

**USDA-ARS/  
U.S. Wheat and Barley Scab Initiative  
FY15 Final Performance Report  
Due date: July 15, 2016**

**Cover Page**

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<b>Fiscal Year:</b>	2015
<b>USDA-ARS Agreement ID:</b>	59-0206-4-038
<b>USDA-ARS Agreement Title:</b>	Management of FHB and DON in Small Grains.
<b>FY15 USDA-ARS Award Amount:</b>	\$ 9,718
<b>Recipient Organization:</b>	Regents of the University of Minnesota Suite 450 Sponsored FIN RPT-P100100001 Minneapolis, MN 55455-2003
<b>DUNS Number:</b>	555917996
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<b>Project/Grant Reporting Period:</b>	05/31/15-05/30/16
<b>Reporting Period End Date:</b>	05/30/16

**USWBSI Individual Project(s)**

<b>USWBSI Research Category*</b>	<b>Project Title</b>	<b>ARS Award Amount</b>
MGMT	Uniform Evaluation of Fungicides for FHB and DON Management in Minnesota.	\$ 9,718
	<b>FY15 Total ARS Award Amount</b>	<b>\$ 9,718</b>

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Principal Investigator

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Date

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\* MGMT – FHB Management  
FST – Food Safety & Toxicology  
GDER – Gene Discovery & Engineering Resistance  
PBG – Pathogen Biology & Genetics  
EC-HQ – Executive Committee-Headquarters  
BAR-CP – Barley Coordinated Project  
DUR-CP – Durum Coordinated Project  
HWW-CP – Hard Winter Wheat Coordinated Project  
VDHR – Variety Development & Uniform Nurseries – Sub categories are below:  
    SPR – Spring Wheat Region  
    NWW – Northern Soft Winter Wheat Region  
    SWW – Southern Soft Red Winter Wheat Region

**Project 1:** *Uniform Evaluation of Fungicides for FHB and DON Management in Minnesota.*

**1. What are the major goals and objectives of the project?**

Many generic fungicide products are now available for FHB control at a much lower cost to the grower than the original labelled formulations. Although these products contain the same active ingredients, different companies have different carrier formulations which may affect the coverage and therefore the relative efficacy of these products for scab control. In the 2015, growing season in Minnesota, a range of tebuconazole products were tested for efficacy in accordance with the coordinated FHB management project. The data collected from these trials will enable us to make recommendations to growers about the relative efficacy of generic tebuconazole products and how to use them in management programs in conjunction with the FHB risk forecasting system and varietal selection.

**2. What was accomplished under these goals?**

1) major activities: In 2015, trials were set up at the Northwest Research and Outreach Center, Crookston, MN. Trials were planted to the FHB susceptible wheat variety Samson and the FHB susceptible barely variety Rasmusson. Trials were inoculated with colonized com spawn inoculum and mist irrigated to promote disease development. Fungicides were sprayed according to the standard protocol for the coordinated project. Data including disease severity, disease incidence, scab index and yield were collected.

2) specific objectives:

- determine the efficacy of registered, unregistered and experimental fungicides on multiple classes of wheat and in barley across diverse environments.
- test the efficacy of generic compounds versus the industry standards, and to determine the most appropriate rates and timing of application of these fungicides to best manage FHB development and reduce mycotoxin accumulation in grain.

3) significant results: Disease levels in the nursery in 2015 were high and uniform disease pressure was present throughout the nursery. Due to extreme stormy weather after heading, the barley portion of the trial lodged prematurely, and disease assessment was not possible. Data showed that the most effective treatments at reducing both disease levels and DON were Prosaro® and Caramba® in line with many previous studies. Tebuconazole containing products did not provide as good control of either disease or DON levels. The different tebuconazole-containing products showed reduction in disease and DON levels compared to the untreated controls. However, the results between tebuconazole products were variable and it was not possible to determine if one product consistently out-performed another in this trial/year.

4) key outcomes or other achievements: This data will form the Minnesota contribution of the Uniform Fungicide Coordinated Project for 2015 and this data will be combined with data from trials around the country which may provide a better insight when comparing Tebuconazole products.

**3. What opportunities for training and professional development has the project provided?**

Two undergraduate students, one undergraduate students and technical support staff have been trained in inoculation techniques for the FHB trials, spray application and timing and rating of FHB. The undergraduate students have been involved in the data collection including learning to make visual scabby kernel ratings and interpreting DON analysis data. In the process of learning these techniques the students also learned about the FHB forecasting system and the decision making process that growers go through in trying to control FHB in a field situation based on varietal selection and forecast risk at flowering.

**4. How have the results been disseminated to communities of interest?**

Results from the trials have been made available to the grower community through a series of outreach activities. These included dissemination at station field days; presentations at winter Small Grains Extension meetings and discussions at small grains plot tours around the state of Minnesota. In addition these data will be included as the MN state contribution to the UFT report which will be made available of the USWBSI website for scientists and producers to freely access.

### **Training of Next Generation Scientists**

**Instructions:** Please answer the following questions as it pertains to the FY15 award period. The term “support” below includes any level of benefit to the student, ranging from full stipend plus tuition to the situation where the student’s stipend was paid from other funds, but who learned how to rate scab in a misted nursery paid for by the USWBSI, and anything in between.

- 1. Did any graduate students in your research program supported by funding from your USWBSI grant earn their MS degree during the FY15 award period? Yes**

**If yes, how many? Two**

- 2. Did any graduate students in your research program supported by funding from your USWBSI grant earn their Ph.D. degree during the FY15 award period? No**

**If yes, how many?**

- 3. Have any post docs who worked for you during the FY15 award period and were supported by funding from your USWBSI grant taken faculty positions with universities? No**

**If yes, how many?**

- 4. Have any post docs who worked for you during the FY15 award period and were supported by funding from your USWBSI grant gone on to take positions with private ag-related companies or federal agencies? No**

**If yes, how many?**

**Release of Germplasm/Cultivars**

**Instructions:** In the table below, list all germplasm and/or cultivars released with full or partial support through the USWBSI during the FY15 award period. All columns must be completed for each listed germplasm/cultivar. Use the key below the table for Grain Class abbreviations. *Leave blank if you have nothing to report or if your grant did NOT include any VDHR-related projects.*

Name of Germplasm/Cultivar	Grain Class	FHB Resistance (S, MS, MR, R, where R represents your most resistant check)	FHB Rating (0-9)	Year Released

Add rows if needed.

**NOTE:** List the associated release notice or publication under the appropriate sub-section in the ‘Publications’ section of the FPR.

**Abbreviations for Grain Classes**

- Barley - BAR
- Durum - DUR
- Hard Red Winter - HRW
- Hard White Winter - HWW
- Hard Red Spring - HRS
- Soft Red Winter - SRW
- Soft White Winter - SWW

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### **Publications, Conference Papers, and Presentations**

Refer to the FY15-FPR\_Instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY15 grant. If you did not have any publications or presentations, state 'Nothing to Report' directly above the Journal publications section.

#### **Journal publications.**

#### **Books or other non-periodical, one-time publications.**

#### **Other publications, conference papers and presentations.**

M.J. Smith 1, A. Friskop, B. Schatz, G.C. Bergstrom, J.A. Cummings, E. Byamukama, K. Ruden, B. Bleakley, N. Murthy, C.A. Bradley, K. Ames, J. Pike, and R. Bellm (2015). Uniform Fungicide Trial Results for Management of FHB and DON, 2015. In: S. Canty, Clark, S. Vukasovich and D. Van Sanford (Eds.), *Proceedings of the 2015 National Fusarium Head Blight Forum*. East Lansing, MI/Lexington, KY: U.S. Wheat & Barley Scab Initiative. p.33.

Status: Abstract Published and poster presented

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