

HOW TILLAGE AND APPLICATION TIMING OF REFLEX AFFECTS PALMER AMARANTH CONTROL AND COTTON INJURY

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Abstract

Residual herbicides are the foundation for Palmer amaranth management programs. In dry-land production where rainfall often does not activate herbicides in a timely fashion, growers have questioned the outcome of incorporating herbicides such as Reflex for the control of Palmer amaranth and for cotton injury.

An experiment was conducted in TyTy, GA comparing 10 treatments replicated 4 times using a randomized complete block design. 'DP 1050 B2RF' cotton was planted into plots being 6 by 25 feet. Reflex was applied pre-plant incorporated (PPI) using a field conditioner, pre-emergence (PRE), or a combination of the two application methods (SPLIT) within two hours of planting. When the experiment was initiated, soil was moist and contained a sand content of 90%. The first irrigation which was the first herbicide activating event for the PRE applications was implemented 7 days after planting. The PPI and PRE treatments included Reflex applied at the rate of 1.0 or 1.5 pt/A. SPLIT treatments consisted of 1) Reflex at 0.5 pt/A PPI and PRE; 2) Reflex at 0.75 pt/A PPI and PRE; 3) Reflex at 0.75 pt/A PPI and 0.5 pt/A PRE; 4) Reflex at 0.75 pt/A PPI and 0.75 pt/A PRE; and 5) Reflex at 0.75 pt/A PPI and 0.5 pt/A + Direx 2 pt/A PRE. All treatments included Prowl H₂O at 2 pts/A included with the PPI application except the PRE only systems where Prowl was included with the PRE. A no herbicide control was included for comparison.

Palmer amaranth control and crop injury was rated throughout the experiment. Greatest cotton injury was noted at 12 d after planting. Reflex PRE systems applying 1 or 1.5 pt/A injured cotton 8 and 15%, respectively. Reflex PPI systems applying 1 or 1.5 pt/A injured cotton 0 and 2%, respectively. In the SPLIT system, the rate of Reflex applied PPI did not influence cotton injury while injury was correlated with the rate of Reflex applied PRE. Injury from SPLIT systems when 0.75 pt/A of Reflex was applied PRE was 5% and when 0.5 pt/A of Reflex was applied PRE was 0%.

Palmer amaranth control reported is recorded 35 d after planting. No management tactic was implemented between herbicide applications and timing of these evaluations. The Reflex PPI only system at 1 pt/A was the least effective option controlling Palmer amaranth only 69%. Increasing the rate of Reflex to 1.5 pt/A and applying PPI improved control to 81%. The PRE systems with Reflex at 1 or 1.5 pt/A provided 72 and 81% control, respectively. All SPLIT applications controlled Palmer amaranth at least 91% with complete control only being noted in the SPLIT system including Reflex and Direx.