EVALUATION OF ROUNDUP ULTRA/STAPLE COMBINATIONS FOR TOTAL POSTEMERGENCE WEED CONTROL IN ROUNDUP READY COTTON

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Abstract

A field study was conducted in 1998 at St. Joseph, LA to evaluate the potential for combinations of reduced rates of Staple and Roundup Ultra to provide season-long weed control in Roundup Ready cotton. Roundup Ready PM 1220 BG/RR cotton was planted on June 8 following extremely dry conditions in the month of May. Herbicide programs included Roundup Ultra alone at 1.0 or 1.5 pt/A or in combination with Staple at either 0.6 or 0.9 oz/A applied EPOST (2-leaf cotton stage). In addition, sequential applications of Roundup Ultra at 2.0 pt /A EPOST followed by 1.5 pt/A MPOST (4-5 leaf cotton stage), and Roundup Ultra at 1.0 pt/A + Staple at 0.6 oz/A EPOST followed by either the same combination MPOST or Staple at 1.2 oz/A MPOST, were included for comparison. Application at the EPOST timing corresponded to 11 d after planting while MPOST treatment occurred 10 d later. Herbicide treatments were applied broadcast at 15 GPA to all rows of each 10' x 40', 3 row plot. Following conventional seedbed preparation, cultivation was not performed in conjunction with any weed control program. Visual injury estimates, plant height measurements, and weed control evaluations were made 4 and 11 d, 28d, and 26 and 40d, respectively, after EPOST application. Seedcotton yield was determined by harvesting the center row of each plot. Data were subjected to analysis of variance using PROC GLM and means separated using LSMEANS SAS procedure and Fisher's protected LSD at 5% significance level (SAS Inst. 1989. SAS/Stat Users Guide. 6.0 4th ed. Vol. 2, SAS Institute. Cary, NC)

Although no greater than 12%, visual injury in the form of terminal yellowing 4 d after EPOST application was greater with the addition of Staple compared to Roundup Ultra alone. At 11d after EPOST application, however, no differences were noted among treatments (2 to 10%). Early visual injury was not manifested in height reduction 28 d after EPOST application as plant height was equal for all treatments (56 to 60 cm).

At 26 and 40 d after EPOST application, sicklepod, smooth pigweed, and entireleaf morningglory were controlled at least 83 and 83, 98 and 100, and 88 and 92%, respectively, and equally by all treatments.

Barnyardgrass control 40 d after EPOST application was increased with Staple addition at 0.6 oz/A compared to Roundup Ultra alone at the 1.5 pt/A rate applied EPOST (79 vs. 37%). Control was also greater for the sequential treatment of Roundup Ultra at 1.0 pt/A + Staple at 0.6 oz/A EPOST followed by the same combination MPOST compared to the Roundup Ultra only sequential treatment (88 vs. 73%).

Addition of Staple, at 0.6 or 0.9 oz/A, to the 1.0 pt/A rate of Roundup Ultra and at 0.6 oz/A to Roundup Ultra at 1.5 pt/A EPOST, significantly increased control of pitted morningglory and hemp sesbania 40 d after EPOST application.

Roundup Ultra at 1.0 pt/A in combination with Staple at 0.9 oz/A applied EPOST resulted in seedcotton yield of 2178 lb/A, which was greater than all other treatments (38 to 1786 lb/A). Addition of Staple at 0.6 or 0.9 oz/A increased yield at least 1666 and 1291 lb/A over that observed with Roundup Ultra alone at the rate of 1.0 or 1.5 pt/A, respectively, applied EPOST. All Roundup Ultra + Staple single EPOST treatments, with the exception of Roundup Ultra at 1.0 pt/A + Staple at 0.9 oz/A which yielded more, resulted in yields equivalent to the sequential programs including Roundup Ultra alone or in combination with Staple. Results indicate with adequate rainfall to realize residual benefits, reduced rates of Staple in combination with Roundup Ultra can provide season-long weed control and eliminate need for a second postemergence application in a total postemergence weed control program.

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