RESPONSE OF HORSEWEED TO FOLIAR APPLIED HERBICIDES. James R. Martin, William W. Witt, and Charles H. Slack, Extension Professor, Professor, and Research Specialist, Department of Agronomy, University of Kentucky, Princeton, KY 42445.

Four different studies were conducted in 2003 to evaluate various foliar- applied herbicide programs for managing horseweed (*Conyza canadensis*) in stubble or clipped fields. The Trigg county study had a glyphosate- tolerant population and dealt mainly with applications made during the fall and following spring; whereas, the two studies in Princeton and the one in Lexington had glyphosate-susceptible populations and involved foliar sprays made in spring or mid summer.

Very little horseweed was observed when the fall treatments were made at the Trigg County site in December; consequently, any herbicides applied at this time had no direct affect on postemergence control of horseweed control. However, a fall spray of a non-residual postemergence herbicide, such as glyphosate, provided favorable environment for spring emergence of horseweed by eliminating competition from cool-season weeds such as little barley and mouseear chickweed. Following up with a spring burndown treatment of glyphosate in these plots did not control horseweed and therefore confirmed the glyphosate tolerance that observed the previous season. However, including 2,4-D ester with the spring application of glyphosate did control horseweed. The fall spray of chlorimuron + sulfentrazone premix in combination with tribenuron plus 2,4-D controlled annual broadleaf weeds, including horseweed, up to April 23. The fact that horseweed escapes in this treatment became more evident by May 8 indicated the soil-residual activity of this treatment had dissipated. The spring burndown application of paraquat in combination with either 2,4-D or the premix of chlorimuron plus sulfentrazone provided complete control of glyphosate tolerant horseweed by May 8.

The first study in Princeton compared glyphosate, 2,4-D ester, dicamba, and cloransulam applied to 12-, 14-, and 20- cm tall horseweed on April 26, May 3, and May 10, respectively. Glyphosate provided at least 98% horseweed control for all three sizes of plants. Control with 2,4-D ranged from a low of 33% when applied at 0.46 lb ae/A without crop oil concentrate to 20-cm tall horseweed. However, a high of 98% control occurred when 2.4-D was applied at 0.93 lb ae/A with crop oil concentrate to 12-cm tall horseweed. Applying 2,4-D at 0.93 lb ae/A with crop oil concentrate to 20-cm tall plants resulted in only 56% horseweed control. Horseweed control with dicamba ranged from a low of 27% when applied at a rate of 0.125 lb ai/A to 20-cm tall horseweed plants compared with a high of 88% when applied at a rate of 0.25 lb ai/A to 12-cm tall plants. Applying dicamba at 0.25 lb ai/A to 20-cm tall plants resulted in only 43% horseweed control. Horseweed control with cloransulam did not exceed 53% regardless of size of plants.

The second study at Princeton evaluated the effect of clipping on horseweed control with foliar-applied herbicides. Treatments were applied May 30 to non-clipped plants 33 cm tall and to plants that were clipped to a 20-cm height. Glyphosate applied alone or in combination with 2,4-D, cloransulam, or the premix of chlorimuron plus sulfentrazone provided at least 96% horseweed control regardless whether plants were clipped or not clipped. However, treatments involving paraquat provided only 63 to 67 % horseweed control of plants that were not clipped compared with 98% control where plants were clipped.

The Lexington study evaluated six glyphosate formulations including ClearOut 41 Plus, Honcho, Roundup UltraMax, Roundup WeatherMax, Touchdown IQ, and Touchdown KPMG applied at a rate of 0.75 lb ae/A. Other treatments included paraquat applied alone or in combination with the premix of cloransulam plus sulfentrazone. Treatments were applied July 2 to horseweed clipped to a height of 31 cm. Horseweed control with the different glyphosate formulations at 2 weeks after application was variable and ranged from 80 to 98%. However, by 3 weeks after application, control was at least 95% for all formulations. Control at 3 weeks after application with paraquat alone at 0.75 lb ai/A was 72% compared with 88% for paraquat at1 lb ai/A. Including the premix of chlorimuron at 0.029 lb ai/A plus

sulfentrazone at 0.15 lb ai/A with paraquat at 0.75 lb ai/A provided 90% horseweed control at 3 weeks after application.