

**COMPARISON OF WEED CONTROL AND TOLERANCE IN ROUNDUP
READY COTTON WITH VARIOUS FORMULATIONS OF GLYPHOSATE**
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Abstract

The introduction of transgenic crops, to which Roundup (glyphosate) could be applied, has resulted in increased market share for glyphosate, while decreasing usage and profitability of other commonly used active ingredients. These factors coupled with the expiration of the patent on glyphosate, has resulted in interest by others to manufacture and market glyphosate for use in transgenic crop production. Numerous manufacturers are now producing glyphosate for use in Roundup Ready cotton. With the availability of glyphosate from these new sources, questions have arisen regarding the efficacy and safety on transgenic crops. Although all of these products are manufactured using the same parent acid, some are formulated as different salts. Roundup is formulated as an isopropylamine salt. Most other “generic” formulations also use the same salt; however, some like Touchdown IQ use a diammonium salt. Additionally, each formulation contains proprietary surfactants which may significantly affect absorption, rainfastness, efficacy or crop safety. With the introduction of “new” glyphosate products, questions are being asked about efficacy and crop tolerance. With this in mind, experiments were conducted in 2000 and 2001 to evaluate various formulations of glyphosate for weed control and crop tolerance. These experiments were conducted at the BlackBelt Branch Experiment Station, Brooksville, MS. The experiments were conducted as a randomized complete blocks with four replications. Treatments were applied over-the top at the 2 leaf stage followed by the 4 leaf stage in 15 GPA. All treatments were applied at a rate of 0.75 lb ae/A. Latron AG-98 was used at 0.25% v/v when a surfactant was needed. Plots were 13' by 40' and planted in Stoneville 4892 BR. Included in these experiments were: Glyphos, Glyphos Xtra, Glyphomax Plus, Glyphosate Original, Roundup Original, Roundup UltraMax, and Touchdown IQ. These products were evaluated for control of large crabgrass [*Digitaria sanguinalis* (L.) Scop.], sicklepod [*Senna obtusifolia* (L.) Irwin and Barneby.], and pitted morningglory [*Ipomoea lacunosa* L.], along with injury and yield. All weed control and injury ratings were taken visually on a 0 to 100 scale. Yield was determined by harvesting the center two rows of each four row plots.

Visual weed control and injury ratings did not differ among formulations. Weed control fourteen days after the 4 leaf application was 96 to 97, 85 to 91, and 90 to 93% for crabgrass, sicklepod, and pitted morningglory, respectively. No injury was observed with any formulation and yield did not differ, with a range of 2101 to 2344 lb seed cotton per acre.

These data indicate that there is no significant difference among these glyphosate-containing products with respect to weed control or injury. These data also indicate that these products are safe for application in Roundup Ready cotton since there was no adverse effect on yield. No inferences should be made regarding other formulations not evaluated in this research.