CONTROL OF PALMER AMARANTH WITH 2,4-D AND DICAMBA AS AFFECTED BY STAGE OF GROWTH AND SPRAY DROPLET SIZE

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Abstract

With the widespread adoption of auxin-tolerant cotton technologies in 2017, occasional weed control failures were observed in South Texas with the new auxin herbicide formulations. Previous work has documented that weed size at application with these herbicides can affect efficacy and that spray nozzle type (and consequently spray droplet size) can impact herbicide coverage and occasionally efficacy. Field trials were conducted in Corpus Christi, TX in 2017 to examine the effect of both weed stage of growth and spray nozzle type on the control of Palmer amaranth with dicamba and 2,4-D. Applications of field rates of these herbicides were made with either TeeJet XR or TTI nozzles to Palmer amaranth at 4, 8 and 16 inches. Applications were made with a total spray volume of 10 GPA with an operating pressure of 30 psi. At 28 DAT, spray nozzle type did not have a significant impact on control of Palmer amaranth with either herbicide. Weed size at application, however, was found to be highly significant with both herbicides. With 2,4-D, control of 4-inch Palmer amaranth was 97%, and decreased to 87 and 79% when applications were made to 8 and 16-inch weeds, respectively. A similar trend was observed with dicamba, where 99% control of 4-inch weeds was observed, and control decreased to 79 and 68% when weeds were 8 and 16 inches, respectively. These results suggest that weed size at application is a more likely cause of reduced control of Palmer amaranth, rather than spray nozzle type.