

**INFLUENCE OF LATE GLYPHOSATE APPLICATIONS
IN NARROW ROW COTTON**

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Abstract

Roundup (glyphosate) treatments to Roundup-Ready (RR) cotton (*Gossypium hirsutum* L.) have been associated with glyphosate accumulation in plant reproductive structures resulting in poor pollination and increased boll abortion. Previous studies have indicated that lint yield can be negatively affected when topical applications of Roundup are applied after the recommended label timing. The Roundup Ready cotton label specifies a maximum glyphosate rate of 0.75 lb ae/A and that topical applications can be made through the 4 true-leaf growth stage. The ability to topically apply Roundup after the 4 true-leaf stage would enhance production flexibility in weed control.

Narrow row cotton, 15-in. rows or narrower, typically sets fewer bolls per plant and the first boll is set at a higher position when compared to conventional row spacings. Field studies were conducted at the Delta Research and Extension Center in Stoneville, MS in 2001 and 2002 to evaluate the use of glyphosate beyond label restrictions in narrow row cotton. Data collected included lint yield, gin turnout, plant mapping, and HVI fiber quality. Deltapine 436 RR and Stoneville 4892 BR were evaluated in 15-in. row spacing. Roundup Ultra was applied at 0.75 lb ae/A at four different stages of plant growth as treatments at the 3, 6, 9, and 12-node stage. Untreated plots for both varieties were also included in the study.

No differences in lint yield were determined for all treatments up to the 6-node stage for Stoneville 4892 BR and up to the 9-node stage for Deltapine 436 RR. Glyphosate applications had no effect on gin turnout for either variety. Plant mapping data at maturity showed differences in lowest node with a first position boll. The lowest first position boll was 7.6, 8.1, 10.0, 9.3, and 8.1 for untreated, 3, 6, 9, and 12-node applications, respectively. These data indicate Deltapine 436 RR and Stoneville 4892 BR possess significant tolerance to "off-label" timings of glyphosate applications in narrow row production. Yield reductions can result from such applications when late season environmental conditions are not favorable for boll production and retention, thus limiting fruit compensation to minimize early season losses. HVI fiber quality has not been evaluated.