

PulsePoint

March 2014

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Thanks for Your Feedback

Recent SPG initiatives seeking grower input will inform our strategic direction

by **Morgan Nunweiler**



In late 2013, Saskatchewan Pulse Growers (SPG) undertook a telephone survey that polled pulse growers

across Saskatchewan, asking them for input in areas of SPG's operations and direction. If you are one of the 800 respondents that completed the survey we thank you for your feedback. Earlier this year, we also facilitated sessions at our regional meetings, held the first week of February, asking growers in attendance for their feedback on similar SPG areas. We also thank all those who participated in these sessions.

These two initiatives are part of a wider scale effort that SPG is undertaking to get more input from the growers that make up the foundation of this industry. We want to know what you think about the work SPG is undertaking, and to be sure you are aware of all the work we are doing to provide benefits back to growers. We also want to ensure that our goals are in alignment with yours, and that your levy investment is being used to its maximum potential.

From these two initiatives we were able to gather information about what areas of investment growers see the most value in and what areas they would like to see

more investment in for the future. This information will be directly inputted into our strategic planning initiatives, which are taking place this spring and will guide SPG's direction in coming years. We will also make the information we gathered from these two surveys available to growers – watch for more information on this in the June issue of *PulsePoint*.

In the meantime, here's a quick overview of some of the information we received.

- **92%** of growers agree that SPG is helping to build a prosperous pulse industry in Saskatchewan
- **90%** of pulse growers believe that SPG provides them useful information on growing and marketing pulse crops
- **94%** of growers believe it is important to find alternative modes of action for managing Group 2 resistant weeds in pulse crops
- **60%** of members believe kochia is the most difficult weed to control in pulse crops

As always, if you have any input for us feel free to get in touch with myself or any Board member – all of our information is listed on the SPG website.

Wishing you a successful start to the 2014 growing season.

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People & Events

CropSphere 2014

On January 13-15, approximately 850 attendees came out for the first annual CropSphere event. Hosted by SPG, SaskCanola, SaskFlax, the Saskatchewan Oat Development Commission, SaskWheat and SaskBarley, the event featured sessions on market outlook, research, and agronomy, along with sessions specific to each crop. Thanks to everyone who came out to help us make our first year a huge success! Information about CropSphere 2015 will be available this summer at www.cropsphere.com.



Nearly 100 people attended the SPG annual general meeting on January 13, preceding CropSphere 2014.



Tom Warkentin receives the 2013 BASF Pulse Promoter of the Year award from BASF's Bill Greuel during SPG's annual general meeting.



Clockwise from left: Minister Stewart's Chief of Staff, Tyler Lynch; SPG's Executive Director Carl Potts; Saskatchewan Agriculture Minister Lyle Stewart; and SPG Board Chair Morgan Nunweiler mingle at the CropSphere 2014 opening reception.

CropSphere

Ideas, Innovation, and Knowledge

2014



Guests enjoy the guest speakers at the CropSphere 2014 opening reception.



Guest speakers Jay Onrait and Dan O'Toole mingle with attendees at the CropSphere 2014 opening reception, sponsored by BASF Canada.





Marlene Boersch talks to CropSphere attendees about market outlook for soybeans in the next decade.



In a post-event survey, 93% of respondents indicated they felt they received value for their CropSphere 2014 registration fee.



Guest speaker Bruce Croxon mingles with attendees at the CropSphere 2014 evening banquet.

Regional Meetings

SPG, along with the Sask. Ministry of Ag., hosted its regional meetings the first week of February, 2014, visiting North Battleford, Rosetown, Swift Current, and Regina. More than 650 attendees came out between the four locations, and 94% of the attendees who filled out evaluation forms said they will use information from these sessions to make changes to their farm operation or business.



Speaker Brent VanKoughnet talks to growers in Rosetown about their roles as CEOs of their farms.



Larry Weber talks to a crowd of more than 250 attendees in Swift Current, about market outlook for pulse crops.



SPG Board member Tim Wiens (left) works with growers attending the Regina regional pulse meeting to get their input in a variety of SPG work areas.



SPG Board member Corey Loessin attends the Alberta Pulse Growers' AGM in Edmonton in late January, as part of FarmTech 2014.

FarmTech 2014

SPG attended FarmTech 2014 in late January, in Edmonton, AB, to learn more about the pulse industry in Western Canada and to meet with industry partners to discuss ideas for collaboration and partnership.



SPG's Executive Director Carl Potts visits with show attendees at the tradeshow component of FarmTech 2014.



Pulse Demand in China

The reasons behind rising Chinese demand
and what it means for you

by **Chuck Penner**

We often think of China as just one market, but it's important to remember there are many cultures, tastes, and income classes in the country. And each of these groups has different needs when it comes to pulses.

Rising incomes, especially in wealthier coastal regions, are beginning to raise health concerns about over-nutrition. In these population segments, the positive health aspects of pulses related to fibre, glycemic index, and heart health are starting to be recognized. In lower income regions in the interior of the country, pulses

and pulse ingredients can be used to meet basic nutrition and micronutrient needs. This means there are numerous opportunities for Canadian pulses in China, and plenty of room for expansion.

The vast majority of Canadian pulses exported to China are peas, with most of them being yellow. The largest driver of demand for Canadian pulses has been the inclusion of yellow pea starch in various foods such as noodles and buns. Most of the protein from the fractionation process is used in livestock and fish feed, but some is being exported as protein powder. Green peas are also used in several ways, including processed as snack foods and rehydrated as vegetables.

The chart below shows the growth in Canadian pea exports to China over the past ten years. Keep in mind, the amount shown for 2013/14 is only the first half of the marketing year and full-year volumes are expected to set a new

record again. At times, China is now rivaling India as Canada's largest customer. And because of their use within various food products, Chinese demand is seen as less price sensitive, which helps support prices.

Canada dominates the Chinese market for peas but in the past two years, the United States (U.S.) has been exporting larger volumes of mostly green and, to a lesser extent, yellow peas into China. Canada's success in China has piqued the interest of the U.S., which has a number of market development initiatives underway that mirror

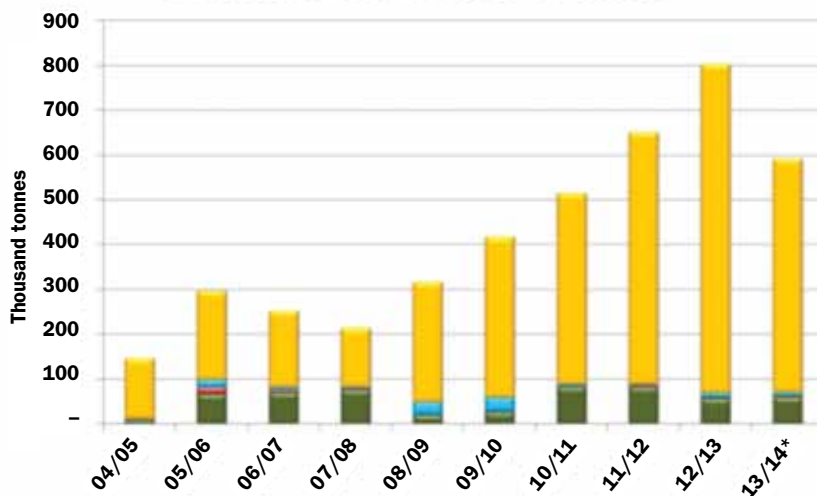


***At times, China is
now rivaling India
as Canada's largest
customer."***

in brief

**The reasons behind
rising Chinese demand
and what it means
for you**

Canadian Pea Exports to China



SOURCE: LEFTFIELD COMMODITY RESEARCH

the usage of Canadian yellow peas in China. In my opinion, the transportation problems in Western Canada this year are likely providing an opportunity for U.S. exporters. Peas from Ukraine and Russia do not meet the quality standards required in China, but they remain a possible competitor in the future, especially if Canadian peas get too expensive.

Aside from market development efforts, Canadian pea exports to China are also growing because of policy decisions made in that country to focus efforts and resources on producing larger corn, wheat, and rice crops. As the government

provides incentives to maximize production of those crops, other smaller crops such as pulses don't receive the same incentives and acreage shrinks. Essentially, the Chinese government has decided which crops it wants to be self-sufficient in, and which ones will be imported. If peas are noticed at all, they're not seen as strategic and will likely remain an import-dependent crop, and that's positive for Canadian demand.

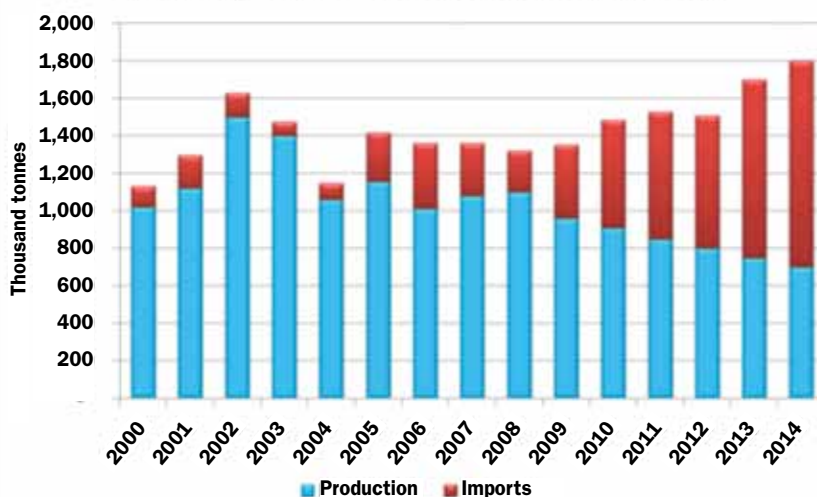
The chart below shows China's move away from domestic pea production. Keep in mind these numbers are "guesstimates." Chinese

government production data are questionable, even for the major crops, and are nonexistent for minor crops such as peas. Unofficial (usually anonymous) production data isn't all that reliable either. The import data shown in the chart is straightforward and includes our forecasts for 2014. The most important takeaway from this chart is that total consumption (production plus imports) is expanding, as pea consumption in food ingredients increases.

In terms of other opportunities, China is a very large (around 1.8 million tonnes per year) consumer of faba beans, but has been mostly self-sufficient. In fact, China has been a large faba bean exporter in the past but the move away from minor crops has likely reduced faba bean acreage. Again, reliable data is scarce. The use of faba beans in Chinese diets is fairly diverse, from vegetables to fermented bean paste. So far, Canada is not participating in those markets to any degree.

In addition to the market development work and policy decisions by the Chinese government, demand for Canadian pulses is expected to grow over the longer term. Rising incomes and population growth will support increased consumption. Concerns about a shrinking arable land base also mean more imports will be required. In order to stay on top of the game, Canada needs to ensure high quality pulses and competitive prices, in order to ward off competitors.

China Dry Pea Production & Imports



SOURCE: LEFTFIELD COMMODITY RESEARCH

bio Chuck Penner operates LeftField Commodity Research out of Winnipeg, MB. He can be reached at info@leftfieldcr.com.

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Pea Root Rot Update

Although there is no current cure, here are some considerations for poorly performing pea crops

by **Faye Dokken-Bouchard**

As we head into another growing season, we're ready for our spring pea disease management checklist.

- ✓ Seed tested at an accredited laboratory to assess the levels of seed-borne disease?
- ✓ Good germination and vigour levels?
- ✓ Seed treated with a fungicide to protect viability and inhibit diseases like seed rot?
- ✓ Seed planted during good conditions, at the right rate and depth, with good coverage of a seed treatment and healthy inoculant?
- ✓ Ready to scout the crop and have a foliar fungicide penciled in for diseases such as mycosphaerella blight, if necessary?

Fast-forward a few weeks after planting. Poor emergence,



Caramel coloured roots are a key symptom of Aphanomyces root rot

seedling blight, stunted growth, discolouration, and stand collapse lead to a disappointing crop and an even more disappointed pulse grower. Even when every precaution has been taken, pea crops still may show signs of stress when spring conditions are extreme – too cold, too wet, or too dry, and not enough sunshine. Plants that are stressed will

Although there is no current cure, here are some considerations for poorly performing pea crops

PHOTO: CROP DEVELOPMENT CENTRE

continue to suffer until conditions improve and while their defenses are down, soil-borne pathogens may take advantage and cause root rot. Yield losses may or may not occur, depending on how quickly the crop recovers.

Root rot in Western Canada

Peas are affected by a root rot complex in Western Canada which includes multiple species of *Fusarium* and *Pythium*, and *Rhizoctonia solani*. In other provinces, *Aphanomyces euteiches* (*A. euteiches*) has been included in this complex for a number of years. However, this pathogen was not reported in Saskatchewan until 2012, when it was reported by the Ministry of Agriculture Crop Protection Laboratory in Regina. The pathogen was later confirmed through disease surveys by the Crop Development Centre (CDC) in Saskatoon and in 2013, they began to research the role of *A. euteiches* in the root rot complex in Saskatchewan.

Aphanomyces root rot affects pea, lentil, bean, vetch, clover, and alfalfa. Chickpea, canola, flax, soybean, cereal crops, and some cultivars of faba bean are susceptible to other root rots, but are not considered hosts for *A. euteiches*.

Identifying root rot

A distinguishing feature of *Aphanomyces* root rot is the development of caramel coloured roots. It is difficult to differentiate root rots once plants are heavily damaged or dead, due to the presence of other organisms that



feed on decaying tissue. However, diagnostic laboratories can examine freshly infected roots for spores or confirm disease using DNA testing.

Considerations for poorly performing pea crops

While current seed treatments are effective against *Fusarium*, *Rhizoctonia*, and *Pythium*, none are registered for control of *A. euteiches*, and no promising candidates have been identified to date. However, here are some considerations that may help you with poorly performing pea crops:

- Pea roots and nitrogen fixing bacteria need oxygen. When soil is saturated, roots function poorly and slow Rhizobia activity, resulting in yellow growth
- Cool growing conditions affect seedling metabolism and root growth
- Under cloudy skies, plants turn pale green and yellow due to reduced photosynthetic activity
- Stressed plants are more

susceptible to seedling diseases such as damping-off, root rot, and seedling blight. General symptoms include yellowing, wilting, stunting, or death

- There is no cure other than time and improved conditions. Seed treatments are ineffective past the seedling stage and foliar fungicides will not work on root diseases
- Root rots are most severe under water-logged conditions. But crops can be diseased even under ideal moisture conditions and crops can also suffer due to wet feet, regardless of pathogen pressure

bio Faye Dokken-Bouchard is the Provincial Specialist, Plant Disease, for the Saskatchewan Ministry of Agriculture. She can be reached at faye.bouchard@gov.sk.ca

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Successful Succession Planning

Top five considerations when planning for the future

by **Mark Dolan**

Farm succession planning is a growing topic in Saskatchewan, and is something on the minds of thousands of farming families throughout the province. Some polls suggest that as many as one-third of all farms in Saskatchewan will go through some form of succession in the next 10 years. Most farms have already been through a succession, and some are well on the way to transitioning to a third generation.

Farm succession planning involves transferring an active farming operation to another generation, which involves many factors. The following are the top five considerations when planning for the future.

1) Identifying the successor

The logical first step is to determine if you have a successor in place. This is based on the relative ages of your children, whether any of them have expressed an interest in carrying on the farming operation, and how many different children are involved. Identifying a successor early is the key to a successful transition. It allows you time to immerse the successor in all aspects of the operation, and ensure they have been taught the necessary skills for running the business. It also allows you to gauge their interest and commitment level to running the farming operation long term. Remember, this is an investment on the part of both you and your successor.

working towards a common goal. Once the succession plan has been carried out, regular family meetings provide a forum to discuss any issues that may arise, and also to plan for future growing seasons and expansion.

3) Reviewing your current structure

An important and often overlooked step is the importance of engaging professional accounting and legal services early in the planning process. Look for an accountant who specializes in agricultural operations. Engaging professionals early on can help you assess your current business structure, and give guidance on the

2) Family meetings

Throughout the succession process, it is important to schedule regular family meetings with those involved to ensure that everyone has the opportunity to voice any concerns, and to ensure all stakeholders are



**Identifying a
successor early is the
key to a successful
transition.”**

**Top five considerations
when planning for
the future**

in brief

pros and cons of operating as a sole proprietorship, a partnership, or a corporation. There are also certain types of property that can be “rolled” from a parent to a child, which is a way to transfer certain property without triggering any tax. You can also consider the ability to access a capital gains exemption on qualifying farm property without being subject to tax.

The importance of engaging professionals cannot be overstated, as there are certain conditions that must be met before certain property can be transferred without triggering tax. The rules relating to capital gains deductions and rollovers are complex, but a qualified professional can easily guide you through the process.

4) Control

In farm succession plans, the ownership of the farming assets are either transferred all at once or over time. In both cases, an important consideration is control

over the assets. No matter what business structure is utilized (sole proprietorship, partnership, or corporation), there are mechanisms available to allow the next generation to manage the day-to-day operations of the business, but still allow you to have a deciding vote over all matters. This deciding vote allows you to step in at any time and protect the farm in the event things don’t go as planned.

These rights can be set out in a shareholders agreement or a partnership agreement, depending on your structure. Shareholders agreements and partnership agreements are also important for a number of reasons, including the control referenced above. They also protect against the potential death or permanent incapacity of the successor, and also in the event of divorce.

5) Estate plan

Once the succession plan is in place, an important last step is to discuss

an estate plan with your advisors to ensure your will directs the assets to your spouse, and later to your children, in a manner that mirrors your succession plan. Certain considerations must also be given to non-farming children, and to creating a plan that not only allows the farm to continue as a going concern, but also provide some assets to non-farming children.

There are many other factors and considerations to take into account when preparing a farm succession plan and the above are only a few items to think about. Setting goals and becoming familiar with your options are important, but communication with your successor and other family members is of paramount importance.

bio Mark Dolan is a lawyer with WMCZ Lawyers. He can be reached at mark.dolan@wmcz.com

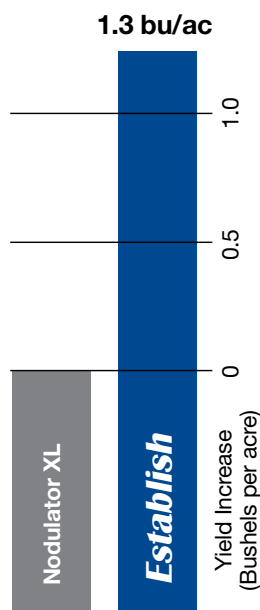


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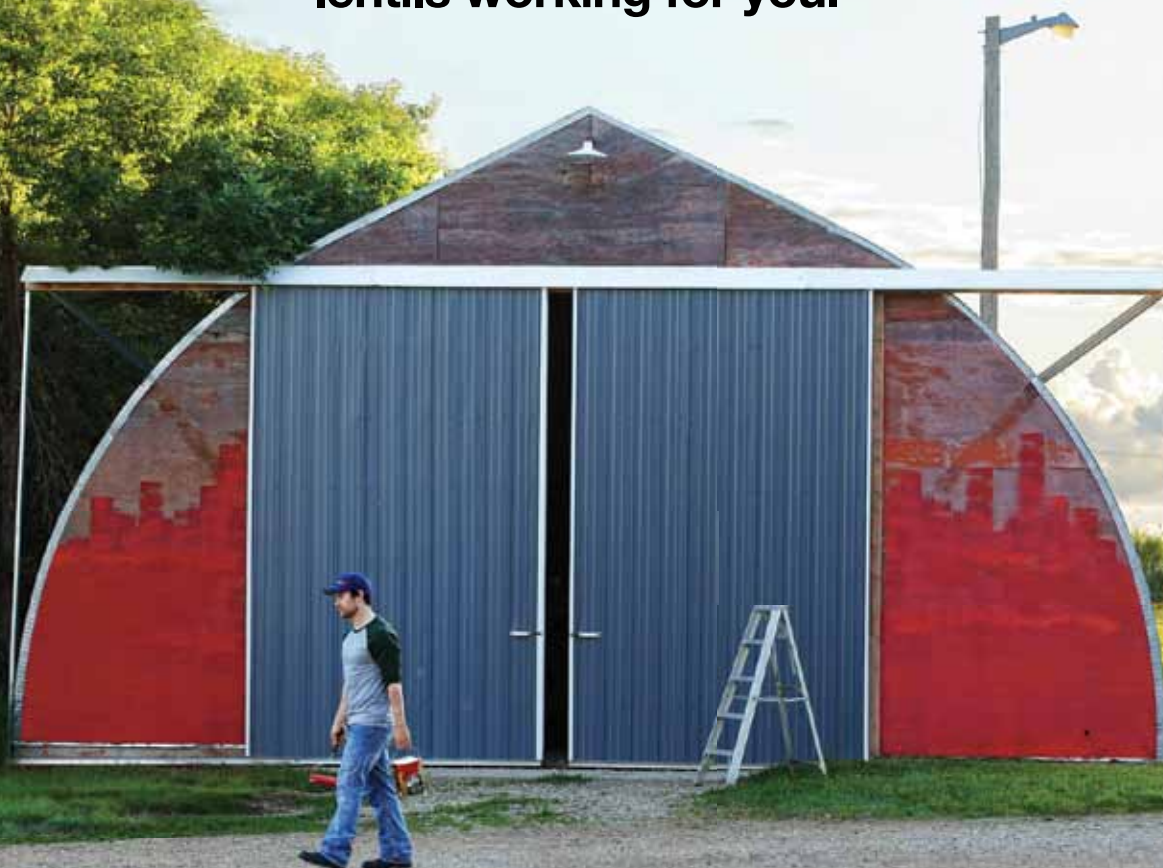
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Leaked Seed Costs Entire Industry

Protect your investment

Earlier this year, the Crop Development Centre (CDC) became aware of the unauthorized production of CDC-developed pulse varieties in the United States (U.S.). Last summer, the CDC was also informed that a shipment of three containers of lentil and chickpea seed had been delivered to Kazakhstan.

The unauthorized sale or leakage of seed poses a serious threat to the Saskatchewan pulse industry. Annually, more than \$2 million of grower levy investment flows from Saskatchewan Pulse Growers (SPG) to the CDC. While the University of Saskatchewan retains ownership of the intellectual property (in this case CDC-developed pulse crop varieties) the CDC-SPG agreement affords SPG the exclusive commercialization rights for these pulse varieties. In turn, SPG provides growers with exclusive access to CDC-developed pulse varieties, royalty free.

Protecting levy investments in variety development is instrumental

in helping Saskatchewan growers maintain their competitive position in the international pulse trade. Therefore it is critical, and in everyone's best interest, to prevent the unauthorized sale and distribution of seed outside of Canada, to ensure the benefits of these varieties benefit Saskatchewan growers first and foremost. Further, since the owners of intellectual property (IP) have the ability to enforce the protection of their IP, there could be serious legal consequences for anyone selling or distributing pulse varieties outside of Canada.

How international distribution rights work

SPG has the option to surrender the international distribution rights for varieties back to CDC two years after being released to growers in Saskatchewan. The CDC has assigned international agents who are authorized to sell CDC pulse varieties outside of Canada. (For a

complete, current listing of these agents, contact us at pulse@saskpulse.com)

The intention of surrendering the international rights after a two year period and assigning these agents is to generate additional royalties for the CDC that are invested back into the pulse breeding program. The agents also help to minimize leakage and help ensure royalties are paid when the variety is grown outside of Canada. So far, the royalties have enabled CDC pulse researchers to purchase much-needed equipment and to conduct research of benefit to Saskatchewan producers.

For more information about policies and procedures surrounding CDC-developed pulse varieties, contact us at pulse@saskpulse.com.

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Exploring the Effects of Fungicide on Field Pea

Long-term trials provide insight into field pea response to annual fungicide applications

by **Chris Holzapfel**

There has been an increase in disease pressure for most crops in southeast Saskatchewan over the past number of years, and field peas have been no exception. Above average precipitation has caused occurrences of major leaf diseases in peas such as ascochyta leaf, pod spot, and mycosphaerella blight. Consequently, foliar fungicide use has been increasing.

For this reason, research done by the Indian Head Agricultural Research Foundation (IHARF) on the effects of field-scale fungicide on pea

yields may be of particular interest as we head into the 2014 growing season.

Since 2004, IHARF has been conducting field-scale fungicide evaluations for many crops, including field peas. This data, acquired over many years and a range of conditions, provides insights into the frequency and magnitude of pea yield responses to annual fungicides applied, whether or not there was disease in the crop. The intended benefit of this research is to provide growers with information on the

potential benefits of fungicides, while also demonstrating that responses are not typically significant or economical in this region when disease pressure is low. Conducting these fully replicated trials with commercial field equipment and large plots (greater than one acre) ensures that the results are directly transferable to growers without the potential biases and issues of scale that are sometimes associated with small plots.

Since 2004, eight separate trials have been successfully completed



Mean yields ranged from 30-77 bu/ac and were significantly increased with fungicide application 38% of the time."

Long-term trials provide insight into field pea response to annual fungicide applications

in brief



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P-81-02/14-10182716-E

Effects of fungicide application on field pea yield at Indian Head, Saskatchewan

(Yields within a row that are followed by the same letter do not significantly differ)

Year	Check	Headline	Acapela	‡Priaxor DS / Headline DUO	June-July Precip.	Avg. Yield Increase
	bu/ac				% of avg†	%
2013	51.5 c	61.5b	60.8b	64.8a	109	20.9*
2012	35.2	45.9a	47.2a	47.9a	125	33.4*
2011	29.3	31.6a	–	–	124	7.9ns
2009	43.6b	49.5a	–	–	106	13.4*
2008	48.3a	50.7a	–	–	84	5.2ns
2007	53.8a	55.8a	–	–	106	3.7ns
2006	54.0a	56.2a	–	–	70	4.0ns
2004	75.4a	79.0a	–	–	61	4.9ns
8 Year Avg.	48.9	53.8	–	–	101%	10.0%

†Environment Canada: Long-term average (1981-2010)
‡Headline Duo used in 2012 and Priaxor DS used in 2013

SOURCE: INDIAN HEAD AGRICULTURAL RESEARCH FOUNDATION

near Indian Head. Over the study period, mean yields ranged from 30-77 bushels per acre (bu/ac) and were significantly increased with fungicide application 38% of the time. The tendency was always for yields to be higher with fungicide application, with increases ranging from 2-11 bu/ac, or 4-33%. The yield benefits when June and July were very dry (2004, 2006, and 2008) tended to be small and not likely sufficient to cover the costs of the fungicide application. In

2013, under high disease pressure, Priaxor DS resulted in greater yield increase than Headline or Acapela, presumably due to the fact that this product employs two separate modes of action (Groups 7 and 11).

Visible reductions in lodging were observed in most years with fungicide (but moreso in the responsive years) and consequently easier, faster straight-combining or swathing ensued. It is important to note that yield increases with fungicide cannot be expected each

and every year with field pea in the Thin Black soil zone. However, when disease is present, fungicide applications can prevent substantial yield loss. Consequently, to maximize returns on investment, fungicides should ideally only be applied when there is sufficient disease pressure and a reasonably high likelihood of response. The best way to make informed decisions regarding whether or not to spray is to scout for disease on each field and on a regular basis while, at the same time, monitor environmental conditions and weather forecasts.

This research has been supported by IHARF and the Saskatchewan Ministry of Agriculture, through the Agriculture Demonstration of Practices and Technology (ADOPT) program.

Chris Holzapfel is the Research Manager, Indian Head Agricultural Research Foundation. He can be reached at cholzapfel@iharf.ca.





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Can Pulses Improve Fertility?

SPG-funded research tests the link between eating pulses and improving female fertility

by **Noelle Chorney**

Pulses are already considered superstars as part of a healthy diet, but one University of Saskatchewan (U of S) researcher thinks they can also play a starring role in treating infertility in women.

Three years ago, Gordon Zello, a professor in the College of Pharmacy and Nutrition at the U of S, began to question a link between eating pulses and successfully treating polycystic ovarian syndrome (PCOS), an endocrine disorder that affects hormones and metabolism in women of child-bearing age, sometimes causing infertility.

With Growing Forward 1 funds provided by the AAFC and

Saskatchewan Pulse Growers, Zello and his team were able to start Phase One of the project in 2011. They recruited women diagnosed with PCOS to participate in a 16-week lifestyle intervention study beginning with a basic healthy diet, and then substituting pulse-based meals for half of the group. The program also involved an aerobic exercise program designed by Dr. Philip Chilibeck of the College of Kinesiology at U of S.

Students from the College of Nutrition prepared pulse-based meals and delivered them to women in the pulse test group. Fourteen meals were provided every week. Through the process of the first

phase, several pulse-based recipes were standardized. In the second phase of the project, beginning shortly, an "evidence-based" recipe book will be prepared, offering pulse recipes that have been demonstrated to have a positive impact on people suffering from insulin resistance or diabetes, metabolic syndrome, and cardiovascular disease.

Women in the study reported regularly and participated in testing to determine improvements in their health. Women in both intervention groups reduced fat mass and waist circumferences. However, women in the pulse-based group also



Many women reported more regular menstrual cycles; in fact, some women left the study because they became pregnant."

SPG-funded research

tests the link between

eating pulses and

improving female fertility

in brief

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showed signs of improved blood glucose levels, reduced cholesterol, balanced hormone levels, and a reduced number of follicle cysts on their ovaries. There were signs of improved fertility as well. Many women reported more regular menstrual cycles; in fact, some women left the study because they became pregnant.

Shani Serrao, a project participant, says the takeaway from participating in the project has had a huge impact on her lifestyle. "I learned what I can put into my body to help prevent me from experiencing diabetes or heart disease, and also to reclaim my femininity, which PCOS affects."

Beyond the 16-week program, the research team also followed up with the study participants six and 12 months after the program.

"This is more than just a diet program," Zello says. "It is a lifestyle intervention, and we want to confirm whether the changes have been incorporated into the long-term eating and activity habits of our participants."

In Phase Two, many of the earlier results will be further

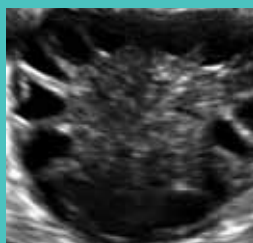


Women in the study participated in a 16-week lifestyle intervention, beginning with a basic healthy diet of pulse-based meals, as well as an aerobic exercise program.

examined with a new group of study recruits. Participants will be assessed by PCOS specialist Dr. Donna Chizen to determine if there were changes to their ovaries and uterus, as well as hormone levels. They will also be assessed for risk of metabolic syndrome, including cholesterol

levels, blood pressure, waist girth, changes in the liver fat, and glucose and insulin levels. The team will test several of the promising measures identified in Phase One, with the intent to strengthen the relationship between health measures and the lentil-based diet.

Polycystic Ovarian Syndrome (PCOS)



Ultrasound of a polycystic ovary, showing a "string of pearls" distribution of cysts, which is typical in PCOS patients.

Polycystic ovarian syndrome (PCOS) is an endocrine disorder that affects hormones and metabolism in up to 10% of women of child-bearing age. The issues surrounding PCOS are incredibly complex, because hormone imbalances can have a domino effect on other body systems.

Women with PCOS often have trouble losing weight, they may develop insulin resistance, and they often experience fertility problems due to irregular ovulation and increased levels of male hormones. But the long-term effects are also worrisome: women with this condition are more likely to develop diabetes, heart disease, and certain forms of uterine cancer.

Women with PCOS often have trouble losing weight, they may develop insulin resistance and increased levels of male hormones, and they often experience fertility problems due to irregular ovulation. Women who have PCOS often have more small follicle cysts on their ovaries than women who do not have PCOS. But the long-term effects are also worrisome:

women with this condition are more likely to develop diabetes, heart disease and cancer of the uterine lining.

The causes of PCOS are not entirely understood. Insulin resistance appears to play a role in the development of PCOS and in the development of Type 2 Diabetes later in life. There appears to be a genetic predisposition to the condition. Male relatives of women with PCOS have a higher occurrence of Type 2 diabetes.

What is generally accepted is that diet and exercise can reduce PCOS symptoms, and may even increase a woman's chance of becoming pregnant. "Early diagnosis and dietary intervention are crucial to addressing health issues caused by PCOS," Zello says.

Do you or someone you know have PCOS?

Phase Two of the PCOS project is getting underway and new recruits are welcome to start anytime. If you or someone you know could benefit from participating in this study, please contact the program at pcos.pulsestudy@usask.ca.

If you want to try adding more pulse-based recipes to your own diet, check out www.lentils.ca and www.pulsecanada.com for recipe ideas.

Unexpected Benefits: Strategies for Introducing Pulses

Beyond increasing the understanding of the potential health benefits of pulses in the diet, the research team is making important discoveries regarding the success of lifestyle intervention studies. While the study had a better retention rate than other recent PCOS studies, the dropout rate was still relatively high (32%).

"The most challenging aspects of the study are in motivating change," Dr. Chizen says. "Pulses are not part of the main diet for many — the texture and preparation techniques can seem foreign to people who are used to eating other foods. We're learning ways to give a helping hand for our participants' success."

There were challenges for participants regarding providing food to their own families while having to eat prepared meals. This feedback from Phase One was taken into consideration and informed the decision to include a recipe book as one of the outcomes for Phase Two.

Since the majority of women in the study were unaccustomed to eating pulses, the research team inadvertently developed a series of strategies for introducing healthy new food into the diets of people who may be resistant to change. These results will offer added benefits to groups undertaking similar studies.



Santa Fe Salad

One of the pulse recipes used in the study

Yield: 4 servings

Prep time: 20 minutes **Cook time:** 20 minutes **Total time:** 40 minutes

Equipment: Knife and cutting board, small pot

Ingredients:

Salad

4 cups cooked chickpeas, drained
1 red bell pepper, diced
1 cup frozen kernel corn, cooked
¼ cup chopped red onion
4 Tsp jalapeño pepper, seeded & minced
1 pita

Dressing

3 Tbsp extra-virgin olive oil
1 and ⅓ lime + 2 ½ Tbsp zest
3 Tbsp cilantro
¾ Tsp of cumin
¾ Tsp of salt
Pepper, to taste

Directions:

In medium bowl, whisk together oil and lime juice. Add cilantro, cumin, salt, and pepper and mix well.

Stir in salad ingredients and seasoning.

Portion salad equally among servings.

bio

Noelle Chorney is the owner of Tall Order Communications. She can be reached at tallorder@sasktel.net.



Cluster 2 research will examine the link between gut health, chronic disease, and pulse foods.

Funding Research that Matters to You

SPG is leveraging federal government funding in four main research areas

With the help of funding from the federal government's Growing Forward 2 program, SPG will be facilitating more of the research that matters to the pulse industry as part of the Pulse Science Research Cluster 2.

Cluster 2 is the successor of Cluster 1, which was executed under the Growing Forward 1 program, a federal initiative under Agriculture and Agri-Food Canada's (AAFC) aimed at encouraging competitiveness, innovation, and market development in Canada's agri-food and agri-products sector. Between 2013 and 2018, AAFC and the Canadian pulse industry have committed approximately \$19 million towards the Pulse Science Research Cluster, which will address challenges and research priorities identified by key stakeholders in Canada's pulse industry, including SPG, Alberta Pulse Growers, Manitoba Pulse Growers, Ontario

Bean Producers and Pulse Canada. The Cluster includes research teams from across Canada, including members from the Universities of Saskatchewan, Manitoba, Guelph, Toronto, and Alberta, as well as Memorial University, McMaster University, Alberta Research and Extension Council of Alberta (ARECA), the Canadian International Grain Institute, and Alberta Agriculture and Agri-Food Development.

Research activities within the program are focused on four major areas that affect pulse growers.

Continuous improvements in agronomic practices

Cluster 2 research will identify improvement potential within agronomic practice. Researchers are assessing adaptation of new soybean varieties and will provide agronomic recommendations for no-till soybean production in Saskatchewan.

This will include assessments of risks and opportunities associated with growing new, early maturing soybean varieties, as compared to crops such as canola, field pea, and others. Research will also look at the effects of seeding rate, depth, and date on soybean establishment and development, as well as days to maturity and yield in Saskatchewan. In other agronomic studies, researchers will evaluate interactions of disease control methods with seeding rates in different lentil seed size classes on plant diseases and

**SPG is leveraging
federal government
funding in four main
research areas**

in brief



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2014 Seed Guide

LENTIL VARIETIES

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PEA VARIETIES

CDC Saffron

CEREAL VARIETIES

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yield in lentil. This research will guide potential modifications (seed rate, row spacing) to improve crop health and yields.

Genetically improved varieties that maintain Canada's position as a global leader in pulse production

Research in Cluster 2 will result in new cultivars and germplasm lines that have improved disease resistance and marketable seed quality. Growing conditions vary across the country, prompting the need to develop cultivars that are suited to a broad range of growing conditions. Improved nitrogen fixation potential is an important attribute that researchers are looking to optimize in Cluster 2 research, as well as through ongoing research into improved pest management strategies. The aim of this research is to give growers the upper hand when managing major insect, fungal, and bacterial pests like common bacterial blight, white mould, anthracnose, root rot complex, potato leafhopper, western bean cutworm, and soybean cyst nematode.

Experiments that lead to improved understanding of the relationship between nitrogen fertilizer, root rot, and soil health will also offer practical solutions for pulse growers. Rapid, specific, and sensitive detection of root rot pathogens will be made possible with the development and improvement of molecular diagnostic procedures.

Food processing knowledge to increase the use of pulses and pulse ingredients

Pulses contain resistant starch and/or slowly digestible starch which has been shown to promote significant improvements in human health. Variety selection and processing techniques can be used to manipulate starch structure in pulses and research under Cluster 2 is studying ways to use these starches

in functional pulse food products. Researchers are also developing new ways to increase the yield and purity of pulse starch that is currently being extracted.

In addition to research focused on starch properties, the inclusion of pulse starch and fibre in meat products is being examined, including the potential of seed coat fibres as food-grade fibre sources. This research will study properties that are significant in meat product application such as enzymatic activity, antioxidant properties, particle size, and surface properties like porosity, swelling, and water retention capacity, fat/oil retention, and colour. Pulse fibre will be compared to other plant fibres available in the market and starches will be tested in emulsion-type meat products to replace product fat at different levels. Cooking yield, colour, and texture will be measured and consumer acceptability will be assessed.

Scientific evidence to support human health claims related to pulse consumption

Cluster 2 research will examine the link between gut health, chronic disease, and pulse foods in healthy, obese, and inflammatory bowel disease subjects. Microbial communities and gut function will be examined in response to various pulse foods, providing new knowledge regarding the mechanisms through which pulse foods promote human health and the impact of food processing on the gut health effects of pulse foods. Researchers will also look for novel therapeutic uses of pulse products with regards to their role in reducing colonic and systemic inflammation.

Further research will be conducted to evaluate blood glucose attenuation and satiety levels in humans following consumption of whole lentils, yellow peas, and food products containing pulses. The

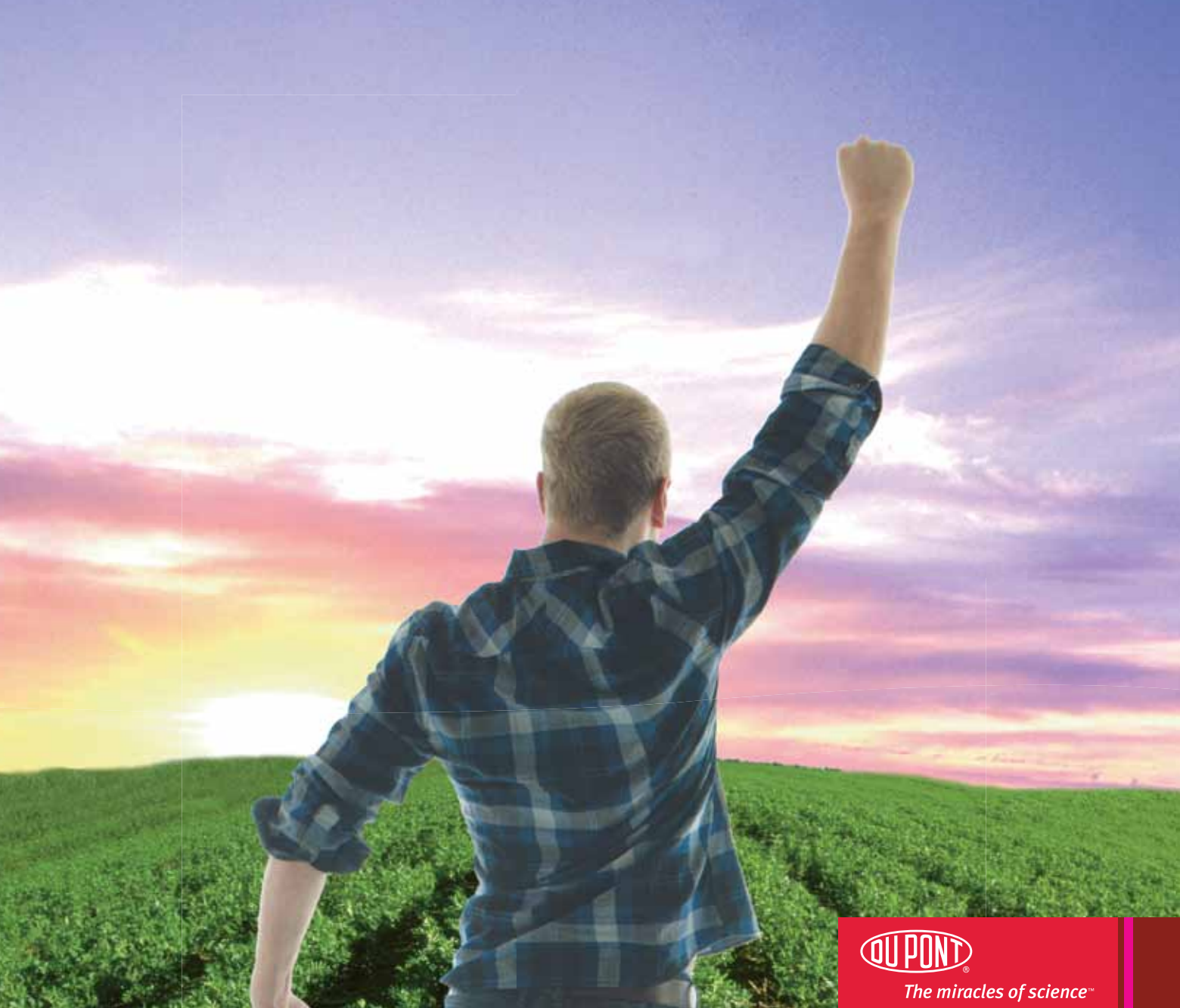
effects of cooking on microstructure, starch content, glycemic index, and polyphenol content will be defined, and food items will be formulated, characterized, and evaluated with sensory panels to assess acute blood glucose response and satiety. Evidence about the short-term glycemic benefits of lentil fractions will be gathered and researchers will seek to determine which components of whole lentils are responsible for these effects.

Research measuring blood glucose, insulin, and subjective appetite will help clarify the mechanism behind the health benefits of lentils and perhaps lead to their adoption as a value-added ingredient by the food industry.

Although the studies are short-term, they are designed to provide the scientific evidence required to substantiate pulse claims about the magnitude and/or duration of satiety and glycemic control, and potentially support therapeutic or disease risk reduction claims in the future.

Results of all Cluster 2 research will be communicated to growers through the SPG website, *PulsePoint* magazine, and other SPG channels. For more information about Cluster 2, contact Shirley Toms, Senior Research Program Manager, Saskatchewan Pulse Growers. She can be reached at stoms@saskpulse.com.





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Let's Keep Things on Track

A big picture look at the current state of transportation in Canada

by **Pulse Canada**

Politics 101: Identify a practical and reasonable solution. Build a critical mass of support from a range of stakeholders with an interest in the issue. Clearly and consistently communicate the problem, the impact and the solution to all those who have the ability to influence change. Sounds simple, but the reality is that it almost never works out this way.

Why? For the most part, it's because people rarely get past the first step. As a result, Government hears from dozens of interested stakeholders, if not more, on an issue and each stakeholder presents five to ten of their own "practical and reasonable solutions." What does Government do when their constituents present nearly a hundred wide-ranging and often competing solutions? More often than not, it's forced to go with the lowest common denominator ... and why would that surprise anyone? There's no consensus on the approach and no consensus on the desired outcome, and any

decision will result in a good portion of constituents being unhappy at the end of the day.

The agriculture industry's response to the unprecedented grain backlog is a prime example of how this scenario continues to play out each and every time there's an opportunity to make meaningful progress on an issue. Nearly every ag industry association made transportation a top priority this season and as a result nearly every group became active on the transportation file. This is good – this needs to happen. Everyone with a stake in moving grain, from the farm to the customer, needs to know that failure is not an option and growers, processors, and exporters expect more. When is it "good enough"? It's never good enough and that message came through loud and clear. But the inevitable response to the demand for Government to "do something" is a very legitimate question – what would you propose Government do to resolve the problem?

Everyone with a stake in the ag industry voiced their opinion and put forward recommendations in February and March. Solutions ranged from finding ways to pay the railways more, to granting joint running rights, and everything in between. The Government's first response was to establish targets that essentially require the railways to move what they say they are capable of moving week in and week out and threatening to penalize them if they fall short. It followed by committing to introduce additional amendments to the Canada Transportation Act to enhance the Fair Rail Freight Service Act that was passed in June of 2013. At the time of writing

**A big picture look
at the current state
of transportation in
Canada**

this article, it remains to be seen how Government will respond to the extremely wide range of views that the agriculture industry has put forward, but if history repeats itself, we can expect a lowest common denominator approach in the short term and deferral of more comprehensive change to some point in the future.

The ag industry has had its opportunity to influence the Government's actions in the short term. The "some point in the future" is the Canada Transportation Act Review, which is currently set for 2015. One option that should be given consideration by all ag industry

stakeholders is an approach whereby groups come together and put all of their great ideas on the table and together, prioritize and short list the range of solutions that will advance to the next round. From there, stakeholders have to be prepared to critically assess each solution and understand the implications of each from a commercial and political perspective. Once the short list has been confirmed, the industry will have to be prepared to start the conversation with representatives from all shipping sectors in Canada. Agriculture is but one stakeholder when it comes to rail freight movement and the solutions that will

get traction in Ottawa are those that are supported by the broadest range of stakeholders. Messaging will have to be clear, concise, and consistent and will have to be sustained over a long period of time.

Admittedly, the process outlined here has been oversimplified, but in reality the agriculture industry must agree on the destination, must be prepared to work together to map out the best possible route, and must be able to convince a wide range of others to join them on the journey.

If not this, then what? If not us, then who? If not now, then when?



Investing into outcomes

Investments from the Canadian pulse industry, including grower levy dollars through SPG, have fuelled Pulse Canada initiatives which put our industry in a leadership position.

Service Level Agreements (SLA): Pulse Canada took a wide range of industry proposals and was the only shipper group in Canada to package them and promote them in the form of an SLA to the Rail Freight Service Review Panel. Ultimately the Panel included the concept in its recommendations to Government and Government introduced legislation giving shippers a right to an SLA and a process to establish one if commercial negotiations fail.

Coordination of Canadian Shipper Efforts on Transportation Legislation: Pulse Canada helped coordinate the submission of one common piece of draft legislation to Transport Canada from forestry, mining, fertilizer, automotive, chemicals, steel, recycling, and other sectors. Pulse Canada hosted the first ever Rail Customer Summit, where the draft legislation was presented in person to the Minister of Agriculture and Agri-Food.

Service Level Agreement Templates: Building on the legislation, Pulse Canada developed SLA templates for use between the pulse industry and the railways. These are now the basis for agri-industry templates for bulk, car load, and intermodal shippers. Pulse Canada also was the only industry association to be invited to participate in the government-led SLA negotiation sessions between railways and shippers.

Performance Measurement: Pulse Canada developed the first industry-based transportation system performance measurement tool. This tool is currently being rolled out for use by the entire grains and oilseeds industry.

Crop Logistics Working Group: Pulse Canada has served as the industry chair of three iterations of the Crop Logistics Working Group, an advisory group established to make recommendations to the Minister of Agriculture and Agri-Food.

Coordinating Ag Industry Efforts on Transportation: Pulse Canada led the development of a five-year multi-organization/multi-commodity initiative that resulted in more than \$1.5 million in Government funding and more than \$1.7 million in industry funding. The initiative will advance work related to SLA negotiations, industry-based performance measurement, and industry-led solutions to supply chain challenges.

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Growers who contribute pulse levy dollars to Saskatchewan Pulse Growers (SPG) are eligible to earn a federal investment tax credit through the Scientific Research and Experimental Development (SR&ED) program. The tax credit is based on the amount of levy funds spent on research and development (R&D) that meet specific criteria set out by the Canada Revenue Agency (CRA).

For the 2013 tax year, 25% of the Saskatchewan pulse levy qualifies for the federal SR&ED tax credit. This percentage is significantly lower than in 2012. This is because, in previous years the CRA allowed the full amount of eligible R&D expenditures made by SPG to be used to calculate this percentage. However, in 2013, the CRA reduced this amount by 20%, allowing only 80% of eligible R&D expenditures to be used in the calculation. Although SPG's investment in R&D was higher in 2013 than 2012 (as per the audited financial statements) the percentage of qualifying pulse levy is based on cash outlays for R&D and the timing of 2013 cash outlays also reduced this percentage.

Growers can calculate their total levy contribution by referring to their pulse sales receipts, which show the levy allocation. Of this total, 25% is eligible to earn an investment tax credit. This resulting check-off amount is eligible to earn an investment tax credit up to a maximum of 20% for individuals and up to a maximum of 35% for corporate growers that are considered Canadian controlled private corporations.

For more information on the process of claiming tax credits, please consult your accountant. For information on the federal SR&ED investment tax credit, visit the Canada Revenue Agency website at



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Meet Our New Board Member!

Jean Harrington and her husband John crop 6,500 acres as part of a family farm operation in the Glenside area. Pulses and specialty crops generally make up $\frac{1}{3}$ of their rotation, with canola and wheat rounding out the balance.

Jean has served on various local boards such as Outlook Minor Sports, the Glenside Rec. Board, and

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Jean Harrington

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board of the Saskatchewan Women's Agricultural Network. Marketing crops on the family farm turned into a business for her in 2003 when she founded Prairie Farm Brokerage, which operated as a full service brokerage until July 2012. Since then Jean has been a market consultant for a much smaller group of clients.

Meet Our New Staff Members!



Debbie Skakun

Debbie Skakun joined SPG in January, in the position of Accounting Technician. Debbie brings to the position a strong background in accounting with over 17 years of experience in the areas of both public accounting and industry. Debbie's education training includes a Bachelor of Commerce in Biotechnology Management with a focus on Accounting and Human Resources.



Colleen Liefers

Colleen Liefers joined SPG in January, in the position of Research Program Assistant for the cluster program. Colleen's education and experience covers a broad range

of accounting functions pertaining to employee expense accounts, quarterly financial reporting, accounts payable/receivable, and year-end financial reporting. Her work experience includes time with private and non-profit organizations involved in construction, communications, health sciences, and accounting (specializing in taxation and bankruptcy).



Laurie Friesen

Laurie Friesen joined SPG in January, in the position of Research Project Manager for the cluster program. A University of Saskatchewan (U of S) graduate, Laurie has a Master's of Science

degree in Agriculture and extensive experience in research project management with Viterro Inc. as a research associate, associate breeder, and manager of trait development. She has also served as project coordinator for an international research collaboration involving the Canada-Israel Industrial Research Development Foundation. In addition, Laurie has several years of research-related experience with the National Research Council, the Saskatchewan Research Council, Vipont Research Laboratories, and the U of S.

CropSphere 2014 Speaker Presentations Available Online

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SPG's 2012/13 Annual Report available online

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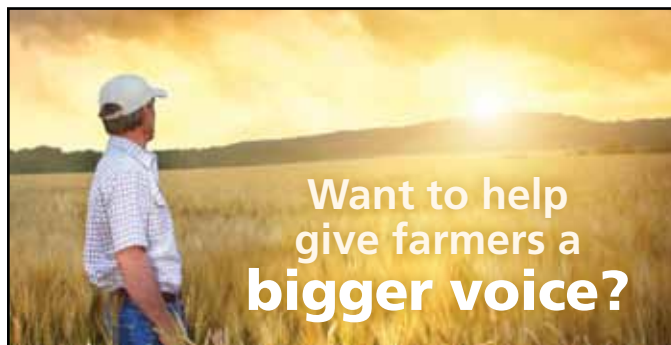


9-4 faba beans*

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UPCOMING EVENTS

CSCA Convention 2014

July 6-8, 2014/Saskatoon

The 2014 Pulse and Special Crops Convention is returning to Saskatoon, July 6-8! Join the Canadian Special Crops Association (CSCA) and business partners from around the globe to make business connections, and to gain valuable insight into research, trends, and market opportunities for your company. Early-bird registration opens April 1, 2014.

For more information please visit the Canadian Special Crops Association website at www.specialcrops.mb.ca/convention/.

SPG's Select Grower Field Day

Save the date! The 2014 SPG Select grower field day will take place Wednesday, July 23. More details will be made available in coming months.

For recent news on the pulse industry, visit the SPG website at www.saskpulse.com.



Growers and researchers attend SPG's 2013 Select Grower Field Day.

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GINGER PUMPKIN LOAF

INGREDIENTS

¼ cup	(60 mL) split red lentils
2 ½ cups	(625 mL) all-purpose flour
1 cup	(250 mL) packed brown sugar
1 tsp	(5 mL) cinnamon
1 tsp	(5 mL) ground ginger
2 tsp	(10 mL) baking powder
1 tsp	(5 mL) baking soda
¼ tsp	(1 mL) salt
1-14 oz	(398 mL) can pumpkin purée
½ cup	(125 mL) canola oil
½ cup	(125 mL) buttermilk
3	large eggs
2 tsp	(10 mL) freshly grated ginger
1 tsp	(5 mL) vanilla
½ cup	(125 mL) chopped walnuts or pecans, or green pumpkin seeds

STEP BY STEP

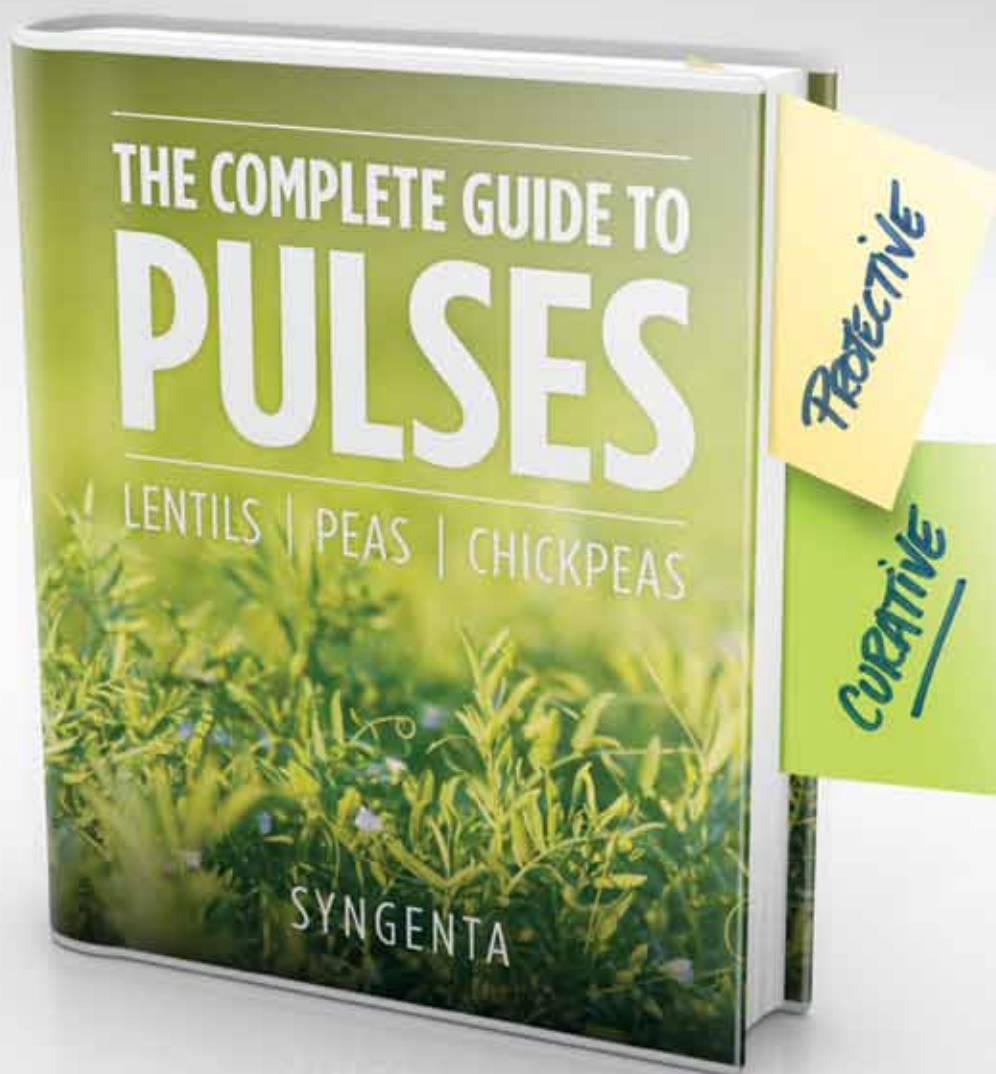
1. Preheat oven to 350°F. In a small saucepan, cover lentils with water by an inch or two and bring to a boil. Simmer for 15-20 minutes, or until very soft. Drain.
2. In a large bowl, stir together the flour, brown sugar, cinnamon, ginger, baking powder, baking soda and salt. In the bowl of a food processor combine the lentils, pumpkin, oil, buttermilk, eggs, ginger and vanilla; pulse until well-blended and smooth.
3. Add the wet ingredients to the dry along with the nuts and stir just until combined. Scrape into a greased large (9x5-inch) loaf pan and bake for 1 hour, until the top is domed and springy to the touch. Cool on a wire rack.

Servings: 16 slices



Visit Lentils.ca for more recipe ideas





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Unified Efforts

How transportation, research, and market development work together towards big-picture goals

by **Carl Potts**

Transportation system performance is top of mind for almost everyone in the industry these days as growers, processors, exporters, and others try to find ways to move a record-sized Canadian crop to customers around the world.

In light of these huge challenges we sometimes hear comments that it makes no sense to develop new demand for crops or invest in research that improves yield if we cannot move what we currently produce. However, the reality is that we need all of these – a well-functioning transportation system, productivity-enhancing research, and market development – for continued profitability and sustainable growth for the pulse industry. With your levy dollars, Saskatchewan Pulse Growers (SPG) is making solid investments in each of these areas that are yielding results today and will continue to generate results in the future.

Transportation

In partnership with pulse grower organizations across the country and with processors and exporters of pulses and special crops, SPG recognized the need for improved transportation system performance in 2006 by making significant investments in transportation work at Pulse Canada (see article on Pg. 31 for more detail on the

work that is being done). Today, the pulse industry is viewed as a national leader in this area and has been successful in getting shippers of other products such as forestry, automotive, and mining working together to deal with transportation issues our industry cannot tackle alone. More recently, SPG has called on the Canadian government to introduce amendments to the Fair





Rail Freight Service Act that would add more “teeth” to the legislation. Through our national association, we will continue to ensure the pulse industry leads on this important issue.

Research

Productivity gains through research have been one of the key factors that have driven the growth in pulse production in Saskatchewan over the last 25 years. Growers, through the levy that they contribute to SPG, have been major funders of this work. Federal and provincial governments, as well as private sector, have been key partners in this work. Continued gains in on-farm yield of pulses is critical to keeping pulses competitive on a return per acre basis for Saskatchewan growers relative to other crops such as wheat, canola, and soybeans. Continued productivity gains are also needed to keep Saskatchewan pulses competitive relative to other global suppliers. SPG’s continued

long-term partnership with the Crop Development Centre to generate new varieties is just one of the ways your levy dollars are being invested to generate results today and in the future. Another example is through exciting new research that could generate alternative modes of action to deal with weed issues in pulse crops.

New markets

India used to sit alone atop the Canadian pulse export list, with other countries far behind. That situation is changing. While India continues to be our largest market overall, growth in demand in other countries is helping to diversify markets for pulses. China’s imports of Canadian yellow peas have increased over the last 10 years from 150,000 tonnes in 2003 to 914,000 tonnes in 2013, matching the imports of India. This massive growth has been driven primarily by ingredient use (starch, protein, fibre) in China (for more information on

demand from China flip to Pg. 8). We think that continued expansion of the utilization of pulses in ingredient applications is an important part of the market growth and diversification strategy moving forward. Even with the growth of China as a market for yellow peas, Canada’s top three markets for yellow peas represent 91% of total Canadian exports. For red lentils, the top three markets take 72% of Canadian red lentil exports. Continued diversification is needed.

Feedback from growers during SPG’s winter meetings in North Battleford, Rosetown, Swift Current, and Regina in February acknowledged that investments in production research and developing new markets need to continue to be made, as well as in policy areas such as transportation and market access. In general, the feedback from growers is that even more needs to be done to develop new markets and to ensure that our system can move the products that growers produce to customers around the world.

CHARRED RED PEPPER, LENTIL & FETA QUESADILLAS

INGREDIENTS

- 1**
1-14 oz
- Canola oil, for cooking
red bell pepper, seeded and cut into strips
(398 mL) can lentils, drained and rinsed,
or 1-2 cups cooked lentils
salt and pepper, to taste
- 1 cup**
4-6
- (250 mL) crumbled feta cheese
whole wheat flour tortillas
salsa, for serving

STEP BY STEP

1. Set a heavy skillet over medium-high heat and add a drizzle of oil; add the red pepper and cook until soft and starting to brown on the edges. Add the lentils, season with salt and pepper, and cook for a minute, until any excess moisture evaporates. Set the mixture aside in a bowl.
2. To make the quesadillas, place a tortilla in a skillet set over medium-high heat. (You could add oil to the skillet first for a crisper quesadilla.) Spread some of the lentil mixture over half the tortilla and sprinkle with feta. Fold the tortilla over to enclose the filling and cook for 2-3 minutes, until golden on the bottom. Flip and cook for 2-3 minutes on the other side, until golden and the cheese has melted.
3. Cut into wedges and serve warm, with salsa.

Servings: 4-6



For more recipe ideas visit [Lentils.ca](https://www.lentils.ca)



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