

STEWART, JAMES F.*, COREY J. GUZA, and LEE A. HUBBELL, Michigan Sugar Company, 725 South Almer St., Caro, MI 48723. **Evaluation of a predictive model, BeetCast, for managing cercospora leafspot in Michigan.**

Cercospora leafspot is a serious disease problem in Michigan. The disease can reduce sugarbeet yield by up to 20% and can reduce sucrose content and clear juice purity. The storability of diseased roots can also be affected. Cercospora leafspot can be managed using fungicides. Fungicides are applied after the first disease symptoms appear and every 14 to 21 days after the initial application, as stated on the fungicide label. Injury to the sugarbeet plants can occur prior to visual disease symptoms. Timing fungicide applications prior to visual symptoms of disease may improve sugarbeet yield. The objective of this study was to evaluate the efficacy of BeetCast, a prediction model, for managing cercospora leafspot. A study was conducted for 3 years, which compared applying fungicides based upon scouting, to fungicide applications based on a disease severity value from BeetCast. BeetCast combines temperature and leaf wetness to create a disease severity value (DSV). The DSV can be used to predict cercospora leafspot disease development. Fungicides can then be applying based on the number of disease severity values (DSVs) that have accumulated. Fungicides were applied; when 55 DSVs accumulated with follow up applications every 35 DSVs, 55 DSVs or 70 DSVs, when 70 DSVs accumulated with follow up applications every 35 DSVs, 55 DSVs or 70 DSVs, when the 1st spot was observed in the field with follow up applications every 18 days, or two weeks after 1st spots appeared with follow up applications every 21 days. The treatments were applied with an International Cub tractor plot sprayer at 3 mph, 100 psi and 20 gpa. The plot size ranged from 4 to 6 rows wide and 50 to 100 feet long. The 55/35 treatment provided better cercospora leaf spot (CLS) control than all of the other treatments. The 55/55, 70/35 and 1st Spot/18 day treatments all provided good control of CLS and were superior to the 70/55, 55/70, 70/70 and delayed 1st spot treatments. Applying fungicides at 55/35 DSVs, improved sugarbeet yield compared to the other treatments with the exception of the 55/55 treatment. 1st Spot, 55/55, 55/70, 70/55 and 70/35 treatments all improved sugarbeet yield compared to the untreated check. All of the fungicide treatments had higher sucrose content than the untreated check. Only the 55/35 and 55/55 treatments had a higher clear juice purity compared to the Untreated Check. The average number of fungicide applications where; 3.2 applications for the 55/35 and 70/35 treatments, 2.6 applications for the 55/55 treatment, 2.0 applications for the 55/70, 70/70 and delayed 1st Spot treatments, 2.2 applications for the 70/55 treatment and 3.0 applications for the 1st Spot treatment. Applying fungicides based on the BeetCast model, resulted in CLS control equal to the 1st Spot treatment and required fewer application timings.