

Peanut Tolerance to 2, 4-D and Dicamba

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Increased utilization of 2,4-D and dicamba tolerant cotton and soybeans has increased risk for off target movement and/or spray tank contamination to nontolerant crops. Throughout the southeastern U.S., peanuts are generally grown within close proximity to cotton and soybeans. Therefore, the objective of this study was to evaluate peanut injury and yield responses resulted from various rates of 2,4-D and dicamba applied at two different application timings: 4-5 leaf stage and onset of blooming. Experiments were conducted in Alabama during 2016 and 2017 in Baldwin, Macon, and Henry County, Alabama. In 2016, 2,4-D was evaluated at 0.12, 0.59, 1.2, 3.5, 12 and 35 g ae ha⁻¹ as well as dicamba rates of 0.12, 0.62, 1.2, 3.7, 12.4, and 37 g ae ha⁻¹. In 2017, 2,4-D was evaluated at 5, 10, 16, 27, 53, and 106 g ae ha⁻¹ and dicamba was evaluated at 4, 7, 14, 28, 56, and 112 g ae ha⁻¹. Plant heights were collected at 3 and 6 weeks after application as well as a final yield at harvest. Additionally, plant widths were evaluated in 2017. In 2016, significant height reductions of 15 and 24% were observed with 12 and 37 g ae ha⁻¹ of dicamba applied at the 4-5 leaf stage, respectively, only in Macon County. In 2017, significant height reductions of 14-54% were observed with dicamba 28, 56, and 112 g ae ha⁻¹ applied at both timings in Macon and Baldwin County. These rates also caused significant width reductions of 16-46% over all three locations. 2,4-D at 106 g ae ha⁻¹ applied at the 4-5 leaf stage caused a significant width reduction of 12% over all locations as well as a significant height reduction of 18% in Macon county only. In Baldwin County 2,4-D at 106 g ae ha⁻¹ applied at blooming caused a 14% height reduction. In 2017, the significant yield reductions of 24-58% were observed in Baldwin and Henry County for dicamba 27, 56 and 112 g ae ha⁻¹ applied at blooming as well as for 56 and 112 g ae ha⁻¹ applied at the 4-5 leaf stage. No significant yield loss was observed with any of the 2,4-D rates in 2017 or with any treatment in 2016. Overall, peanuts are more susceptible to dicamba than 2,4-D, and dicamba applied at the 4-5 leaf stage caused more peanut stunting than when applied at blooming. As the rate of dicamba increases, so will the amount of stunting and yield loss. Our data suggests the three highest rates of dicamba evaluated at either timing will likely result in significant yield loss.