

PI: Stephen Wegulo

PI's E-mail: swegulo2@unl.edu

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Research Category: MGMT

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Project Title: Integrating Strategies to Mitigate Fusarium Head Blight and DON in Winter Wheat.

PROJECT 2 ABSTRACT

(1 Page Limit)

This project is part of a multi-state cooperative integrated management effort on Fusarium head blight (FHB, scab) of wheat caused primarily by *Fusarium graminearum*. The overall goal of the project is to use an integrated approach to more effectively manage FHB and deoxynivalenol (DON). The specific objectives are to 1) demonstrate that integrated management is the most effective and economical means of reducing losses caused by FHB/DON, 2) decrease the risk of development of FHB epidemics and thus reduce losses caused by FHB/DON, and 3) increase grower adoption of integrated strategies. To accomplish the first and second objectives, we will plant four locally adapted winter wheat cultivars following corn. Two of these cultivars, '2137' and 'Overley', are susceptible to FHB; and two, 'Harry', and 'Overland', are moderately resistant phenotypically, although 'Harry' is susceptible to DON accumulation. *F. graminearum* corn kernel inoculum will be spread on the soil surface in research plots three to two weeks before anthesis. At the beginning of anthesis, two fungicide treatments (spray with Prosaro® and non-sprayed check) will be applied to each cultivar. Twenty four hours after fungicide application, plots will be spray-inoculated with a spore suspension of *F. graminearum*. FHB incidence and severity will be visually evaluated at the soft-dough stage. At harvest, yield data and the percentage of visually scabby kernels will be recorded, and samples will be analyzed for DON content. Environmental data will be recorded with an automated weather station. These data will be furnished to the epidemiology/disease forecasting group for use in developing FHB/DON prediction models to be used as part of an integrated approach to managing FHB/DON. We will accomplish the third objective by disseminating project results through electronic and print media and presentations at field days. This project is relevant to the goals of the U.S. Wheat and Barley Scab Initiative which aim to validate and optimize integrated management strategies for FHB and mycotoxins, develop and validate the next generation of management and mitigation tools for FHB and mycotoxin control, develop a full understanding of specific factors influencing infection and toxin accumulation that can be used to develop the next generation of scab and DON risk assessment measures, and enhance communication and end-user education/outreach for an audience including, but not limited to, producers, agricultural advisors, research community, and grain processors.