COTTON TOLERANCE TO POTASSIUM BORATE: A NUTRITIONAL AND DICAMBA VOLATILITY REDUCING AGENT

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Abstract

Volatility reducing agents (VRAs) are now required for all in-crop dicamba applications. The University of Arkansas Systems Division of Agriculture has been evaluating potassium tetraborate tetrahydrate (potassium borate) as a VRA and boron (B) nutritional. To ensure that postemergence mixtures containing dicamba and potassium borate will not injure cotton, a greenhouse and field experiment were conducted in Fayetteville, AR, in 2021. Both experiments consisted of potassium borate at six rates (0, 0.1, 0.2, 0.3, 0.4, and 0.5 lbs B/A) with or without the XtendiMax formulation of dicamba at 0.5 lbs ae/A. Additionally, a mixture of XtendiMax, Roundup PowerMax, and Dual II Magnum, as well as Liberty, Roundup PowerMax, and Dual II Magnum at labeled field use rates were used as a standard of comparison for injury. Treatments were applied in the greenhouse on 1- to 2-leaf cotton and at the pinhead square growth stage in the field. At 3, 7, and 14 days after treatment (DAT) for the greenhouse experiment, only 3-way mixtures caused injury, indicating potassium borate is not injurious to cotton when applied alone or with dicamba. Biomass collected 28 DAT also reflected that treatments containing potassium borate were comparable to those that were not mixed with the additive. In the field, injury was not observed for any treatment, which is likely due to the later growth stage at application. Based on what has been observed, it is unlikely that potassium borate would be responsible for unacceptable levels of injury to cotton if utilized in the Xtend system.