KIEWNICK, SEBASTIAN and BARRY. J. JACOBSEN, Department of Plant Pathology, Montana State University, Bozeman, MT 59717-0314 - Control of sugar beet crown and root rot caused by *Rhizoctonia solani* Kühn with biocontrol agents and fungicides

In a two year field study the fungicides Quadris (ICIA5504, ZENECA), Folicur (BAYER) and six bacterial biocontrol agents were tested for their ability to control *Rhizoctonia* crown and root rot on sugar beet. In the 1995 trial fungicides were applied as in-furrow sprays at planting with 0.05, 0.10, 0.20 oz ai for Quadris and 0.184 fl oz/1000ft row for Folicur. Five weeks after planting, a barley kernel inoculum of *R. solani* (AG-2-2) was applied at a rate of 20g/20ft row. In the 1996 trial Quadris (0.05, 0.10), Folicur (0.184) and six strains of antagonistic bacteria were sprayed on the crown five weeks (four leaf stage) after planting. The concentrations of the bacterial suspensions ranged between 10^6 and 10^9 cells/ml. Inoculation with *R. solani* followed after 24 hours. In 1995, when a very severe disease level occurred only Folicur significantly reduced the percentage of wilted and dead plants four weeks after inoculation compared to the untreated control. At harvest all treatments significantly reduced the disease index (0 = healthy; 7 = dead plant) with Folicur and Quadris 0.05 giving the best disease control. In 1996 with a less severe disease level Quadris (0.05; 0.10), Folicur and all six biocontrol agents significantly reduced the percentage of wilted and dead plants. Both rates of Quadris, Folicur and two bacteria gave the best control. Furthermore the same treatments significantly reduced the disease index at harvest with Quadris 0.10 showing the best control. In both field trials efficient disease control increased root yield, % sugar and sucrose yield/acre.