Project Abstract

Project Title:	**Diagnostic Testing Services for Deoxynivalenol in the Eastern United States**	
Principal Investigator:	**David Schmale**	**Virginia Tech**

Concerns about DON and related trichothecene mycotoxins continue to mount, and there is a need to support USWBSI diagnostic laboratories in the U.S. The Schmale Laboratory at Virginia Tech has provided DON testing services for the USWBSI since 2008. In this four-year USWBSI project, we propose to continue to provide diagnostic testing services for DON for up to 30,000 wheat and barley samples (~7,500 annually) associated with USWBSI-supported research projects. Numbers of samples requiring testing by USWBSI investigators are based on estimates received for Year 1 from 12 PIs requiring testing services (Arias [400], Bowen [150], Boyles [510], Darby [150], Glover [1250], Koehler [200], Malla [200], Marshall [500], Santantonio [2000], Toomajian [450], Vaillancourt [200], and Wegulo [350].

The overall goal of our research is to reduce DON contamination in wheat and barley. The specific objectives of the proposed research are to: (1) provide analytical services necessary to develop new cultivars of wheat and barley with reduced potential for DON contamination and to (2) facilitate DON testing that will improve chemical and cultural practices necessary to reduce DON contamination in wheat and barley. The expected outcome for Objective 1 is to provide analytical services for up to 7,500 samples per year for four years. The expected outcome for Objective 2 is to generate DON data that will lead to new varieties of small grains and new cultural practices that reduce DON levels.

DON will be quantified in wheat and barley samples using GC/MS. Schmale is committed to the long-term management of a successful and productive mycotoxin testing lab for the USWBSI. Niki McMaster continues to manage USWBSI testing services at Virginia Tech. The proposed work directly addresses the FY22 FSTU priority to 'provide analytical support for DON/trichothecene quantitation for Initiative's stakeholders'. Schmale and McMaster will meet with stakeholders to discuss new diagnostic technologies for DON and related management strategies for FHB, maximize coordination and efficiencies amongst labs to provide DON data in a timely manner, and provide accurate information and occurrence data regarding DON and related mycotoxins in a form accessible to the FHB research community. Results from this project will help leverage future research support from agencies such as NSF and USDA-NIFA. New analytical technologies for detecting and quantifying mycotoxins in food and feed will be developed and implemented; FY22-25 priorities for funding programs in these agencies.