WEED MANAGEMENT SYSTEMS IN NO-TILL COTTON UTILIZING A HOODED SPRAYER

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Abstract

Acreage of no-till cotton in Tennessee has increased from a few thousand acres just five years ago to over 200,000 in 1995. Increase weed pressure from weeds such as pigweed, cocklebur, morninglory and other broadleaf species has occurred in many producer's fields.

Weed control systems were evaluated at Milan, Tennessee for two years utilizing systems involving the use of either a post-directed or hooded sprayer. The post-directed treatment received a preemergence broadcast treatment of soil residual herbicides. All treatments involving the hooded sprayer received a preemergence banded treatment with the same residual herbicides. The post-directed treatment included herbicides commonly used as a standard for the geographical area.

The hooded applications included one of two broad spectrum burndown herbicides. Results with burndown herbicides, Gramoxone Extra and Roundup, were similar in both years of this study. In 1995, sequential application of Roundup alone provided higher yields than sequential applications of Gramoxone Extra alone. Gramoxone Extra provided the same level of weed control as Roundup. In 1994, although differences were not significant, Gramoxone Extra provided higher levels of pigweed control than Roundup. Yields were not different in 1994.

Roundup applied under hoods, alone (treatment 2) at stage B application, did not perform as well as the sequential Roundup treatment in either year of the study. All sequential applications provided better control than Roundup alone at stage B in 1995. This data indicates a need for carefully matching time of application with weed size and product. Optimum control with Roundup was achieved only with a sequential application. Pigweed was more difficult to control when it reached the 6 to 8 inch height stage (stage B).

The addition of the soil residual herbicide, Bladex to Gramoxone Extra, did not improve pigweed control. Post-directed application used in combination with the hoods did not increase pigweed control in either year of the study. Staple over top of row with Roundup under hoods was not used in sequential application. In 1994, this treatment provided some control but weed populations had increased before 30 days after treatment.

Both post-directed and hooded sprayers can be used effectively to control pigweed in no-till cotton. The standard treatment involving the post-directed sprayer controlled pigweed >95% both years. Hooded sprayer systems were equally effective. Careful consideration should be given to timing of herbicide applications. Timing of application for pigweed control with Roundup and Staple needs continued investigation. The primary advantage of hooded over post-directed systems is the banding of preemergence residual herbicides. The banding of these herbicides can potentially reduce herbicide cost up to 50%. There are also environmental benefits of banding herbicides. Banding herbicides and using a hooded sprayer for post-emergence weed control reduces the total amount of preemergence herbicide active ingredient by half. Data presented in this paper demonstrates the potential of these herbicide systems. Post-directed and hooded systems are necessary for effective weed control in no-till cotton.

Table 1. 1995 Pigweed control and Cotton Lint Yields.

Tmt No	Treatment	Application & Timing	Pigweed Control percent	Lint Yield lb/ac
1	Gramoxone Bladex 4L Caparol 4L MSMA	HD 6-8" HD 6-8" PD 6-8" PD 6-8"	93 a	972 cd
2	Roundup 4L Caparol 4L MSMA	HD 6-8" PD 6-8" PD 6-8"	57 b	983 cd
3	Gramoxone Bladex 4L Cotoran 4L MSMA Gramoxone	HD 1-3" HD 1-3" PD 1-3" PD 1-3' HD 6-8"	88 a	1052 cd
4	Roundup 4L Bladex 4L MSMA Roundup 4L	HD 1-3" PD 1-3" PD 1-3" HD 6-8"	87 a	1233 cd
5	Gramoxone Gramoxone	HD 1-3" HD 6-8"	90 a	930 d
6	Roundup 4L Roundup 4L	HD 1-3" HD 6-8"	91 a	1066 bcd
7	Staple Roundup 4L	PB 1-3" HD 6-8"	66 b	1097 bcd
8	Cotoran 4L MSMA Bladex 4L MSMA	PD 1-3" PD 1-3" PD 6-8" PD 6-8"	96 a	1249 ab
9	Untreated		0 c	301 e

Values followed by the same letter do not differ (P=0.05) according to Duncans Multiple Range Test

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1559-1560 (1996)
National Cotton Council, Memphis TN