

Winter Annual Weed Control and Soybean Tolerance with Corn Herbicides Applied in Fall and Spring.

01-WF-SWM-80

OBJECTIVE: Evaluate winter annual weed control and soybean tolerance to corn herbicides applied in fall and spring, with and without tillage.

SUMMARY: None of the herbicides controlled wild garlic regardless of application timing. Fall-tillage also had no effect on wild garlic at planting. In no-till, Aatrex and Princep applied in the fall controlled henbit, 100% at planting. In no-till, Princep applied in the fall controlled 84% of the mouseear chickweed. Aatrex and Princep applied in the fall controlled Carolina foxtail, 88%. In no-till, Balance applied in the fall provided no control of winter annual weeds. In no-till, smallflower buttercup control was increased to 100% with herbicides applied in the spring. In no-till, herbicides applied in the spring provided 88 to 100% control of winter annual weeds. Fall-tillage alone controlled 90 to 100% of the henbit, mouseear chickweed, and Carolina foxtail. In reduced-till plots, smallflower buttercup control was increased with herbicides applied in the fall or spring. The herbicides applied in the fall or spring caused no soybean injury regardless of tillage. Roundup Ultra was applied at planting and 30 days after planting to control summer annual weeds.

Soybean yield ranged from 47 to 55 bu/A. There were no differences in yield due to herbicide treatment.

HERBICIDES / TILLAGES	WEEDS	CROP
AATREX 90 WG BALANCE 75 WG PRINCEP 90 WG ROUNDUP ULTRA 3 SL NO-TILL REDUCED-TILL	buttercup, smallflower chickweed, mouseear foxtail, Carolina garlic, wild henbit	soybean

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PLANT, SOIL AND GENERAL AGRICULTURE DEPARTMENT

SOUTHERN ILLINOIS UNIVERSITY

Winter Annual Weed Control and Soybean Tolerance with Corn Herbicides Applied in Fall and Spring.

Project Code: 01-WF-SWM-80 Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Initiation Date: 11-15-00

Objective:

Evaluate winter annual weed control and soybean tolerance to corn herbicides applied in fall and spring, with and without tillage.

Weed Code	Common Name	Scientific Name
1.	ALLVI garlic, wild	Allium vineale L.
2.	LAMAM henbit	Lamium amplexicaule L.
3.	CERVU chickweed, mouseear	Cerastium vulgatum L.
4.	ALOCA foxtail, Carolina	Alopecurus carolinianus Walt.
5.	RANAB buttercup, smallflower	Ranunculus abortivus L.

Crop 1: GLXMA SOYBEAN Variety: B-T 369CR
 Planting Method: Seeded Planting Date: 5-18-01
 Rate: 75 lb/A Depth: 1.0 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 30 FT Reps: 4
 Tillage Type: See note Study Design: Split-block
 Previous Crop, Year: ZEAMX, 2000
 Field Prep./Maintenance: N 0 LB/A, P205 0 LB/A, K20 200 LB/A

Texture: Silt loam % OM: 1.5 pH: 6.5 CEC: 9
 Fert. Level: P1: 78 LB/A, K: 186 LB/A

APPLICATION DESCRIPTION

	A	B	C
Application Date:	11-17-00	4-18-01	6-15-01
Time of Day:	11:00	16:00	11:00
Application Method:	Spray	Spray	Spray
Application Timing:	FALL EPP	SPRG EPP	POST-IN
Applic. Placement:	BROSOI	BROSOI	BROFOL
Air Temp., Unit:	33 F	62 F	80 F
% Relative Humidity:	60	30	60
Wind Velocity, Unit:	5-7 MPH	5 MPH	5 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	GLXMA NA	GLXMA NA	GLXMA V2
Height, Unit:	NA NA	NA NA	4-5 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	ALLVI	ALLVI	ALLVI
Stage(leaves):	3-4	3-4	
Height(inches):	6-16	6-16	
Density:	Medium	Medium	
Weed 2 Code:	LAMAM	LAMAM	LAMAM
Stage(leaves):	10+	10+	
Height(inches):	0-2	4-6	
Density:	Medium	Medium	
Weed 3 Code:	CERVU	CERVU	CERVU
Stage(leaves):	10+	10+	
Height(inches):	0-2	3-4	
Density:	Medium	Medium	

Weed 4 Code:	ALOCA	ALOCA	ALOCA
Stage(leaves):	10+	10+	
Height(inches):	0-2	3-5	
Density:	Medium	Medium	

Weed 5 Code:	RANAB	RANAB	RANAB
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APPLICATION EQUIPMENT

	A	B	C
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan
Nozzle Size:	8002	8002	8002
Boom Length, Unit:	10 FT	10 FT	10 FT
Spray Volume, Unit:	18.15 GPA	18.15 GPA	18.15 GPA

NOTES: Tillages are no-till and reduced-till, see treatment list. HARVESTED 10-9-01, 2 ROWS X 25 FT.

Winter Annual Weed Control and Soybean Tolerance with Corn Herbicides Applied in
 Fall and Spring.
 Project Code: 01-WF-SWM-80 Location: Belleville Research Center

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	GLXMA	ALLVI	ALLVI	ALLVI	LAMAM	LAMAM	LAMAM	CERVU	CERVU	CERVU	ALOCA	ALOCA	ALOCA			
							Yield bu/A 10-9-01	Control Percent 14 DAT	Control Percent 28 DAT	Control Percent 5-18-01 0 DAP	Control Percent 14 DAT	Control Percent 28 DAT	Control Percent 5-18-01 0 DAP	Control Percent 14 DAT	Control Percent 28 DAT	Control Percent 5-18-01 0 DAP	Control Percent 14 DAT	Control Percent 28 DAT	Control Percent 5-18-01 0 DAP		
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code													
1	NO-TILL								55	0	0	0	0	0	0	0	0	0			
1	NO SOIL HERBICIDE																				
1	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
2	NO-TILL								53	0	0	0	0	0	100	0	0	68	0	0	88
2	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A													
2	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A													
2	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
3	NO-TILL								52	0	0	0	0	0	100	0	0	84	0	0	88
3	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A													
3	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A													
3	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
4	NO-TILL								55	0	0	0	0	0	0	0	0	0	0	0	0
4	BALANCE	75	WG	0.094 LB A/A	0.125	LB/A	FALL EPP	A													
4	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A													
4	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
5	NO-TILL								52	0	0	0	100	100	100	100	100	100	90	100	100
5	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	SPRG EPP	B													
5	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B													
5	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
6	NO-TILL								50	0	0	0	80	100	100	80	100	100	50	100	100
6	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	SPRG EPP	B													
6	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B													
6	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
7	NO-TILL								49	0	0	0	50	100	100	50	100	100	50	88	88
7	BALANCE	75	WG	0.094 LB A/A	0.125	LB/A	SPRG EPP	B													
7	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B													
7	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
8	NO-TILL								50	0	0	0	0	0	0	0	0	0	0	0	0
8	NO SOIL HERBICIDE																				
8	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
9	REDUCED-TILL								53	100	100	0	100	100	100	100	100	90	100	100	100
9	NO SOIL HERBICIDE																				
9	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
10	REDUCED-TILL								51	100	100	23	100	100	100	100	100	100	100	100	100
10	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A													
10	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A													
10	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													
11	REDUCED-TILL								52	100	100	45	100	100	100	100	100	100	100	100	100
11	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A													
11	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A													
11	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C													

Weed Code									ALLVI	ALLVI	ALLVI	LAMAM	LAMAM	LAMAM	CERVU	CERVU	CERVU	ALOCA	ALOCA	ALOCA		
Crop Code									GLXMA													
Rating Data Type									Yield	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control		
Rating Unit									bu/A	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent		
Rating Date									10-9-01													
Trt-Eval Interval									14 DAT	28 DAT	0 DAP	14 DAT	28 DAT	0 DAP	14 DAT	28 DAT	0 DAP	14 DAT	28 DAT	0 DAP		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code													
12	REDUCED-TILL									54	100	100	13	100	100	100	100	100	100	100		
12	BALANCE	75	WG	0.094	LB A/A	0.125	LB/A	FALL EPP	A													
12	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	FALL EPP	A													
12	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C													
13	REDUCED-TILL									53	0	0	0	100	100	100	100	100	100	100		
13	AATREX	90	WG	1.0	LB A/A	1.11	LB/A	SPRG EPP	B													
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B													
13	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C													
14	REDUCED-TILL									53	0	0	0	90	100	100	90	100	100	70		
14	PRINCEP	90	WG	1.0	LB A/A	1.11	LB/A	SPRG EPP	B													
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B													
14	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C													
15	REDUCED-TILL									48	0	0	0	75	100	100	75	100	100	75		
15	BALANCE	75	WG	0.094	LB A/A	0.125	LB/A	SPRG EPP	B													
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B													
15	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C													
16	REDUCED-TILL									53	100	100	100	100	100	100	100	100	100	100		
16	NO SOIL HERBICIDE																					
16	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C													
LSD (P=.05)										5.6	0.0	0.0	25.1	10.8	0.0	0.0	10.8	0.0	16.1	12.8	8.9	9.3
Replicate F										3.103	0.000	0.000	2.398	1.771	0.000	0.000	1.771	0.000	1.118	2.113	1.000	0.818
Replicate Prob(F)										0.0359	1.0000	1.0000	0.0804	0.1662	1.0000	1.0000	0.1662	1.0000	0.3518	0.1118	0.4016	0.4909
Treatment F										1.070	0.000	0.000	9.247	142.258	0.000	0.000	142.258	0.000	49.062	96.788	240.467	175.692
Treatment Prob(F)										0.4090	1.0000	1.0000	0.0001	0.0001	1.0000	1.0000	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	RANAB RANAB RANAB											
						Control Percent	Control Percent	Control Percent	GLXMA HEIRED Percent	GLXMA HEIRED Percent	GLXMA HEIRED Percent	GLXMA Necrosis Percent	GLXMA Necrosis Percent	GLXMA Necrosis Percent			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Prod Rate	Prod Unit	Grow Stg	Appl Code	14 DAT	28 DAT	0 DAP	6-1-01 14 DAP	6-15-01 28 DAP	7-13-01 56 DAP	6-1-01 14 DAP	6-15-01 28 DAP	7-13-01 56 DAP
1	NO-TILL								0	0	0	0	0	0	0	0	0
1	NO SOIL HERBICIDE																
1	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
2	NO-TILL								0	0	70	0	0	0	0	0	0
2	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A									
2	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A									
2	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
3	NO-TILL								0	0	13	0	0	0	0	0	0
3	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A									
3	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A									
3	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
4	NO-TILL								0	0	0	0	0	0	0	0	0
4	BALANCE	75	WG	0.094 LB A/A	0.125	LB/A	FALL EPP	A									
4	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A									
4	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
5	NO-TILL								90	100	100	0	0	0	0	0	0
5	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	SPRG EPP	B									
5	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B									
5	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
6	NO-TILL								50	100	100	0	0	0	0	0	0
6	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	SPRG EPP	B									
6	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B									
6	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
7	NO-TILL								50	100	100	0	0	0	0	0	0
7	BALANCE	75	WG	0.094 LB A/A	0.125	LB/A	SPRG EPP	B									
7	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	SPRG EPP	B									
7	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
8	NO-TILL								0	0	0	0	0	0	0	0	0
8	NO SOIL HERBICIDE																
8	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
9	REDUCED-TILL								100	100	65	0	0	0	0	0	0
9	NO SOIL HERBICIDE																
9	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
10	REDUCED-TILL								100	100	95	0	0	0	0	0	0
10	AATREX	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A									
10	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A									
10	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									
11	REDUCED-TILL								100	100	95	0	0	0	0	0	0
11	PRINCEP	90	WG	1.0 LB A/A	1.11	LB/A	FALL EPP	A									
11	PRIME OIL COC	100	LIQ	1.0 % V/V	1.0	% V/V	FALL EPP	A									
11	ROUNDUP ULTRA	3	SL	0.75 LB AE/A	2.0	PT/A	POST-IN	C									

Weed Code		RANAB	RANAB	RANAB											
Crop Code					GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
Rating Data Type		Control	Control	Control	HEIRED	HEIRED	HEIRED	Necrosis	Necrosis	Necrosis	Necrosis	Necrosis	Necrosis	Necrosis	Necrosis
Rating Unit		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date				5-18-01	6-1-01	6-15-01	7-13-01	6-1-01	6-15-01	7-13-01	6-1-01	6-15-01	7-13-01	6-1-01	6-15-01
Trt-Eval Interval		14 DAT	28 DAT	0 DAP	14 DAP	28 DAP	56 DAP	14 DAP	28 DAP	56 DAP	14 DAP	28 DAP	56 DAP	14 DAP	28 DAP

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code									
12	REDUCED-TILL									100	100	93	0	0	0	0		
12	BALANCE	75	WG	0.094	LB A/A	0.125	LB/A	FALL EPP	A									
12	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	FALL EPP	A									
12	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C									
13	REDUCED-TILL									93	100	100	0	0	0	0		
13	AATREX	90	WG	1.0	LB A/A	1.11	LB/A	SPRG EPP	B									
13	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B									
13	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C									
14	REDUCED-TILL									45	100	100	0	0	0	0		
14	PRINCEP	90	WG	1.0	LB A/A	1.11	LB/A	SPRG EPP	B									
14	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B									
14	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C									
15	REDUCED-TILL									50	100	100	0	0	0	0		
15	BALANCE	75	WG	0.094	LB A/A	0.125	LB/A	SPRG EPP	B									
15	PRIME OIL COC	100	LIQ	1.0	% V/V	1.0	% V/V	SPRG EPP	B									
15	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C									
16	REDUCED-TILL									100	100	100	0	0	0	0		
16	NO SOIL HERBICIDE																	
16	ROUNDUP ULTRA	3	SL	0.75	LB AE/A	2.0	PT/A	POST-IN	C									
LSD (P=.05)										12.1	0.0	14.4	0.0	0.0	0.0	0.0	0.0	
Replicate F										0.721	0.000	0.288	0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)										0.5450	1.0000	0.8340	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F										104.546	0.000	68.597	0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)										0.0001	1.0000	0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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Trial Comments

1. Protocol = SIU/RFK.
2. Application timings are fall and spring early preplant and postemergence if needed.
3. Blanket application of Roundup Ultra Max at 0.75 lbae/A to all no-till plots on 5-18-01.
4. DAT = days after treatment. DA-A = days after FALL application. HEIRED = height reduction. DAP = days after planting.
5. 14 days after FALL and SPRG EPP applications was on Dec-1-01 and May-2-01, respectively.
6. 28 days after FALL and SPRG EPP applications was on Dec-15-01 and May-16-01, respectively.
7. Ratings on April 15, 2001 were prior to SPRG EPP application.
8. No soybean injury was observed.