0203-DI-090 Crop residues and the survival, production, and control of Fusarium inoculum.

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PROJECT ABSTRACT
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This proposal aims to improve the understanding of the role of *Fusarium* infested residues of wheat and barley in the survival of *F. graminearum* and the production of primary inoculum contributing to Fusarium head blight (FHB) epidemics. The project also aims to examine the efficacy and feasibility of conducting spring post-planting burning to aid in the control of FHB in spring wheat and barley and to provide a tool for epidemiological studies related to residue borne inoculum of *Fusarium*. Outcomes of this project will assist in determining the likely effectiveness of cultural (crop rotations, tillage, residue destruction), chemical, and biological control practices directed to reducing *Fusarium* inoculum in field residues. Results may also provide a basis for providing recommendations to producers dealing with *Fusarium* infected residue following epidemics.

Specifically the project aims to: (1) examine the relative importance of residues of wheat, barley, and corn crops in the survival and inoculum production of *F. graminearum*, (2) examine post-planting burning operations to remove residue and/or destroy *Fusarium* in residues at the soil surface (3) examine the colonization of crowns, nodes, and head tissues by *Fusarium graminearum* in wheat and barley plants planted into burned and control plots, and (4) examine the colonization of residue from wheat varieties with varying levels of resistance with the intent of establishing if FHB resistance impacts the colonization and survival of *F. graminearum* in plant tissues.

Methods: (1) Field sites have been established to examine the survival of *Fusarium graminearum* in residues of wheat, barley, and corn. Field samples will be collected, stored, and processed to determine the relative contribution of the residues of these crops to the survival of *Fusarium graminearum*. The survival of *Fusarium* over time and the colonization of the various residue components will be analyzed. (2&3) The study of post-planting burning of residue will be conducted in both small plots and commercial fields in 2002. The survival of *Fusarium* in pre- and post- burn residues will be examined to determine the effect of heat and residue destruction on the survival of *Fusarium* spp. and on stand establishment. This project will examine both wheat and barley residue and conduct larger scale tests in commercial fields in 2002. The colonization of plants by *Fusarium* will be examined by sampling plants throughout the growing season. (4) The colonization by *Fusarium graminearum* of selected residue components obtained from wheat varieties with varying levels of resistance will be examined in plants collected at maturity from naturally infected field sites throughout Minnesota.