0203-MI-029 Developing FHB-Resistant Wheat Cultivars for the Midsouth.

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PROJECT ABSTRACT
(1 Page Limit)

The unique combination of biotic and abiotic stresses on wheat in the Midsouth, the potential for devastating FHB epidemics, and the more than two million acres of wheat grown annually in this region, justifies the development of FHB-resistant cultivars adapted to this region. To develop cultivars as quickly as possible, lines from crosses between various adapted wheats and sources of FHB resistance are being selected for both agronomic traits and FHB resistance. Four of these lines are now being tested in the Southern Winter Wheat Nursery, and 39 of these lines are being tested in Arkansas breeding nurseries. To provide breeders with sources of resistance to FHB and other important diseases in the Midsouth and to form the basis for a recurrent selection program to obtain lines with higher levels of resistance, lines from the germplasm enhancement program have been selected for agronomic traits and for resistance to FHB and to contemporary races of leaf rust, stripe rust, and Septoria tritici blotch. Eighty-four of these F_7, BCF_6, and TCF_6 lines from 16 sources of resistance are being evaluated in several screening nurseries in order to identify the best lines for release to breeders after the 2002 harvest. A genetic study to investigate the number and heritability of FHB resistance in seven of the most resistant lines and a recurrent selection program to develop lines with higher levels of FHB resistance are included in this proposal. As a service to breeders, this project evaluates breeding lines in the Northern and Southern Winter Wheat Scab Nurseries and from the Arkansas and Louisiana wheat breeding programs for FHB resistance in the greenhouse and in the inoculated, irrigated screening nurseries at two field locations.