

0203-SC-067 Diagnostic Services for Vomitoxin (DON) in Wheat.

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PROJECT ABSTRACT

(1 Page Limit)

Fusarium Head Blight (FHB), commonly referred to as “scab,” inflicts yield and quality losses on farms in at least 18 states. Mycotoxins that may be produced by scab can make wheat unacceptable for processing into flour. The US Wheat and Barley Scab Initiative has put together a strong program to develop breeding and management systems to reduce the incidence of scab. In any program of this type, there is a need for mycotoxin analyses on the new varieties and processed food. This project, to be conducted in the Department of Veterinary Diagnostic Services at North Dakota State University, will provide vomitoxin (deoxynivalenol) analyses on ~3500 wheat samples for ~10 scientists from North Dakota, Minnesota, Iowa, and South Dakota. The GC/ECD method used for vomitoxin analysis was developed at the Department of Veterinary Diagnostic Services, and is quite selective. Cross-checks by GC/MS have demonstrated a low incidence of false-positive answers. As a secondary system, the Veterinary Diagnostic Services Laboratory has a GC/MS system for the TMS derivatives of ~40 trichothecenes that are produced by *Fusarium* sp. This multi-mycotoxin screen is needed to guard against other mycotoxins, besides vomitoxin, being in the final varieties of wheat. The Laboratory is one of a few select labs in the USA that can provide this service promptly and at a reasonable price. At the start of each vomitoxin campaign (~August 1), an additional full-time chemist is employed to help conduct large numbers of vomitoxin assays for ~4-5 months. The primary technician in charge of the vomitoxin campaign is a full-time chemist who has year-round experience with vomitoxin and the multi-mycotoxin systems. The Laboratory has 2 GC/ECD systems and 3 GC/MS systems that can be used to achieve the goals of this project. This project is relatively basic, but necessary, so that the wheat breeders can reach their final objective.