

**WEED CONTROL AND COTTON TOLERANCE
TO VARYING SYSTEMS OF BUCTRIL, STAPLE,
AND COMMAND HERBICIDE**

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Abstract

Three separate tests were established at the Cotton Branch Experiment Station, Marianna, AR, to evaluate the performance of herbicide systems containing either Buctril, Staple, or Command herbicide. Buctril was evaluated in 1995 only, but Staple and Command were evaluated in 1994 and 1995. All tests were established using conventional tillage methods, and the plots were overseeded with annual grasses and broadleaf weeds to establish a uniform population.

Herbicide systems using soil applications of Treflan PPI or Treflan PPI followed by (fb) Cotoran or Staple PRE and POST applications of Buctril applied early over-the-top (EOT) plus an early directed (EDIR) application of Cotoran + MSMA and a late directed (LDIR) application of Bladex + MSMA were compared to systems using two OT applications of Buctril to replace the EDIR application. The rates for Buctril in the EOT applications and Staple in the PRE applications were 0.5 lb and 0.5 oz ai/A, respectively. All other herbicides were applied at the labelled rates. All treatments provided excellent control of large crabgrass and all broadleaf weed species. However, there were differences among the treatments on broadleaf signalgrass control. Control of broadleaf signalgrass was greatest (100%) if the system used Cotoran PRE, regardless of POST applications; this was followed by systems that used Staple PRE. Broadleaf signalgrass control was poorest (78%) from the system that used Treflan PPI and replaced the EDIR application with two EOT applications of Buctril.

Herbicide systems using labelled rates of Treflan or Treflan + Cotoran fb Staple EOT (1 oz ai/A) were compared to those that relied on Staple PRE followed by Staple + Assure EOT. Rates for treatments using Staple both PRE and POST were 0.5 and 0.75 oz ai/A for PRE, and 0.5 and 1.0 oz ai/A for POST. All systems provided excellent control of large crabgrass, *Amaranthus* spp., entireleaf morningglory, prickly sida, and velvetleaf with no differences among treatments on cotton injury. However, there were differences among treatments on broadleaf signalgrass and pitted morningglory control. Treflan PPI fb Staple EOT had lower broadleaf signalgrass control than other treatments. Herbicide systems using Staple PRE fb Staple + Assure EOT had significantly lower

pitted morningglory control than those that used Treflan or Treflan + Cotoran fb Staple EOT. However, Staple rate was not a factor affecting weed control from systems using Staple PRE fb Staple + Assure EOT.

Herbicide systems using Command were evaluated 1) to compare PPI applications with PRE applications 2) evaluate the effectiveness of Treflan + Command at reduced rates (0.5 lb ai/A), and 3) to compare Command treatments to a current Arkansas standard of Treflan + Zorial PPI; the rate for both Treflan and Zorial in this test was 0.75 lb ai/A. All treatments included a PRE application of Cotoran. The Cotoran rate was 1.5 lb ai A⁻¹ in all treatments with the exception of one where a full rate of Command (1.0 lb ai/A) + a reduced rate of Cotoran (0.8 lb ai/A) were applied PRE. All treatments provided excellent control of large crabgrass, broadleaf signalgrass, velvetleaf, and prickly sida, and yields did not differ among any of the treatments. However, cotton injury and control of *Amaranthus* spp., pitted morningglory, and entireleaf morningglory differed among treatments. In 1994 a full rate of Command + a reduced rate of Cotoran had less *Amaranthus* spp. control than all other treatments, but all treatments had equivalent *Amaranthus* spp. control in 1995. This is because in 1994 the predominant *Amaranthus* spp. was the more difficult-to-control Palmer amaranth, but in 1995 the predominant *Amaranthus* spp. was smooth pigweed. Control of pitted and entireleaf morningglory with treatments containing Command was always \geq the current Arkansas standard of Treflan + Zorial PPI fb Cotoran PRE. Morningglory control with PPI applications of Command + a full rate of Cotoran was always \geq Command applied PRE. Morningglory control with Command + a reduced rate of Cotoran tended to be lower than Command treatments containing a full rate of Cotoran. However, morningglory control with this treatment was less than the standard only on control of entireleaf morningglory in 1994. The greatest cotton injury with any treatment was 16% from Treflan + a reduced rate of Command applied PPI. However, this injury was outgrown by 6 weeks after planting.