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
Sponsored Projects Administration
Address: 454 McNamara Alumni Center, 200 Oak Street SE
Minneapolis, MN 55455-2070

2. TITLE OF PROPOSAL
Minnesota Small Grains Pest Survey 2024

3. PRINCIPAL INVESTIGATOR(S)

1. Dr. Anthony Hanson
2. Dr. Jochum Wiersma
3. Dr. Angie Peltier

4. PI #1 BUSINESS ADDRESS

West Central Research & Outreach Center
46352 State Hwy. 329
Morris, MN 56267

5. PROPOSED PROJECT DATES (Jan 1 – Dec 31)

January 1, 2024 – December 31, 2024

Note: Annual Research Reports are Due November 15th

6. TOTAL PROJECT COST

$23,565

7. PI #1 PHONE NO.
Office: 320-589-1711 ext. 2124
Cell: 320-262-0493
Email: hans4022@umn.edu

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 wheat stem sawfly and cereal leaf beetle have 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

Brett Carlson, Sr. Grant & Contract Officer, Office of Sponsored Projects Administration

Date
1/10/2024

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. 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. Cereal leaf beetle (*Oulema melanopus*) was found for the first time and at economically damaging levels in NW MN during the 2023 MN Small Grains Pest Survey. Continued surveying in 2024 is needed to determine the extent and severity of this new pest in the region. Wheat stem sawfly (*Cephus cintus*) also remains an insect of interest in the upcoming growing season.

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 will continue to integrate this survey with the ongoing efforts in North Dakota that are coordinated by NDSU's IPM Survey to improve efficiency and reach 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 and global wheat markets, scouting and research-based pest management continues to be critical to maximize farm profitability related to pest management. Scouting information during the field season is key to allow producers to make informed management decisions. The small grains pest survey in combination with existing weather-based disease risk models provide important pest-management information in a timely manner, giving producers a "heads-up" about arising pest issues along with sound management recommendations.

Cereal leaf beetle is a non-native insect found in Clay, Norman, Mahnomen, and Red Lake counties in 2023 that can cause economic damage at only three larvae per plant during vegetative growth stages (the threshold decreases to one larva per plant on the flag leaf). Wheat stem sawfly (WSS) is not new to the region, but instead is native to the northern plains of the United States and Canada, including the Red River Valley. Over the past five plus years, the area affected by WSS has steadily grown larger. Survey efforts will continue to help monitor the spread and impact of these species to assess management needs.

Research methods

Similar to the 2023 season, a call will go out to wheat growers during January winter meetings and through early May to submit field coordinates 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 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 presented at other venues such as online webinars and in-person field days during the summer.

Timeline for completion

Jan - March - Recruit and hire scouts.
Jan- May - 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 other outreach resources.

Outreach plan

The collected data and interpretations are disseminated to the greater public through the following channels:
- Minnesota Crop News
- Minnesota Field Crop Trials bulletin
- Invited talks and presentations
- University of Minnesota Extension small grains programs

List other current, pending, or planned funding sources and submissions 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. Previous funding from the soybean portion of the project will allow us to begin the scout hiring process in early 2023.

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 (co-PI), regional extension educator in NW Minnesota, oversees the complementary 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 joint Minnesota wheat and soybean 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. This collaboration to produce wheat disease and insect maps with NDSU has been ongoing since 2011.

Minnesota Wheat Research and Promotion Council

RESEARCH PROJECT PROPOSAL BUDGET

Project Title: Minnesota Small Grains Pest Survey 2024

Principal Investigator(s) / Project Director(s) 1. Dr. Anthony Hanson 2. Dr. Jochum Wiersma 3. Dr. Angie Peltier	Funds Requested For Year 1 (2024)	Year 2 (2025)	Year 3 (2026)
A. Salaries and Wages	$13,056	$	$
1. Co-principal Investigator(s)			
2. Senior Associates			
3. Research Associates – Post Doctorate			
4. Other Professionals			
5. Graduate Students			
6. Prebaccalaureate Students (3) 8 wks x 32 hrs / wk = 768 hours @ up to $17.00 / hr	$13,056		
7. Secretarial - Clerical			
8. Technical, Shop and Other			
B. Fringe Benefits - 7.7%	$1,005		
C. Consulting and Professional Services			
D. Supplies and Services - $400 scout supplies, $500 for scout advertising	$900		
E. Travel (12,000 miles @ $0.18/mile)	$2,160		
F. Sub-Contracts			
G. Repairs & Maintenance			
H. Rentals & Lease ($1,074 per month per vehicle)	$6,444		
I. Other Expenses			
TOTAL AMOUNT OF THIS REQUEST (per year)	**$ 23,565**	**$**	**$**

Budget Justification:

Costs consist primarily of expenses related to student labor and travel expenses associated with scouting small grains throughout the state. Minimum student pay is $15/hr and is planned to be up to $17/hr based on qualifications. Scout vehicles are rented from University of Minnesota Morris Fleet Services. Historically, approximately 12,000 miles have been covered by the three scouts for wheat fields over a summer (currently budgeted at $0.18/mile). Supplies for students include limited use field items, such as, sweep nets, clipboards, bug repellent, plastic boots, mud scrapers, collection vials, rubbing alcohol, hand sanitizer and collection bags. To address challenges with filling all scout positions in previous years, $500 is included to assist with position advertising both in this proposal and in the soybean scouting proposal supporting these scouts with the Minnesota Soybean Research and Promotion Council.

Brian Sorenson Intls: _____Date _____