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Research Category: VDHR-NWW
Duration of Award: 1 Year

Project Title: Genotyping FHB Nurseries - Northern.

PROJECT 1 ABSTRACT

(1 Page Limit)

The Eastern Regional Small Grain Genotyping interacts with breeders in the Northern soft winter wheat growing region interested in using molecular markers to develop wheat cultivars with improved resistance to FHB. We are proposing to continue to participate in coordinated regional effort to better characterize eastern soft wheat germplasm utilizing molecular markers and develop improved methods for genotyping and investigate new breeding methodologies.

The specific objectives of this proposal are (1) to characterize entries in the Northern (NUWWSN and PNUWWSN) scab screening nurseries with markers linked to FHB QTL; (2) to characterize entries with diagnostic markers for genes having major effects on plant growth and development, as well as genes conferring resistance to other pests and for quality traits; (3) to use next generation sequencing (NGS) analysis to genotype SRWW to identify QTL associated with FHB resistance and perform genomic selection (GS). This project will provide breeders with genotypic data for loci linked to FHB resistance as well as genomic estimated breeding values for selecting lines for advancement and identification of FHB resistant parents for crossing. This project utilizes the capacity of the genotyping lab to work cooperatively with breeding programs to identify genomic regions involved in disease resistance and develop GS models.

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Project Title: Genotyping FHB Nurseries- Southern.

PROJECT 2 ABSTRACT

(1 Page Limit)

The Eastern Regional Small Grain Genotyping interacts with breeders in the Southern soft winter wheat growing region interested in using molecular markers to develop wheat cultivars with improved resistance to FHB. We are proposing to continue to participate in coordinated regional effort to better characterize eastern soft wheat germplasm utilizing molecular markers and develop improved methods for genotyping and investigate new breeding methodologies.

The specific objectives of this proposal are (1) to characterize entries in the Uniform Southern FHB screening nursery with markers linked to FHB QTL; (2) to characterize entries with diagnostic markers for genes having major effects on plant growth and development, as well as genes conferring resistance to other pests and for quality traits; (3) to use next generation sequencing (NGS) analysis to genotype SRWW to identify QTL associated with FHB resistance and perform genomic selection (GS). This project will provide breeders with genotypic data for loci linked to FHB resistance as well as genomic estimated breeding values for selecting lines for advancement and identification of FHB resistant parents for crossing. This project utilizes the capacity of the genotyping lab to work cooperatively with breeding programs to identify genomic regions involved in disease resistance and develop GS models.