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Project Title: Enhancing Resistance to Fusarium Head Blight in Wheat Using Alien Species.

PROJECT 2 ABSTRACT

(1 Page Limit)

Host resistance has been a major strategy to control various diseases in wheat. However, progress of breeding for Fusarium head blight (FHB) resistance has been limited because of the lack of effective resistance sources in wheat. Thus, searching for novel sources of resistance has become an urgent need for the development of FHB resistant varieties. We have identified over 70 wheat-alien species derivatives with FHB resistance and have been transferring resistance from the derivatives to adapted spring wheat backgrounds. To date, we have produced 148 BC₂F₅ and BC₂F₆ lines exhibiting FHB resistance comparable to "Sumai 3" in the greenhouse. Here we propose to develop breeder-friendly germplasm with novel FHB resistance from the advanced breeding lines. The specific objectives of this project are to 1) verify resistance of the BC₂F₅ and BC₂F₆ lines to FHB in the field; 2) characterize chromosome constitutions of the FHB resistant lines and determine novelty of the resistance genes; 3) eliminate unwanted alien chromatin, if necessary, from the resistant lines; 4) pyramid resistance genes from different sources. The ultimate goal of this project is to release spring wheat germplasm lines with novel FHB resistance and without obvious linkage drag during this funding period.