

COTTON RESPONSE TO SOIL APPLIED CADRE AND PURSUIT

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Abstract

Peanut producers are faced with numerous weed problems in cotton and peanut, including yellow and purple nutsedge and morningglory species. Cadre and Pursuit are two herbicides registered for use in peanut that control these weeds, but can significantly injure cotton the following growing season. Most of the approximately 200,000 acres of peanut planted on the Texas Southern High Plains are grown in rotation with cotton. This experiment was designed to correlate soil herbicide concentration of Cadre and Pursuit to cotton injury and lint yield. Field experiments were established near Denver City (Texas Southern High Plains), Munday (Rolling Plains), and Yoakum (South Central Texas). Cadre and Pursuit were each soil applied at six rates: 0.72 oz/A (1/2x), 0.36 oz/A (1/4x), 0.18 oz/A (1/8x), 0.09 oz/A (1/16x), 0.045 oz/A (1/32x), and 0.0225 oz/A (1/64x) and incorporated. Soil samples were collected at planting to determine the level of residual herbicide present at planting. Visual cotton injury and height were evaluated during the season and lint yield was determined at harvest.

At the Denver City location no cotton stand reduction was observed 14 DAP (days after planting), but all treatments except Pursuit at 0.045 and 0.0225 oz/A reduced stand compared to the non-treated plots at the end of season. At 14 DAP, Cadre treatments injured cotton 13 to 78% (with increased injury at higher rates), while Pursuit injured cotton 3 to 76%. At 42 DAP, injury was observed from all treatments. Cadre treatments injured cotton 15 to 100% while Pursuit treatments injured cotton 10 to 99%. Cotton height was reduced by all applications of Cadre compared to the non-treated control and Cadre was more injurious than Pursuit at all rates. At 83 DAP cotton injury from Cadre and Pursuit ranged from 20% (Cadre at 0.045 oz/A) to 100% (Cadre at 0.72 oz/A) and 22% (Pursuit at 0.09 oz/A) to 98% (Pursuit at 0.72 oz/A), respectively. Late-season (133 DAP) cotton injury from Cadre at 0.045 oz/A was 30% and injury increased to 100% from Cadre at 0.72 oz/A. Pursuit injured cotton 10% and 92% at these rates. Cadre did not affect lint yield at 0.045 oz/A or Pursuit at 0.09 oz/A at the Denver City location. At the Yoakum location, less than 10% injury was observed with Cadre and Pursuit rates up to 0.09 oz/A at 52 DAP. At the 0.72 oz/A rate, Cadre injured cotton 75% while Pursuit injured cotton 52%. Cadre and Pursuit reduced lint yield at both the 0.36 and 0.72 oz/A rate. At the Munday location, no injury at 14 DAP was observed, perhaps due to the lack of rainfall or irrigation. At 28 DAP Cadre was more injurious than Pursuit. Cadre caused greater than 20% injury at 0.36 and 0.72 oz/A 56 DAP. At all rates, Cadre reduced yields more than Pursuit.