RESPONSE OF COTTON TO LOW RATES OF CLARITY AT DIFFERENT GROWTH STAGES

R.R. Hale
T. Bararpour
J.W. Seale
Department of Plant and Soil Sciences
Mississippi State University-Delta Research and Extension Center
Starkville, MS

Abstract

A field study was conducted at the Delta Research and Extension Center, in Stoneville, MS, to evaluate the response of cotton (*Gossypium hirsutum*) to low rates of Clarity (dicamba) at different growth stages. Stoneville cotton (ST 4747GLB2) was planted on bed with 40-inch row spacing with a seeding rate of 4 seed ft^{-1} on May 1, 2018 and emerged on May 8. The experiment was arranged as a randomized complete block design with a factorial treatment structure and three replications. Two factors were included: growth stage (3- to 4-leaf, square, flower) and Clarity rate (1/16 X; 1/16 X + non-ionic surfactant (NIS) at 0.25% (v/v); 1/32 X; and 1/32 X + NIS). The 1X rate of Clarity is 16 fl. oz/A. A nontreated check was included for comparison.

Cotton injury was greatest (20%) at the three- to four-leaf growth stage at 14 DAA. Injury were similar at square and flowering. Injury was 17 and 18% for Clarity at 1/16 X and Clarity 1/16 X + NIS, respectively. At 28 DAA, injury was 13% for Clarity 1/16X + NIS. Cotton height was reduced 20 and 19% following exposure to Clarity 1/16X + NIS at 14 and 28 DAA, respectively, as compared to the nontreated check. Seedcotton yield were reduced across all treaments. Greatest seedcotton yield reduction was 20 and 21% for Clarity 1/16 X and Clarity 1/16 X + NIS, respectively. When averaged over herbicide, plots receiving treatments at the flowering growth stage showed greatest reduction (28%) in seedcotton yield. Based on these results, susceptible cotton varieties can be vulnerable to herbicide drift. All treatments exhibited levels of injury that would not be acceptable to a cotton producer. The severity of injury following a drift event of Clarity is very difficult to determine, but understanding the risks and outcomes can be beneficial in making the best recommendation. In terms of seedcotton yield, cotton at the flowering growth stage was most sensitive from Clarity drift.