

0203-BE-100 Airborne Propagules of *Gibberella zeae*: Their Function in Fusarium Head Blight.

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PROJECT ABSTRACT

(1 Page Limit)

The multi-year goal of the investigators is to determine where inoculum for Fusarium head blight (FHB) comes from and how far it travels. Functional inoculum for FHB may be limited to sources within or adjacent to local fields. At the other extreme, viable windborne propagules may be transported across broad geographic regions. The range and magnitude of aerial dispersal have important implications for the spread of new variants of the scab pathogen and for efficient deployment of scab control practices. The research necessary to address aerial dispersal is complex and incremental. We propose in this one-year project to answer three basic, building-block questions about the aerobiology of *Gibberella zeae*: 1) Can ascospores or conidia become airborne in sufficient numbers to provide long-distance inoculum? 2) Can ascospores or conidia survive in air for periods of time sufficient for distance dispersal? and 3) Do the populations of propagules found in the air actually contribute to inoculum for Fusarium head blight? We will utilize laboratory wind tunnels to assess the ability of different propagule types to become airborne under different conditions. In laboratory and field tests we will assess the mortality of propagules in air under various conditions including exposure to UV light. We will utilize DNA amplified fragment length polymorphisms to look for commonality of fungal genotypes among populations of airborne propagules and isolates that induce FHB at the same locations and times of exposure. This research complements other ongoing investigations in the USWBSI on epidemiology and disease management, and will undergird future research on regional aerobiology and epidemiology.