

CONTROL OF VARIOUS WEEDS WITH 2,4-D ALONE OR CO-APPLIED WITH GLUFOSINATE OR GLYPHOSATE**Daniel O. Stephenson, IV****LSU AgCenter****Alexandria, LA****Jason A. Bond****Mississippi State University****Stoneville, MS****Jonathan Siebert****Dow AgroSciences, LLC****Greenville, MS****Larry Walton****Dow AgroSciences, LLC****Tupelo, MS****Abstract**

Research was conducted in 2010 at the LSU AgCenter Dean Lee Research and Extension Center in Alexandria and the Mississippi State University Delta Research and Extension Center in Stoneville to determine the efficacy of 2,4-D applied alone or co-applied with glufosinate or glyphosate for control of various weeds. In Mississippi, a Palmer amaranth population in which 5% of the plants were resistant to glyphosate was the only weed species evaluated. In Louisiana, glyphosate-susceptible Palmer amaranth, hophornbeam copperleaf, smellmelon, and entireleaf morningglory were evaluated. The eight herbicide treatments were 2,4-D and glyphosate, both at 0.75 and 1.0 lb ae/A, 2,4-D plus glyphosate (0.75 + 0.75 lb ae/A), 2,4-D plus glyphosate (1.0 + 1.0 lb ae/A), glufosinate (0.53 lb ai/A), and 2,4-D plus glufosinate (1.0 lb ae/A + 0.53 lb ai/A). Each treatment was applied to either 2-4-, 6-8-, or 10-12-inch weeds. The Louisiana trial was conducted in the presence of a non 2,4-D-tolerant cotton variety; however, the Mississippi trial was conducted in the absence of a crop. Weed control data 14 or 21 days after treatment are presented for Mississippi and Louisiana, respectively. Data indicate that 1.0 lb ae/A of 2,4-D or glyphosate provided greater control of glyphosate-susceptible and -resistant Palmer amaranth than the 0.75 lb ae/A rate. In glyphosate susceptible populations or populations with low levels of resistance, glyphosate alone provided greater control of Palmer amaranth than 2,4-D alone, averaged across weed sizes. In Louisiana, the combination of 2,4-D + glyphosate did not increase Palmer amaranth control compared to glyphosate alone, however, in Mississippi, Palmer amaranth control was greatest following the 2,4-D plus glyphosate (both at 1.0 lb ae/A) tank mix when compared to all other treatments. Glufosinate required 2,4-D to provide similar Palmer amaranth control to all glyphosate treatments. Regardless of location, all herbicide applications provide greater Palmer amaranth control when applied to 2-4- or 6-8-inch Palmer amaranth. All herbicide treatments provided at least 90% control of hophornbeam copperleaf, smellmelon, and entireleaf morningglory in Louisiana. In addition, herbicide treatments provided the greatest control when applied to 2-4-inch hophornbeam copperleaf. Smellmelon and entireleaf morningglory size did not affect control in Louisiana. In the absence of glyphosate-resistant weeds, weed management systems based upon glyphosate are still effective, however, if glyphosate-resistant weeds are present, 2,4-D enhances the level of overall weed control. Applications of 2,4-D should be utilized in a full systems approach containing preemergence herbicides and postemergence tank-mix partners for purposes of weed resistance management and product stewardship.