

## EVALUATION OF STAPLE USE IN TRANSGENIC COTTON

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### Abstract

Field experiments were conducted in 1997 at the Blackbelt Research Station near Brooksville, MS to evaluate the use of Staple (pyrithiobac) with Buctril (bromoxynil) or Roundup Ultra (glyphosate) in BXN and Roundup Ready cotton, respectively. Treatments in the BXN experiment were arranged as a two factor factorial in a RCB design with 4 replications. Factor A consisted of a preemergence application of 1.5 lbs ai/A Meturon (fluometuron) or 1.5 lb/A Meturon tank-mixed with 0.5 oz ai/A Staple. Factor B consisted of the following four postemergence treatments: 1.0 oz/A Staple; 1.0 oz/A Staple followed by (fb) 0.5 lbs ai/A Buctril (bromoxynil); 0.5 oz/A Staple tank-mixed with 0.5 lbs/A Buctril; and 0.75 lbs/A Buctril followed by (fb) 0.75 lbs/A Buctril. Common cocklebur (*Xanthium strumarium*), entireleaf morningglory (*Ipomoea hederacea*), and prickly sida (*Sida spinosa*) control did not differ between preemergence treatments and no interaction occurred between the PRE and POST treatments. Late season common cocklebur control was maximized at 82% with the Staple fb Buctril or by the Staple tank-mixed with Buctril. Entireleaf morningglory and prickly sida control ranged from 89 to 95% and 89 to 92% and did not differ among postemergence treatments. Seed cotton yield was greatest with the Buctril tank-mixture or sequential with Staple (1401 to 1525 lb/A) as compared to Staple alone or sequential applications of Buctril which yielded 1190 to 1192 lbs/A.

Treatments in the Roundup Ready system were 1.25 lbs/A Meturon tank-mixed with 0.5 oz/A Staple PRE fb POST treatments of 0.5 oz/A of Staple, 0.75 lbs Roundup, 0.5 lbs + 0.5 oz/A of Roundup + Staple, or 0.75 lbs + 0.75 oz/A of Roundup + Staple. Common cocklebur control ranged from 81-88% and 66-73% at the early and late rating dates respectively but did not differ among treatments. Early season common cocklebur, hemp sesbania, and prickly sida control ranged from 66-73, 86-90, and 93-95%, respectively but did not differ among treatments. Early season entireleaf morningglory ranged from 50-60% but did not differ among treatments. Late season morningglory control among treatments differed only with the 0.5 lb + 0.5 oz/A Roundup + Staple which gave 76% control as compared to 83-86% provided by the other treatments.

Additional treatments of 1.0 lb/A Roundup applied as needed (ASN); 1.25 lbs Meturon PRE fb 1.0 lb/A Roundup (ASN); 1.25 lbs Meturon PRE fb 1.0 lb/A Roundup (ASN) fb 1.0 lb ai/A Bladex (cyanazine) were also evaluated. As needed treatments consisted of four applications of Roundup except if Bladex was used and then only three applications were necessary. Early season control of common cocklebur, entireleaf morningglory, prickly sida, and hemp sesbania control did not differ among treatments but ranged from 80-83, 83-90, 89-93, and 88-93%, respectively. Late season common cocklebur control ranged from 83-90% among Roundup treatments and provided significantly better control than 1.25 lb/A Meturon + 0.5 oz/A Staple PRE fb 0.5 oz/A Staple POST.