BENEFITS OF RESIDUAL HERBICIDES FOR WEED CONTROL IN GLYPHOSATE-RESISTANT NO-TILL SOYBEAN. Jon-Joseph Q. Armstrong 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 established at three sites in Michigan in 2006 to evaluate the effect of adding a herbicide with residual activity during early preplant (EPP) burndown application to reduce early-season weed competition in no-till drilled soybean. Additionally, the effect of glyphosate application at various postemergence (POST) timings was also evaluated to determine the optimal timing following an EPP treatment. EPP treatments were scheduled to be applied 7 days before planting. Treatments consisted of glyphosate plus 2,4-D ester alone and in combination with chlorimuron plus metribuzin, s-metolachlor plus metribuzin, pendimethalin, flumioxazin, linuron, or imazethapyr. Glyphosate was applied POST at 0.84 kg ae/ha when weeds in the glyphosate plus 2,4-D ester EPP treatment were 10, 20, or 40 cm in height. Visual ratings of weed control were taken prior to each POST application to evaluate the efficacy of EPP treatments. Season-long control of common lambsquarters, present at two of three sites, and common ragweed, present at all sites, ranged from 5% to 99% for all EPP residual treatments. Though weed control varied among the EPP treatments, control of all species was at least 90% after the respective POST glyphosate application. Across all locations, yields of EPP residual herbicides followed by glyphosate POST were not significantly different compared with the glyphosate plus 2,4-D EPP treatment followed by glyphosate POST; however, there was a trend of higher yields for the EPP residual herbicide treatments followed by glyphosate at the 20 cm application timing. Yields were similar for chlorimuron plus metribuzin, s-metolachlor plus metribuzin, and flumioxazin EPP treatments alone compared with the same EPP treatments followed by glyphosate POST, indicating that these herbicides provided sufficient weed control until crop canopy closure.

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