

September 29, 2014

MPGA's Request for Pulse & Soybean Research Proposals

Manitoba Pulse Growers Association (MPGA) welcomes the submission of pulse and soybean research proposals. If you are seeking funding for projects beginning in **2015**, please submit your proposals to MPGA's office by **Friday, November 7, 2014**.

Every project will be carefully reviewed by the selection committees; however, projects that fit into the following categories will be more favorably received:

- (a) Address the issues as outlined in our list of priorities on pages 2-5.
- (b) Demonstrate collaboration –MPGA looks highly on synergistic opportunities within the research community (provincial, interprovincial, international, and interdisciplinary)
- (c) Qualify for matching funding or includes multiple funding sources
- (d) Clearly demonstrate a benefit to pulse and soybean producers

An eligible research project is one that has the potential to increase production and profitability for growers or increase market opportunities and crop value. Projects that are specifically for end-use, must include a marketing plan in order to be considered for funding.

Multiple year projects are acceptable. Annual reports are required and subsequent funding will be based on successful completion of milestones. A final report is required once the project is complete. A reporting template will be provided upon project approval (**NEW for 2015**).

Please use the template provided to complete the Request for Proposals and submit electronically to:

Sandy Robinson, Business Manager : sandy@manitobapulse.ca or fax: (204) 745-6213.

An email confirming receipt of proposals will be sent. If you do not receive an email confirmation, please contact our office (204) 745-6488.

Researchers will be notified by January 31, 2015 on the success of their proposal. MPGA looks forward to receiving your research proposals. If you have any questions, please call the office at (204) 745-6488 or e-mail kristen@manitobapulse.ca.

Best regards,



Kristen Podolsky, MSc. PAg.
Production Specialist, MPGA

2015 Pulse and Soybean Research Priorities

Please note these are areas MPGA is most interested in funding, but all quality proposals will be given serious consideration by the selection committees.

1. SOYBEANS

(A) Agronomy

1. *Pre-plant management*
 - a. Fertility
 - i. Factors affecting nodulation (fertility, soil moisture, field history etc.)
 - ii. Best practices to manage nodulation failure i.e. N Rescue application
 - iii. Manure as a fertilizer source
 - b. Optimizing seed inputs
 - i. Seed treatments; type, impact on crop production
 - ii. Inoculants: type, rate, impact on crop production
 - a. Rolling: effect of timing, soil moisture, soil texture on crop emergence, plant stand, vigor and yield
2. *In-crop management*
 - a. Focus on improving ease of production of non-GM soybeans (i.e. weed control)
 - b. Insect and disease identification, monitoring and mapping
 - c. Management practices (products or practices) for:
 - i. Iron chlorosis
 - ii. Bacterial blight
 - iii. Volunteer RR weeds (canola, corn, etc.) in RR soybeans
3. *Harvest management*
 - i. Machinery
 - Header types rigid cutterbar vs. flex cutterbar, draper vs auger.
 - Reel type (i.e. air reel), position and speed
 - ii. Effect of harvest timing
 - iii. Pre-harvest shattering: quantification and reduction
4. *Crop planning and predictive tools*
 - i. Development of predictive and crop planning tools for growers
 - ii. Crop rotation and soil health
 - Long term evaluation of cropping sequence and frequency in eastern and western Manitoba
 - Soil health and quality with soybeans in rotation
5. *Impact of frost on seed yield, quality and storage*
6. *Storage conditions*
7. *How to maximize soybean productivity and profitability: intensive management*
8. *Factors affecting pod height/length of first internode: environment and genetics*

(B) Breeding, Genetics and Variety Evaluation

1. Evaluation of varietal susceptibility/tolerance to white mould under irrigated field conditions that facilitate Sclerotinia disease development
2. Crop quality improvement: higher protein and oil
3. Focus on early maturing soybeans
4. Weed competitiveness in non-GM soybeans
5. Development of tolerance and resistance to the following
 - a. Root rot (Phytophthora, Fusarium, Rhizoctonia, Pythium)
 - b. Sclerotinia
 - c. Lodging
 - d. Salinity
 - e. Soybean cyst nematode
 - f. Soybean aphids
 - g. Pre-harvest shattering

(C) End-Use

1. Novel food product or other uses of Manitoba-grown soybeans, GMO and non-GMO
2. Quality analysis
 - a. Oil and protein
 - b. GMO vs. non-GMO quality characteristics
 - c. Yellow hilum glyphosate-tolerant soybeans
3. Preferred food and feed grade qualities and characteristics
4. Geographical advantages to Manitoba-grown soybeans

2. EDIBLE BEANS**(A) Agronomy**

1. Fertility
 - a. Developing 4R nutrient strategy for N, P, K and S
2. Management practices for all classes of dry beans
 - a. Seeding rate/plant population
 - b. Foliar fungicide use
 - c. Interaction of management practices
3. Crop rotation: effect of previous crop on dry bean production
4. Weed management
 - a. Kochia, redroot pigweed, lambsquarters, biennial wormwood
5. Disease control (products and/or practices)
 - a. White mould
 - b. Bacterial and halo blight
 - c. Anthracnose
6. Techniques for drying at harvest time

7. Pod Seal timing and effectiveness
8. Harvest systems that prevent seed cracking and other degrading factors
9. Soil and residue management prior to dry bean production:
 - a. Investigation of strip tillage, vertical and other novel tillage equipment
10. Irrigation for dry bean production

(B) Breeding Priorities:

1. Root rot
2. Frost and water tolerance in spring
3. Slow-darkening pintos
4. Minimizing seed coat cracking in kidneys
5. Sclerotinia
6. Anthracnose
7. Bacterial blight

(C) End-Use

1. Alternative uses for edible beans; new end-use products
 - a. Use of bean flour in the following food applications: gluten-free products or mixes (cookies, crackers, muffins, pizza crusts), healthy, functional flour blends (to optimize protein efficiency), extruded products (snack foods, breakfast cereals, pasta), baked goods (crackers/chips, tortillas/pita breads, muffins, cookies)
2. Quality analysis and processing techniques
 - b. Investigating the factors influencing cooking quality of whole pulses (e.g. hard-to-cook phenomena, etc.)
3. Digestibility of bean flour and determining the impact of pre-treatments (i.e. germination, heating, fermentation, etc)
4. Improving the protein quality (amino acid composition) of beans
5. New domestic markets

3. PEAS, FAB A BEANS

(A) Agronomy *Soybeans • Dry Beans • Peas*

1. Management practices to control root rot and foliar diseases
2. Disease management of ascochyta blight: crop rotation, resistance and fungicides
3. Evaluation of the winter pea performance in Manitoba conditions
4. Weed control
5. Evaluation of crop inputs
6. Disease and Insect control

(B) Breeding Priorities

1. Disease resistance (root rot)

2. Standability
3. Water tolerance, especially in spring
4. Development of winter peas for Manitoba growing conditions

(C) End-Use

1. Quality analysis
 - a. Addressing pea flavour issues
 - b. Comparison of functional properties of pulse ingredients to competitive ingredients (e.g. soy, whey, wheat, oat bran etc.)
2. Determining the protein quality (PDCAAS and DIAAS) of pea protein ingredients (concentrates and isolates)
3. Improving protein quality (amino acid composition) of peas
4. Pea hull processing (e.g. particle size reduction) and utilization
5. Fractionation, processing
 - a. Optimization of dry or wet separation technology to enhance functionality of pulse fractions (e.g. protein, starch, fibre extracts)
 - b. Pea starch modifications to improve functionality for food applications
 - c. Digestibility of pea flour and pea protein concentrates, isolates and impact of pre-treatments (i.e. germination, heating, fermentation, etc)
6. Protein and energy assessment for livestock rations
 - a. Safety studies with pea fractions (fibre, starch, protein) in human and animal species of interest for feed and pet food applications that can be used for GRAS substantiation
7. Aquaculture and other value-added opportunities
 - a. Investigating bioindustrial applications for pea starch

4. ALL PULSES

Proposals to investigate **new and novel** pulse crops for Manitoba are encouraged.

Proposals studying the **environmental and societal benefits** of growing and consuming pulses are encouraged.

Proposals studying the **health and medical benefits** of consuming pulses, which outline the specific benefits that would enhance the functional food or nutraceutical use of pulses, are encouraged.

1. Impact of specific components in beans/peas on cholesterol-lowering (e.g. soluble fibre vs. resistant starch)
2. Impact of food products with pulse flour and fraction ingredients on short term glycemic control (glucose and insulin AUC) including impact of flour processing (flour specifications and particle size) on glycemic response of food products.
3. Impact of beans vs. peas on satiety (subjective appetite and actual food intake)
4. Impact of beans on cardiovascular disease (impact on cholesterol levels)

MPGA's Research Proposal Guidelines

Project Title: State the research project's title

Principal and Collaborating Researchers: Provide contact information including address, e-mail and telephone number of all researchers involved with the project.

Duration of Project: Start date and anticipated date of completion. (month/year)

Brief Project Description (max 500 words): Provide a summary that can be easily understood by a non-researcher or pulse grower. This description may be used when informing our members about new projects being funded, and may be featured on our website, www.manitobapulse.ca, or in our magazine, *Pulse Beat*. Consider this description an opportunity to outline the importance of your research to pulse producers in Manitoba.

Background and/or Literature Review (max 1000 words): Explain the rationale for the project and how it corresponds to the needs of Manitoba pulse producers. Briefly outline background information leading to the development of the proposal.

Research Objectives: Provide a brief explanation of the objectives of your proposed research project.

Experimental Activities and Methods: Provide an outline of the experimental methods to be used.

Benefits and Impact on Pulse Growers: Describe how the results of your research will benefit and provide value to pulse producers in Manitoba. If possible, quantify the impact in economic terms.

Marketing Plan: (projects featuring products that are targeted for end-use only) Provide an outline of your marketing strategy describing how you will segment your target market, how you will position your products compared to your competition, what your pricing strategy will be, and how you will effectively reach and influence your customers.

Milestones: List all major milestones and the month/year of anticipated completion.

Communication Plan: Indicate how the progress and results of your research, including *management recommendations* to pulse producers, will be communicated to the public, specifically pulse producers. If approved, we may ask you to submit articles outlining project results and subsequent recommendations, for our *Pulse Beat* magazine, for our website (www.manitobapulse.ca) or to participate in other other extension related activities.

Budget: Indicate all funding sources and their allocation (labour, equipment, etc.). If possible, indicate whether or not your project can proceed on a smaller scale if given reduced funding.