

**USE OF PREEMERGENCE AND  
POSTEMERGENCE RESIDUAL  
HERBICIDES IN ROUNDUP READY  
(GLYPHOSATE-TOLERANT) COTTON**

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**Abstract**

Postemergence-topical (PT) and postemergence-directed Roundup Ultra applications in Roundup Ready cotton provide new opportunities to control many troublesome annual and perennial weeds without cotton injury. The use of residual herbicides in a Roundup Ready cotton weed control program reduces the potential of interference from early season weed competition, which may result in yield loss. Field experiments were conducted in 1999 at the Texas Agricultural Experiment Station near Lubbock, TX to evaluate rates and timing of residual herbicides in Roundup Ready cotton. Paymaster 2326RR tolerance and weed control were evaluated throughout the growing season. Roundup Ultra (glyphosate) at 0.56 and 0.75 lb ae/A was applied PT at the 4-leaf stage alone and in a tank mixture with Staple (pyrithiobac) at 0.032 and 0.047 lb/A. All treatments received a blanket application of Treflan (trifluralin) applied preplant incorporated at 0.75 lb/A followed by (fb) Caparol (prometryn) applied preemergence at 1.2 lb/A. Above normal rainfall was received in May and June which helped activate soil applied herbicides and promote early season weed emergence. Weed flushes were limited mid-season because of below normal rainfall in July and August.

No visual cotton injury was observed following any application of Roundup Ultra applied alone or in tank mixture with Staple. Roundup Ultra controlled Palmer amaranth (*Amaranthus palmeri*) 85-90% late-season. Palmer amaranth control was improved (94-100%) when Staple was tank mixed with Roundup Ultra. Staple PT controlled Palmer amaranth at least 96%, whereas Treflan fb Caparol controlled Palmer amaranth 88%. Staple tank mixed with Roundup Ultra PT improved late-season devil's-claw (*Proboscidea louisianica*) control (87%) compared to Roundup Ultra PT alone (48-57%). Devil's-claw was controlled at least 87% when Staple at 0.047 lb/A was tank mixed with Roundup Ultra. Staple PT controlled devil's-claw 70-83%, whereas Treflan fb Caparol controlled devil's-claw 23%.

In a second experiment, Palmer amaranth, devil's-claw, and yellow nutsedge (*Cyperus esculentus*) was evaluated for broad spectrum control in Roundup Ready cotton. Treflan fb Roundup Ultra or Caparol fb Roundup Ultra controlled Palmer amaranth and devil's-claw at least 93%, but yellow nutsedge was controlled less than 70%. When Dual Magnum (s-metolachlor) was applied preemergence at 1.3 lb/A or applied PT at 1.0 lb/A in a tank mixture Roundup Ultra, all weeds were controlled at least 96%. No visual injury was observed following Dual Magnum and Roundup Ultra tank mixes.

These 1999 field studies indicated that broad spectrum weed control may be achieved when residual herbicides are used in combination with Roundup Ultra in Roundup Ready cotton. Weed species present will dictate which residual herbicide is most appropriate.