

## Project Abstract

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| <b>Project Title:</b>          | Evaluation of Barley and Spring Wheat for Deoxynivalenol |                               |
| <b>Principal Investigator:</b> | Richard Horsley  | North Dakota State University |

The overall goal of this project is to provide mycotoxin testing services to researchers working on various aspects of Fusarium Head Blight (FHB) in wheat, durum wheat, and barley. Specific objectives are to provide:

1. Accurate results
2. Timely and equitable analysis of samples for all cooperators

Samples are routinely tested for deoxynivalenol (DON), 3- and 15-ADON, as well as nivalenol. However, the laboratory can test for other *Fusarium* toxins when needed for special projects. Routine testing is performed by gas chromatography with either electron capture (ECD) or mass spectroscopy (MS) detection. Specialized toxin analysis is with liquid chromatography with triple quadrupole MS detection. The procedures for the routine testing of wheat, durum wheat, barley and barley malt are well-established, and it is expected that these analyses will be performed in an expedient manner. Internal and external check samples are used to assure accuracy. Funding supports staff and materials to accomplish approximately 1,000 samples per week. Breeding and pathology programs are given 300 priority samples that are analyzed first. Otherwise, samples are analyzed in the order received. Most samples are from breeding and pathology projects, with lesser amounts from agronomic, grain quality, management, and food safety studies.

This project will involve annual testing of approximately 24,800 research samples (plus 2,500 check samples) on an annual basis in fiscal years 2022-23, 2023-24, 2024-25, and 2025-26. Cooperators are surveyed prior to each analysis season to determine needs and assign allotments. There are currently sixteen cooperators representing nine institutions. This project is of direct benefits to producers and end-users of wheat, durum wheat, and barley as it supports several areas of research that are being conducted to help enhance food safety and supply by reducing the impact of FHB.