

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY13 Final Performance Report
July 15, 2014**

Cover Page

PI:	Joel Ransom
Institution:	North Dakota State University
Address:	Department of Plant Sciences NDSU Dept. 7670 PO Box 6050 Fargo, ND 58108-6050
E-mail:	joel.ransom@ndsu.edu
Phone:	701-293-4067
Fax:	701-231-8474
Fiscal Year:	FY13
USDA-ARS Agreement ID:	59-0206-1-116
USDA-ARS Agreement Title:	Verification of the Value of Genetic Resistance and Fungicides on the Control of FHB in WW in ND.
FY13 USDA-ARS Award Amount:	\$ 12,171

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
HW-CP	Verification of the Value of Genetic Resistance and Fungicides on the Control of FHB in Winter Wheat.	\$ 12,171
	FY13 Total ARS Award Amount	\$ 12,171

Principal Investigator

Date

* MGMT – FHB Management
 FSTU – Food Safety, Toxicology, & Utilization of Mycotoxin-contaminated Grain
 GDER – Gene Discovery & Engineering Resistance
 PBG – Pathogen Biology & Genetics
 BAR-CP – Barley Coordinated Project
 DUR-CP – Durum Coordinated Project
 HW-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: *Verification of the Value of Genetic Resistance and Fungicides on the Control of FHB in Winter Wheat.*

1. What major problem or issue is being resolved relevant to Fusarium head blight (scab) and how are you resolving it?

The problem that we are confronting is how to most effectively combine genetic resistance with recommended fungicides in order to minimize yield and quality losses in winter wheat to FHB. There are no released varieties that are highly resistant to FHB within the hard winter class of wheat. We are evaluating released varieties that are known to be among the best available under misting conditions in order to test their performance with and without a recommended fungicide. We are also including some of the most promising new lines under these same conditions including a few lines that were developed by backcrossing FHB1 into a popular released variety in order to determine the value of this gene in a winter wheat background.

2. List the most important accomplishments and their impact (i.e. how are they being used) to minimize the threat of Fusarium Head Blight or to reduce mycotoxins. Complete both sections; repeat sections for each major accomplishment:

Accomplishment: The data we have generated have help to provide information to farmers as to the value of genetic resistance and fungicide use for the control of FHB. This information is made available in circulars and on ScabSmart.

Impact: Though it is not clear as to how this information has impacted variety choice, we have been able to verify through variety use surveys that the use of varieties that are highly susceptible FHB has been reduced in recent years. Fungicide use has also increased and with the use of the most effective fungicides applied at the optimum timing, DON levels have no doubt been reduced in winter wheat that has been produced in environments when FHB has been problematic.

Include below a list of the publications, presentations, peer-reviewed articles, and non-peer reviewed articles written about your work that resulted from all of the projects included in the FY13 grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

McKee, G.J., J. Ransom and M. McMullen. 2013. Determinants of adoption of Fusarium Head Blight management techniques in wheat. *Journal of Agribusiness* 13:181-196.

W. W. Bockus, W.W., P. S. Baenziger, W. Berzonsky, M. Caffee, M. A. Davis, K. Fritz, G. Marais, J. Ransom, S. N. Wegulo, G. Zhang. 2014. Hard winter wheat scab nurseries — 2006 to the present. *Fusarium Focus* 14:7.