WEED MANAGEMENT STRATEGIES IN GLYPHOSATE-RESISTANT CORN. Bryan G. Young, Randy McElroy, and Ronald A. Hines, Associate Professor, Southern Illinois University, Carbondale, IL 62901, Agronomic Research Manager, Monsanto Company, Farina, IL 62838, and Research Specialist, University of Illinois, Simpson, IL 62985.

Adoption of glyphosate-resistant corn continues to increase and growers are interested in adapting the technology to their local production systems. Field research was conducted at Belleville, Farina, and Simpson, IL in 2004 and 2005 to provide additional information on the performance of weed management strategies in glyphosate-resistant corn in southern Illinois. Specifically, the objective was to determine the effect of herbicide application timing and residual herbicides on weed control and grain yield. Herbicide treatments included a single application of glyphosate at 0.84 kg ae/ha at six postemergence application timings based on weed height. Glyphosate was also applied in combination with acetochlor plus atrazine when weeds were 2 to 10 cm in height and as a sequential treatment following a preemergence application of acetochlor plus atrazine.

In three of the six site-years, weed control was greater than 90% when glyphosate was applied when weeds were 20 cm or less. Control of weeds taller than 20 cm was inconsistent with glyphosate and varied by site-year and species. Acetochlor plus atrazine applied at a full label rate followed by glyphosate provided 90% or greater weed control. Reduced rates of acetochlor plus atrazine followed by glyphosate did not provide sufficient control of ivyleaf morningglory in one site-year. In almost all instances, the use of acetochlor plus atrazine in combination with glyphosate prevented any corn yield reductions. Reliance on a single postemergence application of glyphosate did not consistently result in optimal yields. This research suggests that growers with a basic understanding of the primary weed problems in individual fields will likely be more successful in adopting glyphosate-resistant corn and specific weed management strategies.

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