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PROJECT 1 ABSTRACT

(1 Page Limit)

The disease forecasting models deployed via the Fusarium Head Blight (FHB) Prediction Center (www.wheatscab.psu.edu) help farm managers evaluate the risk of disease and the need for fungicide applications as part of the integrated management of FHB and DON. While we have already made considerable progress in model deployment, additional projects are needed to ensure the continued delivery of these decision tools, and further improve the utility, and adoption of these important tools for FHB management. Our specific objectives for 2011 include: 1. Continued deployment of the disease prediction models in 25 states including the support of the state commentary tools, FHB Alerts and the platform for testing additional experimental models. 2. Expanding disease prediction with 5 new states. 3. Update the current FHB Prediction Center to a new web map-server based architecture 4. Develop a version of the FHB Prediction Center for use with mobile technology (cellular-based mobile/"smart" phones) 5. Conduct training workshops to help state specialists learn to use the prediction tools 6. Verification of inputs and improved capacity for site-specific predictions. 7. Implement a user survey as a metric for the impact of the FHB prediction system. 8. Verification of model performance based on reports of FHB/DON from cooperators – for refinement in the delivery of the current and experimental models. To accomplish these objectives we propose to use the Real Time Mesoscale Analysis (RTMA), provided by NOAA's National Weather Service (NWS) to produce the daily maps of disease risk at a 5 km spatial resolution in the 30 (25 current + 5 new) states proposed to be covered by the disease prediction effort. The system will also use hourly reporting weather stations maintained by the NWS, as well as independent weather networks of weather stations from Agricultural Weather Networks. The 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. The current web-based prediction tools will be transitioned to a web map server application powered by the GeoServer web map server software that is based on a Postgres object-relational database management system and we will develop an application for mobile users. We propose to organize a web-based train-the-trainer workshop that will help specialists gain experience with the prediction models. Participants in the workshop will be provided with case studies illustrating different scenarios commonly experienced by users of the models and the most frequently asked questions. The verification of the prediction models will be gathered through collaborations with disease specialists in participating states, and a user survey will be implemented to assess the impact of the prediction system on the management FHB and DON.