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PROJECT 2 ABSTRACT

(1 Page Limit)

Significant efforts have been made to search for FHB resistance from hexaploid and tetraploid wheat varieties/land races. Only limited sources of partial resistance to FHB have been identified from common wheat accessions and utilized in wheat variety development, including the Chinese cultivar "Sumai 3" and its derivatives, Brazilian cultivar "Frontana" and Eastern European germplasm "Praag 8". There is an urgent need to find more effective and diversified sources of resistance to manage this disease. Alien chromatin containing FHB resistance genes have been successfully incorporated into the wheat genome and conferred resistance in the wheat genetic backgrounds. We have identified and collected over 100 wheat-alien species derivatives with FHB resistance comparable to "Sumai 3". Here we propose in the next funding cycle (May 2012 – April 2014) to: 1) Incorporate alien FHB resistance genes into adapted spring wheat genotypes; 2) Position the alien chromatin containing FHB resistance genes transferred to the wheat genome and reduce linkage drag associated with alien chromatin if necessary; 3) Pyramid resistance genes from different sources; and 4) Develop FHB-resistant germplasm lines usable in spring wheat breeding. Introgression of alien FHB resistance genes into adapted spring wheat backgrounds can enhance and diversify resistance of spring wheat to FHB. Breeder-friendly alien introgression lines with FHB/DON resistance will be immediately made available to wheat breeding programs for variety development.