FULL- AND SPLIT-RATES OF *S*-METOLACHLOR AND DIMETHENAMID-P FOR LAY-BY APPLICATIONS IN SUGARBEET. 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.

Field trials were conducted in East Lansing, MI in 2004 and 2005 and in St. Charles, MI in 2004, 2005, and 2006 to compare weed control and sugarbeet tolerance from the addition of *s*-metolachlor and dimethenamid-P to sugarbeet micro-rate herbicide applications. Herbicide treatments consisted of a base micro-rate herbicide treatment of desmedipham and phenmedipham at 90 g/ha + triflusulfuron-methyl at 4.4 g/ha + clopyralid at 26 g/ha + methylated seed oil at 1.5% v/v applied four times at 125 growing degree days (base 1.1 C) intervals. Micro-rate treatments were applied alone and in different combinations with *s*-metolachlor or dimethenamid-P. Total *s*-metolachlor and dimethenamid-P application rates were 1.4 and 0.84 kg/ha, respectively. The different treatments consisted of the full *s*-metolachlor or dimethenamid-P rate applied PRE or in one of each of four micro-rate herbicide application timings, split-applications of each herbicide at PRE and the third micro-rate, first and third micro-rate, or in the second and fourth micro-rate herbicide application. Additional treatments included *s*-metolachlor or dimethenamid-P applied at a quarter of the full-rates in each of the four micro-rate herbicide applications. All treatments resulted in sugarbeet injury. In 2004 and 2006, full-rates of both *s*-metolachlor and dimethenamid-P applied PRE and in the first micro-rate caused significantly greater injury than the base micro-rate. When the applications were split between PRE and the third micro-rates or between the first and the third micro-rates, *s*-metolachlor and dimethenamid-P also caused greater sugarbeet injury than the base micro-rate treatment. In addition, applying the quarter rate of dimethenamid-P in four micro-rates also caused significant sugarbeet injury. Applying either *s*-metolachlor or dimethenamid-P at the full-rates in either the third or fourth micro-rate timings or splitting the applications between the second and fourth micro-rates did not increase injury over the base micro-rate treatment. Control of common lambsquarters and giant foxtail from all treatments containing *s*-metolachlor or dimethenamid-P, regardless of time of application, was greater than the base micro-rate treatment at all locations. *Amaranthus* spp. control was 94% or greater from all treatments. In 2004, control of late-season giant foxtail was greater in all treatments that included *s*-metolachlor or dimethenamid-P compared with the base micro-rate treatment. In 2005, the only treatments that did not improve control of giant foxtail later in the season compared to the base micro-rate treatment were the treatments that included a full-rate of *s*-metolachlor or dimethenamid-P applied in the fourth micro-rate. Even though there were treatments that caused greater sugarbeet injury compared with the base micro-rate treatment, there were no differences in recoverable white sucrose yield at the end of the season.

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