

COTTON FRUITING RESPONSE TO LOW RATES OF 2,4-D**K. R. Russell****Texas Tech University****Lubbock, TX****P. A. Dotray****Texas Tech University****Texas A&M AgriLife Research****Texas A&M AgriLife Extension Service****Lubbock, TX****I.L.B. Pabuayon****G. L. Ritchie****Texas Tech University****Lubbock, TX****Abstract**

The adoption of auxin-tolerant cotton (*Gossypium hirsutum* L.) has increased the number of preplant, preemergence, and postemergence applications of dicamba and 2,4-D choline to aid in the control of troublesome broadleaf weeds. Since these technologies were first introduced, dicamba and 2,4-D choline applications have increased, which results in an increased risk of off-target movement to non-target crops. A field study was conducted in 2019 and 2020 at the Texas Tech University New Deal Research Farm equipped with subsurface drip irrigation to evaluate dicamba-tolerant cotton response to low rates of 2,4-D choline (0.95 (1X), 0.095 (1/10X), 0.019 (1/50X), 0.0095 (1/100X), 0.0019 (1/500X), and 0.00095 (1/1000X) lb ae/a) when applied at four crop growth stages (first square + two weeks, first bloom, first bloom + two weeks, and first bloom + four weeks). Applications were made using a CO₂-pressurized backpack sprayer with a carrier volume of 15 gallons per acre using TTI 11002 nozzles and were applied to Deltapine 1822 XF. Plots, four rows spaced 40-inches apart by 30 feet in length, were replicated four times and kept weed-free throughout the growing season. Cotton was box mapped prior to harvest to determine boll number and distribution as affected by the different rates and timings of 2,4-D. Plots were machine harvested to determine lint yield. Fiber quality measurements were analyzed at the Fiber & Biopolymer Research Institute at Texas Tech University. Relative to the non-treated control, total boll number decreased following all rates and timings of 2,4-D. Boll production decreased above node 11 at first square + two weeks, above node 13 at first bloom, above node 14 at first bloom + two weeks, and above node 15 at first bloom + four weeks from all rates of 2,4-D. Lint reductions were observed following all rates and timings excluding 1/500X at first bloom + two weeks. Decreases in vegetative bolls were observed following 1/10X and 1X rates applied at first square + two weeks, first bloom, and first bloom + two weeks in both years. The number of vegetative bolls did not increase following low rates at any application timing in either year.