

TOLERANCE OF DGT COTTON TO GLUFOSINATE AND DICAMBA**Darrin M. Dodds****D. Zachary Reynolds****Tyler H. Dixon****Chase A. Samples****Mississippi State University****Mississippi State, MS****L. Thomas Barber****University of Arkansas****Little Rock, AR****Christopher L. Main****University of Tennessee****Jackson, TN****J. Anthony Mills****Monsanto Company****Collierville, TN****Abstract**

Experiments were conducted in 2012 to evaluate tolerance of cotton containing Xtend® technology to dicamba and glufosinate. Experiments were conducted at the Black Belt Branch Experiment Station near Brooksville, MS; the West Tennessee Research and Education Center in Jackson, TN; and at the Lon Mann Cotton Research Center in Marianna, AR. Six experimental varieties provided by Monsanto Company were planted during the third week of May at each location. All agronomic and pest management practices were conducted according to University recommendations in each respective state. All plots were maintained weed free using preemergence herbicides, postemergence-directed herbicides, and hand weeding. The following herbicide programs were utilized to evaluate crop tolerance: 1) dicamba at 2.2 kg ai/ha PRE followed by (FB) dicamba at 1.1 kg ai/ha to four-leaf cotton FB dicamba at 1.1 kg ai/ha to 12-leaf cotton; 2) dicamba at 2.2 kg ai/ha PRE FB glyphosate (1.7 kg ae/ha) + dicamba (1.1 kg ai/ha) to four-leaf cotton FB glyphosate (1.7 kg ae/ha) + dicamba (1.1 kg ai/ha) to 12-leaf cotton; 3) glufosinate at 1.1 kg ai/ha applied to four-, eight-, and 12-leaf cotton, and 4) untreated check. All applications were made with a CO₂-powered backpack sprayer equipped with Turbo Teejet Induction spray tips utilizing 324kPa pressure. Visual evaluations of cotton injury as well as cotton height, total nodes, nodes above cracked boll, and seed cotton yield were collected. Experiments were conducted using a randomized complete block design and plots were replicated three times at each location. All data were subjected to analysis of variance and means were separated using Fisher's Protected LSD at $p = 0.05$.

Visual injury following application of glyphosate + dicamba to four-leaf cotton was approximately 13% one week after treatment whereas injury following application of glufosinate and dicamba was 10% and 7%, respectively one week after treatment. Visual injury following the eight-leaf application was significantly greater from glyphosate + dicamba (~8%) than from dicamba alone (~6%). One week after glyphosate + dicamba was applied to 12-leaf cotton, 13% visual injury was observed; however, by four weeks after application injury was less than 5%. Plant height of each variety at the end of the season was not negatively affected following herbicide application. In addition, no differences in nodes above cracked boll for any variety were observed due to herbicide application. Similarly, seed cotton yields were not affected by herbicide application; however, significant differences due to variety were observed. Seed cotton yields ranged from 2975 to 3900 kilograms of seed cotton per hectare. These results indicate that while visual injury may appear after application of glyphosate + dicamba, this injury is transient in nature and has no impact on final plant height, maturity, or seed cotton yield.