

**Azoxystrobin timing for *Rhizoctonia* root and crown rot management in sugar beet** FRANC\*, GARY D., WILLIAM L. STUMP, AND STEPHAN C. BRIERE, Department of Plant Sciences, University of Wyoming, Laramie, WY 82071-3354.

#### ABSTRACT

Quadris (azoxystrobin) is an effective fungicide for the management of *Rhizoctonia* root and crown rot (RRCR) in sugar beet. However, little is known about the timing of fungicide application for disease management relative to tillage operations that introduce inoculum into the crown. Plots were established near Torrington, Wyoming under sprinkler irrigation in 1999 and 2000, to measure disease control following different application timings of azoxystrobin. One row of each field plot was inoculated with *Rhizoctonia solani* and the paired row of each plot relied on natural inoculum for disease development. Immediately after inoculation, plots were watered twice during an 8-hr period to favor infection.

Six in-furrow, banded, and foliar applications of Quadris were compared to a nontreated control for the management of RRCR in 1999. For 2000, nine foliar fungicide applications made at time intervals of; before, concurrent, and after inoculation with *Rhizoctonia*, were compared to a nontreated control for RRCR management. Treatment plots were laid out as a randomized complete block design with four replicates. Due to poor disease development in rows that relied upon natural inoculum, disease measurement and yield effects data were analyzed for data collected from inoculated rows.

In 1999, early season applications of fungicide made in-furrow, or banded over plants, had little effect on disease incidence and severity compared to non-fungicide-treated check plots. The most effective fungicide applications were broadcast treatments made one week after inoculation. Disease incidence and severity were significantly decreased by 54% and 75%, respectively, and total root yield was significantly increased by 69% ( $P \leq 0.05$ ). The sucrose percentage tended to increase with later fungicide application, as well. In 2000, applications made at, or up to 3-weeks after, inoculation were generally more effective for RRCR management than were applications made before inoculation. Although disease incidence and beet numbers were not affected at harvest ( $P \leq 0.05$ ), total root yield and the percentage of sucrose were increased by at least 200% for applications made after inoculation. The RRCR disease pressure was much greater in 2000 than 1999.