

IGNITE RATE AND TIMING IN LIBERTYLINK COTTON**Jason A. Bond****Thomas W. Eubank****Mississippi State University
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LibertyLink cotton offers an alternative to Roundup Ready and Roundup Ready Flex for postemergence weed control in cotton. In areas where glyphosate- and/or acetolactate synthase-resistant Palmer amaranth (*Amaranthus palermi*) is prevalent, Ignite applications in LibertyLink cotton are the only option for over-the-top treatments. Research was conducted in 2010 at the Mississippi State University Delta Research and Extension Center in Stoneville to (1) evaluate Cotoran as a component of a LibertyLink weed control program, (2) determine the most effective timing for the first Ignite application in LibertyLink cotton, and (3) compare Ignite rate programs in LibertyLink cotton.

Treatments were arranged as a three-factor factorial in a randomized complete block design with four replications. Factor A was preemergence (PRE) treatment and included no PRE or Cotoran (1.5 pt/A) applied immediately after planting. Factor 2 was timings of initial Ignite application. Ignite applications were initiated 2, 3, or 4 weeks after planting (WAP). Factor 3 was Ignite rate programs and included three applications of Ignite at 22 or 29 oz/A with treatments spaced 7 days apart or two applications of Ignite [43 followed by (fb) 29 oz/A] with treatments spaced 7 days apart. All plots received a post-directed application of Direx (1.5 pt/A) plus MSMA (2.67 pt/A) 14 to 21 days following the last Ignite application. A nontreated control was included for comparison of cotton lint yields. Visual estimates of cotton injury and Palmer amaranth, barnyardgrass (*Echinochloa crus-galli*), and browntop millet (*Urochloa ramosa*) control were recorded at intervals following treatment application. Seedcotton was harvested from the two center rows of each plot and converted to lint yield based on 38% turnout. Data were subjected to ANOVA with means separated by Fisher's protected least significant difference test at $p \leq 0.05$.

The greatest cotton injury ($\leq 8\%$) was observed 1 week after cotton emergence. No injury was detected following Ignite treatments. For Palmer amaranth control 7 days after the last Ignite treatment, application timing was less critical when Cotoran was applied PRE or Ignite rate program was 29 fb 29 fb 29 oz/A. Ignite at 43 fb 29 oz/A did not improve control compared with three applications at 29 oz/A. Midseason Palmer amaranth control was greatest when Cotoran was applied PRE and Ignite rate program was 29 fb 29 fb 29 oz/A. Control of barnyardgrass was improved when Cotoran preceded Ignite at 22 fb 22 fb 22 oz/A or 43 fb 29 oz/A across all timings of initial Ignite application. Cotton lint yields were 14% lower when initial Ignite application was delayed from 2 to 3 WAP. Regardless of Ignite rate program, Cotoran PRE was not sufficient to overcome yield loss incurred by delaying Ignite application to 4 WAP.

Annual grass control is problematic in LibertyLink cotton. A PRE application of Cotoran is beneficial in LibertyLink cotton. The first Ignite application may be delayed until 3 WAP if Cotoran is applied PRE with no loss of yield. Ignite should be applied at 29 fb 29 fb 29 OZ/A if initial application is >2 WAP.