

THE TIMING OF OPTIONS FOR CONTROL OF GLYPHOSATE RESISTANT VOLUNTEER CORN. Randall S. Currie, Brandon Fast, Don Murray, and John Fenderson, Associate Professor, Kansas State University, Garden City, KS 67846, Graduate Research Assistant, Professor, Oklahoma State University, Stillwater, OK 74078, and Monsanto Corporation Scientist, Kiowa, KS 67070

In southwestern Kansas, when enough irrigation water is available, corn can be profitably grown continuously without rotation for more than 20 years. With increasing use of glyphosate-resistant corn hybrids, volunteer corn has become a much more difficult weed to control. It was the objective of these studies to determine a non-glyphosate tank mix to control this emerging weed problem. Volunteer corn was simulated by planting standard glyphosate-resistant corn hybrids in randomized complete-block experiments with 4 or more replications conducted near Stillwater, Oklahoma, and Garden City, Kansas. In Stillwater, all rates of clethodim at 0.015 lbs /a or higher provided 100% control of 2-leaf corn. This rate produced 90% control of 3-leaf corn and needed to be doubled to provide 100% control. In a second study, clethodim at 0.06 lbs/a completely controlled 3-leaf or 6-leaf corn, 21 DAT. In Garden City clethodim was applied at 0, 0.015, 0.03 and 0.06 lbs /a to 4-leaf corn and 8-leaf corn in a balanced factorial experiment. Greater than 90% control was produced by applications of 0.06 lbs /a of clethodim 21 DAT at both growth stages. However, no rate or timing produced 100% control. Corn recovered to varying degrees and was harvested for grain as an index of injury. The lowest clethodim rate recovered and had a yielded no different than the control. When this rate was applied to 8-leaf corn, yield was reduced 56%. Clethodim applied to 4-leaf corn at 0.03 lbs /a reduced, yielded 58%. In contrast when this application was delayed to the 8-leaf stage, yield dropped 93%. Regardless of timing of application, corn treated with 0.06 lbs/a had a yielded reduced 97%. Depending on the objectives of a producer, these treatments would have been commercially acceptable. These studies suggest that clethodim might provide the best control when applied early at lower rates or applied late at the higher rates.