**USDA-ARS**
**U.S. Wheat and Barley Scab Initiative**
**FY19 Performance Report**
**Due date:** July 24, 2020

## Cover Page

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|---|---|
| **Principle Investigator (PI):** | Kaitlyn Bissonnette |
| **Institution:** | University of Missouri |
| **E-mail:** | bissonnettek@missouri.edu |
| **Phone:** | 573-882-9106 |
| **Fiscal Year:** | 2019 |
| **USDA-ARS Agreement ID:** | 59-0206-9-120 |
| **USDA-ARS Agreement Title:** | Applied Management of Fusarium Head Blight in Missouri Soft Red Winter Wheat |
| **FY19 USDA-ARS Award Amount:** | $ 10,174 |
| **Recipient Organization:** | The Curators of the University of Missouri<br>310 Jesse Hall<br>Columbia, MO 65211 |
| **DUNS Number:** | 153890272 |
| **EIN:** | 43-6003859 |
| **Recipient Identifying Number or Account Number:** | 059158 |
| **Project/Grant Reporting Period:** | 5/1/19-4/30/20 |
| **Reporting Period End Date:** | 4/30/2020 |

## USWBSI Individual Project(s)

| USWBSI Research Category* | Project Title | ARS Award Amount |
|---|---|---|
| MGMT | Efficacy of New Fungicides for FHB and DON Management in Missouri | $ 10,174 |
| | **FY19 Total ARS Award Amount** | **$ 10,174** |

07/24/2020

Principal Investigator 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

FY19 Performance Report
PI: Bissonnette, Kaitlyn
USDA-ARS Agreement #: 59-0206-9-120
Reporting Period: 5/1/19-4/30/20

**Project 1:** *Efficacy of New Fungicides for FHB and DON Management in Missouri*

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

   The major goal of this research project was to compare the efficacy of Miravis Ace® when applied at heading or at anthesis to that of standard anthesis application of Prosaro® or Caramba® in Missouri.

2. **What was accomplished under these goals or objectives?** *(For each major goal/objective, address items a-b) below.)*

   a) What were the major activities?
   Field plots were established at the Bradford Research Farm in Columbia, Missouri with a *Fusarium* inoculated trial and a non-inoculated trial. Each trial was intermittently irrigated to increase infection potential. Commercial standard fungicide treatments were applied at the Feekes 10.5.1 growth stage and were compared to Miravis Ace applied at Feekes 10.3 and Feekes 10.5.1. FHB incidence and severity were noted and used to calculate FHB index. Additionally, DON concentration was calculated for the grain collected from each plot.

   b) What were the significant results?
   In both trials, the Miravis Ace treatment at Feekes 10.5.1 provided comparable control to Prosaro as compared to the non-treated check for both FHB index and DON. Though high levels of disease were observed, DON levels were not as high as expected.

   c) List key outcomes or other achievements.
   A major outcome of this work was the contribution to the regional dataset to improve our understanding of Miravis Ace across diverse environments.

3. **Was this research impacted by the COVID-19 pandemic (i.e. university shutdowns, reduced or lack of support personnel, etc.)? If yes, please explain how this research was impacted or is continuing to be impacted.**

   Yes. Due to Covid-19 restrictions (order to cease research at the university by close of business March 20) and travel limitations (no travel outside of Columbia starting March 20, restrictions still in place on date of this report), training and professional development opportunities for this project became limited near the end of the grant cycle. It is during this timeframe that most opportunities for outreach begin with 99% of acreage in the state in winter wheat production.

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

Due to the impacts of Covid-19, opportunities for dissemination of project results have been limited. An overview of the results of this project were presented at pesticide applicator recertification trainings in January 2020 to growers, industry professionals, and other stakeholders prior to shutdowns. Plans also were to present results of the project at more targeted wheat extension meetings in the spring of 2020.

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

Nothing to report.

# Training of Next Generation Scientists

**Instructions:** Please answer the following questions as it pertains to the FY19 award period (5/1/19-4/30/20). 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 FY19 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 FY19 award period?**
   No

   **If yes, how many?**

3. **Have any post docs who worked for you during the FY19 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 FY19 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 FY19 award period. All columns must be completed for each listed germplasm/cultivar. Use the key below the table for Grain Class abbreviations.

*NOTE: 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** |
|---|---|---|---|---|
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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 FY19-FPR_Instructions for detailed more instructions for listing publications/presentations about your work that resulted from all of the projects included in the FY19 grant award. Only citations for publications published (submitted or accepted) or presentations presented during the **award period (5/1/19-4/30/20**) should be included. If you did not publish/submit or present anything, state 'Nothing to Report' directly above the Journal publications section.

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

**Journal publications.**

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

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

Paul, P.A., S.N. Ng, G. Bergstrom, K. Bissonnette, K. Bowen, C. Bradley, E. Byamukama, Chilvers, A. Collins, C. Cowger, H. Darby, E. DeWolf, R. Dill-Mackey, P.D. Esker, A. Friskop, N. Kleczewski, A. Koehler, L. Madden, J. Marshall, H. Mehl, W. Moraes, M. Nagelkirk, N. Rawat, D. Smith, D. Telenko, S. Wegulo, and H. Young-Kelly. 2019. "Fusarium head blight management coordinated project: Integrated management trials 2018-2019." In S. Canty, A. Hoffstetter, H. Campbell, and R. Dill-Macky (Eds.), *Proceedings of the 2019 National Fusarium Head Blight Forum* (p. 20-24), Milwaukee, WI; December 8-10. University of Kentucky, Lexington, KY.
Status: Report Published and Poster Presented
Acknowledgement of Federal Support: Yes

Paul, P.A., S.N. Ng, G. Bergstrom, K. Bissonnette, K. Bowen, C. Bradley, E. Byamukama, Chilvers, A. Collins, C. Cowger, H. Darby, E. DeWolf, R. Dill-Mackey, P.D. Esker, A. Friskop, N. Kleczewski, A. Koehler, L. Madden, J. Marshall, H. Mehl, W. Moraes, M. Nagelkirk, N. Rawat, D. Smith, D. Telenko, S. Wegulo, and H. Young-Kelly. 2019. "Fusarium head blight management coordinated project: Uniform fungicide trials 2018-2019." In S. Canty, A. Hoffstetter, H. Campbell, and R. Dill-Macky (Eds.), *Proceedings of the 2019 National Fusarium Head Blight Forum* (p. 25-29), Milwaukee, WI; December 8-10. University of Kentucky, Lexington, KY.
Status: Report Published and Poster Presented
Acknowledgement of Federal Support: Yes

2019, June. Wheat Field Day. Fungicide use and timing for FHB management. Bunceton, MO. 51 individuals
Status: Invited Extension Presentation
Acknowledgement of Federal Support: YES – Verbal