

No-till Soybean Weed Control Studies

12-05-05 (05-11C-N45)

Southern Illinois University

No-Till Soybean Weed Control.

Project Code: 05-11C-N45 Location: Belleville Research Center
Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final Updated: 11-14-05

Objective:

Compare various early preplant, early preplant plus postemergence and preemergence plus postemergence herbicide applications in no-till soybean.

Weed Code	Common Name	Scientific Name
1.	POAAN bluegrass, annual	Poa annua L.
2.	ALOCA foxtail, Carolina	Alopecurus carolinianus Walt.
3.	RANAB buttercup, smallflower	Ranunculus abortivus L.
4.	CERVU chickweed, mouseear	Cerastium vulgatum L.
5.	AMBEL ragweed, common	Ambrosia artemisiifolia L.
6.	SETFA foxtail, giant	Setaria faberi Herrm.
7.	AMBTR ragweed, giant	Ambrosia trifida L.
8.	HORPU barley, little	Hordeum pusillum Nutt.
9.	ALLVI garlic, wild	Allium vineale L.
10.	AMATA waterhemp, common	Amaranthus rudis Sauer

Crop 1: GLXMA soybean Variety: Asgrow 4403 RR
Planting Method: Seeded Planting Date: 5-12-05
Rate: 75 lb/A Depth: 1.0 IN
Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 30 FT Reps: 3
Tillage Type: No-Till Study Design: Randomized complete block
Previous Crop, Year: ZEAMX, 2004

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K20 100 LB/A

Soil Name: Ebbert % OM: 2.3 pH: 5.8 CEC: 13
Texture: Silt loam Fert. Level: P1: 84 LB/A, K: 456 LB/A

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	04-21-05	05-05-05	05-12-05	06-03-05	06-10-05
Time of Day:	8:00	8:00	9:30	8:30	11:00
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	21DBP	7DBP	PRE	2-4"W-1	2-4"W-2
Applic. Placement:	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	60 F	54 F	64 F	76 F	86 F
% Relative Humidity:	96	50	94	60	60
Wind Velocity, Unit:	3 MPH	0 MPH	7-10 MPH	1-3 MPH	2 MPH
Soil Moisture:	NORMAL	NORMAL	NORMAL	BELNOR	BELNOR

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	GLXMA NA	GLXMA NA	GLXMA NA	GLXMA V1	GLXMA V2
Height, Unit:	NA NA	NA NA	NA NA	3-4 IN	4-6

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	POAAN	POAAN	POAAN		
Stage (leaves):	5-6	10+	10-15		
Height (inches):	3-5	4-6	4-6		
Density:	Medium	Medium	Medium		
Weed 2 Code:	ALOCA	ALOCA	ALOCA		
Stage (leaves):	5-6	10+	8-12		
Height (inches):	4-6	4-6	5-6		
Density:	Medium	Medium	Medium		
Weed 3 Code:	RANAB	RANAB	RANAB		
Stage (leaves):	10+	10+	10+		
Height (inches):	6-12	6-12	6-12		
Density:	Medium	Medium	Medium		
Weed 4 Code:	CERVU	CERVU	CERVU		
Stage (leaves):	10+	10+	10+		
Height (inches):	2-4	4-6	4-6		
Density:	Medium	Medium	Medium		
Weed 5 Code:	AMBEL		AMBEL	AMBEL	
Stage (leaves):	3-4		4-6	4-12	
Height (inches):	1-2		1-4	1-4	
Density:	Low		Low	Low	
Weed 6 Code:	SETFA	SETFA	SETFA	SETFA	SETFA
Stage (leaves):	1-2	2-3	3-4	4-6	5-7
Height (inches):	0-1	1-2	1-3	2-4	2-5
Density:	Low	Low	Low	Low	Low

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Weed 7 Code:	AMBTR	AMBTR	AMBTR	AMBTR	AMBTR
Stage (leaves):	4-5	4-5	4-6	4-6	6-8
Height (inches):	1-3	1-3	1-3	1-4	2-5
Density:	Low	Low	Low	Low	Low

Weed 8 Code:	HORPU	HORPU	HORPU
Stage (leaves):	5-6	5-6	5-6
Height (inches):	5-6	5-6	5-6
Density:	Low	Low	Low

Weed 9 Code:	ALLVI	ALLVI	ALLVI
Stage (leaves):	3-4	3-4	3-4
Height (inches):	8-16	10-20	12-24
Density:	Medium	Medium	Medium

Weed10 Code:	AMATA	AMATA
Stage (leaves):	4-6	4-6
Height (inches):	1-3	1-3
Density:	Low	Low

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	40 PSI	40 PSI	40 PSI	40 PSI	40 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	8003	8003	8003	8002	8002
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA	20 GPA

NOTES:

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Weed Code		Crop Code		Rating Data Type		Rating Unit		Rating Date		Trt-Eval Interval		POAAN	ALOCA	RANAB	CERVU	HORPU	ALLVI
												Control	Control	Control	Control	Control	Control
												Percent	Percent	Percent	Percent	Percent	Percent
												05-12-05	05-12-05	05-12-05	05-12-05	05-12-05	05-12-05
												0 DAP	0 DAP	0 DAP	0 DAP	0 DAP	0 DAP
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code								
1	NONTREATED									0	0	0	0	0	0	0	0
2	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	98	98	98	98	98	98	98	35
2	PROWL	3.3	EC	1.24	lb ai/a	3	pt/a	21DBP	A								
2	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A								
3	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	96	97	98	98	98	98	98	43
3	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	21DBP	A								
3	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A								
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	97	98	98	98	98	98	98	30
4	PROWL	3.3	EC	1.24	lb ai/a	3	pt/a	21DBP	A								
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A								
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D								
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D								
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	97	98	98	98	98	98	98	32
5	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	21DBP	A								
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A								
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D								
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D								
6	SEQUENCE	5.25	EW	1.64	lb ai/a	2.5	pt/a	PRE	C								
6	FLEXSTAR	1.88	EC	0.353	lb ai/a	1.5	pt/a	2-4"W-2	E								
6	FUSION	2.56	EC	0.24	lb ai/a	12	fl oz/a	2-4"W-2	E								
6	DESTINY MSO	100	LIQ	1.0	% v/v	1	% v/v	2-4"W-2	E								
6	28% UAN	100	LIQ	2.0	% v/v	2	% v/v	2-4"W-2	E								
7	GRAMOXONE INTEON	2	SL	0.75	lb ai/a	3.0	pt/a	7DBP	B								
7	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	7DBP	B								
7	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	7DBP	B								
7	2,4-D LV4	3.8	EC	0.475	lb ai/a	1	pt/a	7DBP	B								
7	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D								
7	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D								
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	97	98	98	98	98	98	98	48
8	VALOR	51	WG	0.096	lb ai/a	3	oz/a	21DBP	A								
8	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A								
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D								
8	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D								
LSD (P=.05)										2.6	1.4	0.4	0.5	0.4	19.8		
Replicate F										1.000	0.789	1.000	2.500	1.000	0.718		
Replicate Prob(F)										0.4019	0.4805	0.4019	0.1317	0.4019	0.5114		
Treatment F										2352.850	7552.158	86554.610	53876.505	86554.610	7.268		
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0041		

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										AMBEL	AMBEL	AMBEL	SETFA	SETFA	SETFA
										Control	Control	Control	Control	Control	Control
										Percent	Percent	Percent	Percent	Percent	Percent
										05-12-05	06-02-05	07-01-05	05-12-05	06-02-05	07-01-05
										0 DAP	-1 DA-D	28 DA-D	0 DAP	-1 DA-D	28 DA-D
Trt	Treatment	Form	Form	Rate	Prod	Prod	Grow	Appl							
No.	Name	Conc	Type	Unit	Rate	Unit	Stg	Code							
1	NONTREATED								0	0	0	0	0	0	0
2	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	21DBP	A	98	91	36	98	93	10	
2	PROWL	3.3	EC	1.24	lb ai/a	3 pt/a	21DBP	A							
2	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	21DBP	A							
3	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	21DBP	A	98	85	40	98	93	30	
3	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5 pt/a	21DBP	A							
3	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	21DBP	A							
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	21DBP	A	98	87	99	98	93	84	
4	PROWL	3.3	EC	1.24	lb ai/a	3 pt/a	21DBP	A							
4	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	21DBP	A							
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	2-4"W-1	D							
4	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	2-4"W-1	D							
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	21DBP	A	98	82	99	98	93	89	
5	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5 pt/a	21DBP	A							
5	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	21DBP	A							
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	2-4"W-1	D							
5	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	2-4"W-1	D							
6	SEQUENCE	5.25	EW	1.64	lb ai/a	2.5 pt/a	PRE	C		98	99		97	90	
6	FLEXSTAR	1.88	EC	0.353	lb ai/a	1.5 pt/a	2-4"W-2	E							
6	FUSION	2.56	EC	0.24	lb ai/a	12 fl oz/a	2-4"W-2	E							
6	DESTINY MSO	100	LIQ	1.0	% v/v	1 % v/v	2-4"W-2	E							
6	28% UAN	100	LIQ	2.0	% v/v	2 % v/v	2-4"W-2	E							
7	GRAMOXONE INTEON	2	SL	0.75	lb ai/a	3.0 pt/a	7DBP	B		99	99		90	80	
7	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25 % v/v	7DBP	B							
7	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5 pt/a	7DBP	B							
7	2,4-D LV4	3.8	EC	0.475	lb ai/a	1 pt/a	7DBP	B							
7	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	2-4"W-1	D							
7	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	2-4"W-1	D							
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	21DBP	A	98	99	99	98	85	72	
8	VALOR	51	WG	0.096	lb ai/a	3 oz/a	21DBP	A							
8	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	21DBP	A							
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24 fl oz/a	2-4"W-1	D							
8	AMS	100	DRY	2.0	% w/w	17 lb/100 gal	2-4"W-1	D							
LSD (P=.05)									0.5	12.7	43.3	0.4	8.1	14.3	
Replicate F									2.500	2.712	2.324	1.000	0.581	0.465	
Replicate Prob(F)									0.1317	0.1010	0.1344	0.4019	0.5723	0.6375	
Treatment F									53876.505	62.523	7.798	86319.407	148.874	63.249	
Treatment Prob(F)									0.0001	0.0001	0.0006	0.0001	0.0001	0.0001	

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Weed Code	AMBTR	AMBTR	AMBTR	AMATA	GLXMA	GLXMA	GLXMA
Crop Code							
Rating Data Type	Control	Control	Control	Control	Injury	Injury	Injury
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05-12-05	06-02-05	07-01-05	07-01-05	05-26-05	06-02-05	07-01-05
Trt-Eval Interval	0 DAP	-1 DA-D	28 DA-D	28 DA-D	14 DAP	-1 DA-D	28 DA-D

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMBTR Control Percent	AMBTR Control Percent	AMBTR Control Percent	AMATA Control Percent	GLXMA Injury Percent	GLXMA Injury Percent	GLXMA Injury Percent
1	NONTREATED									0	0	0	0	0	0	0
2	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	98	93	27	7	0	0	0
2	PROWL	3.3	EC	1.24	lb ai/a	3	pt/a	21DBP	A							
2	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A							
3	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	97	93	37	23	0	0	0
3	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	21DBP	A							
3	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A							
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	98	98	98	89	0	0	0
4	PROWL	3.3	EC	1.24	lb ai/a	3	pt/a	21DBP	A							
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A							
4	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D							
4	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D							
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	97	93	96	94	0	0	0
5	PROWL H2O	3.8	CS	1.19	lb ai/a	2.5	pt/a	21DBP	A							
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A							
5	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D							
5	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D							
6	SEQUENCE	5.25	EW	1.64	lb ai/a	2.5	pt/a	PRE	C		96	99	99	0	1	0
6	FLEXSTAR	1.88	EC	0.353	lb ai/a	1.5	pt/a	2-4"W-2	E							
6	FUSION	2.56	EC	0.24	lb ai/a	12	fl oz/a	2-4"W-2	E							
6	DESTINY MSO	100	LIQ	1.0	% v/v	1	% v/v	2-4"W-2	E							
6	28% UAN	100	LIQ	2.0	% v/v	2	% v/v	2-4"W-2	E							
7	GRAMOXONE INTEON	2	SL	0.75	lb ai/a	3.0	pt/a	7DBP	B		99	96	85	0	0	0
7	ACTIVATOR 90	100	LIQ	0.25	% v/v	0.25	% v/v	7DBP	B							
7	BOUNDARY	6.5	EC	1.22	lb ai/a	1.5	pt/a	7DBP	B							
7	2,4-D LV4	3.8	EC	0.475	lb ai/a	1	pt/a	7DBP	B							
7	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D							
7	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D							
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	21DBP	A	98	90	96	83	0	0	0
8	VALOR	51	WG	0.096	lb ai/a	3	oz/a	21DBP	A							
8	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	21DBP	A							
8	TOUCHDOWN TOTAL	4.17	SC	0.78	lb ae/a	24	fl oz/a	2-4"W-1	D							
8	AMS	100	DRY	2.0	% w/w	17	lb/100 gal	2-4"W-1	D							
LSD (P=.05)										1.4	9.9	23.1	18.4	0.0	0.7	0.0
Replicate F										1.429	1.111	2.381	1.263	0.000	1.000	0.000
Replicate Prob(F)										0.2846	0.3565	0.1288	0.3130	1.0000	0.3927	1.0000
Treatment F										7644.733	106.600	28.400	48.236	0.000	1.000	0.000
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	1.0000	0.4706	1.0000

Trial Comments

1. Protocol: BASF, Syngenta.
2. Ratings: WC at planting, 28-42 days after planting but before POST, and 28 days after POST.
 CI 14 days after planting, 28-42 days after planting but before POST, and 28 days after POST.
3. DAP = Days after planting. DA-D = Days after 2-4"W-1 application.
 Ratings at 0 DAP were at planting.
 Ratings at -1 DA-D were prior to 2-4"W-1 application and 21 days after planting.