

GLYPHOSATE RESISTANT HORSEWEED CONTROL WITH POSTEMERGENCE HERBICIDES IN CORN AND SOYBEAN. William G. Johnson, Reece A. Dewell, Vince M. Davis, and J. Earl Creech. Assistant Professor, Research Associate, Graduate Research Assistant, and Graduate Research Assistant, Department of Botany and Plant Pathology, Purdue University, W. Lafayette, IN 47907.

Field studies were conducted to evaluate late postemergence treatments for glyphosate-resistant horseweed control in emerged, glyphosate-resistant soybean and corn at the Southeast Purdue Agricultural Center near Butlerville, IN, on a Clermont silt loam soil with 1.3% organic matter. Treatments were arranged in a randomized complete block with four replications and applied with a CO<sub>2</sub> backpack sprayer calibrated to deliver 15 gallons per acre when horseweed ranged from 1 to 12 inches tall.

In the corn study, horseweed control with glyphosate (0.77 lb ae/A) alone was less than 45% at 18 DAT. Control was 80% with atrazine + mesotrione, halosulfuron + dicamba (Yukon), dicamba + atrazine, and prosulfuron + primisulfuron (Spirit). At 89 DAT, control with the glyphosate alone treatment was less than 75%; however, a number of treatments provided greater than 90% control. Treatments which provided greater than 90% control at the end of the season included atrazine, atrazine + mesotrione, dicamba + diflufenzopyr (Distinct), primisulfuron + dicamba (Northstar), primisulfuron + prosulfuron, dicamba + diflufenzopyr + nicosulfuron (Celebrity Plus), halosulfuron, halosulfuron + dicamba, dicamba + atrazine, metribuzin, flumetsulam, flumetsulam + clopyralid (Hornet). Products containing atrazine, dicamba, metribuzin, primisulfuron + prosulfuron, and flumetsulam provided the best overall control.

In the soybean study, glyphosate alone at 0.77 lb ae/A provided 46, 60, and 69% control, respectively, at 18, 32, and 89 DAT. Glyphosate alone at 1.12 lb ae/A provided 76, 90, and 95% control, respectively, at 18, 32, and 89 DAT. Horseweed was controlled 88% or higher at all three rating dates with cloransulam alone. Chlorimuron alone controlled horseweed 81 to 84% at all three rating dates. 2,4-DB alone provided poor control. The addition of chlorimuron or cloransulam to glyphosate usually resulted in better control than glyphosate alone. The addition of 2,4-DB to glyphosate did not improve control, and may have resulted in reduced control in a couple of instances. Three-way mixtures of glyphosate + chlorimuron + 2,4-DB controlled ERICA 83 to 96% at all three rating dates. Three-way mixtures of glyphosate + cloransulam + 2,4-DB controlled ERICA 69 to 97% at all three rating dates. Although the three way mixtures tended to provide good control at all three rating dates, crop injury concerns with 2,4-DB might limit its use. The addition of chlorimuron or cloransulam to glyphosate appears to be the best tankmix partner for control of glyphosate resistant horseweed if it is not ALS resistant..