

**ROUNDUP READY COTTON RESPONSE TO
SIMULATED THRIPS DAMAGE AND
ROUNDUP ULTRA APPLICATIONS**

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Abstract

A study was initiated to examine potential interactions associated with thrips injured cotton and label specific Roundup Ultra applications. Experiments were conducted at the Ben Hur Research Farm, near Baton Rouge, LA in 1998 and 1999. The experimental design was a randomized complete block with a factorial arrangement of treatments. The first factor included simulated thrips injured terminals at the 1-leaf stage and a non-injured control. The second factor was early season cotton herbicide use strategies. Treatments included Prowl (0.75 lb ai/A) + Cotoran (1.2 lb ai/A) preemergence (PRE) or no PRE followed by (fb) sequential applications of Roundup Ultra (0.5 lb ai/A) at the cotyledon and 4-leaf stage fb Roundup Ultra (0.75 lb ai/A) early directed (EDIR); Prowl + Cotoran PRE or no PRE fb Roundup Ultra (0.75 lb ai/A) at the 4-leaf stage fb Roundup Ultra EDIR; Prowl + Cotoran PRE or no PRE fb Roundup Ultra (0.75 lb ai/A) at the 4-leaf stage fb Cotoran (1.0 lb ai/A) + MSMA (2.0 lb ai/A) EDIR; Prowl + Cotoran PRE fb Staple (1.0 oz ai/A) at the 4-leaf stage fb Cotoran + MSMA EDIR; and preemergence treatment only. Application at the 4-leaf stage represents the early postemergence (POST) treatment while the sequential applications at cotyledon fb 4-leaf represents the late POST application. All treatments were applied with a CO₂ backpack sprayer calibrated to deliver 15 gallons per acre. Plot size was 4 rows (38" spacing) x 40' with four replications. Data was collected on days to first square, height to node ratio at 2, 4, and 5 weeks after treatment (WAT), leaf area at 3 WAT, days to first bloom, and yield.

In 1998, removal of cotton terminals resulted in an average delay to the appearance of the first square of 9 days. Plants with damaged terminals were 8 days later in reaching first bloom. Differences in height:node ratio and leaf area were observed following the early POST application, but not following the late POST application indicating that cotton was able to recover from the early season stress. Seedcotton yields were equal among all herbicide programs in 1998.

Removal of cotton terminals in 1999 delayed the appearance of the first square by 4 days. Differences in height:node ratio

were observed following the early POST application, but not following the late POST application. Removal of terminals delayed plants in reaching first bloom by 2 days. As in 1998, yields for all treatments were equal.

Cotton terminal injury delayed number of days to first square and days to first bloom by as much as 9 days over the two years. Cotton was not injured by Roundup Ultra when applied according to label. Applications of Roundup Ultra did not further delay cotton growth over that observed with the simulated thrips damage. Due to multiple cotton growing points resulting from plant terminal damage, application timing for Roundup Ultra based on leaf number can be difficult. Because early season weed control is critical to maximizing yield, cotton terminal damage due to thrips may delay Roundup Ultra application resulting in an off label application. A delay in Roundup Ultra application timing when early season conditions are conducive to weed growth, particularly when preemergence herbicides are not used, may result in reduced weed control and subsequent yield reductions associated with weed competition.