

**USDA-ARS/
U.S. Wheat and Barley Scab Initiative
FY14 Final Performance Report
July 15, 2015**

Cover Page

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Fiscal Year:	FY14
USDA-ARS Agreement ID:	59-0206-4-014
USDA-ARS Agreement Title:	Diagnostic Services for Vomitoxin (DON) in Wheat.
FY14 USDA-ARS Award Amount:	\$ 103,166

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
FSTU	Diagnostic Services for Vomitoxin (DON) in Wheat.	\$ 103,166
	FY14 Total ARS Award Amount	\$ 103,166

Principal Investigator _____

Date _____

* MGMT – FHB Management

FSTU – Food Safety, Toxicology, & Utilization of Mycotoxin-contaminated Grain

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

WES-CP – Western 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: *Diagnostic Services for Vomitoxin (DON) in Wheat.*

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

The research grant provided for analyses of *Fusarium graminearum* mycotoxins produced during scab infection in wheat research projects, headed by multiple USWBSI PIs (16) in 4 states. In particular, vomitoxin or deoxynivalenol (DON) and additional mycotoxins 15- and 3- acetyldeoxynivalenol plus nivalenol were analyzed by gas chromatography/electron capture detection. Approximately 11,000 samples were estimated for mycotoxin analysis and by May 2015 approximately 10,003 wheat samples were analyzed. The results were sent electronically to the individual USWBSI PIs for their research. A technician was hired to assist in laboratory sample preparation and preparation of sample clean-up columns for mycotoxin extraction.

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 chemist performed approximately 10,000 analyses on wheat for *Fusarium graminearum* mycotoxins (in particular vomitoxin) for use by USWBSI PIs in their research projects.

Impact:

Mycotoxin data generated by this project is used by USWBSI PIs in their research projects focused on mitigation of scab in cereal grains

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY14 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 FY14 award period? No**

If yes, how many?

- 2. Did any graduate students in your research program supported by funding from your USWBSI grant earn their Ph.D. degree during the FY14 award period? No**

If yes, how many?

- 3. Have any post docs who worked for you during the FY14 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 FY14 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?

FY14 (approx. May 14 – May 15)
PI: Mostrom, Michelle
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Include below a list of all germplasm or cultivars released with full or partial support of the USWBSI during the FY14 award period. List the release notice or publication. Briefly describe the level of FHB resistance. *If not applicable because your grant did NOT include any VDHR-related projects, enter N/A below.*

N/A

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 FY14 grant. Please reference each item using an accepted journal format. If you need more space, continue the list on the next page.

N/A Project supported analytical testing for USWBSI PI researchers.

PI: Mostrom, Michelle

Project: Diagnostic Services for Vomitoxin (DON) in Wheat.

**FY14 FPR – USWBSI ADDENDUM
DON Service Labs – Quality Control Data**

Insert below Quality Control Data/Results from the FY14 Award Period (approx. May 2014-May 2015):

	Front Detector			Back Detector		
	Wheat	Barley	Corn	Wheat	Barley	Corn
Mean	0.9	2.8	4.6	1.0	2.8	4.5
Std Deviation	0.1	0.3	0.4	0.1	0.3	0.4
CV	12.9%	9.1%	8.7%	14.1%	9.7%	9.2%

NDSU-VDL QC data from 126 batches of Quality Control data run on both front and back detectors of GC/ECD. Testing season USWBSI May 2014-May 2015.