AN ILLINOIS WATERHEMP POPULATION RESISTANT TO GLYPHOSATE. Aaron G. Hager, Michael S. Bell, Patrick J. Tranel, Dean E. Riechers, and Adam S. Davis, Assistant Professor, Graduate Research Assistant, Associate Professors, and Ecologist, Department of Crop Sciences and United States Department of Agriculture/Agricultural Research Service, University of Illinois, Urbana, IL 61801.

Common waterhemp is considered the most problematic broadleaf weed species in Illinois agronomic cropping systems. Soybean producers have only a limited number of herbicide options that control common waterhemp after crop emergence. Lactofen, fomesafen, and acifluorfen were widely utilized for common waterhemp control prior to commercialization of glyphosate-resistant soybean. Currently, glyphosate is the most widely utilized herbicide for postemergence control of common waterhemp in soybean and its in-crop use in glyphosate-resistant corn is increasing.

Research was conducted in 2007 to quantify the response of an Illinois common waterhemp population to foliar applications of glyphosate. Anecdotal reports in 2006 suggested this common waterhemp population was not adequately controlled following multiple glyphosate applications in a soybean production field. At full maturity, seed was collected from individual female common waterhemp plants growing on site and subsequently planted for greenhouse experiments. Common waterhemp plants were treated with either 0.84 or 3.4 kg ha^{-1} glyphosate acid when they were 10-cm tall. Results from greenhouse experiments showed plants treated with 0.84 kg ha^{-1} glyphosate demonstrated minimal injury and greater than 90 percent of plants survived treatment with 3.4 kg ha^{-1} glyphosate acid. Field research trials were initiated at the location where poor waterhemp control with glyphosate purportedly occurred in 2006. A range of glyphosate rates was applied when common waterhemp plants were either 10-or 30-cm tall. Treatment evaluations 21 days after either application timing revealed 50 percent or less common waterhemp control with glyphosate at rates labeled for in-crop use. A small percentage of common waterhemp plants survived treatment with 13 kg ha^{-1} glyphosate acid.

2007 North Central Weed Science Society Proceedings 62:191.