How Will Late Planting Influence Rhizoctonia Control for Michigan?

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Rhizoctonia solani is one of the most yield-limiting fungal pathogens of sugarbeets in Michigan. This pathogen can affect young seedlings early in the season, which causes damping-off, or it can attack the plant root later in the season causing root rot, crown rot or tip rot. *Rhizoctonia solani* AG 2-2 IV has been the primary culprit historically, but recently a new, more aggressive strain of this pathogen, AG 2-2 IIIB, has been identified.

Regardless of which Rhizoctonia strain is involved, Michigan sugarbeet growers are constantly challenged with best way to control this disease. Plant pathologists estimate that Michigan growers lose an average of 1 to 2 tons per acre in yield due to Rhizoctonia, and that doesn't include the diminished quality of infected sugarbeets. Therefore, many sugarbeet growers in Michigan rely heavily on Quadris® fungicide for Rhizoctonia control.

Generally the use of Quadris has worked well for growers. But what if the weather throws a curve ball, like it did this spring, and planting is delayed? What effects will late planting have on controlling Rhizoctonia with Quadris?

To answer this, the characteristics of this pathogen should be considered. Rhizoctonia is a warm-season pathogen and research indicates that infection periods generally increase when the soil temperature at the 4-inch depth approaches 70 F.

Due to unseasonably wet and cool conditions this spring, sugarbeet planting in Michigan was delayed 3 to 4 weeks relative to normal years. On the upside, late-planted sugarbeets went in to slightly warmer soil than normal, causing an earlier emergence. However, late planting means that the developing sugarbeets will be exposed to active Rhizoctonia for a longer period of time while they are young and more susceptible. Most resistant varieties planted in Michigan do not express resistance to Rhizoctonia until plants are 4 to 6 weeks old.

With the onset of the "dog days" of summer, soil temperatures at the 4-inch depth are already warm enough for Rhizoctonia infections to begin. Based on Michigan State University and Michigan Sugar Company research, in-furrow applications of Quadris applied in a 3- to 7-inch T-band at planting provides the best control given this year's conditions. A properly timed foliar application of Quadris on sugarbeets at the 2 to 8 leaf stage also provides good control even under heavy disease pressure. In-furrow applications of Quadris should provide good protection up to the 6 to 8 leaf stage. If conditions continue to favor disease following the in-furrow application, a foliar application at the 6 to 8 leaf stage is advised. If an in-furrow application was not made and soil temperatures approach 70 F favoring disease development, it would be advisable to consider applying the foliar application of Quadris starting at the 2 to 4 leaf stage.

Sugarbeet producers now have effective options for controlling Rhizoctonia crown rot either through variety resistance, fungicide applications or a combination of the two.

Cautionary note: Do not dribble Quadris in-furrow alone or with pop-up fertilizer, as emergence issues and lack of Rhizoctonia control can occur. Pay special attention to application rates as they pertain to row widths. The recommended rate for Quadris in 30-inch rows is 10.5 fluid

ounces per acre and 14.3 fluid ounces per acre for 22-inch rows in a 7-inch band. Band widths that are wider than recommended can dilute the product, reducing control. Quadris banded over the row at emergence or preemergence is not effective. Treatments for most effective control should be applied before or at the time of infection. Oil-based insecticides should not be added to Quadris as injury can occur. Broadcast applications of Quadris are not recommended as dilution can compromise efficacy.