

PI: David Schmale

PI's E-mail: dschmale@vt.edu

Project ID: FY20-SC-013

ARS Agreement #: 59-0206-0-190

Research Category: FST-S

Duration of Award: 1 Year

Project Title: Diagnostic Testing Services for Deoxynivalenol in the Eastern U.S.

PROJECT 1 ABSTRACT

(1 Page Limit)

Concerns about DON and related trichothecene mycotoxins continue to mount, and there is a need to support for USWBSI diagnostic laboratories in the U.S. Over the past 11 years, the USWBSI has provided funds for the Schmale Laboratory at Virginia Tech to conduct DON testing services for nearly 65,000 wheat and barley samples from USWBSI investigators in the eastern United States. In this one-year USWBSI project, we propose to continue to provide diagnostic testing services for DON for about 6,500 wheat and barley samples associated with USWBSI-supported research projects in the eastern U.S. Numbers of samples requiring testing by USWBSI investigators are based on estimates received from each of the 11 PIs requiring testing services (Bowen, 150; Boyles, 510; Darby, 150; Glover, 1,392; Griffey/Sanantonio, 2,210; Haak, 36; Koehler, 200; Langston/Mehl, 400; Marshall/Cowger, 500; Vaillaincourt, 200; and Wegulo, 800).

The ultimate 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 proposed project will provide additional DON testing services for the USWBSI and continue to support the only USWBSI-associated DON testing lab in the eastern U.S. 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 FY20-21 FSTU priority to 'provide analytical support for DON/trichothecene quantitation for Initiative's stakeholders'. Schmale will meet with stakeholders to discuss new diagnostic technologies for DON and related management strategies for FHB, an effort aligned with the FSTU priorities to 'maintain awareness of standardized sampling protocols for DON', 'maximize coordination and efficiencies amongst labs to provide DON data in a timely manner', and 'provide accurate information and occurrence data regarding DON, ADONs and DON glucoside 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; FY20/21 priorities for funding programs in these agencies.