

**A TWO YEAR SUMMARY DESCRIBING WEED  
MANAGEMENT AND TOLERANCE OF GLUFOSINATE  
IN LIBERTY LINK COTTON**

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**Abstract**

Field experiments were conducted in 1999 and 2000 at the Plant Breeding Unit (Lucedale fine sandy loam) in Tallassee, Alabama and Tennessee Valley Substation (Decatur silt loam), Belle Mina, Alabama to evaluate glufosinate weed control systems and tolerance in Liberty Link cotton. Glufosinate was applied postemergence over-the-top (POST) at (a) 0.27, 0.36, 0.54 lb ai/A to 2- and 4-leaf (2- and 4-L) cotton (b) or 0.27 lb ai/A to 4- and 8-leaf (4- and 8-L) cotton following preemergence (PRE) applications of either fluometuron, norflurazon or pendimethalin applied at 1.25, 1.25 and 0.75 lb ai/A respectively. Weed species evaluated in east central Alabama were broadleaf signalgrass, entireleaf and pitted morningglories, prickly sida, spiny pigweed, and sicklepod. Species evaluated in North Alabama were goosegrass, entireleaf and pitted morningglories, prickly sida and spiny pigweed.

A separate cotton tolerance trial was also carried out at both locations. All plots were maintained weed free by applying pendimethalin PRE at 0.75 lb ai/A followed by cultivation and hoeing. POST applications of glufosinate included (a) single applications at 0.36 and 0.72 lb ai/A to 2-, 4-, 8-L and first bloom (FB) cotton, (b) double applications at 0.36 lb ai/A to 2- and 4-L, 4- and 8-L cotton (c) triple applications at 0.24 lb ai/A applied to either 2-, 4-, 8-L or 4-, 8-L, FB cotton.

Results varied with location. In Tallassee, single applications of Liberty at 0.27 lb ai/A to 2- and 4-L cotton provided weed control greater than 86 % for all species and treatments except for spiny pigweed, with 82% control. Increasing the rate to 0.36 lb ai/A improved overall weed control, with spiny pigweed control increasing to 94%. Control of all weeds was greater than 91% with either fluometuron or norflurazon applied PRE followed by glufosinate at 0.27 lb ai/A at 4- and 8-L stage. Pendimethalin applied PRE provided less overall weed control ranging from 83-88% for all species.

In Belle Mina, single applications of Liberty at 0.27 lb ai/A to 2- and 4-L cotton provided weed control greater than 85 % for all species except for prickly sida, with 81% control. Increasing the rate to 0.36 or 0.54 lb ai/A improved prickly sida control to 86 and 89% respectively. Furthermore morningglory control improved from 86% control to 92 and 93% with the higher rates. Increasing the rate only marginally improved control of other species. Single applications of either fluometuron, norflurazon or prowl PRE followed by glufosinate at 0.27 lb ai/A at 4- and 8-L stage provided greater than 93% control of all species.

Results from the tolerance study at both locations showed that seed cotton yield was not adversely affected by glufosinate at any application rate or stage of application. Single, double and/or triple applications of glufosinate totaling 0.72 lb ai/A applied at various stages as late as FB did not reduce yield.