

## Project FY22-FS-003: Evaluation of Barley and Spring Wheat for Deoxynivalenol

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

The goal of this project is to provide barley, wheat and durum breeders, plant pathologists, and other researchers working on the development of *Fusarium* resistant barley, wheat and durum with affordable, accurate and timely DON analysis.

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

#### What were the major activities?

Analysis of 14,377 samples, including 7,066 barley samples and 7,311 wheat samples for DON during this reporting period (exclusive of checks and standard curves) were analyzed for DON during the reporting period. Approximately 30 researchers from 10 US states (ND, SD, MT, MN, NE, KS, TX, ID, CA and NY) were submitted the samples and the majority of them were from breeding and pathology programs. Some of the samples were from other researchers.

#### What were the significant results?

Completion of analyzing submitted samples largely within the reporting period. The results were submitted to and accepted by all cooperators involved in USWBSI research, except for 300 samples was sent to us after the DON lab shut down for annual maintenance. We will assist to grind the sample and analyze the toxins as soon as possible when the new FY testing starts.

#### List key outcomes or other achievements.

The major outcome of this project was that we were able to effectively analyze all of the samples sent by the 30 cooperators by the end of the funding term. Results were sent back and accepted by the cooperators of USWBSI.

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

An undergraduate student and a graduate student assisted in the laboratory with the testing. They have learned basic laboratory skills and laboratory quality control.

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

Results have been sent directly to investigators. Lab protocol and allotments are posted on the USWBSI website.

### 5. What do you plan to do during the next reporting period to accomplish the goals and objectives?

As part of our operations planning, the following steps will be taken: (i) as we are reallocating the DON testing lab from Harris Hall to the new building of Peltier Complex, we will complete the move and the maintenance of equipment during May through July; (ii) we'll survey the sample numbers sent from cooperators in the upcoming year, and provide guidance on preparing and submitting samples and receiving results; (iii) we'll procure the supplies and prepare the internal lab check samples used for the DON testing in the next reporting period; (iv) after receiving samples, we'll analyze the promptly send back the results to our cooperators; (v) we will conduct monthly tests on the Trilogy QC samples to ensure consistent quality and reliability in the results.