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Project Title: Male Sterile Facilitated Recurrent Selection for FHB Resistance.

PROJECT 2 ABSTRACT

(1 Page Limit)

We are resuming crossing blocks after 2-3 years of lapse. In self-pollinated crops, the traditional method of recombining genes from different sources is through traditional bi-parental hybridization, which is a tedious procedure. To supplement production of novel genetic diversity, we collaborate in Male Sterile Facilitated Recurrent Selection for FHB Resistance which aims at bringing together multiple resistance genes from various sources. In this project, which resembles a recurrent selection in breeding procedure, we increase the frequency of Fusarium resistance (and other favorable) alleles through intermating among the selected parents each with a particular sources of resistance or else, favorable alleles for specific adaptation and yield. Male-sterility in a self-pollinated species greatly facilitates hybridizations without laborious manual emasculation and pollination. The goal is for this project to further develop several pools of adapted breeding lines with genes for FHB resistance derived from multiples sources. More specifically, about 30 grams seed of the male sterile population (newly received from Dr. Kolb) was planted surrounded, based on procedure received, by FHB resistant and high yielding male parents from Purdue program (INW0412, 04620, 06497A1-7-3, and 0762A1-2-8). After doing this for two breeding cycles, we will extract lines through standard bulk or pedigree method to extract lines from this population. The expected outcome would be male-sterile-facilitated development of novel genetic diversity that could be tested in preliminary and advanced yield trials.