

**ROUNDUP READY™ COTTON:
A POTENTIAL NEW WEED MANAGEMENT
TOOL FOR THE TEXAS HIGH PLAINS**
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Abstract

Three field experiments were conducted on the Texas High Plains in 1995 to evaluate weed control in Roundup Ready Cotton™ with various rates and timings of Roundup applied postemergence topical (PT) and post-directed (PD). At two locations, main plot treatments included Treflan preplant incorporated (PPI) treatment alone and in combination with Caparol applied preemergence (PRE), Caparol alone, and no soil-applied herbicides. Each main plot was divided into sub-plots which were treated with Roundup at 0.38, 0.56 and 0.75 lb/A applied at 1-2 leaf cotton only and 1-2 leaf followed by the same rates at 4-5 leaf cotton stage. All Roundup applications included a nonionic surfactant and were made with a tractor-mounted plot sprayer delivering 7.5 GPA. Row-middles were cultivated twice during the growing season. At location 1, at the Texas Agricultural Experiment Station, Roundup Ready™ cotton was planted on May 12, Roundup was applied on June 12 and June 21, and cotton was harvested on October 18. Palmer amaranth and barnyardgrass were controlled by PPI and PRE herbicides but devil's-claw was not. Roundup applied PT to Roundup Ready™ cotton effectively controlled devil's-claw. When no soil applied herbicide was used, Roundup controlled all species early-season, but late-season infestations of palmer amaranth were observed. Excellent seasonal control of all weed species present was achieved with Treflan in combination with one application of Roundup at 0.56 lb/A. Cotton lint yields were 125-150 lbs/A with Roundup PT treatments which eliminated devil's-claw competition.

A second location in Hockley County, west of Lubbock, was planted May 18. Roundup treatments were applied June 19 (1-2 leaf) and June 27 (4-5 leaf), and cotton was harvested on November 8. Silverleaf nightshade was the only weed not controlled by soil-applied herbicides. Most effective silverleaf nightshade control was from 2 applications of Roundup at 0.56-0.75 lb/A, applied at the 1-2 leaf and the 4-5 leaf cotton growth stages. Silverleaf nightshade control with Roundup PT was more effective than either spot spraying Roundup or hand-hoeing. Cotton lint yields were 100-125 lbs/A higher with Roundup applied PT compared to plots treated with Treflan or Caparol only.

A third location in Hale County, north of Lubbock, compared PT to a combination of PT and PD (hooded sprayer) application for silverleaf nightshade control. PT applications of Roundup at 0.56, 0.75 and 1.12 lb/A were made to larger (6 to 12-inch) nightshade plants on June 26 and PD treatments were applied on July 26. Control of larger nightshade was less effective than in the Hockley County test with smaller (up to 5-inch) nightshade. Roundup applied PD significantly improved silverleaf nightshade over PT treatments alone.