

**TOLERANCE AND EFFICACY USING HERBICIDE COMBINATIONS IN STACKED
GLUFOSINATE/GLYPHOSATE TOLERANT COTTON****P.A. Dotray****Texas Tech University, Texas AgriLife Research, and Texas AgriLife Extension Service****Lubbock, TX****J.W. Keeling****Texas AgriLife Research****Lubbock, TX****W.R. Perkins****Bayer CropScience****Idalou, TX****C.G. Henniger****Bayer CropScience****Lubbock, TX****L.V. Gilbert****Texas AgriLife Research****Lubbock, TX****Abstract**

Experiments were conducted in 2008 to determine field tolerance of GlyTol™ cotton following applications of different Roundup (glyphosate) formulations and in GlyTol™ plus LibertyLink® cotton following applications of Roundup and Ignite 280 (glufosinate ammonium). No adverse affects on plant establishment, plant height, maturity, vigor, and yield and quality were observed following any herbicide treatment. The objectives of this research were to determine Palmer amaranth (*Amaranthus palmeri*) and ivyleaf morningglory (*Ipomoea hederaceae*) control in non-cropland areas following tank mix combinations of Roundup PowerMax (glyphosate) and Ignite 280 when holding the rate of Roundup PowerMax at 0.75 lb ae/A (21 oz/A = 1X) and varying the amount of Ignite 280 added to the tank. The rates of Ignite 280 were 0.52 lb ai/A (29 oz/A = 1X), 0.75X, 0.5X, or 0.25X. Applications were made on May 27 to 2- to 3-inch Palmer amaranth or on June 18 to 2- to 6-inch ivyleaf morningglory. Applications were made using a tractor-mounted compressed-air sprayer calibrated to deliver 10 GPA at 3 MPH using 110015 TT flat fan nozzles.

Roundup PowerMax alone controlled Palmer amaranth 100% 10 days after application (DAA). When Ignite 280 at 1X, 0.75X, 0.5X, or 0.25X was added as a tank mix to Roundup PowerMax at 1X, Palmer amaranth control decreased to 62 to 88%. Roundup PowerMax at 1X plus Ignite 280 at 0.25X provided the greatest level of Palmer amaranth control (88%) when using this tank mix combination, but control was less than the Roundup PowerMax alone (100%). At 24 DAA, Roundup PowerMax alone controlled Palmer amaranth 77%; whereas no tank mix combination controlled this weed greater than 15%. The reduced control at 24 DAA compared to 10 DAA was due to weed regrowth and subsequent weed flushes. Roundup PowerMax or Ignite 280 alone controlled ivyleaf morningglory 53 and 83%, respectively, 9 DAA. A tank mix combination using the 1X rate of each herbicide controlled this weed 88%, and control decreased as the rate of Ignite 280 decreased. At 14 DAA, Roundup PowerMax (at 1X) plus Ignite 280 at 1X, 0.75X, 0.5X, and 0.25X controlled this weed 79%, 70%, 63%, and 52%, respectively.

GlyTol™ and GlyTol™ plus LibertyLink® cotton has shown exceptional tolerance to Roundup and Roundup plus Ignite 280, respectively. These non-crop studies suggest that a tank mix combination of Roundup PowerMax plus Ignite 280 may be antagonistic as far as Palmer amaranth control by Roundup PowerMax; however, this tank mix combination may improve the control of ivyleaf morningglory relative to either herbicide used alone. Additional research is needed because the opportunity to use GlyTol™ plus LibertyLink® cotton may occur as early as 2010.