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Research Area: **VDUN** **Duration of Award: 1 Year**

Project Title: Development of FHB Resistant Soft White Wheat Varieties for Michigan and similar Environments.

PROJECT 1 ABSTRACT

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This project focuses on conventional plant breeding. The overall goal is to accelerate development, multiplication and release of commercially viable varieties and advanced generation lines of soft white winter wheat which are both adapted to Michigan as well as surrounding areas, and resistant to damage by Fusarium Head Blight (FHB). The primary breeding strategy is hybridization followed by successive generations of single plant progeny selection and evaluation in the field (pedigree breeding) followed by extensive replicated multi-location trials. Backcrossing and single seed descent will be used as complementary approaches. Supporting objectives are as follows: 1) The development and generational advancement of breeding populations derived from crosses involving parents which collectively contribute genes for FHB resistance and superior agronomic performance in Michigan and other soft winter wheat growing regions; 2) Identification and selection of families and lines carrying FHB resistance genes through managed disease pressure; and 3) The elimination of highly susceptible (to FHB) lines in the preliminary yield test phase of development.

We have expanded our nursery screening capabilities twofold last year enabling us to screen several hundred of our early generation materials in addition to our advanced material, material commercially available, and the Northern Uniform/Preliminary Scab Screening Nursery's. We have the capacity to screen up to 6,000 single row plots 1.2 meters in length under inoculated/mist irrigated conditions.

This project is directly relevant to the goals of the Initiative, by addressing the research priorities: (1) the breeding and release of FHB-resistant wheat varieties and germplasm that are adapted to FHB-threatened states; and (2) multi-location validation of FHB resistance through participation in the appropriate uniform FHB screening nurseries.