**Quadris and post-emergence herbicide combinations for Rhizoctonia and weed management in sugar beet.** STUMP*, WILLIAM L., GARY D. FRANC, AND STEPHEN D. MILLER, 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 (*Rhizoctonia solani*) in sugar beets. However, little is known about the efficacy of Quadris and herbicides applied in combination. Plots were established near Torrington, Wyoming under sprinkler irrigation in 1999 and 2000. Weed and disease control, and beet response to Quadris applied in combination with conventional and micro-rate herbicide programs were measured.

Herbicide treatments were initiated with beets in the cotyledonary to 2-leaf stages with two subsequent herbicide and Quadris applications made at 7-day intervals. Within one week of the final fungicide and herbicide applications, one row of beets per plot was inoculated with *Rhizoctonia solani*. Immediately after inoculation, plots were watered twice during an 8-hr period to favor infection. The paired row of the plot relied on natural inoculum. Weed control and crop injury data were combined over years for analysis. Due to differences in disease pressure between years, Rhizoctonia and yield effects data were analyzed separately over each year. Data from the inoculated rows is presented due to poor disease development in rows that relied upon natural inoculum.

No chemical treatments reduced early season sugar beet stands, and weed control was not influenced by Quadris. The addition of Quadris did not increase crop injury and only slight injury (1 to 3%) was evident in either herbicide program. Weed control was improved with the conventional herbicide program in 1999, but there were no differences between herbicide programs in 2000. Rhizoctonia crown rot was much greater in 2000 than 1999. In 1999, although non-significant, treatments containing Quadris reduced Rhizoctonia incidence (by 45%) and severity (by 51%) on harvested beets compared to treatments without Quadris ($P \leq 0.05$). In 2000, treatments with Quadris, reduced mid-season Rhizoctonia incidence by 65% versus treatments without Quadris (linear contrast, $P \leq 0.05$). Quadris applications made 14-days after the first herbicide application resulted in 73% less disease incidence compared to Quadris applications made 7-days after the first herbicide application (linear contrast, $P \leq 0.05$). The addition of Quadris increased beet yields and sugar content over 200% compared with treatments without Quadris (linear contrast, $P \leq 0.05$). Later applications of Quadris increased beet yield almost 200% compared to earlier applications (linear contrast, $P \leq 0.05$).