

Reduced Rates of Herbicides in Roundup-Ready Soybeans

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Objective

To determine if reduced rates of herbicides can provide adequate weed control and show no yield loss in no-tillage soybean utilizing pre-emergence and post-emergence herbicide applications.

Background

Crop Year:	1997	Soil Test:	N/A
Cooperator:	Jim Patton	Fertilizer Applied:	N/A
County/Town:	Logan/ Belle Center	Herbicide:	See Methods
Drainage:	N/A	Variety:	Asgrow 3301 (RR)
Major Soil Type:	Bennington Silt Loam	Planting Rate:	210,000 seeds/A
Previous Crop:	Soybean	Planting Date:	May 14, 1997
Tillage:	None	Harvest Date:	October 15, 1997

Materials and Methods

The plot size for this study was 20 feet wide and 300 feet in length. Each treatment was replicated three times. 2,4-D ester at 1.0 pt/A plus Prime Oil (COC) was added to treatments 1-7 and applied alone to treatment 8 to control existing weeds 29 days prior to planting. The 1X Canopy rate was 6.0 oz/A and 1X Squadron rate was 3.0 pt/A. The post-emergence application of Roundup Ultra at 1X rate was 1.5 pt/A and applied based upon the broadleaf weed height listed in the table. Annual grass height was 1.25" for 1/4X rate, 3.5" for 1/2X rate, and 7.0" for 1X rate.

Results

Treatment	Product and Rate ¹	Treatment Timing		Weed Control (% on August 4, 1997)		Soybean Yield (bu/A)	Treatment Cost ² (\$/A)
		Height (in.)	DAP	An. Gr.	C. Rag.		
1	Canopy (EPP) 1/2X (POST) 1/4X	<1	-29 33	87	100	53	\$23.78
2	Canopy (EPP) 1/2X (POST) 1/2X	<2	-29 40	98	100	52	\$26.00
3	Canopy (EPP) 1/2X (POST) 1X	3-5	-29 49	100	100	53	\$30.44
4	Squadron (EPP) 1/2X (POST) 1/4X	<1	-29 33	85	92	53	\$28.72
5	Squadron (EPP) 1/2X (POST) 1/2X	<2	-29 40	97	96	53	\$30.94
6	Squadron (EPP) 1/2X (POST) 1X	3-5	-29 49	98	99	53	\$35.38
7	Squadron (EPP) 1X		-29	77	55	52	\$29.16
8	Roundup (POST) 1X	3-5	42	98	100	52	\$23.21
LSD (0.05%)				6.5	7	NS	

1. Abbreviations: Height = annual broadleaf height, DAP = days after planting, An. Gr. = annual grass (giant foxtail, yellow foxtail, and fall panicum), C. Rag. = common ragweed, bu/A = bushels per acre, EPP = early pre-plant application, POST = post-emergence application, LSD = least significant difference, NS = no significant difference

2 Treatment cost = cost of all herbicides and additives (including burndown) and application cost at \$2.00/A/application, and Roundup-Ready technology fee of \$7.50/A.

Summary and Notes

The weed pressure in this study was light. The reduced annual grass control in treatments 1 and 4 is due to the lack of rapid soybean canopy closure after application, because the soybeans were only at the second trifoliolate at application. Despite the lower weed control in treatments 1, 4, and 7, there was no significant reduction in yield.

For additional information, contact:

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