WEED CONTROL IN TRANSGENIC COTTON

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Abstract

With the increased cost of labor, weed control through the use of transgenic crops has been of particular interest to growers in Texas. Therefore, seven experiments were established in the High Plains, Rolling Plains, and Central Texas to evaluate various herbicide programs using both the Roundup Ready and BXN technology. The first two experiments evaluated the use of a dinitroaniline and cultivation with Roundup Ultra (glyphosate) for control of morningglory species (*Ipomoea sp.*) and Palmer amaranth (*Amaranthus palmeri*). The third experiment evaluated Roundup Ultra application timings for control of silverleaf nightshade (*Solanum elaeagnifolium*), a tough to control perennial weed problem in Texas cotton. The fourth study evaluated the use of Staple (pyrithiobac) in combination with Roundup Ultra for control of purple nutsedge (*Cyperus rotundus*). The fifth study evaluated various residual herbicide programs with Buctril (bromoxynil) for control of common cocklebur (*Xanthium strumarium*). The final two studies evaluated the use of Staple in combination with Buctril for control of morningglory (*Ipomoea sp.*) and pigweed (*Amaranthus sp.*) species.

Morningglory control was improved in the first two experiments when two applications of Roundup Ultra were used in combination with a preplant incorporated application of Treflan (trifluralin), or one application was used with both Treflan and a cultivation. At the second location, two applications of Roundup Ultra were as effective for control of Palmer amaranth as those including Treflan and/or a cultivation. Yield was not affected by treatment at the first location, but was increased when Roundup Ultra was used in combination with Treflan at the second location. Silverleaf nightshade control was greater than 80% regardless if the first application was made at the 2- or 4-node stage of growth. Cotton yields were generally higher when the first application was made at the 2-node growth stage. The use of Staple in a tank mix with Roundup Ultra did not increase purple nutsedge control in the fourth experiment. Roundup did control purple nutsedge more effectively than Staple applied alone.

Common cocklebur control was greater than 90% when Buctril was used with a residual herbicide. This included either a preemergence application of Command (clomazone) plus Cotoran (fluometuron), or tank mixed with Staple. Early season morningglory control was improved when Buctril was tank mixed with Staple. Late season control was also improved, but was less than 50% with this combination. Pigweed control was improved when Buctril was tank mixed with Staple.

The results from these studies indicated that successful weed control in most cases can be achieved with both the BXN and Roundup Ready cotton systems. However, depending on the weed species and weed pressures, control programs will be improved when these technologies are used in combination with a residual herbicide and/or cultivation.

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1487-1487 (2000)
National Cotton Council, Memphis TN