INFLUENCE OF GROUNDCOVER AND GLUFOSINATE ON DICAMBA VOLATILITY

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Abstract

With the availability of the Engenia and XtendiMax formulations of dicamba, growers may be provided another effective postemergence (POST) control option for problematic broadleaf weeds such as Palmer amaranth (*Amaranthus palmeri*) in XtendFlex cotton systems. Despite dicamba's known efficacy on broadleaf weeds, volatility of dicamba-containing products remains a primary concern in crop production areas due to widespread injury mainly associated with susceptible soybean varieties (conventional, LibertyLink, and Roundup Ready). To investigate dicamba volatility as a function of groundcover and application timing of glufosinate, a low-tunnel experiment was conducted in Fayetteville, Arkansas in 2018 and 2019. Treatments were arranged in a two-factor factorial, with the first factor being groundcover, and the second being application timing of glufosinate. Flats of soil were treated with 4X rates of dicamba and glufosinate to compensate for plot area, with 1X being 0.5 lb ae/A dicamba and 1X being 0.6 lb ae/A glufosinate. Each flat was placed into the respective low-tunnel between two rows of soybean, which served as a bioindicator. At both 21 and 28 days after treatment (DAT), all treatments where dicamba and glufosinate were applied in combination demonstrated greater percent injury to soybean regardless of groundcover. At 21 DAT, glufosinate followed by dicamba showed 26% injury and increased to 43% injury 28 DAT. Soybean in treatments where glufosinate and dicamba were applied as a mixture exhibited 35% and 50% injury at the respective ratings, which was significantly more than when glufosinate was applied prior to dicamba. The combination of dicamba and glufosinate yielded greater volatility in comparison to glufosinate followed by dicamba, and the presence of groundcover was not a contributing factor towards dicamba volatility.