USDA-ARS
U.S. Wheat and Barley Scab Initiative
FY17 Final Performance Report
Due date: July 31, 2018

Cover Page

Principle Investigator (PI):	Jason Wight
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Fiscal Year:	2017
USDA-ARS Agreement ID:	59-0206-6-013
USDA-ARS Agreement Title:	University of Maryland Office of the Comptroller Contract and Grant Accounting RM 4101, Chesapeake Bldg College Pard, MD 20742-3141
FY17 USDA-ARS Award Amount:	$ 3,855
Recipient Organization:	KFS 5258020
DUNS Number:	59-0206-6-013
EIN:	790934285
Recipient Identifying Number or Account Number:	52-6002033
Project/Grant Reporting Period:	6/6/17 - 6/5/18
Reporting Period End Date:	06/05/18

USWBSI Individual Project(s)

USWBSI Research Category*	Project Title	ARS Award Amount
MGMT	Evaluation of Commercial Wheat and Barley Cultivars for FHB Reaction in DE/MD.	$ 3,855
	FY17 Total ARS Award Amount	$ 3,855

Jason P Wight
Principal Investigator

8/6/18
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: *Evaluation of Commercial Wheat and Barley Cultivars for FHB Reaction in DE/MD.*

1. **What are the major goals and objectives of the project?**
   1) Include the Delaware/Maryland project site as part of the Coordinated Management Program to assess the stability of results across different environments and wheat classes.

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

   1) major activities: Studies were conducted in 2016 and 2017 that assessed the impacts of varietal resistance level on FHB and DON suppression. The field site was at the Beltsville Research and Education Center in Maryland and Carvel Research and Education Center in Georgetown, Delaware. Both studies followed the proposed protocol, and data on yield, test weight, FDK, FHB, and DON were obtained. Data were shared with PI Paul to be included as part of larger, multi-state projects. 2018 data are still being generated.

   2) specific objectives: Include the Maryland project site as part of the Coordinated Management Program to assess the stability of results across different environments and wheat classes.

   3) significant results: Relative DON rankings of wheat varieties were consistent in year-over-year comparison from data produced in 2016 and 2017. Standards (Oakes (MR), Pioneer 25R74 (MR) and Shirley (MS) exhibited an appropriate level of DON and disease index for their resistance level.

   4) key outcomes or other achievements: Results were the first to be published in the Mid-Atlantic region. Timely reporting allowed producers and breeders of the region to make key planting and line selection decisions, respectively. Five total Maryland wheat lines were released, with one being publicly available through the Maryland Crop Improvement Association and local seed sources. The remaining lines were licensed to a commercial seed producer who sells patented, "pvp" protected seed to a national market.

   We were able to reestablish the misted nursery in Maryland, which was inactive in recent years. A recent survey of Delaware growers indicated that the data produced by this nursey will save Delaware producers a minimum of $1 million annually

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

   This project provided training opportunities for two technicians, three University of Maryland student workers, and one University of Maryland intern. They learned principles of agronomy and pathology as applied to field research. In particular they learned field layout, planting, irrigation, data collection, harvest, and sample management.

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

Results were shared on SCABSMART, the Field Crop Disease Management Blog, the Maryland Agronomy page, and at multiple regional and county-level meetings throughout Maryland and Delaware.

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the FY17 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 FY17 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 FY17 award period?** No

   If yes, how many?

3. **Have any post docs who worked for you during the FY17 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 FY17 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 FY17 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**
15MW131 – commercial release	SRW	MR	2	2018
15MW315 – commercial release	SRW	MR	2	2017
15MW117 "Luisa" – public release	SRW	MR	4	2017
15MW64134 – commercial release	SRW	MR	4	2018
15 MDX19– commercial release	SRW	MR	4	2018

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

Publications, Conference Papers, and Presentations

Instructions: Refer to the FY17-FPR_Instructions for detailed instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY17 grant. Only include citations for publications submitted or presentations given during your award period (6/6/17 - 6/5/18). If you did not have any publications or presentations, state 'Nothing to Report' directly above the Journal publications section.

NOTE: Directly below each reference/citation, you must indicate the Status (i.e. published, submitted, etc.) and whether acknowledgement of Federal support was indicated in publication/ presentation.

Journal publications. Nothing to report

Books or other non-periodical, one-time publications. Nothing to report

Other publications, conference papers and presentations.

Wight, J., A. Murphy, N Rawat, A. Cooper, L. Thorne, A. Mills, J. Whittaker, and E. Mullineaux. 2018. New Variety Development and Testing of Small Grains in Maryland for Higher Yield and Disease Resistance. University of Maryland Farm Crew Meeting. Lower Eastern Shore Research and Education Center.
Status: Presented
Acknowledgement of Federal Support: Yes

Rawat, N, V. Tiwari, and J. Wight. 2018. Deploying a novel source of resistance to Fusarium Head Blight in local wheat varieties. Extension Meeting. Maryland Grain Producers Utilization Board.
Status: Presented
Acknowledgement of Federal Support: Yes

Wight, J., A. Murphy, N Rawat, A. Cooper, L. Thorne, A. Mills, J. Whittaker, and E. Mullineaux. 2018. New Variety Development and Testing of Small Grains in Maryland for Higher Yield and Disease Resistance. Extension Meeting. Maryland Grain Producers Utilization Board.
Status: Presented
Acknowledgement of Federal Support: Yes

Wight, J., A. Murphy, A. Cooper, L. Thorne, A. Mills, J. Whittaker, and E. Mullineaux. 2018. New Variety Development and Testing of Small Grains in Maryland for Higher Yield and Disease Resistance. Extension Meeting. Maryland Crop Improvement Association Annual Meeting.
Status: Presented
Acknowledgement of Federal Support: Yes

Kleczewski N, and J. Wight. 2017 Fusarium Head Blight Screening Nursery Results. Online https://psla.umd.edu//extension/extension-project-pages/small-grains-maryland
Status: Presented
Acknowledgement of Federal Support: Yes

Wight, J, Lewis, J, Cooper, A, Thorne, L, and Mills, A. 2017. Small Grains & Soybean Variety Performance in Maryland Statewide Trials. Extension Meeting. Carroll County Agronomy Meeting, 2017
Status: Presented
Acknowledgement of Federal Support: Yes

Wight, J., A. Murphy, and N Kleczewski. 2017. Variety Development and Field Testing of Small Grains in Maryland for Higher Yields, Scab Resistance, Reduced Disease Incidence, Harvestability, Milling and Baking Quality. Extension Meeting. Maryland Grain Producers Utilization Board.
Status: Presented
Acknowledgement of Federal Support: Yes