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2002 RESULTS OF ROUNDUP READY® FLEX COTTON TRIALS

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Abstract

The current Roundup Ready® cotton (*Gossypium hirsutum*) provides excellent vegetative tolerance to Roundup® herbicide when applied topically through the four-leaf stage. However, under certain environmental conditions when Roundup® is applied after the four-leaf stage, reproductive tolerance can be compromised. New Roundup Ready® Flex cotton events were produced to develop a commercial event that would expand the window of Roundup® application beyond the four-leaf stage. Field trials with several Roundup Ready® Flex cotton events were conducted at multiple locations during the 2000 and 2001 seasons to evaluate vegetative and reproductive tolerance to off-label application of Roundup UltraMax®. These events showed improved tolerance to Roundup UltraMax® when applied after the four-leaf stage compared to the current commercial Roundup Ready® cotton.

Additional trials were initiated in the summer of 2002 at multiple locations across the cotton belt to further test Roundup UltraMax® tolerance and agronomic characteristics of three superior Roundup Ready® Flex events. The tolerance study was conducted at 15 locations using off-label, sequential applications of Roundup UltraMax® rates at 1.50 lb a.e. (acid-equivalent) A^{-1} and 2.25 lb a.e. A^{-1} at the 3, 6, 10, and 14-leaf stages. Yield and fiber quality of the treated plots were compared to untreated controls within each event by location and across locations. The current commercial event demonstrated significantly lower yield after receiving the off-label Roundup UltraMax® treatments. The Roundup Ready® Flex events demonstrated improved tolerance over Roundup Ready® cotton and no effect on yield or fiber quality from either of the application rates compared to the untreated control within each event. These same three events were also included in an agronomic study, which was conducted at 15 locations. This trial was designed to evaluate key agronomic parameters of the three Roundup Ready® Flex events. Comparisons were made between the positive and negative isolines within each event. There were no negative transgene effect detected in cotton growth, yield, or fiber characteristics for all three Roundup Ready® Flex cotton events.