

EVALUATING COTTON PLANTBACK RESTRICTIONS WHEN APPLYING 2,4-D, HARMONY EXTRA, OR VALOR AT BURNDOWN

A. Stanley Culpepper

University of Georgia

Tifton, GA

Alan C. York

North Carolina State University

Raleigh, NC

Abstract

Conservation tillage is increasing across the Southeast. A burndown herbicide to desiccate cover crops or winter vegetation is a necessary component of the management program. Small grain cover crops and most winter weeds have been relatively easy to kill. The major exceptions have been cutleaf eveningprimrose and wild radish. A number of potential tank mix partners with glyphosate (Roundup, others) or paraquat (Boa, Gramoxone Max) have been evaluated for primrose and radish control. 2,4-D mixed with glyphosate or paraquat has been the most effective option for controlling primrose. Harmony Extra or 2,4-D mixed with glyphosate or paraquat have been the most effective options for controlling radish. Valor mixed with glyphosate has also been an effective option for managing both weeds.

Experiments were conducted to evaluate the plantback concerns when applying 2,4-D, Harmony Extra, or Valor prior to planting cotton. Land was prepared in the fall and a wheat cover crop was sown. The cover crop was killed with glyphosate about three weeks ahead of planting. Plots were strip-tilled and planted to a Roundup Ready cultivar on the same day. Weeds in cotton were controlled with glyphosate overtop and Caparol plus MSMA directed. Plots were 12 feet by 30 to 50 feet and treatments were replicated three or four times. Soil types were sandy loams or loamy sands with 0.8 to 1.6% organic matter.

An experiment was conducted in North Carolina during 2002 to determine cotton response to Harmony Extra applied at various times ahead of planting strip-till cotton. Treatments were arranged factorially with options including three Harmony Extra rates and four application timings. Harmony Extra rates were 0.3, 0.5, or 1.0 oz/A. Application timings included 14, 7, or 0 days prior to planting and immediately after planting. A non-treated control was also included. Applying Harmony Extra 7 or 14 days ahead of planting did not affect cotton stand, yield, or fruit set. Applied immediately prior to planting, Harmony Extra at 0.5 or 1.0 oz/A reduced cotton stand 20 to 22%. Harmony Extra at 1.0 oz/A applied immediately after planting also reduced plant stand 17%. However, Harmony Extra applied at planting did not affect yield or fruit set.

An experiment was conducted in Georgia and North Carolina in 2002 to determine cotton response to Valor applied at various times ahead of planting strip-till cotton. Treatments included Valor at 2 oz/A applied 30, 21, or 14 days prior to planting cotton. Valor did not affect plant stand, visual cotton development or yield at either location.

Experiments were conducted at nine locations in North Carolina and Georgia from 1999 through 2002 to determine cotton response to 2,4-D applied at various times ahead of planting strip-till cotton. 2,4-D at 13 to 32 fluid ounces per acre was applied 30, 21, and 14 days ahead of planting. At seven locations 2,4-D was also applied 7 days ahead of planting. 2,4-D applied 14 days or more ahead of planting did not affect cotton stand, maturity, or yield at any location. 2,4-D applied at 32 ounces per acre 7 days ahead of planting did reduce cotton stand by 57% and cotton yield by 28% at one location. Crop response and rainfall records were compared. There was no correlation between cotton response and accumulated rainfall between herbicide application and cotton planting.