Project Abstract

Project Title:	Continued Deployment of Prediction Models for Fusarium Head Blight of Wheat & Barley	
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The disease forecasting models deployed via the Fusarium Head Blight Prediction Center help farm managers evaluate the risk of disease and the need for fungicide applications as part of the integrated management of Fusarium head blight (FHB) and deoxynivalenol (DON). While we have already made considerable progress in model deployment, additional projects are needed to ensure the continued delivery of these decision tools, further improve the utility, and adoption of these tools for FHB management. This project addresses the MGMT Research Priorities to “Help develop and validate the next generation of management and mitigation tools for FHB and mycotoxin control”; and “Enhanced communication and end user education/outreach”. Our specific objectives for project include: 1. Deployment of the daily estimates of disease risk in 33 states; 2. Develop prototypes of a web-based user interface for delivering estimates of disease risk based on model ensembles; 3. Develop climate-based risk assessment for Fusarium head blight in the US. To accomplish these objectives, we propose to use the Real Time Mesoscale Analysis, supplemented with the improved observational dataset known as the Un-Restricted Mesoscale Analysis provided by NOAA’s National Weather Service, to produce the daily maps of disease risk at a 2.5 km spatial resolution in the 33 states. A state commentary feature will be available for all states covered by the disease prediction effort. The commentaries will be displayed along with maps of the disease risk and distributed through the FHB Alert System. At the close of the season, a user survey will be implemented to assess the value of the prediction system and its impact on stakeholders of the USWBSI. We will also work with a select user group to develop and evaluate new model interfaces. These interfaces will include novel approaches to representing variability among the individual members of model ensembles providing estimates of disease risk. The climate-based estimates of disease risk will combine the disease models with weather records for the past 30 years. The results will help us identify areas of the US most at risk for FHB, open the possibility for studying the role of a changing climate on the risk of FHB, and help document the potential impact of the USWBSI variety development projects.