RESPONSE OF ROUNDUP READY™ COTTONS TO SELECTED WEED MANAGEMENT SYSTEMS

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Abstract

Experiments were conducted in 1999 and 2000 at the Tidewater AREC, Suffolk, VA to evaluate the response to Roundup Ready™ cottons (10 varieties per year) to herbicide application programs consisting of I. a sequential pyrithiobac (Staple) nutsedge management program, II. a program with minimal use of glyphosate (Roundup Ultra, 1 application of 1 qt/A over-the-top of 3 to 4 leaf cotton), III. a program with maximum labeled use of Roundup Ultra (4 in crop applications of 1 qt/A), and IV. a program of conventional directed postemergence herbicides prometryn + MSMA (Caparol 4 L + Bueno 6, 1.3 pt + 2.66 pt/A) without the use of Roundup Ultra or Staple. All plots received pendimethalin (Prowl 3.3 EC, 1.5 pt/A PPI) and fluometuron (Cotoran 4 L, 2 pt/A PRE), and were hand weeded to eliminate weed competition. Varieties evaluated in 1999 and 2000 were SG 125 B/R, DP 425 RR, DP 436 RR, DP 451 RR, and DP 5415 RR. Varieties evaluated only in 1999 were PM 1220 RR, PM 1220 BG/RR, SG 125 RR, DP 4009 B/R, and DP 429 RR. Varieties evaluated only in 2000 were PM 1218 B/R, SG 501 B/R, SG 521 R, DP 420 RR, and DP 422 B/R.

In both 1999 and 2000 for all cotton varieties tested, treatment with either a program with minimal use of Roundup Ultra or the maximum label level of Roundup Ultra did not significantly reduce yield of cotton relative to yields obtained with cotton treated with herbicide programs, which did not include Roundup Ultra. In 1999 the Staple based nutsedge management system significantly reduced the yield of 6 of 10 cotton varieties relative to the yields obtained with either Roundup Ultra management system. In 2000 the Staple based nutsedge weed management system reduced the yield of 5 of 10 cotton varieties relative to the yield produced with either Roundup Ultra management system. In 1999 the Staple based program resulted in a lower yield relative to the conventional herbicide program for 4 varieties, however, yields for cotton treated with these herbicide programs did not differ in 2000.

In both 1999 and 2000 when yield data was pooled across varieties yield of cotton treated with either of the Roundup Ultra based programs was significantly greater than that of the cotton treated with the Staple based nutsedge management system. Similarly when yield data was pooled across varieties, cotton treated with either Roundup Ultra based program was significantly greater than (2000) or equal to (1999) yields of cotton treated with the system, which included neither Roundup Ultra nor Staple.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1233-1233 (2001)
National Cotton Council, Memphis TN