ARMSTRONG, JON-JOSEPH Q.* and CHRISTY L. SPRAGUE, Michigan State University, Plant and Soil Sciences Building, East Lansing, MI 48824. **Effect of row width and population on weeds and sugar beet yield and quality in Michigan.**

ABSTRACT

The introduction of glyphosate-resistant sugar beet varieties, in combination with narrow row planting widths, has the potential to reduce labor and herbicide inputs for sugar beet production. The objective of this research was to evaluate the effects of row spacing, plant population, and weed removal timing on glyphosate-resistant sugar beet production in Michigan. A field trial was established in 2006 at the Michigan State University Saginaw Valley Bean and Beet Research Farm. Sugar beets were planted at two row widths, 38- and 76-cm, and stands were thinned at the 4-leaf stage to populations of 54,226, 77,467, and 100,707 plants/ha. For each row spacing and plant population combination, glyphosate was applied when weeds were either 10 cm or 20 cm tall. Additionally, there were weed-free and untreated control treatments. Sugar beets were mechanically harvested and root weight measured for the inner two rows. For both row widths, plant population had no significant effect on root yield; however, root yield was 29% greater for sugar beets planted in 38-cm rows compared with sugar beets planted in 76-cm rows, for the weed-free control. Within each row width, weed removal timing did not affect root yield. Canopy cover measurements were also taken throughout the growing season. Beets planted in 38-cm rows exhibited significantly greater canopy closure than beets planted in 76-cm rows at each sampling time and achieved at least 90% closure at 70 days after planting. Plant population did not have a significant effect on canopy closure.