

ANTAGONISM WITH CGA-362622 PLUS GRAMINICIDE COMBINATIONS

H.L. Crooks, A.C. York

North Carolina State University

Raleigh, NC

A.S. Culpepper

University of Georgia

Tifton, GA

Abstract

Field studies were conducted at six locations in North Carolina (NC) and Georgia (GA) in 2000 and 2001 to determine if CGA-362622 antagonized grass control in cotton by Select (clethodim) or Fusilade DX (fluazifop-*p*-butyl) and if antagonism was influenced by graminicide rate, adjuvant, or time of application. CGA-362622 was applied at 0.1 oz product/A and Select and Fusilade DX were applied at 6 and 10 fl oz/A and 12 and 20 fl oz/A, respectively, alone or with CGA-362622. The adjuvants used were 1% (v/v) crop oil concentrate and 0.25% (v/v) nonionic surfactant. At 5 days after treatment (DAT), cotton was injured approximately 35% in NC and 18% in GA in plots where CGA-362622 was applied alone. This injury was negligible by 16 DAT in GA and by 23 DAT in NC. There was no effect of adjuvants on cotton injury. At 3 weeks after treatment (WAT), large crabgrass (*Digitaria sanguinalis*) control with CGA-362622 alone was less than 36% while Select and Fusilade DX alone provided 88% or better control, regardless of rate or adjuvant. Tank mixing CGA-362622 with either graminicide significantly reduced control, regardless of the graminicide rate or adjuvant. This antagonism was partially overcome by increasing the rate of Select but not Fusilade DX. Crop oil concentrate significantly increased control by Select at both rates in the tank mix 25% and 35%, respectively. While adjuvant type did not affect control by the tank mix with the low rate of Fusilade DX, control was 9% greater when the nonionic surfactant was used with the high rate of Fusilade DX. The tank-mix antagonism was also reflected in reduced yields with both graminicides except Select at 10 fl oz/A with crop oil. To determine the effect of time of application of CGA-362622 with respect to the graminicide, CGA-362622 was applied at 0.1 oz/A 5 days before, 1 day before, 1 day after, and 5 days after Select and Fusilade DX. At 23 DAT, large crabgrass control was reduced 35% when CGA-362622 was applied 1 day before and 8% when applied 1 day after Select at 6 fl oz/A plus crop oil. Large crabgrass control by Fusilade DX at 12 fl oz/ac was significantly reduced by CGA-362622 at all application timings except when CGA-362622 was applied 5 days after Fusilade DX. Greenhouse studies were also conducted to supplement the field work and investigate antagonism of Select, Fusilade DX, Assure II (quizalofop-*p*-ethyl), and Poast (sethoxydim) by CGA-362622. These experiments showed that while each graminicide was antagonized by CGA-362622, the aryloxyphenoxypropionate graminicides were antagonized to a greater extent than the cyclohexanedione graminicides.