

REDVINE CONTROL ON CLAY WITH NO-TILL

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Abstract

Cotton ('DES 119' in 1995, 'SG 125' in 1996-98) was grown on Sharkey clay (1.7% organic matter, 6.2 pH) with no-till production practices to evaluate redvine [*Brunnichia ovata* (Walt.) Shinnery] control. Supplemental irrigation was not used. Annual weeds were controlled with herbicides applied preplant in fall and/or in spring, preemergence, directed post-emergence, and lay-by as needed to the entire test area. Treatments for redvine control included Banvel® (dicamba), Roundup® (glyphosate), and Command® (clomazone) applied after harvest in the fall, Banvel applied 8 to 24 days pre-plant in the spring, Command applied preemergence, and Roundup, and Clarity® (dicamba) applied in-season with a hooded sprayer covering 85% of the area between cotton rows. Treatments included a single herbicide or the sequential application of a single or two of the above herbicides each year. Individual treatments were applied to four, 40-inch cotton rows by 80 feet long with four replications arranged in a randomized complete block design. Data were obtained from the center two rows of each plot. A redvine-free hoed check, a cultivated check, and two weedy redvine check treatments were included for comparison. One weedy redvine check (A.) had a large beginning population (228 plants/267 square feet) and the other redvine check (B.) had a lower beginning population (108 plants/267 square feet).

Based on redvine plant counts in September or October each year, the weedy redvine check A. had an average decrease of 16 plants over the 4 years when compared with the original count each year. This treatment averaged an increase of 4 plants over the 4 years when compared with the previous year's count. The respective change for the weedy redvine treatment B. was an increase of 49 and 30 plants. The hoed check and cultivated check treatments decreased redvine plants an average of 6 and 52 plants, respectively, from the original plant count over the 4 years. The year-to-year change for these treatments averaged a 1 and 17 plant decrease for the hoed check and the cultivated check. A split application of Banvel at 1.0 lb ai/A after harvest followed by an additional 1.0 lb ai/A 15 to 28 days later reduced redvine plants an average of 252 plants over the 4 years from the original count. This was due to a large reduction the first year and continuing with this control level after each annual application. The year-to-year redvine population change was an average reduction of 70 plants/267 square feet.

Cotton stand was adversely affected in 1998 with Banvel at 1.0 lb ai/A preplant 8 days prior to planting that required replanting. Stand was not affected in 1995-1997 with this treatment when applied 11 to 24 days before planting. Clarity at 1.0 lb ai/A applied in-season with the hooded sprayer injured cotton in 1995 and 1996, resulting in reduced seed cotton yield. This treatment was not repeated. Other herbicide treatments did not affect cotton stand or yield when compared with the weedy redvine check A. Cotton stand was low in 1997 and 1998 with all treatments. In all four years, greater seed cotton yields as compared with yield from the weedy redvine check A. treatment were obtained from treatments with Banvel at 2 lb ai/A applied each fall after harvest and with Roundup at 2 lb ai/A applied in the fall after harvest followed by 1.0 lb ai/A in-season applied with a hooded sprayer. The treatment with Banvel at 2 lb ai/A applied in the fall after harvest followed by Roundup at 1.0 lb ai/A in-season applied with a hooded sprayer produced higher numerical seed cotton yield in 1995 and significantly higher yields in 1996-1998 when compared with seed cotton yields from the weedy redvine check A. treatment. This treatment produced the greatest numerical yield both in 1997 and 1998. The seed cotton yields with the weedy redvine check B. treatment was not different from yields with the weedy redvine check A. treatment in 1997 and 1998 after the redvine population had increased to a comparable number of plants. The hoed check treatment had higher seed cotton yields than the weedy redvine check A. treatment in 1996-1998 while the cultivated check treatment had higher seed cotton yield only in 1996. Redvine is difficult to control, however, these results indicate that treatments are available to suppress plant populations of this perennial weed to levels that will not reduce seed cotton yields.