EVALUATION OF ROUNDUP READY COTTON TOLERANCE TO ROUNDUP ULTRA HERBICIDE IN COMMERCIAL SIZEPLOTS IN MISSISSIPPI IN 1999 AND 2000

William H. McCarty
MS State University-Extension Service
Mississippi State, MS
Anthony Mills
Monsanto
Collierville, TN
Randy Smith
Delta Pine
Scott, MS
T. Pepper and W. Maily
Mississippi State University - Extension Service
Mississippi State, MS

Abstract

In 1999 and 2000 large scale, commercial size plots were established in Mississippi to evaluate the effects of Roundup Ultra herbicide on Roundup Ready cotton varieties. There were six test locations we in 1999 and four locations in the 2000. Both years the primary objectives were to compare fruiting characteristics, maturity and yield of a Roundup Ready variety treated with Roundup Ultra to the same variety treated with conventional herbicides and not sprayed with Roundup Ultra. Plots were established in Hinds, Yazoo, Leflore, Bolivar and Coahoma counties and represented both hill and delta soils. All plots were located on commercial farms, where they were planted, sprayed and managed by growers and treated consistent with their normal operations. All Roundup Ultra applications were applied in accordance to label parameters. In 1999 DPL 458 variety was planted at all location in Hinds, Yazoo, Leflore and Bolivar counties. Paymaster 1218 variety was planted at the Coahoma county location. In 2000 DPL 451 BR was planted at all locations. Experimental design was a paired comparison with replications varying from four to eight, depending on location. In 1999, all Roundup Ultra treated plots received at least an over-the-top application followed by a directed spray treatment. In 2000, the Roundup Ultra treated plots at one location did nor receive post-directed applications. Plots not treated received PPI, or PPI/PRE treatments followed by directed sprays as necessary to insure weed control. All plots were treated with a residual herbicide layby application.

In both years of the study no differences due to treatment were observed in plant height, total nodes, or number of vegetative bolls at plant mapping times. In 1999 Nodes Above White Flower was not effected by treatment. Nodes Above White Flower was not measured in 2000. While locations varied, when averaged across location, in 1999 there was a significant treatment effect on boll numbers in first positions favoring the Roundup Ultra treated plots. In 2000 there was no significant treatment effect on first positions but the Roundup Ultra treated plots had significantly more bolls in second positions and more total bolls than the conventionally treated plots.

In 1999 this effect was more evident at nodes below eleven. In 2000 the effect was more evident above node fifteen indicating the Roundup Ultra treated plots made a better top crop than the conventionally treated plots. Very little differences in percent boll retention were observed in 1999 and 2000. Node above cracked boll data favored the Roundup Ultra treatment; however, no manageable difference in maturity was observed in the field.

In both years, 1999 and 2000, here was no significant effect on yield due to treatment effects, within or averaged across location. Averaged across locations, in 1999 the Roundup Ultra treated plots averaged 931 pounds of lint per acre, the conventionally treated plots averaged 920 pounds of lint per acre. In 2000 the Roundup Ultra treated plots averaged 747 pounds of lint per acre, the conventionally treated plots averaged 692 pounds of lint per acre. While not significant, in both years of this study there was a slight numerical advantage for the Roundup Ultra treated plots. This study looked at ten locations over the 1999 and 2000 growing seasons.

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