

TOLERANCE OF FOUR POPCORN HYBRIDS TO BAS 799 H. Thomas T. Bauman and Michael D. White, Professor and Research Associate, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907.

A field trial was conducted in 2006 to test the tolerance of four popcorn hybrids to dicamba (dimethylamine salt), dicamba+diflufenopyr and BAS 799 00H. These herbicides were sprayed 23 days after planting to V-3 stage popcorn that was 8 inches tall. Dicamba DMA was applied at 0.5 lb ai/a. Dicamba+diflufenopyr and BAS 799 00H were both applied at 0.35 lb ai/a. Non-ionic surfactant (0.5%) and ammonium sulfate (10 lb/100 gal) were added to all herbicide treatments. Spray volume for all post-emergence treatments was 20 gpa. Plots were maintained weed free for the entire growing season with a pre-emergence application of dimethenamid+atrazine (2.5 lb ai/a) and mechanical cultivation.

The four hybrids differed greatly in their response to the different herbicides.

Epinasty – All four hybrids showed symptom 4 days after treatment for all herbicides. Injury was less severe with BAS 799 00H than with dicamba+diflufenopyr or dicamba DMA. Symptom persisted the entire season on one hybrid when treated with dicamba DMA. Symptom was not observed on three of the hybrids 14 DAT.

Stand Reduction – A 25% reduction in popcorn stand of one hybrid was observed with the DMA formulation. No reduction in stand was observed with any other herbicide or hybrid.

Stunt – Dicamba DMA caused stunting of one hybrid. No reduction in crop height was observed with any other hybrid or herbicide.

Goose-neck – Symptom was observed 12 DAT with three hybrids. Injury was more severe with dicamba DMA and dicamba+diflufenopyr than with BAS 799 00H.

Root Malformation – Symptom was observed in of the hybrids. Trend was for it to be less severe with BAS 799 00H than with dicamba DMA or dicamba+diflufenopyr.

Grain Yield – Significant differences in yield was observed only in one hybrid. Yield from weed free and BAS 799 00H were higher than those treated with dicamba DMA or dicamba+diflufenopyr. The trend for the other hybrids was untreated > BAS 799 00H > dicamba+diflufenopyr > dicamba DMA.