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PROJECT 3 ABSTRACT

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FHB resistance is a quantitative trait that needs evaluation and validation in multiple locations and multiple years. Local misted nurseries in our region (SD, MN, and SD) are usually established to evaluate field-level resistance to FHB, but they sometimes fail to provide high quality data because of the fluctuations in weather conditions (too dry, too hot, flooding and so on) in some years. Having a stable FHB nursery with optimum conditions for disease development is crucial for ensuring the success of FHB resistance evaluation yearly. A FHB nursery located at Hangzhou, Zhejiang Province is an excellent location for FHB screening because the weather conditions are conducive for FHB development during wheat flowering time (early to mid May). We have evaluated approximately 500 lines per year in this nursery for the past three years and obtained high quality disease reading data for selection of FHB resistant lines. We plan to continue to use this nursery for screening advanced breeding lines selected from the three spring wheat breeding programs (NDSU, UMN and SDSU) with the overall goal of increasing the capacity and efficiency of FHB resistance screening for the region. Therefore, the specific objective is to

(1) Evaluate advanced breeding lines/ elite germplasm selected by NDSU, SDSU, and UMN for FHB resistance (Type I and II) in the FHB nursery located at Hangzhou, China.

Approximately 120 entries will be submitted by each of the spring wheat breeding programs and sent to the China nursery for planting in November. FHB data will be collected in early May each year. The China nursery provides a complementary site with optimum conditions for FHB resistance screening for the spring wheat programs. Another advantage of testing breeding lines in the China nursery is that the disease data can be collected from China before planting in local nurseries. If necessary, those materials that are highly susceptible in the China nursery can be excluded in the local nurseries.