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Project ID: FY20-RA-036

ARS Agreement #: *New*

Research Category: MGMT

Duration of Award: 1 Year

Project Title: Analyzing Commercial Wheat and Barley Cultivars for FHB Reaction in MD/DE

PROJECT 1 ABSTRACT

(1 Page Limit)

Project Goals: Evaluation of Fusarium head blight (FHB) reaction in popular local varieties of wheat and barley is critical for management of scab by growers. The aim of this project is to conduct misted nursery to assess variety response to FHB in Maryland (MD) and Delaware (DE) cultivars. In field, the most significant losses due to FHB occur when flowering heads get exposed to spores of the FHB pathogen, resulting in yield loss and elevation in DON levels. In natural conditions, flowering times of cultivars vary due to differences in their genetic background. Therefore, varieties may not be at a highly susceptible stage in development when environmental conditions favoring FHB infections occur in natural conditions. In addition, weather conditions for FHB may not be favorable in all the years, resulting in little FHB and DON. The misted nursery will help to avoid these issues by prolonging the conditions that may be favorable for FHB infection, reducing the chance that varieties will escape infection due to sub-optimal environmental conditions for disease development. In addition, for commercial varieties, the seed companies provide their ratings based only on their own standards, the misted nursery allows for head to head comparison of FHB responses across variable seed sources.

Project Objectives and Expected Outcomes:

1. Conduct misted nursery for local wheat and barley varieties from Maryland and Delaware.
2. Make the results available to the growers in a timely manner so that they can use them in making planting decisions in the growing season.
3. Organize field day to make growers aware of the importance of planting resistant varieties in management of FHB.

The misted nursery data made available here will help guide growers in Maryland and Delaware in selecting high-yielding wheat varieties with moderate resistance to FHB and DON. Field visits/ field days will be organized to make growers aware of the importance of selecting resistant varieties to manage FHB.

Plans to accomplish project goal(s) within proposed period:

In order to analyze the level of resistance in commercial varieties of wheat and barley in MD/ DE, the protocols and methodology of nursery will be as have been established in prior years.

Statement of Mutual Interest:

Growers and stakeholders will be provided the data on varietal resistance against FHB. Efforts will also be made towards increasing awareness about the support of USWBSI to the scab research by organizing field days.