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Project Title: Genetic Characterization of Fusarium Head Blight Resistance in Two Elite Spring Wheat Cultivars.

PROJECT 1 ABSTRACT

(1 Page Limit)

For many years a Chinese spring wheat, Sumai 3, has been used as the predominant source of resistance against Fusarium head blight (FHB) by hard red spring wheat breeders in their breeding programs. DNA markers closely linked to the *Fhb1* locus on chromosome 3BS conferring major disease resistance of Sumai 3 origin have been developed and extensively used in the marker assisted breeding programs in the spring wheat production regions. To efficiently control the disease, identifying and integrating new and novel resistance sources in the germplasm has been the main target of the spring wheat breeding effort. Two elite cultivars developed by the ND spring wheat breeding programs, Glenn and Parshall, consistently exhibit tolerance to FHB in the past years. Previous marker haplotype analysis and pedigree information have indicated that both Glenn and Parshall may carry novel resistance genes. To gain a better understanding of the inheritance of the resistance genes present in these two cultivars, genetic mapping studies will be carried out using three mapping populations involving Glenn and Parshall. Diagnostic markers will be developed and used to assist in introgressing and identifying spring wheat germplasm carrying these novel genes.