

0203-OH-016 Improvement of Soft Winter Wheat for Resistance to Fusarium Head Blight.

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PROJECT 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. Objectives are:

- 1) develop FHB resistant and low-FHB incidence wheat cultivars that are adapted in Indiana,
- 2) determine inheritance of low-FHB incidence, and 3) determine inheritance of type 2 FHB resistance of several resistance source lines.

We will pyramid FHB resistance genes from multiple parental sources, accelerate the crossing and early generation advance in greenhouse and field nurseries, test populations and inbred lines in multiple environments, enhance disease establishment and development by seeding field nurseries in disced corn stalks and provide misting with water for breeding and genetics populations in field and greenhouse

tests. We will cross the partially adapted lines that have good to excellent FHB resistance to elite adapted lines and we will combine selected different sources of FHB resistance to pyramid FHB resistance in combination with other important plant traits.

We will carry out genetic analyses of different sources of FHB type 2 resistance and low-FHB incidence to identify unique resistance genes, and pyramid resistance genes. RI populations will be characterized for resistance in repeated greenhouse and field tests to enhance phenotypic data reliability for future DNA marker research.