

**HOW DOES ROUNDUP READY™ COTTON
COMPARE TO STAPLE™, DSMA,
AND BUCTRIL-BXN™ COTTON?**

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Abstract

Field research was conducted during 1994 and 1995 to compare weed management programs using Roundup herbicide and Roundup Ready cotton with Staple, DSMA, and Buctril-BXN Cotton. The research was conducted at Whiteville, TN in 1994 and 1995, and at Jackson and Milan, TN in 1995.

All trials were no-till planted and treatments were replicated three times. All postemergence applications were in water carrier at 10 gpa plus 0.25% Induce surfactant except Roundup that included 0.5% Induce. Post-directed applications were made with hand-held sprayers at Whiteville and with tractor mounted commercial post-direct sprayers at Jackson and Milan. All postemergence overtop applications were to cotton from the 2- to 6-leaf stage and the post-directed treatments were made to cotton with 7 to 12 leaves. All applications were under ideal environmental conditions for optimal activity. Roundup, Staple and DSMA were applied only to Roundup Ready cotton and Buctril was applied only to BXN cotton.

No injury was observed. Staple (1 oz ai/A) caused some (<30% injury) terminal chlorosis of Roundup Ready cotton. DSMA (1.8 lb ai/A) also caused some typical reddish-purple discoloration of leaves and stems. With both Staple and DSMA, injury was transient under the optimum growing conditions. In all experiments, Roundup at 0.56 lb ae/A initially controlled johnsongrass, common cocklebur, smooth pigweed, and prickly sida >95%, but weeds emerging after treatment required subsequent treatment to achieve satisfactory control. Pitted morningglory control ranged from 33 to 77% in three experiments. With Staple at 1 oz ai/A control of common cocklebur, Palmer amaranth, pitted morningglory and smooth pigweed was >90%, but resurgence of common cocklebur required a subsequent post-directed treatment for season long control. Prickly sida control ranged from 88 to 92%, but <77% with Buctril at 0.38 lb ai/A. Pitted morningglory and common cocklebur were completely controlled by Buctril and smooth pigweed was controlled 92 and 95% in two experiments, but Palmer amaranth control was <70%. Common cocklebur was controlled 93% with DSMA at 1.8 lb/A, but pitted morningglory and Palmer amaranth control

was <70%. Nearly complete control of both grass and dicot weeds were obtained with Roundup overtop at the 2- to 5-leaf stage followed by a post-directed treatment with either Roundup or an appropriate post-directed herbicide. Programs with Staple postemergence following Prowl or Prowl plus Cotoran preemergence with a followup post-directed spray were equally effective, except at Milan where a postemergence johnsongrass treatment was required. The same was true for Buctril.

At the 1,000 lb/A yield level, lint yields at Milan did not differ between the Roundup programs and the Staple programs (P=0.05), but these were higher than similar programs with DSMA (P=0.10). At Jackson, similar yields were obtained with Roundup and Staple programs, but where DSMA or Buctril was used yields were reduced, primarily because of the lack of Palmer amaranth control and with Buctril some varietal differences in yield potential. Additional comparative yield trials are needed in both weedy and weedfree situations to assess these differences. There were no significant differences in HVI data among treatments except in trash content that closely followed the weed control. The main differences between Roundup and the other postemergence treatments, is that it has activity on both grass and dicot weeds. However, Staple and DSMA also have the advantage that they can be used on most all cotton varieties.