

**FRUIT RETENTION OF ROUNDUP READY COTTON**  
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**Abstract**

Roundup Ready cotton constituted approximately 89% of the Mississippi cotton acreage in 2001. This high percentage indicates how well farmers have accepted Roundup Ready technology as a tool in spite of current limitations such as the over-the-top application cutoff at the 4-leaf stage to prevent injury in the form of reduced fruit retention and yield. Research regarding topical and post-directed tolerance continues to be investigated, and results have been variable. The ability to topically apply Roundup after the 4-leaf stage would increase production flexibility, thereby improving the utility of Roundup Ready technology.

An experiment was conducted at the Plant Science Research Center, Starkville, MS and the Black Belt Branch Experiment Station, Brooksville, MS to evaluate the effect of glyphosate rate and placement (topical vs. post directed) on fruit retention, yield, and fiber quality of Roundup Ready cotton. Plots were 40 ft long by 26 ft wide. The cotton variety in Starkville was Stoneville 4892 BR and the variety in Brooksville was Deltapine 451 BG/RR. Data collected included plant mapping at squaring and maturity, yield, and, at Brooksville only, HVI fiber quality. Treatments consisted of 0.75 and 1.5 lb ae/A glyphosate, which correspond to 1 and 2X the maximum rate currently labeled. Two treatment regimes were followed for each of the previously defined rates. The first regime consisted of four topical applications at the 1, 4, 8, and 14<sup>th</sup> leaf stage. The second regime consisted of topical applications at the 1 and 4 leaf stage followed by post directed applications at the 8 and 14<sup>th</sup> leaf stage. An untreated plot was also included in the experiment.

Plant mapping data at squaring indicated good square retention with no differences among treatments at either location. These data also indicated that at 1.5 lb/A, the high rate for topical application, early-season boll retention decreased and the number of late season fruiting sites increased when compared to the untreated at both locations. This suggests that the cotton attempted to compensate for glyphosate-induced fruit loss by setting late-season fruit in the top of the plant. Brooksville HVI data indicated that topical glyphosate applications increased fiber strength and uniformity. These data indicate that if late season conditions are favorable compensatory fruit set may minimize early season fruit losses. However, these data do not attempt to assess the economic impact of a later-maturing crop.