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PROJECT 1 ABSTRACT
(1 Page Limit)

Fusarium head blight (FHB) of small grains tends to be associated with certain environmental conditions, especially rain-induced wetness periods occurring near anthesis. The weather radar system deployed by the National Weather Service during the past decade, NEXRAD, provides estimates of precipitation in 4 km grid cells across an area of 230 km radius surrounding each of the radar sites, a spatial resolution not previously attainable for precipitation. A Geographic Information System-based model simulation which incorporates the NEXRAD precipitation estimates into a crop canopy energy balance-based scheme to estimate wetness duration periods for small grains on the 4 km spatial scale has been developed and initially tested, with promising results. Errors found in the estimates analyzed during the first and second years of this project with Michigan precipitation data were less pronounced than previous studies, with 96.3% of the precipitation-hours across the state of Michigan during the 1999 and 2000 growing seasons correctly classified and an overall mean bias and mean absolute precipitation differences of -1.6mm and 2.3mm respectively. This method of monitoring wetness duration over large areas should enhance the ability of researchers to correlate specific weather data with the occurrence of FHB epidemics in specific areas, and ultimately allow producers and processors of small grains to make decisions critical to the management and use of grain during epidemics. Primary objectives for the third year of the project include continued development of wetness duration estimates for wheat derived from NEXRAD data on an hourly, 4km spatial scale, and a second season of field study of rainfall interception rates and evaporation in wheat canopies.