



# 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 450 McNamara Alumni Center, 200 Oak Street SE Minneapolis, MN 55455-2070		
<b>2. TITLE OF PROPOSAL</b> Minnesota Small Grains Pest Survey and Wheat Stem Sawfly Surveillance		
<b>3. PRINCIPAL INVESTIGATOR(S)</b>  J.J. Wiersma  PI# 2 Name: J. Goplen  PI# 3 Name:	<b>4. PI #1 BUSINESS ADDRESS</b>  Northwest Research & Outreach Center 2900 University Avenue Crookston, MN 56716	
<b>5. PROPOSED PROJECT DATES (calendar years)</b>  01/01/2020 – 12/31/2020	<b>6. TOTAL PROJECT COST</b>	<b>7. PI #1 PHONE NO.</b>  218-281-8629
<b>8. RESEARCH OBJECTIVES:</b> (List objectives to be accomplished by research grant)  1) Provide timely alerts about pest and disease issues in small grains so that producers can implement sound economic control options. 2) Gain insight into emergence patterns of WSS and the role that parasitism plays in WSS control in northwest Minnesota. 3) Evaluate current, adapted HRSW varieties for resistance to stem cutting by WSS.  <p>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).</p>		
<b>Signature Of Principal Investigator</b> 	<b>Date</b> 12/27/2019	<b>Phone Number</b> 218-281-8629
<b>Signature Of Authorized Representative</b> 	<b>Title</b> Principal Grant Administrator	<b>Date</b> 1/13/2020
<b>Address Of Authorized Representative</b>  Amy Bicek-Skog, Principal Grant Administrator, Office of Sponsored Projects Administration 450 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, MN 55455-2070		<b>Phone Number</b>  612-625-0413

# Minnesota Wheat Research and Promotion Council

## RESEARCH PROJECT PROPOSAL

### (2-pages maximum)

**Project Title:** Minnesota Small Grains Pest Survey and Wheat Stem Sawfly Surveillance

**Importance of this project to the profitability of wheat producers:** Spring wheat is a major crop for producers in northwest Minnesota and has had increasing interest from producers across southern MN in recent years. Disease and insect pests have long been detrimental to the quantity and quality of the crop. One of the key elements to successful wheat production centers on correct and timely identification of these disease and insect problems so appropriate management strategies can be implemented.

The expected outcomes of this pest survey are timely alerts for small grain producers so 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 to improve efficiency and impact of this program.

Wheat stem sawfly (WSS) is an insect pest that has caused concern in recent years, especially in NW MN where populations have had a significant economic impact on some fields. An additional objective of this project is to provide information on the activity of WSS by documenting when the insect is active, exploring risk prediction, and better defining where it is active and the yield impact it has.

**Procedures:** Similar to the 2019 season, a call will go out to wheat growers in early April to submit fields online for the small grains disease and pest survey scouts to visit throughout the growing season. The goal is to have approximately 100 fields that are evenly distributed across the wheat acreage in Minnesota. Three field scouts will sample these fields weekly and the collected data will be shared with the NDSU IPM program to produce the regional IPM maps (<https://www.ag.ndsu.edu/ndipm/wheat>). The collected data will also be used to publish weekly small grains disease and pest updates during the scouting season to the Minnesota Crop News blog (<https://blog-crop-news.extension.umn.edu/>) and to update the commentary on the Minnesota Association of Wheat Growers disease-forecasting website (<http://mawg.cropdisease.com/>) and the national Fusarium Head Blight Prediction Center (<http://www.wheatcab.psu.edu/>).

In order to provide a more robust estimate of the area that WSS is affecting, we will collaborate with crop consultants in NW Minnesota to collect qualitative data on WSS distribution and harvest impacts rather than rely on the fields volunteered by producers for the disease and pest survey. This approach will provide a higher and more targeted sampling within individual fields and across the region as crop consultants have more intimate knowledge of the previous crop history of adjacent fields. This spatial aggregation makes it easy to miss affected regions when field scouts are covering a wider geography.

#### Small Grains Pest Survey

- March - Recruit and hire scouts.
- April - Solicit online submission of possible fields for scouting effort.
- May - Train scouts (in cooperation of NDSU IPM program) and begin weekly scouting
- June/July - Weekly scouting continues. Data summaries are compiled with commentary and published in the Minnesota Crop News blog and on the disease forecasting websites.

#### Wheat Stem Sawfly Surveillance

- March - Recruit and hire scouts.
- May - Seed WSS variety resistance screening nursery at the NWROC. Setup emergence traps in WSS variety resistance screening nursery on the NWROC.
- June - Monitor emergence of WSS three times weekly.
- August - Cut 3 ft. length of row in individual plots to estimate the extent of successful oviposition and the extent that parasitism limited WSS to complete its lifecycle in the off-season.
- August - Evaluate the percent stem clipping at harvest ripe stage.
- November - Dissect individual stems to determine presence of WSS larvae and extend of parasitism

**Regional linkage to other research activities:** Patrick Beauzay, Janet Knodel, Andrew Friskop, Sam Markell at North Dakota State University are the project's collaborators at the North Dakota State University. Angie Peltier, regional extension educator in NW Minnesota, oversees the soybean-scouting project that is funded by the Minnesota Soybean Research & Promotion Council.

**List current or potential other funding sources for this project:** Funding will be sought from the Minnesota Soybean Research & Promotion Council to include soybean scouting in areas of NW and west central MN. The field scouts are shared between the two projects, thereby allowing the scouts to have a summer-season long employment opportunity. This in turn helps us to recruit more qualified candidates.

**Research Group:** J.J. Wiersma, and J. Goplen

**Relationship to past projects:** This project will continue the successful Minnesota program conducted in previous years and previously funded by the MWR&PC. Data collected from this project is merged with the NDSU IPM survey program to create a unique regional picture of insect and disease incidence, severity and distribution for small grains.

**Estimate the budget requirements:** See budget page

**References:**

- Archived Wheat Survey Maps (2011 – 2019): <https://www.ag.ndsu.edu/ndipm/ipm-survey-archives/wheat-archives>

**Project justification:**

Total labor and fringe: \$17,831

The project requires hiring two UMN Crookston undergraduate students to work for twelve weeks for a total of \$10,560. Fringe is not required for undergraduate student labor. An additional student will be staffed through the University's MAST program at \$6720 with an 8.2% fringe at \$551.

Materials and Supplies: \$200

Paper and materials used by students to collect samples and data in the field.

Lease Vehicles: \$4608

Lease two vehicles through Fleet Services for three months @ \$418 per month plus mileage2 mid-size car - 3 months = \$2,508, plus mileage at \$2,100.

Plot fees: \$250

Standard fee charged by the University to use their land.