Project Abstract

Project Title:	Evaluation of fungicides and integrated strategies for management of FHB and DON in ND	
Principal Investigator:	Andrew Friskop	North Dakota State University
Co-Investigator:	Thomas Baldwin	North Dakota State University
Co-Investigator:	Venkata Chapara	North Dakota State University
Co-Investigator:	Audrey Kalil	North Dakota State University
Co-Investigator:	Tyler Tjelde	North Dakota State University
Co-Investigator:	Leandro Bortolon	North Dakota State University
Co-Investigator:	Clair Keene	North Dakota State University

Updating information on the use of fungicides and variety resistance to suppress Fusarium head blight (FHB) and deoxynivalenol (DON) provides crucial information for small grain growers in the USA. Recent research has shown a fungicide application at the beginning at early-anthesis or up to seven days later is most effective for managing FHB and DON in wheat. Similarly, the most effective fungicide application timing for barley begins at full-head or up to seven days later. The fungicide timing recommendation remain consistent for the most effective fungicides on the market: Caramba®, Prosaro® and Miravis Ace®. Two new fungicides will soon be labeled and registered for use on wheat and barley. These include Sphaerex® and Prosaro Pro®. Both fungicides are new premixes and field data is needed to help support efficacy and timing of these products.

The overall project goal is to assess efficacy and timing of Sphaerex and Prosaro Pro in small plot experiments in North Dakota. The primary objectives are (1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on new combination fungicides, Prosaro Pro and Sphaerex, (2) Compare the efficacy of Prosaro Pro and Sphaerex to that of Prosaro, Caramba, and Miravis Ace, and (3) Generate data to further quantify the economic benefit of FHB and DON management programs. Field experiments will be established at multiple locations in North Dakota (ie: Fargo, Grand Forks, Langdon, Nesson Valley, Minot, and Prosper). Seven uniform fungicide trials and five integrated management trials will be conducted on spring barley, spring durum, and/or hard red spring wheat. Each location will use core treatments listed in the standard protocol for each respective experiment. The integrated management trials will use at least two varieties varying in susceptibility with one being a recent release. Data will be compiled for each market class and subsequently used in a meta-analysis. The expected outcomes for each objective is generating a robust data set on spring barley, hard red spring wheat and spring durum from five locations. The data generated from the UFT and IM trials address direct questions from agriculturalists and stakeholders. Fusarium head blight is the most important small grain disease in North Dakota, and updated information on fungicide efficacy, fungicide timing, and the use of integrated strategies has a direct economic impact for small grain producers.