

RESPONSE OF SUGARBEET VARIETIES TO *S*-METOLACHLOR AND DIMETHENAMID-P APPLICATIONS. Scott L. Bollman and Christy L. Sprague, Graduate Research Assistant and Assistant Professor, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824.

Previous research has shown a differential response of sugarbeet varieties to herbicides. Injury may reduce sugarbeet population, leaf area, yield, and sucrose content. Field trials were conducted at St. Charles, MI in 2004 and 2005 and at East Lansing, MI in 2005. This research evaluated the response of eight sugarbeet varieties to preemergence (PRE), 2-leaf, and 4-leaf applications of *s*-metolachlor and dimethenamid-P applied at 1.4 kg ha⁻¹ and at 0.84 kg ha⁻¹, respectively. Sugarbeet injury (visual) and leaf area were recorded 14 days after the 4-leaf application. Sugarbeet canopy was recorded weekly starting 14 days after 4-leaf application until maximum canopy was achieved. Sugarbeets were harvested for yield at the end of the season. Sugarbeet varieties differed in their response to herbicides and application timings. All herbicide treatments resulted in at least 10% sugarbeet injury. PRE and 2-leaf applications of dimethenamid-P resulted in the greatest crop injury and these applications were significantly greater than *s*-metolachlor applications at these timings. Sugarbeet injury from PRE *s*-metolachlor applications ranged from 9 to 25% compared with 24 to 35% injury from PRE applications of dimethenamid-P across all varieties. All herbicide treatments reduced sugarbeet leaf area at least 18%, but the greatest reduction in leaf area was from PRE applications of dimethenamid-P. Sugarbeet canopy development differed between herbicides and application timings during the first 13 weeks of the growing season. Although certain sugarbeet varieties tended to be more sensitive to *s*-metolachlor and dimethenamid-P applications than other varieties, application timing affected the relative order of tolerance. All herbicide applications significantly reduced sugarbeet yield and recoverable white sugar compared with untreated control.