

GOODWILL, THOMAS R. and LINDA E. HANSON*, USDA, Agricultural Research Service, 494 Plant and Soil Sciences Building, East Lansing, MI 48824. **Rhizoctonia belly rot in cucumber fruit using *Rhizoctonia solani* isolated from sugarbeet.**

ABSTRACT

Cucumbers (*Cucumis sativus*) are grown in rotation with sugarbeet (*Beta vulgaris*) in some areas in Michigan but their interaction with important diseases affecting sugarbeet is not well known. Cucumbers are known to be primarily susceptible to *Rhizoctonia solani* AG-4 (Erper et al. 2002), but little is known about their susceptibility to AG 2-2 isolates that cause the most severe *Rhizoctonia* crown and root rot of sugarbeet. The objective in this study was to determine if *R. solani* isolates obtained from sugarbeet could cause belly rot in cucumber fruit. Cucumbers were planted two per box and contained three cucumbers per treatment. Cucumbers (7 cm in size) were placed in direct contact with soil that had been inoculated with AG 2-2 IIIB (isolate R08-7), AG 2-2 IV (isolate R08-1), AG 4 (isolates RZC-27 and RZC-28), or a sterile ground barley control following the methods of Ruppel et al. (1979). After four weeks cucumbers were visually examined and given a *Rhizoctonia* belly rot rating on a scale of 0-5, with 0 indicating a healthy fruit and 5 being complete deterioration of the fruit. Average Disease Indices (DI) were calculated for each experiment. R08-7 (AG 2-2 IIIB) produced DI of 3.7 in experiment 1 and 2.3 in experiment 2. R08-1 (AG 2-2 IV) had DI of 1.0 in experiment 1 and 2.7 in experiment 2. RZC 27 (AG 4) had DI of 3.7 and 1.7, while RZC-28 (AG 4) had DI of 3.3 and 3.7. The sterile barley control had a DI of 0 in both experiments, which is statistically different ($P < 0.05$) than any of the *Rhizoctonia* isolates. While AG 4 has been reported as the primary *Rhizoctonia* pathogen of cucumber, it appears that all the sugarbeet isolates (AG 2-2 IIIB, AG 2-2 IV, AG 4) tested can cause cucumber belly rot. Plus, AG 2-2 IIIB (R08-7) caused more lesions than AG 2-2 IV or AG 4, but AG 4 had deeper lesions than either of the AG 2-2 isolates. From this experiment it is clear that cucumber is both a host to and can be negatively affected by sugarbeet isolates of *R. solani*. Therefore, farmers who use cucumbers in rotation with sugarbeet need to be careful in managing their fields so as not to create a worsening *Rhizoctonia* problem for either of the cucumber or sugarbeet crops.