


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 Sponsored Projects Administration <b>Address:</b> 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>  1. Dr. Anthony Hanson 2. Dr. Jared Goplen 3. Dr. Jochum Wiersma	<b>4. PI #1 BUSINESS ADDRESS</b>  West Central Research & Outreach Center 46352 State Hwy. 329 Morris, MN 56267	
<b>5. PROPOSED PROJECT DATES (Jan 1 – Dec 31)</b>  January 1, 2022 – December 31, 2022	<b>6. TOTAL PROJECT COST</b>  \$21,366	<b>7. PI #1 PHONE NO.</b> Office: 320-589-1711 ext. 2124 Cell: 320-262-0493 Email: hans4022@umn.edu
<b>8. RESEARCH OBJECTIVES:</b> (List objectives to be accomplished by research grant)  The goals of this pest survey are to produce timely alerts for small grain producers throughout the growing season so that sound economic control options can be implemented. We plan 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 across Minnesota and North Dakota. Specific project objectives include:  1) Survey small grain fields each week from mid-May through July in western and northwestern Minnesota small grain production areas monitoring for agronomic, insect and disease issues.  2) Generate survey maps along with NDSU Extension cooperators regarding scout findings.  3) Provide timely alerts about pest and disease issues in small grains so that producers can implement sound economic control options.  4) Estimate the area in which wheat stem sawfly has established successfully as an economic pest in spring wheat in Minnesota  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</b>   <b>Administration</b>		<b>Date</b> 12/20/2021
<b>Brett Carlson, Sr. Grant &amp; Contract Officer, Office of Sponsored Projects</b>		

# Minnesota Wheat Research and Promotion Council

## RESEARCH PROJECT PROPOSAL

### (2-pages maximum)

#### **Abstract**

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, especially as conditions for pest favorability vary year-by-year. Wheat stem sawfly (WSS) will remain an insect of interest in the upcoming growing seasons as the area in northwest Minnesota with a noticeable presence continues to expand in recent years.

The expected outcomes of this pest survey are timely alerts for small grain producers throughout the growing season 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.

#### **Describe the background for your proposed project and the importance of this project to the profitability of wheat production in MN**

This project will continue the successful U of M scouting program that has been conducted in previous years in coordination with the NDSU IPM survey. Given the current economic climate for Minnesota wheat producers, scouting and proper pest management is more critical than ever before. Proper pest management can have substantial impacts on farm profitability. Scouting information during the field season is key to allow producers to make informed management decisions. The small grains pest survey in combination with the weather-based disease risk models provide important pest-management information in a timely manner, giving producers a heads-up on arising pest issues along with sound management recommendations.

Wheat Stem Sawfly (*Cephus cinctus* Norton) is not new to the region, but rather a species that is endemic to the northern plains of the United States and Canada, including the Red River Valley. It is unclear why WSS is becoming an economic pest in the heart of the Red River Valley. Over the past five plus years, the area affected by WSS has steadily grown larger. Continued scouting for this pest is therefore warranted.

#### **Research methods**

Similar to the 2021 season, a call will go out to wheat growers in early April to submit fields online for the small grains disease and pest survey for 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 on the Minnesota Crop News blog (<https://blog-crop-news.extension.umn.edu/>) and the national Fusarium Head Blight Prediction Center (<http://www.wheatscab.psu.edu/>).

In order to provide a more robust estimate of the area that WSS is affecting, we will also collaborate with crop consultants in NW Minnesota to collect qualitative data on WSS distribution and harvest impacts rather than relying simply on the fields volunteered by producers for the disease and pest survey. Although more qualitative in nature, the proposed approach will provide us with a better understanding of the regional distribution of the insect as the within field spatial aggregation of this pest with strong leading edge effect, makes that scouts can easily miss the WSS presence.

#### **Timeline for completion**

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 and July - Weekly scouting continues. Data summaries are compiled with commentary and published to the Minnesota Crop News blog and on the disease forecasting websites.

### **Outreach plan**

The collected data and interpretations are disseminated to the greater public through the following channels:

- Minnesota Crop News.
- National Fusarium Head Blight Prediction Center.
- Minnesota Field Crop Trials bulletin.
- Invited talks and presentations
- University of Minnesota Extension small grains programs

### **List other current or pending funding sources for this project:**

Funding will be sought from the Minnesota Soybean Research & Promotion Council to include soybean scouting in areas of northwest 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 recruit more qualified candidates.

### **Research group (other collaborators not listed as PIs):**

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.

### **Relationship to past projects and research conducted by you or others in the region:**

This project will continue the successful Minnesota scouting program that has been conducted in previous years in coordination with the NDSU IPM survey to create a unique regional picture of insect and disease incidence, severity, and distribution for small grains.

# Minnesota Wheat Research and Promotion Council

## RESEARCH PROJECT PROPOSAL BUDGET

<b>Project Title:</b> Minnesota Small Grains Pest Survey			
<b>Principal Investigator(s) / Project Director(s)</b>	<u>Funds Requested For</u>		
Dr. Anthony Hanson Dr. Jared Goplen Dr. Jochum Wiersma	Year 1 (2022)	Year 2 (2023)	Year 3 (2024)
A. Salaries and Wages (8 wks x 32 hrs / wk = 768 hours @ \$15.00 /hr)	\$11,520	\$	\$
1. Co-principal Investigator(s)			
2. Senior Associates			
3. Research Associates – Post Doctorate			
4. Other Professionals			
5. Graduate Students			
6. Prebaccalaureate Students	\$11,520		
7. Secretarial - Clerical			
8. Technical, Shop and Other			
B. Fringe Benefits (7.5%)	\$864		
C. Consulting and Professional Services			
D. Supplies and Services	\$600		
E. Travel (12,000 miles @ \$0.17/mile)	\$2,040		
F. Sub-Contracts			
G. Repairs & Maintenance			
H. Rentals & Lease (\$1,057 per month per vehicle)	\$6,342		
I. Other Expenses			
TOTAL AMOUNT OF THIS REQUEST (per year)	\$ 21,366	\$	\$