

Evaluation of Soybean Herbicides on Roundup Ready Soybeans

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Objective

To evaluate the effectiveness of herbicide programs in Roundup Ready soybeans.

Background

Cooperator:	Tom Weiler	Fertilizer:	10-34-0 (12 gal/A)
County:	Morrow		0-0-60 (200 lbs/A)
Nearest Town:	Chesterville		180 lbs/A nitrogen sidedressed
Soil Type:	Sloan	Variety:	Golden Harvest 352 RR
Tillage:	Conventional	Planting Date:	May 4, 1999
Previous Crop:	Corn	Planting Rate:	204,000 seeds/A
Drainage:	Systematic tile	Harvest Date:	October 4, 1999
Soil Test:	pH 7.0, P 23 ppm, K 154 ppm		

Methods

The field chosen had tremendous weed pressure from giant ragweed, common lambsquarters, and giant foxtail along with some velvetleaf. Ten different herbicide treatments were replicated four times in a randomized complete block design including an untreated control. Individual plot size was 10 feet wide by 40 feet in length. The preemergence and postemergence treatments were applied on May 8 and June 11, respectively. Treatments were applied with a CO₂ pressurized backpack sprayer. At the time of the postemergence application, giant ragweed was six to 10 inches tall, and giant foxtail was four inches tall. Soybeans were at the V4 stage. The treatments were visually evaluated for weed control on August 9.

Results

Herbicide Treatment ^{bd}	Rate/A	Trt. Type ^d	Weed Control Rating ^c (%)				Herbicide Cost (\$/A)	Total Cost ^a (\$/A)
			Annual Grass	Lambs-quarters	Velvet-leaf	Giant Foxtail		
Canopy	3 oz.	PRE					7.5	
Roundup Ultra	1 qt.	POST	100a	100a	100a	100a	9	37.45
AMS	17#/100 gal		0.71					
Scepter	1.4 oz.	PRE					6.73	
Roundup Ultra	1 qt.	POST	94a	100a	100a	100a	9	36.68
AMS	17#/100 gal		0.71					

Roundup Ultra AMS	1 qt. 17#/100 gal	POST	100a	100a	96a	100a	9 0.71	25.95
Dual II Magnum	1.5 pt.	PRE					17.25	
FirstRate	0.3 oz.	POST	92a	68cd	90a	0c	6.88	33.14
COC	1.25% v/v						1.01	
Steel	1.5 pt.	PRE					7.5	
Roundup Ultra AMS	1 qt. 17#/100 gal	POST	99a	100a	100a	100a	9 0.71	37.45
Canopy	6.0 oz.	PRE					15	
Select	6.0 oz.	POST	40b	58d	48d	100a	8.06	34.54
COC	1.0% v/v						0.84	
28% Nitrogen	4.0% v/v						2.64	
Domain	0.5 lb.	PRE					5.63	
Roundup Ultra AMS	1.5 pt. 17#/100 gal	POST	92a	98a	90a	100a	6.75 0.71	33.33
Python	1.0 oz.	PRE					8.31	
FirstRate	0.3 oz.	POST	87a	61d	92a	100a	6.88	36.4
Select	8.0 oz.						10.72	
COC	1.0% v/v						0.84	
28% Nitrogen	2.5% v/v						1.65	
Roundup Ultra AMS	1.0 pt. 17#/100 gal	POST	81a	92ab	93a	100a	4.5 0.71	21.45
Raptor	5 oz.						25.5	
Cobra	10 oz.	POST	78a	81bc	94a	66b	9.53	40.08
Crop Oil	1 qt.						1.05	
LSD (0.05)			24.6	16	13.9	1.15		
CV			19.60%	12.90%	10.60%	0.90%		

Treatment means followed by the same letter are not significantly different at P = 0.05.

^a Prices used were in-season retail prices.

^b Application cost of \$4.00/acre is included per PRE and per POST treatment. For treatments using Roundup Ultra, the total costs includes a technology fee based on a calculated cost between using seed from Roundup Ready and conventional soybeans with a spread of \$9.00 for a 50-pound unit for a total of \$12.24/acre.

^c Preemergence and postemergence treatments applied May 8 and June 11, respectively. Weed control evaluated on August 9.

^d Abbreviations: COC = crop oil concentrate, AMS = ammonium sulfate, PRE = preemergence, POST = postemergence.

Summary and Notes

The adoption of Roundup Ready soybeans has been rapid. It is reported that 50 to 60 percent of the soybeans planted are now Roundup Ready. However, there are a few weeds that Roundup Ultra doesn't control satisfactorily, and Roundup has no residual weed control. Another concern is having the weather and time needed to apply the Roundup Ultra in a timely fashion to allow for good weed control and no loss of yield due to early or late weed competition.

In this trial the preemergence herbicides did not provide effective weed control due to lack of rainfall. Rainfall received from May 3 - 17 totaled 0.5 inches. Regardless of rate, Roundup Ultra provided good to excellent control of all weeds in this study except giant ragweed at the 1.0 pint rate, although not statistically different. As observed in this study, there is no advantage to a preemergence herbicide application before a postemergence Roundup Ultra application in conventional tillage when the soil is dry at the time of the preemergence application and after the postemergence Roundup Ultra application. The Raptor plus Cobra program might have benefited from the addition of a nitrogen source as an adjuvant, and giant foxtail control was poor due to antagonism of Raptor by Cobra.

The total cost per acre ranged from \$21.45 to \$40.08 (this includes a technology fee for use of Roundup Ready soybeans) with the Roundup Ultra only treatments being the cheapest. Soybean producers need to weigh the strengths and weaknesses of the many possible herbicide programs to determine which system is most economical for them.

For additional information, contact:

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