

WEED CONTROL IN ROUNDUP READY COTTON WITH RESIDUAL HERBICIDES

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Abstract

Cotton producers on the Texas Southern High Plains have used in-season Roundup Ultra applications in Roundup Ready cotton to effectively control many annual and perennial weeds. Six field experiments were conducted in the 1998, 1999, and 2000 growing seasons to compare weed control from preplant incorporated (PPI) and preemergence (PRE) herbicides alone and in combination with Roundup Ultra applied postemergence-topical (POST) or postemergence-directed (PDIR) to Roundup Ultra alone (POST fb PDIR) for weed control in Roundup Ready cotton. Weed species evaluated included: Palmer amaranth (*Amaranthus palmeri*), devil's-claw (*Proboscidea louisianica*), ivyleaf morningglory (*Ipomoea hederacea*), and silverleaf nightshade (*Solanum elaeagnifolium*). Prowl (PPI) at 1.0 lb ai/A was applied in April and Caparol at 1.2 lb ai/A (PRE) was applied at planting in early May. Roundup Ultra applications at 0.75 lb ae/A were made at the three to four leaf stage (POST), mid-season (PDIR), and in 1999 a second PDIR application was made later in the season to control Palmer amaranth escapes. The POST Roundup Ultra treatments were applied in early June, and PDIR applications were made in late June or early July. The second PDIR applications were made in mid-July to early August in 1999.

In these six experiments, Prowl followed by (fb) Roundup Ultra POST and PDIR controlled Palmer amaranth 99% season-long, while Prowl fb Caparol and Caparol fb Roundup Ultra were less effective (82% and 71%, respectively). Effective season-long devil's-claw control (82%) was achieved with two applications of Roundup Ultra alone (POST fb PDIR) or following Prowl. Ivyleaf morningglory was controlled 97% with Prowl fb Roundup Ultra POST and PDIR, while Caparol fb Roundup Ultra POST controlled ivyleaf morningglory 69% late-season. Two applications of Roundup Ultra alone (POST fb PDIR) or following Prowl controlled silverleaf nightshade 55% which more effective than treatments with only Roundup Ultra POST (32%). Due to late season rainfall in 1999, a second PDIR Roundup Ultra application improved Palmer amaranth control when compared to residual herbicides alone.

The use of Roundup Ultra POST and PDIR with residual herbicides improved control of all weeds compared to residual herbicides alone. Roundup Ultra with a residual herbicide program controlled Palmer amaranth and ivyleaf morningglory more effectively than Roundup Ultra alone. Prowl fb Roundup Ultra POST and PDIR consistently provided season-long control of annual and perennial weeds and produced the highest lint yields in all years.