-433-7189** or email **rontone@toneag.com**.

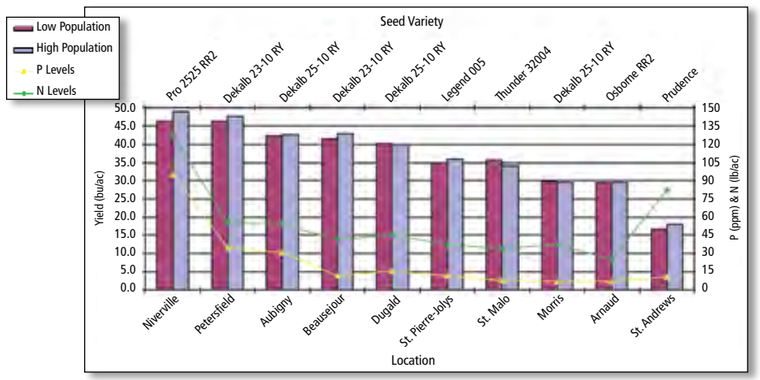
Table 1. MPGA Soybean Population Trial Overview 2012

Location	Target Population (K)	Actual Pre-Harvest Population (K)	% of Target	High Population (bu/ac)	Low Population (bu/ac)	Yield Difference (bu/ac)
Niverville	210 vs 180	166 vs 136	79 vs 76	49.0	46.3	2.7
Petersfield	190 vs 160	100 vs 92	53 vs 58	47.6	46.2	1.4
Aubigny	190 vs 160	107 vs 87	56 vs 54	42.6	42.3	0.3
Beausejour	155 vs 125	103 vs 92	66 vs 74	42.9	41.7	1.2
Dugald	170 vs 140	145 vs 127	87 vs 91	40.0	40.2	-0.2
St. Pierre-Jolys	220 vs 190	154 vs 136	73 vs 72	35.9	34.9	1.0
St. Malo	200 vs 170	79 vs 60	39 vs 35	34.0	35.6	-1.6
Morris	220 vs 190	164 vs 133	75 vs 70	29.5	29.7	-0.2
Arnaud	210 vs 180	166 vs 141	79 vs 78	29.6	29.5	0.1
St. Andrews*	185 vs 145	144 vs 96	78 vs 66	18.0	16.8	1.2
Average	**195 vs 164**	**133 vs 110**	**69 vs 67**	**36.9**	**36.3**	**0.5**

Planter

*Set back by herbicide and kochia

Figure 1. Soybean Plant Population: Yield vs. Soil P & N Level



Debra L. McLaren, Maria A. Henriquez, Robert L.Conner and Kan-Fa Chang
Agriculture and Agri-Food Canada

The 2012 dry bean and field pea disease survey activities funded by MPGA were conducted as outlined in the Pulse Science Cluster program. The soybean research activities were conducted according to the MPGA funded three-year proposal initiated in 2012. All field activities of these studies were completed and the laboratory work is ongoing.

ROOT ROT PATHOGENS OF FIELD PEA IN MANITOBA

Root rot is a major disease of field pea in Manitoba and is capable of causing significant yield reductions due to compromised root systems and reduced plant stands. Cultivars with complete resistance have yet to become available and control of root rot is difficult. Previous studies indicated that the most prevalent causal agents for root rot in field pea in Manitoba were *Fusarium solani* and *Rhizoctonia solani*. However, recent findings also indicate the presence of *F. avenaceum* in root rot affected field peas in Manitoba, Alberta and North Dakota. These reports suggest that the pathogen population may be changing over time, and emphasize the need to obtain up-to-date information on the pathogen species involved. To screen for host resistance and design effective control measures, it is critical to determine the prevalence of root rot pathogens of pea.

In 2012, the area seeded to field pea in Manitoba increased by over 50% from previous year, with growers looking to maximize the planting area and return to pre-flood levels.

Severe root rot of field pea caused by *Fusarium avenaceum* (L) compared to the untreated control (R).

With funding provided by MPGA, field pea crops were surveyed for root diseases at 33 different locations in Manitoba. The crops surveyed were randomly chosen from regions in south-central and southwest Manitoba, where field pea is commonly grown. The survey was conducted from early- to mid-July, with ten plants sampled at each of three random sites for each crop surveyed. The 30 pea plants were rated for severity of root rot using a disease severity scale of 0 (no disease) to 9 (death of plant). Fifteen symptomatic roots were collected per field for isolation of root rot pathogens in the laboratory. Root rot symptoms were observed in every field, and *Fusarium avenaceum* was more frequently isolated from symptomatic roots than *F. solani*. Rhizoctonia root rot (*Rhizoctonia solani*) was detected in one crop. In 2011, wet soils and cool conditions early in the season favoured root rot development, but such conditions were not as common in 2012, resulting in a lower mean root rot disease severity. Pathogenicity tests of the predominant isolates of *Fusarium* were conducted in order to confirm the capability of the pathogen(s) to cause disease.

ROOT ROT PATHOGENS OF DRY BEAN IN MANITOBA

In Manitoba, root rot can be a major constraint on dry bean production and can cause significant yield reductions due to seedling blight and weakened root systems of adult plants. In some cases, the whole primary root system can be destroyed. The root rot problem can be exacerbated when bean production fields are grown in short rotations and when beans are planted into cold soil. Resistant cultivars have yet to be developed. *Fusarium solani* and *Rhizoctonia solani* were the most prevalent causal agents of dry bean root rot identified in past Manitoba disease surveys. However, other *Fusarium* species such as *F. acuminatum*, *F. redolens* and *F. graminearum* have the potential to infect dry bean cultivars as demonstrated in recent studies. Changes in the pathogen population may be occurring over time and these findings demonstrate the need to acquire new information on root rot pathogens in Manitoba bean crops in order to screen for host resistance and design effective control measures.

In 2012, funding provided by MPGA supported a survey of 40 crops of dry bean for root diseases during mid- to late-July when most plants were at the early bloom stage. Protocols for plant collection, root rot rating and isolations were the same as for field pea. Fusarium root rot, detected in all of the 40 crops surveyed for root diseases, has remained the most prevalent root disease of dry bean

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for several years. The average disease severities were 3.7 and 3.2 in 2011 and 2012, respectively. During these years, average root rot ratings above a severity value of 4 (i.e., symptoms were present on 50% of the root system and plants were stunted) were observed in 39% and 25% of crops surveyed, respectively, and this would have a detrimental effect on crop yield. As with pea roots, *Fusarium* spp. were more frequently isolated from diseased bean roots than were *Rhizoctonia* spp. A number of *Fusarium* spp., including *F. acuminatum*, *F. oxysporum*, *F. redolens*, and *F. solani* were isolated from infected pea roots. Pathogenicity tests conducted using a susceptible dry bean cultivar confirmed the pathogenicity of the *Fusarium* spp. isolates.

With both dry bean and field pea, an in-depth study of root rot pathogens using molecular biology techniques has been initiated. To date, a PCR-based assay has been standardized for the rapid detection and differentiation of multiple *Fusarium* species causing root rot disease. So far, 14 probes have been developed for detection of *Fusarium* species associated with these crops. Development of these PCR-based assays will provide fast, sensitive and specific tests for application in the diagnosis of root rot pathogens of field pea and dry bean. Species of *Fusarium* not previously associated with root rot of dry bean and field pea in Canada were identified using gene sequencing and the PCR-based assay. This information will be incorporated into future research studies on these pulse crops to develop cultivars with better root rot resistance, which will reduce yield losses and ultimately improve the profitability of pulse production in Manitoba.

ROOT ROT PATHOGENS OF SOYBEAN IN MANITOBA

Fusarium root rot is also an important disease of soybean in Canada for which successful control has been elusive. Cultivars with high levels of resistance are not yet available. In western Canada, little information exists on the occurrence, distribution and pathogenicity of *Fusarium* spp. on soybean. In Manitoba and Alberta, *Fusarium* spp. were the most frequently isolated microorganisms from soybean roots of infected plants in 2012. Severe root rot was commonly observed in low-lying and flooded areas. Preliminary results from the 2012 Manitoba soybean root rot survey indicated that *F. oxysporum* was one of the more commonly observed species. As with the *Fusarium* spp. isolated from bean and pea roots, pathogenicity tests of the predominant isolates of *Fusarium* from symptomatic soybean roots will be conducted using a susceptible soybean cultivar in order to confirm their ability to cause root rot symptoms on soybean.

Acknowledgements

The funding provided by MPGA and the Pulse Science Cluster for these studies are greatly appreciated. Technical support provided by D.J. Hausermann, T.J. Kerley, T.L. Henderson, W.C. Penner, and D.B. Stoesz is gratefully acknowledged.

S. Arntfield, *Department of Food Science, University of Manitoba*

Soybean is recognized as a high value crop world-wide with Canada as a major player; according to FAO Stats (2010), Canada ranks fourth in terms of the volume of soybeans exported. Provinces producing soybean in 2011 include Ontario (987,000 hectares), Quebec (300,000 hectares), Manitoba (233,000 hectares) and PEI (22,300 hectares) (Canadian Soybean Council, 2012). Between 2008 and 2011, there was a 26% increase in soybean production in Canada; in Ontario the increase was only 16% while in Manitoba the increase was 84% (Canadian Soybean Council, 2012).

The popularity of soybeans is attributed to the fact that they are an excellent source of oil and protein and the meal obtained following oil removal is known to provide health benefits, where soy products have been linked to reduced risks of cancer, osteoporosis, renal disease and heart disease (Isanga and Zhang, 2008. Food Reviews International 24: 252–276). In fact there are recommendations that the consumption of 25g of soy protein per day will reduce serum cholesterol levels and prevent heart attacks. While the presence of isoflaovones is believed to contribute to these benefits, the health claims allowed in the U.S. are for soy protein.

Despite the benefits associated with soybean consumption, there are some limitations in accepting soy-based products. Many soy products possess a beany flavour that is objectionable to some consumers. Soy flour or soy protein at levels of substitution of 20 or 12%, respectively, produced bread described as having a beany flavour that was significantly stronger than that of the wheat control (Ivanoski, Seetharaman and Duizer 2012, Journal of Food Science 71:S71–S76). In addition, soybeans contain thermally stable trypsin inhibitors that interfere with the ability of trypsin to digest protein in the diet.

The beany soybean flavours have been linked to volatile flavour components in soy products, resulting from oxidation of fatty acids by the enzyme lipoxygenase. The main volatile compounds produced from soybean are n-hexanal, 2-heptanon, 1oceten-3-ol, 2-octenal, nonanal and decanal (Wu et al., 2011, Journal of the American Oil Chemists' Society 88:1621–1631). The level and distribution of these compounds varies with variety, temperature during grinding as well as the heat treatments (Zhang et al., 2012. Journal of Agricultural and Food Chemistry 60:7457–7462). A number of approaches for reducing these volatiles have been examined. Many aim to destroy the enzyme, thereby preventing the production of the volatile components. Heat is often used, but heat can also impact the soy protein and the way the protein behaves in foods. For example, the yield and level of protein in a soymilk could be reduced. In a recent study looking, it

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Rob Gulden, Paul Gregoire and Charles Geddes

Based on seeded acreage, soybean has recently risen to be the third most abundant crop in Manitoba behind wheat and canola. Volunteer canola is a common agricultural weed in canola growing areas where it often ranks among the top 10 weeds found in fields after in-crop weed control. Large harvest losses and the potential to develop seed dormancy in the seedbank lead to seedbank persistence of this species that rivals common agricultural weeds. In western Canada, volunteer canola seeds can persist for at least 3–4 years in the seedbank and currently harvest losses average between 2–4.5 bu/ac depending on region, but can be much, much higher. Herbicide-resistance traits make it difficult to manage volunteer canola in soybean crops as no effective in-crop herbicide options may be available. Uncontrolled, volunteer canola can lead to loss in soybean yield and contribute to future volunteer canola populations. How detrimental volunteer canola populations are to soybean yield is not known. To better understand and reduce the impact of volunteer canola on soybean production, the Weed Ecology and Management lab at the University of Manitoba is addressing the following three objectives over the next three years:

1) How much yield loss can be caused by volunteer canola in soybean and what is the economic threshold of volunteer canola in soybean.
2) What integrated weed management practices are best at reducing the seedbank persistence and seed return of volunteer canola in the season before planting soybean.
3) How effective are new herbicide options available for use in multiple herbicide-resistant soybean varieties on volunteer canola.

To address objective 1, field studies are being conducted by M.Sc. student Paul Gregoire to establish an economic threshold of volunteer canola in soybean. Each field study will assess the effect of increasing glyphosate-resistant, volunteer canola density on soybean yield loss. The experiment will be conducted in soybeans planted in narrow and wide rows and volunteer canola densities will range from none to several hundred plants per square metre. In 2012, the studies were conducted at the Ian N. Morrison Research Farm in Carman, MB, the Richardson Research Farm at Kelburn, MB, and the Westman Agricultural Diversification Organization Research Farm at Melita, MB and will be repeated at these locations in 2013.

In addition to soybean yield, several other soybean response variables will be evaluated. These will include soybean densities, height, number of branches, biomass and leaf area at select sample dates. At harvest, final yield, seed moisture content and soybean seed size will be determined. To determine volunteer canola seed contributions to the seedbank, volunteer canola biomass and seed return will be determined at physiological maturity.

Standard mathematical and statistical approaches will be used to determine economic thresholds from the yields obtained at various volunteer canola densities. The data will be subjected to statistical procedures to generate yield loss equations that will be used to calculate economic thresholds for volunteer canola in soybean. Examples of the outcome of this type of research can be found in the tables on pages 31 to 37 of the 2013 *Guide to Crop Protection*. Data from the first year of

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was shown that an infrared treatment (micronization) of the chickpeas prior to incorporation into a food product resulted in a significant reduction in the volatile components responsible for the beany flavour; these products were preferred to those prepared with chickpeas that had not been micronized (Shariati and Aliani, 2012. Canadian Pulse Research Workshop, Nov, 2012). In the current study, infrared heat will be used to treat soybeans prior to removal of the oil. In addition, the use of ethanol which is often used to produce light-coloured soybean products, will be examined in relation to the volatile components as they are expected to dissolve in ethanol.

Soybeans contain two well-characterized trypsin inhibitors: the Bowman–Birk trypsin/chymotrypsin Inhibitor and the Kunitz trypsin inhibitor. The Kunitz trypsin inhibitor is more resistant to destruction by heat. In addition to interference in the digestion of protein by the enzyme trypsin, the trypsin inhibitors increase the secretion of digestive enzymes and may cause problems with the pancreas (Dia et al., 2012. Journal of Agricultural and Food Chemistry 60:7886–7894). As a result, destruction of the trypsin inhibitors in soy foods is desirable. However, in recent work done in our lab, we have not been able to eliminate trypsin inhibitors from soy products even with heating temperatures between 90 and 100°C. Using microwave roasting of soybeans, about 87% of the trypsin inhibitors removal has been reported, though protein solubility was adversely affected (Barać and Stanojević, 2005. Acta Allmentaria 34:23–31). A combination of germination and treatment with the enzyme alcalase resulted in removal of 97% of the Bowman–Birk inhibitor and 98% of the Kunitz inhibitor; the effect of the enzyme alone was not reported (Dia et al., 2012). In the current project, infrared heat treat at varying temperatures, the use of an organic solvent (ethanol) and treatment with an enzyme to break down the trypsin inhibitor will be evaluated.

Not only will the flavour profile and levels of trypsin inhibitors be evaluated, but the impact of these treatments will also be taken into consideration, and the ability of the soybean meal/flour to be incorporated into selected baked goods will be evaluated. This should make the soy product more acceptable to many North Americans.

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this field study have been collected and are currently being evaluated.

To address objective 2, field studies will be initiated at the same locations. The studies will be conducted by M.Sc. student Charles Geddes in 2013 and 2014. Volunteer canola seedbanks will be established in the fall in canola stubble at representative densities determined from our other research. To minimize the impact of volunteer canola that is difficult to manage in soybean, it is essential to reduce the seedbank densities as much as possible before planting soybean. Reducing weed seedbanks requires an integrated approach that minimizes persistence of seeds by encouraging germination, predation and/or microbial seed decay followed by minimizing the potential seed return from emerged volunteer canola seedlings. Seedbank processes can be manipulated through tillage method and timing while seed return from emerged seedlings can be reduced through maximizing crop competition and the use of effective in-crop herbicides. The efficacy of a series of treatments targeting seedbank decay and volunteer canola seed return will be compared to discover combinations of management practices with these goals in mind. Hypotheses that will be tested will include, but are not be limited to: (i) the effect of early vs. later fall tillage on the volunteer canola seedbank, (ii) evaluating the effect of fall vs. spring cereal production on seedbank persistence and seed return, (iii) a comparison between a competitive (barley or oats) and a less-competitive (wheat) spring cereal, and (iv) the effect of an allelopathic fall rye mulch on supressing volunteer canola seed germination.

Soybeans with multiple herbicide-resistance traits will soon enter the market. These offer opportunities to manage volunteer canola with herbicide modes of action that are currently not available for use in soybean. The efficacy of these herbicide options on volunteer canola needs to be evaluated as these soybean lines and associated herbicide programs become available (objective 3).

Including soybean in crop rotations in Manitoba offers a number of benefits. One of the challenges to soybean production in western Canada, however, seems to be the presence of volunteer canola which can be an obvious and difficult to manage weed in soybean. In order to optimize soybean production systems in Manitoba, it is important to determine soybean yield losses caused by volunteer canola and determine economic thresholds and seed return of volunteer canola in soybean. To minimize this weed in soybean, integrated management strategies that target the volunteer canola seedbank as well as seedlings and seed return of volunteer populations are required. Future herbicide-resistance traits and associated herbicides are expected to be an additional tool for an integrated management approach to managing volunteer canola in soybean.

Volunteer canola competing with soybean planted in a wide row (A) and a narrow row (B) arrangement at the Richardson Research Farm, Kelburn, MB. Densities of volunteer canola and soybean were the same in both treatments.

Photos by Paul Gregoire – August 12, 2013

Brent VanKoughnet M.Sc. P.Ag.
Agri Skills Inc.

Brent VanKoughnet of Agri Skills Inc. was contracted to explore the effect three different white mould fungicide strategies on navy bean production in a full field scale environment. Treatments included: Allegro, Lance, Acapela and untreated.

The field scale trial was located just south and east of Carman, Manitoba. Certified Envoy navy beans were planted on May 21 with a John Deere Max-emerge vacuum planter on 30-inch spacing into good soil conditions at 110,000 seeds per acre.

Fungicide applications were made July 13, with the majority of plants showing the first sign of pin beans. 30-inch rows were within a few days of closing in for complete ground cover.

Each harvested treatment included the centre 40 ft of a 60 ft fungicide application or one round of eight 30-inch rows undercut and windrowed. Harvest took place on September 10.

Average yields for each treatment are summarized in table 1.

Table 1. Yield for each treatment.

	lbs per acre			
Replicate	Allegro	Lance	Acapela	Not Treated
1	2625	2615	2628	2514
2	2598	2644	2657	2561
3	2577	2481	2343	2619
4	2556	2485	2435	2400
5	2477	2762	2575	2564
Average	2566	2598	2528	2530

KEY GROWING SEASON OBSERVATIONS

There were excellent growing conditions through most of the growing season finishing slightly drier than ideal. Early rains drowned out the bottoms of drains only and effected each treatment equally. Crop emergence and crop health was considered good. Weed control measures of Edge and Basagran/Viper were adequate. Some escaped wild buckwheat hindered cutting at harvest yet did not influence final yields. The unusually dry conditions led to much lower than average disease pressures.

Observations prior to and including August 17, indicated little to no evidence of disease (see table 2).

Little or no evidence of disease – Aug. 17

Table 2. Disease evaluation.

Treatment	Minor Disease Damage	Moderated Disease Damage
Allegro	< 5%	none
Lance	< 5%	none
Acapela	< 5%	none
Untreated	5–7%	1%*

**still late enough to not significantly effect yield*

Observations just prior to harvest indicated very low incidence of white mould. Where white mould was identified, the stage of timing and severity did not significantly reduce final pod filling and/or final yield.

The untreated photo demonstrates the very few untreated plants that were more significantly affected. Because there were so few affected plants final yields were not affected.

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30-inch rows within a few days of closing for complete ground cover

Plants showing first sign of pin beans – July 13th fungicide application

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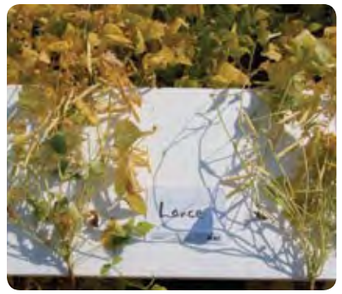
Allegro

Lance



Acapela

Untreated

CONCLUSIONS

There were virtually no yield differences between the three fungicide treatments and the untreated this year. It should be noted again that these were unusually dry conditions through the entire period of susceptibility. Where there were minor signs of disease damage, they came late enough in the season that it only had some minor effect on hastening plant maturity and virtually no effect on the number of seeds or pods on the plant.

Even one modest rain that would have left the soil and canopy moist for a few days would have changed disease pressures substantially. It is understood that on a normal year the fungicide application decision needs to be made before disease pressure is present to be most effective. The density of the canopy and the perceived yield potential justified the protection. Had it rained and disease pressure increased it would have been very difficult to successfully penetrate the crop canopy at later stages.

It will be important to repeat this project in another more normal year.

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Brent VanKoughnet M.Sc. P.Ag.
Agri Skills Inc.

Brent VanKoughnet of Agri Skills Inc. was contracted to complete an agronomic evaluation of multiple seeding dates of soybeans in a field scale environment. In addition to seeding dates, the effects of rolling at multiple growth stages were also evaluated.

The field scale trial was located just south and east of Carman, Manitoba. Certified Richer soybeans (generously provided by NorthStar Genetics) were planted with a John Deere Max-emerge vacuum planter on 30-inch spacing on the dates listed in table 1 together with soil temperatures and emergence dates.

Table 1. Planting dates, soil temps. and emergence dates.

Seeding Date	Soil Temp	Moisture Conditions	Emergence Date
April 30	7–8 C	ideal	May 17 (17 days)
May 9	10 C	damp	May 22 (13 days)
May 17	11 C	ideal	May 27 (10 days)
May 24	14 C	ideal	June 4 (10 days)
May 30	12 C	ideal	June 8 (9 days)

Seed was all sourced from the same seed lot and was treated with a 1.5x rate of liquid inoculant in two batches, one for the first two dates and one for the next three dates. Inoculant extender was used on the second batch to ensure effectiveness over the extended period. The field has grown inoculated soybeans two other times in the past six years. The planting rate was 170,000 seeds per acre. Soil conditions varied from ideal to damp over the range of seeding dates.

Each seeding date treatment was approximately 1000 ft by 60 ft and replicated in blocks seven times.

On June 2 and again on June 4, a 50-ft roller was pulled across the field at right angles to the seeding date treatments in two separate strips. This layout effectively provides evaluation points for all five different crop stages repeated twice per treatment and over seven replicates. Both rolling treatments took place under ideal conditions at 2:00 to 3:00 pm and 26 to 27 degrees Celsius.

A damaging frost took place on May 29/30 that effected the April 30 treatment only, especially where there

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Table 2. Rolling crop stage and estimated damage.

Seeding Date	Crop Stage at Rolling (see photos below)	Visual Crop Damage
April 30	Early second trifoliate*	none
May 9	Unifoliate to early first trifoliate	none
May 17	Cotelydon to early unifoliate	none
May 24	Emerging (hooked)	none
May 30	Sprouting	Not emerged/none

**many plants recovering from frost damage*

was significant surface trash. In certain areas over 50% of plants were frozen back to the cotyledons and significantly delayed in maturity. The May 9 treatment, although also at a vulnerable stage, was unaffected due to the trash that was moved by the zero-till coulters given the wet conditions at planting.

Eighteen 30-inch rows or 45 ft out of the centre of each 60 ft treatment was harvested and weighed for all 5x7 (35) strips.

Table 3 summarizes the yield for each treatment over all seven replicates. Yield comparisons of rolled versus not rolled were not evaluated.

Harvest evaluation also revealed plant height, pod height and plant stands, which are listed in table 4.

Table 4. Evaluation of plant height, pod height and plant stands at harvest.

Seeding Date	Plant Height	Height of Lowest Pods	Plant Stand/m²
April 30	30"	3"	27
May 9	32"	3.5"	30
May 17	35"	3.5"	33
May 24	35"	3.5"	35
May 30	36"	3.5"	35

CONCLUSIONS

Yields were virtually identical across all seeding dates. The earliest seeding date (April 30) made a remarkable recovery after the frost. If the frost were any more severe we would have lost many plants instead of just delaying them. Alternatively, if the field had been trash-free there would have been virtually no damage. There is a very fine line. The minimal disturbance provided by the zero-till coulters under wet conditions made all the difference for frost susceptibility in the May 9 treatment. Variations in time to emergence were not as dramatic as would normally be expected. (18 days versus 9 days) Average day temperatures (and as result soil temperatures) were unusually low in the last two weeks of May. Under normal end of May temperatures and moist conditions soybeans can emerge within a week. Seeding date also had little to no effect on plant height or pod height. Harvest maturity was estimated to be no more than one week apart from earliest to latest even though seeding was 30 days apart. In the end, the earliest seeding dates exposed the crop to considerable risk and provided no additional yield return in this year.

Although rolling treatments were not taken to yield, there is no reason to expect any yield penalty given there was no visible injury of plants at any stage, including what is normally considered the very vulnerable stage of hooking just prior to emergence. It should be emphasized that rolling conditions were absolutely ideal. Caution should be exercised at vulnerable stages and/or under less than ideal conditions.

Table 3. Yield for each treatment over all seven replicates.

	yield in bushels per acre				
Replicate	30-Apr	09-May	17-May	24-May	30-May
one	45.04	44.86	43.88	44.86	43.26
two	42.29	42.73	42.64	40.51	41.22
three	39.63	43.44	43.00	42.64	42.55
four	40.60	42.20	41.67	40.34	38.65
five	41.49	41.67	41.40	41.05	38.65
six	38.12	38.92	40.69	44.18	45.63
seven	39.98	39.63	39.36	42.38	42.91
Average	**41.02**	**41.92**	**41.81**	**42.28**	**41.84**

Mario Tenuta
University of Manitoba

A visitor is coming to Manitoba. When it will arrive we don't know, but it will likely come and we don't want to welcome it. We're talking about the soybean cyst nematode (SCN). You may have heard about it being just south of the border or that CFIA may have found it, as reported in some farm press last year. The fact is, there hasn't been a confirmed case of soybean cyst nematode in Manitoba, but that doesn't mean we shouldn't be vigilant and know what the signs of SCN in our fields are.

First off, what is a nematode? It's not an earthworm. Earthworms are easily visible by eye and segmented. They have ring segments giving them that corrugated look. Nematodes that live in soil and on plants are very small and not segmented. They are no wider than the width of a hair and as long as 1/32". Just like us, most nematodes are helpful. They release nutrients to plants and help kill plant pathogens. However, some make a living feeding off plants, particularly crop plants. We are fortunate in Manitoba to not have many nematodes that seriously damage our crops.

SCN particularly likes soybean and feeds on its roots. The female worm senses soybean roots and makes a dash to them. She enters roots using a needle-like spear by repeatedly pounding into the root. Once in, the spear is used to suck the contents of plant cells. She grows, swells and her hind end pops through the root surface. This is where

Damage patches in soybean caused by soybean cyst nematode (SCN). Patches are easily confused with other diseases and soil conditions resulting in poor root health.

Photo source: Albert Tenuta, Ontario Ministry of Agriculture, Food and Rural Affairs

males enter the picture. They feed for a short time on roots but really hang out in the soil waiting for the ladies. The female continues to feed and starts to produce eggs that she releases into soil and which also fill up inside her. Eventually her life-span is finished and she dies but in doing so, her surface turns to a tough shell to encase and protect the eggs in her, called a cyst. This takes about 30–35 days from entering the root to dying to produce the cyst. Not a long time but perfect if you live on an annual crop. So it may be possible to have more than one generation of SCN on a soy plant.

So what's the big deal? A little sharing of the crop with the angels shouldn't be a problem? Well with SCN, the sharing costs yield. SCN goes unnoticed in fields for many plantings of soybean. Over this time, the populations are increasing. At some point the feeding damage is so great on roots that their function of obtaining water and nutrients is severely cut back. This shows up in soybean fields as yellow patches with stunted plants (see picture), then later in the year, as stunted plants with necrotic spots and leaf margins. The damage on young plants is often misdiagnosed as water logging or iron deficiency. Damage to older plants can be misdiagnosed as foliar insects, drought stress, and herbicide injury. How much yield can be lost? Anywhere from 2–30% depending on how much of the nematode is in soil and growing conditions such as soil texture and rainfall.

Why be interested in SCN in Manitoba? We haven't found it, right? Well, it's knocking at our door. SCN was first identified in North America in 1954 (North Carolina) after which it quickly moved to all major soy growing areas of the U.S. It was first found in Minnesota in 1978, Ontario 1987, and North Dakota 2003. In Ontario, it is thought to have come in through the border with the U.S. between Sarnia and Windsor, and in the east near Cornwall. Despite being a regulated pest by CFIA, SCN managed to get into Ontario. In Minnesota and North Dakota, SCN has been moving north along the Red River. In 2011, it was found next to the Manitoba border in Pembina County, which is across from the RMs of Rhineland and Montcalm!

You won't know when SCN arrives in a field. But grow soybean for several years (three to five and it doesn't need to be in a row) and the poor performing patches can show up. The patches often show up near entrance ways to

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Soybean Production 101 – Ask Farmer John

Dennis Lange
Farm Production Advisor
Manitoba Agriculture, Food and Rural Initiatives – Altona Go Centre

Over the past five years, Manitoba has seen an increase in soybean production to the point where we could see over 1,000,000 million acres in 2013. With this increase in acres, we are also seeing a number of new growers that are asking questions such as: What varieties can we grow? What population should we plant? Do we really need to use inoculant? These questions and many others will be answered in the *Ask Farmer John* format.

Farmer John has been an edible bean grower for a number of years. After recently attending meetings and reading articles about growing soybeans, John has decided this would be a good year to start. He plans to grow two 80-acre fields. The first thing he did was talk to his agronomist to decide which fields are most suited. As they look over the soil test recommendations, they find three fields that have relatively low nitrogen levels. One of the fields, however, had edible beans on it two years ago. John wants to plant edible beans in that location again this year, but because he heard soybeans could volunteer in an edible bean crop and cause marketing issues, decides against it. Soybeans are considered a food allergen in the edible bean industry and processors and end-users do not want to see any admixture of these crops. The other two fields have not seen any Roundup ready canola in the past and both had cereals planted last year, which can be a concern for weed control.

Now that the fields have been selected, John needs to select the varieties he wants to grow. He picks up a copy of the MPGA *2012 Pulse Variety Evaluation* trials and looks at the Roundup ready soybean selection. At first glance, selecting a variety seems to be a very daunting task. Maturity is the most important factor to consider when selecting a variety but since John is growing soybeans in the Carman area he knows that he has a bit more flexibility with growing a slightly longer-season variety. The check variety in these trials happens to be NSC Portage RR. John selects his first variety (variety A) that is two days earlier than NSC Portage. For his second variety he chooses to grow variety B, which is very similar to NSC Portage maturity. Both varieties A and B have good individual site yields and good long-term yields. When choosing a variety, one should look at the risk vs. reward of the variety, in other words, does the maturity and yield compare to one another. Do you grow a longer-season variety and have more potential yield but more risk with maturity, or do

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fields, along headlands, depressions and drains/ditches/channels. Now you can do something. Take a spade, gently lift out the root system of the plants and look for small pinhead-sized white cysts (see picture). Using a magnifying lens and dunking roots in water may help wash off soil to see them. The cyst cannot be confused with nitrogen nodules. Nodules are huge compared to cysts and you can squish them between your fingers. If you are unsure or suspect you have the visitor, call your MAFRI Crops Rep or contact the Soil Ecology Laboratory at the University of Manitoba.

Awareness is powerful. Knowing what to look for when it sets home in our fields is important to limiting yield losses. Scout your fields for damage patches, wash machinery and implements between fields, don't import machinery and implements with soil on them, don't seed continuous soybean and avoid dry edible beans in rotations.

Photo source: Albert Tenuta, Ontario Ministry of Agriculture, Food and Rural Affairs

Soybean cyst nematode (SCN) female cysts on soybean roots. When cysts mature they will turn from white to dark and dislodge from roots to survive in soil for years. Nitrogen fixing nodules on roots are much bigger than cysts.

With support from MPGA and the Manitoba Rural Adaptation Council (MRAC), the University and MAFRI initiated a survey last fall of soy fields most likely to being visited by SCN. We sampled 35 fields near the Red River focusing sampling on prone areas such as entrances and depressions. In April, we will sample an additional 15 fields in the Winkler/Carman and Carberry areas. With the same support, we are setting up a laboratory for processing soil samples for SCN and with other funding developing rapid molecular DNA methods to identify the species of cyst nematode so we don't confuse SCN with other harmless cyst nematodes we may have.

Most visitors come and go. However, like diamonds and taxes, SCN is forever. If warranted, there are ways to manage SCN in fields. Research in other areas has showed using SCN tolerant soybean varieties, avoiding dry edible beans in rotations, rotating soybean in fields, and on the horizon, new nematicides will limit yield losses and spread of the pest in fields.

- Mario can be contacted at **mario.tenuta@ad.umanitoba.ca** or phone **204-474-7827**.

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you play it more cautious and grow an early-maturing variety because you are in an area that has a shorter season?

Although John has a row crop planter, for the first year, he has decided to use his air-seeder that has a third tank to put on granular inoculant. Inoculants are very important when growing soybeans because the rhizobia bacteria that infect soybeans does not naturally occur in Manitoba soils. That bacteria will provide nitrogen for the plant through a symbiotic relation. Soybean does require 150–200 lbs of nitrogen throughout the season to produce a 35 bushels/acre crop. He chooses to use a liquid inoculant on the seed and a granular inoculant applied through the extra tank on the air-seeder. Since these are two different forms of inoculant it provides him with greater insurance that he will have enough bacteria to properly infect the plant roots throughout the growing season. If he didn't have the capability to apply the granular inoculant then he would have used a liquid and peat-based inoculant combination to get the bacteria numbers up in the soils. For other fertilizer recommendations see table 1.

Based on the information John picked up during the winter meeting season, the population he has chosen to plant these beans is at 210,000 plants/acre. There is a bit of a range with the population (see table 1) but this being his first year trying soybeans, he feels more comfortable at the higher end of the population range. He will also be using a seed treatment, Cruiser Maxx® Vibrance, to give the seed some added protection with the cool soil temperature he may encounter. Once the beans are planted John also plans to roll his field after seeding to provide a better soil surface for harvesting in the fall, but more importantly, he is concerned with having seen a few stones in his fields and does not want to put a stone through his combine in the fall. Since John is using a flex header to harvest his beans, rolling the field will give him a level field to harvest and allow him to travel a bit faster in fall.

John and his agronomist also plan to spray his soybeans twice through the growing season. He plans to spray at the first application and at the first trifoliate stage when the weeds are small and easier to control. Soybeans are not competitive with weeds when they are small so control of weeds earlier in the growing season is key to getting the crop off to a good start.

These are some of the key point's new growers should be aware of. As a review, start with choosing a variety that is suited for your growing region based on maturity and yield expectation. Growing a variety that is too long for your region will not only increase the chance of the beans not maturing in the fall, but increase yield and quality problems as well. Using inoculants will provide nitrogen for the plant throughout the growing season, which is a must in soybeans. Control weeds early to get the soybeans off to a good start and be prepared to spray your beans twice. Finally, if you are dealing with stones, roll your fields. Rolling is also a good management practice to improve harvestability of your soybeans.

Table 1.

Planting Date	Red River Valley, May 10–20 Western Manitoba, May 15–25	Soils temps – minimum 10°C
Planting Depth	3/4 to 1 1/2 inches	Avoid planting deeper than this.
Plant Population	200,000–210,000 plants/acre in narrow rows.	170,000–180,000 plants/acre, 30-inch row spacing.
Fertilizer Soil Test Recommended	No nitrogen-use inoculants. No more than 10 lbs/acre of phosphate with the seed. Higher amounts should be banded 30–40 lb. On fields that are low in potassium apply 30–60 lbs placed away from the seed.	

Brian Clancey
Senior Market Analyst and Publisher

Dry edible bean markets in Canada and the United States have been relatively strong for all classes since the start of the 2012–13 marketing year. Even so, returns to growers have not been as competitive with other crops as might be expected, with the result total seeded area stands a good chance of dropping.

The impact will not be uniform. Some of the minor classes are putting in good enough performances this season, both in terms of movement and price, that some states could see in an increase in dry edible bean acreage. But, land in the major classes and major producing states will likely decline in favour of grains and oilseeds.

The most important edible bean producer is North Dakota. The top three crops grown in the state are wheat, soybeans and corn. Last year, farmers planted 7.84 million acres of wheat, 4.75 million acres of soybeans, and 3.6 million acres of corn. By comparison, farmers in the state grew 700,000 acres of dry edible beans and 235,000 acres of peas and lentils.

In Manitoba, the top three crops last year were canola, wheat and soybeans. Farmers planted 3.575 million acres of canola, 2.99 million acres of wheat, and 800,000 acres of soybeans. Land in dry edible beans totalled 135,000 acres, peas 55,000, and lentils around 1,000 acres.

So far this season, dry edible bean markets are generating lower returns relative to wheat, soybeans and corn than they did during the previous three marketing years. Among the three most important classes of beans grown in North America, black beans are registering the worst performance, while pinto beans are putting in the best performance and navy beans are in the middle. Compared to the weighted average performance of all classes of beans grown in the United States and Canada, pintos are outperforming in the category, while both navy and black beans are under-performing.

This has important implications for the changes which should occur in seeded area this year. While land in all classes of beans would be expected to decline in North Dakota, land in black and navy beans should fall at a faster rate than for pinto beans. In states where farmers are more focused on classes such as light red kidney beans, some of the processors in those areas think they will see an increase in dry bean plantings.

Even so, overall acreage should be down this year in both Canada and the United States. Canadian acres could drop 11% to 266,000 acres, while plantings in the United States may decline 10% to 1.55 million acres. A return to the recent five-year average yield would see total output in the two countries fall 17% to 1.2 million metric tons.

Moderating the speed of any decline in seeded area is the fact that export movement started the marketing year on a strong note. For the period ending in November, Canadian dry edible bean exports were up 48% over the previous year at 100,397 metric tons; while exports from the United States were up 46% at 133,416 metric tons. Mexico was the most important destination for U.S. origin beans during the opening months of the 2012–13 marketing campaign, taking a third of beans exported. By contrast, the United States, United Kingdom and Angola were the three most important destinations for Canadian beans, accounting for over half of all exports in the August through November period.

Of these destinations, however, Mexico has more impact on North American markets. Problems with Mexican production translate into increased demand for U.S. and Canadian origin beans. It is only when those two countries cannot meet Mexico's needs, that imports from other suppliers occur. As a result, crop prospects in Mexico have a major impact on the health of bean markets in general, and pinto and black beans in particular.

Drought in 2010 and 2011 left Mexico with a fundamental shortage of beans, leading to a massive surge in imports from the United States in 2011–12. The drought has since broken, with the result import activity will be sharply lower this season. That has taken wind out of the sails of markets, making it harder for grower bids to remain at levels which would be expected to keep seeded area from declining. More importantly, without major problems in some of the key bean producing states, the supply situation across the NAFTA region is expected to remain at levels which could make it difficult for markets to post a sustained rally for another 12 to 15 months.

MANITOBA PULSE BUYER LIST – FEBRUARY 2013

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGISTERED
Agassiz Feeds				✓		204-638-5840	Dauphin, MB	
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	Lettellier, 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	✓
• Jordan Mills					✓	204-331-3696	Winkler, MB	✓
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	✓
JRS Commodities					✓	204-327-5582	Gretna, MB	
Kalshea Commodities Inc.				✓		204-737-2400	Altona, MB	✓
Kelley Bean Co. Inc.	✓					308-635-6438	Scottsbluff, NE	
Linear Grain	✓			✓	✓	204-745-6747	Carman, 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	✓
Legumex Walker	✓	✓	✓	✓	✓	204-758-3597	St. Jean Baptiste, MB	✓
• Fisher Seeds Ltd.		✓				204-622-8800	Dauphin, MB	✓
• Duncan Seeds	✓					204-822-6629	Morden, MB	✓
• Walker Seeds Ltd.				✓		306-873-3777	Tisdale, SK	✓
S.S. Johnson Seeds	✓			✓		204-376-5228	Arborg, MB	✓
Seed-Ex Inc.					✓	204-737-2000	Letellier, MB	✓
Shafer Commodities					✓	204-822-6275	Morden, MB	✓
Southland Pulse				✓		306-634-8008	Estevan, SK	✓

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MANITOBA PULSE BUYER LIST continued from page 50

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGISTERED
Sunrich LLC					✓	507-446-5642	Hope, MN	
Thompsons Limited	✓		✓	✓		519-676-5411	Blenheim, ON	✓
• Keystone Grain					✓	204-325-9555	Winkler, MB	✓
• Circle T Agri Services	✓					204-723-2164	Treherne, MB	✓
• Y2K Farms	✓					204-252-2132	Edwin, MB	✓
Vanderveen Commodity Services					✓	204-745-6444	Carman, MB	✓
Viterra				✓	✓	204-954-1528	Winnipeg, MB	✓
Viterra Special Crops	✓	✓	✓	✓		204-745-6711	Carman, MB	✓
• Receiving Station	✓					204-856-6373	Portage la Prairie, MB	✓
• Plum Coulee	✓					204-829-2364	Plum Coulee, MB	✓
• Prairie Mountain Agri Ltd.				✓		204-937-6370	Roblin, MB	✓
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

Chicken Cassoulet – *for the slow cooker*

Preparation time: 30 minutes / Cooking time: 10–12 hours on low, 6–8 hours on high
Serves 8 (2 kg)

1 cup (250 mL) dry navy beans, soaked according to package

8 bone-in chicken thighs

1 medium Polish sausage, cooked (optional)

1 – 10 oz. can (284 mL) tomato juice

1 – 28 oz. can (796 mL) tomatoes, halved

1 tbsp. (15 mL) Worcestershire sauce*

1 tsp. (5 mL) instant beef or chicken bouillon granules*

½ tsp. (2 mL) dried basil

½ tsp. (2 mL) dried oregano

½ tsp. (2 mL) paprika

½ cup (125 mL) carrot, chopped

½ cup (125 mL) celery, chopped

½ cup (125 mL) onion, chopped

* Gluten-free brand required if you want this recipe to be gluten-free.

1. Boil soaked beans for 10–12 minutes. Drain and set aside.
2. Skin chicken pieces and set aside. If using sausage, halve it lengthwise and cut into bite size pieces.
3. In a medium bowl, combine beans, tomato juice, tomatoes, Worcestershire sauce, bouillon, basil, oregano, and paprika.
4. In a 4 quart (3.78 litre) slow cooker combine carrots, celery, and onion. Arrange chicken and sausage over vegetables. Pour bean mixture over chicken and sausage.
5. Cover and cook on low-heat setting for 10–12 hours or on high-heat setting for 6–8 hours. Serve.

Zucchini and Yellow Split Pea Sauté

Serves 6 (600 g)

1 tbsp. (15 mL) canola oil

2 green onions, chopped

2 medium zucchini, sliced

1 cup (250 mL) dry yellow split peas, prepared according to package

2 medium tomatoes, sliced

1 cup (250 mL) reduced-fat cheddar cheese, shredded

1 red onion, sliced in rings

Dash garlic powder, light soy sauce, and pepper

1. Heat oil in large skillet over medium heat.
2. Sauté green onions and zucchini slices until slightly tender, about 5 minutes. Add cooked yellow split peas. Stir gently.
3. Layer tomato slices over top and sprinkle with 2/3 cup (150 mL) shredded cheese. Layer onion rings over mixture and add remaining cheese.
4. Sprinkle garlic powder, soy sauce, and pepper over top.
5. Reduce heat to low, place lid on the pan and heat ingredients for about 5 minutes.

   Serve immediately.

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*Summary of 38 independent large-plot research sites in North America since 2002.