DO DICAMBA VOLATILITY REDUCTION AGENTS INFLUENCE WEED CONTROL?

MC Castner
JK Norsworthy
RB Farr
GL Priess
University of Arkansas
Fayetteville, AR

Abstract

Engenia and XtendiMax with VaporGrip are labeled for preemergence and postemergence control of broadleaf weeds in XtendFlex cotton and Roundup Ready 2 Xtend soybean. Despite dicamba's efficacy on problematic weeds in the Midsouth, labeled applications of Engenia and XtendiMax in both cotton and soybean have presented major concerns for off-target movement, primarily to non-dicamba-resistant soybean. To counteract the volatility associated with the extensive use of dicamba, the University of Arkansas has filed a provisional patent on a potassium tetraborate (potassium borate), an additive that significantly reduces the volatility of dicamba. However, reducing the volatility of dicamba may influence its efficacy on broadleaf weeds, which has been observed with certain 2,4-D formulations. To further investigate the effects of potassium borate on weed control, a greenhouse experiment was conducted in Fayetteville, Arkansas. Trays of potting mix were planted with Palmer amaranth (*Amaranthus palmeri*) on one side and prickly sida (*Sida spinosa*) on the other, which were thinned to 10 plants per species. The experiment was set up as a three-factor, randomized complete block design with three replications. The first factor consisted of three dicamba formulations (XtendiMax, Engenia, and the diglycolamine salt of dicamba) combined with two rates (0.25x and 0.5x) with a 1x rate being 0.5lbs ae/A dicamba. The third factor was with or without the addition of potassium borate. The only significant main effect observed was the rate of dicamba applied, with tubs receiving a 0.5x rate of dicamba having increased symptomology over the 0.25x rate with both Palmer amaranth and prickly sida. Despite few numerical differences with respect to formulation, the addition of potassium borate did not reduce efficacy with either weed species.