

## **Project FY22-DU-003: Maintenance and Operation of FHB Screening Nurseries for Durum Wheat**

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

The major goal of this project is to enhance and maintain the capacity and efficiency of FHB screening for durum wheat CP in two field FHB nurseries. The specific objectives of the project are to: 1) Maintain and operate the current Fargo nursery for FHB screening of durum materials from PIs working in the durum CP, 2) Establish and operate the FHB nursery at the Langdon location for durum wheat.

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

#### **What were the major activities?**

- A total of 2,860 hill plots of durum wheat materials from durum wheat researchers in durum wheat CP (1260 hills from Dr. Shaobin Zhong, 1100 hills from Dr. Steven Xu, and 500 hills from Dr. Xuehui Li) were planted at the Fargo location in early May of 2023. The planted materials included advanced breeding lines, mapping populations, introgression germplasm, and recurrently selected populations of durum wheat. Point-injection and spoiled-corn inoculation methods were used. Overhead misting systems were used for disease development for both inoculation methods.
- For Langdon location, we planted 660 hill plots from Dr. Zhong's group and a recurrent selection population (480 hill plots) from Dr. Li's group in the 2023 summer season. Fusarium-infested corn kernels were spread and overhead misting systems were used for disease infection and development at the Langdon location.

#### **What were the significant results?**

- For both Fargo and Langdon locations, we collected FHB data that are useful for germplasm development and QTL mapping of FHB resistance in durum wheat.

#### **a) List key outcomes or other achievements.**

- The two FHB nurseries are very valuable for FHB phenotyping of durum wheat materials under two field environmental conditions.

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

The project has provided four Ph.D. students with trainings for FHB phenotyping. The Ph.D. students were involved in the planting, disease inoculation and ratings in the field experiments.

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

Nothing to report.

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

We will plant durum materials in both Fargo and Langdon locations again in the summer of 2024. We expect to collect high-quality FHB data from these FHB nurseries.