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**Project ID: 0304-DE-015**

**Research Area: EDM**

**Project Title: Role of Inoculum and Environment in the Development of Fusarium Head Blight Epidemics.**

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**Duration of Award: 1 Year**

**PROJECT 1 ABSTRACT**

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The cooperative epidemiology effort funded by the USWBSI has produced three risk assessment models that are currently being delivered in OH, PA, ND and SD. These models use environmental variables to predict developing FHB epidemics with accuracy approaching 85% and deliver timely management recommendations. Further significant gains in model prediction accuracy should be possible if variables related to inoculum level can be incorporated into the next generation of disease forecasting models. We propose a combination of experiments in controlled and wheat field environments that will be used to gather the information required for further improvement of model accuracy. More specifically, we propose replicated field trials to investigate (i) the influence of environment and inoculum level on infection by *Gibberella zeae*; (ii) the influence of inoculum level on the probability of an FHB epidemic as predicted by forecasting models; and that field and growth chamber experiments be used to (iii) investigate the role of temperature and crop residue moisture status in perithecia development, and model inoculum development.

We also seek support to facilitate the delivery of the current forecasting models at a state-wide level, and to develop the infrastructure required to deliver FHB forecasts on a regional level. The proposed project specifically meets the objectives of the USWBSI by providing the research needed to further increase model accuracy, and by facilitating the immediate application of these forecasting systems at state-wide and regional levels; thus providing timely and reliable management recommendations to minimize the threat of FHB to producers, processors, and consumers.