

**WEED CONTROL SYSTEMS IN
ROUNDUP READY™ COTTON**
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Abstract

Roundup Ready™ Cotton offers growers a new postemergence weed control option in cotton. Field tests were established in Arkansas and Missouri in 1995 to evaluate weed control with Roundup™ in Roundup Ready cotton. Emphasis was placed on the benefit of residual compounds in this system. Four trials were conducted in Arkansas, located at Rohwer, Marianna, Clarkedale, and Wabbaseka, where cotton was planted on 38 inch rows. A trial was also established at Portageville, MO where cotton was planted on 30 inch rows. Cotton planting dates ranged from May 9 to May 30, 1995. Herbicide treatments evaluated were 1) Roundup (glyphosate) applied postemergence as needed, 2) Treflan (trifluralin) applied preplant incorporated (PPI) followed by Roundup as needed, 3) Cotoran (fluometuron) applied preemergence (PRE) followed by Roundup as needed, 4) Treflan followed by Cotoran followed by Roundup as needed, 5) Treflan followed by Cotoran followed by Staple (pyrithiobac) postemergence, and 6) a standard herbicide program. Standard programs generally consisted of Treflan followed by Cotoran or Cotoran plus Command (clomazone) PRE, Cotoran plus MSMA post directed early (EPD), and Bladex plus MSMA post directed late (LPD). All herbicides were applied at the labelled rate, water volume, and additive percentage. An 85% weed control threshold was used to trigger the as needed Roundup applications. An early and late season weed control evaluation was recorded at all locations. At all locations, early season pigweed control was 95 - 100% for all treatments. The Treflan, Cotoran, and Treflan/Cotoran combinations did not improve early season control of pigweed species in comparison to the Roundup alone treatment. Likewise, pigweed control was excellent in the standard treatments as well as the Treflan/Cotoran followed by Staple treatments. Residual compounds increased late season pigweed control only at the Rohwer location. Annual grass (crabgrass and broadleaf signalgrass) control generally followed the same trend as pigweed. One exception noted was significantly less control in the Staple treatments when a residual

compound was not applied after Staple. Morningglory species were also present at all locations. At Clarkedale and Marianna, Cotoran significantly increased early season morningglory control in comparison to Roundup alone. Late season evaluations showed that additional Roundup applications in the Roundup only treatments were equal to Roundup following residuals, all resulting in excellent morningglory control. At the other locations, excellent season long morningglory control was achieved with Roundup applied alone or following residuals. Cocklebur was evaluated at three of the five locations. At Rohwer, early season cocklebur control was increased slightly when Cotoran was used before Roundup. Late season evaluations showed that two applications of Roundup provided >80% control, which was equal to residuals followed by Roundup. At Portageville and Wabbaseka, Roundup provided excellent control of cocklebur with or without residuals. The standard treatments also provided excellent cocklebur control at both ratings. At the three locations with cocklebur, the lack of a residual compound following the Staple application resulted in significantly less control at the late evaluation. This pattern was seen with grasses and broadleaf weeds at all locations. The standard treatments provided very good early and late season cocklebur control. Early season prickly sida control was enhanced by residuals at one of three locations where it was present; however, late season control was not. Velvetleaf was present at Marianna only and early season control of this weed was enhanced by Cotoran. Late season velvetleaf control showed Roundup providing >95% control in all treatments to which it was applied. Residual compounds reduced the total number of Roundup applications required for full season weed control at one location. At Clarkedale, the Roundup only treatment required three applications, the Treflan followed by Roundup required two Roundup applications, and the Cotoran or Treflan/Cotoran treatment required only one Roundup application for season long weed control. At Portageville, Marianna, Rohwer, and Wabbaseka, residual compounds did not reduce the total number of Roundup applications required for full season weed control. Plots were harvested at Clarkedale and Marianna. The Staple treatment at Marianna was the only one resulting in a significant yield reduction.