

Project 1: Control of Scab in Barley through Reduction of Infection and Sporulation

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

Objective I. Generate long dsRNA against at least stages important to beer production, disease initiation and spread.

Objective II. Test application on barley to determine what approaches or combinations thereof are most effective.

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

a) What were the major activities?

We generated strains with Gfp production to look at silencing during spore germination by the decrease in gfp fluorescence. We worked out a technique to use isolated young leaf sheaths to treat with the RNAi as these were easily analyzed through microscopy.

b) What were the significant results?

We were able to noticeably silence the gfp gene. We worked out a technique to use isolated young leaf sheaths to treat with the RNAi as these were easily analyzed through microscopy.

c) List key outcomes or other achievements.

Moving forward to plant assays was difficult as getting the RNAi strategy working in the plant is taking some time. We are very interested in moving forward with this project and have some new ideas about getting this to work which we will try to pursue.

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

Yes, this project was difficult due to the health of one of the workers.

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

The work gave training opportunities to one graduate student and one undergraduate.

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

This project has mainly been presented at the meetings of growers in Michigan. We presented a poster at the 2019 Fusarium Forum, which is in our previous report.

Training of Next Generation Scientists

Instructions: Please answer the following questions as it pertains to the **FY19 award period (4/24/19 - 4/23/21)**. 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?**

Yes No

If yes, how many? [Click to enter number here.](#)

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?**

Yes No

If yes, how many? [Click to enter number here.](#)

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?**

Yes No

If yes, how many? [Click to enter number here.](#)

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?**

Yes No

If yes, how many? [Click to enter number here.](#)

FY19 Final Performance Progress Report
 PI: Trail, Frances
 USDA-ARS Agreement #: 59-0206-6-004
 Reporting Period: 4/24/19 - 4/23/21

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 (4/24/19 - 4/23/21)**. 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	FHB Rating (0-9)	Year Released
Not applicable to this project.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
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Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year
Click here to enter text.	Select Grain Class	Select what represents your most resistant check	Enter as text 0-9 rating	Select Year

NOTE: List the associated release notice or publication under the appropriate sub-section in the 'Publications' section of the FPR.

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Publications, Conference Papers, and Presentations

Instructions: Refer to the 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 (4/24/19 - 4/23/21)** 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. See example below for a poster presentation with an abstract:

Z.J. Winn, R. Acharya, J. Lyerly, G. Brown-Guedira, C. Cowger, C. Griffey, J. Fitzgerald, R.E. Mason and J.P. Murphy. 2020. "Mapping of Fusarium Head Blight Resistance in NC13-20076 Soft Red Winter Wheat." In: S. Canty, A. Hoffstetter, and R. Dill-Macky (Eds.), *Proceedings of the 2020 National Fusarium Head Blight Forum* (p. 12.), Virtual; December 7-11. Online: https://scabusa.org/pdfs/NFHBF20_Proceedings.pdf.
Status: Abstract Published and Poster Presented
Acknowledgement of Federal Support: YES (Abstract and Poster)

Journal publications.

Nothing to report.

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

Nothing to report.

Other publications, conference papers and presentations.

Presentations

March 6, 2020- Short talk by Tara Watkins. Presented updates on barley research at Great Lakes Hop and Barley Conference.

Status: Presented

Acknowledgement of Federal Support: YES

Oct 29, 2020- Presented for the Michigan Barley Happy Hour series (virtual).

Status: Presented

Acknowledgement of Federal Support: YES

June 25, 2021- Presented at MSU Small Grains for Brewing and Distilling Field Day.

Status: Presented

Acknowledgement of Federal Support: YES