

## 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> North Dakota State University <b>Address:</b> Office of Sponsored Programs Administration Dept #4050 PO Box 6050, Fargo, ND 58108-6050		
<b>2. TITLE OF PROPOSAL</b> <p style="text-align: center;"><b>Developing an Interactive, Web-based Variety Selection Tool for Wheat</b></p>		
<b>3. PRINCIPAL INVESTIGATOR(S)</b>  <p style="text-align: center;">Joel Ransom</p>	<b>4. PI #1 BUSINESS ADDRESS</b>  NDSU Department of Plant Sciences NDSU Dept. 7610, 166 Loftsgard Hall PO Box 6050 Fargo, ND 58108-6050	
PI# 2 Name:		
PI# 3 Name:		
<b>5. PROPOSED PROJECT DATES (calendar years)</b> 2011  <small>Note: Research Reports are Due November 15th of Each Year</small>	<b>6. TOTAL PROJECT COST</b>  \$25,000 (\$12,500 from MWRPC)	<b>7. PI #1 PHONE NO.</b> 701-231-7405
<b>8. RESEARCH OBJECTIVES:</b> (List objectives to be accomplished by research grant)  The objective of this proposed project is to develop a web-based variety selection tool to help farmers select varieties of wheat (spring and winter wheat and durum) that are adapted to their farm and meet their varied requirements.  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 Of Principal Investigator</b>	<b>Date</b>	<b>Phone Number</b>
<b>Signature Of Authorized Representative</b>	<b>Title</b>	<b>Date</b>
<b>Address Of Authorized Representative</b>		<b>Phone Number</b>

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## RESEARCH PROPOSAL GRANT APPLICATION

### **Project Title:**

Developing an Interactive, Web-based Variety Selection Tool for Wheat

### **Importance**

In recent years, the number of new varieties of wheat released for production in North Dakota and Minnesota has increased dramatically. In 2009, for example, seven new HRSW varieties were released. Furthermore, more than 35 other varieties have been released in the past decade. This broad array of varieties, allows farmers to effectively match the variety to the environment where it will be grown and/or where it will be marketed.

Nevertheless, the large number of available varieties has complicated the process of variety selection for farmers.

The propose of this project is to develop a web-based variety selection tool that will enable users to access and summarize research results from variety trials conducted throughout the two states. Nearly all farmers currently have computers with access to the internet and this tool should allow farmers to quickly obtain data on variety performance across locations and years and compare varieties in head-to-head comparisons if desired.

### **Background:**

Every year variety trials for all classes of wheat grown in ND are conducted in many locations across the state. Some of the data from these trials are summarized in variety selection guides that are published as a hard copy and are posted on the web. Other trial data are published in annual reports by the RECs and are usually posted on the web. In this project we will develop an interactive web-based tool that will allow the user to access all available data for a given variety, for all years for which it was included in trials. Since variety performance data are already available (but in diverse locations) and will continue to be developed by the research system, this project will focus on the development of the interface that will allow for quick access of data for varieties and locations selected by the user.

### **Relationship to Past Projects:**

None

### **Procedures:**

This project will be carried out in collaboration with the U of M Extension Service, though the actual computer programming work will be done at NDSU. The primary objective of the project will be to develop a web-based tool. We propose the following steps in the development of this tool to ensure that it will be robust and user friendly:

1. *Development of the user interface.* There are a number of good examples of variety selection tools that have been developed by other states or private companies that will be reviewed for relevance. Based on ideas from these tools and from ideas and experiences of a focus group of farmers and extension personnel, a basic interface will be developed and tested.
2. *Development and population of the database.* Once the basic interface is developed, data to be accessed by the tool will be entered into a database. We envision that this database will contain information on not only agronomic variables (plant height, yield, protein content, etc.) but will also provide information on the reaction of the varieties to diseases and on milling and baking performance. Initially we will add data from trials going back about five years. We potentially could enter private company data if they are willing to have it included in the "tool".
3. *Testing of the tool.* The final step will be the testing of the tool to determine if it has the features desired by the end-user, if it is user-friendly and if there are other refinements needed.

We envision that this process will take about one year and that thereafter data will updated at the end of each growing season as it become available after harvest. Most of the cost of the development of this tool will be associated with the hiring of computer programmers. To the extent possible, I intend to use NDSU students that are studying computer science and that have relevant experience to do this programming.

### **Research Group:**

Joel Ransom from NDSU, and Jochum Wiersma, U of M. The group will also include one to three undergrad/graduate students with computer programing expertise.

**Regional Linkages to Other Research Activities:**

This project will be very strongly linked to the wheat breeding and testing programs in ND and MN, as well as the existing extension programs in both states.

**Additional Sources of Funding:**

Additional funds have been requested from the State Board of Agricultural Research and Education and the North Dakota Wheat Commission.

**References:**

An example of a variety selection tool developed for wheat in Montana can be found at the following link  
[http://www.sarc.montana.edu/php/select\\_sw.php](http://www.sarc.montana.edu/php/select_sw.php) .

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## RESEARCH PROPOSAL BUDGET

<b>ORGANIZATION AND ADDRESS</b>			
<b>Name:</b>	North Dakota State University	<b>THIS BUDGET IS FOR THE REQUEST FROM MWRPC ONLY (matching funds are requested from ND sources)</b>	
<b>Address:</b>	Office of Sponsored Programs Administration		
	Dept #4050 PO Box 6050		
	Fargo, ND 58108-6050		
<b>Principal Investigator(s) / Project Directors(s)</b>	Funds Requested For		
<b>Joel Ransom</b>	Year 1 (2011)	Year 2 (2012)	Year 3 (2013)
A. Salaries and Wages	\$	\$	\$
1. Co-principal Investigator(s)			
2. Senior Associates			
3. Research Associates - Post Doctorate			
4. Other Professionals			
5. Graduate Students			
6. Prebaccalaureate Students	10,000		
7. Secretarial - Clerical			
8. Technical, Shop and Other			
B. Fringe Benefits @ 10%	1,000		
C. Nonexpendable Equipment (Planting and harvesting equipment use)			
D. Materials and Supplies	1,000		
E. Travel	500		
F. Publication Costs			
G. Computer Costs			
H. All Other Direct Costs (Attach supporting data) - Purchase of Service -			
<b>I. TOTAL AMOUNT OF THIS REQUEST (per year)</b>	<b>\$ 12,500</b>	<b>\$ NA</b>	<b>\$ NA</b>