

**EVALUATION OF SINISTER TANK-MIXES IN OKLAHOMA COTTON****Zachary R. Treadway****Jennifer L. Dudak****Todd A. Baughman****Oklahoma State University****Ardmore, OK****Abstract**

Weed control is vital to maximizing cotton yields. Left uncontrolled weeds can cause over 50% yield loss, and past research has shown a negative correlation between weed population and cotton yield. Providing the crop, a head start on weeds is one of the proven ways to thwart predacious weeds. One method is the application of preemergence herbicides. One preemergence option for cotton producers is Sinister (fomesafen). The following trials were conducted to better understand the effect of Sinister herbicide-based programs on weed control in Oklahoma cotton. Research was conducted in 2020 and 2021 at the Oklahoma State University Southwest Research and Extension Center near Altus, OK, and in 2020 at the Southwest Agronomy Research Station near Tipton, OK. Cotton ‘Deltapine 2020B3XF’ was planted each year on 40-inch row spacing and plots were 4 rows by 25 feet long. Treatments were arranged in a randomized complete block design with 4 replications. Preemergence treatments applied alone included Sinister (11.2 fl oz/A), Caparol (40 fl oz/A), Cotoran (32 fl oz/A), Direx (32 fl oz/A), Warrant (48 fl oz/A), Dual Magnum (16 fl oz/A), and Staple (1.3 fl oz/A). Each herbicide was also applied in combination with a one-half rate of Sinister. All treatments at Altus were followed with two POST applications of Roundup (32 fl oz/A) + Engenia (12.8 fl oz/A) + Dual Magnum, while the trial at Tipton only received one POST application. Visual injury and weed control, by species, were evaluated throughout the growing season. The center 2-rows were harvested at each location with a commercial harvester. Treatments were subject to analysis of variance and separated using Fisher’s Protected LSD at ( $P=0.10$ ). Palmer amaranth control 2 weeks after planting (WAP) was at least 96% across all site years except for Staple alone at Altus in 2021 (86%). Control 2 weeks after the early POST application was at least 95% across all site years except for Warrant (93%) or Staple alone (79%) at Altus in 2020. Palmer amaranth control was at least 97% both years at Altus following a second POST application with all treatments that included Sinister. Common purslane control was over 95% at Altus except 2 WAP with Warrant (48%) in 2020. Caparol alone and in combination with Sinister was the only treatment that controlled tumble pigweed at Tipton 6 WAP at least 95%. Tumble pigweed control late season was at least 90% with all treatments except Caparol or Dual Magnum applied in combination with a half-rate of Sinister. Carpetweed control was 100% season long with any herbicide treatment at Tipton. A majority of the time the half-rate Sinister combinations did not affect cotton lint yield when compared to the each of the herbicides applied alone at the full rate. These studies indicate that Sinister can be part of an effective weed management program in Oklahoma cotton.