COTTON INJURY BY AUXIN HERBICIDES AS AFFECTED BY GROWTH STAGE

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Abstract

New technologies of herbicide tolerant crops provide many benefits for producers such as alternative control options with resistant weed species and may help decrease cost, but this may also increase concern for issues such as herbicide drift and volatilization. The study focuses on auxin herbicides of 2,4-D and dicamba applied on a 1/64x rate over cotton to determine the significance of a simulated drift rate of 0.25 fl oz/A and cotton's sensitivity to auxin herbicides at different growth stages. The herbicides were applied from one to fourteen weeks after emergence in two locations (Starkville, MS; Brooksville, MS). Initial applications were made one week after emergence with subsequent applications made weekly following the initial application. The study is run as a randomized complete block replicated four times with each plot measuring 12.66 ft x 40 ft. Of the four row plot, the center rows received the herbicide treatments and the yield was taken on the center two rows of each plot. Visual injury was assessed for each plot at 7, 14, 21, and 28 days after treatment. Crop growth stage and height were recorded at each application along with environmental data, while final crop height and nodes above cracked bole (NABC) were recorded for each plot before defoliation. Results showed cotton treated with 2,4-D and dicamba at a 1/64x rate showed greatest visual injury in 2 and 3 weeks after emergence (WAE) at the 5-7 node stage. Seed cotton yield reduction significantly increased when 2,4-D was applied at 2 to 5 WAE. For dicamba yield reduction significantly increased when applied at 2, 3, and 10 WAE.