

SPRAGUE, CHRISTY L.^{1*}, KELLY A. BARNETT¹, LINDA E. HANSON^{2&3} and WILLIAM W. KIRK³, ¹Michigan State University, Department of Crop and Soil Sciences, East Lansing, MI 48824, ²USDA-ARS, SBRU, 494 PSSB, East Lansing, MI 48824 and ³Michigan State University, , East Lansing, MI 48824. **Impact of glyphosate and fungicides on the disease severity of *Rhizoctonia* crown and root rot in four glyphosate-resistant sugar beet (*Beta vulgaris*) varieties.**

ABSTRACT

Previous greenhouse research with an experimental glyphosate-resistant sugar beet variety indicated that host resistance to *Rhizoctonia* crown and root rot could be compromised when plants were exposed to glyphosate. In order to improve disease management recommendations, field research was initiated in Michigan to investigate the interaction between weed and disease management strategies on the severity of *Rhizoctonia* crown and root rot in four commercial glyphosate-resistant sugar beet varieties. The glyphosate-resistant sugar beet varieties investigated were ACH 827RR, Hillehog 9027, Hillehog 9028, and Hillehog 9029. Each of these varieties were treated with three different weed management programs: 1) no herbicide (hand-weeded control), 2) a standard-split herbicide program (two applications of desmedipham & phenmedipham + triflurosulfuron + clopyralid + non-ionic surfactant), and 3) three applications of glyphosate. Uninoculated and plots inoculated with *Rhizoctonia solani* AG-2-2 IIIB were compared for each variety by weed management combination. Additional treatments included inoculated plots treated with the fungicide azoxystrobin in-furrow or postemergence to 6-leaf sugar beets. Significant main effects included the presence of the disease, fungicide treatment, and variety. Herbicides and interactions with herbicide programs were not significant. Results from this first year of field research indicate that weed management strategy had little impact on *Rhizoctonia* disease severity. However, a combination of host plant resistance and fungicide applications were important in reducing *Rhizoctonia* disease severity.