

0203-JI-040 Maintain a germplasm center of scab resistant spring wheat.

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PROJECT ABSTRACT

(1 Page Limit)

The use of resistant cultivars will be one of the major components in managing scab disease in wheat. Known sources of resistance to scab in wheat are limited at the present time. The widespread use of a few resistant sources will create a genetic uniformity of large magnitude that may lead to potential genetic vulnerability to diseases and other biotic or abiotic stresses. Identification of additional sources of resistance and incorporation of these new resistances are critical for enhancing the level of resistance and for diversifying the current resistance gene pool. This project confronts the issues of finding additional or new sources of resistance in spring wheat, maintaining and characterizing the resistance, and facilitating the utilization of these resistances. We have developed and successfully employed a germplasm evaluation and enhancement scheme that can increase the efficiency of screening and information/germplasm distribution. This scheme includes: 1) a large number of spring wheat lines with diverse origins are evaluated for scab 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) most resistant selections are entered into the Uniform Regional Scab Nursery (URSN) for spring wheat to be evaluated at multiple locations; and 4) data and seed are promptly distributed to interested parties. Accomplishment of the proposed research objectives will significantly contribute to the national wheat improvement efforts for scab resistance and successful management of this disease.