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pulse beat

Winter • No. 62, 2010/11

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pulse beat

Manitoba Pulse Growers Association

Winter • No. 62, 2010/11

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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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Manitoba Pulse Growers Association Inc.

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Vice President* – vacant at time of printing

Directors

Bruce Brolley, Manitoba Agriculture, Food and Rural Initiatives

Murray Chorney*

Kyle Friesen*

Randy Froese*

Fred Greig*

Anfu Hou, Agriculture and Agri-Food Canada – Morden Research Station

Andrew Knowles*

Frank Labelle, Market Centre Manager, Special Crops, Viterra

Curtis Rempel, Richardson Centre for Functional Foods & Nutraceuticals

Joni Sawatzky*

Albert Turski*

Rick Vaags*

Jason Voth*

**indicates producer-elected directors*

Executive Director – Roxanne Lewko
Email – *roxanne@manitobapulse.ca*

Policy and Communications Director – Monika Robertson
Email – *monika@manitobapulse.ca*

Business Manager – Sandy Robinson
Email – *sandy@manitobapulse.ca*

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Cover photo by Dennis Lange

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In this Issue

PRESIDENT'S REPORT

Andrew Saramaga
President

As we get ready for the start of the new crop year, we look into the past to help develop a plan for the future. We evaluate the practices we implemented in the past, determine whether or not we achieved our desired goals and reorganize the plans if we did not meet our expectations. This planning helps lay the groundwork for goals in upcoming years. It is the planning session we do to give ourselves guidance to succeed in the future.

In December, the MPGA board and staff met in Winnipeg for a strategic planning session. The purpose of holding a strategic planning session is to help an association evaluate previous goals and develop new initiatives for the future. Along with evaluating and creating goals, it helps develop the framework in which directors and staff help achieve these goals. MPGA's last planning session was held in 2006 and there have been a lot of changes since then. New staff and directors have come on board with the organization and along with them come new ideas. Soybean acres have risen substantially and are quickly becoming a valued and important crop on some of the farms. Through our funding and support of Pulse Canada and the Canadian Soybean Council, we have created beneficial health claims of pulses in the diet and are involved in creating new domestic and international markets.

During our strategic planning session, we reviewed our accomplishments over the last 25 years and redefined our key focus areas, which will help guide the organization in future. A full description of what was accomplished can be found in the office update, but I would like to touch on board roles and expectations.

As our organization has grown and changed over the years, so have the roles of the directors. We have gone from a board with active participation, to a board with a more strategic and directional leadership style. In the end, the board is accountable for the success and sustainability of the organization. The authority of the board is dictated by the constitution, by-laws and legal requirements.

The first function of the board is to decide its own method of making and administering policies. For MPGA, March is our restructure month. With new directors on board, we form our committees and review the expectations of board and committee members. This year, the staff and executive committee will review and approve the overall strategic direction and long-term goals, define the success for the organization and present our newly established vision and mission. As always, the board will monitor the quality and performance of the organization. In this function the board monitors and assesses performance focusing on the quality of services and programs delivered and cost effectiveness of the staff and organization as a whole.

Additional tasks for the board are financial and risk oversight along with stakeholder relationships and linkages. The board's function here is to protect the assets and financial well-being of the organization so it can support the mission and goals along with building relationships and effective communications with stakeholders.

The two-day session was well worth our time as an organization. I would like to thank the board members who attended, as each person brought a wealth of knowledge to the table. I look forward to seeing our long-term goals being accomplished.

I was also able to attend a few meetings and conferences over the winter. The first was the Ontario Oil and Protein Seed Crop Committee (OOPSCC) meeting in London, Ontario. Topics discussed included reviewing public and private soybean trials, variety registration support and revision of the guidelines for soybean testing. The other conference I would like to mention was Farm Tech in Edmonton. The three days were filled with great speakers and presentations on agronomy and marketing topics for cereals, oilseeds and pulses. There were also a few special interest topics one could attend.

In closing, MPGA has had a busy winter planning for future years. The board is ready and willing to work for you! Safe seeding and I hope to see you at our summer tours.

MPGA OFFICE UPDATE

Roxanne Lewko
Executive Director

The Manitoba Pulse Growers Association (MPGA) held a Strategic Planning Session on December 7th and 8th at the Four Points Sheraton South in Winnipeg. We contracted Rob Hannam, President of Synthesis Agri-food Network in Ontario, to facilitate. Three weeks previous to the session, directors and staff participated in a survey to get the groundwork started.

We had five specific outcomes for our Strategic Planning Session: confirm the mission and focus areas of the association, determine MPGA's future direction and long-term goals, clarify the roles of board and staff, develop an action plan for the association, and provide clear direction and priorities for staff. Rob started out by asking where are we today, where are we going, and how are we going to get there. He then led us through a SWOT analysis (strengths, weaknesses, opportunities and threats).

Our key strengths lie in our 25 years of experience, our positive and relevant relationships with industry, and our people – including our quality board members and dedicated, adaptable staff. We admitted to our weaknesses being lack of producer director involvement, being spread too thin (in the sense that we cover a very diverse area and number of crops), and not adequately relaying research data and member benefits to our members. We feel our opportunities are in market development, the recent health and wellness trend, research and development, and in value-added processing. We are concerned our threats are possible reductions in government investment and support, revenue uncertainties (ex. an early frost or wet spring could impact pulse acres), and crop diseases reducing pulse yields.

MPGA has never had a vision statement, so we created one. After much discussion and collaboration, and with Rob's help, we came up with 'Vibrant profitable farms sustainably producing a variety of quality pulse crops to feed a healthy growing world.' We feel this statement best describes MPGA's values and long-term goals.

OUR VISION

Vibrant profitable farms sustainably producing a variety of quality pulse crops to feed a healthy growing world.

We slightly altered our mission statement from 'To provide its members with production and marketing support, through focused research, advocacy and linkages with industry partners' to 'To provide Manitoba pulse grower members with production knowledge and market development support, through focused research, advocacy and linkages with industry partners.'

OUR MISSION

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

We also modified our focus areas. The original focus statement was 'to improve member's profitability from pulses through: broadened access to pulse markets, giving leadership and focus to research and development, and representing Manitoba pulse producers in areas of government and industry policy affecting returns to pulse

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growers.' We felt this needed a little bit of tweaking. In-depth discussion led us to adding two more focus areas and creating long-term goals for all five of them. Our five focus areas are research, market development, advocacy, communications, and board governance. These focus areas, along with their respective long-term goals, will provide board and staff with the priorities and guidance to succeed in the pulse industry.

To close out the strategic planning session, we also created a 'Roles and Responsibilities of the Board' document. We outlined five key board functions as being board governance, strategic direction and long-term goals, quality and operational performance measurement, financial and risk oversight, and stakeholder relationships. In the end, the board is accountable for the success and sustainability of the association.

At the end of the two-day strategic planning session, we felt we succeeded in addressing our five specific outcomes. It was an incredibly productive two days that has given board and staff a sense of renewal and purpose. We will be revisiting our focus areas and long-term goals on a yearly basis to ensure we stay on track.

After celebrating 25 years in 2009, developing a brand new vision statement, updating our mission statement and renewing our focus areas at the end of 2010, we thought it was appropriate to update our logo.

Manitoba Pulse Growers Association

We did not want to create a new logo, but rather make our original logo look more modern. We decided to keep the provincial shape of Manitoba as we felt it offered the greatest sense of consistency, but we modernized the shape of the leaf and added in a second shade of green. We spelled out 'Manitoba Pulse Growers Association' because we felt that anyone external to us doesn't automatically know what the MPGA acronym stands for. We would like to thank Shannon Beddome-Lorenz for creating our updated logo, and we hope our members like it as much as we do.

As we wrap up a successful first 25 years, we are anxious to see what the next 25 has in store. Both board and staff are looking forward to the vibrant and opportunistic future of MPGA!

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EDIBLE BEAN COMMITTEE REPORT

Kyle Friesen
Chairperson

Well, the first year of my term as a director of MPGA is not quite over but what a great year it has been. I have learnt many things, met many people and look forward to continuing to do so for the remainder of my current term and for terms to come.

I started off the year getting thrown into the fire as Edible Bean committee chair – with little knowledge of what I was getting myself into. But it has been exciting and interesting getting to know how the different research projects are selected and how the various variety trials are run in order to get the most productive, disease resistant varieties into the hands of farmers in the form of a commercial product. I have also enjoyed getting to know the researchers and other industry members who are pushing Manitoba's edible bean industry into the future.

There is a lot of uncertainty going into the 2011 crop year. Market analysts and industry representatives are predicting potential shortages of essential food commodities; especially if there are any sort of production issues that arise throughout the year. This uncertainty has pushed commodity prices to levels we haven't seen since 2008. But it seems as though the edible bean market has kind of been left behind in the market driven fight for acres in 2011. There are a couple of reasons for this. First of all, since there are no futures markets for edible beans, the market does not have the price discovery ability as other markets. Secondly, there are still large stocks of 2010 crop remaining after a 20% increase in production in 2010. And in some cases, there are still 2009 beans sitting in storage that have not yet been used up. The combination of these two factors has resulted in the prices of most classes of edible beans not increasing as much as some competitive crops, such as soybeans. This has pushed a lot of edible bean growers to drastically cut acres or even cut them out of their rotation entirely. I will admit we have also reduced our acres, but only down to about two-thirds of what we have grown in the past couple of years. There is talk among the industry that this reduction in acres may be as much as 50% or more across Manitoba, which could leave edible bean acres below 75,000. I have not talked to many growers or industry members in the US edible bean growing areas, but I would imagine they are facing a similar situation, which could leave edible bean production down drastically from previous years. That being said, I am hoping there will be a few marketing opportunities arising in 2011 – if a grower is patient enough to wait for them. I will add my disclaimer that this is only my gut feeling, and it is worth as much as you have paid for it!

I wish everyone a safe and productive 2011 season and hope to see most of you at the annual Edible Bean Tour, which is tentatively planned for early August.

SOYBEAN COMMITTEE REPORT

Albert Turski
Chairperson

I am sure by now you are all tired of hearing about record snow amount and flooding predictions! Unfortunately, it is a reality and as farmers we learn to deal with these uncontrollable acts of Mother Nature. Although, we do have control of what we grow on our farms and have the ability to choose the crops that can do the best in these wet years. Therefore, more and more producers are realizing the benefits of expanding their cropping choices to include soybeans. With expected acres this season being the highest for Manitoba, I believe a lot of these extra acres will come from first or second year growers. More producers are realizing the economic benefits this resilient crop can add to their operation.

New shorter season varieties of soybeans are being grown farther out of the historical growing area. With a later seeding date it is most likely possible a soybean seedling will thrive in the warm soils. The end of May or early June is not too late for these varieties to mature with a normal summer and fall. But, be sure to grow varieties that are suited for your area and this might not be the year to push the longer maturing varieties on your farm.

On the MPGA front, we have been quite busy receiving research updates as well as new research proposals. It is encouraging to see researchers always looking for better disease resistance, new chemical options or agronomic traits that can help our producers with their bottom lines. It is great to see so much interest in this crop at the research level, considering all the cutbacks that are happening at other levels.

MPGA is continuing to make progress with MAHRN and RCFFN with the local food sector trying to utilize soybeans in various food stuffs (cheese, snack products, milk products etc.). These products are all healthy alternatives for our ever-growing diet conscious population.

We are happy to announce, Murray Froebe (MPGA's representative on CSC's Export Market Development Committee) was elected to represent Canada on CSC's Outgoing Program to Japan, Thailand and Vietnam this March. Murray will be second to none with his extensive expertise in IP soybean seed production and marketing. It is very important to put Manitoba on the map if we ever increase IP soybean production in the near future.

The purchase of an NIR machine, which will be housed at AAFC in Morden, will assist MPGA tremendously in variety selection trials done by researchers and will be available to the industry for their own use. Our new pulse specialist, who should be hired soon, (maybe by the time this is published), will be able to use this NIR machine in completing the variety trial data each year.

In closing, let's hope the weather forecasting is wrong, we have a bountiful year and enjoy some of the highest prices we have seen in years. Good luck to all and I hope to see you this summer at our tours. Safe seeding!

Fred Greig
Chairperson

Time sure flies, especially when it feels like I just finished writing my last report and I struggle to find something witty to say. As the saying goes "you can't get blood from a stone," so try to stay awake and avoid operating any heavy equipment while you read this.

This is the time of the year that producers start to finalize their cropping plans. To further complicate things, producers still have fresh in their minds the challenges of the past growing season and the prospects of excess moisture at seeding. On the positive side, commodity prices have risen over the winter and forward pricing options for new crops are quite positive. Although, the increased risk of production issues has many producers hesitant to forward price – for good reason.

In my opinion, producers will simplify their cropping plans to fit the potential narrow seeding window. Crop types that do not perform well in excess moisture situations or have a later seeding requirement will be removed from the rotation. Canola, wheat, soybeans and oats will make up the bulk of the acres in Manitoba. While flax, barley, peas and lentils will initially see acreage reductions. However, if we see an early end to winter combined with a below average spring precipitation, the reduction in acres will not be as drastic.

Weather scares will result in sharp price swings until the trade gets a feel for the world crop this year. On the pulse side, I think western Canada will see a modest movement from lentil acres to peas in Saskatchewan and in Manitoba, a drop in peas, lentils and edible beans acres with an increase in soybeans acres. 2011 is shaping up to be a "grow what you grow best" year as long as we can get it in the ground.

MPGA has had another busy winter with a number of new directors being elected at our AGM in February. New directors are crucial to the future of this organization and I encourage all producers to consider joining the MPGA board. The time commitment has been reduced for board members by increasing our staff. Board responsibilities have been shifting away from active participation, to a more strategic and directional leadership. Being a member of the board gives you an opportunity to learn about all facets of the pulse industry.

Have a safe seeding season, and I hope to see you all at our summer tours!

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Board Meeting – November 17, 2010

Soybean Committee Update – The committee met in late October to discuss updating our research proposals. A recommendation was made to the board to purchase an NIR machine in order to receive our variety trial data in a timelier and more efficient manner. Options for housing the machine include AAFC in Morden and RCFFN in Winnipeg.

Call for Research Proposals – Each committee discussed additions and changes to the types of proposals MPGA will be looking for in 2011. A few updates were made to the previous year's proposal application; hopefully this will streamline the process for both the office and researchers. The deadline for proposals was set as January 7, 2011, and decisions on funding will be made at the end of February.

Edible Bean Committee Update – The committee met in late October to discuss updating our research proposals. Discussion was had on finding a different producer to host our 2011 trials. We need to come up with details on what is exactly expected of the producer in order to find the best person to work with.

Pea Committee Update – Discussion was had regarding the potential of conducting winter pea trials. Trials of this nature completely depend on the climate, which may not be favourable in ours, as even in the warmer area of AB they did not survive. We will discuss the opportunity further with the MAFRI Pulse Specialist.

Board Meeting – February 1, 2011

2011 Budget – The proposed 2011 budget was reviewed by all directors. This budget will be brought forward and adopted at our 2011 AGM.

Canadian Soybean Council Report – It was noted that Murray Froebe (MPGA's representative on CSC's Export Market Development Committee) was elected to represent Canada on CSC's Outgoing Program to Japan, Thailand and Vietnam this March. Murray will be a great representative for Manitoba in the international market.

Farm Leadership Council/Members Relations – The board of directors discussed at length opportunities to bring value to our members. We have decided to partner with the Farm Leadership Council to bring our members valuable Advanced Producer Network seminars. Seminar topics include: Commodity Market Analysis, Human Resources, Technology, Equipment, Crop Production and Financial Management. More details on how to obtain these resources will be available soon.

Special Crops Symposium/AGM – Details for SCS are all worked out and we are prepared to host this event. MPGA will have a booth in the tradeshow area to be more available to our producers and to discuss MPGA's research initiatives and member benefits. Our AGM is scheduled for Thursday AM. There are two 3-year director terms and three 2-year director terms available on our board. The board would like representation from all areas and crop types on the board for 2011.

Outgoing Directors

During the MPGA's Annual General Meeting on Thursday, February 10th, president of MPGA Andrew Saramaga presented five outgoing directors with a token of our appreciation for their dedication, energy and enthusiasm over the years.

Myron Pedersen (photo not available), Todd Stewart, Shawn McCutcheon, Dr. Robert Conner (photo not available), and Kelvin Rothenburger elected to step down as directors to pursue other interests and focus on personal priorities.

MPGA would like to once again thank Myron, Todd, Shawn, Robert and Kelvin for all of their commitment, valuable input and knowledge they brought to the board during their terms.

We wish you all the best in your future endeavours!


Kelvin Rothenburger


Todd Stewart


Shawn McCutcheon

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Statement Of Operations – Administration Fund
For the Year Ended December 31, 2010

	Budget 2010	2010	2009
REVENUE:			
Administration fee (note 3)	$ –	$ 7,568	$ 953
Check-off	911,200	868,350	893,787
Interest	–	11,096	2,154
Miscellaneous	–	1,000	80
Promotions	–	7,170	1,000
	911,200	895,184	897,974
EXPENSES:			
Check-off refunds	65,000	32,111	59,680
Administration	30,160	54,467	30,871
Travel	57,000	56,013	55,469
Employees	110,000	130,787	83,944
Research	400,000	400,000	340,000
Market development	25,000	27,593	14,288
Member relations	24,000	12,966	19,058
Memberships	94,000	114,234	94,186
Can. Pulse Researchers Workshop	–	–	15,915
	805,160	828,171	713,411
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES	$ 106,040	$ 67,013	$ 184,563

Statement Of Operations – Research Fund
For the Year Ended December 31, 2010

	2010	2009
REVENUE:		
Interest	$ 7,568	$ 953
Research support	400,000	340,000
Registrations and recoveries	112,360	106,061
Seed trials	35,600	40,200
Donations and grants	44,003	29,166
	599,531	516,380
EXPENSES:		
Administration fee (note 3)	7,568	953
Advertising	479	–
Equipment rental and purchase	250	3,592
GST expense	–	5,455
Meetings	7,370	5,320
Office and supplies	4,099	14,333
Research	316,700	408,693
Travel and accommodations	6,202	3,649
Wages and benefits	29,570	25,693
	372,238	467,688
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES	$ 227,293	$ 48,692

Statement Of Changes In Fund Balances
For the Year Ended December 31, 2010

	Administration Fund		Research Fund	
	2010	2009	2010	2009
Fund Balances beginning of year	$ 1,219,134	$ 1,034,571	$ 481,476	$ 432,784
Excess (deficiency) of revenues over expenses	67,013	184,563	227,293	48,692
Fund Balances end of year	$ 1,286,147	$1,219,134	$ 708,769	$ 481,476

Statement Of Financial Position
As at December 31, 2010

	Administration Fund	Research Fund	Total 2010	Total 2009
ASSETS				
CURRENT ASSETS				
Bank – unrestricted	$ 1,288,571	$ 716,337	$2,004,908	$ 1,720,951
Accounts receivable	7,568	–	7,568	21,540
	$ 1,296,139	$ 716,337	$2,012,476	$ 1,742,491
LIABILITIES AND FUND BALANCES				
CURRENT LIABILITIES				
Accounts payable	$ 9,992	$ 7,568	$ 17,560	$ 41,881
FUND BALANCES				
Unrestricted	$ 1,286,147	$ –	$ 1,286,147	$ 1,219,134
Restricted for research	–	708,769	708,769	481,476
	1,286,147	708,769	1,994,916	1,700,610
	$ 1,296,139	$ 716,337	$2,012,476	$ 1,742,491

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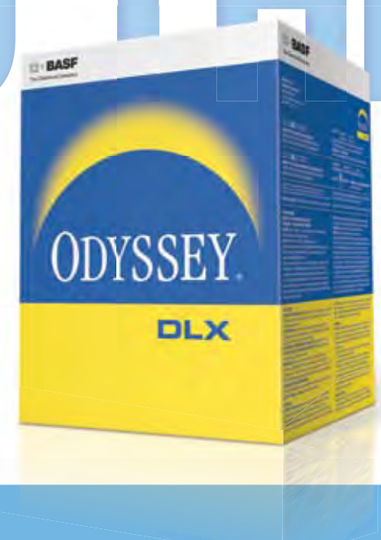

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Keystone Agricultural Producers (KAP) elected a new president and vice presidents at the KAP annual meeting held January 26 to 28 in Winnipeg.

Doug Chorney, a grains, oilseeds and forage seed crops producer from East Selkirk, was elected president. Doug served as vice president in 2010. Rob Brunel was elected to his fourth term as vice president. He is a grains and oilseeds producer from Ste. Rose du Lac. Dan Mazier was also elected vice president. He operates a grains and oilseeds farm near Justice. To view their full biographies, please visit www.kap.mb.ca.

Annual meeting delegates debated a long list of resolutions, and twenty-six have now become KAP policy. The following is a selection of what was passed:

BUSINESS RISK MANAGEMENT

AgriInvest Contribution Levels
- THAT KAP lobby the Government of Manitoba to maintain their current contribution level for the AgriInvest program.

AgriStability Program Fairness
- THAT KAP request that the Auditor General investigate the AgriStability program to establish why there is inequality in support between agricultural sectors; further,
- THAT KAP lobby the Government of Manitoba and the Government of Canada to resolve inequalities in support levels between agricultural sectors in future income stability programming.

MASC Methods Review
- THAT KAP request that the Minister of Manitoba Agriculture, Food and Rural Initiatives form a committee to review the timing and methodology used for grading harvested samples by Manitoba Agricultural Services Corporation for crop insurance calculations.

Excess Moisture Assistance Program – Deductible
- THAT KAP lobby the Government of Manitoba to pay the 5% deductible applied to eligible flooded out acres under the Canada-Manitoba Excess Moisture Assistance Program in 2010; further,
- THAT KAP lobby the Government of Manitoba to not apply a deductible to any future support programs unrelated to insurance programs.

Excess Moisture Assistance Program – Application Deadlines
- THAT KAP lobby the Government of Manitoba to allow for retroactive applications to the Canada-Manitoba Excess Moisture Assistance Program if the 5% deductible is removed.

Reference Margin Information
- THAT KAP lobby Agriculture and Agri-Food Canada to provide information about area specific farm incomes through commodity specific reference margins, based on production units.

MASC Measurement Tools
- THAT KAP lobby Manitoba Agricultural Services Corporation to use satellite technology as a fair way to measure crop losses in a disaster situation.

GRAINS, OILSEEDS AND PULSES

Canadian Plant Breeding Research
- THAT KAP examine the current system of publically funded plant breeding research and formal plant breeder rights with the intent of ensuring that farmers' interests are protected.

International Plant Breeding Research
- THAT KAP, in consultation with other producer groups, examine other national models of public research funding collection and distribution and possible applications for Canada.

Roundup Ready Soybeans
- THAT KAP lobby Monsanto to allow Manitoba farmers to continue to grow RR1 Roundup Ready soybeans under a user agreement.

Canadian Grain Commission
- THAT KAP study the best delivery method for the services that the Canadian Grain Commission currently provides.

For a full list of resolutions, please visit the KAP website at www.kap.mb.ca.

Keystone Agricultural Producers is Manitoba's largest general farm policy organization, representing over 7,000 farm families and 22 commodity groups throughout the province. Our strength is our democratic structure, and our mission is to represent and promote the interests of the province's farm families.

Pulses and Health Conference — Amsterdam, November 9–10, 2010

The Pulses and Health Conference was held on November 9 and 10 in Amsterdam, the Netherlands to promote the use of pulses in the European market place. Approximately 70 people including food processors, ingredient manufacturers, pulse importers and research institutions participated in the event. Pulse Canada partnered with Bridge2Food, a Dutch based company, to organize the conference.

Europe is the world's single largest market for Agri-food products with an estimated 450 million people within the 25 countries that comprise the European Union, as well as additional countries such as Norway and Switzerland. Historically, Europe has been a vital market for Canadian agricultural goods and remains an important destination today for Canadian pulses.

In 2009, Europe was the single largest market for Canadian beans taking 100,000 tonnes or 38% of exports primarily destined to the United Kingdom (UK) and Italy. For lentils, Europe was Canada's fifth largest market in 2009, importing around 100,000 tonnes with Italy, Spain and Germany leading the way. And it was Canada's third largest market for chickpeas the same year.

As recently as 2005, Europe was Canada's largest market for peas, much of it destined for the livestock feed sector in countries like Spain and Germany, but higher prices for peas in recent years have made them uncompetitive in this market. However, demand for peas for the food sector is on the rise in Europe. Companies like Roquette and Cosucra are processing well over 100,000 tonnes of peas annually into fractions destined for the food, feed and aquaculture sectors. Soufflet has opened a designated pulse mill in Southern France and Swiss based milling equipment manufacturer Buhler is focusing resources on pulse milling and extrusion with an eye on emerging opportunities in the food sector.

MAJOR THEMES OF THE CONFERENCE

Approximately 30 different companies were represented at the conference in Amsterdam. Participants were primarily importers, ingredient processors and food companies including major brand manufacturers such as Nestlé, Danone, Heinz and Barilla. Canada was well represented at the event with the Alberta, Saskatchewan and Manitoba pulse grower associations present, as well as producers from both Manitoba and Alberta. Canadian pulse processors at the event included InfraReady products and Best Cooking Pulses.

Ten speakers delivered presentations on a variety of topics including pulse breeding research, food industry trends, pulse processing, health research and sustainably. From the presentations, questions and discussion, it was clear that there were particular themes and areas that companies are interested in. They included:
- sustainability
- breeding for processing, nutrition and functional characteristics
- all aspects of pulse proteins (composition, functionality, applications)
- pulse processing developments (e.g. thermal treatment)
- flavours and textures
- medical nutrition
- infant nutrition

NEW MARKETS FOR PULSES IN EUROPE

With a growing consumer interest in sustainability in Europe, food manufacturers are scrambling to find foods that offer a lower environmental footprint. This interest is compounded by some of the world's most progressive and strict government regulations in this area. Pulses are of significance because of their ability to fix nitrogen, and because they are a vegetable protein source which makes them an attractive option for food manufacturers looking to develop new products or reformulate existing foods that are considered more environmentally friendly.

Cosucra, a Belgium based processor that manufacturers a significant portion of the world's inulin, derived primarily from chicory root and Jerusalem artichoke, has been producing pea protein, starch and fibre products for

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the food and feed sectors in Europe for the last 30 years, but on a relative small scale. They have strict gluten free procedures and market their product as non-soy, non-GMO vegetable protein. Cosucra is seeing increased demand for their pea products and more requests regarding the sustainability of peas.

With the rising demand for vegetable protein in Europe, new companies are also getting in on the game. Roquette, the world's largest starch manufacturer based in France, built a pea fractionation plant in 2005 with a capacity of 100,000 tonnes. Today they are at near capacity production and their products are currently being sold into food markets as well as into feed/aquaculture, paper and fermentation.

In Sweden, Go Green Foods is the largest processor and marketer of pulse products, including dried pulses, soups, marinated salads and salsas. They have repositioned their products in the last few years to appeal to a broader consumer base and developed new packaging which has stimulated consumer demand. Their approach includes extensive marketing, a focus on in-store (retail) activity, and continuous product innovation that inspires consumers with new flavours and recipes. They also use the Swedish Tetra Pak technology which provides a convenient and environmentally friendly packaging.

Other companies present at the conference included Kampfmeyer, a German based milling company, who is interested in pulses to provide products with higher levels of protein and fibre than more traditional flour products. In the UK, Heinz is continually innovating to provide consumers with an ever expanding selection of bean based products (e.g. reduced sugar, reduced sodium) and pursuing an aggressive marketing campaign to stimulate demand. The latest figures show that bean consumption in the UK is on the rise, already one of the highest per capita pulse consumers in Europe.

The Pulses and Health conference was a success in raising the profile of pulses and their potential for consideration in new product development and reformulation strategies. The event also demonstrated Canada's leadership role in the global pulse industry in the areas of production, supply, research and processing. It has opened many doors for collaboration with food manufacturers and ingredient companies which will ultimately lead to new and innovative food products on grocery store shelves and increased demand for Canadian pulses.

Europe is and will continue to be an important market for Canadian pulses in the future. Its sophisticated value added food sector and European consumers' strong interest in health and sustainability make it a prime market for development activities in coming years and increased demand for Canadian-grown pulses.

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Prabal K. Ghosh, PhD, PAg, PEng
Senior Scientist, Food Development Centre
Manitoba Agriculture, Food and Rural Initiatives

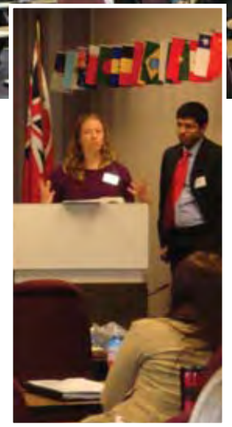
Food Development Centre and Canadian International Grains Institute hosted a one-day workshop on Pulse Research and Development in Manitoba on November 24, 2010 at the Canadian International Grain Institute in Winnipeg. This year's sessions featured the following:

- opportunities for pulse products in the marketplace
- pulse project updates from Pulse Canada and CIGI
- Manitoba Pulse Growers Association update
- pulse product innovations and research updates from the FDC, CIGI and the University of Manitoba.

Participants were also given a tour of the CIGI facilities along with pilot plant demonstrations.

This workshop was directed at pulse researchers and food scientists, food product manufacturers, health care professionals, agri-food agencies, and food industry associations. There were 35 attendees covering all of these sectors. The workshop was sponsored by Manitoba Pulse Growers Association, Manitoba Agri-Health Research Network, Pulse Canada and Best Cooking Pulses, Inc. The workshop is gaining popularity as it enhances communication of the ongoing pulse work being done in Manitoba.

A workshop for 2011 is in the planning stages. Check *www.manitobapulse.ca* in the fall of 2011 for more details.



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Michelle McMullen
Manager, Canadian Soybean Council

CHINESE DELEGATION VISITS CANADA TO LEARN MORE ABOUT THE CANADIAN SOYBEAN INDUSTRY

The Canadian Soybean Council (CSC) hosted a delegation of 13 representatives from the Bean Products Committee of the China National Food Industry on November 15 and 16, 2010 in London, Ontario. The Chinese delegation's interest in learning more about the Canadian soybean industry and our capabilities was a direct result of the outreach program that was planned in conjunction with the World Soybean Research Conference Beijing in August 2009.

A comprehensive two-day program, held in Ontario, provided an excellent opportunity to showcase the capabilities of the Canadian soybean industry. The first day of the program featured presentations from industry experts on topics such as identity preserved (IP) soybean production in Canada, production practices, IP processing and handling, research, and soyfood trends in Canada. A representative of the Chinese delegation delivered a presentation on the role of the Bean Products Committee of the China National Food Industry and provided an overview of the soybean industry in China. The presentation also addressed our initial meeting in the summer of 2009 and their strong interest to learn more about the Canadian soybean industry.

The second day of the program featured a tour of an IP soybean processing facility and an IP soybean farm. These tours provided the delegation with a "seeing is believing" experience. The visit to the soybean processing facility was well received by the delegation. The delegates took a keen interest in the procedures relating to grading, processing, storage, delivery, product specifications and pricing. During the farm visit, the delegation had the opportunity to learn more about the equipment used by IP soybean producers throughout the growing season and on-farm storage facilities. In addition, a small reception was held at the farm to welcome the delegation to Canada. A number of industry representatives and local IP soybean producers were in attendance to welcome the delegation and answer any questions.

Overall, CSC was very pleased with the success of the program. This initiative provided an excellent opportunity to increase the awareness of the Canadian soybean industry in the Chinese market and initiated an information sharing process between our industries.

CSC PROMOTES CANADIAN SOYBEANS AT 2010 SOYA AND OILSEED SUMMIT

CSC showcased the quality attributes of Canadian soybeans at the Soya and Oilseed Summit held in Minneapolis from October 4–6, 2010. CSC's participation in the trade show was an excellent way to promote Canadian soybeans to potential buyers from around the world. This annual event attracted over 600 attendees from approximately 48 countries. Conference and trade show attendees represented the food and feed segments of the soybean value-chain. In addition, many suppliers such as equipment manufacturers, transportation firms, seed developers and consultants were also in attendance.

Over 200 conference attendees visited the CSC booth to learn more about Canadian soybeans and our industry's capabilities to produce and supply high quality soybeans to world markets. CSC handed out approximately 150 CSC publications that were designed to promote and raise awareness of Canadian soybeans. There was also a keen interest in the Canadian Food Grade Soybean Database, which is hosted on the website of the Canadian International Grains Institute (CIGI). A list of inquiries and potential sale leads was developed and distributed to appropriate industry partners for follow-up.

Overall, CSC was very pleased with the success of this initiative and is currently planning our attendance at the Soya and Grain Trade Summit in St. Louis on October 31–November 3, 2011.

Great Tastes of Manitoba

MPGA participated in the 2010–2011 season of *Great Tastes of Manitoba* (GTOM). This long-running Manitoba cooking show was nominated for the 2010 Governor General's Award in Celebration of the Nation's Table. Manitoba Pulse Growers Association's episode, *Pulses: Perfect for the Party,* first aired on Saturday, October 23, 2010 and is being re-broadcast **Saturday March 26, 2011 at 6:30 pm**.

To receive your copy of the recipes featured on *Great Tastes of Manitoba* please call the MPGA office at 204.745.6488 or visit us online at www.manitobapulse.ca.

Thank You Sponsors

for your continued support, cooperation and participation.

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

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

Every year in Manitoba, six to seven people die traumatically as a direct result of farm work, about 125 people are hospitalized because of farm work injuries and it is estimated another 5,000 or more seek medical aid for work related injuries and illnesses. The impact of what these incidents place on the economy, as well as social burden on not only the injured person, but also the family, the farm business and the community at large is great.

Have you ever thought about the real cost to your business if you, a family member or a worker are injured or killed in a farm related operation?

In the short term, one might think about the loss of a key person. Who would manage the operation? (You know it…just because the seeds are in the ground it doesn't mean the work stops!) What about legal ramifications – who has signing authority? In the long term, what happens if you cannot physically continue farming? Can the farm be maintained? What would the tax implications be if the farm needs to liquidate?

Using sound business practices in the areas of risk management, there are a few things that you can do:

1. Identify the Risks – the events that will have a negative effect on your business if they occur. Start by asking questions like the following:

- What could cause a serious injury or illness in your business?
- What injuries or illnesses could cause a substantial cost increase?
- What safety and health issues in your business cause you concern?
- What events could force you out of business?
- Do other members of your family work on the farm or in the business? What would happen to your business if one of them left or were injured?
- Do you hire casual employees? If so, what would happen to your business if they left or were injured on the job?
- Do you use chemicals in your operations? What would happen to your business if there was a spill and someone was exposed or an environmental contamination occurred?

2. Assess the Risks – look at how likely these things are to happen and what affect they would have on the business if they did. Events that can be handled fairly easily and quickly aren't as high risk as events that can threaten the survival of the business.

Rate these risks into four basic categories: **accept, transfer, reduce and avoid**. For example, you might want to rate the possible effects of the following kinds of problems:

- Would having a family member injured and unable to work during seeding or harvest cause your business to fail?
- How likely is it that an employee would get hurt and perhaps sue you if you didn't provide protective gear for handling chemicals?

3. Can you live with the risk? Deal with it if it comes up? **Develop Risk Control Strategies** to avoid the problem (risk) or handle it effectively if it comes up. You need to ask what you can do to reduce the likelihood and impact of the risk:

- Sample strategy at the source: Fix or replace damaged or missing guards so that no one can come in contact with moving parts.
- Sample strategy along the path: Install an exhaust fan to remove welding fumes from the welding area of the workshop.
- Sample strategy for the worker: Have everyone understand that using safety devices and following procedures will permit them to go home injury free at the end of the work day.

4. Reassess Risks – Once you have figured out how much risk you can tolerate and ways to avoid or reduce the risks you've identified, you need to reassess them in light of your strategy. Now that you've thought of ways to

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RR Russell	50.8	122
NSC Portage RR	54.0	123

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MPGA–*Working for You!*

Production/Agronomic

- Board members attended the Ontario Oil and Protein Seed Crop Committee (OOPSCC) meetings in London, Ontario. Topics discussed included reviewing public and private soybean trials, variety registration support and revision of guidelines for soybean testing.
- Helped organize the 5th annual Manitoba Special Crops Symposium, which took place February 9th and 10th at the Winnipeg Convention Centre.
- Organized, with NSAC, the Special Crops Production Day on March 3rd in Brandon.
- Participated in CSC's IP Soybean Production Day on February 8th. This was an educational session to learn more about IP soybean production and the opportunities available for growing IP soybeans.
- Attended Prairie Grain Development Committee (PGDC) meetings in Winnipeg to discuss new cultivar registrations.

Research

- Sponsored and attended a Pulse Research and Development workshop hosted by the Food Development Centre and the Canadian International Grains Institute.
- Conducted a Call for Research Proposals for edible beans, soybeans, peas and faba beans in December. The edible bean, soybean and pea/faba bean committees met in February to review all research proposals. Information on the research projects approved for funding in 2011 will appear in the next edition of *Pulse Beat*.

Market Development

- Participated in Pulse Industry Roundtable (PIRT) meetings and Marketing Working Group (MWG) conference calls. The PIRT MWG aims to develop strategies to increase pulse consumption in Canada.
- Met with Pulse Canada and publisher of *Ciao!* magazine to discuss potential future promotion of the pulse industry in Manitoba through local distribution of the magazine.
- Attended the foodManitoba group meeting to discuss the 2012 season of *Great Tastes of Manitoba*.

Policy

- Attended KAP's Commodity Group meeting and 26th Annual General Meeting in Winnipeg.
- Attended the Grains/Pulses/Special Crops Steering Committee meeting regarding On-Farm Food Safety meeting in Carman in December and March.
- Attended MAFRI's Industry Consultation on '*Agriculture as a Solution* – the development of a new strategic direction.' A follow-up report will be available online once the facilitators compile the discussions.
- Met with the Inter-American Institute for Cooperation on Agriculture (IICA) and Pulse Canada to discuss possible collaboration on future international trade missions.
- Provided MPGA's position on CGC's User Fee Consultation in conjunction with CSCA.
- Met with MASC's board of directors to discuss the change in stage 2UH indemnity level to 85%, changing the grade guarantee for field peas and 500 share basis contracts.

Communications

- Conducted a successful strategic planning session with board members. This direction will help MPGA continue to grow and support the pulse industry in Manitoba.
- Participated in Manitoba Ag Days in Brandon. MPGA had a booth set up, providing information on its activities and handing out pulse recipe books.
- Had board and staff representation at Sask Pulse Days in Saskatoon and FarmTech in Edmonton.
- Participated in Special Crops Symposium in Winnipeg. MPGA had a booth to communicate with its members.

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

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address the risks; what kind of affect will they have on the business if you use your strategy? If a risk is now avoided or is reassessed as acceptable to you, then you've been successful. If not, you'll have to go through the process again until you can accept or avoid each risk.

If you think it can't happen to you; it can. In November 2010, Dr. Ted Redekopp released *Agricultural Fatality and Injury Data for Manitoba*. As reported there were 96 fatalities since 1995 including 7 in the year 2010. 50% of fatalities are due to machinery contact; 70% of the fatalities occurred in older farmers.

To see the complete report go to *www.casa-acsa.ca* and follow this path:

⇨ Resources ⇨ Print ⇨ Agricultural Fatality and Injury Data for Manitoba. *Fatalities for 1995–2009 and Hospitalized Injury Reporting for 2000–2008*, November 2010 ⇨ Click on DOWNLOAD for the PDF version of the report.

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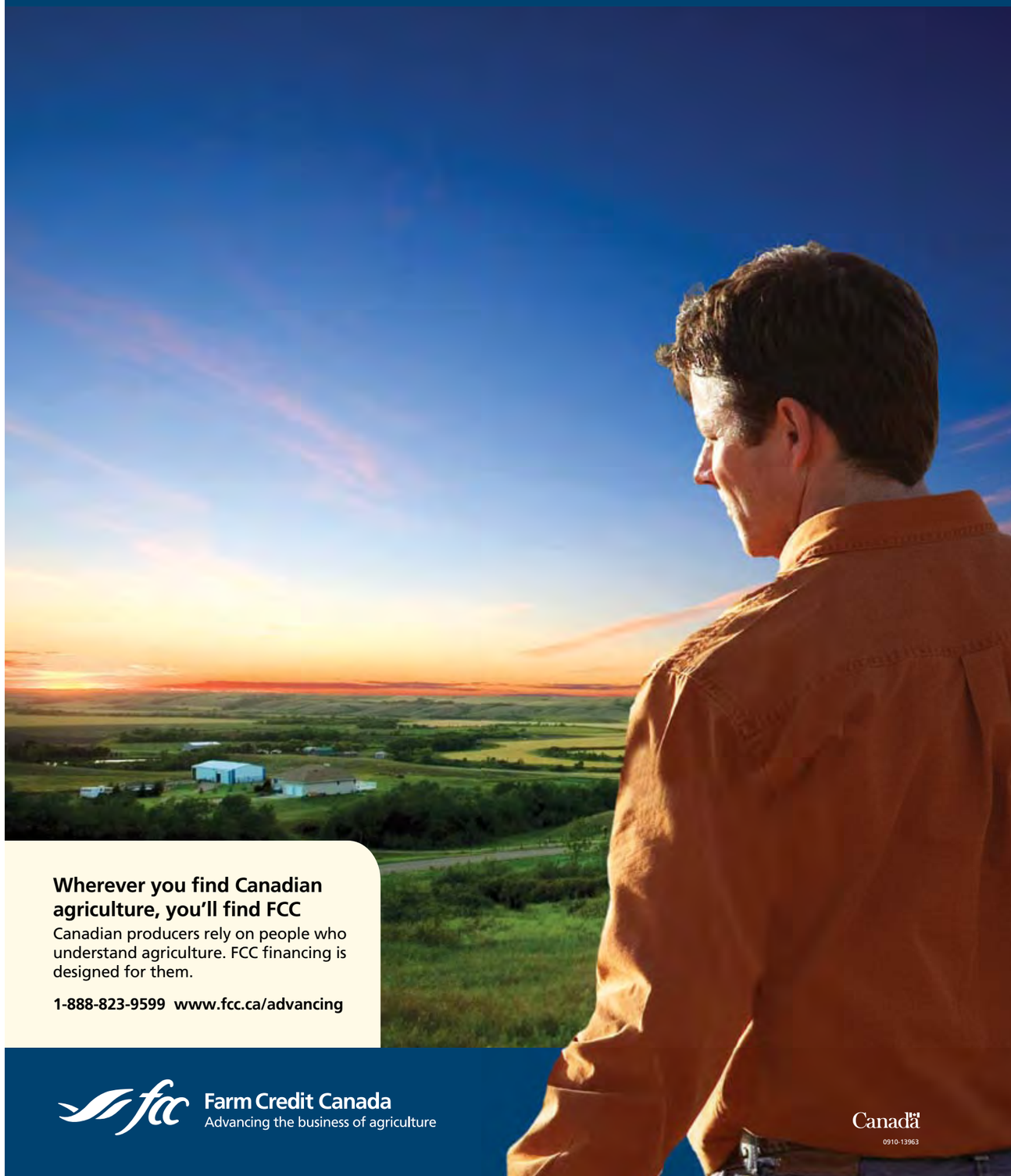

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Brent Reid
Farm Production Advisor – Pulses
Manitoba Agriculture, Food and Rural Initiatives

In 2010, MPGA and MAFRI initiated on-farm field scale trials to investigate the effect of row spacing and population in soybeans. Current recommended seeding rates to achieve 180,000–200,000 plants/acre are based on solid seeding and with older varieties. Growers have access to new equipment, new varieties and the price of seed has become a major cost. Determining if a reduced seeding rate is agronomically sound would save growers money.

Maximum Yield is not always the same as the Maximum Economic Seeding Rate (MESR). This is because the cost of the extra seed to get the highest yield is more than the value of the extra yield produced. Determining the MESR is important because it considers both yield and seed cost when deciding on seeding rate. Ontario studies have shown that the MESR is a lower yield.

Fifteen growers participated and were spread throughout the soybean growing region from Lac du Bonnet to Altona. This represented a wide range of soil types, seeding equipment, varieties, available Crop Heat Units (CHU) and weather conditions, especially excess rainfall. Growers were asked to adjust one factor such as population or row spacing.

The nine varieties seeded included Portage, Warren, LS0065, 25-04R, 24-60R, 90A06, 90M01, Isis and Prudence. Seeding equipment included both air seeders/air drills and planters. It is interesting to note that the air seeders and air drills were equipped with narrow openers as opposed to wide shovels. Some used a combination of air drills and planters. Eight growers used air drills or air seeders (Flexicoil, Bourgault, Concord, Amity Twin Disc) with a range of spacing (6/9", 7", 8", 10", 12"), and combinations of on-row and overall packing. Eleven growers used planters (JD MaxEmerge 1770, JD 22", Case Early Riser, JD DB 44 24 row, JD 15 or 30" spacing) with various row spacing (four used 15-inch planters, two used 22-inch planters, five used 30-inch planters).

TARGET AND ACTUAL POPULATION

Producers supplied their target population seeding rate for 100% seeding rate, 80% seeding rate and 60% seeding rate or some combinations that represented reduced seeding rates. Approximately 30 days after seeding, MAFRI staff counted actual plant populations to determine the differences from the target population. Results were grouped by seeder type but not by row spacing. Air seeders/air drills showed the trend that mortality was higher with increased seeding rates most likely due to interplant competition.

Air Seeder/Air Drill

	Target	Actual	% of Target
High Pop	236,222	159,915	68
Med Pop	194,571	143,015	74
Low Pop	158,821	121,378	76

Growers using planters had lower initial target populations and better seed survival. When comparing similar target populations of 194,000 for air seeders and 197,000 for planters it is evident that plant establishment was better for planters. Planters had an actual population of 173,000 (88% survival) and air seeders had 143,000 (74%).

All Planters

	Target	Actual	% of Target
High Pop	197,100	173,077	88
Med Pop	159,778	145,884	91
Low Pop	114,600	104,253	91

The overall average survival rate was 90% for planters and 73% for air seeders. This would result in approximately 17% less seed required with a planter to achieve similar populations.

POPULATION VARIABILITY

A number of fields were measured for population variability to see what the highest and lowest counts were. This was done to see how accurately the equipment was seeding. The following chart shows three pieces of equipment that were picked at random to show variability. They are not representative of all pieces of equipment in that class. All seeders had a range that was both above and below the target population.

Population – Variability

	% of Target	Highest %	Lowest %
Air Drill	89	108	72
30" Planter	93	106	81
22" Planter	86	111	52

continued on page 27

YIELD

Yields were taken by the growers either using combine monitors or weigh wagons. Equipment was again grouped as air seeders or planters. There was not enough data gathered to establish firm population targets for yields but the trend lines are evident. For example, yields from individual fields seeded by planters ranged from 50 bu/acre down to below 20 bu/acre, which was mostly due to excess rainfall.

When a single trend line for planters is drawn it shows that yields increase as the populations increase but it is not as significant as with air seeders. This indicates that yields are more affected by population with air seeders than planters.

HEIGHT OF PODS OFF THE GROUND

The height of the first pods off the ground is important as it could affect harvestability and increase harvest losses at the cutter bar. Pod heights were measured using a 2x4 laid on the ground to give a 1.5" height off the ground. Any pods that hit the 2x4 were considered lost at harvest. There is the theory that wider row spacing could cause plants to set their first pods higher due to interplant competition. Planters in general had less pods set low to the ground and other than in the low populations, the potential losses are insignificant. There are many factors that can affect initial pod height including temperature at emergence, growing conditions and population.

Losses Due to Low Pods (1.5 inch)

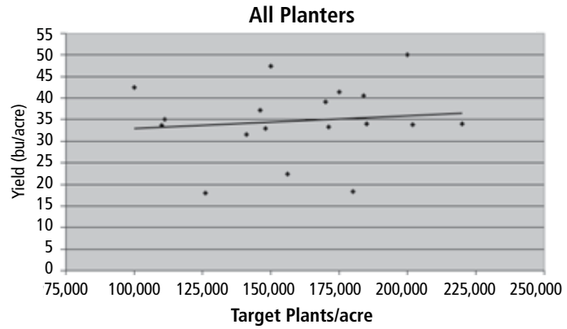
	Bushels/Acre	
	Air Seeder	Planter
High Pop	0.7	0.2
Med Pop	0.7	0.4
Low Pop	1.8	0.9

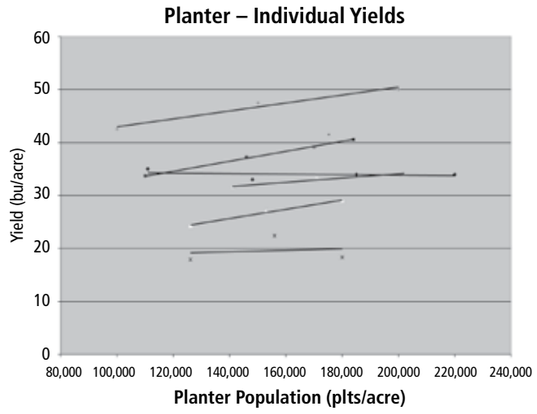
NOTES REGARDING POD HEIGHT

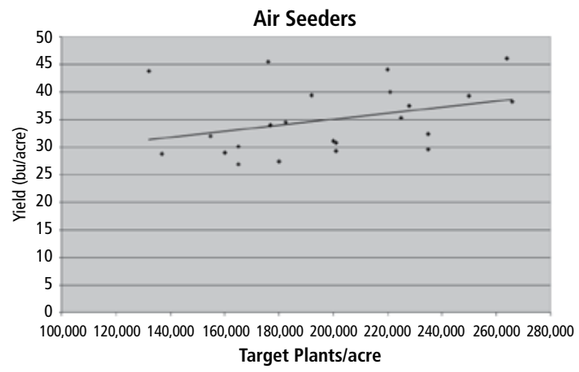
- There were no significant differences between populations and row spacing for height of pods off the ground or the number of pods that were below the 1.5" this year. We had a decent warm spring and seeding was in May, not June. Under cold conditions you can get shorter internode elongation.
- We did see one farm where the low population in 30" rows lodged late in the year and some pods were very close to the ground because of that.
- Seeding date can influence pod set. Late seeding can result in pods set on cotoledonary nodes instead of the 1st trifoliate.

SUMMARY

- We need to gather information for another couple of years.
- Weather (excess rainfall) had a big influence. Most locations got 150% or more of their normal precipitation.
- Not all of the data could be used.
- There were numerous combinations of row spacing, variety, seeding population and locations and it was difficult to determine which combination had the biggest effect.
- Planters were better for seed survival and required less seed than air drills to achieve the same population.
- Yields between medium and high seeding rates for planters weren't very different.
- Highest yields for air seeders were from high populations.
- Keep seeding rates up if planting in June or if conditions are poor.
- We need to look at the interaction between row spacing and variety in the future.







SOYBEAN COLLECTIONS AT MORDEN RESEARCH STATION

Anfu Hou, *Dry Bean Breeder*
Agriculture and Agri-Food Canada
Morden Research Station

To evaluate worldwide soybean germplasm for use in public breeding in Manitoba, 155 soybean lines were introduced from the USDA Soybean Germplasm Collection. These lines were originated from many countries but most came from China, Japan, and Russia, with maturity groups (MG) classified as MG 000 to MG 00. In the preliminary evaluation conducted in 2009, variation was observed in plant growth type, plant height, pubescence colour, maturity, seed size, hilum colour and yield potential. In 2010, these lines were grown again at the Morden Research Station. Check cultivars were used for comparison and included Trail (MG0.0), Maple Ridge (MG00.3), Glacier (MG00.8), Jim (MG00.8) and Maple Presto (MG000.9) (kindly provided by Dr. Elroy Cober, Soybean Breeder, AAFC-ECORC).

The soybean lines were planted in three replications with 100 seeds per plot in a single row of 5 m long and 0.6 m in spacing. Field observation was taken on flower colour, flowering and maturing dates, disease resistance, lodging resistance, growth habit, shattering resistance, seed size and hilum colour, pubescence and pod colour, and yield potential.

Overall, the collections performed really well in 2010. The majority of the lines appeared very adapted to the Manitoba growing conditions. The flowering date varied significantly: from July 15 to July 30. Both determinate and indeterminate growth types were observed. Disease and shattering were not major concerns. There were no symptoms of leaf chlorosis (mineral deficiency) observed in the field. The lodging resistance was evaluated with a scale of 1 (no lodging) to 5 (severer lodging) and the ratings ranged from 2 to 4.5. The maturity varied significantly among different accessions: from September 25 to October 15. Most of the lines matured earlier than the check cultivar Trail (MG0.0, October 4). There were 16 lines that matured later than Trail, which may be classified into MG 1.

The seed coat colour was predominantly yellow; however, 5 lines had black seed coat, 19 lines had green seed coat and 11 lines had brown seed coat. Various seed hilum colour was observed and ranged from transparent (yellow) to black. The 1000-seed weight ranged from 82 to 355 grams. Lines were identified and can be used as breeding material for large-seeded tofu bean or small-seeded natto bean types. The seed yield varied significantly, ranging from 230 to 2617 lb/ac. Elite lines were selected and sufficient seed was produced for replicated tests in 2011. The germplasm with high yield potential, good seed quality and suitable adaptation to Manitoba will be used in crossing for cultivar development.

BIO-BASED EPOXY FROM FUNCTIONALIZED SOYBEAN OIL

Manju Misra, *Associate Professor*
School of Engineering & Dept. Plant Agriculture, U. of Guelph

This project looks to find value-added applications of soybean which will provide economic returns to soybean growers. The premise is to utilize field crop residue, mainly soybean stalk and chemically modified soybean-oil bioresin, in engineering a novel class of green composites for use in building and furniture industries.

Soybean stalks are available in large quantities after harvest, and are normally discarded in the field as mulch or used as animal feed. However, much of the soybean stalk can be removed without significantly affecting the fertility and carbon content of the soil, can be used in value-added composite applications, and contain cellulose-based fibres. Vegetable oils such as soybean oil can be chemically functionalized to make useful intermediates such as polyols and epoxidized oils, which can be used as plastic additives or as monomers for making high value, bio-based, renewable polymeric materials.

Our recent studies have focused on finding value-added uses of soybean, from both the soybean stalk and the chemically functionalized soybean-oil (epoxidized soybean oil, ESO). The ESO is already commercialized: Arkema and Chemtura are the chemical processors and suppliers for ESO in North America. Currently, the cost of ESO is comparatively less than that of petro-based epoxies, but the price is still expected to decline as the economies of scale improve. We estimated the cost of the soybean stalks to be around $0.15/kg.

100% ESO cannot be used alone to make epoxy composites because the resulting material will show inferior properties in comparison to petroleum derived epoxy. Therefore, we have combined varying amounts of the ESO (30, 50 and 70 wt %) with petro-based epoxy (Diglycidyl Ether of Bisphenol A, DGEBA) in the presence of a curing agent at 100°C to make the soybean based hybrid epoxy prototype panels. The panels showed good transparent and impact strength due to the plasticization effect of the soybean oil. Petro-based epoxies are inherently brittle and the addition of ESO might be another way of reducing the brittleness. However, the tensile and flexural strength were reduced by the presence of the ESO possibly due to phase separation of the two components. To address this incompatibility, we incorporated commercially available functionalized nano-based materials (polyhedral oligomeric silsesquioxane, POSS) during the curing reaction. The addition of 5 wt % of the epoxy functionalized POSS enhanced the mechanical properties of the hybrid epoxies, and significantly improved impact strength.

This improvement in impact strength was attributed to the fact

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that the terminal reactive end groups of the POSS can effectively crosslink with the curing agents, thereby helping compatibilize the ESO and DGEBA. It was also found that the addition of the ground soybean stalks (sieved through a 2 mm mesh) to the epoxy composite containing 30 wt % ESO and 70% DGEBA, reduces the tensile strength by 62% and significantly increases the elastic modulus by 20%. The hydrophilic nature of agricultural fibres (including soybean stalks) presents a problem in natural fibre composites. Natural fibres tend to agglomerate as the loading is increased and this may lead to poor dispersion in hydrophobic polymers, which can negatively affect the mechanical performance of the composite, especially tensile strength. Thus, various fibre surface treatment techniques and coupling agents have been developed to improve the fibre-matrix adhesion. We attempted to surface treat the soybean stalks with titanate to reduce its hydrophilicity and improve adhesion with the epoxy. Upon the addition of 30 wt % of chemically treated soybean stalks (5 wt % of titanate solution) to the epoxy composites containing 70:30 ratio of DGEBA to ESO, and 5 wt % POSS, the impact strength of the composites was further improved.

Since soybean stalks are hydrophilic they tend to absorb water, which can cause a drastic reduction in mechanical properties. It was found that the water absorption tendency of the soybean stalk fibres was significantly reduced by 66 and 77% when the soybean stalks were treated with 5 and 10 wt % of titanate solution, respectively. The prepared soybean oil/stalks epoxy composites are promising since they are "green," renewable and sustainable whilst having better impact strength and stiffness.

This research project will add value to soybean stalk by creating bio-based renewable epoxy composites with significant commercial value. This can later be extended to other types of field crop residues, such as peas, edible beans, etc. that are grown in Manitoba. Our preliminary studies show that approximately one metric ton of soybean stalks are produced per acre. Based on an average of 425,000 soybean acres in Manitoba, there is potential to generate about half a million tonnes of soybean stalks. About 500–700 kg/acre of soybean stalks can be collected annually without significantly affecting the soil fertility. The value-added uses of these soybean stalks in composite applications have the potential to generate extra revenue for growers in Manitoba.

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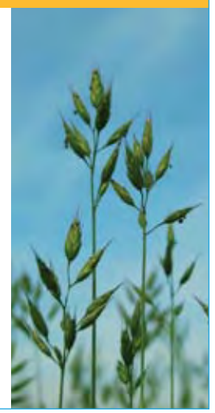

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Joyce Boye,
Agriculture and Agri-Food Canada
Saint-Hyacinthe, Quebec

The market for nutritive whole foods which offer health benefits and convenience is on the rise. A parallel development in food processing in recent years has been the increased formulation of foods containing probiotics. Consumer interest in the use of probiotics has soared in the last several years as research has unveiled their potential nutritional benefits. Probiotics are bacteria that positively influence gastrointestinal health and many of them use fibre as their source of nutrition in the gastrointestinal tract.

One of the Pulse Cluster projects recently funded by the Growing Forward initiative of Agriculture Canada with matching funds from the pulse industry is looking at the development of novel high fibre and easily digestible canned and frozen bean products. Various reports have suggested that a major deterrent to pulse consumption in North America is the gastrointestinal discomfort experienced by consumers after pulse consumption. This is especially true in the case of the elderly. As a result, in spite of their positive health benefits, pulse consumption in North America remains lower than the recommended intake levels.

Pulses, including peas, chickpeas, lentils and beans, are very healthy and contain high amounts of fibre, protein, vitamins and minerals. In addition to the desired positive benefits of a high fibre diet, some consumers experience discomfort after consuming pulses due to the absence of fibre digesting enzymes in the human gastrointestinal tract. Beneficial bacteria in the lower intestines feed on the undigested fibre in the colon resulting in fermentation and the associated abdominal discomfort. The current project therefore aims to explore the use of processing enzymes and probiotics to improve the digestibility of pulses while maintaining their nutritional value.

The specific objectives of the project include: (a) preparation of an extensive literature review, which will assess social perspectives and acceptance of the use of probiotics in foods, specifically, frozen and canned bean products; (b) optimization of techniques to improve the quality of partially cooked frozen bean products; (c) development of novel frozen and canned bean products that are easily digested through the application of selected enzymes/probiotics at specific stages during processing and food preparation; and (d) sensory evaluation and human clinical trials to assess improvement in product digestibility following treatments.

The project is an initiative of Bonduelle, a major player in the market of fresh and frozen ready-to-eat and ready-to-use fruit and vegetable products in North America and Europe. Other funding partners include Manitoba Pulse Growers Association and Pulse Canada.

The research, which started at the end of 2010, is being conducted at Agriculture and Agri-Food Canada's Food Research and Development Centre in St. Hyacinthe, Quebec. The research team is made up of three AAFC research scientists, namely, Dr. Joyce Boye, Dr. Claude Champagne and Dr. Byong Lee, who jointly bring many years of expertise in food biochemistry, food processing, microbiology and food enzymology. In addition, two recent graduates from the Department of Food Science at McGill University, Dr. Elham Azarpazhooh and Dr. Sung Hoon Park, have been hired to work on the project. Dr. Azarpazhooh conducted her doctorate research on the impact of novel food processing technologies on food texture and quality. Dr. Park's doctoral research focused on microbiology and enzymology. Together the team will bring to the project many years of research experience in the processing of a variety of food products, including soybean and pulses, and in studying the behaviour and nutritional properties of foods in different systems. The research team will be working in close collaboration with Mr. Michel Casgrain of Bonduelle and other personnel from the company to ensure that results obtained are quickly translated in order to speed up the availability and use of any new knowledge generated.

The proposed project has very good prospects for the development of novel high fibre and easily digestible canned and frozen bean products which can be prepared quickly for consumption. Growing consumer interest in these products could ensure a market in North America and potentially abroad which should translate to increased economic output and enhanced markets for farmers.

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continued from page 32

DJ Bing
Agriculture and Agri-Food Canada
Lacombe Research Centre, AB

2010 was noted as a special year for the pea breeding program. The amount of moisture received and the extremely high disease severity in the majority of testing sites have not been seen for a long time. Many high yielding breeding lines had very low yields, and some low yielding check varieties produced the highest yields. This makes it uncertain whether the best breeding lines selected in 2010 will retain their yielding ability in the coming years when the environmental conditions return to 'normal.' A few testing sites were severely affected by the excessive moisture and failed to produce usable information. Despite these difficulties and challenges, the breeding program has progressed as planned.

1. **Breeding lines in the pea cooperative registration (co-op) trials**: We had 27 breeding lines tested in the co-op trials, including 21 yellow pea, 5 green pea, and 1 orange pea (MP1882). The co-op trials were grown in Morden, MB; Lacombe, AB; and 11 other locations across western Canada. Two green breeding lines had significantly higher yield than the check varieties, and may be proposed for variety registration. The orange pea line had higher yield than the yellow pea check varieties Cutlass and CDC Golden in 2009, but had much lower yield in 2010. Thus, it is likely that the average yield of MP1882 is not its actual yield potential. It is not clear whether there is any market for orange pea in Canada, so we have not decided whether to propose it for variety registration or not. Nevertheless, MP1882 should be a valuable germplasm line for future breeding programs. 8 of 27 lines in the first year co-op trials had higher yields or better characteristics, and we are considering advancing them to the second year co-op trials in 2011 for further evaluation. We expect one or more lines will be proposed for variety registration after the second year co-op test.
2. **Plant Breeders Rights** (PBR): One variety, Argus, has been granted PBR by CFIA. Argus is a yellow pea variety licensed to SeCan for commercialization. We also conducted the first year PBR trials of another variety, MP1862, in Lacombe.
3. **Candidate varieties**: Four candidate varieties, MP1861, MP1862, MP1864 and MP1867, were recommended for variety registration in February 2010. MP1861 is a large seeded yellow pea, MP1862 is the highest yielding variety in the 2008–2009 co-op trials, MP1864 has very early maturity, and MP1867 is a green pea variety with very good bleaching resistance and seed colour. Through AAFC's variety release program, MP1862 was licensed to Canterra Seeds for commercialization. No one was interested in the other three varieties, and it appeared that seed companies were mostly concerned with seed yield. Recently, a seed company in Saskatchewan has shown interest in commercializing MP1867. We have produced breeder seeds for all four varieties, which will accelerate the marketing process if some seed companies become interested in marketing any of them.
4. **Pre co-op trials**: The objective of this breeding component is to further evaluate and purify the breeding lines selected from the advanced yield trials a year earlier and to produce enough seeds for co-op trails next year. We grew and purified 23 lines in Morden and Lacombe. These lines will be evaluated in the 2011 co-op trials.
5. **Network yield trials**: 144 breeding lines, including three check varieties, were grown at eight locations to evaluate their performance and to select the best lines. We have tentatively selected 28 lines from these trials, which will be further increased and purified in the Pre co-op trials in the coming season.
6. **Preliminary yield trials**: 20 tests, consisting of 33 breeding lines and three check varieties, were grown to evaluate their performance. We selected 153 lines to advance to the 2011 Network yield trials.
7. **Development of breeding materials in early-middle generations**: Numerous breeding lines were developed from the F1 to F6 generations. They include yellow pea, green pea, marrowfat pea and maple pea.
8. **Other breeding activities**: We also conducted winter pulse trials in Lacombe with pea, lentil and faba bean. We are evaluating the breeding lines containing approx. 30% of protein in the seeds, hoping to develop varieties with improved protein content. We also grew the Manitoba Regional Variety Trials and Alberta Regional Variety Trials. That data has been placed in the provincial Seed Guides. In the area of disease resistance, we evaluated two germplasm accessions from USDA, which reported better resistance to pea ascochyta disease. However, evaluation in the field showed that they were leafy type peas, had very late maturity, and had no better resistance than other known germplasm. Thus, it remains a challenge to find any usable germplasm resistant to ascochyta. A breeding line from our own breeding program has shown to be highly susceptible to downy mildew. We hope to use it as the susceptible check in the breeding program to select resistant germplasm for this disease.

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Acknowledgement
We thank Manitoba Pulse Growers Association and its staff for their generous and kind support for the breeding program. The program has also received strong support from AAFC and Alberta Pulse Growers Commission.

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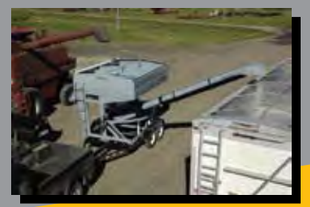


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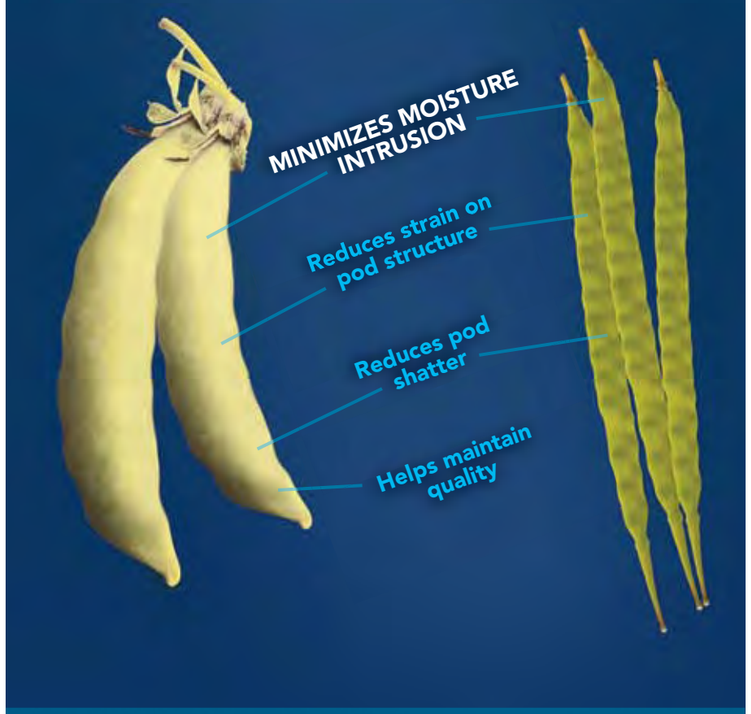

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DJ Bing
Agriculture and Agri-Food Canada
Lacombe Research Centre, AB

Mung bean is a small-seeded legume that can potentially be grown in most regions adapted for soybean and dry bean production. Thus, mung bean may be suitable to southern Manitoba. In 2007 and again in 2009, the AAFC Pea Breeding program at the Morden Research Station (MRS) undertook exploratory trials of mung bean. We introduced many elite breeding lines from China and grew them at the AAFC Morden Research Station. The majority of the introduced lines reached maturity and set seeds quite well. Unfortunately, the information from these trials was very limited due to very limited seeds available and limited resources. In 2010, with financial support of the Manitoba Pulse Growers Association, we were able to extend our exploratory studies from earlier years. The objectives of the present study are to evaluate the

Figure 1. Growth of the six mung bean genotypes on August 4, 2010.

mung bean lines introduced from China that matured and set seeds in our exploratory trials, select the ones best suited to southern Manitoba, and investigate the appropriate seeding date.

Six of the Chinese mung bean genotypes (Table 1) identified from the 2007 exploratory trials were seeded at AAFC Morden Research Station. The experimental design was a randomized complete block with three replications and two dates of seeding. Plots were seeded using a plot seeder. The seeding depth was 1.5 cm. Each plot was 1.2 m wide and 6 m long, consisting of 4 rows with 30 cm row space. The seeding rate was 45 germinating seeds m^2. No rhizobia inoculums were applied to the plots. The soil type was clay loam. The plots utilized natural rain fall without any irrigation during the entire season. Hand-weeding and the herbicide Poast Ultra was applied to control weeds. The number of days from seeding to the onset of flowering (DTF) was recorded as a reference of maturity. As well, the number of trifoliate was recorded on June 28 and July 15 as a measure of the stage of plant development. By September 15th most of the plots had 80–90% brown pods. At this time, crop desiccant Reglone was applied to assist with plant dry-down. All plots were harvested on September 28th. Plots were combined using a plot combine, and seed yield and weight were recorded.

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Figure 2. Abnormality of leaves observed.

Table 1. Genotypes and seeding dates in the study

Genotype	TSW (g)[1]	Seeding Date	
		1st Seeding	2nd Seeding
CH0601	32	May 17	May 26
CH0606	36	May 17	May 26
CH0609	33	May 17	May 26
CH0611	45	May 17	May 26
CH0616	57	May 17	May 26
CH0619	53	May 17	May 26

Peas offer a Novel Approach

Laura Sawyer
Food Development Centre

Pulses are gaining momentum as healthy, popular food choices because they are low in fat and high in protein and fibre. Recent research reports conclude that pulses play a role in weight management, and may be helpful in the control and prevention of diseases like diabetes and heart disease.

Pulses and pulse flours are also gluten free making them an ideal fit for the rapidly growing "functional" and "gluten-free" food markets. According to a recent report from Packaged Facts, the health and natural foods market in North American exceeds $22 billion USD annually (2004) and the gluten-free market has grown at an average rate of 28 per cent annual since 2004.

Traditionally peas have been marketed for human consumption as bulk products and for animal feed. Their popularity has been limited in the food sector because they are hard-cooking and time consuming. According to Sheri Strydhorst, executive director of the Alberta Pulse Growers Commission, the majority of Canadian peas are exported to two price-sensitive customers, India and China. Market-dependence is a major concern and a driving force to diversify through innovative utilization of peas and pea fractions which appeal to North American and European consumers. Consumers in these markets crave the health and environmental benefits of pulses in culturally acceptable food products.

Several pulse milling technologies are available in Canada and pea flour and pea fractions such as pea protein, pea starch, and pea fibre are now available in addition to whole and split forms. The availability of commercial pea flours and fractions gives rise to unlimited opportunities for peas in many food applications.

Pea protein and fibre have been studied and utilized in bakery, cereal-based, and health food products because consumers demand higher protein and fibre. However, demand for pea starch is low and the starch fraction is often underutilized. Pea starch has excellent gelling, fat limiting, water binding properties and the potential to be a functional ingredient in food applications.

A research project conducted by the Food Development Centre in Portage la Prairie, MB and sponsored by Alberta Crop Industry Development Fund Ltd, Alberta Pulse Growers, Pulse Canada, Manitoba Pulse Growers, and Parrheim Food is investigating the use of pea fractions (starch, flour, fibre, and protein) in batter and predust coatings of value-added products. Three food applications will be assessed: French fries, mozzarella sticks, and onion rings. The suitability and benefits of using pea starch in combination of other pea fractions to replace traditional corn starch and wheat flour will be evaluated.

RESEARCH INSIGHT: BATTERED FRENCH FRIES

According to Agriculture and Agri-Food Canada, frozen French fries are the largest export in the frozen food category. Many restaurants today serve battered French fries as a low-cost alternative to natural (un-battered) French fries. Pea fractions offer a Canadian-made, affordable, environmentally friendly way to produce gluten-free battered French fries.

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Plant development and adaptability: All six genotypes adapted to the local conditions for plant emergence and growth. Plants had reached 5–6 trifoliate about 50 days after seeding. Plant growth was vigorous (Figure 1). DTF varied from 63 to 71, depending on the genotype. All six genotypes produced mature seeds by the harvest day, September 28.

Diseases and abnormalities observed: No significant diseases that prohibited or severely limited plant growth were observed. However, some leave necrosis or abnormalities in leaf colour were observed on some of the six genotypes (Figure 2). The causes of these abnormalities are not known at this time.

The rest of the results can be found in Part 2, which will be featured in the next issue of *Pulse Beat*.

Table 1: Effect of Pea Starch on the Sensory Characteristic of Battered French Fries

	Holding*	Control **	Accugel**	Starlite **	Significance
	Minutes	Corn Starch	Pea Starch	Pea Starch	P < .05
Colour	5	0.50[a]	0.15[a]	1.10[b]	.000
0=white; 6=brown	30	0.10[a]	0.10[a]	1.25[b]	.000
Surface Texture	5	2.90[a]	3.20[a]	2.10[b]	.005
1=rough; 4=smooth	30	3.10[a]	3.10[a]	2.30[b]	.008
Exterior Bite	5	3.50	3.40	3.90	.380
1=tender; 8=tough	30	4.30	4.78	5.10	.312
Crispiness	5	5.20[a]	4.60[a]	6.30[b]	.000
1=soggy; 8=crispy	30	4.40[a]	4.50[a]	5.50[b]	.005
Moistness	5	4.80	5.70	5.20	.328
1=dry; 8=moist	30	4.40[a]	6.20[b]	4.90[a]	.009
Overall Quality	5	5.60	5.40	6.0	.297
1=low; 8=high	30	4.80	4.70	4.80	.973

* Holding in food warmer (OHC-500 Heat Lamp) equipped with 250W, 120V incandescent bulbs

** Means represent data from a 10-person trained sensory panel

a, b means with differing superscripts are significantly different (p<.05)

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Phase I of the research evaluated the performance of pea starch (wet and dry fractionated) as a replacement for corn starch in French fry batter.

French fries were evaluated by a 10-person trained sensory panel. Results are shown in Table 1. Battered French fries made with pea starch (Accugel or Starlite) in the coating were similar ($p>0.05$) to the control made with corn starch for overall quality, exterior bite, and baked potato flavour.

French fries made with Accugel pea starch were similar to the control in all attributes except moistness. French fries with Accugel pea starch were more moist ($p<0.05$) after 30 minutes of holding in the food warmer than the control and samples made with Starlite.

French fries made with Starlite pea starch were more crispy, had a more golden colour, and a slightly rougher surface texture at 5 and 30 minutes ($p<0.05$) than the control.

Pea starch did not effect the nutritional composition of batter, parfried French fries. Nutritional facts panels of French fries containing corn starch (control) and pea starch are shown in Figure 1.

Processing data (Table 2) showed that pea starch thickened batter ($p<0.05$) and slightly increased batter pick-up ($p<0.05$) compared to the control (corn starch). Pea starch has higher amylose content than corn starch, which may have contribute to increased batter viscosity. Moisture loss over time increased with the use of pea starch. The commercial pea starches available are native starches, whereas the industry-standard corn starch (control) is a chemically modified starch. It is realistic to expect a modified starch to retain moisture more efficiently than a native starch. No differences were observed between batted French fries containing pea or corn starch in parfrying yield, cooking yield, and residual crumb production in the fryer.

The most successful pea starch was selected from phase I and utilized in phase II to make gluten-free battered French fry prototypes using pea starch, flour, protein and fibre. The most promising French fry prototypes were those with batters containing pea starch and pea flour. Prototypes are under sensory and nutritional evaluation to determine the overall quality.

Research will commence on the mozzarella stick and onion ring upon completion of the French fry research.

For additional information contact Laura Sawyer at *laura.sawyer@gov.mb.ca.*

Table 2: Effect of Pea Starch on the Processing Characteristic of Battered French Fries

	Control	Accugel	Starlite	Significance
	Corn Starch	Pea Starch	Pea Starch	P < .05
Batter Viscosity, centipoise	434[a]	622[b]	706[c]	.000
Batter Pick-up, %	15.13[a]	16.57[b]	17.68[b]	.006
Parfrying Yield, %	84.61	84.45	85.46	.410
Crumb Production, %	2.40	2.12	2.54	.577
Cooking Yield, %	72.45	70.71	72.25	.859
Moisture Loss, %	1.30[a]	2.56[b]	1.89[ab]	.039

a, b means with differing superscripts are significantly different ($p<.05$)

Figure 1: Nutritional Facts Panel of French Fries

Control (Corn Starch) Battered French fries

Nutrition Facts / Valeur nutritive
Serving Size (100 g) / Portion (100 g)

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 160	
Fat / Lipides 6 g	9 %
Saturated / saturés 0.4 g + Trans / trans 0 g	2 %
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 210 mg	9 %
Carbohydrate / Glucides 25 g	8 %
Fibre / Fibres 2 g	8 %
Sugars / Sucres 0 g	
Protein / Protéines 2 g	

Pea Starch Battered French Fries

Nutrition Facts / Valeur nutritive
Serving Size (100 g) / Portion (100 g)

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 160	
Fat / Lipides 6 g	9 %
Saturated / saturés 0.4 g + Trans / trans 0 g	2 %
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 210 mg	9 %
Carbohydrate / Glucides 25 g	8 %
Fibre / Fibres 2 g	8 %
Sugars / Sucres 0 g	
Protein / Protéines 2 g	

Martin Entz, Anne Kirk and Joanne Thiessen Martens
Department of Plant Science
University of Manitoba

Our team has been working on organic pulse crop production since 2003. Some of the work is conducted at the N. Morrison Research Farm in Carman, but more recently we have included other sites in Manitoba. Our 5-year average organic soybean yield at Carman is 26 bu/acre.

In 2009, the Manitoba Pulse Growers Association funded a project on *Weed Management in Organic Pulse Production*. One study tests different weed control strategies in wide and narrow row soybean and dry bean crops. Data from the wide row site in Carman in 2010 is given in Table 1. Results showed that visually, mechanical weed control and pre-emergence flaming reduced weed cover, compared to control and post-emergence only treatments. Significant yield differences were found in both the Carman row-cropped trial and in the Glenlea row-cropped and solid-seeded trials (Glenlea data not shown here). The highest soybean yield was observed where pre-emergence (at hook stage) weed control was practiced.

A second study considers cover crops in pulse production. Figure 1 shows organic soybean direct-seeded into crimper rolled fall rye. This is essentially an organic no-till system. Other cover crops include fall seeded oats and winter wheat. While all cover crops suppress weeds, winter wheat also appears to negatively affect dry bean emergence.

In a third study, we are comparing different non-GMO pulse varieties for suitability in organic production. Figure 2 shows that under organic conditions, Maverick yielded significantly more than all other bean varieties.

2011 PLANS

All of these studies will be repeated in 2011. Please drop by to see the plots or contact us for a guided tour. *M_entz@umanitoba.ca.*

Table 1. Plant counts, weed control rating, yield (kg/ha) and dockage (%) of all treatments in the Carman row-cropped weed control experiment in 2010.

Treatment	Plant Count[1]	Weed Control Rating[2]	Yield (kg/ha)	Dockage (%)
1 – Control	48[z]	7.5	2304ab[y]	5.5[z]
2 – Pre-emergence lely	51	4	2482a	4.2
3 – Pre and post-emergence lely	53	1.75	2574a	3.0
4 – Post-emergence lely	48	5.5	2705a	3.6
5 – Pre-emergence flame	57	4.25	2711a	3.0
6 – Pre and post-emergence flame	55	3.5	1788bc	3.1
7 – Post-emergence flame	49	7	1698c	5.3
8 – Pre-emergence rotary hoe	49	4.25	2543a	4.7
9 – Pre and post-emergence rotary hoe	49	6.25	2380a	3.6
10 – Post-emergence rotary hoe	53	5.75	2609a	4.7
11 – Late season weed clipping	52	5.75	2383a	4.1

[1]Total number of soybean plants in four meters of row. Counts done prior to post-emergence flaming.

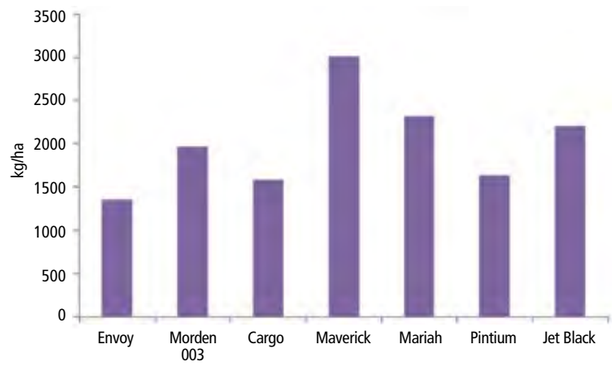
[2]Visual rating to quantify weed cover. Scale of 1 to 9, 1 is the least amount of weeds/plot, 9 is the most amount of weeds/plot.

[y]Means followed by the same letter within a column are not significantly different ($P>0.05$) according the Fisher's protected LSD.

[z]Means are not significantly different ($P>0.05$) according the Fisher's protected LSD.

Figure 1. OAC Prudence soybean direct seeded into rolled fall rye. Carman, 2010.

Figure 2. Yield of dry beans under organic management at Carman in 2010.



DEVELOPING SNACK FOODS USING MANITOBA-GROWN DRY BEANS

Paulyn Appah[1] and Anfu Hou[2]
Food Development Centre[1]
Portage la Prairie
Agriculture and Agri-Food Canada[2]
Morden Research Station

This project, *Development of Snack Foods using Manitoba-Grown Dry Beans*, is divided into three phases. The first phase involved selecting popular varieties from dry bean market classes in April 2010. The goal was to objectively identify varieties with potential functional properties suitable for ingredient processing and prototype development into pulse based snacks.

For the experiment, there were nine identified market classes (Navy, Pinto, Black, Small Red, Great Northern, Pink, Cranberry, Light Kidney and White Dark Kidney) and a total of 112 varieties (dry field beans) obtained from Agriculture and Agri-Food Canada (AAFC), Morden. These samples were delivered following screening and evaluation for desired field quality characteristics by AAFC agronomists. A representative sample was obtained from 2009 harvest and supplied to the Food Development Centre (FDC), Portage la Prairie for further analysis.

All chemical, physical and functional tests such as moisture content, protein content, water binding capacity, and colour measurements were conducted on the flour samples at FDC. The nitrogen content was quantitatively measured by Dumas method and converted to crude protein (dry weight). The colour was measured by Chroma meter (model CR-400, Konica Minolta Sensing Inc.). Water binding capacity was done according to AACC method and the moisture was measured by rapid moisture analyzer, model IR 30 using infrared technology. Statistical analyses were performed on SPSS also known as Predictive Analytics Software (PASW) at FDC and SAS at AAFC.

Beans (pulses) are well known for their balanced health components such as protein, fibre, fat, and starch as well as high levels of valuable minerals and anti-oxidants. The protein content, quality and functionality are important factors that influence bean selection for various applications. And like other pulse crops, the chemical composition, protein quality and functionality of dry beans are dependent on environmental conditions, agronomic traits, and most importantly, on the processing methods used to obtain or process the end product. The physico-chemical properties such as water binding capacity and emulsion capacity have been studied and linked to the improvement of quality attributes in product applications.

In commencing the project, popular market classes and corresponding varieties were obtained from AAFC. The materials came with agronomic information such as seed size, yield, and

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DEVELOPING NOVEL SOY-BASED THERMOPLASTIC COMPOSITES

Christine Moresoli and Leonardo Simon
University of Waterloo

The need to increase the utilization of renewable content and the constant change in petroleum costs provide an opportunity for the Grain Farmers of Ontario and Manitoba Pulse Growers Association to enter the plastics market. For example, plastic composites that consist of a continuous polymer matrix with a disperse phase (filler) combine the high toughness and ease of processing of the polymer matrix with the high mechanical strength of the filler component.

Defatted soy flour represents a cost competitive reinforcement component for plastic products when compared to traditional fillers. Through previous Ontario Soybean Growers funding, we have recently demonstrated the potential of defatted soy flour to be used as filler in polypropylene composite materials for automotive applications. The soy-based composite materials are cost competitive and possess excellent mechanical properties. Improvements in the defatted soy flour polypropylene composites require further processing development and characterization.

This research will:

1. pursue our work on the development of value-added soy-based polypropylene composite materials;
2. make use of the novel processing approach for the manufacture of soy-based composite materials;
3. identify the optimal defatted soy flour content of the composite materials;
4. obtain a detailed testing and characterization of the soy-based composite materials;
5. benefit from the combined processing expertise of Dr. Moresoli in soybean products and Dr. Simon in plastic composite development.

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thousand seed weight. These samples were analyzed for functional, chemical and physical properties such as protein moisture, colour and water binding capacity. The information gathered was used to drive the work plan and research decisions in the next phase of the project work.

A total of ten popular varieties from different market classes were selected based on their protein content and agronomic potentials. As was observed in phase one, a wide range of protein content existed within the sampled varieties. These variations may be related to environmental conditions. However, the functional properties were relatively similar in all the samples. Functional properties are suited for various processes and end product textural/sensorial qualities. The protein content will often contribute to the nutrient content in a developed product. Moreover, the available protein content and quality characteristics of the developed snack would determine the nutritional and sensory quality of the snack produced from the dry field bean varieties in the next phase.

The scope of product development will encompass several mutually dependent components and properties in order to utilize dry field beans to improve the protein content of snack foods and to address the health concerns of today's consumers. In the field, developments in dry field bean quality are characterized by industry targets such as yield, disease resistance or nutrient management. In food product development, ingredients that deliver unique sensory attributes and functional characteristics are in demand by food processors and end users alike.

Following the objective screening of 112 varieties of dry beans, and the information obtained from phase one of the study, a total of ten varieties were selected from various market classes for the second phase. Several dry bean samples have been milled and are currently being assessed in product development activities. The functional differences such as water binding capacity, swelling capacity and bulk density will be studied in relation to product applications. The concentrations of the bean flours (ingredients) in a blend will be evaluated in synergy with other ingredients. The challenges, quality and sensory effect of adding bean flour on the end product flavour and texture will be assessed. The results from these experiments will be transferred to the second phase and will be helpful in the development of a snack.

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WADO's Experiences with Soybeans in Western Manitoba

Scott Day, P.Ag.
Diversification Specialist
Manitoba Agriculture, Food and Rural Initiatives, AFIA Branch

Soybeans, soybeans, soybeans! They are certainly one of the hot crops in any conversation regarding what to grow in this province for 2011. The Westman Ag Diversification Organization (WADO) has been looking at soybean varieties and agronomy in the southwest part of the province for over 10 years. It is partly from WADO's work that the MASC insurance coverage for soybeans was expanded two years ago to include this region of Manitoba. However, it may have also been WADO's work in the past that delayed the expansion of soybean coverage until recently as well. You see, soybeans need water in the late summer and in the years we grew soybeans with a hot dry end to the summer the yields were very poor (such as 2006 and 2008). However, in the years where we had plentiful moisture in late July and early August, we had very good soybean results (2009 and 2010). All of our yield trial data can be found in the reports posted at this link to MAFRI's Diversification Centres – *http://www.gov.mb.ca/agriculture/diversification/index.html*

In addition to the results from WADO that you will find at this link, you will also find soybean data from the other Diversification Centres in Roblin, Arborg and Carberry – going back several years. It is interesting to note that with PCDF in Roblin, they have had fairly good and consistent results with soybeans over the years, but keep in mind it is not a crop that is insurable in that region – yet.

While soybeans need heat, I would suggest that our most common limiting factor with soybeans in our corner of Manitoba is the lack of moisture late in the growing season (hard to imagine after this past year but it is common in the southwest). In 2006 and 2008, you might remember we had pretty good cereal and oilseed crops but the soybeans in those years did very poorly in our Melita trials. Cool springs with a dry end to the summer are terrible for soybeans and as such you will see no data from Melita in those years. In 2006 and 2008, there was basically nothing worth harvesting in our trials. At our WADO site in Wawanesa, we did produce average results in those years as the soil and climate are better suited to soybeans. While the climatic and soil differences between these two locations are usually not that significant, the difference it made to our soybean results in 2006 and 2008 was huge. Interesting though, the differences between these sites with the many other crops we research was not that significant in those years. In 2007, it was sort of an average year everywhere in the southwest and we had good "average" soybean results at both locations.

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However, when you put it all together, with the right heat and just enough moisture late in the summer, we have the potential for excellent soybean yields. This past year for 2010 we thought the WADO soybean trials would be a write-off at Melita. The trial site had standing water throughout the soybeans at least four times during the summer (see photo) and the soybeans were much shorter than our site at Wawanesa (where there was no flooding over the summer). In the end when we went to harvest our Melita site the yields were amazing – often above 70 bushels to the acre, the plants were basically all pods.

When you look in the *Seed Guide* for the 2010 results you will see this wasn't really a fluke as the MCVET sites at Boissevain and Carberry also averaged over 70 bushels to the acre, while Roblin and Wawanesa went well over 60. However, Melita had the highest average yield at 74 bushels to the acre. Amazingly, they all did well regardless of heat units or stature as there was no statistical difference between all the varieties at Melita in 2010.

So what does this all mean if you want to grow soybeans for the first time in western Manitoba in 2011? Well first up, all this soil moisture and snow means good potential for soybeans. However, this plentiful moisture could also delay seeding so you should definitely have a plan B for those acres you are thinking about for soybeans. Once you start planting soybeans in late May (or later) the yield potential drops dramatically, switching to canola or flax if seeding is delayed is a much better idea. Have that plan in your mind now so you'll be ready, and by the looks of things with the snow drifts touching the stop signs, late seeding is a definite possibility.

WADO's soybean trial site in Melita

WADO's Wawanesa site at Ellis Seeds

Secondly, avoid soils that might be susceptible to drought late in the season. Keep the soybeans on your good land, avoid salinity, watch out for any possible herbicide residue issues, and remember volunteer RR canola can show up anytime no matter how long ago you may have planted the crop in the past. Soybeans are a bean, you might think of them as a hard little stone but they are a sensitive seed. As such, you want to be extra careful when handling the seed; even more so than when you may have been working with pea seed. Use the minimum amount of air speed and seed as slow as you can. 4 mph is better than 5.5 mph. This crop is more sensitive to seeding than a pea so when you consider all the costs involved in getting this crop started, slowing down is a small price to pay.

Some soybean pods will be right on the ground and this will be different than your experiences with peas or even lentils where you can get underneath and have them flow into the header like a blanket – soybeans don't work that way. You may want to consider renting or custom combining with the proper soybean equipment, given today's price this extra care at harvest might be well worth it. Rolling the land right after seeding is crucial in our part of the

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				Melita			Wawanesa		
				Yield					
Variety	Company Heat Units	Days to Maturity	DTM of Rosco	kg/ha	bu/ac	% of Check	kg/ha	bu/ac	% of Check
RR Rosco	2450	125.3	0	4982	74	113	4120	61	119
IsisRR	2400	122.7	-3	4585	68	104	4045	60	117
LS0036RR	2425	128.3	3	4919	73	111	3692	55	107
900 Y71	2400	128.0	3	5225	78	118	3321	49	96
NSC Warren RR	2350	121.3	-4	5057	75	114	3403	51	99
PS 0027 RR	2425	124.0	-1	4564	68	103	3827	57	111
LS 0028RR	2375	128.3	3	4787	71	108	3523	52	102
S00-W3	2450	121.7	-4	4474	66	101	3418	51	99
26-60RY	2475	130.0	5	4425	66	100	3455	51	100
NSC Argyle RR	2450	125.0	0	4419	66	100	2910	43	84
	CV%	2.3		7.9			12.4		
	LSD (p<0.05)	5.0		NS			NS		
	Grand Mean	125		4743.5			3571.4		
	P value	0.014		0.15			0.10		

Eldon Klippenstein's path into farming is not the typical one. He didn't grow up on a farm, he didn't learn to drive a tractor at an early age, nor did he ever pick stones – but Eldon did marry the farmer's daughter. Eldon grew up in Altona, MB and began a career of car sales. After being married to Pamela for a few years, his in-laws began to ask the question, "Are you interested in farming?" His first instinct was to answer no, but after a few conversations about this opportunity, Eldon decided it was time to re-evaluate his career choice and give farming a go.

In the fall of 2004, Eldon began to help his in-laws on the farm. This was when he began to realize he wanted to get away from the stress of sales and focus on a new career path. Eldon and his wife Pamela started farming in 2005 with 80 acres and over the years have continued to expand. They incorporated their farm in 2009 – forming H2K Farms Ltd. Eldon currently manages two additional corporate farms under one production plan totalling just less than 6000 acres.

During the first season in 2005, Eldon realized that operating the equipment was the height of his farming knowledge. If he really wanted to make a go at this, he needed to gain more experience. That fall, Eldon enrolled into the University of Manitoba School of Agriculture – Business Program. There was a lot Eldon needed to learn on the agronomy side of things, not to mention the business aspect. "I didn't even really know what canola was," said Eldon. "That was when I realized, if I wanted to be a success and I needed to learn all that I could. I enrolled in the program at university and it was the best experience." Eldon was able to apply everything he was learning immediately into his current farming situation. "I was able to organize my farm through a project in school," noted Eldon. "Without that program, I would have never been able to catch up in the farming world. Coming from no background in agriculture, it was only through the diploma program that I was able to get that experience. It is a fantastic program!"

Eldon and Pamela Klippenstein with daughter Hailey

Along with corn, sunflowers, soybeans, oats and wheat, edible beans have been grown in the farm operations since 2003. In 2010, the Klippenstein's farm produced just over 1000 acres in of navy, black and pinto beans. "Since taking over, there has been a big learning curve for me," noted Eldon. "Growing specialty crops is a challenge, but fun. I like to look at the bottom line and see where things pencil out. We grow pulses when they provide the best net return for the farm."

This year, Klippenstein took a slightly different method when harvesting his beans. "We rolled our beans, and flexed them off in the fall – basically in terms of loss, we were losing 100–120 lbs after combining. That compares to the seed loss that occurs when doing traditional combining," explained Eldon. "After planting, we ended up with a flat surface so that meant we could harvest more or less 1/4- to 1/2-inch off the ground. When it started raining, the guys that had done the traditional undercut had beans on the ground, ours were standing up. We did run the risk in a bit more loss, but we made up for it in quality."

Klippenstein believes in terms of generating extra revenue on the farm, historically edible beans have a good net return. "With edible beans," noted Eldon, "we made money when other crops were not penciling out too well." Klippenstein noted that he plants his beans on his best soil.

Eldon sees a great future for edible beans; they always seem to work out on his farm. "It would be nice to see beans do better on tougher soil though," noted Eldon. "Our farm has heavy clay soils in some areas and I would like to have more flexibility on where to grow them." Eldon believes beans will continue to be produced in Manitoba, but sees the value in research in order to get more suitable varieties in Manitoba. "With a farm like ours, we will continue to look at the risk vs. the reward in the production of the crop," stated Eldon. "If we can continue to make a profit, we will continue to grow beans."

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world as well, you will be shaving the ground and if you don't roll you will be shaving stones as well.

Last but not least, proper inoculation is imperative. Soybeans use a tremendous amount of nitrogen, so when they can't produce it themselves yields drop dramatically. With our faba bean trials here in Melita this past year we had an inoculant failure and as such the trial was a total loss – there was virtually no seed production. We had just a lot of healthy but sad little plants. This could also happen to soybeans, especially here in southwest Manitoba where it is very likely your field will have never had soybeans before and as such will not have any appropriate Rhizobium lingering in the soil.

There were no significant yield differences among varieties at each WADO site in 2010 for Melita and Wawanesa. The Melita site yielded about 8–9 bus/ac more than Wawanesa overall. The Melita yields were favoured likely to increased rainfall over the growing season compared to Wawanesa as well as an earlier planting date at Melita. The Wawanesa site is also more susceptible to wildlife damage and this is a possible reason for the difference as well.

Erik Dorff
Census of Agriculture

Farming is a tough industry. While it has many rewards, it takes a great deal of patience and foresight to balance all the competing factors — the environment, the cost of inputs, and the price for the product. Toss in a number of international factors in countries that are customers or competitors and Canadian farmers face a real challenge.

When farm operators complete their 2011 Census of Agriculture questionnaire on May 10, 2011, they will be updating Canada's definitive national agricultural profile. The co-operation of those in the pulse sector in completing their census forms is now more important than ever.

Farm numbers have been in steady decline across the country for many years. Between the 1986 and 2006 Censuses farm numbers declined by 22% overall, to under 230,000 farms. In some ways farming is a victim of its own success. Farmers, not only in Canada but around the world, have become more proficient at producing staple commodities – and increased quantities mean lower product prices. In this industry, success isn't merely about becoming more efficient – it seems everyone is becoming more efficient – it is about becoming more efficient and more creative faster than your competitors.

It is into this fast-paced and challenging environment that pulse crops have come to reside in the Canadian farmer's basket of crop options, exemplifying our creativity, inventiveness and drive. While field peas and dry beans have long been a part of the Canadian agricultural scene, lentils came to prominence in the 1980s and chickpeas in the decade following. Even the bean sector, with its deep roots in the country, has seen an explosion in the number of varieties produced. The Census of Agriculture has been charting the development of this sector.

Over the long term pulse crops have seen major growth in Canada, although in 2006 the area devoted to pulse crops did see a decline of about 20% from the previous Census. This was largely due to a decline in the area of chick peas, a crop still establishing itself in Canadian agriculture. However despite the setback, there were 5.2 million acres of land devoted to pulses in 2006, a sixfold expansion since 1986 .

Apart from dry beans – grown on 163,000 acres by 1,730 Ontario farms and on 17,400 acres by 237 Quebec producers in 2006 – pulses really are a western crop. Production in other parts of the country is dwarfed when compared to the number of farms and the area in production in the Prairies. Saskatchewan had more than three-quarters of the country's area devoted to dry field peas in 2006 and nearly 99% of Canadian lentil area!

Canadian farmers boast an environment well suited for producing the high quality pulses that fetch top dollar in markets destined for human food. Much of today's market is overseas, and Canada is the world's top exporter of peas and lentils. However, there are increasing health concerns in western countries. Seldom a week goes by without a news item about widening waists, clogged arteries or a myriad of other health concerns related to diet and activity levels. This suggests a great deal of potential for pulses and their health benefits, both here at home and throughout prosperous western nations.

Pulse crops may not be a panacea for Canadian farmers. Our success with these crops has invited increasing production in other parts of the world. What seems certain is that they have become firmly established in Canada, with Canadian farmers well versed in their production and able to produce a top quality product. All told, pulses are likely to continue to add to the diversity of options that allow Canadian farmers more room to manoeuvre as they face the challenges of tomorrow.

The Census of Agriculture, the backbone of Canada's agricultural statistics program, identifies trends and helps to illustrate issues, opportunities and challenges within the agricultural community. Questions cover topics such as land use, crops, livestock, agricultural labour, machinery and equipment, farm finances and land management practices.

Information with which to make informed decisions is an important tool for producers, their agencies and the government in trying to stay competitive in an increasingly uncertain world. Participation by pulse producers

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FOB Price Report*

Including prices since October 25th as of November 8th, 2010

Multigrain International – information for the trade, by the trade.

Prices in $CAD		2011 Dealer Price (CAD/cwt)			2011 Grower Price (CAD/cwt)		
BEANS — PINTOS	**REGION**	**Low**	**High**	**Average**	**Low**	**High**	**Average**
#1 – Premium Color	ID/MT/NM/OR/WA	42.72	42.72	42.72	27.82	34.78	31.30
#1 – Premium Color	AB/CO/KS/NE/UT/WY	35.27	47.69	41.87	28.32	34.78	32.09
#1 – Premium Color	MB/MN/ND/SD/SK	34.78	41.73	38.13	24.84	34.78	29.22
#1 – Good Color	ID/MT/NM/OR/WA	39.74	41.73	40.74	26.83	29.81	28.32
#1 – Good Color	AB/CO/KS/NE/UT/WY	33.78	44.71	40.87	27.82	34.78	31.99
#1 – Good Color	MB/MN/ND/SD/SK	33.78	40.74	36.80	24.84	34.78	28.79
#1 – Fair/Average Quality (FAQ)	ID/MT/NM/OR/WA	37.76	40.74	39.25	26.83	29.81	28.32
#1 – Fair/Average Quality (FAQ)	AB/CO/KS/NE/UT/WY	33.29	43.72	40.15	27.82	34.78	31.80
#1 – Fair/Average Quality (FAQ)	MB/MN/ND/SD/SK	34.78	39.74	36.80	24.84	34.78	28.71
#2	ID/MT/NM/OR/WA	35.77	39.74	37.76	25.83	29.81	27.82
#2	AB/CO/KS/NE/UT/WY	30.80	41.73	39.30	26.83	31.80	29.31
#2	MB/MN/ND/SD/SK	34.78	38.75	37.09	25.00	29.81	27.65

		2010 Dealer Price (CAD/cwt)			2010 Grower Price (CAD/cwt)		
BEANS — PINTOS	**REGION**	**Low**	**High**	**Average**	**Low**	**High**	**Average**
#1 – Premium Color	ID/MT/NM/OR/WA	32.79	33.78	33.45	24.84	29.81	26.50
#1 – Premium Color	AB/CO/KS/NE/UT/WY	32.79	42.72	36.09	24.34	28.81	26.66
#1 – Premium Color	MB/MN/ND/SD/SK	30.80	33.78	32.09	23.00	27.82	24.75
#1 – Good Color	ID/MT/NM/OR/WA	30.80	32.79	31.80	23.85	24.84	24.51
#1 – Good Color	AB/CO/KS/NE/UT/WY	31.80	38.75	34.94	23.35	28.32	26.53
#1 – Good Color	MB/MN/ND/SD/SK	29.81	32.79	31.48	22.00	26.60	24.32
#1 – Fair/Average Quality (FAQ)	ID/MT/NM/OR/WA	29.81	32.79	31.46	22.85	24.84	24.18
#1 – Fair/Average Quality (FAQ)	AB/CO/KS/NE/UT/WY	31.80	37.76	34.73	21.86	27.82	26.33
#1 – Fair/Average Quality (FAQ)	MB/MN/ND/SD/SK	29.81	32.79	31.46	22.00	26.60	24.18
#2	ID/MT/NM/OR/WA	30.80	30.80	30.80	24.84	24.84	24.84
#2	AB/CO/KS/NE/UT/WY	31.80	35.27	33.58	23.85	27.82	25.83
#2	MB/MN/ND/SD/SK	29.81	31.80	30.80	21.86	24.00	22.93
Splits	ID/MT/NM/OR/WA	17.88	24.84	21.36			

**Canadian and US Pinto Bean FOB price report separated by quality, region, dealer and grower pricing.*

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in the 2011 Census of Agriculture will also give a local as well a national perspective to the present situation, informing Canadians of the crucial role the diverse agricultural sector plays in shaping our national picture.

On May 10, 2011, add your voice to those of Canada's pulse producers by counting yourself in on the Census of Agriculture. Fill out your questionnaire on paper and mail it back in the prepaid envelope or take advantage of the internet application which automatically adds totals and skips you through the parts of the questionnaire that you indicate don't apply to your operation.

For more information on the 2011 Census of Agriculture visit the website at http://www.statcan.gc.ca/ca-ra2011/index-eng.htm or contact Erik Dorff by telephone at 613-951-2818 or by e-mail at Erik.Dorff@statcan.gc.ca.

Brian Clancey
Senior Market Analyst and Publisher

Grower bids for dry edible beans are having a hard time keeping pace with the prices for other field crops, with the result acreage expected to drop sharply in both Canada and the United States this year. In Manitoba, this will be part of the continuing shift of land in the various classes of soybeans.

Last year's harvest of all types of beans in the United States totalled 1.442 million metric tons (MT), up 290,000 MT from the previous year. This is the largest harvest since the 1.5 million MT crop of 1999 and the 1.38 million MT harvest of 2002. Over the past five years, dry edible bean production in the United States averaged 1.205 million MT. The last time the rolling five-year average harvest was at or over 1.2 million MT was for the period spanning 1999 to 2003.

The combined Canadian and U.S. dry edible bean harvest is up over 320,000 MT from 2009 at 1.696 million MT. This is also above the current rolling average production level for dry edible beans of 1.621 million MT. Despite the increase, prices for dry edible beans are relatively firm.

So far this season, the weighted average grower bid sitting at U.S. $25.22 per 100 pounds (cwt) for farmers dressed product delivered processing plants in the United States, down $5.77 cwt from the average paid in 2009–10.

From an historical perspective, these bids are very strong. Over the previous 20 years, whenever combined dry edible bean production exceeded 1.5 million MT, the weighed average grower bid for dry edible beans in the United States fell below $20 cwt. It ranged from a high of $19.36 when farmers grew 1.504 million MT in 1997–98 to a low of $15.05 in response to the 1.798 million MT crop of 1999–00.

One reason bids are stronger is that prices being paid for other field crops are higher. Since 2006, agriculture has been gripped by a fierce battle for acres because of the diversion of larger quantities of corn to produce ethanol and soybean and canola oil for biodiesel. Last year's decision to increase incorporation rates for ethanol in gasoline in the United States added life to this year's battle for acres. Crop failures in strategically important importing and exporting areas have intensified the effect by creating fundamental shortages of some food and livestock feed ingredients in Europe and other areas with the economic capacity to buy product to cover shortfalls.

The pulse industry has been down this path before. But, dry edible bean markets seem to find it harder than those for other pulses to react to pending competition for land use. The net result is that the North American dry edible bean markets are so far registering one of their worst performances relative to wheat, corn and soybeans of recent years.

Prospective gross returns per acre as a percentage of the expected average gross return for these other field crops have fallen to lower than normal levels. The same is true of U.S. origin field peas. By contrast, U.S. lentil growers are doing better than normal relative to wheat, but slightly worse than normal compared to corn.

In order to prevent acreage from falling further than forecast, prices paid to farmers for dry edible beans for this year and bid for next year's crops need to become more competitive with other major field crops. This has long been recognized as an issue by farmers. Some in Canada have already made the decision to switch more land from edible beans to soybeans.

Argentina's major producers are also looking at the problem, noting that they can lock in up to $930 per hectare for soybeans grown in 2011, while current markets for black beans are reflecting closer to $400 per hectare. By contrast, current markets for alubia beans are competitive with soybeans,

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but importers are not willing to pay old crop prices for new crop product. Current pricing for Chinese origin edible beans suggest a similar story could play out in that country. Black beans continue to be offered at $660 to $680 MT CIF main South American ports. It is hard to see how that will generate as good a return for China's farmers as corn, which is one of the key competitors in some of China's edible bean growing regions.

The implication is that the world could face a general decline in dry edible bean acres in major exporting countries this year, possible resulting in higher average prices for edible beans across the 2011–12 marketing year. One trader asked how long bread can cost two or three times more than beans or lentils? The answer may be as long as it takes for farmers to reduce land in pulses in favour of crops needed to make bread.

U.S. AVERAGE POTENTIAL GROSS INCOME COMPARISON

PERCENT OF CORN	Lentils	All Beans	Pinto	Black	Navy
2005–06	59.3	101.5	100.8	144.8	141.9
2006–07	25.9	78.8	95.1	121.2	104.8
2007–08	65.8	88.4	97.5	110.4	119.4
2008–09	65.5	102.9	95.7	124.6	109.4
2009–10	106.1	101.2	102.5	141.6	130.0
2010–11	68.9	56.3	47.7	64.0	68.5
3-yr average	80.2	86.8	82.0	110.1	102.6

PERCENT OF SOYBEANS	Lentils	All Beans	Pinto	Black	Navy
2005–06	71.2	121.9	121.1	173.9	170.4
2006–07	43.0	130.8	157.7	201.0	173.8
2007–08	90.7	121.8	134.3	152.1	164.5
2008–09	122.8	192.9	179.2	233.5	205.0
2009–10	154.1	147.0	148.8	205.7	188.8
2010–11	124.0	101.5	86.0	115.2	123.3
3-yr average	133.6	147.1	138.0	184.8	172.4

PERCENT OF WHEAT	Lentils	All Beans	Pinto	Black	Navy
2005–06	112.8	192.9	191.7	275.3	269.7
2006–07	58.3	177.2	213.7	272.3	235.5
2007–08	112.5	151.1	166.6	188.7	204.1
2008–09	120.7	189.6	176.2	229.6	201.5
2009–10	204.2	194.8	197.3	272.7	250.3
2010–11	186.1	152.2	129.0	172.9	185.0
3-yr average	170.3	178.9	167.5	225.0	212.3
Total Production	1,448,286	1,437,592	1,376,111	1,696,349	1,389,650
Opening Stocks	164,000	119,000	124,000	70,000	189,000
Total Supply	1,612,286	1,556,592	1,500,111	1,766,349	1,578,650
Rolling Average	1,589,804	1,562,755	1,603,824	1,621,596	1,602,798

AVERAGE PRICE needed to match prospective returns in 2011–12

	Lentils	All Beans	Pinto	Black	Navy
Match Corn	29.41	30.08	27.99	34.91	32.10
Match Wheat	26.41	27.02	25.14	31.35	28.83
Match Soybean	28.78	29.43	27.39	34.16	31.41

BASED on historic yield and price data from the USDA and STAT Publishing.

NORTH AMERICA DRY EDIBLE BEAN BALANCE SHEET AND 2011 FORECAST

AREA (acres)	2007	2008	2009	2010	2011
Canada	391,100	329,400	294,900	336,100	246,000
United States	1,531,636	1,501,326	1,540,000	1,911,500	1,604,000
Total	1,922,736	1,830,726	1,834,900	2,247,600	1,850,000
PRODUCTION (MT)					
Canada					
Coloured	178,400	162,300	156,700	151,500	119,000
White	105,200	108,900	67,200	102,300	74,000
Cdn Total	283,600	271,200	223,900	253,800	193,000
United States					
Pinto	534,247	465,254	495,056	626,599	496,761
Black	127,143	132,586	136,533	211,422	160,912
Navy	173,818	206,024	151,139	216,184	174,585
Great Northern	53,797	72,485	45,314	63,640	61,445
Other	275,681	290,043	324,170	324,705	302,947
U.S. Total	1,164,686	1,166,392	1,152,211	1,442,549	1,196,650
Total Production	1,448,286	1,437,592	1,376,111	1,696,349	1,389,650
Opening Stocks	164,000	119,000	124,000	70,000	189,000
Total Supply	1,612,286	1,556,592	1,500,111	1,766,349	1,578,650
Rolling Average	1,589,804	1,562,755	1,603,824	1,621,596	1,602,798
AVERAGE PRICES (US$/cwt) and **WORKING FORECAST** for 2011–12					
Dealer	40.18	40.34	37.91	31.07	34.00
Grower	31.92	32.65	30.99	25.12	27.00

BASED on data from USDA, Statistics Canada and STAT Publishing's statpub.com
Average prices for 2010–11 are to date

MPGA MISSION STATEMENT

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

B–Beans, F–Fababeans, L–Lentils, P–Peas, S–Soybeans

Company	Commodity	Phone	City/Town	CGC Registered
Agassiz Feeds	P	204-638-5840	Dauphin, MB	N
Agassiz Global Trading	B, S	204-745-6655	Homewood, MB	N
AgriTel Grain Ltd.	P, S	204-268-1415	Beausejour, MB	N
Alliance Pulse Processors Inc.	B, P, L, S	306-525-4490	Regina, SK	Y
• SaskCan Pulse Trading – Parent Division	B, P, L, S	204-737-2625	St. Joseph, MB	Y
B.B.F. Enterprises Ltd.	S	204-737-2245	Lettellier, MB	N
B.P. & Sons Grain and Storage Inc.	S	204-822-4815	Morden, MB	N
Belle Pulses Ltd.	P	306-423-5202	Bellevue, SK	Y
Best Cooking Pulses Inc.	P, L	204-857-4451	Portage la Prairie, MB	Y
Brett-Young Seeds	P, S	204-261-7932	Winnipeg, MB	N
Cargill Ltd.	P	204-947-6219	Winnipeg, MB	Y
Delmar Commodities	S, P	204-331-3696	Winkler, MB	Y
• Jordan Mills	S	204-331-3696	Winkler, MB	Y
Global Grain Canada	B	204-829-3641	Plum Coulee, MB	Y
Hensall District Co-op	B	204-295-3938	Winnipeg, MB	Y
Horizon Agro	S	204-746-2026	Morris, MB	Y
Hytek Ltd.	P	204-424-2300	La Broquerie, MB	N
JK Milling Canada Ltd.	P	306-586-6111	Regina, SK	Y
Kalshea Commodities Inc.	P	204-737-2400	Altona, MB	Y
Kelley Bean Co. Inc.	B	308-635-6438	Scottsbluff, NE	N
Linear Grain	B, S, P	204-745-6747	Carman, MB	Y
Nutri-Pea Ltd.	P	204-239-5995	Portage la Prairie, MB	N
Nu-Vision Commodities	B	204-758-3401	St. Jean Baptiste, MB	N
Parrish & Heimbecker Ltd.	P	204-987-4320	Winnipeg, MB	Y
Paterson Grain	P, S	204-956-2090	Winnipeg, MB	Y
Quarry Grain Commodities	S	204-467-8877	Stonewall, MB	N
R-Way Ag Ltd.	P, S	204-379-2582	St. Claude, MB	N
Richardson International	P	204-934-5627	Winnipeg, MB	Y
• Richardson Pioneer Ltd.	P, S	204-934-527	Winnipeg, MB	Y
• Tri Lake Agri	P	204-523-5380	Killarney, MB	Y
Roy Legumex	B, F, L, P, S	204-758-3597	St. Jean Baptiste, MB	Y
• Fisher Seeds Ltd.	F	204-622-8800	Dauphin, MB	Y
• Duncan Seeds	B	204-822-6629	Morden, MB	Y
S.S. Johnson Seeds	P, B	204-376-5228	Arborg, MB	Y
Seed-Ex Inc.	S	204-737-2000	Letellier, MB	Y
Southland Pulse	P	306-634-8008	Estevan, SK	Y
Sunrich LLC	S	507-46-5642	Hope, MN	N
Thompsons Limited	B, P, L	519-676-5411	Blenheim, ON	Y
• Keystone Grain	B, S	204-325-9555	Winkler, MB	Y
• Circle T Agri Services	B	204-723-2164	Treherne, MB	Y
• Y2K Farms	B	204-252-2132	Edwin, MB	Y
Vanderveen Commodity Services	S	204-745-6444	Carman, MB	Y
Viterra	P, S	204-954-1528	Winnipeg, MB	Y
Viterra Special Crops	B, F, L, P	204-745-6711	Carman, MB	Y
• Receiving Station	B	204-856-6373	Portage la Prairie, MB	Y
• Plum Coulee	B	204-829-2364	Plum Coulee, MB	Y
• Prairie Mountain Agri Ltd.	P	204-937-6370	Roblin, MB	Y
Walhalla Bean Co. (Canada Ltd.)	B	701-549-3721	Walhalla, ND	Y
• Winkler Receiving	B	204-325-0767	Winkler, MB	Y
Walker Seeds Ltd.	P	306-873-3777	Tisdale, SK	Y

To be included on our Manitoba Buyers List, companies should contact the MPGA office at 204-745-6488 to register.
Note: These companies are authorized to deduct and remit levy to MPGA. This list is provided by MPGA as a convenience to our members. MPGA accepts no responsibility or liability for the accuracy of the completeness of the information provided. It is your personal responsibility to satisfy yourself that any company you deal with is financially sound. Questions regarding licensing and security should be directed to the Canadian Grain Commission at 1-800-853-6705 or 1-204-983-2770.

RECIPE CORNER

Savory Mediterranean Muffins

Preparation time: 10 minutes *Baking time: 20 to 25 minutes*
Makes 12 servings

1 cup yellow pea flour
1 cup brown rice flour blend*
¼ cup granulated sugar
2 tsp baking powder
1 tbsp dried minced onion
1 tbsp parmesan cheese or substitute of choice, grated
2 tsp dried oregano
1 tsp xanthan gum
¾ tsp table salt
1 cup milk of choice, room temperature
½ cup canola oil
2 large eggs, room temperature
¼ cup sun-dried tomatoes, chopped
¼ cup black olives, sliced

1. Place rack in middle of oven. Preheat oven to 375ºF (190ºC). Generously grease a standard 12-cup nonstick metal muffin pan.
2. In a medium mixing bowl, whisk together the yellow pea flour, rice flour blend, sugar, baking powder, onion, parmesan, oregano, xanthan gum and salt until well blended. With an electric mixer on low speed, beat in milk, oil and eggs until batter thickens slightly, about 30 seconds. Stir in tomatoes and olives.
3. Fill muffin pan with batter, filling the cups about ¾ full. Let stand for 10 minutes.
4. Bake until muffins are brown and a toothpick inserted into the center comes out clean, about 20 to 25 minutes. Cool muffins in the pan on a wire rack for 10 minutes, then remove the muffins from the pan and cool for 10 more minutes on the wire rack. Serve slightly warm.

**Brown rice flour blend: 1½ cups brown rice flour, 1½ cups potato starch and 1 cup tapioca flour (also called tapioca starch). Blend thoroughly. Store, tightly closed, in dark, dry place.*

Peanut Butter Cookies

Preparation time: 10 minutes *Baking time: 10 to 12 minutes*
Makes 32 small cookies

1 cup crunchy natural peanut butter
1 cup granulated sugar
2 large eggs
1 tsp vanilla extract
½ cup chickpea (garbanzo) flour
¼ tsp xanthan gum
⅛ tsp table salt

1. Place a rack in the middle of the oven. Preheat the oven to 350ºF (180ºC). Line a 13x9-inch nonstick baking sheet with parchment paper.
2. In a medium bowl, beat the peanut butter, sugar, eggs and vanilla with an electric mixer on low speed until well blended. Add the chickpea flour, xanthan gum and salt and beat on low speed until well blended. Shape half of the dough into twelve 1-inch balls and place 2 inches apart on the baking sheet. Flatten each ball to ½-inch thick by making criss-cross marks with the tines of a fork.
3. Bake until the cookies are lightly browned and firm, about 12 to 15 minutes. Cool the cookies on the pan on a wire rack for 10 minutes. Transfer the cookies to the wire rack to cool completely. Repeat with remaining dough.

Recipes provided by Pulse Canada, courtesy of their new cookbook: Pulses *and the Gluten-Free Diet* cooking with beans, peas, lentils and chickpeas

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