

PI: Stein, Jeffrey M.

PI's E-mail: Jeff.Stein@sdstate.edu

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Project Title: Influence of Residue Management on Inoculum Production, Disease, and DON.

PROJECT 1 ABSTRACT

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Fusarium head blight (FHB) continues to be a serious problem in the U.S. and Canada. The most effective management of this disease occurs when an integrated approach is taken that combines a resistant variety, appropriately timed fungicide application, and the management of in-field inoculum. However, the currently available tools are not feasible in all situations, nor completely effective at limiting disease or mycotoxin accumulation in grain. Therefore, additional strategies need to be investigated in order to reduce the impacts of this disease on wheat and barley production.

It is well documented that cereal residues, especially maize, are the primary source of inoculum. If producers were able to manage residues in such a way as to reduce fungal survival and/or inoculum production, the frequency and severity of FHB epidemics and/or deoxynivalenol contamination of grain might be effectively reduced. Research is proposed that investigates the influence of A) physical residue management and B) biological control agents on the saprophytic growth of *Gibberella zeae*, sporulation from previously colonized residues, disease severity, and deoxynivalenol accumulation into a wheat crop planted in the residue.

The objective of this proposal is directly relevant to the goals and priorities of the USWBSI, and specifically the CBCC RAC, in that it attempts to identify additional strategies that could be incorporated into an integrated approach to reduce disease and mycotoxin accumulation (Integrated Disease Management). Additionally, this project also evaluates a novel use of Biological Control agents by measuring the impact of these treatments upon *G. zeae* already present in plant residues.