

KHAN, MOHAMED F.R.* and RANDY NELSON, North Dakota State University & University of Minnesota, Plant Pathology Department, Fargo, ND 58105-5758. **What is the best time to apply fungicides for effective and economical Cercospora leaf spot control?**

ABSTRACT

Cercospora leaf spot is the most damaging foliar disease of sugarbeet in Minnesota and North Dakota. The objective of this study was to determine the best time to apply fungicides for effective and economical Cercospora leaf spot control. Studies were conducted in 2005 and 2006 at St. Thomas, ND and Foxhome, MN. Each plot comprised of six 22-inch wide rows, 30 feet in length. All experiments were arranged in a randomized complete block design with four replicates. Treatments were applied with four-nozzle boom sprayers that delivered 20 gal/acre of solution at 100 psi pressure to the middle four-rows of plots. Fungicide treatments were applied using the following regimes: first application at first symptoms, and subsequent applications based on daily infection values of two consecutive days (DIV) and symptoms; first application at first symptoms, a second application 14 d after, and subsequent applications based on DIV and symptoms; first application at first symptoms, and subsequent applications made at 14 d intervals. There were also untreated check plots. Cercospora leaf spot severity was assessed throughout the season. The middle two-rows of plots were harvested and root yield and quality were determined. At St. Thomas in 2005 and 2006, and at Foxhome in 2005, disease severity was low. There was no significant difference in recoverable sucrose between fungicide treated and untreated check plots. At Foxhome in 2006, disease severity was low early in the season and increased as the season progressed. Fungicide applications resulted in better disease control and higher recoverable sucrose. The results suggest that applying fungicides at first symptoms and subsequent applications based on DIV and disease severity resulted in effective and economical disease control.