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FY04 ARS Agreement #: 59-0790-4-091

Research Area: GIE

Duration of Award: 1 Year

Project Title: A Germplasm Center of Fusarium Head Blight Resistant Spring Wheat.

PROJECT 1 ABSTRACT

(1 Page Limit)

The use of resistant cultivars will be one of the major components in managing Fusarium head blight (FHB) in wheat. The availability of diverse resistance sources is essential for success in developing and maintaining a high level of resistance in commercial cultivars. This project confronts the issues of finding additional or new sources of resistance in spring wheat, characterizing the resistance, and facilitating the deployment of the resistance into breeding projects.

In the past a few years, the spring wheat germplasm screening project funded by the U.S. Wheat and Barley Scab Initiative has developed a successful germplasm evaluation and enhancement system while maintaining the efficiency of screening and information/germplasm distribution. Components of this system are: 1) a large number of spring wheat lines with diverse origins are evaluated for FHB resistance under high-disease pressure conditions in the field in a Preliminary Screening Nursery (PSN); 2) selections from PSN are evaluated in the greenhouse to characterize the types and levels of resistance and further evaluated in an Elite Germplasm Nursery (EGN); 3) five of the most resistant selections are entered into the Uniform Regional Scab Nursery (URSN) for spring wheat to be evaluated at multiple locations; 4) data and seed are promptly distributed to interested parties; and 5) the most elite resistant selections are used to develop populations for introgression of resistance into adapted backgrounds, and for genetic studies. Lines with introgressed resistance will be released as new germplasm. During this funding period, we will continue to follow this research scheme but shift our major emphasis from identification of additional resistance to the characterization of new resistance sources identified by this project, and to the introgression of resistance into an adapted background.

The objectives of the proposal encompass the research priorities of the GIE. The accomplishment of the proposed research objectives will significantly contribute to the national wheat improvement efforts for FHB resistance and successful management of this disease.