

PI: Dill-Macky, Ruth
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PI's E-mail: ruthdm@umn.edu
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Project Title: Crop residues and the survival, production and control of *Fusarium inoculum*.

PROJECT 1 ABSTRACT
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The residue of infected cereal crops at the soil surface is recognized as the principal source of inoculum and as such a major contributing factor to the upsurge of the FHB epidemics. Data from previous studies of infested wheat and barley residues by our program have shown that *F. graminearum* is mostly associated with kernels, but is also present at high levels in subcrown internodes, crowns, and nodes. We have demonstrated that burning residues of wheat and barley in the spring, following planting (the final soil disturbing practice prior to emergence) significantly reduced both the amount of residue and the survival of *F. graminearum* in the residues that remain after burning. Further, the incidence of *F. graminearum* was significantly reduced in wheat plants collected from plots where residues were burned (3.3%) in comparison with residues from control plots (5.3%). Reducing the inoculum of *F. graminearum* in cereal residues may provide another option for the management of Fusarium Head Blight. Our proposal aims to further examine the colonization of wheat and barley residues by *F. graminearum* and expand our preliminary efforts examining the feasibility of spring post-planting burning treatments to reducing initial inoculum. The outcomes of this project may help; improve our understanding of control practices directed to reduce *Fusarium* inoculum, the dispersal of *F. graminearum* within fields, and may provide a basis for recommendations to producers about the management of Fusarium-infested residues.

Specifically the objectives of this proposal are:

- 1) to determine the relative ability of the residues of newly released wheat cultivars, with improved levels of FHB resistance, to harbor inoculum of *F. graminearum*.
- 2) to determine the field-scale movement of inoculum by examining the patterns of spread of *F. graminearum* into burned plot areas from adjacent areas with higher levels of infested residues to aid in our understanding of the effectiveness of burning on an individual field basis.
- 3) to further examine the effect of severity of burning on the survival of *Fusarium* in wheat residues.