

Validation of a disease-warning model for Sclerotinia stem rot of canola for the North Central region

Luis del Rio, Department of Plant Pathology,
North Dakota State University. Fargo, ND 58105

The objective of this project was to validate a disease-warning model for Sclerotinia stem rot of canola. Thirteen sets of three maps each depicting the estimated risk of development of epidemics of Sclerotinia stem rot (SSR) on canola were produced between June 13 and July 25, 2005. Disease incidence collected from >90 fields were used to validate the forecasted risk. High-risk warnings were issued multiple times for several counties. However, in general, the average disease incidence was very low disease for most with the exception of Towner, Bottineau, Cavalier, and Benson counties, which averaged 16% SSR incidence. The rest of the canola growing areas averaged <5%. Data collected in the previous year indicated that nine consecutive days of high or intermediate risk were associated with increased disease incidence; however, in 2005 this association was not observed or was very tenuous. This could be explained in part by an increased fungicide use among canola growers, a factor that could not be detected through a field survey. Another important factor could have been differences in precipitation regimes recorded across the region during the flowering period; Cavalier County received more rain prior to flowering, triggering more high-risk warnings than Towner County; however, once the flowering period started, very little rain was recorded in Cavalier while Towner Co. had high precipitation during the same period. The average disease incidence in Cavalier was 12% while Towner had almost 24%. The risk map estimates probability of apothecia formation but does not address weather conditions once the ascospores have been released from apothecia. In order to increase the predictive value of the risk map weather conditions after flowering should be included.