

Harveson, R. M., and R. G. Wilson, University of Nebraska, Panhandle Research and Extension Center, 4502 Ave. I, Scottsbluff, NE 69361. **Comparison of azoxystrobin (Quadris) applications for optimum management of *Rhizoctonia* root and crown rot of sugar beets in western Nebraska.**

Rhizoctonia root and crown rot is a major constraint to sugar beet production in western Nebraska, and other areas of the Central High Plains. Few options other than genetic resistance have been readily available for management. Recently, another tool has become available that shows promise for controlling *Rhizoctonia* root rot, the new strobilurin fungicide, Quadris. A two-year field study was conducted (1999-2000) at the Panhandle Research and Extension Center in Scottsbluff with the objective of identifying the most effective application schedule for Quadris in Nebraska. A split plot design was employed utilizing 5 replications per treatment. Main plots were either inoculated or not with *Rhizoctonia solani*, the causal agent of root and crown rot. Subplots consisted of different rates and application timings of Quadris. Plots consisted of three rows, 55 cm wide and 12 m long, and were planted with the cultivar Monohikari in mid-April.

For the 1999 study, fungicide applications were made at 3 different plant growth stages – 2 true leaves, 4 true leaves, and row closure. Root disease due to *Rhizoctonia* was evaluated by 3 disease counts during the season, and a root disease rating of 0-4 (with 0 being healthy and 4 being dead) at harvest. Stand loss from the disease was decreased in inoculated plots from 36.6% in controls to 11.4% in the full rate applied at the 4-leaf stage. This resulted in an increase in sucrose from 4561 kg/ha to 7928 kg/ha for the control and 4-leaf treatment respectively. This was improved further by another application at row closure. Results in non-inoculated plots were not as dramatic. Percent stand loss varied from 11.4% in control to 8.4% in 4-leaf stage, and an increase in sucrose yield was seen from 8335 kg/ha to 8355 kg/ha for the same treatments.

The 2000 study utilized 4 additional treatments, including applications at 6-leaf stage and two new row closure treatments. Overall disease in the second year was not as severe, and results were not as consistent as in 1999, presumably due to the drier growing season. The highest disease counts in inoculated plots were observed in August and percent stand loss ranged from 24% in controls to 10-12% in several treatments. Sucrose yields, likewise ranged from a low of 8310 kg/ha to greater than 1100 kg/ha for several treatments. The non-inoculated plots were much more variable. Regardless of the differing conditions and results between studies, the use of Quadris still appears to be a promising option for growers with *Rhizoctonia*-infested fields. However, these studies also suggest that optimum economic return may be dependent upon disease severity or degree of infestation.