

ANNUAL AND PERENNIAL WEED MANAGEMENT IN ROUNDUP READY FLEX COTTON
J.W. Keeling, B.L. Joy, J.D. Everitt, L.L. Lyon, and P.A. Dotray
Texas Agricultural Experiment Station
Lubbock, TX

Abstract

Roundup Ready cotton varieties are widely planted on the Texas High Plains, with effective control of a wide range of annual and perennial weeds achieved with glyphosate. With the current Roundup Ready technologies, postemergence over-the-top (POST), applications must be made prior to the 5-leaf cotton growth stage. Wet or windy conditions may make it difficult to treat large acreages during this application window. The development of Roundup Ready Flex varieties with increased tolerance will allow POST applications beyond the 5-leaf cotton growth stage with the additional benefit of higher glyphosate rates, which could improve control of more difficult to control weeds. In previous tolerance trials, Roundup Ready Flex lines exhibited excellent tolerance to POST glyphosate applications up to the 14-leaf cotton growth stage, at rates 2 to 3 times higher than the currently used rate in Roundup Ready cotton.

Field experiments were conducted in 2003 at the Texas Agricultural Experiment Station near Lubbock to evaluate rates and timings of glyphosate for optimum control of Palmer amaranth, devil's-claw, ivyleaf morningglory, silverleaf nightshade, Texas blueweed, woollyleaf bursage, and field bindweed. Glyphosate was applied at rates ranging from 0.75 to 1.5 lb ae/A. Treatments based on cotton growth stage were compared to as needed treatments based on weed population and size. Treflan at 0.75 lb ai/A was applied preplant incorporated to all trial areas.

Excellent Palmer amaranth, devil's-claw, and silverleaf nightshade control was achieved (> 90%) with POST treatments either based on cotton growth stage or as needed applications. For these weeds, effective control was achieved with 0.75 lb ae/A treatments, with no benefit from higher glyphosate rates. The most effective ivyleaf morningglory control was achieved with four POST applications applied as needed beginning at the 2-leaf cotton growth stage, with the last treatment applied at the 20-leaf cotton growth stage. When applied at the 1.5 lb ae/A rate, similar control was achieved by delaying the first application, requiring only three POST treatments. Glyphosate rates above 0.75 lb ae/A improved field bindweed and Texas blueweed control.