

**USDA-ARS/  
U.S. Wheat and Barley Scab Initiative  
FY16 Final Performance Report  
Due date: July 28, 2017**

**Cover Page**

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<b>Fiscal Year:</b>	2016
<b>USDA-ARS Agreement ID:</b>	59-0206-4-014
<b>USDA-ARS Agreement Title:</b>	Diagnostic Services for Vomitoxin (DON) in Wheat.
<b>FY16 USDA-ARS Award Amount:</b>	\$ 113,642
<b>Recipient Organization:</b>	North Dakota State University Office of Grant & Contract Accounting NDSU Dept 3130, PO Box 6050 Fargo, ND 58108-0650
<b>DUNS Number:</b>	80-388-2299
<b>EIN:</b>	45-6002439
<b>Recipient Identifying Number or Account Number:</b>	FAR0022064
<b>Project/Grant Reporting Period:</b>	5/5/16 - 5/4/17
<b>Reporting Period End Date:</b>	05/04/17

**USWBSI Individual Project(s)**

USWBSI Research Category*	Project Title	ARS Award Amount
FST	Diagnostic Services for Deoxynivalenol (DON) in Wheat.	\$ 113,642
	<b>FY16 Total ARS Award Amount</b>	<b>\$ 113,642</b>

M. S. Mostrom  
Principal Investigator

July 19, 2017  
Date

\* 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

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**Project 1:** *Diagnostic Services for Deoxynivalenol (DON) in Wheat.*

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

Project objectives:

1) The Department of Veterinary Diagnostic Services at North Dakota State University will provide vomitoxin (deoxynivalenol or DON) analyses on approximately 10,000 wheat samples/year for about 16 to 20 scientists from central USA. Samples are analyzed for vomitoxin, 15-acetyldeoxynivalenol (15-ADON), nivalenol and, by special request 3-acetyldeoxynivalenol (3-ADON) by gas chromatography/electron capture detection.

2) NDSU Veterinary Diagnostic Services offered a multiple-mycotoxin analysis to screen for additional *Fusarium* mycotoxins that occur in cereals for up to 100 grain samples.

**2. What was accomplished under these goals? Address items 1-4) below for each goal or objective.**

1) major activities and 2) specific objectives

The research grant provided for analyses of *Fusarium graminearum* mycotoxins produced during scab infection in wheat research projects, headed by multiple USWBSI PIs (15) in Midwestern states. A technician was hired to assist in laboratory sample preparation and extraction of mycotoxins from the cereal grain.

3) significant results

The chemist performed approximately 8,034 analyses [10,078 estimated by researchers] on wheat for *Fusarium graminearum* mycotoxins (in particular - vomitoxin) for use by USWBSI PIs in their research projects.

4) key outcomes or other achievements

The results were sent electronically to the individual USWBSI PIs for their research. The laboratory did not receive requests for additional multiple mycotoxin analyses from USWBSI PIs.

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

Nothing to Report.

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

Nothing to Report – data was transmitted to USWBSI research PI's.

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## **Training of Next Generation Scientists**

**Instructions:** Please answer the following questions as it pertains to the FY16 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 FY16 award period? N/A**

**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 FY16 award period? N/A**

**If yes, how many?**

3. **Have any post docs who worked for you during the FY16 award period and were supported by funding from your USWBSI grant taken faculty positions with universities? N/A**

**If yes, how many?**

4. **Have any post docs who worked for you during the FY16 award period and were supported by funding from your USWBSI grant gone on to take positions with private ag-related companies or federal agencies? N/A**

**If yes, how many?**

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### 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 FY16 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
Not applicable				

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**

**Instructions:** Refer to the FY16-FPR\_Instructions for detailed instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY16 grant. Only include citations for publications submitted or presentations given during your award period (5/5/16 - 5/4/17). If you did not have any publications or presentations, state 'Nothing to Report' directly above the Journal publications section.

Nothing to Report. This project is a service.

**Journal publications.**

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

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

**PI:** Mostrom, Michelle

**Project:** Diagnostic Services for Deoxynivalenol (DON) in Wheat.

**FY16 FPR – USWBSI ADDENDUM  
DON Service Labs – Quality Control Data**

**Insert below Quality Control Data/Results from the FY16 Award Period (5/5/16 - 5/4/17):**

	<b>Front Detector</b>			<b>Back Detector</b>		
	Wheat	Barley	Corn	Wheat	Barley	Corn
Mean	0.9	2.6	4.6	0.9	2.5	4.3
Standard Deviation	0.1	0.3	0.5	0.1	0.3	0.5
CV	15%	12%	11%	15%	12%	11%