Project Abstract

Project Title:	***Fusarium* Species Diversity within Spikes and Fields: Implications for FHB Management**	
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The goals of this project are to survey the occurrence of minority *Fusarium* pathogens in FHB-symptomatic wheat and barley; understand environmental factors driving higher frequencies of minority species, including emerging mycotoxin producers; and determine how interactions between *F. graminearum* and less aggressive *Fusarium* pathogens impact FHB progression and mycotoxin accumulation.

Objective 1 – Approach: Conduct a broad geographic survey of both *Fusarium* spp. and mycotoxin diversity and assess environmental factors (e.g., weather/climate, crop management) driving *Fusarium* diversity in FHB-symptomatic U.S. wheat and barley spikes.
Expected outcomes – This project will generate: 1) a large, geographically diverse *Fusarium* culture collection for collaborative functional studies (e.g., fungicide sensitivity, comparative genomics); 2) a network of USWBSI scientists documenting, and investigating, the impact of fusarial diversity across US wheat and barley fields; and 3) insights on whether additional mycotoxin monitoring is required.

Objective 2 – Approach: Identify whether less aggressive *Fusarium* spp. reduce FHB caused by the aggressive pathogen *F. graminearum* if inoculated first or co-inoculated.
Expected outcomes – This work will 1) mechanistically show how less aggressive pathogens affect FHB and DON outcomes caused by *F. graminearum* inside wheat and barley spikes and 2) focus on “emerging mycotoxin” producers recently found in high frequencies in some North Carolina wheat fields.