

**WEED CONTROL IN ULTRA-NARROW
ROW ROUNDUP READY™ COTTON**

J.T. Fowler, Jr., E.C. Murdock,

J.T. Staples, Jr. and J.E. Toler

Clemson University,

Pee Dee Research and Education Center

Florence, SC

Abstract

Weed management programs for Roundup Ready™ cotton seeded in ultra- narrow (7.5-inch) and conventional (38-inch) row spacings were evaluated at the Pee Dee Research and Education Center, Florence, SC, in 1997 and 1998. 'Paymaster 1330 RR' and 'Paymaster 1220 BR' were seeded May 22, 1997, and May 21, 1998, respectively. Seeding rates were 2 (ultra-narrow row spacing) and 4.5 (conventional row spacing) seed/row ft. PRE herbicides evaluated were pendimethalin (1.0 lb ai/ac), fluometuron (1.75 lb ai/ac) and pendimethalin + fluometuron. Glyphosate (0.75 lb ae/ac) was applied POST alone and following each of the PRE treatments. Pendimethalin (1.0 lb ai/ac) + fluometuron (1.75 lb ai/ac) applied PRE followed by (fb) pyriithiobac (0.625 lb ai/ac) applied POST was included as the standard treatment. Where fluometuron was not applied PRE, glyphosate was applied POST June 16, 1997, when Palmer amaranth, sicklepod, and tall morningglory seedlings were 7.25, 3.5, and 3.0 inches tall, respectively. Cotton was 4 inches tall with two true leaves. Where fluometuron was applied PRE glyphosate was applied POST June 26, 1997. Cotton was 7 inches tall with four true leaves, and Palmer amaranth, sicklepod, and tall morningglory seedlings were 2.5, 3, and 2 inches tall, respectively. In 1998, glyphosate and pyriithiobac were applied POST on June 9 to 5-inch cotton with 4 true leaves. Palmer amaranth, sicklepod, tall morningglory, and goosegrass seedlings were 9, 6, 7, and 2 inches tall, respectively.

Excellent (>90%) control of Palmer amaranth was observed 4 weeks after POST herbicide application (WAT) with all treatments except pendimethalin, which provided 82 and 68% control with ultra-narrow and conventional row spacings, respectively. Pendimethalin did not control sicklepod or tall morningglory. All other treatments controlled sicklepod 85 to 93% 4 WAT. Glyphosate applied POST without a soil-applied herbicide and pendimethalin applied PRE fb glyphosate applied POST controlled tall morningglory 76 to 80% 4 WAT, and were less effective than other herbicide treatments. Fluometuron and pendimethalin + fluometuron (PRE) controlled tall morningglory 85 to 86%, and POST application of glyphosate did not improve control with these PRE

treatments. Pendimethalin + fluometuron fb pyriithiobac provided 90 to 91% control of tall morningglory.

For each treatment, weed biomass for ultra-narrow row and conventional row spacings was similar. The average reduction in total weed biomass 2 WAT was 92 and 87% with ultra-narrow and conventional row spacings, respectively. When glyphosate or pyriithiobac was applied following a PRE herbicide, total weed biomass was reduced 99 to 100%. POST applications of glyphosate without a PRE herbicide reduced weed biomass 82 and 91% with conventional and ultra-narrow row spacings, respectively.

Lint yields attained with fluometuron fb glyphosate and pendimethalin + fluometuron fb glyphosate (885 and 873 lb/ac, respectively) in ultra- narrow rows were greater than yields attained with all herbicide treatments in the conventional row spacing. In the ultra-narrow row spacing, yields produced with pendimethalin + fluometuron (679 lb/ac) and pendimethalin fb glyphosate (752 lb/ac) were similar to fluometuron fb glyphosate and pendimethalin + fluometuron fb glyphosate. Lint cotton yields were greater in ultra-narrow row spacings compared to conventional row spacings with all treatments except pendimethalin alone, pendimethalin + fluometuron fb pyriithiobac, and the untreated check.