

KHAN, MOHAMED F. R.*^{1,2}, SOMWATTIE P. DeSOUZA¹, JACOB L. WILDMAN¹ and AARON L. CARLSON¹. ¹Plant Pathology Department, North Dakota State University and ²University of Minnesota, Fargo, ND 58108-6050. **What is the best time to control *Rhizoctonia* root rot of sugar beet?**

ABSTRACT

Rhizoctonia root rot caused by *Rhizoctonia solani* is the most important disease for growers in Minnesota and North Dakota. Timing of azoxystrobin fungicide application is crucial to controlling *Rhizoctonia* root rot of sugar beet under favorable conditions for disease development. The objective of this study was to determine the best time to apply azoxystrobin relative to the time of inoculation for controlling root rot caused by *R. solani* AG 2-2 IIIB. Treatments included a non-inoculated check where no inoculum was applied to plants; an inoculated check where two grains of barley inoculum were applied to plants; fungicide treatment as a hypocotyl drench at 0, 3, 10, 14 and 21 days following inoculation, and fungicide treatment as a hypocotyl drench followed by inoculations at 0, 7, 14, 21 and 28 days. Inoculations were done using two (~ 0.08g) barley grains colonized with *R. solani* AG 2-2 IIIB. Inoculum was buried at 2.0 cm below soil surface and in close proximity with plant roots. The fungicide used was azoxystrobin, (Quadris, Sygenta), applied at the recommended rate of 0.67 L/ha. The spray volume was 122 liter per ha with ~ 96 µl of fungicide solution per plant. Sugar beet plants treated first with azoxystrobin followed by inoculation had significantly lower root rot disease severity than where plants were first inoculated then treated with azoxystrobin. Since azoxystrobin provided control for several weeks after application, it may be possible to time fungicide application so as to provide protection from the pathogen when conditions become favorable for pathogen development.