



## Minnesota Wheat Research and Promotion Council

### RESEARCH PROPOSAL GRANT APPLICATION

<b>1. NAME AND ADDRESS OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE</b>		
<b>Name:</b> Regents of the University of Minnesota <b>Address:</b> Sponsored Projects Administration 454 McNamara Alumni Center, 200 Oak Street SE Minneapolis, MN 55455-2070		
<b>2. TITLE OF PROPOSAL</b> Minnesota Small Grains Pest Survey		
<b>3. PRINCIPAL INVESTIGATOR(S)</b> Madeleine Smith	<b>4. PI #1 BUSINESS ADDRESS</b>	
PI# 2 Name: Phil Glogoza	University of Minnesota Northwest Research and Outreach Center 2900 University Avenue Crookston MN, 56716	
PI# 3 Name: Douglas Holen		
<b>5. PROPOSED PROJECT DATES (calendar years)</b> January 1, 2015 to December 31 <sup>st</sup> 2017 Note: Research Reports are Due November 15th of Each Year	<b>6. TOTAL PROJECT COST</b> \$ 55, 215 total for 3 years	<b>7. PI #1 PHONE NO.</b> 218-281-8691
<b>8. RESEARCH OBJECTIVES:</b> (List objectives to be accomplished by research grant)		
1. Area #1 NW Red River Valley. Weekly scout, sample and represent 20-30 wheat fields across the region documenting disease and insect vectors in Hard Red Spring Wheat during the 2015-2017 growing seasons.		
2. Area #2 West Central, and Southwestern Minnesota. Weekly scout, sample and represent 20-30 wheat fields across the regions documenting disease and insect vectors primarily in Hard Red Spring Wheat along with some winter wheat, oat and barley fields during the 2015-2017 growing seasons.		
3. Area # 3 Central and Southeastern Weekly scout, sample and represent 20-30 wheat fields across the regions documenting disease and insect vectors primarily in Hard Red Spring Wheat along with some winter wheat, oat and barley fields during the 2015-2017 growing seasons.		
4. Collate information and prepare data submission with the NDSU IPM survey and reporting project.		
5. Alert producers, consultants and researchers of pest incidence and severity in timely manner with pest updates and survey reports.		
6. Work with U of MN Plant Disease Clinic and the USDA-ARS Cereal Disease Lab in submitting samples for regional/national monitoring as well as race identification		
Attach a 2-page detailed discussion of importance of the proposal to wheat profitability; how study complements previous research in area; procedures to be used; and competency of the research group in achieving research objectives. (Please keep the proposal concise, only 2 pages will be provided reviewers).		
<b>Signature Of Principal Investigator</b> 	<b>Date</b> 1/21/2015	<b>Phone Number</b> 218-218-8691
<b>Signature Of Authorized Representative</b> 	<b>Title</b> Kevin McKoskey, Sr Associate Director Sponsor Projects Administration	<b>Date</b> 1/22/15
<b>Address Of Authorized Representative</b> Kevin McKoskey, Sr. Associate Director, Office of Sponsored Projects Administration 450 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, MN 55455-2070		<b>Phone Number</b> 612.624.5599 Telephone 612.624.4843 Fax No.

# Minnesota Wheat Research and Promotion Council

## RESEARCH PROJECT PROPOSAL

### (2-pages maximum)

**Project Title:** Minnesota Small Grain Pest Survey

**Importance of this project to the profitability of wheat producers:**

Spring wheat is a major crop for producers in northwest Minnesota and small grains have had increasing interest from producers across the rest of the state for the past eight years. Diseases, along with insect pests, have long been detrimental to the quantity and quality of the crop. One of the key elements to successful production centers on the timely and correct identification of these disease and insect problems followed by implementation of appropriate management strategies.

The expected outcomes of this survey are timely alerts for small grains producers such that sound economic control options can be implemented. We propose to integrate this survey with the ongoing efforts in North Dakota that are coordinated by NDSU's IPM Survey. This project will allow for small grain pest identification across the state resulting in early producer notification through Extension media in combination with NDSU's already established program. Samples collected will also assist in regional, state, and national representation (mapping) of pests found and with the combined efforts of the Plant Disease Clinic and the Cereal Disease Lab, identify race types of diseases collected. Data will assist breeders, pathologists and Extension Educators with timely information for management education and research direction.

**Procedures:**

Scout one will be housed in Crookston under the direction of Madeleine Smith, and scout two will be located in Fergus Falls under the supervision of Doug Holen. Each scout will have an area in which they are responsible to monitor for small grain pests. Each scout will be trained in pest identification and scouting by late May by Madeleine Smith and the scouting team. Scouting will continue until approximately the third week of August. The MN survey will be conducted according to the same protocol followed by the NDSU IPM survey so the output can be merged and reflect a regional effort that includes 11+ million acres of wheat, oats and barley. The goal is to have each scout survey 7-10 fields per day for a total of 20-30 per week.

In addition to scouting of commercial fields, sentinel plots will be planted at various locations throughout Minnesota of varieties susceptible to certain diseases (leaf rust, Fusarium head blight, bacterial leaf streak, Barley yellow dwarf, net blotch). These will be scouted in addition to the commercial fields and will help provide both an early warning system for those plots located in the southern portion of the state of the first signs of disease; and also provide some indication of the rate of spread throughout the rest of the state.

Pests will be identified on site, disease incidence and severity, as well as the extent of any insect pests, will be assessed. Pictures will be taken and samples collected for the purposes of identification when needed. Disease samples will be forwarded to the St. Paul Plant Disease Clinic for species confirmation and race identification when that information is deemed necessary. This information will be statewide, regionally and nationally. Phil Glogoza will compile the data and work with NDSU faculty to provide a regional summary. Weekly survey data will be compiled and displayed through geo-referenced mapping software to graphically summarize crop and pest status over the entire Minnesota-North Dakota region. Phil Glogoza will also take the lead in using the collection technology, such as the GPS-GIS linkage to survey data. The weekly survey maps, with commentary will be distributed through web-based platforms, including on-line news updates, newsletters, archived maps for future retrieval, and possibly other social media. All information distribution will include partnerships with UMN Extension, NDSU, MAWG, and others.

**Regional linkage to other research activities:**

This project will continue the highly successful Minnesota program which has been conducted over the last three years previously funded by the MWRPC. Data collected from this project will also dovetail with the NDSU IPM survey program to create a regional picture of disease incidence and distribution.

Building on the success of this program and the needs of the growers, funding has also been sought from the Minnesota Soybean Research & Promotion Council to include a soybean scout as well as the Midwest Forage Association. This will allow the building of a comprehensive and skilled team to support management decisions in some of the major crops in Minnesota.

In addition, this project also feeds in to the Upper Great Plains Wheat Pathology Collaboration (UGPWP) recently funded by MWRPC by both providing current information on pathogen and insect distribution and population structures, but also by providing an insight in to upcoming disease issues in the state that inform future research aims and objectives of this interdisciplinary plant pathology team

**List current or potential other funding sources for this project:**

Support is also being sought from Minnesota Soybean Research and Promotion Council (\$9,695) and Midwest Forage Association (\$4000) to provide an additional scout and cover associated travel and sampling costs. This will broaden the survey to soybean and alfalfa as well as small grains and economize travel time

**Research Group:**

University of Minnesota = Madeleine Smith, Phil Glogoza, Doug Holen, Jochum Wiersma  
North Dakota State University = Patrick Beauzay, Janet Knodel, Andrew Friskop, Sam Markell

**Relationship to past projects:**

This project builds upon the previous Minnesota Small Grains Pest Survey by increasing the breadth of information obtained by use of sentinel plots located around the state as well as continuing to scout commercial fields. The experience gained from the past project is allowing us to extend the skills beyond the scope of this project in small grains to other commercially important crops in Minnesota by seeking funding from other commodity groups for scouting in their crops.

**Estimate the budget requirements:**

The budget here represents costs for the entire 3-year period.

Salaries: 2 individuals for 12 weeks averaging 25 hours per week (600 total hours at \$14/hr)

Travel Year 1 (2015): Rent 2 mid-size cars from U of MN motor pool for 3 months each  
\$693 per month per vehicle = \$4,158  
Estimated total miles driven by both surveyors – 15,000 miles.  
15,000 miles at \$.17/mile = \$2,550

Travel Year 2 (2016): Rent 2 mid-size cars from U of MN motor pool for 3 months each  
\$693 per month per vehicle = \$4,158  
Estimated total miles driven by both surveyors – 15,000 miles.  
15,000 miles at \$.19/mile = \$2,850

Travel Year 3 (2017): Rent 2 mid-size cars from U of MN motor pool for 3 months each  
\$693 per month per vehicle = \$4,158  
Estimated total miles driven by both surveyors – 15,000 miles.  
15,000 miles at \$.20/mile = \$3,000

\*\*\*Vehicles will be leased from U of MN Fleet Services located in Morris. Prices represent best anticipated projections.

Publication cost: data compilation and representation (U of MN/NDSU)

Computers: Each surveyor will be equipped with a netbook computer, GPS locator, and car charger for data collection

Supplies: sweep nets, clipboards, bug repellent, plastic boots, disposable pants, mud scraper, maps, plant presses, collection vials and rubbing alcohol, hand sanitizer, and collection bags.

Other direct costs- we have included money for fees for diagnostic testing services at the University of Minnesota's Plant Disease Clinic in St. Paul.

# Minnesota Wheat Research and Promotion Council

## RESEARCH PROJECT PROPOSAL BUDGET

PROJECT TITLE:			
Principal Investigator(s) / Project Directors(s)	Funds Requested For		
	Year 1 (2015)	Year 2 (2016)	Year 3 (2017)
A. Salaries and Wages	\$	\$	\$
1. Co-principal Investigator(s)			
2. Senior Associates			
3. Research Associates - Post Doctorate			
4. Other Professionals	8,400	8,400	8,400
5. Graduate Students			
6. Prebaccalaureate Students			
7. Secretarial - Clerical			
8. Technical, Shop and Other			
B. Fringe Benefits	647	647	647
C. Nonexpendable Equipment (Planting and harvesting equipment use)			
D. Materials and Supplies	400	400	400
E. Travel	6,708	7,008	7,158
F. Publication Costs	1,500	1,500	1,500
G. Computer Costs			
H. All Other Direct Costs (Attach supporting data)	500	500	500
<b>TOTAL AMOUNT OF THIS REQUEST (per year)</b>	<b>\$18,155</b>	<b>\$18,455</b>	<b>\$18,605</b>