

WEED MANAGEMENT WITH DUAL MAGNUM AND GLYPHOSATE COMBINATIONS IN COTTON

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Abstract

Experiments were conducted at Clayton, Rocky Mount, and Lewiston-Woodville, NC in 2001 and 2002 to evaluate weed management, crop tolerance, and yield of cotton treated with two glyphosate formulations (Roundup UltraMax and Touchdown 3AE) alone and in combination with Dual Magnum. The objectives were to evaluate glyphosate alone versus glyphosate plus Dual Magnum with or without a late postemergence-directed (LAYBY) for cotton tolerance and yield, and weed control. Cotton varieties tested were Stoneville 4892 BG/RR, Paymaster 1218 BG/RR, Deltapine 5415 RR, Deltapine 451 BG/RR, and Fibermax 989 RR. Herbicide treatments included an untreated check, Roundup UltraMax alone, Roundup UltraMax followed by (fb) a LAYBY of Caparol plus MSMA and NIS, Dual Magnum plus Roundup UltraMax alone, and Dual Magnum plus Roundup UltraMax fb a LAYBY. The herbicide treatments were included with Touchdown 3AE instead of Roundup UltraMax. Herbicide rates were Roundup UltraMax at 1.0 lb ai/A early postemergence (EPOST), Touchdown 3AE at 0.75 lb ai/A EPOST, Dual Magnum at 1.0 lb ai/A EPOST, Caparol at 1.0 lb ai/A LAYBY, MSMA at 2.0 lb ai/A LAYBY, and Induce at 0.25% v/v LAYBY. Both glyphosate systems were used in strip- and conventional-tillage cotton production systems. The experimental design was a split-block with a complete factorial treatment arrangement with 3 replications. Where year, location, tillage, and glyphosate formulation were not significant, data were pooled. All data were subjected to analysis of variance and means were separated using Fisher's Protected LSD at a P=0.05.

Early season cotton injury was minimal with the addition of Dual Magnum to either glyphosate formulation. Weed control and cotton yields were similar for both glyphosate formulations, thus data were averaged over glyphosate formulations. Annual grass control was significantly increased 25-56 percentage points with the addition of Dual Magnum to either glyphosate formulation. Dual Magnum was not beneficial for late season yellow nutsedge control. The addition of Dual Magnum to either glyphosate formulation significantly increased control (10-50 percentage points) of common ragweed, velvetleaf, common lambsquarters, smooth pigweed, and Palmer amaranth. However, Dual Magnum was not beneficial for jimsonweed and morningglory species control. The addition of a LAYBY application significantly increased control (>96%) of all weed species regardless of treatment. Cotton lint yield also significantly increased with the addition of Dual Magnum to either glyphosate formulation alone (105 lb/A or ~\$54/A). The addition of a LAYBY to glyphosate with or without Dual Magnum significantly increased cotton lint yield (445 lb/A or ~\$265/A).

Dual Magnum provided residual control to fill a window between the last glyphosate application (4-leaf post over the top) and the LAYBY (12-14 leaf). Dual Magnum allowed for a more effective LAYBY application on small weed seedlings instead of possible larger and harder to control weeds.