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Research Area: VDUN

Project Title: Improvement of Soft Winter Wheat for Resistance to Fusarium Head Blight.

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Duration of Award: 1 Year

PROJECT 2 ABSTRACT

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The goal of this research is to alleviate wheat (*Triticum aestivum* L.) crop production and grain quality losses due to Fusarium head blight (FHB) caused by *Fusarium graminearum* Schwabe. Wheat cultivars with resistance to FHB will substantially reduce production and grain quality losses due to this devastating disease.

Objectives are to:

develop FHB resistant and low-FHB incidence wheat cultivars that are adapted in Indiana,

2) determine inheritance of low-FHB incidence of cv. Goldfield.

Partially adapted wheat lines that have various sources of FHB resistance will be crossed and backcrossed to adapted lines and also intermated to combine different FHB resistance QTLs to achieve lines that have increased FHB resistance. We will also combine low-incidence to FHB with other types of FHB resistance, particularly type II resistance.

We will carry out two consecutive generations of crossing, along with resistance screening of selected lines, in the greenhouse per year. We will also screen wheat populations in the field. To enhance disease severity in the field we will conduct breeding and performance nurseries at several locations, seed certain nurseries into disced cornstalks, and conduct misting of certain nurseries. Also, we will carry out point inoculations in the field for certain lines, including the Northern Uniform Fusarium Head Blight Nursery and selected lines in various yield nurseries.

We will conduct a second year of field testing, with several replications at two locations, in Indiana to characterize a recombinant inbred population developed from a cross between a susceptible, high FHB-incidence parent line (cv. Patterson) and a low-incidence parent (cv. Goldfield).