FOR ADMINISTRATIVE USE
Program Area Code Proposal Code

Minnesota Wheat Research and Promotion Council

RESEARCH PROPOSAL GRANT APPLICATION

1. NAME AND ADDRESS OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE

Name: Regents of the University of Minnesota
Address: Sponsored Projects Administration
454 McNamara Alumni Center, 200 Oak Street SE
Minneapolis, MN 55455-2070

2. TITLE OF PROPOSAL
Minnesota Small Grains Pest Survey

3. PRINCIPAL INVESTIGATOR(S)

Dr. Jared J. Goplen

PI# 2 Name: Dr. Anthony Hanson

PI# 3 Name: Dr. Jochum J. Wiersma

4. PI #1 BUSINESS ADDRESS

Morris Regional Extension Office
46352 State Hwy 329
Morris, MN 56267

5. PROPOSED PROJECT DATES (calendar years)
January 1, 2021 – December 31, 2021

Note: Research Reports are Due November 15th of Each Year

6. TOTAL PROJECT COST

7. PI #1 PHONE NO.
(320) 589-1711 ext. 2128
Cell: (507) 829-0614

8. RESEARCH OBJECTIVES: (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 WSS 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).

Signature Of Principal Investigator	**Date**	**Phone Number**
	1/11/2021	507-829-0614

Signature Of Authorized Representative	**Title**	**Date**
	Sr. Grant & Contract Admin.	**01/12/2021**

Address Of Authorized Representative

Brett Carlson, Sr. Grant & Contract Admin, Office of Sponsored Projects Administration
450 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, MN 55455-2070

Phone Number

612-624-5599

Minnesota Wheat Research and Promotion Council
RESEARCH PROJECT PROPOSAL
(2-pages maximum)

Project Title: Minnesota Small Grains Pest Survey

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. Disease and insect pests have long been detrimental to the yield 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 that appropriate management strategies can be implemented. 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. This survey, coupled with the weather-based disease risk models provide important pest-management information in a timely manner and provides producers a 'heads-up' both about arising pest issues and sound management recommendations.

Wheat Stem Sawfly (WSS, *Cephus cintus* 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 years the area affected by WSS has steadily grown larger. Scouting for WSS will continue as part of this project in order to estimate the area where WSS has become established and is causing economic losses.

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 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 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.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. This approach will allow for more targeted and efficient sampling within individual fields since crop consultants have more intimate knowledge of cropping history both within fields and in adjacent fields. Using more targeted sampling will account for the spatial aggregation of this pest, which makes it easy for scouts to miss affected regions when covering a wider geography.

The collected data and interpretations will be disseminated through the following channels:

- Minnesota Crop News Blog
- Minnesota Association of Wheat Growers disease-forecasting website
- National Fusarium Head Blight Prediction Center
- Minnesota Field Crop Trials bulletin
- Invited talks and presentations
- University of Minnesota Extension small grains programs

Timeline:

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 to the Minnesota Crop News blog and on the disease forecasting websites.

Regional linkage to other research activities:
This project will work closely with the NDSU IPM program to train scouts, compile data, and produce weekly scouting maps in May – July to summarize results. This project will also work closely with the Southern Minnesota Small Grains Research and Outreach project to utilize variety trial locations as sentinel plots to detect insect pests and disease-causing pathogens before they are widely established.

List current or potential other funding sources for this project:
Funding is currently being 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:
The research group at the University of Minnesota includes Jared Goplen, Anthony Hanson, Jochum Wiersma, and Angie Peltier. The project's collaborators at NDSU include Patrick Beauzay, Janet Knodel, Andrew Friskop and Sam Markell.

Relationship to past projects:
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 small grains insect and disease incidence, severity, and distribution.

Estimate the budget requirements:

Costs consist primarily of expenses related to student labor and travel expenses associated with scouting small grains throughout the state.

Cost Center	Description	Amount
Labor		
Student labor (3 students)	8 wks x 32 hrs / wk = 768 hours @ $13.50 /hr	$10,368
Fringe Benefits		
Student	8%	$ 829
Travel		
3 mid-size car from motor pool (8wks)	$1,005 per month per vehicle	$ 6,030
Mileage in fleet vehicles	12,000 miles @ $0.17/mile	$ 2,040
Supplies	Sweep nets, clipboards, bug repellent, plastic boots, disposable pants, mud scrapers, collection vials, rubbing alcohol, hand sanitizer, collection bags	$ 600
	TOTAL	$19,867

References:
Archived Wheat Survey Maps (2011 – 2019):
https://www.ag.ndsu.edu/ndipm/ipm-survey-archives/wheat-archives
Archived Barley Survey Maps (2011 – 2019):
https://www.ag.ndsu.edu/ndipm/ipm-survey-archives/barley-archives-1