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pulse beat

Fall/Winter • No. 70, 2013

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pulse beat

Manitoba Pulse Growers Association

Fall/Winter • No. 70, 2013

Publisher	Manitoba Pulse Growers Association Inc.
Editor	Roxanne Lewko MPGA
Associate Editors	Sandy Robinson MPGA Kristen Podolsky MPGA
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Manitoba Pulse Growers Association thanks the authors who have taken the time to contribute to this publication.

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

IN THIS ISSUE

MEMBER PRIVACY POLICY

Member information is collected and used in accordance with the Personal Information Protection and Electronic Documents Act (PIPEDA) and is the property of Manitoba Pulse Growers Association (MPGA). Information will not be shared, sold or viewed by any individual or group outside of the MPGA unless directly related to member communications.
Please direct your comments or concerns to Sandy Robinson at 204.745.6488 or email sandy@manitobapulse.ca

2013 MPGA COMMITTEES AND REPRESENTATIVES

MPGA COMMITTEES – *The first listed is chairperson*

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

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

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

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

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

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

MPGA REPRESENTATIVES

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

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

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

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

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

MCVET – J. Sawatzky, D. Lange (adv.)

OOPSCC – J. Sawatzky, D. Lange (alt.)

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

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

Western Canadian Pulse Growers Association

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

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

MPGA 2013/2014 Scholarship Recipients

MPGA congratulates its latest scholarship winners.

Diploma Student
KAYLA ANTONOWICH
Fall 2013 & Winter 2014 Session

Diploma Student
TANNER NICOLL
Fall 2012 & Winter 2013 Session

Degree Student
KIRSTIE OSWALD
Fall 2012 & Winter 2013 Session

Great Tastes of Manitoba

Packin' Pulses for Lunch show will be re-aired on Saturday, February 15, 2014 from 6:30 pm–7:00 pm on CTV TV Cable 5.

MPGA participated in the 24th season of *Great Tastes of Manitoba* (GTOM). Roxanne Lewko from MPGA joined host Ace Burpee for *Packin' Pulses for Lunch*. Everyone will enjoy the Chicken and Chickpea Stew and Lentil Calzones. You won't be able to resist the Oatmeal-Coconut Raisin Cookies!

Manitoba Liquor Marts was also there to select wines, beers or spirits to pair with these tasty dishes.

For recipes featured on the show visit foodManitoba.ca

PRESIDENT'S MESSAGE

Kyle Friesen
President

On October 22nd, Bruce Burnett, CWB's director of weather and market analysis, made this bold prediction: Manitoba farmers will plant more acres of soybeans than canola within five years. Wow, what a huge compliment this is to our industry. After all, canola, which was made in Manitoba, was THE cash crop for farmers for so many years. One response to Bruce Burnett's prediction was that it won't even take that long because soybeans are a 'reduced risk' crop. In terms of input and costs of production, yes, they are. The ability to fix their own nitrogen reduces fertilizer costs tremendously. But in terms of potential upset by Mother Nature (for example, a cold summer combined with an early frost – or even just an early frost), it's not a reduced risk crop. In fact, an early frost could be detrimental to their success and deter farmers from wanting to plant them.

We were on the edge of our seats this year, thinking it was going to be the year of a disaster given the three weeks of cool weather in July and low temperatures in September – combined with the incredible increase of acres in the west and other areas new to growing soybeans. It was an experimental year for lots of farmers and it could have been an upset. It's been said that those disaster years happen one in every ten, but we got lucky. Not only did most acres escape a killing frost, but average yields in the west matched those in the Red River Valley. I wouldn't be surprised if the average soybean yield for Manitoba increases.

Safe to say, soybean acres will likely increase again in 2014 because of the incredible success seen in 2013 when odds were against us. It's amazing how soybeans always pull through – wet or dry, cool or hot – they are dependable and resilient. We are very pleased with the success farmers in the west and other areas new to growing soybeans experienced this year. Variety development has come a long way in recent years. Short-season varieties are available and delivering exceptional yields. Some farmers I've talked to said their late-seeded short-season varieties yielded better than their early-seeded long-season varieties. This isn't usually the case. Perhaps the higher yield with short-season varieties was due to the three weeks of cool weather in July. Regardless, it has taught producers the value of choosing the right variety.

Our association has changed so much in the past couple of years. We're really in a transition period, and fortunately, we're riding a growth curve. If you had asked me five years ago if we'd be at one million acres of soybeans, adding staff and re-visiting a recently developed strategic plan, I would have said, likely not. It's almost unbelievable how fast soybean acres have grown and how quickly farmers have made them a staple in their crop rotations.

With increasing soybean acres in mind, MPGA needs to revisit our short- and long-term goals and really figure out how we're going to support this movement. There is more that we want to do and more that we can do, but this is a challenging task. It wasn't that long ago we were working with a fairly small budget. Now we need to balance a consistently growing budget with realistic opportunities that will benefit our membership – all the while not forgetting about edible beans and peas. Regardless of the incredible increase in acres and expected revenue from soybeans, MPGA's board of directors remains focused, realistic and conservative (without simply building our savings account).

Edible beans and peas likely deserve our attention more than ever, given that soybeans are quite likely competing for the same acre. This is a sensitive issue for MPGA's board of directors and an on-going struggle to manage. How can MPGA help the edible bean and pea industries grow and prosper? What can we do? Unfortunately, a lot is out of our control. The markets are what the markets are, and as influential we as want to be (or think we are), we can't do much to change that. Plus, farmers will grow what is profitable. We certainly take strides to influence and change what we can though, and will continue to do so. Our research funding commitment to edible beans and peas remains strong, and Kristen has been talking to growers and industry about research needs and priorities. Having Kristen's eyes and ears out in the fields for us this past summer has been very valuable in bridging the gap between our board and our membership.

Our board also wants to look at what gaps exist in market development for edible beans, peas and soybeans, and determine what we can do to narrow those gaps. We will be reviewing our strategic plan and setting some short- and long-term goals on December 16th and 17th. We're excited with the possibilities and look forward to making advancements. Larry Taylor recently came on board as our new executive director and we're confident in his ability to help lead us where we want to go.

Manitoba Pulse Growers Association Inc.

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Carman, MB R0G 0J0
Phone **204.745.6488**
www.manitobapulse.ca

Notice of Annual General Meeting

Notice is hereby given that a meeting of the members of Manitoba Pulse Growers Association (MPGA) Inc. will be held at the Victoria Inn Hotel and Convention Centre, 1808 Wellington Avenue, Winnipeg, MB during the CropConnect Conference on February 18, 2014.

The agenda for the meeting is as follows:

1. To approve the minutes of the 2013 members meeting
2. To receive the financial statements of MPGA for the current fiscal year
3. To appoint the auditor of MPGA
4. To receive the board and managers report
5. To elect directors to the MPGA board of directors

Nominations to serve on the board of directors can be made by submitting the candidate's name to the nominating committee or the MPGA office prior to the commencement of the meeting, or by nominating a candidate during the call for nominations at the annual general members meeting.

See below for Call for Nominations.

Soybean Scout

Soybean Scout is a new addition to *Pulse Beat* magazine and will highlight soybean agronomy issues using images from the field.

It's your turn!

Can you identify these soybean issues? (HINT: Both are foliar symptoms)

A

B

Answers can be found on page 49

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

Call for Director Nominations

Each year director positions come up for election.

If you are interested in becoming a director on the MPGA Board, now is your opportunity. This year the terms of directors Murray Chorney, Randy Froese and Andrew Knowles are expiring.

If you are a producer of pulse crops and are in good standing with MPGA (you have not requested a levy refund but have sold a pulse crop in the past two years), and would like more information in becoming a director, contact the

Nominating Committee:

Jason Voth – *jasonvoth@wiband.ca*

Joni Sawatzky – *jonisawatzky@hotmail.com*

Rick Vaags – *rivaa1@mts.net*

Elections will be held at the MPGA Annual General Meeting February 18, 2014.

MPGA OFFICE UPDATE

Roxanne Lewko
Executive Director

It's been another successful growing season for MPGA! Soybean acres hit yet again record acres in the province – a whopping 1.1 million. Three weeks of cool weather in July had us concerned for the experimental acres being grown in western Manitoba, but luckily, we experienced a warm fall and most fields escaped a damaging frost before reaching maturity. An even bigger surprise was the high yields we've heard reports of this fall – possibly high enough to raise the provincial average. These factors bode well for another record soybean year in 2014. We are incredibly pleased that soybeans continue to be a staple part of the crop rotation in the Red River Valley, and that growers in the 'fringe' areas had a positive experience with them, considering it could have been a detrimental year with a late, wet spring, and cool summer. White mould also had us on edge in some areas where it was reported to be very high.

Edible beans also experienced a successful year, even though we saw a decrease in acres and quite a bit of white mould. Harvested yields were very high and quality was good. The positive growing season in 2013 and some strong contracts will hopefully bring an increase in acres in 2014. Peas also brought in strong yields and good quality this year. We see lots of potential for faba beans in Manitoba, but there is just no market for them, yet.

PRODUCTION SPECIALIST

MPGA is pleased to announce that Kristen's Podolsky's six-month term contract has been turned into a full-time employment contract! Kristen brought tremendous value to our membership by conducting field visits and providing in-season support, producing and sending out *The Bean Report*, posting timely updates on Twitter (@MbPulseGrowers), presenting at several tours across the province, and so much more. The board of directors sees potential in Kristen and the position, and realize the valuable connection she is making between us and the producers in Manitoba. Throughout the winter months, Kristen will begin work on developing a mobile application, putting together a soybean production manual, revamping the research section on our website, making research reports more presentable to a farmer-viewing audience, and presenting at various meetings and conferences.

CROPCONNECT CONFERENCE

New for 2014 is the Manitoba CropConnect Conference. MPGA is proud to be one of the five commodity organizations involved in bringing this event to life. We are joined by the Manitoba Corn Growers Association (MCGA), Manitoba Canola Growers Association, Manitoba Flax Growers Association and the National Sunflower Association of Canada (NSAC). We really wanted to step up our game and model ourselves after the very successful and highly regarded FarmTech Conference in Alberta. Several 'high-end' speakers have been sourced to present on informative and timely topics relating to farm management and crop production. The event will also feature a banquet, annual general meetings for all commodity groups and a tradeshow. Please visit *www.cropconnectconference.ca* to

continued on page 6




THANK YOU

Manitoba Pulse Growers Association would like to thank all of the growers, processors, agronomists, researchers and other industry reps who attended our Pulse Tour at the AAFC Morden Research Station on August 7, 2013.

This year's tour was sponsored by BASF, Novozymes, Syngenta, Viterra, Golden West Radio, and Maverick 105.1. We look forward to planning next year's tour.

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register and for details, including a complete agenda, speaker bios, sponsors, tradeshow information, hotel accommodation, and more. Of particular interest to the soybean and edible bean producers who want to sit in on production-related presentations, Brent VanKoughnet of Agri-Skills Inc. will be presenting on his *Soybean Field Scale Trial Results*, Darren Hefty will be presenting on *The #1 Thing to Higher Yielding Soybeans*, and Michael Wunsch will be presenting on *Managing White Mould in Dry Beans with Fungicides.* Follow CropConnect on Twitter, @CropConnect, for regular updates and informative tweets.

SPECIAL CROPS PRODUCTION DAY, BRANDON

MPGA's board of directors, along with the boards of MCGA and NSAC, have decided to stop hosting the Special Crops Production Day held in Brandon in March and there are a few reasons for this. First, the new CropConnect Conference was created as a means to reduce the number of events a farmer has to attend. It is focused on being a high-quality event – if you're only going to attend one meeting in the winter, this should be it! Each association has put more time, resources and investment into this one event, and we feel it will be worth the drive into Winnipeg for this "bigger and better" conference. Second, the 2013 Production Day was poorly attended. In fact, the low attendance each year makes it hard to justify the staff time and association investment into hosting such an event. One reason for the low attendance is private companies and the provincial government have been holding their own informative sessions in western Manitoba and a farmer can only go to so many meetings. Third, MPGA has decided that having our production specialist spend time in the fields of western Manitoba with producers, demonstrating best management practices and providing soybean, edible bean and pea production support, is much more efficient and effective than learning those things in a classroom-style setting. Producers are much more engaged and willing to learn in the heat of the growing season, right in their very own fields. This was evident in 2013 when Kristen spent lots of her time with farmers in their fields. The success of doing that makes it an easy way to continue in 2014.

SOYBEAN, EDIBLE BEAN, PEA AND FABA BEAN COMMITTEES UPDATES

Each of these committees met at the end of November to review the research proposals we received in response to our Call for Proposals sent out in October. Each proposal was analyzed for inherent value it brings to farmers, proper research protocols, lineage with our priorities, possible risks, our financial capability to fund, and long-term objectives. Each committee also ensures that the research work being proposed is not duplicated or repetitive to something that has already been done. Each committee will be bringing recommendations to the board in the middle of December, and the board will pass motions to fund projects. Researchers will be notified of our intentions in January.

SUCCESSFUL WESTERN ECONOMIC DIVERSIFICATION CANADA APPLICATION

The importance of agronomic research remains strong. Unfortunately, in the last couple of years, we've seen a reduction in government infrastructure and resources in some key areas. One interpreted message this sends is that grower groups are being relied on more and more to support and ensure research capacity. Since joining the University of Manitoba (U of M) Cropping Systems Department, Dr. Yvonne Lawley has made soybeans and corn a core part of her research program, which is encouraging and positive news. However, the U of M has no funding mechanism in place to purchase equipment, and their current small plot row-crop seeder and combine are over 50 years old. It's difficult to provide relevant research results to

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continued from page 6

farmers when the equipment being used is no longer relevant to what's being used in the fields of Manitoba. Through several in-depth discussions and contemplation, MPGA decided to step up and put research funding towards purchasing a small plot row-crop seeder and combine for use at the U of M. We partnered with the Manitoba Corn Growers Association (MCGA) and applied for federal funding from Western Economic Diversification Canada (WD), and the application was successful. MPGA and MCGA are each contributing $100,000 and WD is contributing $242,000. Historically, MPGA only puts research funding towards projects, not equipment, so this is a big step for us. We look forward to the valuable work Dr. Lawley is doing and sharing the results with you.

NEW EXECUTIVE DIRECTOR APPOINTED

I will be going on maternity leave in January, and to ensure a smooth transition, a new executive director started with MPGA on October 15th. We are pleased to have Larry Taylor on board. He brings with him a wealth of experience, knowledge and contacts. Learn more about Larry on page 10 of this issue.

Timing of Larry's appointment was perfect, as there were some important meetings taking place back in October and continuing through to the new year – great opportunities for him to learn the business, network and begin taking over executive director responsibilities. Larry was contracted for a 15-month term with the possibility of it becoming a permanent position. With a young family at home, I can no longer commit to the amount of travel that comes with the executive director position. It saddens me to be stepping down, but I am grateful that there's opportunity for me to continue with MPGA in another role. With increasing acres, expanding workload, and desire of the board to do more for our members, there is need for additional staff. If everything works out and Larry's contract becomes permanent, what my new role looks like will be revealed in January 2015… stay tuned!

For more about what we've been up to, please see *Working For You* on page 34. It's been a busy time here, with no signs of slowing down. What an exciting time to be a part of the soybean and pulse industry!

From the staff and board of directors at MPGA, we wish you a wonderful, happy and safe holiday season with family and friends.

CropConnect Conference

February 18 and 19, 2014

Victoria Inn Hotel & Convention Centre, Winnipeg, MB

Come join us for...

- Two **intense** days of Speakers!
- A Tradeshow with access to Crop Specific information!
- The CropConnect "**Banquet**"! Come celebrate our outstanding Ag Community!
- The "Farmer's Saloon" Networking Event! Strap your boots on and have a "hoot" of a good time!

Early-bird registration is open from November 4 – January 17

For more information on the event or to register, visit:

cropconnectconference.ca

LET ME INTRODUCE MYSELF...

Larry Talyor

Newly Hired MPGA Executive Director

I would like to take this opportunity to express my sincere appreciation at being appointed as the executive director of Manitoba Pulse Growers Association. In my view, having the opportunity to represent close to 3,300 Manitoba growers is especially gratifying considering that I was raised on a farm in rural Manitoba and our family has been involved in agriculture for six generations. This would include my Great Great Grandfather, who I am proud to say, was the Minister of Agriculture for Manitoba in 1878.

Recently I was asked how I felt that my skill set and career experience will assist to further enhance MPGA and the value it provides to grower members. To this question I would mention that my entire career has been involved in agriculture and in that time I have had the opportunity to work in a broad diversity of agricultural organizations and roles that I believe will bring unique value to MPGA. Some of these career experiences involve senior management positions, including more than 20 years of experience with Monsanto in international locations, including the company's world headquarters in St. Louis. In this latter role, I was significantly involved in research and development in the USA soybean market. Most recently, I was employed as the agriculture sector business development lead for *Yes! Winnipeg.* This role allowed me to grow and utilize an influential agriculture network to attract potential agriculture business opportunities to Manitoba, some involving pulse crop technologies. As one can see, my career has been fairly diverse but I must say that one of the most interesting positions I have held was my time as the Technology Director at the Canadian International Grains Institute (Cigi). This experience allowed me to learn a lot about unique milling and processing technologies for pulse crops from the renowned Cigi technology team who conducts world-class food product development work with pulse crops. Additionally, while at Cigi, working closely with the CWB allowed me to significantly expand my global network of agriculture business contacts including some that will be potential customers for Manitoba pulse crop products.

During my time as an independent agriculture consultant I consulted on a diverse range of global projects focusing on life sciences and value-added crop processing, some including pulse crops. I have consulted to CIDA and the United Nations and have participated in agriculture technology exchange missions to Asia, eastern and western Europe as well as several developing countries and so I am keen to find technologies that are applicable to further enhance the attributes of Canadian crops. During the 2009–10 academic year, I was the program instructor for the Internationally Educated Agrologists Program (IEAP) at the University of Manitoba where I had the honour to teach agriculture professionals who had moved to Canada from other countries and required professional accreditation (PAg status) to work in agriculture in Manitoba. Several of my graduated students are currently employed in the pulse crop sector.

My academic background includes a Master of Science (Agriculture) from the University of Manitoba, an MBA, and a Certification in Strategic Business Management from The Wharton School of Business at the University of Pennsylvania. I love to learn and I am truly passionate about advancing agriculture. I am very much looking forward to getting settled into my new role at MPGA and for the opportunity to utilize my career experience, education and network to make a positive difference for the pulse growers of Manitoba.

Do you know about The Bean Report Scouting Network?

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

To join the network for 2014, contact Kristen.

kristen@manitobapulse.ca

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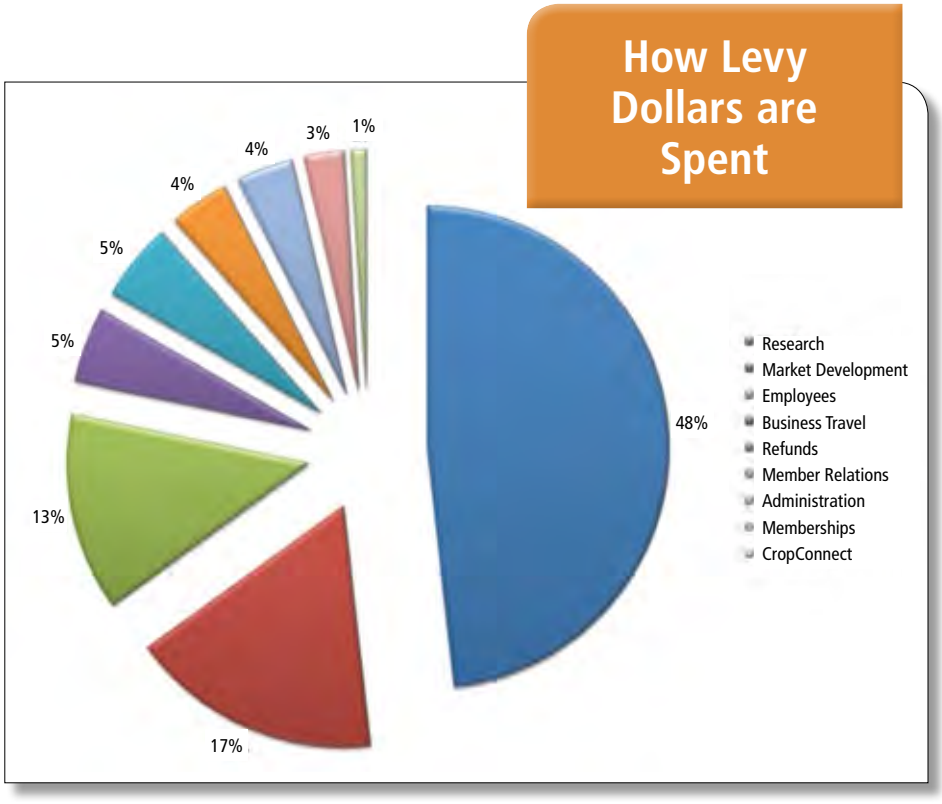
In December 2012, Manitoba Pulse Growers Association (MPGA) sent out a survey questionnaire to our membership to gather feedback on a range of issues to better understand members' farming businesses and operations, assess members' satisfaction and knowledge about MPGA, and understand how we can continue to improve delivering exceptional value to members/growers. 467 of 2,740 surveys were returned and we were very pleased with the 17% response rate. MPGA will be incorporating the survey information into our strategic plans and long-term goals. Another way we plan to take action on the report (and not just let it collect dust on the shelf) is to feature a section in *Pulse Beat* (which 83% of our membership reads, making it the most common method of accessing information about MPGA!) to address the questions and comments you had.

For this issue, we wanted to address a common theme – **"I don't know what you spend your money on. I don't know what my levy dollars pay for. Tell us what you do with our money."** Members challenged us to be more accountable on how our money is spent due to their lack of understanding of what MPGA does. The main issue for those unaware of MPGA's responsibilities is what and where their 0.5% check-off funds are going towards and wanting evidence that the money is being spent appropriately and responsibly.

MPGA wants to be as transparent as possible to our membership and take full accountability for what we spend levy dollars on. We've always been led by a fiscally responsible board of directors who have producer interests in mind at all times. We never forget who our revenue comes from – we are solely funded by grower check-off dollars. To outline in brief where our money goes, we've put our financial statements into a pie chart.

To break it down into more detail, we will elaborate on each of the nine areas.



1. RESEARCH – 48%

Funding research is a large part of what we do. (We actually budget 60% of our revenue into research, but for the past two years, our realized revenue has exceeded our anticipated budget substantially – reducing it to 48% actual.) A large portion of our budget goes towards funding research projects in areas of agronomy, variety development and evaluation, breeding objectives, disease and insect control, field-scale trials, and utilization/

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value-added, for soybeans, edible beans, peas and faba beans. Producers don't always connect their check-off dollars to new varieties on the marketplace, but a portion of our research funding is used to develop varieties suitable to growing conditions in Manitoba, helping you remain competitive. Once a dollar value for research is known (is has been increasing over the years, as our revenue increases), we utilize a calculation that incorporates acres and value to determine how much gets allocated to soybeans, how much to edible beans and how much to peas and faba beans. We use this calculation because levy is based on market value – meaning, for example, on a per acre basis, edible beans bring in more levy dollars than soybeans. So we can't just allocate dollars based on acres because that wouldn't be truly fair. We take into account both acres and value to make it as appropriate as possible. In 2013, 60% of our research dollars went towards soybean projects, 31% towards edible bean projects and 9% towards pea and faba bean projects. However, the % allocation is primarily used as a guideline. Each of the committees are always willing to share dollars with another committee if a project has valuable merit to producers. (For a complete 2013 research project listing, please see page 40.) Of significant importance is the fact that the majority of our research funding gets matched with provincial or federal government dollars, for example, the Agri Innovation Program in Growing Forward II or the Agri-Food Research and Development Initiative – which helps stretch your levy dollars even further.

2. MARKET DEVELOPMENT – 17%

This includes our financial contributions to Pulse Canada, the Canadian Soybean Council (CSC) and local initiatives, like the *Great Tastes of Manitoba* cooking show. On a global scale, Pulse Canada and CSC have connections and contacts that we simply don't, not to mention the expertise and resources to tackle market access and market development issues that we simply can't. MPGA is active in setting Pulse Canada and CSC direction and priorities, and providing a financial contribution to these associations is the best way for us to offer our members market development and market access support and opportunities.

3. EMPLOYEES – 13%

This includes employee salaries, and E.I. and CPP expenses, for three full-time staff: an executive director, a production specialist and a business manager.

4. BUSINESS TRAVEL – 5%

This includes travel by both staff and directors of the board. Most travel is to Alberta, Saskatchewan and Ontario for meetings and/or conferences with other provincial pulse and soybean associations. This area also includes board, committee, industry and other meeting expenses, as well as director per diems.

5. REFUNDS – 5%

Our mandatory 0.5% levy is refundable. On average each year we see refunds of about 5%, which is in line with the average that other Manitoba commodity groups experience. We continually strive to see this number decrease; however, very few producers tell us why they refund. It's hard to encourage them to change their mind when we don't know their reasoning for doing so.

6. MEMBER RELATIONS – 4%

This includes *Pulse Beat*, our website, *The Bean Report* radio program, *Soybean School West* production videos by RealAgriculture.com, recipe books, our annual summer tour, pop-up display and donations/sponsorship (for example, we sponsor a station at the Crop Diagnostic School in July, and this year we made a $1,500 donation to the STARS Rescue on the Island campaign).

7. ADMINISTRATION – 4%

This includes office rent, office supplies, computer and telephone expenses, insurance, accountant and legal fees, professional development courses and conference registration. We are pleased that our overall administration costs are quite low.

8. MEMBERSHIPS – 3%

This includes our membership fees to the Canadian Special Crops Association, Soy 20/20, Agriculture in the Classroom, Grain Growers of Canada and the Keystone Agricultural Producers.

9. CROPCONNECT – 1%

For the 2014 conference, each participating commodity group gave 1% of their levy dollars towards covering event costs, such as venue and speaker expenses.

Please keep in mind we allocate approximately the same percentage to these areas each year, but in the last couple of years we've really seen our revenue increase due to an increase in soybean acres and strong prices for all pulse crops. In the future, we are likely to increase our contribution to research (closer to 60% of budget) and market development (for example, getting actively involved in some new sustainability initiatives such as the Round Table for Responsible Soy program).

MPGA posts our annual reports (which are presented at our annual general meeting each year) on our website, including our audited financial statements, so this information is available to the public any time.

We hope this clarifies what we spend our money on and gives you confidence that we are spending it appropriately and responsibly. We feel that we focus on areas and priorities that offer producers the most value. If you'd like to see us spend money in other areas, or shift our priorities, please let us know! We always welcome feedback from our membership.

The full survey results final report can be found on our website, *http://www.manitobapulse.ca/news/membership-survey-the-results-are-in/*

MPGA MISSION

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

When reviewing our membership survey results, we noticed that a lot of respondents felt they had a lack of information of what MPGA does, membership benefit or value, and what the organization does with the check-off funds. Some respondents didn't even realize they were 'members' of MPGA. In addition to showing you what we spend levy dollars on, we want to further explain how the 0.5% check-off, or levy, works and what benefit or return a grower receives from their investment of check-off dollars.

MPGA is funded by a 0.5% levy that is deducted at the first point of sale of pulse and soybean crops. The purpose of levy is to stimulate, increase and improve the production and marketing of pulse crops in Manitoba under the Agricultural Producers' Organization Funding Act. MPGA is designated as the representative organization of all producers of pulse and soybean crops. Every purchaser who buys a pulse or soybean crop from a producer must deduct levy and remit the fees to the association. It is through the deduction of check-off that a producer is considered a member in good standing with the association.

Our mandatory 0.5% levy is refundable. On average each year we see refunds of about 5%, which is in line with the average that other Manitoba commodity groups experience. We continually strive to see this number decrease; however, very few producers tell us why they refund. It's hard to encourage them to change their mind when we don't know their reasoning for doing so.

When a grower chooses to refund his levy, he is no longer a member in good standing. To be reinstated as a member in good standing, a grower must contribute through the automatic check-off for a period of one year.

In addition to 78% of our revenue being put towards activities that are of direct benefit to growers (as explained on page 12), there are many other membership benefits:

- Have Kristen Podolsky, MPGA Production Specialist, scout your field and provide in-season support
- Claim a tax credit through the Scientific and Experimental Development (SR&ED) program
- Receive a *Pulse Beat* subscription
- Participate in the Cash Advance program for pulse crops
- Vote, stand for election and bring forward resolutions for consideration at the Annual General Meeting
- Know you are contributing to stimulating, increasing and improving the production and marketing of pulse and soybean crops in Manitoba

As a member in good standing, we encourage you to talk to refunders about these benefits and help change their minds. Together we can bring refunds to a level below 5%.

Follow us on Twitter
@MbPulseGrowers

STAY AHEAD OF THE COMPETITION

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EXPECT RESULTS WITH SAMPSA R2 SOYBEANS

ELITE

Cross the finish line with superior yields and great harvestability when you choose Elite's Sampsa R2 soybeans from BrettYoung. BrettYoung and Elite® brand soybeans bring a dynamic edge to Western Canadian soybean growers with varieties tailored to the specific needs of farmers.

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MPGA PULSE CASH ADVANCE PROGRAM

Manitoba Pulse Growers Association Inc.

Administered on behalf of MPGA by the Manitoba Corn Growers Association

Toll Free – Ph: (877) 598-5685 Fax: (877) 598-5686
Box 188, Carman, Manitoba R0G 0J0
Email: mbcorn@mts.net Website: www.manitobacorn.ca

The post-production prices for the 2013 Cash Advance Program for Special Crops are below. If you have already taken the pre-production portion of your advance these are the prices that will now apply to your current advance and to any additional money you receive on the portion of the crop that you harvest and store. If you have not yet taken an advance on your 2013 crop there is still lots of time to apply.

The federal government has approved the following post-production advance rates for this year:

White Beans	**$ 0.16**	**/pound**
Great Northern Beans	**$ 0.20**	**/pound**
Kidney Beans	**$ 0.25**	**/pound**
Cranberry Beans	**$ 0.26**	**/pound**
Pinto Beans	**$ 0.16**	**/pound**
Other Coloured Beans	**$ 0.16**	**/pound**
Peas	**$ 3.80**	**/bushel**
Soybeans	**$ 5.94**	**/bushel**
Faba Beans	**$ 0.07**	**/pound**
Desi Chickpeas	**$ 0.13**	**/pound**
Kabuli Chickpeas	**$ 0.15**	**/pound**
Lentils	**$ 0.10**	**/pound**
Corn (grain only)	$ 3.14	/bushel
Confectionery Sunflowers	$ 0.15	/pound
Oilseed Sunflowers	$ 0.125	/pound
Alfalfa Seed	$ 0.90	/pound
Annual Rye Grass Seed	$ 0.15	/pound
Perennial Rye Grass Seed	$ 0.25	/pound
Kentucky Blue Grass Seed	$ 0.25	/pound
Hay for Domestic Sales	$ 65.00	/tonne
Honey	$ 0.85	/pound

- **Applicants must be members in good standing with the Manitoba Pulse Growers Association, Inc.** or the corresponding Associations for the crop on which you are taking the advance.
- Applicants may not have outstanding balances under any other APP program, other than what is indicated on the application form and may not be in default under any other Cash Advance programs past or present.
- **Each producer, partnership or corporate farm may receive up to $100,000.00 interest-free, and up to $400,000.00 in total. These totals must include any loans received as a partner or shareholder in any other entity, and these totals must include all Cash Advance Programs (i.e. CWB, Canola, Livestock, etc.). Loans over $100,000.00 will have an interest rate of Prime – ¼% applied to them.**
- In fall if you are intending to use some of your crop for seeding yourself, **EXCLUDE** that amount from your application.
- **If you sell your crop under a Price Pooling Contract you may not get an advance on that portion of your crop.**
- This Advance Payment program is administered by the Manitoba Corn Growers Association – 38–4th Ave., N.E., Carman, Manitoba.
- Administration fees are **$250.00 for all advances.**
- The federal government guarantees only a portion of each loan, so to protect your Association a **2% deposit will be deducted.** Any extra charges (o/s interest, etc.) that may occur will be deducted from that deposit before the balance is refunded.
- Credit checks may be made prior to issuing advances and Bin checks may be done on your stored grain. If your grain is in storage, you will need to provide storage tickets. **BUT** if your crop is in **price pooling it is ineligible.**
- A Priority Agreement signed by your financial institution is required. If more than one financial institution is used, a separate Priority Agreement must be signed by each one. If any suppliers hold a lien on the crop, each supplier must sign a separate Priority Agreement.

Repayments – Please Read Carefully

- Repayments must be made **directly** to the MCGA and **must be made as the crop is sold** and **on first crop sold**; or on any crop that has been adjusted through Crop Insurance and for which you have received a payment; or on any of the crop which has been disposed of in any other way. The repayments must be made within 30 days of the crop being sold. Repayments, with cheques made out to: **Manitoba Corn Growers Association, Inc.**, must be sent to the address above, along with copies of the sales receipts.
- The Cash Advance must be paid off by the crop year-end: **September 15, 2014**. The advance can't be rolled into the next year's program.
- **IMPORTANT:** *If the crop is not sold* by the program year-end or if the *advance is paid off without accompanying sales receipts*, interest of Prime – ¼% must be paid on the outstanding balance, or on the amount not accompanied by receipts, *right back to the day that you were issued your Advance.* The government then treats it as an operating loan and not an advance loan on your crop.
- Application forms are available on the MCGA website. Contact the MCGA office for more information.

FINAL DEADLINE FOR APPLICATIONS IS MARCH 14, 2014

The Bean Report

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

Kristen Podalsky, MSc
Production Specialist, MPGA

To get an overview of the 2013 growing season for soybeans and pulses, two strategies are: looking through our Twitter photo/video stream and glancing over the headlines of our ten issues of *The Bean Report* online. Options for communication have never been so diverse, which is allowing us to get the most pertinent agronomic information to our grower members (and industry) quickly. At the time of writing, we have 326 Twitter followers, 357 subscribers to *The Bean Report* and a *Pulse Beat* distribution list of 3,300 with 83% readership! We're confident we are reaching all of our members in one way or another. Here is a round-up of the top production challenges that we communicated to you in 2013.

WAS SOYBEAN SEEDING REALLY DELAYED?

Seeding dates ranged from May 15 to June 4, with the majority of soybeans getting in the ground the fourth week of May. This isn't unheard of for soybeans, because they shouldn't be planted until soil temperatures reach 10°C. Unusual though, was trying to seed all crops at once, and even rushing to get soybeans in before canola!

SOIL CRUSTING AND WET CONDITIONS REDUCED PLANT STANDS

Heavy rains early in the season caused soil crusting and poor emergence in some edible bean fields. Pinto beans were especially sensitive with some stands being reduced by 50%. Re-seeding may have taken place in other years but late, prolonged emergence left growers with little choice but to leave it. In The Bean Report Scouting Network, plant populations for pinto fields ranged from 39–54,000 plants/ac and navy beans ranged from 74–78,000 plants/ac. The Bean Report Scouting Network consisted of nearly 50 farmers and 70 fields across the province. Data was collected from over 120 field visits throughout the growing season.

Soybean emergence was also lowered and delayed due to cool, wet conditions but soybeans have a greater ability to compensate for lower plant populations. Soybean plant populations ranged from 58–185,000 plants/ac with an average of 133,000 plants/ac.

BACTERIAL BLIGHT IN SOYBEANS

Bacterial blight started showing up in soybean fields in early July and was found in the majority of soybean fields across the province. This is a bacterial disease that is favoured by cool, wet conditions and cannot be managed with fungicides. High rainfall and stormy weather in summer increased the spread. The bacterium survives in crop residue and is spread by wind and rain. Some varieties seemed to be more affected and likely impacted yield.

IRON DEFICIENCY CHLOROSIS: SOYBEANS AND SALINITY DON'T MATCH

You might say that from 2010–2013, we experienced a wet-dry cycle. Salinity is often more evident as we move into the dry part of the cycle. Salts are brought closer to the surface as the water table rises (wet years such as 2011) and as evaporation dries the soil, salts are deposited on the surface leaving a more 'visible' problem in the drier years (2012–13). On top of that, soybeans have very low tolerance to salinity which can induce iron deficiency chlorosis (IDC). In other words, soluble salts in soil interfere with the ability of soybean plants to take up iron, resulting

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Figure 1. Iron deficiency chlorosis symptoms scattered throughout a field (L) and kochia in a saline depression (R)

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in deficiency symptoms (yellow, stunted soybean plants). Symptoms are often temporary but can lead to yield loss when conditions are severe.

Yellowing near field edges, in rings around pot holes, and premature ripening were some of the key symptoms of IDC this summer. Growers also commented that they were "seeing salinity in places they had never seen before." In fact, the reason may be that they are growing soybeans in places that quite literally, they have never grown them before. While it is advisable to keep soybeans in non-saline fields, another strategy is to check the IDC rating of the variety you are growing (see the 2013 pulse variety evaluation insert). Some varieties may tolerate saline areas, which induce IDC, better than others.

GRASSHOPPERS AND OTHER DEFOLIATORS IN SOYBEANS

Last fall was warm and dry: good egg laying conditions for grasshoppers. This may explain why grasshoppers were so destructive in 2013 in soybeans and many other crops. Border spraying and whole field insecticide applications were warranted in some cases. Other defoliators included green cloverworm and what is suspected to be corn earworm (Figure 2).

CHILLING STRESS

Cold nighttime temperatures in late July/early August had growers and agronomists worried about the impact on soybeans, which were in the middle of flowering and early pod development. Temperatures <10°C during critical yield determining stages is reason to be concerned, especially when it happens for a long period. In early August, temperatures fell below 10°C on ten consecutive nights in Russell and five consecutive nights in Dugald; with Portage reporting warmer temperatures during the same period (Figure 3). Chilling stress during flowering can reduce pod number or cause pod malformation. Chilling stress during pod and seed formation can reduce seed number and seed size thereby reducing yield. With bin-buster soybean yields, it's impossible to say whether we saw a yield reduction related to these cold temperatures.

Figure 3. Daily low temperature throughout July and August in Russell, Portage and Dugald for 2013 (Source: Manitoba Ag-Weather Program).

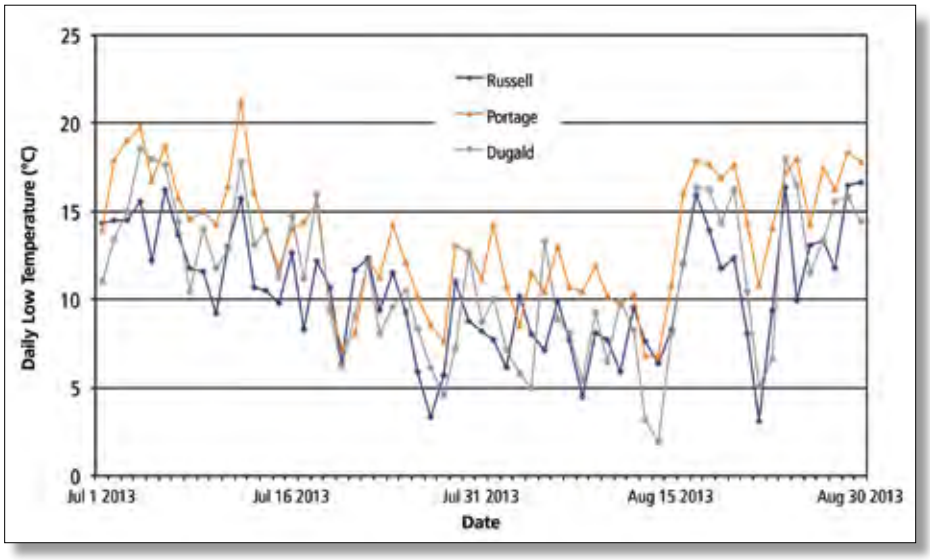

Figure 2. Larvae of the suspected corn earworm

WHITE MOULD

In previous years white mould has not been a noticeable problem in soybeans, compared to other crops such as canola and edible beans. But in 2013 the cool, wet July was conducive to white mould development and symptoms became noticeable in soybeans, especially fields with dense canopies. But compared to other crops such as canola and edible beans, research and extension pathologists say that soybeans are unique when it comes to white mould. In terms of susceptibility, tolerance and management, soybeans generally are a) less susceptible, b) more tolerant to infection and therefore c) management with fungicides is frequently not necessary or not economical. White mould was found in 40% of soybean fields and 90% of edible bean fields. Incidence (% plants infected per field) was generally low for soybeans (<10%) but ranged from 10-50% in edible bean fields. Fungicide spraying in edible beans was common.

DELAYED MATURITY AND LATE FROST

A killing frost is -2°C for most plants but a "frost warning" occurs when temperatures reach 0°C. This two-degree difference can be very important when it comes to long-season crops in Manitoba. For example, in Birtle, Russell and Dauphin the first fall frost at 0°C typically occurs on September 7, 12 and 16, respectively. In comparison, the first fall frost at -2°C typically occurs on September 20, 23 and 30. This can buy us nearly two weeks of time for maturity. In 2013, killing frosts (-2°C) for Birtle, Russell and Dauphin occurred on October 4, October 2 and September 21, respectively. In many cases this longer than average growing season helped bring late crops to maturity, but cannot be counted on every year. This year provided growers in Western Manitoba a good opportunity to evaluate the suitability of their soybean varieties.

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Raising Awareness of Farmers' Economic Contributions

Keystone Agricultural Producer's annual *Sharing the Harvest* event aims to promote awareness of the agricultural industry and its contributions to the economy. At the event on September 24, KAP highlighted the 2013 record-breaking soybean crop as an example of one of the contributions farmers make to Manitoba's economy.

In 2013, Manitoba farmers planted over a million acres of soybeans and it's estimated those acres will create $360 million of revenue. This will form a significant portion of the anticipated $4-plus billion in farm cash receipts – for both crops and livestock – expected in the province.

"Of course, farmers will only keep a small fraction of what they receive when they sell soybeans – or whatever they produce," said KAP president Doug Chorney. "The rest is paid out to suppliers, transportation companies, equipment dealers, financial and marketing consultants – and the list goes on.

"There are jobs in each of these sectors, as well as in food-processing, food retailing, banking, government services and research, that are dependent on agricultural activities. The provincial government, in fact, estimates that 62,000 Manitobans are employed directly or indirectly as a result of farming."

He noted that MacDon, a family-owned, Winnipeg-based company that manufactures harvesting equipment, has grown from a 45-employee business to an enterprise that employs about 1,500 Manitobans.

"Think about the effects of that on Manitoba's economy. Fifteen hundred people are able to support their families, pay taxes and use their buying power to contribute to Manitoba's economic growth."

This year's *Sharing the Harvest* event took place on Edgar Scheurer's farm near Dugald. Edgar stopped his combine to talk about why he grows soybeans and how the acres he's grown have continually increased each year. Good yields, ease of management, low input costs and fair market prices were a few of the several reasons he gave to support why soybeans are a key part of his crop rotation.

Kristen Podolsky, production specialist with MPGA, was also there to talk about contributing factors to the 30 per cent increase in acres from 2012 to 2013.

"Development of shorter season varieties have allowed producers in the west and north to experiment with growing soybeans," stated Kristen. "And so far they've been very successful."

She went on to say that 2013 was the sixth consecutive year of soybean acre increases, and credits the same reasons Edgar gave – good yields and strong prices, nitrogen fixation and relative ease of management.

Kristen added, "Soybeans are not only good for the economy, but they're also good for the environment."

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Was your crop mature by these frost dates? If not, my tours of variety plots this summer showed some very promising varieties with early maturity.

Overall, 2013 taught both you and me a lot of new and exciting things about soybeans. And even though we discussed the challenges here, 2013 soybean yields are still expected to surpass last year's provincial average of 36 bu/ac. This again speaks to the resiliency and suitability of soybeans to Manitoba growing conditions, providing new opportunities and competing economically with wheat and canola.

Thank you to all the farmers who participated in the Bean Scouting Network and to all our Bean Report subscribers. I'm looking forward to see what 2014 has in store for us. While you're making cropping plans, be sure to check out our website, manitobapulse.ca for information and to sign up for *The Bean Report*. It is our goal to provide all new and existing soybean growers in Manitoba with independent agronomic support. As I finish writing this article, I would like to leave you with a 'tweet' that just came through Twitter – "soybean acres likely to surpass canola in Manitoba in a few years…" Do you agree?

Figure 4. Soybeans on Sept 26, 2013 affected by frost in Dauphin (L) but not in Russell (R)

Janet Krayden
Public Affairs Manager
Grain Growers of Canada

TRADE AND MARKETING – CETA

The Canada-Europe trade deal announced October 25th is the biggest and the most historic trade agreement in Canada's history. The Comprehensive Economic and Trade Agreement (CETA) was tabled in the House of Commons October 29th and CETA hearings are before the House of Commons Agriculture Committee, November 5th onward.

Normally this trade deal would appear before the Trade Committee in Ottawa, so this is an interesting development where the federal government is choosing to highlight the trade deal's importance to agriculture.

Overall Canada exports $40 billion a year in agriculture and food. Canada exports 65% of our malt barley, 70% of our wheat and 85% of our canola. Our top agri-food exports to Europe include soybeans canola oil, canola, and wheat.

Europe is the largest buyer of Canadian soybeans with more than a million tonnes sold annually. Canola oil exports to Europe are anticipated to increase to $90 million annually with canola oil being the preferential feedstock for biodiesel production. CETA will reduce wheat tariffs to zero within seven years, which will expand market opportunities for wheat farmers.

Grain Growers of Canada has supported CETA from the beginning of negotiations, because it is easy to see, huge gains are on the horizon.

And any gains in livestock are good news for grain farmers too. Canada exports half our beef production and two-thirds of our pork. Expected gains in the new trade deal with Europe for livestock are estimated to be around $400 million for pork and $600 million for beef. This will pay significant dividends for Canadian grain farmers and the value-added feed industry.

Grain Growers farmers participated in several CETA announcements across the country including Calgary with Minister Jason Kenney, where Grain Growers Director and Vice President Gary Stanford made comments on behalf of grain farmers.

It was a pleasure to be in the House of Commons for the tabling of the trade deal where several Grain Growers' farmer directors were in attendance in Parliament on the historic day.

CANADIAN GRAIN COMMISSION

A lot of work is proceeding on the Grain Commission file as of late. Grain Growers submitted comments to the CGC regarding Proposed Changes to Producer Payment Protection in early November and also along with member organizations met with the Grain Commission Commissioners to discuss cost analysis of the new user fees. At the meeting a new funding model for the CGC was also mentioned. More discussion will take place on these topics at the Grain Growers fall board meeting December 2–3 in Calgary.

SUSTAINABILITY AND SOUND SCIENCE

December 1st, prior to the Grain Growers fall meeting this year, GGC and Croplife are co-hosting a *Croplife a Confident Conversations* workshop. This session offers communications training to Grain Growers' farmer directors and staff as well as member association farmers, regarding the benefits of plant science and modern agriculture technologies. With a *Sustainability and Sound Science* focus, this session's purpose is to help producers and association staff members learn to comfortably manage difficult conversations with people opposed to pesticides and plant biotechnology.

TRANSPORTATION

Grain Growers wrote a letter to Minister of Labour Kellie Leitch on October 25th regarding potential labour disruption at CN rail where we stated that Canada's 75,000 grain farmers are almost finished with a record grains and oilseeds harvest. GGC called for early action to head off this work stoppage and to take swift and decisive action in the event of a strike. The letter was quoted in *Reuters*, *Toronto Star*, *Globe and Mail* and *ipolitics* (influential online publication in Ottawa).

As of the time of this writing, it was reported that the CN Rail had reached a tentative deal with Teamsters union.

PARLIAMENTARY AFFAIRS: HOUSE OF COMMONS AG COMMITTEE ANNOUNCED

Member of Parliament Pierre Lemieux remains in place as the Agriculture Parliamentary Secretary and there is a mixture of veterans and newbies on the Standing Committee on Agriculture and Agri-food this time around. The new Chair of the Ag Committee is Bev Shipley, who is a farmer that hails from Township of Middlesex Centre, Ontario. Bev was first elected in 2006 and has been involved with Industry, Science and Technology, Transportation, Infrastructure, and Trade committees. He participated on the Ag committee as well.

The ultimate team to supercharge your yields

You can never have too much of a good thing, and in the case of Novozymes *MultiAction*® TagTeam® and Optimize® you can have two good things working for you at the same time. These two products together are the ultimate team to supercharge your soybean crop for maximum yields, especially in new ground. With Optimize applied on-seed you get the advantage of the LCO Promoter Technology®, which enhances your soybeans' nutritional capabilities meaning you will get earlier and increased nodule development for better nitrogen fixation and an enhanced root system for improved nutrient and water uptake. Add TagTeam, the world's only phosphate and nitrogen inoculant, to the equation and you have the makings for extremely healthy plants and a full, rich soybean crop that will deliver incredible yield.

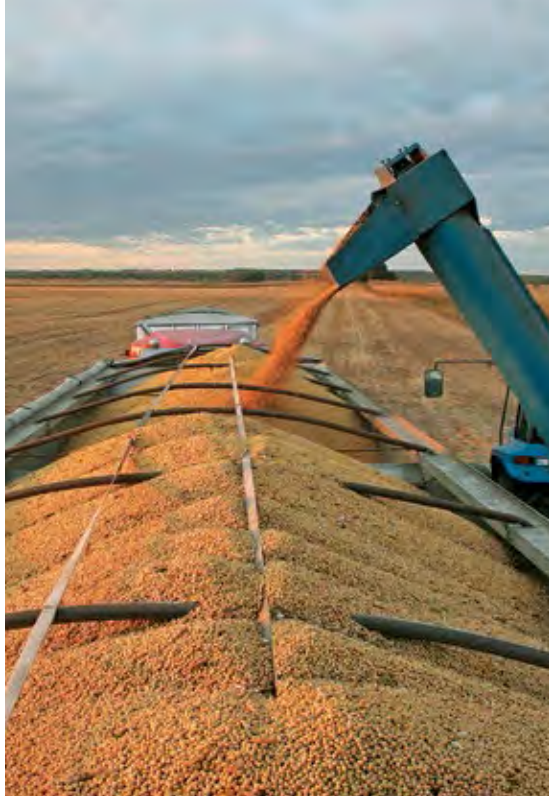
The advantage of using both of these products is the formulations start to work almost immediately. Seed-applied inoculants like Optimize tend to form nodules closer to where the seed is located (closer to the primary root), while in-furrow applied granular inoculants such as TagTeam form nodules on the secondary or lateral roots, ultimately allowing for wider distribution of nodules along the whole root system.

Land that has been through some rough times or has not had soybeans for a few years requires special attention when it comes to inoculation. The goal is to supercharge the soil with a heavy load of rhizobia to ensure the best possible nodulation and soybean performance. Land with no history or many years between soybean crops and land that has been flooded or had longer periods of drought, is not conducive to rhizobia survival. It is in these soils that farmers will benefit most from the application of both Optimize and TagTeam.

Optimize® with LCO Promoter Technology®

Combining LCO Promoter Technology with the bradyrhizobia bacteria in Optimize helps to shortcut the natural process by enhancing your soybean's nutritional capabilities, helping nodulation to get off to a faster start. The roots of the soybean plant send out signals to the nitrogen-fixing bacteria in the soil, and the bradyrhizobia bacteria communicate back that they are safe to absorb. Once the plant receives this confirmation, natural growth processes such as root and shoot development are stimulated, and gateways are opened to allow bradyrhizobia bacteria to infect the root, resulting in the formation of nitrogen-fixing nodules.

Barriers to this natural process include temperature, moisture stress and high levels of nitrogen in the soil. With Optimize, the communication between the soybean root and nitrogen-fixing bacteria happens sooner, resulting in earlier nodulation and faster root development regardless of growing conditions.



Get more with *MultiAction*® TagTeam®

MultiAction TagTeam contains a naturally occurring soil fungus, *Penicillium bilaii (P. bilaii),* which enhances phosphate use efficiency, and a high performing, nitrogen-fixing bacteria. The synergy of the two micro-organisms provides balanced nutrition for better use of soil and fertilizer phosphate, maximum nitrogen fixation and higher yields.

One of the benefits of *P. bilaii* is the development of more root hairs. Each root hair is a potential infection point for rhizobia. More infection points mean more nodules, more nodules mean more fixed nitrogen, and more fixed nitrogen equals higher yields.

To learn how you can maximize your yields with TagTeam and Optimize call 1-888-744-5662.

Pulse Canada

Julianne Curran, PhD
Pulse Canada

BEANS AND CHOLESTEROL LOWERING

Decades of research have shown that pulses can help lower cholesterol, but how many consumers think of eating more pulses when they find out they have high cholesterol levels? They may think of eating Cheerios, or oatmeal, or even flax for its omega-3 fats. The Mayo Clinic lists the following top five foods that can lower your blood cholesterol:

1. Oatmeal, oat bran and high-fiber foods
2. Fish and omega-3 fatty acids
3. Walnuts, almonds and other nuts
4. Olive oil
5. Foods with added plant sterols or stanols

So where are pulses on this list? And how does the evidence we have compare to the evidence for these other foods? Pulse Canada brought together a group of experts earlier this summer to examine the existing evidence we have in relation to beans and cholesterol lowering to determine whether we could pursue a health claim. Based on a systematic review of 93 publications related to beans and cholesterol reduction, only eight studies could be used for health claim substantiation. Of these studies, 62.5% of studies saw a significant reduction in total cholesterol, while 50% saw a significant reduction in LDL-cholesterol, indicating a moderate and low strength of association, respectively (by Health Canada's standards). A high strength of association, as supported by ≥75% of clinical studies reviewed, is a pivotal component of a health claim submission.

Based on this, the experts at the workshop concluded that further studies are needed before a beans and cholesterol-lowering health claim application could be submitted

to Health Canada or the U.S. FDA. However, they unanimously agreed that the evidence supported the relationship between beans and cholesterol lowering. Since 2010, Health Canada has approved cholesterol-lowering claims for plant sterols, oat products, psyllium products, mono- and poly-unsaturated fatty acids, and barley. In comparison to the eight included studies for the beans and cholesterol lowering review, the number of publications used to substantiate these other recently approved claims has ranged from 13 to 84. The magnitude of the effect of these foods/food constituents on LDL-cholesterol levels as shown in the included studies ranged from a reduction of 0.04% to 8.8%.

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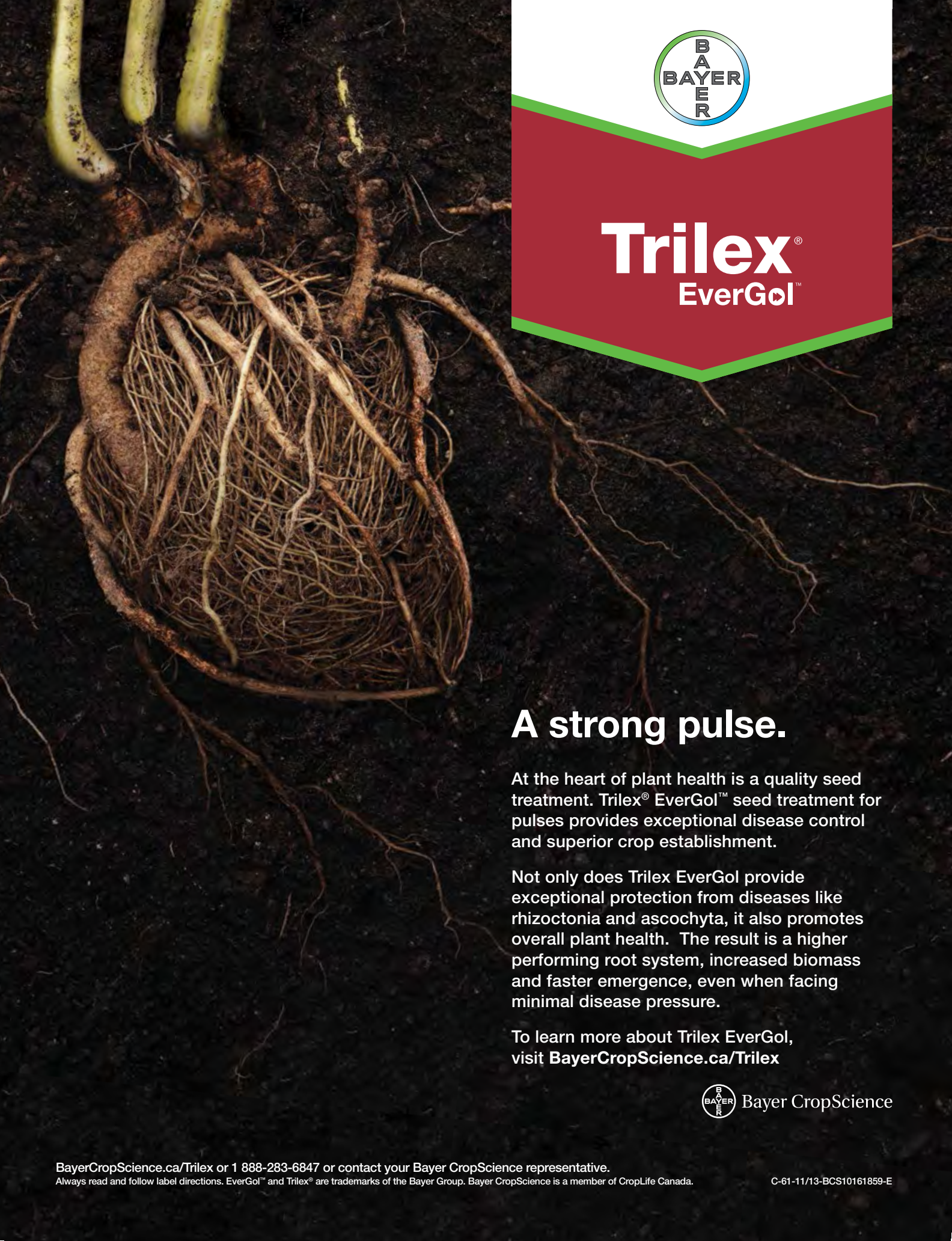

Trilex® EverGol™

A strong pulse.

At the heart of plant health is a quality seed treatment. Trilex® EverGol™ seed treatment for pulses provides exceptional disease control and superior crop establishment.

Not only does Trilex EverGol provide exceptional protection from diseases like rhizoctonia and ascochyta, it also promotes overall plant health. The result is a higher performing root system, increased biomass and faster emergence, even when facing minimal disease pressure.

To learn more about Trilex EverGol, visit **BayerCropScience.ca/Trilex**

Bayer CropScience

BayerCropScience.ca/Trilex or 1 888-283-6847 or contact your Bayer CropScience representative.

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In comparison, the magnitude of the effect of beans on LDL-cholesterol levels in the eight included studies is equal or even greater than effects seen from these other foods/food constituents that have approved health claims in Canada. Beans produced 7 to 11% reductions in LDL-cholesterol levels in the included studies.

Although we may not have enough "high-quality" studies to submit a health claim application for beans and cholesterol-lowering right now there is an opportunity to design future research studies to ensure they can be used to substantiate a claim. In the meantime, pulses are still getting recognized for the heart healthy benefits by some key influencers. The American Heart Association report published in 2010 on setting goals for health promotion and disease reduction for 2020 included whole grains, nuts, and legumes/pulses as dietary measures to lower risk of cardiovascular disease (CVD) or CVD risk factors such as blood cholesterol.

Funding for this project has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In Ontario, this program is delivered by the Agricultural Adaptation Council.

PULSES AND BLOOD SUGAR CONTROL

Pulses are well established as a low glycemic index food, are often cited by diabetes health organizations as a good food choice because of their carbohydrate composition, and decades of research have shown pulses can help to maintain healthy blood sugar levels after a meal, but is this message getting out to consumers? A quick google search of "foods for blood sugar control" found the following list of six foods on WebMD that may help control blood sugar:

1. Oatmeal
2. Broccoli, Spinach and Green Beans
3. Strawberries
4. Salmon and Lean Meats
5. Sparkling Water
6. Cinnamon

So why aren't pulses on this list? Studies confirm that consumers are looking for foods with health benefits. Adding health claims to packaging allows manufacturers to communicate the health benefits of their products to consumers, and allows consumers to make informed purchasing decisions. Despite the prevalence of people with impaired glucose tolerance (pre-diabetes) or diagnosed diabetes, there are no health claims related to short term blood sugar control being made in Canada and a limited number if any being made in the United States.

There is a tremendous opportunity for the pulse industry to move forward with claims related to blood sugar

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control since this type of claim does not require pre-market approval in Canada or the US.

In August, Pulse Canada brought together a group of experts in Toronto to examine the existing evidence in relation to lentils and short term blood sugar control to determine whether there is enough strong quality evidence to back a health claim that would be deemed "truthful and not misleading."

Of all the publications available related to lentils and post-prandial glycemia, there were 10 clinical publications (12 intervention studies) that met the inclusion criteria based on Health Canada's standards for evidence to substantiate a claim. Nine of the 10 publications were considered to be "high quality." Overall, a highly consistent beneficial effect of lentil consumption on measurements related to short-term blood sugar control was supported by 100% of the high-quality studies. Although this review focused on lentils specifically, there are also a large number of published studies investigating the effect of beans on short term glycemic control that could potentially be examined for a similar type of health claim.

Based on the review of lentils and short-term blood sugar control research, the consensus at the workshop was that the industry could make a health claim in the US for whole lentils without any further research required. Pulse Canada will be meeting with the US pulse groups and regulatory experts to discuss this in more detail. Some of the claim wordings that have been proposed are:

- Lentils are a low glycemic index food, which contributes to healthy blood sugar levels.
- Eating lentils can contribute to healthy blood sugar levels.
- A serving of x grams of whole lentils results in a lower blood sugar response.
- Incorporation of whole/split lentils into your diet will help keep your blood glucose at healthier levels.
- Lentils contribute to a reduction in the blood sugar rise after eating. (A serving of 1/2-cup of boiled or canned lentils can produce this effect.)
- Lentils results in a low blood sugar rise. (A serving of 1/2-cup of boiled or canned lentils can produce this effect.)

A health claim related to pulses and blood sugar control would make use of the large body of evidence that currently exists in this area. A claim would also help to educate consumers as dietary intervention is often the preferred choice for people with impaired glucose tolerance or diabetes, which is of high prevalence globally.

Funding for this project has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In Saskatchewan, this program is delivered by the Agriculture Council of Saskatchewan.

WHY ARE HEALTH CLAIMS SO IMPORTANT?

The benefits of achieving a health claim include increased consumer awareness and media attention of that food or food component, as well as added incentive for food industry to include that particular food/ingredient within product formulations so they can carry the claim on their label. For example, according to a 2011 Mintel report, 170 plant sterol enriched products (e.g. margarine, yogurt, drinkable yogurt, fruit juice) were launched in the U.S. since the claim was approved in 2000. There is a significant opportunity to accelerate the pace of innovation and commercialization of lentil containing food products by focusing future research to substantiate this health claim beyond whole lentils to include lentil flours and fractions.

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

In the spring of 2013 when Federal Agriculture Minister Gerry Ritz and Manitoba Agriculture, Food and Rural Development Minister Ron Kostyshyn announced the Growing Forward 2 program details for the agricultural sector in Manitoba, it may have not been your top priority to explore what these programs meant for your business.

By now you will have the crop harvested and stored in the bin; maybe it already has gone to market. I encourage each one of you to visit *www.manitoba.ca/agriculture* and click on the Growing Forward 2 icon to see what opportunities there are for you in terms of positioning your business amongst those leaders in agriculture and agri-food.

The following program listing provides an overview of the Growing Forward 2 agricultural programs being offered in Manitoba.

GROWING INNOVATION

This program cultivates activities directed at research and on-farm innovation by providing financial support for state-of-the-art organizations, agencies and farms to conduct innovation-driven projects.

GROWING VALUE

This program is directed at farms' and agri-processors transformational activities that promote value-added product development, commercialization and bringing innovation to market by contributing to strategic investments.

GROWING ACTIONS

This program is directed at advancing industry-led strategic development by providing targeted funding to agricultural organizations, including industry-based strategies along the entire value chain, for development related to market-based opportunities and challenges.

GROWING ASSURANCE

Projects supported by this program will help to build strong foundations by advancing assessment, adoption and implementation of environmental, food safety, animal welfare, plant and animal health, biosecurity and traceability systems and activities that support national initiatives.

GROWING VISIONS

Projects under this program will help to boost industry capacity by assisting agricultural and rural organizations. Funding is available to help develop and implement strategic plans that position the organization to lead the sector forward.

GROWING ADAPTATION

This program is directed at secure water management projects, helping to create sustainable systems to secure adequate, quality water supplies for agricultural, agri-food and agri-business purposes in rural areas.

GROWING COMPETITIVENESS

Businesses and business leaders can apply for financial support for skill and knowledge development through this program, with additional supports for group training and individual training for young farmers as well as young agri-food and agri-product processors.

MPGA supports MAHRN to Develop Manitoba-made Food Products

In 2010, the Canada Manitoba Growing Forward Strategic Innovation Fund – Advancing Agri Innovation Program (AAIP) supported increasing the connections between researchers, small companies and growers as a means of advancing Manitoba's global leadership in the research, development and commercialization of 'foods for health.' 'Foods for health' are also known as functional foods, natural health products or nutraceuticals and include those foods or food ingredients that have traits that support health beyond basic nutrition.

With the active support of MPGA's soybean and edible bean committees, as well as members of the buckwheat, carrot, sunflower and saskatoon berry industries, the Manitoba Agri-Health Research Network Inc. (MAHRN) launched the C$1.3 million, three-year program called *Manitoba Functional Foods Opportunity Program II*, or MFFOP II. The goal of MFFOP II was to characterize, produce and market health promoting products, bioactives and fractions from Manitoba-grown and processed crops using the concept of 'bio-refining' or maximum utilization. To execute the work plan, MAHRN and the growers set up incorporated companies for each commodity. MPGA is involved in two of these – *Bean Inc* and *Soy Inc*. MPGA and MAHRN hold an equal number of shares in each company. This new model of cooperation allows Soy Inc and Bean Inc to target the research investment, keep the results confidential where there is a business advantage for Manitoba, and most importantly for growers, collect a royalty from the licensing of the technology developed by the companies. With this model in place, we worked together to develop a three-year program to:

1. Select raw materials with locally-grown commercial acreage, available processing capacity and evidence of health promoting properties from soy and pinto bean; and
2. Evaluate, quantify and provide evidence of health promotion effects; and
3. Extract, isolate, characterize and scale up the manufacture; and
4. Produce test market quantities of fully characterized foods, food ingredients and nutraceuticals supported by preclinical, clinical and nutrition data on health promoting properties.

Soy Inc looked at the unique traits in Manitoba grown and processed soybean for food and food ingredient use. Given the overwhelming acreage in Manitoba of varieties with transgenic traits, we focused on assessing these varieties. With an increasing number of growers crushing soybean for on-farm biodiesel, we were interested in looking at the waste stream – more correctly described as the 'co-product' – of the meal cake left over from pressing. Traditionally, soy food products like tofu and soymilk have been made from conventional soybeans so the goal was to see what food products could be made from the meal of the transgenic soybeans. Activities included looking at dehulling, characterizing the plant sterol levels and producing a soy 'spreadable' product that would be commercially acceptable.

Bean Inc focused on pinto beans. Pinto beans were selected to provide a Manitoba focus on a pulse crop we grow versus other provinces. As many producers know, the market value of pinto beans decreases as the 'spots' fade so we looked at milling the whole bean to see if this could provide a new opportunity for growers. We were able to work with Best Cooking Pulses at Portage la Prairie to produce a very acceptable, commercial scale process for milling the whole bean. This allows us to preserve the health benefits found in the hull and gives Manitoba a very unique offering for food companies.

Soybean Spread

Pinto Bean Flour

By April of 2012, researchers at the Canadian Centre for Agri-Food Research in Health and Medicine (CCARM), the Food Development Centre (FDC) and the Richardson Centre for Functional Foods and Nutraceuticals (RCFFN) had developed 33 marketable prototypes across the MFFOP II program. Some of the 'stars' were from the Soy Inc and Bean Inc projects and are listed in Table 1.

It was apparent early on that relying on the traditional food industry was not the best route to bring forward these innovative food prototypes. Confusion exists when marketers say they are waiting for 'consumer pull' – if the consumer doesn't know we can make an excellent, tasty and gluten-free pizza crust from pinto beans, how do they know to ask for it? So to advance commercialization, MAHRN established a test marketing company called NuEats Food Innovation. NuEats was formed in 2011 to address the real challenges of taking research developed prototypes to the commercial marketplace. The gap between lab bench and supermarket shelf is massive; NuEats acts as a 'micro-commercialization' company

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Table 1. Soy Inc and Bean Inc projects developed through the *Manitoba Functional Foods Opportunity Program II* program

Product	Manitoba Ingredients	Status of Commercialization
Gluten-free pita finished product – pinto bean	Pinto bean	Out licensed for royalty
Gluten-free pita finished product – multigrain	Pinto bean Buckwheat	Out licensed for royalty
Gluten-free pita premix – pinto bean	Pinto bean	Out licensed for royalty
Gluten-free pita premix – multigrain	Pinto bean Buckwheat	Out licensed for royalty
Gluten-free pizza crust finished product – pinto bean	Pinto bean	Out licensed for royalty
Gluten-free pizza crust finished product – multigrain	Pinto bean Buckwheat	Out licensed for royalty
Gluten-free pizza premix – pinto bean	Pinto bean	Out licensed for royalty
Gluten-free pizza premix – multigrain	Pinto bean Buckwheat	Out licensed for royalty
Extruded pinto crispie	Pinto bean	Commercial sale
High protein smoothie – dry mix	Saskatoon berry powder Buckwheat protein flour Carrot powder Soybean Dairy	In scale up for commercial sale via NuEats
Spreadable soy	Soybean Carrot	Pilot plant scale up for NuEats
Plant sterols	Soybean Sunflower hull	Production of pilot scale quantities
Sterol enhanced dairy cheese	Soybean Sunflower hull Dairy	Waiting for the plant sterols

that allows promising products to be made, tasted and eventually sold to see if they offer commercial potential.

NuEats is another Manitoba innovation. We work with University of Manitoba (U of M) students in Food Science and Human Nutritional Sciences, our NuEats ambassadors, to test market the products developed by the Inc's. The criteria for NuEats? Innovative (not on the market anywhere); local (Manitoba ingredients where possible, Manitoba processing techniques); and with health benefits compared to what is in the market currently. We conduct consumer focus groups and sampling feedback surveys, develop packaging (in both official languages) and negotiate pricing with the food service vendors at the U of M and at Generation Green at The Forks in Winnipeg.

Should a product make it to the launch stage, there are two paths:

1. NuEats commercializes it (this is the path for small quantity, high-value products like ice cream sundaes from the U of M dairy) or
2. We out license to a Manitoba company.

Out licensing is what has been done with the pinto bean pita and pizza crust formulations. The soy spread tested very well with our consumers at the U of M and Soy Inc will keep that product advancing. We are also very eager to work with small Manitoba companies – new or already with products – who are looking to bring some of these innovations to the local and eventually national markets.

As this was a completely new model, our goals for commercial success were modest. We had commercial sales of the pinto based pizza crusts and this demonstrated enough promise for Prairie Food Innovation, a local company focused on gluten-free foods, to license the entire portfolio of pinto flour products. On the soy side, work remains on the spread to scale it into quantities that we can package and sell. The process to develop the spread can be used for other edible products, so this path has great potential as well. The phytosterol levels in Manitoba soybeans are also very attractive, but we don't yet have a commercial manufacturer to extract quantities needed for sale as an ingredient. This means we will continue to produce smaller quantities in our pilot plant facilities and work them into unique prototypes.

Soy Inc, Bean Inc and NuEats will live on so we are currently working on plans to keep the momentum going and add more products to the program. MAHRN and MPGA are also looking back at food and food ingredient work previously supported by research funding to see if they can be brought forward through NuEats. We share a philosophy that research that doesn't get commercialized is incomplete.

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Interview with Scott Chalmers
Diversification Technician, Manitoba Agriculture, Food and Rural Development

The Westman Agricultural Diversification Organization (WADO) is a producer directed non-profit applied agricultural research group based in southwest Manitoba in the town of Melita. Nine producers and five Manitoba Agriculture Food and Rural Development (MAFRD) employees assist in communications, activities and project development. WADO is currently managed by a single employee, Scott Chalmers, who is also assisted by several summer/seasonal staff. WADO is considered one of four Diversification Centres across the province funded by the Agricultural Sustainability Initiative, a federal-provincial partnership from the Growing Forward funding program.

Q: What type of soybean research are you doing?

In 2013, we had several soybean projects. Several of these projects were also carried out at other research sites across the prairies.

First of all, WADO acts as a satellite site for the Western Manitoba Soybean adaptation variety trials. This trial consists of 25 varieties which go head to head to compare yield, maturity, and several other characteristics. WADO also partnered with SeCan Seeds to evaluate several of their public varieties as well.

Secondly, WADO has partnered with Agriculture and Agri-Food Canada (AAFC) to evaluate the effects of solid seeded vs. row crop soybeans at various populations. In addition to this trial, a growth staging trial is being conducted to evaluate the effects of micro-meteorology parameters on early, medium and late maturing soybean varieties. Growth stages will be correlated to climatic parameters to generate a more reliable model to ground truth heat units in our northern climates.

In terms of fertility, MAFRD is conducting a study looking at the effects of phosphorous placement and rate on the final plant stand and yield. This is being conducted to verify and evaluate the current recommendations coming from the province. A Brazilian agronomist, Gustavo Bardella, has been assisting in the study.

On a more foreign note, WADO has partnered with a UK seed company (Soya UK Ltd.) whom distributes an early group of Ukrainian soybean varieties that have a very special characteristic of apical pod development (pods that grow generally on top of the stem) rather than those that grow from the ground up. The two Ukrainian varieties are being compared to a locally-grown glyphosate tolerant variety.

Q: What do you think is the most interesting finding related to soybeans or pulses?

For soybeans, the most interesting finding is the stability of yield in the last few years among varieties. Breeding institutions have been able to breed a few good varieties that have good yield and mature early. We have seen this in 2013 with the rapid expansion of acres in the province with generally a good feeling among producers growing the crop.

For pulses in general, I believe the nitrogen fixation component has been under utilized in farm production in general, and that profits at the farm gate have taken precedence over this natural asset.

Q: Who comes up with the research ideas?

Ideas for the group come from a variety of sources including universities across the prairies, provincial grower organizations, fellow government colleagues, Agriculture and Agri-Food Canada, producers and industry, and WADO directors and the employees.

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Some other learnings from this experience:

- Everything takes longer than you expect in the research world. This is especially true with an aggressive target of using a final product like a pizza crust for clinical studies.
- Manitoba has some very creative minds and consumers are looking for creative, 'tastes good and are good for them' products from local sources.
- Until we try something, we don't know if it cannot be done. Only then can the discussion move to 'should it be done'?

We believe the new model of co-operation between researchers, food scientists and growers seen in Bean Inc and Soy Inc should continue and even expand. We are eager to find ways to include more of the value chain – germplasm developers, seed companies and small retailers – to make sure we take full advantage of what we grow in Manitoba. We also think that a focus on the less valuable products, such as lower grade beans, green seeds, leftover meal cake, etc., makes this approach a win-win.

Going forward, there are great opportunities to work together even more. MAHRN is spearheading a concept called the Canadian Climate Advantage Diet (CCAD) – a regional healthy diet approach that takes advantage of the genetics, growing conditions, local processing and 'foods for health' researchers in Manitoba to begin to address chronic diseases like Type II diabetes and cardiovascular disease. Manitoba grown edible beans and soybeans play a key part in this diet and we are looking forward to including seed companies and the traditional health community in the project. Rather than just looking at single ingredients with a single effect, we are taking a 'portfolio' approach. This reflects how people eat (multi-ingredients at each meal, multiple food formats throughout the day) and will again show Manitoba's leadership in taking the promise of 'foods for health' to the general public.

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Q: I have a great research idea, can I as a farmer bring it forward to WADO?

Yes. Often research has been done elsewhere. But many times it's the producers who have practical cutting edge research ideas. It is this connection that needs to be fostered between producers – researchers – industry.

Q: What is an intercrop?

Intercropping is the agricultural practice of cultivating two or more crops in the same place at the same time.

Q: Is the yield of both crops consistently higher when grown together?

Yes, WADO has consistently found 11–65% over yielding of canola and peas grown together compared to each crop grown alone. We have grown intercrops since 2009 and have had this response every year.

Q: Why aren't more farmers adopting this practice?

Uptake of the practice since the start of the research has been steady, however market prices have influenced the practice most of all. High canola prices tend to make producers choose canola, investing heavily into it as a sole crop rather than cutting back on fertilizer use and introducing the lesser valued pea crop. Another reason may be the hassle of separating the crops soon after harvest, especially earlier in the season when other crops are waiting for the combine as well.

Q: Are there any other type of intercrops or novel ideas that have good results?

It's too early to say since WADO is still in the preliminary data stage, however we have conducted a few other intercrop trials including flax-chickpea, winter wheat-hairy vetch, and sunflower-hairy vetch.

Q: Do you have any advice for farmers interested in growing peas or faba beans?

My advice for pea growers would be in variety selection. Choose varieties with

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high yielding, low disease susceptibility (for Mycosphaerella) and good lodging tolerance.

My advice for faba bean production would be to assess your geographical suitability. WADO is located in Melita and we have tried them several times, but they basically have failed three out of three times due to leaf and stem diseases. However the group in Roblin has been very successful growing them in that region.

Q: What are your top three recommendations to farmers, based on your experience at WADO?

1. Do a soil test no matter what you are doing.
2. If you have a grain yield monitor, use it, and have a check (untreated area).
3. Utilize your local research group's knowledge the best you can and implement those concepts into your farm.

Q: What are your top three NEW IDEAS you have for farmers to improve long-term profitability and productivity?

1. Try integrating pulses into either your grain production, or livestock operation.
2. Consider direct seeding into sod or hay stands rather than using cultivation prior to planting.
3. Keep the cows feeding on the land rather than being penned up; they are your solar powered manure spreaders.

Q: How do you see soybeans fitting into Western Manitoba long term? Do you think they are here to stay? What about peas?

Soybeans will fit into western Manitoba based on the farm gate price. It has to compete with canola for price and acres. Many farmers are welcoming soybeans into their rotation due to less disease risks (white mould, blackleg, clubroot) associated with tight rotation of canola. However, we do have to remember that despite soybeans being less prone to infection, they are not totally free from Sclerotinia infections. Many farmers are still not too comfortable with taking the risk of growing a new crop (soybeans) given the high investment required these days to get a crop in the ground in the first place, regardless of the choices.

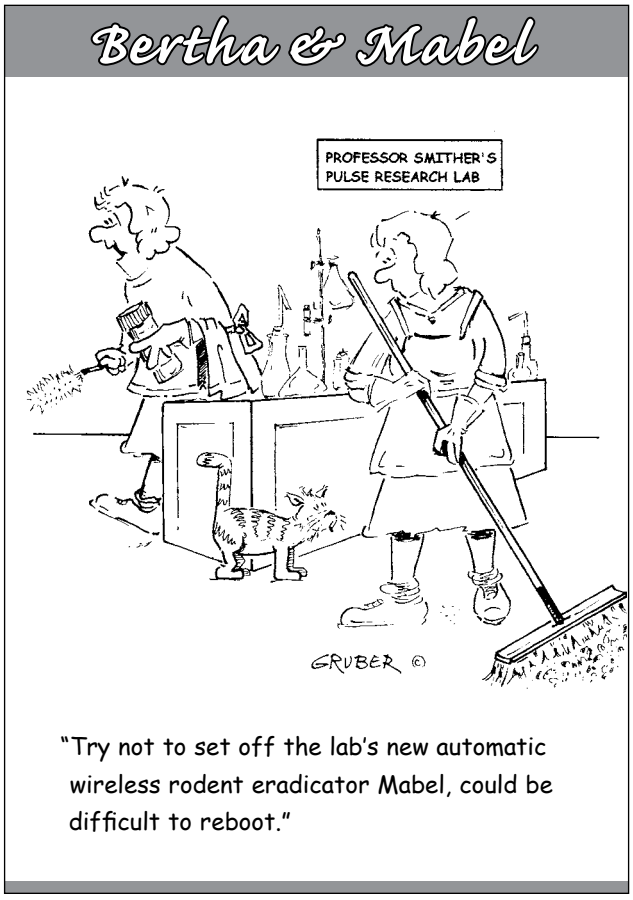
Q: And lastly, how can I learn more? Do you have field days?

You can learn more by visiting the Diversification Centre's web page and looking through the annual reports – *http://www.gov.mb.ca/agriculture/diversification/*

You can also attend our field days. Generally they are held in July and August. Contact your local GO Office for dates and times.

WADO also presents at several crop meetings during the winter and spring. Listen to your local radio or just give us a call or email:

Scott Chalmers – Ph: 204-522-3256
Email: *scott.chalmers@gov.mb.ca*



MPGA–*Working for You!*

Research and Production

- Kristen Podolsky was hired as Production Specialist in May. She spent most of her time in soybean and edible bean fields providing growers with timely information and scouting tips. K. Podolsky produced a bi-weekly report, *The Bean Report*, during the 2013 growing season. She was featured on Golden West Radio every second Tuesday, highlighting timely production topics featured in the report, which was emailed to growers and industry reps and posted on our website. *The Bean Report* was a very successful, highly read informative piece and feedback has been all positive. K. Podolsky also provided regular updates and photos from the field on MPGA's Twitter account, @MbPulseGrowers.
- Participated in SPG's Soybean Cropportunity team meeting on July 26th. The team was formed to help develop a strategy for advancing soybean production in Saskatchewan. SPG's goal is to enable soybean to become a viable and profitable component of the pulse industry in Western Canada.
- MPGA hosted an incredibly successful pulse and soybean tour at AAFC's Morden Research Station on August 7th. A timely rain shower and increased awareness of the event resulted in record attendance.
- Partnered with the Manitoba Corn Growers Association (MCGA) and applied for federal funding from Western Economic Diversification Canada (WD) to purchase a small plot row-crop seeder and combine for use by the University of Manitoba Cropping Systems Department, who has recently made soybeans and corn a core part of their program. The application was successful. $100,000 from each MPGA and MCGA was matched with $242,000 from WD. MPGA organized the public announcement made on August 16th.
- MPGA is participating in two different Science Clusters, which have both been approved for substantial funding from AAFC under Growing Forward II. More information on these clusters can be found on page 39.

Market Development and Sustainability

- Took part in a GGC Sustainability and Sound Science conference call on June 5th to discuss a sustainability workshop and Pulse Canada's MRL and codex work.
- Participated in a Sustainability Summit on July 9th put on by the Sustainability Working Group of the Grains Round Table, Agriculture and Agri-Food Canada.
- R. Lewko participated in the *Great Tastes of Manitoba* TV cooking show, demonstrating how easy it is to pack pulses for lunch. The episode aired on September 14th and will re-air on February 15th, and can be viewed on YouTube. R. Lewko also promoted the series on CTV *Morning Live* on September 5th.
- Met with Nick Betts, who is new to Grain Farmers of Ontario (GFO) and is leading their Environmental and Sustainability Market Development file, and Denis Tremorin, Manager of Sustainable Production with Pulse Canada, to discuss the Round Table for Responsible Soy (RTRS) program and how MPGA can get involved. GFO is submitting an application for Growing Forward II funding to help develop and deliver this program in Canada. L. Taylor will be representing MPGA at the meetings of the National Technical Group (NTG) who is developing the RTRS National Interpretation (RTRS-NI) for Canada.
- Met with Executive Directors from all provincial pulse organizations (SPG, APG and OBG) and Pulse Canada on October 17th to discuss possible areas of collaboration, specifically in regards to market development strategies.
- L. Taylor attended the Oilseed and Grain Trade Summit in Minneapolis on October 21st–23rd to network with producers, processors, transportation companies, industry trade associations, animal feed, food, biofuel and bio-industrial manufacturers and more, as well as learn about global outlook and market trends, and sustainability in the supply chain, amongst other topics.
- MPGA once again partnered with the Alberta Pulse Growers, Saskatchewan Pulse Growers (SPG), Ontario Bean Growers and Pulse Canada to put together and release a Grower Advisory on the market risks involved with desiccant use on pulse crops, how growers can mitigate that risk, and the maximum residue limits (MRLs) for global markets.

Communication

- R. Lewko is event chair for the upcoming CropConnect Conference, taking place in Winnipeg on February 18th and 19th. CropConnect is new and promises to be "the" Manitoba event for growers and industry. It's being hosted by MPGA, the Manitoba Corn Growers Association, Manitoba Canola Growers Association, Manitoba Flax Growers Association and the National Sunflower Association of Canada. Please check out www.cropconnectconference.ca for details, including an agenda, speaker bios, tradeshow information, sponsors, hotel accommodations and more.
- Participated in an Ag Commercialization Round Table Meeting on June 20th to discuss the need to accelerate agricultural research commercialization and create more opportunities for Manitoba farmers. As a follow-up, sent a letter of support for BioEnterprise Manitoba to three provincial ministers.
- R. Lewko sat on a Manitoba Agriculture Food and Rural Development committee to put together three TV commercials featuring innovation in agriculture. The

We've been busy! *…continued on page 35*

ultimate goal was to bridge the gap between agriculture and the public's lack of understanding of how food is produced. Three 30-second spots were chosen to feature animal welfare and technology, innovative crop production practices, and environmental sustainability for future generations. The crop production commercial focused on soybeans in rotation and the soil health benefits they provide. Eldon Klippenstein of B&S Farms near Altona represented soybean producers and the industry very well. These three commercials can be seen during the *Great Tastes of Manitoba* segment – Saturdays at 6:30 pm on CTV.

- R. Lewko attended KAP'S General Council meeting on July 25th in Brandon, and M. Chorney attended KAP's General Council meeting on October 17th in Portage la Prairie.
- Sent letter of support to Minister Ritz regarding the proposed changes to the variety registration system, moving pulse crops to Part III of the Schedule III process.
- Participated in KAP's Ag Awareness Event, Sharing the Harvest, on September 24th. K. Podolsky presented on the contributing factors to the soybean acres increases in Manitoba.
- Partnered with Best Cooking Pulses to handout pulse information and demonstrate pulse recipes at the Manitoba Home Economics SAGE Conference on October 25th.
- L. Taylor attended KAP's Grains, Oilseeds and Pulses committee meeting on October 29th to discuss pollinators and neonicotinoids, variety registration, Canadian Grain Commission producer payment security changes and more.
- Since the dissolving of the Canadian Soybean Council, MPGA has been participating in steering committee meetings to measure the need and relevance of forming a new national soybean organization to represent producers and industry on issues relating to soybeans (both feed and food grade).
- L. Taylor attended KAP's Commodity Group meeting on November 1st to discuss Growing Forward II programs, farm safety, annual meetings and more.
- L. Taylor, K. Friesen and R. Froese attended the Grain Growers of Canada Confident Conversations Workshop on December 1st in Calgary.
- L. Taylor, K. Friesen and R. Froese attended the Grow Canada Conference December 3rd–5th in Calgary

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

Big Harvests Always Present Big Challenges

Brian Clancey
Senior Market Analyst and Publisher

Big harvests always present big challenges and it looks like this will be the case again this season. Not only are record yields reported for most crops, the harvest started later than normal, with the result there was more pressure on the handling and transportation system out of the gate.

Many companies say that railcar allocations did not keep pace with demand through the middle of October, with some saying they got six out of 10 cars ordered each week. Depending on location and company, movement of pulses from the Prairies to the port had fallen two and half to four weeks behind schedule by the third of October. That is a key reason exporters have sometimes struggled to make sure they have enough of the right quality and type of product needed to meet immediate shipping commitments.

Logistical problems have pulled the attention of markets away from the size of this year's crop to the ongoing technical squeezes, which have created nearby shortages of peas and lentils. There are reports that terminal-handling capacity for pulses in Vancouver has been booked through to May and that exporters have fully sold that capacity through January.

The implication is that it will be hard for new business to be concluded and that as long as there are transportation problems, technical squeezes could persist. This could be more of an issue for India than for other destinations. China seems to have done a good job of covering its needs for yellow and green peas, while buyers in India have shown reluctance to enter markets.

Pulse production in India is expected to remain at high levels this season and its marketing pipelines appear well stocked. This combination reduces the need to buy. However, if something caused domestic prices in India to rise well above world markets, import demand will quickly re-emerge. Should this happen while Canada is struggling to meet export obligations, it would likely strengthen nearby markets, but may not change the fact they are flat to inverted for some pulses.

This is especially true of export markets, where sellers are encountering unexpected resistance in many parts of the world. Iran, for instance, which imports substantial quantities of red lentils and green split peas from Canada, has large unsold inventories of product both in the country and in Dubai. Recent sales have been reported to Turkey, but exporters needed to sharpen their pencils to convince end users to enter the market. From the perspective of some buyers, pulses are moving above their normal relationship with other food ingredients.

This is most true of dry edible beans. The drought earlier this year in Argentina proved to be a turning point for markets as it virtually wiped out the country's white alubia bean harvest and savaged black bean output. White alubia beans set the tone for large calibre white beans. This year's harvest ended up at just 32,000 metric tons, down from last year's 130,000; while the black bean harvest dropped from 70,000 to 44,200 metric tons. A large part of the white beans harvested in Argentina are being held back as planting seed. Delivery periods on some contracts were switched to next year, "force majeure" was declared on many, while an insignificant quantity of beans were exported.

Dates to Remember

CropSphere – Saskatoon, SK
January 14–15, 2014

AG Days – Brandon, MB
January 21–23, 2014

FarmTech – Edmonton, AB
January 28–30, 2014

CropConnect Conference
Victoria Inn Hotel and Convention Centre – Winnipeg
February 18–19, 2014
See page 9 for details.

Valtera™ has shown to boost yield by up to 6.7 bushels/acre.*

Eliminating early weed pressure is the secret to better soybeans. Adding **Valtera™** herbicide to your burndown will give IP and Roundup Ready® soybeans a huge leg up.

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*Results from trials across 5 States, comparing yields in fields using a glyphosate burndown versus a Valtera + glyphosate burndown.

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Innovative solutions. Business made easy.

Sarah Foster
20/20 Seed Labs Inc.

This winter whether you're wearing a parka or a windbreaker it's important to think about your peas, beans, soybeans and lentils seed coats too. A well-tailored seed coat with no flaws is going to provide the best protection for the quality and health of your seed.

Peas, beans, soybeans and lentils are members of the dicotyledonous family and they are susceptible to damage (let's go to botany 101 and review the diagram). Peas, soybeans, beans and lentils have two halves (seed lobes) or leaves that protect the small embryo between these lobes. Because these seeds are large and dense any impact can impair their development, and unfortunately all pulse crops can fracture both internally and externally. Not many people know that seed coat integrity is the key to seed longevity. If the seed breaks, these two halves are separated leading to mechanical damage. Even though they appear to be intact, the damage is inside the casing.

A damaged seed coat can occur at anytime especially during maturation, processing and seeding. Keeping the seed coat intact prevents the loss through leaching of important sugars, amino acids and starches. Also, precious moisture cannot escape and injurious pathogens cannot enter when planted into infested soils. Broken, untreated pulse seeds are susceptible to soil and seed-borne pathogens such as *Rhizoctonia*, *Phytophthora*, *Pythium*, and *Fusarium*.

Environmental conditions play a huge role in seed quality especially in the time leading up to harvest. Ideal weather keeps the seed from drying out too quickly, minimizing the invasion of pathogens and prevents damage from occurring during harvest. Damage prevention starts by ensuring seed is at the optimum moisture content at harvest However, if optimum conditions and a safe moisture content are difficult to achieve, stop and assess your seed quality; adjust the combine cylinder speed to alleviate the risk of further damage and watch for anomalies in the field.

If the seed does break, the two halves can separate leading to an abnormal seedling. This information is gleaned from a germination report. Did you know that a diagnostic profile is very informative? A diagnostic profile is included with your germination result. All seedlings that are not considered to be normal seedlings are further categorized into abnormal, dead, fresh, etc. Knowing the background of your seed starts with the laboratory analysis; if you have abnormal seedlings you need to know what type of abnormality or symptom and why you have abnormal seedlings.

This year the environmental conditions were better than last year for pulse seed production. Although there are some pockets that have produced mechanical damage, the overall seed quality this year is reflected in the improved conditions during seed maturation and harvest.

That's where a complete diagnosis is so important, and 20/20 Seed Labs Inc. will give you that information for a better understanding of how to handle your seed production. It is also important to consider a fungal screen too. This screen is designed to identify and quantify all pathogens and saprophytes that are of economical importance. The fungal screen is often referred to as a health check. Once you have that list of ailments you are able to prescribe the medication. It can be as simple as reading the list of pathogens and saprophytes that are covered off on a seed treatment label.

Be sure to make an educated decision and buy certified seed with seed treatment.

Mechanical damage can be managed. When you purchase your seed, the report of seed analysis will indicate the results that were obtained after harvesting, processing and treating.

NOW you're armed with all of the information…germination, vigour and a 1000 seed weight. You're ready to seed and it's up to you as the grower to ensure that you handle that seed with the best care you can.

When loading the seed into the seeder, use a belt as opposed to an auger. An air seeder can also increase the damage so pay attention to the air velocity that is moving those beans. A precision planter that is gentler is more desirable, but go slow. Keep in mind too that large seeds such as soybeans need a lot of energy and vigour to germinate. Soybeans possess the attributes of epigeal germination meaning they actually push the first true leaves (the whole bean) through the soil; therefore planting the seed into moisture at ¾" – 1" in depth is perfect. All other peas and beans have hypogeal germination where the seed stays in the soil.

Set your target on the recommended plant population for maximum yield and don't forget to consider treated seed if you haven't purchased treated seed already. And of course, inoculant is vital as a final complement.

Manitoba Pulse Growers Association is involved in two science clusters, each of which obtained federal funding through the Growing Forward II Agri Innovation Program. Obtaining funding from this program is incredibly valuable, not only because we can leverage our research dollars and obtain matching funding at a high rate (3:1 or 2:1), but also because it's a five-year commitment.

The first is the Pulse Science Cluster, a Canada-wide partnership between all provincial pulse organizations (Alberta Pulse Growers, Saskatchewan Pulse Growers, Ontario Bean Growers and MPGA) and Pulse Canada. MPGA was involved in the Pulse Science Cluster in Growing Forward I and it was incredibly encouraging to see the federal funds more than double in our Growing Forward II application. Minister of Agriculture and Agri-Food Gerry Ritz announced on July 29th that the Government of Canada will invest up to $15 million in funding, in partnership with the multi-million dollar grower check-off investment, to support the continued development of the Canadian pulse industry. Projects will serve to strengthen the industry by delivering:

- Improved varieties of pulses with superior agronomic, quality and disease-resistance characteristics
- Support for growers, and improved management practices resulting in maximum yield, minimum disease, efficient use of fertilizers, and farm sustainability
- Enhanced knowledge of pulse ingredient composition, functionality and use in commercial food product applications
- Increased knowledge of the health benefits of pulse consumption, including impact on satiety, food intake, blood sugar control and gut health leading to greater marketing opportunities.

Each project was carefully selected by the pulse industry to increase the sustainability, profitability and competitiveness of Canadian pulse crops.

In particular, MPGA is providing funding to seven dry bean projects, two pea projects, one soybean project, one project involving both peas and soybeans, and one project involving both dry beans and soybeans. These twelve projects are the first twelve listed in the 2013 Approved Funding to Research on page 40. MPGA's total contribution towards the Pulse Science Cluster is $225,500 per year for five years.

The second is the Canadian Field Crop Genetics Improvement Cluster, a five-year initiative led by the Canadian Field Crops Research Alliance (CFCRA). The CFCRA is a not-for-profit entity founded in 2010 with an interest in advancing the genetic capacity of field crops in Canada, particularly soybeans, corn, wheat, barley, and oats. On September 9th, Minister Ritz announced a federal investment of $7 million for this cluster, which is being funded with $3.3 million of industry dollars.

This cluster focuses on providing Canada's soybean, corn, oat and barley producers with enhanced genetics for high-yielding, disease-resistant varieties while also addressing the needs of the market for value-added traits that deliver higher levels of nutrition and improved processing attributes.

Targeted outcomes include:

- Soybean, corn, barley and oat lines with improved disease and insect pest resistance and higher sustained yields
- Lines with enhanced processing and health quality characteristics
- Soybean and corn lines adapted to short-season growing regions
- Development of advanced selection tools to improve breeding efficiency and effectiveness.

Specifically, MPGA is providing funding of $18,000 per year for five years to two activities in the cluster: short-season soybean improvement research, including high yields, speciality traits, and identification of resistance to root rots, and the development of very short-season herbicide tolerant soybean varieties adapted to the Canadian Prairies. Both projects are being led by Dr. Elroy Cober, research scientist and soybean breeder with Agriculture and Agri-Food Canada in Ottawa, and are listed as one project (seventh from the bottom on the 2013 Approved Funding to Research on page 41).

CFCRA has been an effective alliance of provincial farm organizations and industry partners, including: Grain Farmers of Ontario; Fédération des producteurs de cultures commerciales du Québec; Manitoba Pulse Growers Association; Manitoba Corn Growers Association; Atlantic Grains Council; SeCan Association; PepsiCo Foods Canada, a business unit of PepsiCo Canada ULC; and new for 2013, Saskatchewan Pulse Growers.

2013 PULSE VARIETY MARKET SHARE

SOYBEANS	% of acres	FIELD PEAS	% of acres	NAVYS	% of acres
24-10 RY	11.6	CDC Meadow	41.7	T9905	46.3
TH 32004 R2Y	8.9	Agassiz	18.8	Envoy	29.5
900Y61	7.8	CDC Striker	8.2	T9903	16.3
Pekko R2	7	CDC Patrick	8.1	Cargo	5.4
25-10 RY	6.1	4010	3.5	Portage	1.9
23-10 RY	6	**Total acres**	**45,500**	**Total acres**	**28,900**
NSC Libau RR2Y	5.3	**PINTOS**	**% of acres**	**KIDNEYS**	**% of acres**
LS 004R21	4.5	Windbreaker	86.1	Pink Panther	73.6
NSC Richer RR2Y	3.9	Maverick	3.6	Red Hawk	10.7
900Y71	3.5	Sequoia	2.6	Clouseau	8.5
Total acres	**1.06 M**	**Total acres**	**36,000**	**Total acres**	**8,700**

Published by MASC – September 2013

2013 APPROVED FUNDING TO RESEARCH

RESEARCHER	PROJECT TITLE	FUNDING
AAFC – Anfu Hou	Development of dry bean cultivars/germplasm with high yield, disease resistance and marketable seed quality for production in Manitoba	$65,000.00
AAFC – Robert Conner	Identify advanced dry bean breeding lines or co-op entries with resistance to common bacterial blight, anthracnose and white mould. Develop new methods for controlling halo blight in dry beans.	$15,000.00
AAFC – Debra McLaren	Root rot pathogens of dry bean; identification, distribution and risk assessment in Manitoba	$9,000.00
U of Guelph – Chris Gillard	Dry bean pest management	$5,200.00
U of Guelph – Chris Gillard	Dry bean agronomy and pest nitrogen management	$4,800.00
AAFC – Frederic Marsolais	Developing herbicide tolerance in dry beans	$10,000.00
AAFC – Frank Larney	Comparison of dry bean and soybean for agronomic traits, inputs, diseases and nitrogen-fixing benefits to following crops, water use and harvest losses	$3,000.00
U of Manitoba – Mario Tenuta	Survey of nematode pests of pulse crops and development of rapid molecular quantification of the soybean cyst nematode in soil	$36,500.00
AAFC – Robert Conner	Evaluation of root rot resistance in field pea cultivars	$8,000.00
AAFC – Debra McLaren	Root rot pathogens of field pea; identification, distribution and risk assessment in Manitoba	$9,000.00
AAFC – Debra McLaren	Prevalence, incidence and virulence of Phytophtora root rot of soybean in Manitoba soybean fields	$60,000.00
AAFC – Kangfu Yu	Development of molecular markers linked to disease resistance of edible beans to CBB and anthracnose	$10,000.00
AAFC – Anfu Hou	Genetic improvement of protein quality in edible beans with adaptation to Manitoba	$12,000.00
U of Guelph – Chris Gillard	Thermotherapy for the control of seed-borne diseases in dry beans	$7,500.00
Mount St Vincent University – Bohdan Luhovvy	The effect of ebible beans and peas on satiation, satiety and food intake in children	$5,000.00
CGC – Ning Wang	Evaluation of nutritional, physio-chemical and cooking quality traits in Manitoba-grown dry beans for breeding use	$18,000.00
AAFC – Robert Conner	Evaluation of root rot resistance in dry bean cultivars	$12,000.00
Mount St Vincent University – Bohdan Luhovvy	The development and functional characterization of bean flour-based snack product	$5,880.00
Agri Skills – Brent VanKoughnet	Pinto bean fungicide trial	$12,500.00
Agri Skills – Brent VanKoughnet	Pinto bean harvest methods trial	$17,000.00
MPGA	Dry edible bean reserves for future use	$30,520.00
FDC – Janice Meseyton	The performance of pea fibre compared to cellulose fibre in a white bread application	$8,000.00
MPGA	Pea reserves for future funding	$38,300.00
U of Guelph – Hugh Earl	Reducing the impact of soil water deficits on soybean yields in Ontario	$6,952.00
OMAFRA – Albert Tenuta	Evaluation of nematicides for soybean cyst nematode (SCN) management	$2,300.00
U of Manitoba – Susan Arntfield	Adding soybean presscake to tortillas and pizza crust to create innovative products and modify insulin response	$31,000.00
U of Manitoba – Yvonne Lawley	Soybean crop rotations benefits for Manitoba farmers	$57,200.00
U of Manitoba – Susan Arntfield	Production of zero trans palm oil substitute from soybean oil in supercritical carbon dioxide media as a dietary additive in par-baked frozen dough products	$23,000.00
AAFC – Debra McLaren	Identification of the pathogens associated with root rot of soybean	$8,000.00
FDC – Meeling Nivet	Development of a soy saskatoon berry smoothie	$7,800.00
U of Manitoba – Belay Ayele	Seed treatment for enhancing the performance of pulse crops under excessive moisture stress	$7,000.00
U of Manitoba – Alejandro Costamagna	Soybean aphid control by natural enemies in Manitoba	$18,500.00

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RESEARCHER	PROJECT TITLE	FUNDING
AAFC – Anfu Hou, Robert Conner	Evaluation of soybean breeding lines for iron deficiency resistance	$8,000.00
Tone Ag – Ron Tone	Soybean on-farm network: population and fertility trials	$32,550.00
GFO – M. Moran	Virulence of Phytophthora sojoe and soybean resistance to phytophthora root rot	$5,750.00
GFO – M. Moran	Evaluation of starter fertilizer advancement for corn and soybeans	$2,415.00
U of Winnipeg – Paul Holloway	Biocontrol of bacterial blight and sclerotinia and mildew by the endophytic micororganisms of soybean	$8,000.00
AAFC – Ramona Mohr	Agronomic Management of soybean in Manitoba	$72,475.00
U of Manitoba – Robert Gulden	Volunteer canola in soybean production	$20,000.00
Tone Ag – Ron Tone	Soybean on-farm trials/effect of innoculants on yields	$32,550.00
U of Manitoba – Susan Arntfield	Processing of soybean to improve palatability/digestibility of soy based foods	$23,000.00
CFCRA – Elroy Cober	Short-season soybean improvement and very short-season herbicide tolerant soybean development	$18,000.00
Agri Skills – Brent VanKoughnet	Soybean seeding rate row spacing	$28,000.00
Agri Skills – Brent VanKoughnet	Soybean seeding date and rolling trial	$20,000.00
MPGA	2013 MPGA Soybean Trials	$8,000.00
MCVET	Manitoba Crop Variety Evaluation Trials (MCVET)	$7,000.00
Cigi – Linda Malcolmson	Enhancing world market for Canadian pulses through secondary processing and value-added research	$10,000.00
U of Manitoba – Rotimi Aluko	Use of organic pulses in an iron replacement supplement	$5,000.00
	TOTAL	$864,692.00

Science Cluster Projects

John Heard, *Crop Nutrition Specialist Manitoba Agriculture, Food and Rural Development*
with comments from **Cynthia Grant,** *Agriculture and Agri-Food Canada and* **Don Flaten**, *University of Manitoba*

Manitoba farmers have adopted soybeans as a major component of their crop rotation. Appropriate fertilization strategies must be used to ensure continued success and the sustainability of soybeans in this rotation. Nitrogen management through proper inoculation practices have been very well implemented by Manitoba farmers; however phosphorus (P) management needs greater attention and perhaps more research. In several respects soybeans respond differently to P fertilization compared to several of the Prairie crops they will share in the crop rotation.

1. SOYBEANS REQUIRE, TAKE UP AND REMOVE LARGE AMOUNTS OF PHOSPHORUS

Some eight years ago a soybean crop near Homewood, Manitoba was sampled periodically to assess nutrient uptake (Figure 1). The crop had 20 lb/ac P_2O_5 fertilizer applied prior to seeding and produced a yield of 46 bu/ac. The graph shows how some 62 lb/ac phosphorus was taken up throughout the season and apportioned within the plant, with over 85% of total P uptake eventually moving into the seed by harvest. Uptake of phosphorus was most rapid during flowering to seed-filling at some 0.9 lb P_2O_5/ac/day. The phosphorus removal rate in this study was over 1.1 lb P_2O_5/bu, slightly more than the textbook estimate of 0.8 lb P_2O_5/ac. These removal rates are greater than cereals and similar to that of canola. If this removal of P is not accounted for and offset with extra P in other phases of the crop rotation, P fertility will decline.

Figure 1. Phosphorus uptake and removal by a 46 bu/ac crop in Manitoba (Heard, 2005)

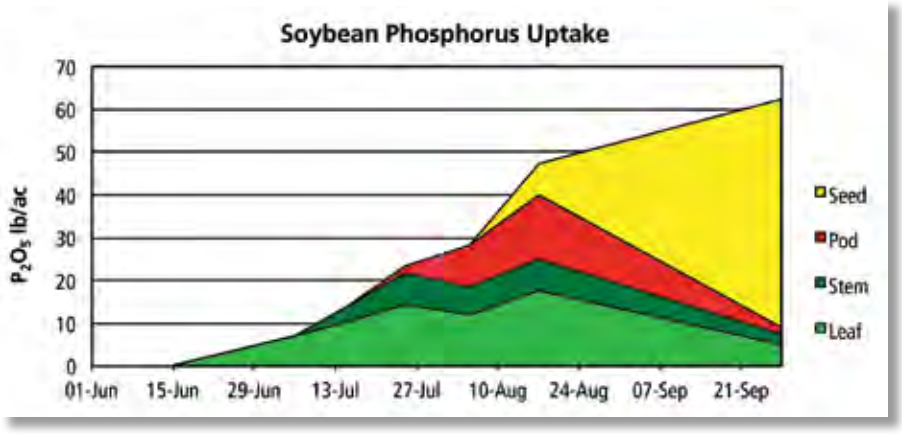

Figure 2. Soybean stand reduction (on left) from in-furrow liquid fertilizer in wide row soybeans on sandy textured soil.

2. SOYBEANS ARE SENSITIVE TO SEED PLACED FERTILIZER, INCLUDING PHOSPHORUS.

Soybeans tolerate little seed-placed fertilizer and excess P in the seed-row can result in stand reductions (Table 1). The tolerance depends on soil texture (clay vs. sand), seedbed utilization (row spacing as well as seed and fertilizer spread within the seed row) and environmental conditions such as soil moisture content, similar to how safe seed-placed guidelines for urea are presented for cereals and canola. In current Manitoba studies, stand reductions have been more severe in sandy soils compared to clay soils (Table 2). Stand injury from liquid fertilizer may also occur (Figure 2). To meet the high P removal of soybean, some other placement method is desired.

Table 1. Seed-placed fertilizer effect on soybean stand, NDSU Carrington, 3 site-years (B. Schatz). Soybeans seeded in 7-inch rows.

Rate of MAP 11-52-0 with the Seed		Final Soybean Stand	Yield
lb MAP/ac	lb P_2O_5/ac	plants/ sq ft	bu/ac
0	0	3.1	38.5
45	23	2.3	38.3
91	47	2.1	33.6
136	71	2.0	35.3

Table 2. Seed-placed fertilizer effect on soybean emergence relative to the check. Preliminary data from 2013 soybean studies in Manitoba (G. Bardella). Soybeans seeded in 9-inch rows.

	% Soybean Emergence		
Rate of MAP 11-52-0	Melita	Arborg	Beausejour
lb P_2O_5/ac	*Souris loamy sand*	*Eyala clay*	*Osborne clay*
0	100	100	100
20	64	92	103
40	65	87	106
80	29	73	103

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3. SOYBEANS RESPOND DIFFERENTLY TO APPLIED FERTILIZER PHOSPHORUS

Most of our Prairie crops benefit more from band applied than broadcast phosphorus fertilizer. Roots of cereals, canola and corn proliferate in such bands and increase uptake. Soybeans appear less discerning about placement of P fertilizer than these other crops. US studies show soybeans may respond to broadcast fertilizer as well as they do to band placed P. Some 50 years ago, University of Manitoba researchers, Kalra and Soper, used radioactive phosphorus fertilizer to compare P uptake by a number of crops including soybeans. They observed that soybeans were much more efficient than rape, oats and flax in extracting soil P and less dependent on a subsurface placed fertilizer band (Figure 3).

One reason soybeans may behave differently is due to their mycorrihizal associations which aids in uptake of soil P that roots may not access on their own. Naturally occurring mycorrhizal soil fungi develop an extensive network of hyphae or fungal strands that access soil P from a much larger volume of soil than the plant can, in return for carbohydrates from the soybean root.

4. SOYBEAN YIELDS ARE GREATER ON SOILS WITH HEALTHY PHOSPHORUS RESERVES

This reliance of the soybean on soil P reserves is well recognized. Dr. Gyles Randall conducted studies in Minnesota on soils that had either been depleted of P or built to medium-high levels. The phosphorus fertilizer was applied to the previous corn crop, and response is shown in Table 3. Although applied P did increase yields on the low testing soil, yields were still much less with fertilizer P on depleted soil than with soybeans receiving no P on the high testing soil, emphasizing the connection between high yield potential and healthy soil P reserves.

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Figure 3. Phosphorus uptake from fertilizer (A) and soil reserves (B). (Kalra and Soper, 1968 and graphs modified by D. Flaten)

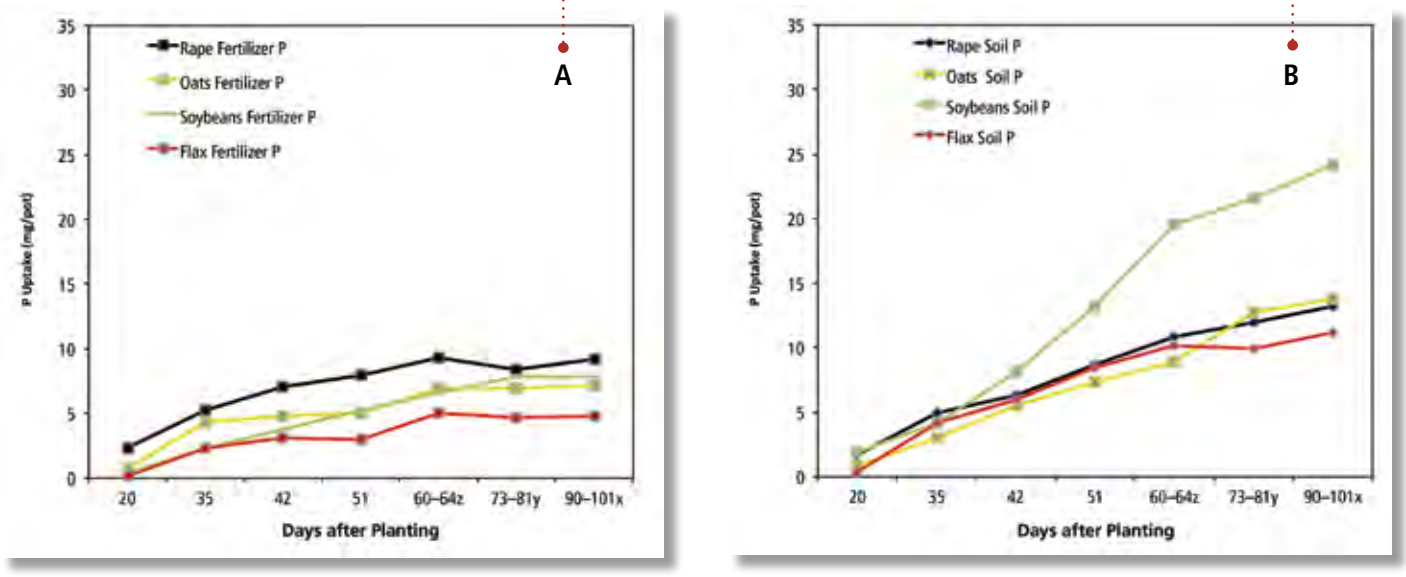

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Table 3. Soybean yield response to applied phosphorus on low and high P soils (Gyles Randall, University of Minnesota).

Applied P	Soybean Yield (bu/ac)	
lb P_2O_5/ac	Low P Soil	High P Soil
0	34.5	49.1
25/20*	35.9	49.4
50/40*	38.7	48.9

* The higher rate was applied to the low P soil, the lower rate to the high P soil. Fertilizer was applied to the previous corn crop.

MANITOBA FERTILIZATION STRATEGIES

Currently Manitoba field studies are underway to evaluate soybean response to a range of P rates and seed-placed, side-banded or broadcast placement. But in the meantime growers can address soybean's P needs and removals in a number of ways.

1. Balance P removals within the rotation. Estimate the phosphorus removal of your canola, cereal, corn, soybean, etc rotation and ensure that you are meeting those removals within the rotation. This is easily done by multiplying harvested yield by textbook removal values (the Manitoba Soil Fertility Guide indicates removal values for corn, wheat, canola and soybeans at 0.44, 0.6, 1.0 and 0.8 lb P_2O_5/bu, respectively). Some of these crops (e.g. cereals) can tolerate seed-placed P in excess of their requirement and may allow flexibility to build levels during that crop year.
2. Use the soil test as your audit of how well your "balance" is working. Many growers are observing now that high crop yields with low to modest P applications have taken their toll on soil P reserves.
3. Guidelines on phosphorus fertilizer placement and timing for soybeans grown on the Prairies are not clear-cut. Generally our Manitoba soils have high pH soils with generous calcium and magnesium supplies with considerable capacity to tie up fertilizer P into sparingly available forms. Our soils are also relatively cool at time of planting. This is why our tendency may still lean to band applications which tend to reduce or delay this tie up. But, since soybeans do not appear as dependent upon band applied P as our other Prairie crops, broadcasting may still perform well. If broadcasting, spring application will mean less time for soil reaction and retention before crop access.

Even if P placement is not as agronomically critical as for other crops, one must still consider environmental impact. If phosphorus is fall-applied it should be in-soil banded or if broadcast, well incorporated with tillage. Leaving P fertilizer sitting at the surface leaves it at risk of run-off, and this has been directly identified as the key factor causing algae blooms elsewhere, for example in Lake Erie, even though fields are zero tilled. Our effort to maintain a clean Lake Winnipeg cannot tolerate fall surface phosphorus applications.

Sustainable and profitable soybean production requires providing adequate phosphorus nutrition. The timing and placement of that phosphorus may not be as critical as for our traditional Prairie crops – as long as we respect seed safety. Growers should be using the soil test as an audit to ensure their cropping rotation is not depleting soils of their productivity.

MPGA Soybean On-Farm Trials

Ron Tone
Tone Ag Consulting Ltd.

PURPOSE: TO DETERMINE IF ONLY LIQUID INOCULANT IS NEEDED AFTER A TWO-YEAR HISTORY OF SOYBEANS IN A FIELD.

Ten field scale soybean trials (Table 1) were set up in 2013. These were to determine what effect there would be on yield if only liquid inoculant on the seed was used instead of both liquid and granular inoculant. There were 10 fields that were selected for the soybean on-farm trials across Eastern Manitoba and they were seeded between May 16th and June 4th. These fields had a previous history of soybeans of at least two years, with the exception of one field that has only had one year of soybeans.

Seeding rates ranged from approximately 150,000 seeds/ac to 246,000 seeds/ac with row spacing from 7 to 22 inches. There were three planters and seven air drills used to plant the soybeans. In the trials, the farmer applied both his normal rates of liquid and granular inoculant (ranged from 5–8 lbs/ac) on six field-length strips (with), alternating with six strips of only liquid inoculant on the seed (without). Please note that the Sperling trial had only six strips in total.

The following is a summary of the results:

1. The trial results (Table 1) showed an average 0.5 bu/ac yield advantage for the strips with both granular and liquid inoculant. Three out of ten trials showed a statistical significance in favour of using both inoculants at a 95% confidence interval.
2. The cost of granular inoculant is $11.50/ac (average cost of 5 lbs/ac of granular). The yield advantage for using both inoculants is not economically significant with soybeans at $13/bu. This would result in a $5/ac loss. The trials show that there would be an economic return for using granular inoculant three out of ten times (30%).
3. Soybean yields ranged from 24 to 47 bu/ac across the trials. The yield difference between the two treatments ranged from -0.5 to 3.0 bu/ac. Four of the top five yields came from fields that had soybeans planted on soybeans.
4. Nodulation counts were done at the V3 and R2 stage. Nodulation was higher in strips with both inoculants at the Blumenort and Sperling sites. The fields with soybeans planted on soybeans had high nodulation in both treatments. Teulon had only had one year of soybean history yet showed the highest nodulation and had the highest yield across the trial (Figure 1).

Figure 1. Soybean roots with high nodulation at the Teulon trial (July 4, 2013).

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Table 1. MPGA Soybean Inoculant Trial Overview 2013

Location	Date Seeded	# Years Previously With Soybeans	Seeding Rate (K)[1]	Yield With (bu/ac)	Yield Without (bu/ac)	Yield Difference (bu/ac)	Economic/statistical significance for using both inoculants?
Teulon	21-May-13	1	200	46.6	45.2	1.3	Yes
Hazelridge	27-May-13	2	150	41.5	42.0	-0.5	No
Blumenort*	17-May-13	3	176	37.9	37.7	0.1	No
Beausejour	21-May-13	3	246	36.6	36.4	0.2	No
Blumenort*	04-Jun-13	2	174	35.5	35.4	0.1	No
Carman	26-May-13	2	185	31.8	32.2	-0.4	No
St Andrews*	16-May-13	2	165	31.8	30.3	1.5	Yes
Silver Plains	27-May-13	3	215	28.6	28.6	0.0	No
Sperling	29-May-13	2	235	27.5	24.5	3.0	Yes
Beausejour	23-May-13	2	210	27.0	27.0	0.0	No
		Average	**196**	**34.5**	**33.9**	**0.5**	

[1] K = in 1,000's * Planter

Remember the article "Soybean Cyst Nematode: Coming to a Field Near You?"...Well, has it?

Mario Tenuta
University of Manitoba

This article relays the findings of the soybean cyst nematode (SCN) Manitoba survey recently completed by the University of Manitoba, MPGA and MAFRI. Details of the project and about SCN were previously the focus of an article in the spring 2013 *Pulse Beat*.

Soybean cyst nematode is a major pest of soybean worldwide. Soybean is the only major economically important host plant for this nematode. Estimated loss of 7% in the United States each year is due to this pest with damage estimated in 2001 costing up to $1.5 billion per year. With respect to the importance of soybean cultivation for Canadian farmers, early detection and precise identification is really important. SCN has rapidly moved northward in the mid US states. It is now present in some of the counties Manitoba borders with North Dakota and Minnesota. It is only a matter of time until it is in Manitoba.

Recently, the Canadian Food Inspection Agency has declassified SCN as a regulated pest in Canada. To farmers this means surveys for the nematode are not to be done in the future by the agency. Thus the current project was initiated to establish a soil extraction facility and survey for the presence of SCN in Manitoba. In total, 48 fields were sampled. Fields more prone to being infested were selected. Each field was sectioned into areas that could be responsible for introduction of the pest, such as entrance ways, headlands near ditches, depressions, drainage ways etc. A "W' or zigzag pattern was used to sample soil in each section with the soil from a section composited. A soil washing unit, a modified Fenwick elutriator based on the USDA soil cyst extractor, was obtained and used in this project. The unit had an efficiency of 75% in recovery of cysts from samples with known amounts. In total, 299 composite soil samples from the 48 fields were analyzed. Five pounds of air-dried soil was soaked in water and subjected to cyst extraction with the unit. Floated cysts and debris were collected on a screen. The collected material was dried and then carefully scanned using microscopes for the presence of cysts of any nematode.

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.

In total, 61 cysts from 37 composite samples, with an average of 1.6 cysts per positive composite sample, were obtained. Cyst identification was performed based on observation using microscopes and by DNA analysis. Most cysts were empty (did not contain nematode juveniles or eggs) and heavily damaged. The majority of cysts were identified as belonging to a cyst nematode different to SCN. The nematode is *Cactodera* which is a native cyst nematode that does not parasitize and cause damage to crop plants. Two composite samples from different fields had cysts that looked like the genus that SCN is in, *Heterodera*. The molecular analysis of the eggs and juveniles of these cysts was inclusive, with some tests indicating SCN but others not.

In conclusion, the survey results did not find any field heavily, moderately or even lightly infested with SCN. Further sampling and analysis is being conducted on two fields having cysts similar to SCN. It is unlikely the cysts are SCN because of their presence in very low number. SCN is usually present in much higher counts when present in a field.

This project was funded by MPGA and the Government of Canada CAAP Program to the Manitoba Rural Adaptation Council.

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5. Soil N, P, and K levels had no correlation with yield and nodulation and there were no manured fields in this trial. Rainfall, soluble salts and carbonates were high on Beausejour, which resulted in iron chlorosis throughout the field.
6. For this year, there seemed to be no correlation between yield and rainfall, even when looking at the crucial period of R4 (pod is 0.75 inches long at one of four uppermost nodes) to R6 (seed fills pod at one of four uppermost nodes).
7. Diseases were low this year and consisted of *Fusarium* and *Phytophthora* root rot, *Alternaria* and *Septoria* leaf spot, and downy mildew. Insects consisted of mainly grasshoppers and damage was low to high, with Silver Plains and Blumenort spraying insecticide.

There will be another two years of on-farm research to determine if using granular inoculant on soybeans provides an economic return. 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*.

PICKING THE RIGHT WHITE MOULD FUNGICIDE FOR DRY BEANS

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Did you have a problem with white mould in your dry beans this year? If you did, then I think we can help! We know that fungicides can offer a solution. To pick the right one, there are three things to consider: disease control, crop yield response and economics.

Fungicide studies have been conducted at the Huron Research Station in Southern Ontario since 1997, using a state-of-the-art irrigation system along with intensive management to promote white mould. These small plot studies had four replications for each treatment. Four chemical fungicides (Lance, Allegro, Luna and Senator), were compared to two alternate products (Serenade and calcium chloride). Treatments were applied at three pin beans followed by a second application 10–14 days later, except for two treatments which were applied at the pin bean stage only. To drill deeper, Lance and Luna were evaluated at different rates and application frequency (low rate with two applications, high rate with one application and high rate with two applications).

Disease severity was measured using the area under the disease progress curve (AUDPC). This is a common method to measure disease progress over time – in this case from about 13–50 days after the first fungicide application. A higher AUDPC value means higher disease severity. Yield was measured on each plot, converted to kg/ha and adjusted to 18% moisture. To calculate the return on investment (ROI), pick was removed from yield and the remainder was multiplied by an average price ($0.70/kg). Then the retail fungicide cost and the application cost ($20/ha) were subtracted. The fungicide + application costs are listed in Table 1.

The results of five studies from 2009–2011 are presented in Table 1. Three studies were grouped together and labeled 'medium' while the other two studies were grouped together and labeled 'severe," based on the disease pressure recorded. Numbers within the same column that share the same letter are not different, from a statistical point of view. In other words, if two numbers in a column both have a 'c' next to them, then they are considered the same.

The alternate products, Serenade (Bacillus subtilis) and calcium chloride (CaCl), were disappointing. They reduced disease severity slightly at the medium sites but there was no difference in yield or returns, compared to the untreated control. Serenade was as costly as some of the chemical fungicides, while CaCl was the cheapest treatment tested. For white mould control, it seems that cheapest is not best.

Lance was our standard product for several years after we lost Ronilan. In this study, it was similar to the other fungicides for disease, yield and ROI at the medium sites. At the severe sites, it had less disease than the control but did not protect yield. This gave an ROI that

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Table 1. The area under disease progress curve (AUDPC), yield and economic return for various fungicide combinations at Exeter, ON (2009–2011).

				AUDPC		Yield		Return	
	Fungicide	Rate	Cost	Medium	Severe	Medium	Severe	Medium	Severe
		(per ha)	($/ha)			(kg/ha)		($/ha)	
1	Untreated		0	1317 a	1651 a	1640 b	494 e	1061 d	265 cde
2	Lance	560 g	230	758 c	1347 bcd	2510 a	736 de	1386 abc	160 ef
3	Lancex	770 g	150	669 c	1328 bcde	2574 a	759 de	1534 ab	265 cde
4	Lance	770 g	301	713 c	1252 cdef	2487 a	816 cde	1303 bcd	130 ef
5	Allegro	1000 ml	231	643 c	1033 f	2795 a	1304 a	1545 ab	494 ab
6	Serenade	4000 g	150	1148 ab	1433 abc	1870 b	708 de	1037 d	237 def
7	Serenade + Lance	4000+560	340	599 c	1332 bcde	2591 a	746 de	1322 abcd	51 f
8	Luna	150 g ai	115	633 c	1122 def	2571 a	1162 abc	1549 ab	536 a
9	Lunax	250 g ai	154	669 c	1070 ef	2633 a	1063 abcd	1552 ab	401 abcd
10	Luna	250 g ai	230	547 c	1019 f	2850 a	1247 ab	1596 a	444 abc
11	Calcium Chloride	874 g	42	1034 b	1591 ab	1889 b	468 e	1188 cd	210 def
12	Senator	1210 g	180	666 c	1231 cdef	2684 a	930 bcd	1558 ab	321 bcde

[z]AUDPC, area under disease progress curve, a higher AUDPC value means higher disease severity.

[x]Single application only. All other treatments had two applications.

a-f Means followed by the same letter within a column are not significantly different according to Fisher's Protected LSD at P<0.05.

was similar to the control. There were no differences between the different rates or application timings for Lance. The combination of Serenade + Lance reduced disease and increased yield but this treatment was not consistent at the severe sites and yield suffered. Overall, the return on investment was low, likely due to the fact that this treatment is expensive.

Senator is older chemistry so we tested the low label rate only. It had a decent impact on disease, which gave a nice bump in yield at all sites. Its economic returns were good at the medium sites, but no better than the control at the severe sites. With recent price reductions, this product is relatively cheap and has the added benefit of controlling other bean diseases like anthracnose.

Luna (fluopyram) is a new chemistry from Bayer CropScience that we started testing several years ago. We now know that Bayer will not make Luna available to dry bean growers. It will be combined with Proline and marketed as Propulse. Propulse should be available for the 2014 growing season. Based on more recent work, we expect Propulse to be similar to the Luna treatments we have presented in the article. In this study, Luna had low disease scores and high yields and ROI – the perfect combination. There were few differences between the various rates or application timings tested. Please take note that to calculate the ROI, we priced Luna at the same cost/ha as Allegro, since Bayer has not set up pricing for Luna yet.

Allegro is a recent registered product from Syngenta. In 2012, we chose Allegro to replace Lance as our standard in these studies. In the last three years, Allegro has become the dominant white mould product with Ontario growers. In this study Allegro consistently had low disease, high yield and high returns – another perfect combination. However, it should be noted that Allegro was no better than Luna in this study.

One final question – do you need one or two applications of fungicide? In this study, there are few differences between one and two applications of Lance and Luna. To me, this means that most of the mould infection occurred after the first application timing. This is not always the case. Our 2013 data shows a big difference between one and two applications, because most of the disease pressure occurred after the second application. Most fungicides are protectants and must be applied before the disease is present. Application timing is part knowledge, part wisdom, part luck and part gambling.

I believe this series of studies clearly shows that growers need multi-year data to evaluate product performance. In addition, economic returns should be calculated to see if higher performance equals more money in your pocket. The bottom line is that Allegro is the best product, for now. Propulse should provide some competition for Allegro. The most common complaint that I hear from growers is that fungicides are too expensive and you're right… in a way. I hope I've shown you that some products can provide positive economic returns, despite the cost. In other words, if you choose to spend the money, I hope this article helps you to spend it wisely. Once we summarize the 2013 data, I will write a follow-up article comparing Allegro and Propulse, as well as other new chemistry like Acapela. Look for it in your spring edition of *Pulse Beat*.

SOYBEAN MULTIPLE SEEDING RATES – FIELD SCALE EVALUATION

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Agri Skills Inc.

Brent VanKoughnet of Agri Skills Inc. was contracted for a fourth year to continue to explore the effect of multiple seeding rates of soybeans with two different seeding implements and four different row spacings in a full field scale environment. The 2013 project again explored the impact of plant architecture (upright versus bushy) on determining ideal spacing and seeding rates.

The field scale trial was located just south and east of Carman Manitoba. Certified DEKALB 24-10 (bushy) soybeans were planted on May 25th and Certified Thunder 32004 (upright) soybeans were planted on May 26th. Both varieties were treated with a 1.5 x rate of liquid inoculant. In each case soil conditions were damp. The following seeding implements were used:

- A John Deere Max-emerge vacuum planter on 30- or 15-inch spacing for both the DEKALB 24-10 and Thunder 32004
- A John Deere 1895 offset disc air drill on 10- or 20-inch spacing with individual run depth control and packing was used on the DEKALB 24-10 only (custom-seeded by Myron Pederson).

The planter sowed 30–32 ft strips and the air drill sowed 44 ft strips at high, medium and low seeding rates. Strips were approximately 1200 to 1500 ft long, or about 1 to 1.5 acres. Each treatment was replicated four times for each variety. A 22.5 ft strip was harvested out of the centre of each of the planter treatments and a full 44 ft round was harvested from the air drill strips (see Table 1).

Table 1. Summarizes the initial seeding rate, target plant stand, actual plant stand and average yield of the four replicates for each treatment and each variety.

Treatment	Seeds Planted	Target Stand*	DK 24-10 Actual	DK 24-10 Yield bu/ac**	TH 32004 Actual	TH 32004 Yield bu/ac**
15-inch high	176,000	156,640	106,890	36.6	146,362	35.6
15-inch med	150,000	133,500	88,126	35.4	132,422	34.5
15-inch low	123,000	109,470	82,748	34.7	109,190	33.9
30-inch high	176,000	156,640	112,648	38.2	144,677	36.1
30-inch med	150,000	133,500	95,982	37.7	120,274	35.8
30-inch low	123,000	109,470	78,857	36.1	104,586	35.0
10-inch high	190,000	169,100	153,486	36.1	n/a	n/a
10-inch med	175,000	155,750	123,785	35.7	n/a	n/a
10-inch low	150,000	133,500	104,774	35.8	n/a	n/a
20-inch high	190,000	169,100	137,999	36.4	n/a	n/a
20-inch med	175,000	155,750	116,579	36.1	n/a	n/a
20-inch low	150,000	133,500	96,331	35.8	n/a	n/a

* Target stands are based on a 89% survival of seeds planted.
** Yields were reduced by hail estimated at 23% damage.

KEY OBSERVATIONS

Thunder 32004 plant populations were slightly below target populations in the 80 to 88% range. DEKALB 24-10 populations however were significantly lower than expected in the 60 to 65% range for the planter and the 70 to 75% range for the air drill. Conditions were damp and the field ended up packing much more firmly than expected. Seeding depth could have been shallower with the planter, but was no deeper than a number of other fields (i.e. same setting) that had more normal plant survival. The planter depth was approximately 1.5 inches deep and the air seeder depth slightly shallower. The plant stand looked very thin all season but ultimately yielded much higher than expected, especially considering a 23% hail claim.

Although plant survival percentages for the air drill were higher than for the planter, it was again observed that plant emergence with the air drill, even the new generation air drill, was delayed by 1–2 days and patchier, although with less difference than previous years' conventional air drills.

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Soybean Scout ANSWERS

A – Sunburn. These leaf symptoms were evident in many soybean fields in 2013, often appearing on the outer edges of leaves. Sunburn can cause reddish brown spotting on leaves and petioles. These symptoms can be confused with other foliar diseases with brown spotting such as Septoria and Bacterial Blight, but these are also surrounded by yellow halos.

B – Downy Mildew. These symptoms started to show up in the upper canopy of soybeans in August. Symptoms appear as yellow-lime green spots on the upper leaf surface with grey fungal growth on the underside of leaves in humid conditions. Since it appears late in the season and affects a small proportion of leaf area, yield loss is generally negligible.

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Table 2. Evaluation of pod height at harvest.

Spacing	Seed Rate	DK 24-10 Plant Height	DK 24-10 Min Pod Height	TH 32004 Plant Height	TH 32004 Min Pod Height
15-inch	High	32–34"	2"	32–34"	2"
	Medium	31–33"	2"	32–34"	2"
	Low	31–33"	2"	32–34"	2"
30-inch	High	33–35"	2.5"	33–35"	2.5"
	Medium	33–35"	2"	33–34"	2.5"
	Low	32–35"	2"	33–34"	2"
10-inch	High	30–32"	2"	n/a	n/a
	Medium	30–32"	2"	n/a	n/a
	Low	30–32"	2"	n/a	n/a
20-inch	High	33"	2.5"	n/a	n/a
	Medium	33"	2"	n/a	n/a
	Low	32"	2"	n/a	n/a

The photos below visually demonstrate the early season plant stand of each treatment with each seeding implement at a medium seeding rate for each variety as of June 19.

At various stages throughout the growing season the 30-inch spacing was marginally taller than the other row spacings, particularly at the higher seeding rates.

At harvest, height differences were believed to be most influenced by how thin the plant stand was. Areas with thicker stands and more competition produced taller plants. In addition to plant height, an evaluation of pod height at harvest was completed. See Table 2 for results.

Observations were also made regarding the interaction between plant architecture and row spacing. Table 3 provides approximate dates of canopy closure.

Very thin 24-10 stands and slow emergence contributed to very little difference in row closure timing.

Table 3. Approximate dates of canopy closure.

	DK 24-10	TH 32004
15-inch	July 15	July 15
30-inch	July 30	Aug 2
10-inch	July 10	n/a
20-inch	July 22	n/a

CONCLUSIONS

Given the poor survival rates of the DK 24-10 the trial was effectively a comparison of very low, low and medium plant populations as opposed to the intended low, medium and high. The yields for plant populations below 100,000 plants were surprisingly good with not nearly as significant an increase for higher or more normal seeding rates as might be expected. Clearly the soybean plant is quite resilient and compensated remarkably well. Interestingly, increasing seeding rates made more difference with the planter showing about a 2-bushel spread between high and low rates as compared to the air drill where the yield spread between high and low seeding rates was about one bushel.

There has been considerable speculation that 30-inch rows may

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TH 32004 – 30" medium rate

TH 32004 – 15" medium rate

DK 24-10 – 10" medium rate

DK 24-10 – 20" medium

DK 24-10 – 15" medium

DK 24-10 – 30" medium

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When purchasing dry bean seed, quality is very important, as it accounts for a large part of input costs. In Canada, dry beans are mainly grown for human consumption. The production of pedigreed seed is less common in Canada due to environmental conditions that tend to promote disease development, like high humidity and frequent rainfalls. The majority of Canada's seed is imported from western states like Idaho, where hot and dry conditions minimize disease. Currently, the most important preventative management strategy is to invest in disease-free seed or seed cultivars with disease resistance. Other management strategies include the use of proper crop rotation to allow for the breakdown of infested debris from previous years and the use of seed and foliar pesticide treatments. Seed treatments for seed-borne diseases are very important as they help to minimize the effect of disease at emergence and help protect plants early in the growing season. The use of foliar fungicides aid in reducing disease spread throughout the field, but cannot eliminate disease once it is present. However, some of the current products available are not very effective at slowing disease progress, specifically those available for the control of bacterial disease. In order to resolve this problem, research is being conducted to deal with such problems through the development of resistant cultivars as well as alternative seed treatment techniques.

My graduate research project looked at the use of microwave radiation to see if the heat generated by radiation could kill three common seed-borne pathogens present in the seed (anthracnose, common bacterial blight and halo blight). Seed was radiated and tested alone or in combination with the current seed treatments available. In lab studies, the use of microwave

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be too far apart for ideal soybean production. With both varieties, 30-inch rows met or exceeded the yields of other spacings. Given the challenging seeding conditions the 15-inch spacing had significantly more wheel tracking which may have affected ultimate yield potential. Even with the Thunder 32004 variety, which is a smaller upright plant, the 30-inch rows still marginally out-yielded 15-inch rows.

Although survival percentages for the air drill were slightly higher than for the planter, the plants were not as evenly placed and still emerged less uniformly. The higher seeding rates (15,000 more seeds per acre) than the planter and the higher survival still did not translate into higher yields. Again this year there was remarkably little difference in yield between any of the spacing and seeding rate options.

The seeding rate spread between the air drill and the planter was chosen to be an extra 15,000 seeds per acre for each of the low, medium and high seeding rates. In previous years that spread has been 25–30,000. The new generation air drills are believed to have almost as precise a depth control as planters but still have less precise singulation within the row, justification for the extra 15,000 seeds. The following photo demonstrates the gaps and bunching that can still occur in rows due to the air delivery system.

In addition to yield differences, the field trial was also monitored for crop management and harvestability considerations. The final application of glyphosate was made at the first sign of flowering and no significant differences were observed in the level of weed control, even with the 30-inch spacing of the upright variety Thunder 32004. The crop was thin enough that the date of canopy cover was delayed for all spacings. In a year with higher weed pressure or any difficulty timing the last application, the influence of row spacing on weed pressure could become an important factor.

Minor plant height and pod height differences were observed between different row spacings and even between different seeding rates. All pods were closer to the ground this year than previous years and even a small change in pod height could easily affect what the flex-header was able to reach and consequently translate into yield losses. High seeding rates on 30- or 20-inch row spacing appears to have increased pod height marginally.

MULTI-YEAR PERSPECTIVE

In two out the four years we have had conditions where plant survival was considerably lower than expected. Some buffer in seeding rate is advisable.

In each year the yield difference between high and low seeding rates and row spacing were either negligible or smaller than expected, even with much lower than planned plant populations. Under the conditions observed so far, the soybean plant has compensated remarkably well.

Only in one of three years with 30-inch spacing was there a slight negative response to 30-inch rows and only on an upright variety with dry conditions. More often the 30-inch rows were equal to or exceeded the yields of other row spacing. These results somewhat defy small plot research results. If you do have a 30-inch planter a bushy variety choice may be a logical risk management strategy.

The new generation air drills provide improved depth control and seedbed quality compared to older generation air drills. With only one year of comparison they have approached but have not exceeded the yields of the planter. More work can be done here.

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radiation appeared to reduce the growth of anthracnose. However, when grown in the field, microwave radiation did not control any of the seed-borne diseases when applied alone and made only a small contribution to control when applied with chemical seed treatments. While research continues to look for alternative control measures, let's discuss the three common seed-borne diseases to look out for in Canada. These diseases can have a significant effect on seed quality and yield and need to be monitored closely.

ANTHRACNOSE

This disease is easily recognizable as dark brown lesions on infected seed. Anthracnose causes damage when there is extended periods of rainy weather. Anthracnose can affect all aerial parts of the plant. Leaf lesions occur on the lower surface and appear as dark red-brown to purple discolorations along the veins. This disease will move to the stems and pods and cause lesions that appear dark brown in colour and are sunken with a raised reddish brown border. Pod lesions can cause seed cankers or even pod abortion. This damage lowers seed quality and results in yield losses between 40–95%. In controlling anthracnose, fungicide seed treatments help to decrease disease growth early in the season. When disease is present later in the season the use of foliar fungicides are very effective to slow disease spread, but are not curative. Since there are no curative measures available, the use of resistant cultivars is also very important for managing anthracnose and should be invested in when available.

Anthracnose Seed Infection

Bacterial Seed Infection

Anthracnose Leaf Infection

CBB Leaf Infection

COMMON BACTERIAL BLIGHT (CBB)

This disease affects leaves and pods and is the number one foliar disease of bean. It thrives in extended periods of high moisture and warm temperatures (25–32°C). Seed infected with CBB will have buttery-yellow or light brown spots. When infected seed is planted, lesions may appear early in the season as small water-soaked spots. Under favourable conditions lesions will enlarge, become limp and then turn brown and be surrounded by a bright yellow halo. Lesions are usually found along the leaf edges or between leaf veins. Affected plants have a burned appearance. Pod lesions appear as water soaked spots with a light red circular border. Fields with hail, wind or rain damage can be more severely affected by this disease as bacterial pathogens tend to take advantage of these damaged plants and use the openings to spread infection from plant to plant. This can cause hot spots of infection and result in yield losses of 10–45%. In managing CBB the best measures currently available are the use of disease-free seed, resistant cultivars and copper-based bactericides. However, the use of copper-based fungicides have been shown to provide little control when applied as seed treatments and require spraying a minimum of every two weeks when applied to the canopy.

HALO BLIGHT

This disease may not be as common as the first two, but is important because it can cause high yield losses, around 40%. This disease tends to appear shortly after emergence and is favoured by cool temperatures (18–23°C), with high levels of moisture. This bacterium is similar to CBB in the way it infects leaves and pods as well as the symptoms seen on infected seed. Initially leaf infection will appear the same as CBB, however, over time this lesion will not enlarge but remain about 1–2 mm. Even though the lesion remains small, this disease can cause significant damage as it causes the entire leaf to slightly distort and turn a bright yellow. These symptoms can spread throughout the entire plant, eventually causing plant death. Control measures for this disease are the same as those for CBB.

Halo Leaf Infection

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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 effect of rolling at multiple growth stages was also evaluated.

The field scale trial was located 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	Avg. Soil Temp	High/ Low Air Temp	Moisture Conditions	Emergence Date
May 12	5.9°C	17/-5	damp/ ideal	May 31 (19 days)
May 17	9.6°C	17/6	ideal	June 2 (17 days)
May 24	11.2°C	20/3	ideal	June 7 (14 days)
June 4	12.5°C	19/10	damp	June 13 (9 days)

Seed was all sourced from the same seed lot and was treated with a 1.5 x rate of liquid inoculant. Inoculant extender was used to ensure equivalent effectiveness over the extended period. The field has grown inoculated soybeans one other time in the past four years. The planting rate was 170,000 seeds per acre. Soil conditions varied from ideal to damp over the range of seeding dates. Seed dates were selected based on the few available openings between as early as possible (May 12) and the end of extended crop insurance coverage for the region (June 4).

Each seeding date treatment was approximately 1200 ft by 60 ft and replicated in blocks six times. Four replicates ran east and west and two replicates ran north and south immediately east of the other block.

Table 2. Rolling crop stage and estimated damage.

Seeding Date	Crop Stage at Rolling (see photos below)	Damage PM*	Damage AM*
May 12	Second trifoliate	10%	22%
May 17	Early second trifoliate	10%	18%
May 24	First trifoliate	12%	20%
June 4	Unifoliate	5%	15%

*Percentage of plants showing any sign of a broken branch or stem.

On June 17, a 60-foot roller was pulled across the field at right angles to the seeding date treatments in three separate strips across four of the replicates. The roller was also used down the length of two sets of replicates to create a rolled and unrolled weighable comparison for each seeding date. The rolling took place at 3:00 in the afternoon with an air temperature of 22°C. The next morning, June 18, an additional three right-angle strips on the first four replicates were rolled at 8:00 AM with an air temperature of approximately 11°C. The estimated rolling damage at each crop stage and timing is summarized in Table 2 and photos of rolling damage are shown below.

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Rolling Damage

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In-season photo displays how the broad range of seeding dates (22 days difference) compressed into very similar maturity dates (five days apart).

It was also observed that as of July 9 the rolled portion of the earliest seeding date was slightly shorter than the unrolled (rolled 16–18 inches vs 18–20 inches). This effect was negligible on other seeding dates.

At harvest, eighteen 30-inch rows or 45 ft out of each 60 ft treatment were harvested and weighed for the first four replicates and nine 30-inch rows or 22.5 ft were harvested out of 30 ft strips on the two rolled and unrolled replicates.

At harvest there were no noticeable differences in pod height by seeding date or as a result of field rolling. The majority of plants had their lowest pods at or above 2.5 inches.

Table 3 summarizes the yield for each treatment over all six replicates. Yield comparisons of rolled versus not rolled were on the last two replicates only.

In-season evaluation also revealed the plant height, nodes and plant stands as of July 31 (see Table 4).

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

	Yield (bu/ac)			
Replicate	**May 12**	**May 17**	**May 24**	**June 4**
One	36.6	35.3	35.1	33.0
Two	37.5	37.5	36.8	34.2
Three	39.2	38.5	37.6	35.8
Four	41.2	39.4	39.2	36.1
Average (4 reps)	**38.6**	**37.7**	**37.2**	**34.8**
Five–rolled	35.7	34.6	35.4	32.8
Five–unrolled	37.3	36.5	34.4	32.7
Six–rolled	36.1	36.9	37.1	35.6
Six–unrolled	38.0	36.4	6.4	35.2
Average (2 reps)	**36.8**	**36.1**	**35.8**	**34.1**
Rolling diff	-1.2	-0.4	0.4	-0.1
Weighted Average (6 reps)	**38.0**	**37.2**	**36.7**	**34.6**

Table 4. Evaluation of plant height, plant stands and nodes – July 31.

Seeding Date	Plant Height	Plant Stand/m²	Number of Nodes
May 12	32–36"	31	13
May 17	32–34"	32	12
May 24	32–34"	33	11–12
June 4	32–34"	31	11

CONCLUSIONS

Yields were very similar across the first three seeding dates (trending downward for later seeding dates) with a distinct yield drop for the latest date. The earliest seeding date May 12 was the first possible date to plant given spring conditions. The temperature the night before was down to -5°C with an average soil temperature that day of 5.9°C. It was a surprise that the cool soil did not have a more negative effect. Normal to above normal temperatures continued in May with above normal heat units in June and well below normal in July.

Seeding date also had little to no effect on plant height or pod height. Although the earliest seeding date (May 12) provided the highest yield, on an average year that would be considered closer to a normal seeding date.

The rolling treatments that were taken to yield showed minimal differences. This outcome is consistent with the relatively little physical damage observed immediately following rolling. Given the relatively high plant population a few damaged plants were not expected to affect yield. Although rolling damage was minimal it was clear that rolling in the AM at cool air temperatures created approximately twice the plant damage as ideal timing in the afternoon.

Caution should still be exercised when considering rolling standing crop. Different varieties and slightly different weather conditions may produce different results. Always have a good look for broken stems, branches or leaves as you begin rolling.

MANITOBA PULSE BUYER LIST – NOVEMBER 2013

COMPANY	EDIBLE BEANS	FABA BEANS	LENTILS	PEAS	SOYBEANS	PHONE	LOCATION	CGC REGISTERED
Agassiz Global Trading	✓				✓	204-745-6655	Homewood, MB	
AgriTel Grain Ltd.				✓	✓	204-268-1415	Beausejour, MB	
Alliance Pulse Processors Inc.	✓		✓	✓	✓	306-525-4490	Regina, SK	✓
• SaskCan Pulse Trading – Parent Division	✓		✓	✓	✓	204-737-2625	St. Joseph, MB	✓
All Commodities			✓	✓		204-339-8001	Winnipeg, MB	✓
B.B.F. Enterprises Ltd.					✓	204-737-2245	Letellier, MB	
B.P. & Sons Grain and Storage Inc.					✓	204-822-4815	Morden, MB	
Belle Pulses Ltd.				✓		306-423-5202	Bellevue, SK	✓
Best Cooking Pulses Inc.			✓	✓		204-857-4451	Portage la Prairie, MB	✓
Brett-Young Seeds				✓	✓	204-261-7932	Winnipeg, MB	
CB Constantini				✓		604-669-1212	Vancouver, BC	✓
Cargill Ltd.				✓		204-947-6219	Winnipeg, MB	✓
Delmar Commodities				✓	✓	204-331-3696	Winkler, MB	✓
• 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	✓
Kalshea Commodities Inc.				✓		204-737-2400	Altona, MB	✓
Kelley Bean Co. Inc.	✓					308-635-6438	Scottsbluff, NE	
Lansing Olam Canada Commodities ULC					✓	877-747-7599	Chatum, ON	✓
Legumex Walker	✓	✓	✓	✓	✓	204-829-2326	Plum Coulee, MB	✓
• Walker Seeds Ltd.				✓		306-873-3777	Tisdale, SK	✓
Linear Grain	✓			✓	✓	204-745-6747	Carman, MB	✓
Monsanto					✓	–	Winnipeg, MB	
Natural Proteins					✓	204-355-5040	Blumenort, MB	
Nebraska Bean	✓					402-887-5335	Clearwater, NE	
Nutri-Pea Ltd.				✓		204-239-5995	Portage la Prairie, MB	
Nu-Vision Commodities	✓					204-758-3401	St. Jean Baptiste, MB	
Parrish & Heimbecker Ltd.				✓		204-987-4320	Winnipeg, MB	✓
Paterson Grain				✓	✓	204-956-2090	Winnipeg, MB	✓
Quarry Grain Commodities					✓	204-467-8877	Stonewall, MB	
Richardson International				✓		204-934-5627	Winnipeg, MB	✓
• Richardson Pioneer Ltd.				✓	✓	204-934-5627	Winnipeg, MB	✓
• Tri Lake Agri				✓		204-523-5380	Killarney, MB	✓
S.S. Johnson Seeds	✓			✓		204-376-5228	Arborg, MB	✓
Seed-Ex Inc.					✓	204-737-2000	Letellier, MB	✓
Shafer Commodities					✓	204-822-6275	Morden, MB	✓
Simpson Seeds			✓			306-693-2132	Moose Jaw, SK	✓
Southland Pulse				✓		306-634-8008	Estevan, SK	✓
Sunrich LLC					✓	507-446-5642	Hope, MN	
Thompsons Limited	✓		✓	✓		519-676-5411	Blenheim, ON	✓
• 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 Inc.	✓	✓	✓	✓	✓	Contact your local Viterra sales representative		✓
Walhalla Bean Co. (Canada Ltd.)	✓					701-549-3721	Walhalla, ND	✓
• Winkler Receiving	✓					204-325-0767	Winkler, MB	✓
Wilbur Ellis			✓	✓	✓	204-867-8163	Minnedosa, MB	✓
Zeghers Seeds Inc.			✓	✓		204-526-2145	Holland, MB	✓

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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 and Chickpea Stew

Preparation time: 30 minutes / Cooking time: 35 minutes / Makes 6 litres

1 tbsp (15 mL) canola oil

2 celery stalks, chopped

2 carrots, diced

1 onion, chopped

2 garlic cloves, minced

4 cups (1 L) low sodium chicken broth

3 cups (750 mL) spaghetti sauce

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

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

1 ½ cups (375 mL) dry short tube pasta (tubetti)

1/2 tsp (2 mL) pepper

8 skinless, boneless chicken thighs cut into 1/2-inch cubes

1/2 cup (125 mL) grated fresh Parmesan

1. In large saucepan heat oil over medium heat. Add celery, carrot and onion and sauté until tender. Add garlic and cook about 1 minute, stirring constantly.
2. Add broth, spaghetti sauce, chickpeas, kidney beans, pasta, pepper and bring to a boil.
3. Reduce heat to low-medium and simmer until pasta is tender, about 10–12 minutes. Add chicken to pan and cook 5–8 minutes until chicken is done.
4. Sprinkle with Parmesan cheese and serve.

Oatmeal Coconut Raisin Cookies

Preparation time: 10 minutes / Baking time: 15–20 minutes / Makes 12 Cookies

1/4 cup (125 mL) unsalted butter, room temperature

1 cup (250 mL) packed brown sugar

3/4 cup (175 mL) white bean purée

1 large egg, room temperature

1 tsp (5 mL) vanilla

2 cups (500 mL) quick-cooking oats

1 cup (250 mL) shredded coconut, sweetened

1 tsp (5 mL) cinnamon

1/2 tsp (2 mL) baking soda

1/2 tsp (2 mL) table salt

1/2 tsp (2 mL) xanthan gum

1/2 cup (125 mL) golden raisins

1. Place rack in middle of oven. Preheat oven to 350°F (180°C). Grease with shortening or line a 15x10-inch baking sheet (not nonstick) with parchment paper.
2. In a medium bowl, beat butter, brown sugar and bean purée with electric mixer on low speed until thoroughly blended. Add egg and vanilla and beat until smooth.
3. In a separate bowl, whisk together oats, coconut, cinnamon, baking soda, salt and xanthan gum until well blended.
4. With mixer on low speed, gradually beat oat mixture into wet ingredients until thoroughly blended. Stir in raisins.
5. With a metal ice-cream scoop or 2-tbsp-measure, shape dough into smooth balls with wet hands and place on baking sheet. Flatten cookies slightly with spatula.
6. Bake until lightly browned and firm, about 15 to 20 minutes. Cool cookies on baking sheet for 10 minutes. Transfer cookies to wire rack to finish cooling.

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