

COTTON GROWTH AND YIELD AS INFLUENCED BY CLARITY, DISTINCT, OR 2,4-D

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Abstract

Texas Southern High Plains cotton producers have been utilizing conservation tillage practices successfully for several years. These practices have created some difficult new weed problems including horseweed (*Conyza canadensis*) and Russian thistle (*Salsola iberica*). These two are more prevalent in the early spring prior to planting. Herbicides that control these weeds; such as 2,4-D, Clarity, and Distinct all have current label restrictions limiting the use in cotton. The objectives of this study were: to evaluate cotton injury and yield from Clarity, 2,4-D, and Distinct applied 6,4,2, and 1 week before planting (WBP); and to determine the minimum interval between application and planting to apply these herbicides without effecting yield.

Studies were initiated in 2003 at AG-CARES research facility near Lamesa, TX on an Amarillo fine sandy loam, and at Texas Agricultural Experiment Station near Halfway, TX on an Olton clay loam. Severe weather events destroyed the Halfway trial. Clarity at 0.125 lb ai/A and 0.25 lb ai/A, Distinct at 0.088 and 0.175 lb ai/A, and 2,4-D at 0.50 lb ai/A were applied 6,4,2, and 1 WBP. Cotton (PM 2326 RR) was planted on May 5 at AG-CARES. Cotton injury ratings were recorded at monthly intervals during the growing season. Plots were mechanically harvested on October 13. Samples were collected and ginned to calculate lint yield per acre.

Clarity, 2,4-D, and Distinct applied 6 WBP did not injury cotton. No injury was observed when 2,4-D was applied as close as 1 WBP. Early season injury was observed (<18%) with Clarity at both rates applied 2 WBP and this injury declined to <5% late season. Significant crop injury (15 to 40%) resulted from Clarity at both rates applied 1 WBP, but no late season injury was observed. Both rates of Distinct applied 4 WBP did not injury cotton. Distinct at either rate applied 1 or 2 WBP resulted in early season cotton injury (40 to 90%), and declined to <5% by late season. Cotton yields ranged from 750 to 925 lbs lint/A, but no differences in yield were recorded from any treatment, even those that resulted in significant early season injury. Above average heat unit accumulation and excellent fall conditions appeared to allow cotton to compensate for early season injury. Although injury observed in this study did not result in yield loss, in most years significant early season injury could be expected to reduce yield. The timing of rainfall or irrigation must be considered in conjunction with the interval between herbicide application and planting.