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WINDELS, C.E.^{1*}, R.A. KUZNIA¹, and J. CALL². ¹NW Expt. Stat., Univ. Minnesota, Crookston 56716 and ²Am. Crystal Sugar Co., East Grand Forks, MN 56721. - Thanatephorus cucumeris (=Rhizoctonia solani AG-3 and AG-5) effects on sugarbeet.

In 1993, a superficial, white to gray, dusty growth observed on sugarbeet petioles was identified as hymenia of *Thanatephorus cucumeris*. Our objectives were to: 1) evaluate effects of *T. cucumeris* on sugarbeet yield and quality, 2) identify anastomosis groups (AGs) of *Rhizoctonia solani* isolated from *T. cucumeris*-infected sugarbeet, and 3) test pathogenicity of *R. solani* on sugarbeet and potatoes. There was a 20% reduction in sucrose content and a 24% reduction in recoverable sucrose compared to uninfected plants in three fields. Of *R. solani* cultures isolated from *T. cucumeris*-infected beets, AG-3 (a potato pathogen group) was identified in four fields (potatoes planted in 1992) and AG-5 was in one field (wheat planted in 1992). When soil was inoculated with *R. solani* AG-3 (27 cultures) and AG-5 (5 cultures), both AGs resulted in sugarbeet seedling stands of 83% compared to 85% in the control. Inoculation of 8-wk-old beet roots with these cultures (and in the control) resulted in root rot values of <1 (0-7 scale). When potato sprouts were inoculated with *R. solani* AG-3 (14 cultures) and incubated at two temperatures, root rot values (0-4 scale) averaged 0.8 at 10°C and 0.6 at 25°C; AG-5 (3 cultures) was mildly pathogenic only at 25°C (X=0.8). Sclerotia of *R. solani* AG-3, but not of AG-5, formed on sugarbeet roots at 25°C and on potato seed pieces at 10°C. Thus, previous crops are a source of inoculum of *R. solani*, which increases on sugarbeet as *T. cucumeris*.