

CONTROL OF VOLUNTEER ROUNDUP READY® CORN AND SOYBEAN IN ROUNDUP READY® COTTON**J. Trenton Irby****Daniel B. Reynolds****Chad L. Smith****Mississippi State University****Mississippi State, MS****Abstract**

The increased adoption of glyphosate resistant (GR) cropping systems has brought forth new challenges with respect to weed management. One such challenge is the control of volunteer GR crops. This problem is prevalent where glyphosate alone is repetitively utilized for weed control. Additional herbicides often used in current cotton production systems include metolachlor and pendimethalin, both of which are registered for use in corn and soybeans and are unlikely to control volunteers of these crops. In order to minimize volunteer GR corn or GR soybean competition with the desired crop, it is important to utilize a herbicide program which can control these volunteer crops. Therefore, field experiments were conducted in order to determine effective volunteer GR corn and GR soybean control in a GR cotton system. Experiments were conducted in 2009 in Starkville, MS. Stoneville 5458 B2RF cotton seed were planted at a population of 52,000 seeds per acre. Prior to cotton planting, GR corn and GR/STS soybeans were spread across the experimental area using a handheld spreader. The plot size used in these experiments was four 38 inch rows measuring 40 feet in length. Application timings included a preemergence (PRE) application and a postemergence (POST) application. Preemergence applications included Cotoran® 4L (fluometuron) at 1.25 pounds of the active ingredient per acre (lb ai/A), Cotoran® 4L at 1.25 lb ai/A plus Staple® LX (pyrithiobac) at 0.03 lb ai/A, Caparol® 4L (prometryn) at 1.0 lb ai/A, Caparol® 4 L at 1.0 lb ai/A plus Staple® LX at 0.03 lb ai/A, Direx® 4L (diuron) at 1.0 lb ai/A, Direx® 4L at 1.0 lb ai/A plus Staple® LX at 0.03 lb ai/A, and Staple® LX at 0.03 lb ai/A. Postemergence applications included Staple® LX at 0.06 lb ai/A or Envoke® (trifloxysulfuron) at 0.075 ounces of the active ingredient per acre (oz ai/A). An untreated check was also included for comparison. Visual ratings for percent crop injury and volunteer control were taken 14, 28, and 42 days after application. Volunteer GR corn control ranged from 40 to 51% with a single PRE application of Cotoran® 4L, Caparol® 4L, or Direx® 4L. The addition of Staple® LX tankmixed with Cotoran® 4L, Caparol® 4L, or Direx® 4L increased control of volunteer GR corn to 90%. A POST application of Staple® LX or Envoke® provided 97 to 99% control of volunteer GR corn regardless of whether the POST application followed a PRE application. In the volunteer GR/STS soybean experiment, inadequate control was provided by a PRE application of either Cotoran® 4L, Caparol® 4L, or Direx® 4L. A single POST application of Envoke® provided 95% control of volunteer GR/STS soybeans. Similar control was achieved when Envoke® was applied POST following a PRE application. The results of these experiments indicate that a POST application of Staple® LX can provide adequate control of volunteer GR corn and a POST application of Envoke® can provide adequate control of both volunteer GR corn and volunteer GR/STS soybeans in a GR cotton cropping system.