



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		
Southern Minnesota Small Grains Research & Outreach Project		
3. PRINCIPAL INVESTIGATOR(S)	4. PI #1 BUSINESS ADDRESS	
Dr. Jared J. Goplen	Morris Regional Extension Office	
PI# 2 Name: Dr. Jochum J. Wiersma	46352 State Hwy 329	
PI# 3 Name:	Morris, MN 56267	
5. PROPOSED PROJECT DATES (calendar years) January 1, 2021 – December 31, 2021	6. TOTAL PROJECT COST	7. PI #1 PHONE NO. (320) 589-1711 ext. 2128
Note: Research Reports are Due November 15th of Each Year		Cell: (507) 829-0614
8. RESEARCH OBJECTIVES: (List objectives to be accomplished by research grant)		
<p>Our primary objectives are to assist and support farmers in central and southern Minnesota in maximizing small grain yield, quality, and profitability by 1) improving variety selection, 2) alerting producers of disease and pest problems during the growing season, 3) maximizing the return on crop inputs, and 4) refining and disseminating best management practices for central and southern Minnesota.</p> <p>To accomplish these objectives we propose to:</p> <ol style="list-style-type: none"> 1) Evaluate approximately 50 spring wheat cultivars for yield, quality, and agronomic adaptation in southern MN. 2) Evaluate approximately 24 winter wheat cultivars for yield, quality, and agronomic adaptation in southern MN. 3) Evaluate 18 winter cereal rye cultivars for yield, quality, and agronomic adaptation in southern MN. 4) Evaluate 25 oat cultivars for yield, quality, and agronomic adaptation in southern MN. 5) Evaluate 10 barley cultivars for yield, quality, and agronomic adaptation in southern MN. 6) Utilize variety trial locations as sentinels for insect and disease pest issues as they arise 7) Hold 3 virtual winter small grain workshops to disseminate variety trial results 8) Host 5 small grain field tours at variety trial locations in southern MN to feature results from variety trials as well as utilize plots to demonstrate disease and insect pest identification. <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>		
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		Phone Number
Brett Carlson, Sr. Grant & Contract Administrator, Office of Sponsored Projects Administration 450 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, MN 55455-2070		612-624-5599

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RESEARCH PROJECT PROPOSAL

(2-pages maximum)

Project Title: Southern Minnesota Small Grains Research & Outreach Project

Importance of this project to the profitability of wheat producers:

Central and southern Minnesota have not had large small grain acreages in recent decades. Small grains have often been grown in this region for reasons other than maximized production, such as manure applications, straw production, forage/cover-crop establishment, or tiling projects. The combination of weed and insect resistance issues, and interest in diversifying crop rotations to improve soil health has inspired more farmers in these regions to consider growing small grains. Our research and demonstration plots have documented the ability to grow small grains in central and southern Minnesota with high yield and quality that can maximize profitability. Our results have been echoed by reports from farmers in these regions who utilize advanced management tools and genetics despite the added production risks of heat and disease stressors that are more prevalent in southern Minnesota. Our goals are to assist and support farmers in central and southern Minnesota in growing small grains by improving variety selection, alerting farmers of potential disease and pest problems, assisting farmers in managing crop inputs, and developing best management practices and risk management strategies to maximize yield, quality, and profitability in these agricultural regions.

Procedures:

We propose the establishment of variety performance trials for HRSW, HRWW, barley, rye, and oats in central and southern Minnesota for the 2021 growing season. Proposed trial locations can be found in Table 1. As in the past, the variety trials will serve as sentinels for detecting insect and disease pests which we use to alert small grain producers of in-season management issues. The sentinel plots also provide an invaluable tool to use during summer field days as hands-on demonstrations to teach small grain producers and crop consultants important pest identification skills.

Table 1 – On-Farm locations in central and southern Minnesota in 2021

Location	HRWW	Rye	HRSW	Barley	Oats
Le Center	x	x	x	x	x
Becker	x	x	x	x	x
Benson			x		
Rochester ¹					x
New Ulm ¹				x	

¹ Not funded through this grant application

Farmer-cooperators carry out all field operations while our research group takes care of planting, weed control, data collection, and harvest. All trial locations utilize a randomized complete block design with three replications. Plots measure 5 ft. by 12 ft. and are seeded with an Almaco plot drill. Trials are harvested and subsampled with a Zurn 150 plot combine.

In addition to the summer field days at variety trial locations, a series of three virtual workshops will be held in February 2021 using the Zoom platform. Virtual workshops will be linked together with the recorded small grain update seminars. These virtual workshops will primarily be informal discussions surrounding topics covered in small grains update presentations. The workshops will provide opportunities for questions to be submitted ahead of time as well as interaction and discussion in real-time. Instructions will be distributed so that workshops can be accessed remotely via smartphones so that participants can join wherever is most convenient for them. The three virtual workshops will be loosely based on the southeast, southwest, and central regions of the state. Each of these growing regions face unique challenges, and the regionally-organized workshops will allow these nuances to be discussed in more detail. All virtual workshops will be recorded, closed captioned, and made available for later viewing online. Both field days and virtual meetings will feature results from variety trials and other University of Minnesota research as part of our statewide extension programming efforts in small grains. The variety trial data will also be published in the *Minnesota Field Crop Trials* bulletin that is published annually by the Minnesota Agricultural Experiment Station, and published through the University of Minnesota Extension website and the MN Crop News Blog.

Timeline for completion:

October 2020..... Planting of winter wheat and rye trials
 February 2021..... Virtual Small Grain Workshops

April 2021.....	Planting of spring wheat, barley, and oats trials
June 2021.....	Field Day at research sites in Benson, Becker, Le Center, New Ulm, and Rochester
July 2021.....	Harvest of research trials
Aug-Oct. 2021.....	Processing of plot samples and data compilation
November 2021.....	Release of collected data

Regional linkage to other research activities:

This project will be used to document pest issues arising with the Minnesota pest scouting survey. The variety trials will be combined with other southern MN locations of Dr. James Anderson’s wheat breeding program, including Lamberton, Morris, St. Paul, and Waseca. This project also links to the winter rye project and the barley and oat breeding programs for variety evaluations. All variety trial results will be included in the annual *Minnesota Field Crop Trials* bulletin.

List current or potential other funding sources for this project:

The spring wheat, barley, and oat breeding programs along with the winter rye and winter wheat projects will contribute to the cost of this project by sharing variety trial establishment and plot expenses, travel expenses to and from trial locations, as well as technical labor expenses related to plot maintenance and data processing. Travel, plot maintenance, and technical labor expenses not directly related to this Southern Minnesota Small Grains Research & Outreach Project will not be covered by this proposal.

Research Group:

Dr. Jared J. Goplen, UMN Extension Educator – Crops
 Dr. Jochum J. Wiersma, UMN Extension Small Grain Specialist
 Dr. James A. Anderson, UMN Wheat Breeder
 Dr. Kevin P. Smith, UMN Barley and Oat Breeder
 Ron Faber and the Sand Plains Research Farm
 Cooperating producers: Ron Pomiji/Ruth Hoef, Scott Lee/John Gorres, Lisa Behnken, and Nathan Gieseke

Relationship to past projects:

This research team has worked with core groups of producers in southern Minnesota for the past 14 seasons to work towards increasing yield, quality, and profitability through research and education. Our core audience in southern Minnesota continues to reiterate the importance of continuing our research and educational efforts in genetics and agronomic management, especially as small grains become a more important piece in mitigating issues affecting corn and soybean production, including resistant weeds and insects, soybean cyst nematode, and other crop diseases.

Estimate the budget requirements:

Costs consist primarily of expenses related to establishment, maintenance, data collection, and harvest of trials, in addition to meeting and field day expenses as outlined below. Proposed expenses are related only to the wheat research and educational components of this proposal. Costs are only shared with rye, barley, and oat projects when travel and plot maintenance expenses are required for the wheat portion of this project.

Cost Center	Description	Amount
<i>Labor</i>		
Technical	40 hours @25.00/hr	\$ 1,000.00
Student labor	120 hours @13.00/hr	\$ 1,560.00
Communication specialist P. Bongaard	Work on virtual programs, accessibility of recorded presentations, website updates, etc.	\$ 2,197.00
<i>Fringe Benefits</i>		
Technical / Communications Specialist	31.8 % / 36.5%	\$ 1,121.00
<i>Non-expandable equipment</i>		
Materials & Supplies	Envelopes, fertilizer, seed, fungicides etc.	\$ 1,500.00
<i>Travel</i>		
Mileage for planting/harvest	2,500 miles @ \$1.75/ mile	\$ 4,375.00
Mileage for plot maintenance/note taking/etc.	4,000 miles @ \$0.58/mile	\$ 2,320.00
Lodging & Meals	6 overnight stays (lodging and per diem)	\$ 1,095.00
<i>Other Direct Cost</i>		
Cooperator reimbursements	\$500/acre charge (4.0 ac)	\$ 2,000.00
Field Day and Virtual Meetings	Publicity, Closed Captioning, etc.	\$ 800.00
	TOTAL	\$17,968.00