

POTENTIAL INTERACTIONS OF SLOW ACTING AND FAST ACTING HERBICIDES. Rachel K. Bethke, Christy L. Sprague and Donald Penner, Department of Crop and Soil Sciences, Michigan State University, East Lansing MI 48824.

The stacking of genes to provide resistance to several herbicides previously injurious to a crop provides new opportunities for control of herbicide resistant weeds. Specifically the opportunity may exist to control glyphosate resistant weeds with glufosinate or an acetolactate synthase (ALS) inhibitor previously not advisable. Combining a fast acting herbicide with a slow acting herbicide has the potential for the occurrence of unexpected interactions. The objectives of this study were to evaluate combinations of glyphosate, glufosinate, chlorimuron and thifensulfuron-methyl on three annual weeds prevalent in Michigan, giant foxtail, common lambsquarters, velvetleaf and the perennial weed, Canada thistle, in greenhouse and field studies. In the field study combining chlorimuron or thifensulfuron-methyl with glyphosate did not affect glyphosate efficacy on velvetleaf, giant foxtail and common lambsquarters. Including glufosinate in the spray tank increased the efficacy on velvetleaf and common lambsquarters. In the greenhouse study, both antagonistic and synergistic interactions were observed depending on herbicides applied, the application rate and the species.