

**REDVINE CONTROL WITH ROUNDUP ULTRA®
IN ROUNDUP READY® COTTON**

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Abstract

Cotton (PM 1244RR in 1997 and PM 1220RR/BG in 1998) was planted without preplant tillage on a clay soil infested with redvine [*Brunnichia ovata* (Walt.) Shinnery] which had been planted to rice in 1996. Winter weeds were controlled with a preplant foliar application of Roundup Ultra® at 1 lb active ingredient (a.i.) per acre applied in March each year. The experiment was established as a randomized complete block utilizing 8 rows by 100 ft plots of cotton planted on 40-inch centers with 4 replications. All planting, spraying, and cultivating was done with 4-row equipment. Treatments were (1) Roundup Ultra® (glyphosate) at 1.0 lb ai/acre over-the-top followed by two directed applications of 1.0 lb ai/acre in 1997 or one application at 2.0 lb ai/acre in 1998 to the drill area with cultivation between rows, (2) Roundup as in treatment 1 plus Cy-Pro® (cyanazine) at 1 lb a.i./acre plus surfactant applied as a broadcast lay-by application, (3) Roundup applied as in treatment 1 without cultivation and applied broadcast, (4) Roundup as indicated in treatment 3 plus Cy-Pro lay-by as with treatment 2, and (5) a control. Treatment 5 consisted of a standard program of Cotoran® (fluometuron) at 1.75 lb a.i./acre preemergence followed by post-directed applications with Cotoran at 1 lb a.i./acre plus Ansar 6.6E® (MSMA) at 1.5 lb a.i./acre to 3-inch cotton and Cy-Pro at 0.8 lb a.i./acre plus Ansar 6.6E at 1.5 lb a.i./acre to 6-inch cotton and broadcast lay-by Cy-Pro plus surfactant as indicated with treatments 2 and 4. Treatments 1, 2, and 5 were cultivated 3 times in 1997 and 4 times in 1998. In 1997 the post-directed Roundup treatments were applied in early June followed by an additional application in early July. In 1998 Roundup was post-directed mid-June only one time. Visual ratings were made on redvine control and foliage injury and counts of redvine at various times during each growing season. In mid-July 1997 visual injury to redvine was 85% and 90% with treatments 3 and 4, respectively. These values were significantly higher than other treatments. Redvine injury was also greater in mid-July 1998 with 91% and 94% for treatments 3 and 4, respectively. Broadcast treatments were more effective because greater redvine foliage was contacted with the spray. The redvine count with the commercial standard indicated redvine plant numbers increased 49% from October 1997 to mid-September 1998. Based on a comparison with the standard program, the use of Roundup reduced redvine stem counts 18%, 26%, 51%, and 48%, respectively for treatments 1, 2, 3, and 4 in early October 1997. Reductions from the commercial standard in

mid-September 1998 for year two were 18%, +7%, 61%, and 56%, respectively, for the same treatments. Cotton stand and seed cotton yield was determined each year. Cotton stand was not affected with any treatments in 1997. In 1998, the cotton stand was lower with the commercial program. All treatments had a lower stand than normally considered acceptable for optimum yield. Some plants may not have been counted as the count was taken late in the season. Cotton yield in 1997 was less for all Roundup treatments (a range of 1084 lb to 1290 lb/acre) when compared with the commercial standard (1598 lb). The variety used in 1997 experienced problems associated with fruiting in some instances in the Mississippi Delta where Roundup was used and perhaps this accounted for the reduction in yield in this experiment. This variety was not offered for sale in 1998. In 1998, all treatments produced greater numerical yield than the commercial standard. Treatment 3 produced significantly more seed cotton (1611 lb/acre) than the commercial standard (1373 lb), but yield was not different from treatments 1, 2, and 4. An estimate of surface residue was determined by the line-transect method in late November 1997, which resulted in surface residue from 79 to 89%. The measurement was repeated in early October 1998 resulting in surface residue from 43 to 51%. This is probably the result of the continual deterioration of the original rice residue and with cotton production the residue level is not being maintained.