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Early preplant herbicide in no-till soybean

Trial ID: 10S-SEP-NTS-69 Protocol ID: 10S-SEP-NTS-69
 Location: SEPAC Study Director: Paul Marquardt/Mike White
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed/James Barrantine

General Trial Information

Study Director: Paul Marquardt/Mike White **Title:** Research Associate
Investigator: Dr. William G. Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 3-15-2010

Trial Location

City: Butlerville USA 49.376656 -24.53833
State/Prov.: IN -124.715843 -66.968887
Postal Code: 47223
Country: USA

Personnel

Study Director: Paul Marquardt/Mike White **Title:** Research Associate

Affiliation: Purdue University
Address: 915 W. State St., Lilly Hall
Location: West Lafayette, IN

Postal Code: 47907 **E-mail:** pmarquar@purdue.edu
Phone No.: 765-494-4621 **Mobile No.:** 765-409-6369

Investigator: Dr. William G. Johnson **Title:** Professor

Affiliation: Purdue University
Address: 915 W. State St.
Location: West Lafayette, IN USA

Postal Code: 47907 **E-mail:** wgj@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

Cooperator/Landowner

Cooperator: Don Biehle **Role:** Superintendent
Organization: Southeast Purdue Agriculture Center
Address 1: 4425 E Co Rd 350 N

City: Butlerville **Phone No.:** 812-458-6977
State/Prov: IN **Fax No.:** 812-458-6979
Postal Code: 47223 **Mobile No.:** 812-592-8426
Country: USA **E-mail:** biehled@purdue.edu
 United States

Crop Description

Crop 1: GLXMA Glycine max Soybean
Variety: ASGROW 2939 **Description:** Roundup Ready
BBCH Scale: BSOY **Planting Date:** 5-10-2010
Planting Method: DIRDRI direct drilled **Rate, Unit:** 162000 s/a
Depth, Unit: 1 IN
Row Spacing, Unit: 30 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 50 F
Soil Moisture: MOIST **Emergence Date:** 5-19-2010
Harvest Date: 11-11-2010 **Harvest Equipment:** Gleaner F3
Harvested Width, Unit: 10 FT **Harvested Length, Unit:** 25 FT
% Standard Moisture: 13.0 **Moisture Meter:** Carter 3" Blade
Weighing Equipment: Carter Double Bucket

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Pest Description

- Pest 1 Type:** W **Code:** SENGL *Senecio glabellus*
Common Name: Cressleaf groundsel
- Pest 2 Type:** W **Code:** VENSS *Vernonia sp.*
Common Name: Ironweed
- Pest 3 Type:** W **Code:** ERIPH *Erigeron philadelphicus*
Common Name: Daisy fleabane
- Pest 4 Type:** W **Code:** CERVU *Cerastium fontanum vulgare*
Common Name: Mouse-ear chickweed
- Pest 5 Type:** W **Code:** RANAB *Ranunculus abortivus*
Common Name: Smallflower buttercup
- Pest 6 Type:** W **Code:** ERICA *Conyza canadensis*
Common Name: Canada horseweed
- Pest 7 Type:** W **Code:** ALLVI *Allium vineale*
Common Name: Wild garlic
- Pest 8 Type:** W **Code:** RUMCR *Rumex crispus*
Common Name: Curly dock
- Pest 9 Type:** W **Code:** POAAN *Poa annua*
Common Name: Annual bluegrass
- Pest10 Type:** W **Code:** ALOCA *Alopecurus carolinianus*
Common Name: Carolina foxtail
- Pest11 Type:** W **Code:** TAROF *Taraxacum officinale*
Common Name: Common dandelion
- Pest12 Type:** W **Code:** CAPBP *Capsella bursa-pastoris*
Common Name: Shepherd's purse
- Pest13 Type:** W **Code:** BROTE *Bromus tectorum*
Common Name: Downy brome
- Pest14 Type:** W **Code:** PLAVI *Plantago virginica*
Common Name: Paleseed plantain
- Pest15 Type:** W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail
- Pest16 Type:** W **Code:** SOLCA *Solanum carolinense*
Common Name: Horsenettle
- Pest17 Type:** W **Code:** FESAR *Festuca arundinacea*
Common Name: Tall fescue

Site and Design

Plot Width, Unit: 10 FT	Site Type: FIELD	field
Plot Length, Unit: 30 FT	Experimental Unit: 1	PLOT plot
Plot Area, Unit: 300 FT ²	Tillage Type: NOTILL	no-till
Replications: 4	Study Design: RACOB	Randomized Complete Block (RCB)
	Untreated Arrangement: INCLUDED	single control randomized in each block

Soil Description

Description Name: SEPAC Field U4

% OM: 1.8	Texture: SIL silt loam
pH: 5.6	Soil Name: Avonburg
CEC: 6.7	Soil Drainage: P poor

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Application Description			
	A	B	C
Application Date:	4-29-2010	5-10-2010	6-4-2010
Time of Day:	10 AM	9:35 AM	9:10 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	14 DPP	ATPLAN	EAPOWE
Application Placement:	FOLIAR	FOLIAR	FOLIAR
Applied By:	RT	RT	RT
Air Temperature, Unit:	59 F	53 F	75 F
% Relative Humidity:	56	48	68.2
Wind Velocity, Unit:	3.3 MPH	6 MPH	1.5 MPH
Wind Direction:	S	SE	S
Dew Presence (Y/N):	N no	N no	Y yes
Soil Temperature, Unit:	50 F	50 F	70 F
Soil Moisture:	MOIST	MOIST	MOIST
% Cloud Cover:	5	70	0

Crop Stage At Each Application			
	A	B	C
Crop 1 Code, BBCH Scale:	GLXMA BSOY	GLXMA BSOY	GLXMA BSOY
Stage Scale Used:			BBCH
Stage Majority, Percent:			V2 90
Stage Minimum, Percent:			V1 10
Stage Maximum, Percent:			V2 90
Height, Unit:			5 IN
Height Minimum, Maximum:			4 6

Pest Stage At Each Application			
	A	B	C
Pest 1 Code, Type, Scale:	SENGL W	SENGL W	SENGL W
Stage Majority, Percent:	65 100	65 100	
Stage Minimum, Percent:			40 50
Stage Maximum, Percent:			65 50
Height, Unit:	23 IN	20 IN	25 IN
Height Minimum, Maximum:	10 36	4 36	10 40
Density, Unit:	55 YD2	11.5 YD2	10.5 YD2
Pest 2 Code, Type, Scale:	VENSS W	VENSS W	VENSS W
Stage Majority, Percent:	33 100	33 100	
Height, Unit:	11 IN	14 IN	
Height Minimum, Maximum:	4 18	4 24	
Density, Unit:	12 YD2	11 YD2	
Pest 3 Code, Type, Scale:	ERIPH W	ERIPH W	ERIPH W
Stage Majority, Percent:	65 100		
Height, Unit:	8 IN		
Height Minimum, Maximum:	4 12		
Density, Unit:	5 YD2		
Pest 4 Code, Type, Scale:	CERVU W	CERVU W	CERVU W
Stage Majority, Percent:	65 100		

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Height, Unit:	4	IN		
Height Minimum, Maximum:	4	6		
Density, Unit:	13	YD2		
Pest 5 Code, Type, Scale:	RANAB W	RANAB W	RANAB W	
Stage Majority, Percent:	65	100		
Height, Unit:	8	IN		
Height Minimum, Maximum:	4	12		
Density, Unit:	13	YD2		
Pest 6 Code, Type, Scale:	ERICA W	ERICA W	ERICA W	
Stage Majority, Percent:	30	100	33	100
Height, Unit:	4	IN	2.5	IN
Height Minimum, Maximum:	2	6	1	4
Density, Unit:	7.5	YD2	2.5	YD2
Pest 7 Code, Type, Scale:	ALLVI W	ALLVI W	ALLVI W	
Stage Majority, Percent:	12	100	65	100
Height, Unit:	15	IN	15	IN
Height Minimum, Maximum:	4	24	6	24
Density, Unit:	10	YD2	5.5	YD2
Pest 8 Code, Type, Scale:	RUMCR W	RUMCR W	RUMCR W	
Stage Majority, Percent:	12	100		
Height, Unit:	9	IN		
Height Minimum, Maximum:	6	12		
Density, Unit:	1.5	YD2		
Pest 9 Code, Type, Scale:	POAAN W	POAAN W	POAAN W	
Stage Majority, Percent:	65	100		
Height, Unit:	4	IN		
Height Minimum, Maximum:	2	6		
Density, Unit:	25	YD2		
Pest10 Code, Type, Scale:	ALOCA W	ALOCA W	ALOCA W	
Stage Majority, Percent:	40	100	65	100
Height, Unit:	6	IN	7	IN
Height Minimum, Maximum:	2	10	4	10
Density, Unit:	75	YD2	25.5	YD2
Pest11 Code, Type, Scale:	TAROF W	TAROF W	TAROF W	
Stage Majority, Percent:	65	100	65	100
Stage Minimum, Percent:				ROSET 50
Stage Maximum, Percent:				65 50
Height, Unit:	8	IN	6	IN
Height Minimum, Maximum:	4	12	2	12
Density, Unit:	2.5	YD2	13.5	YD2
Pest12 Code, Type, Scale:	CAPBP W	CAPBP W	CAPBP W	
Stage Majority, Percent:	65	100		
Height, Unit:	9	IN		
Height Minimum, Maximum:	6	12		
Density, Unit:	2	YD2		
Pest13 Code, Type, Scale:	BROTE W	BROTE W	BROTE W	
Stage Majority, Percent:			22	100
Height, Unit:			7	IN
			15	IN

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Height Minimum, Maximum:		4 10	12 18
Density, Unit:		38 YD2	25.5 YD2
Pest14 Code, Type, Scale:	PLAVI W	PLAVI W	PLAVI W
Stage Majority, Percent:		33 100	
Height, Unit:		8 IN	
Height Minimum, Maximum:		4 12	
Density, Unit:		1 YD2	
Pest15 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Stage Majority, Percent:		33 100	40 100
Height, Unit:		0.5 IN	3.5 IN
Height Minimum, Maximum:		0 1	1 6
Density, Unit:		13 YD2	5035 YD2
Pest16 Code, Type, Scale:	SOLCA W	SOLCA W	SOLCA W
Pest17 Code, Type, Scale:	FESAR W	FESAR W	FESAR W
Stage Majority, Percent:			60 100
Height, Unit:			34 IN
Height Minimum, Maximum:			18 50
Density, Unit:			10.5 YD2

Application Equipment			
	A	B	C
Appl. Equipment:	CO2 Backpack	CO2 BKPCK	CO2 BKPCK
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operating Pressure, Unit:	17 PSI	17 PSI	17 PSI
Nozzle Type:	Flat Fan	FLAT FAN	FLAT FAN
Nozzle Size:	XR11002	XR 110 02	XR 110 02
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN
Nozzles/Row:	8	8	8
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	H2O	H2O	MEIGS
Water Hardness (ppm CaCO3):	150	150	150
Spray Volume, Unit:	15 GAL/AC	15 gal/ac	15 gal/ac
Mix Size, Unit:	1.8 Liters	1.8 liters	1.8 liters
Propellant:	CO2	CO2	CO2
Tank Mix (Y/N):	N no	N no	N no

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 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Joe Reed/James Barrantine

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	SENGL	TAROF	VENAL	ERICA	VENAL	ERICA				
Pest Scientific Name	Senecio label>	Taraxacum offi>	Vernonia altis>	Conyza canadens>	Vernonia altis>	Conyza canadens>				
Pest Name	Cressleaf grou>	Common dandel>	Tall ironweed>	Canada horsewe>	Tall ironweed>	Canada horsewe>				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Crop Variety	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939				
Description										
Rating Date	5-10-2010	5-10-2010	5-10-2010	5-10-2010	5-19-2010	5-19-2010				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority					VE	VE				
Pest Stage Majority	5-38"	3-15"	12-36"	>1"	12-36"					
Pest Density, Unit	5.5 YD2	27.5YD2	13 YD2	40 YD2		1 YD2				
Assessed By	CB/JJ	CB/JJ	CB/JJ	CB/JJ	PM	PM				
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6
1	UNTREATED				0.0 c	0.0 c	0.0 b	0.0 c	0.0 b	0.0 b
2	Tackle	1.03 lb ai/a	A		45.0 b	60.0 a	35.0 ab	50.0 b	73.8 a	97.8 a
	NIS	0.25 % v/v	A							
	N-Pak AMS	17 lb ai/100 gal	A							
3	Tackle	1.03 lb ai/a	A		77.0 a	21.3 bc	35.0 ab	65.5 ab	80.0 a	98.5 a
	NIS	0.25 % v/v	A							
	N-Pak AMS	17 lb ai/100 gal	A							
	Tackle	1.03 lb ai/a	C							
	NIS	0.25 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							
4	Glyfos X-tra	0.75 lb ae/a	A		96.0 a	25.0 b	53.8 ab	72.0 ab	84.5 a	97.8 a
	N-Pak AMS	17 lb ai/100 gal	A							
	Tackle	1.03 lb ai/a	C							
	NIS	0.25 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							
5	Glyfos X-tra	0.75 lb ae/a	A		98.8 a	45.0 a	62.3 a	92.0 a	85.0 a	98.0 a
	N-Pak AMS	17 lb ai/100 gal	A							
	Tackle	2.06 lb ai/a	C							
	NIS	0.25 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							
6	Glyfos X-tra	0.75 lb ae/a	A		97.5 a	16.3 bc	63.0 a	84.5 a	92.0 a	97.5 a
	N-Pak AMS	17 lb ai/100 gal	A							
	Extreme	0.81 lb ai/a	C							
	NIS	0.25 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							
7	Sharpen	0.0223 lb ai/a	B						85.0 a	99.8 a
	Spartan	0.125 lb ai/a	B							
	Classic	0.0156 lb ai/a	B							
	Cadet	0.00356 lb ai/a	C							
	Roundup WeatherMax	1.13 lb ae/a	C							
	COC	1 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							

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	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SENGL	TAROF	VENAL	ERICA	VENAL	ERICA
Pest Scientific Name	Senecio glabel>	Taraxacum offi>	Vernonia altis>	Conyza canadens>	Vernonia altis>	Conyza canadens>
Pest Name	Cressleaf grou>	Common dandeli>	Tall ironweed	Canada horsewe>	Tall ironweed	Canada horsewe>
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA
BBCB Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean
Crop Variety	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939
Description						
Rating Date	5-10-2010	5-10-2010	5-10-2010	5-10-2010	5-19-2010	5-19-2010
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority					VE	VE
Pest Stage Majority	5-38"	3-15'	12-36"	>1"	12-36"	
Pest Density, Unit	5.5 YD2	27.5YD2	13 YD2	40 YD2		1 YD2
Assessed By	CB/JJ	CB/JJ	CB/JJ	CB/JJ	PM	PM
Trt No.	1	2	3	4	5	6
Treatment Name						
Rate						
Rate Unit						
Appl Code						
8 Sharpen	0.0223 lb ai/a				85.8 a	99.5 a
Spartan	0.125 lb ai/a					
Classic	0.0156 lb ai/a					
Cadet	0.005 lb ai/a					
Roundup WeatherMax	1.13 lb ae/a					
COC	1 % v/v					
N-Pak AMS	17 lb ai/100 gal					
9 Sharpen	0.0223 lb ai/a				81.8 a	99.5 a
Spartan	0.125 lb ai/a					
Classic	0.0156 lb ai/a					
Cadet	0.0064 lb ai/a					
Roundup WeatherMax	1.13 lb ae/a					
COC	1 % v/v					
N-Pak AMS	17 lb ai/100 gal					
10 Sharpen	0.0223 lb ai/a				81.3 a	98.8 a
Spartan	0.125 lb ai/a					
Classic	0.0156 lb ai/a					
Resource	0.0403 lb ai/a					
Roundup WeatherMax	1.13 lb ae/a					
N-Pak AMS	17 lb ai/100 gal					
11 Sharpen	0.0223 lb ai/a				78.8 a	99.5 a
Spartan	0.125 lb ai/a					
Roundup WeatherMax	1.13 lb ae/a					
N-Pak AMS	17 lb ai/100 gal					
12 UNTREATED	0.0 c	0.0 c	0.0 b	0.0 c	0.0 b	0.0 b
LSD (P=.05)	16.78	16.40	39.32	21.80	13.58	1.96
Standard Deviation	11.14	10.88	26.10	14.47	9.41	1.36
CV	18.82	45.48	73.37	27.83	13.64	1.65
Bartlett's X2	28.165	6.193	2.375	6.856	5.17	12.483
P(Bartlett's X2)	0.001*	0.103	0.498	0.077	0.819	0.131
Replicate F	0.950	0.734	0.028	2.916	1.090	0.885
Replicate Prob(F)	0.4414	0.5480	0.9934	0.0686	0.3668	0.4588
Treatment F	64.041	16.646	4.234	27.547	47.826	3187.740
Treatment Prob(F)	0.0001	0.0001	0.0108	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Column 1: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; 5-38"; per square yard; CB/JJ
Column 2: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; 3-15'; per square yard; CB/JJ
Column 3: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; 12-36"; per square yard; CB/JJ
Column 4: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; >1"; per square yard; CB/JJ
Column 5: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; VE; 12-36"; PM
Column 6: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; VE; per square yard; PM

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Trt No.	Treatment Name	Rate	Unit	Appl Code	7	8	9	10	11	12
1	UNTREATED				0.0 e	0.0 b	0.0 b	0.0 c	0.0 a	0.0 b
2	Tackle	1.03 lb ai/a	A		38.8 bcd	100.0 a	92.5 a	60.0 a	42.0 a	48.8 a
	NIS	0.25 % v/v	A							
	N-Pak AMS	17 lb ai/100 gal	A							
3	Tackle	1.03 lb ai/a	A		58.8 ab	97.0 a	79.0 a	64.3 a	26.3 a	42.5 a
	NIS	0.25 % v/v	A							
	N-Pak AMS	17 lb ai/100 gal	A							
	Tackle	1.03 lb ai/a	C		54.5 abc	97.5 a	70.0 a	52.5 a	43.8 a	47.5 a
	NIS	0.25 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							
5	Glyfos X-tra	0.75 lb ae/a	A		75.0 a	100.0 a	85.5 a	66.3 a	52.5 a	46.8 a
	N-Pak AMS	17 lb ai/100 gal	A							
	Tackle	2.06 lb ai/a	C							
	NIS	0.25 % v/v	C		68.8 a	99.8 a	83.3 a	71.3 a	46.5 a	50.0 a
	N-Pak AMS	17 lb ai/100 gal	A							
	Extreme	0.81 lb ai/a	C							
	NIS	0.25 % v/v	C		38.8 bcd	89.5 a	85.8 a	28.8 b	45.0 a	43.8 a
	N-Pak AMS	17 lb ai/100 gal	C							
	Sharpen	0.0223 lb ai/a	B							
	Spartan	0.125 lb ai/a	B		0.0223 lb ai/a	0.125 lb ai/a	0.0156 lb ai/a	0.00356 lb ai/a	1.13 lb ae/a	1 % v/v
	Classic	0.0156 lb ai/a	B							
	Cadet	0.00356 lb ai/a	C							
	Roundup WeatherMax	1.13 lb ae/a	C		1 % v/v	17 lb ai/100 gal	C	C	C	C
	COC	1 % v/v	C							
	N-Pak AMS	17 lb ai/100 gal	C							

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	TAROF	SENGL	BROSE	TAROF	SOOCA	ALLVI				
Pest Scientific Name	Taraxacum offi>	Senecio glabe>	Bromus secalin>	Taraxacum offi>	Solidago canad>	Allium vineale				
Pest Name	Common dandeli>	Cressleaf grou>	Cheat	Common dandeli>	Canadian golde>	Wild garlic				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Crop Variety	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939				
Description										
Rating Date	5-19-2010	5-19-2010	5-27-2010	5-27-2010	5-27-2010	5-27-2010				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority	VE	VE	V1	V1	V1	V1				
Pest Stage Majority	3-15"	5-36"								
Pest Density, Unit			35 YD2	15 YD2	11 YD2	2 YD2				
Assessed By	PM	PM	GN	GN	GN	GN				
Trt No.	Treatment Name	Rate	Unit	Appl Code	7	8	9	10	11	12
8	Sharpen	0.0223	lb ai/a	B	16.3 de	90.3 a	93.8 a	28.8 b	52.0 a	27.5 ab
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Cadet	0.005	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	COC	1	% v/v	C						
	N-Pak AMS	17	lb ai/100 gal	C						
9	Sharpen	0.0223	lb ai/a	B	25.0 cde	90.0 a	73.8 a	23.8 b	49.8 a	21.3 ab
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Cadet	0.0064	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	COC	1	% v/v	C						
	N-Pak AMS	17	lb ai/100 gal	C						
10	Sharpen	0.0223	lb ai/a	B	30.0 bcd	92.0 a	93.3 a	28.3 b	28.8 a	17.5 ab
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Resource	0.0403	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	N-Pak AMS	17	lb ai/100 gal	C						
11	Sharpen	0.0223	lb ai/a	B	35.0 bcd	97.0 a	70.0 a	26.3 b	41.3 a	23.8 ab
	Spartan	0.125	lb ai/a	B						
	Roundup WeatherMax	1.13	lb ae/a	C						
	N-Pak AMS	17	lb ai/100 gal	C						
12	UNTREATED				0.0 e	0.0 b	0.0 b	0.0 c	0.0 a	0.0 b
LSD (P=.05)		20.18			6.52	23.81	16.35	33.91	27.45	
Standard Deviation		13.97			4.51	16.49	11.33	23.48	19.01	
CV		38.05			5.68	23.94	30.2	65.88	61.79	
Bartlett's X2		4.121			19.166	32.668	6.541	11.268	26.325	
P(Bartlett's X2)		0.903			0.008*	0.001*	0.685	0.258	0.002*	
Replicate F		6.319			4.764	3.879	3.789	0.174	0.861	
Replicate Prob(F)		0.0017			0.0072	0.0176	0.0193	0.9130	0.4709	
Treatment F		12.294			273.249	16.250	19.219	2.486	3.777	
Treatment Prob(F)		0.0001			0.0001	0.0001	0.0001	0.0220	0.0015	

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Trt No.	Treatment Name	Rate	Unit	Appl Code	13	14	15	16	17	18	19
1	UNTREATED				0.0 d	0.0 b	0.0 d	0.0 d		0.0 c	0.0 c
2	Tackle NIS N-Pak AMS	1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A A		8.8 d	53.8 a	80.0 ab	1.0 d	5.0 b	3.8 c	55.0 b
3	Tackle NIS N-Pak AMS Tackle NIS N-Pak AMS	1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal 1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A A C C C		47.5 abc	81.3 a	86.3 ab	3.8 cd	69.3 a	91.8 a	90.0 a
4	Glyfos X-tra N-Pak AMS Tackle NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		56.3 ab	80.0 a	71.3 ab	6.8 bc	82.5 a	93.8 a	90.0 a
5	Glyfos X-tra N-Pak AMS Tackle NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 2.06 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		57.5 ab	80.0 a	93.8 a	10.5 b	86.3 a	92.0 a	97.0 a
6	Glyfos X-tra N-Pak AMS Extreme NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 0.81 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		68.8 a	93.8 a	55.0 abc	6.0 bcd	71.3 a	95.8 a	97.5 a
7	Sharpen Spartan Classic Cadet Roundup WeatherMax COC N-Pak AMS	0.0223 lb ai/a 0.125 lb ai/a 0.0156 lb ai/a 0.00356 lb ai/a 1.13 lb ae/a 1 % v/v 17 lb ai/100 gal	B B B C C C C		25.8 cd	88.8 a	53.8 abc	1.8 cd	68.8 a	90.0 a	98.0 a

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Pest Type	W Weed	W Weed	W Weed		W Weed	W Weed	W Weed				
Pest Code	TAROF	VENAL	ALLVI		TAROF	SETFA	SOOCA				
Pest Scientific Name	Taraxacum offi>	Vernonia altis>	Allium vineale		Taraxacum offi>	Setaria faberi	Solidago canad>				
Pest Name	Common dandel>	Tall ironweed	Wild garlic		Common dandel>	Giant foxtail	Canadian golde>				
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Crop Variety	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939				
Description					10-12 IN	10-12 IN	10-12 IN				
Rating Date	6-10-2010	6-10-2010	6-10-2010	6-10-2010	6-23-2010	6-23-2010	6-23-2010				
Rating Type	CONTRO	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority	V2	V2	V2	V2	SB-V4/R1	SB-V4/R1	SB-V4/R1				
Pest Stage Majority	6-15"	5-36"	18-24"		3-10"	2-6"	24-36"				
Pest Density, Unit	24.5YD2	14 YD2	5 YD2		20 YD2	85 YD2	6.5 YD2				
Assessed By	RH	RH	RH	RH	JR	JR	R				
Trt No.	Treatment Name	Rate	Unit	Appl Code	13	14	15	16	17	18	19
8	Sharpen	0.0223	lb ai/a	B	27.5 cd	95.5 a	37.5 bcd	3.1 cd	68.8 a	90.5 a	99.0 a
	Spartan	0.125	lb ai/a	B							
	Classic	0.0156	lb ai/a	B							
	Cadet	0.005	lb ai/a	C							
	Roundup WeatherMax	1.13	lb ae/a	C							
	COC	1	% v/v	C							
	N-Pak AMS	17	lb ai/100 gal	C							
9	Sharpen	0.0223	lb ai/a	B	25.0 cd	68.8 a	40.0 bcd	0.0 d	68.8 a	89.5 a	97.8 a
	Spartan	0.125	lb ai/a	B							
	Classic	0.0156	lb ai/a	B							
	Cadet	0.0064	lb ai/a	C							
	Roundup WeatherMax	1.13	lb ae/a	C							
	COC	1	% v/v	C							
	N-Pak AMS	17	lb ai/100 gal	C							
10	Sharpen	0.0223	lb ai/a	B	36.3 bc	85.0 a	48.8 abc	30.0 a	80.5 a	61.3 b	92.8 a
	Spartan	0.125	lb ai/a	B							
	Classic	0.0156	lb ai/a	B							
	Resource	0.0403	lb ai/a	C							
	Roundup WeatherMax	1.13	lb ae/a	C							
	N-Pak AMS	17	lb ai/100 gal	C							
11	Sharpen	0.0223	lb ai/a	B	0.0 d	58.8 a	16.3 cd	0.7 d	3.8 b	5.0 c	15.0 c
	Spartan	0.125	lb ai/a	B							
	Roundup WeatherMax	1.13	lb ae/a	C							
	N-Pak AMS	17	lb ai/100 gal	C							
12	UNTREATED				0.0 d	0.0 b	0.0 d	0.0 d		0.0 c	0.0 c
LSD (P=.05)		18.97			35.31	32.39	3.83		17.96	10.06	24.91
Standard Deviation		13.14			24.45	22.43	2.65		12.38	6.93	17.17
CV		44.63			37.36	46.21	50.1		20.47	11.67	24.76
Bartlett's X2		7.873			25.579	20.633	18.054		13.802	41.791	56.445
P(Bartlett's X2)		0.446			0.002*	0.014*	0.012*		0.13	0.001*	0.001*
Replicate F		2.143			1.048	1.746	1.147		1.001	2.365	0.367
Replicate Prob(F)		0.1136			0.3843	0.1767	0.3457		0.4073	0.0932	0.7773
Treatment F		13.669			7.334	7.944	40.435		23.914	155.278	22.512
Treatment Prob(F)		0.0001			0.0001	0.0001	0.0001		0.0001	0.0001	0.0001

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Trt No.	Treatment Name	Rate	Unit	Appl Code	20	21	22	23	24	25
1	UNTREATED					0.0 c	0.0 b	0.0 c	0.0 b	11.0845005 c
2	Tackle NIS N-Pak AMS	1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A A		0.0 c	32.5 bc	68.8 a	42.5 b	73.8 a	14.5290256 ab
3	Tackle NIS N-Pak AMS Tackle NIS N-Pak AMS	1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal 1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A A C C C		0.0 c	68.8 ab	81.3 a	100.0 a	83.8 a	15.6861645 a
4	Glyfos X-tra N-Pak AMS Tackle NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 1.03 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		0.3 c	68.8 ab	85.0 a	98.8 a	91.3 a	17.6371668 a
5	Glyfos X-tra N-Pak AMS Tackle NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 2.06 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		1.8 b	92.0 a	95.0 a	97.5 a	81.3 a	17.8793601 a
6	Glyfos X-tra N-Pak AMS Extreme NIS N-Pak AMS	0.75 lb ae/a 17 lb ai/100 gal 0.81 lb ai/a 0.25 % v/v 17 lb ai/100 gal	A A C C C		1.0 bc	62.5 ab	98.0 a	100.0 a	79.5 a	18.3099231 a
7	Sharpen Spartan Classic Cadet Roundup WeatherMax COC N-Pak AMS	0.0223 lb ai/a 0.125 lb ai/a 0.0156 lb ai/a 0.00356 lb ai/a 1.13 lb ae/a 1 % v/v 17 lb ai/100 gal	B B B C C C C		0.3 c	50.0 abc	90.8 a	98.8 a	96.3 a	16.4665677 a

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Pest Type		W Weed	W Weed	W Weed	W Weed					
Pest Code		TAROF	XANST	VENAL	ERICA					
Pest Scientific Name		Taraxacum offi>	Xanthium strum>	Vernonia altis>	Conyza canadens>					
Pest Name		Common dandelion>	Common cockleb>	Tall ironweed	Canada horsewee>					
Crop Code	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA	GLXMA				
BBCH Scale	BSOY	BSOY	BSOY	BSOY	BSOY	BSOY				
Crop Scientific Name	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max	Glycine max				
Crop Name	Soybean	Soybean	Soybean	Soybean	Soybean	Soybean				
Crop Variety	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939	AG 2939				
Description	10-12 IN									
Rating Date	6-23-2010	7-14-2010	7-14-2010	7-14-2010	7-14-2010	11-11-2010				
Rating Type	PHYGEN	CONTRO	CONTRO	CONTRO	CONTRO	YIELD				
Rating Unit	%	%	%	%	%	LB				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority	SB-V4/R1	R4	R4	R4	R4					
Pest Stage Majority			4-24"	18-36"	2-6"					
Pest Density, Unit			25.5YD2	13 YD2	3 YD2					
Assessed By	JR	PM	PM	PM	PM					
Trt No.	Treatment Name	Rate	Unit	Appl Code	20	21	22	23	24	25
8	Sharpen	0.0223	lb ai/a	B	0.5 c	48.8 abc	82.5 a	77.5 a	98.8 a	15.7668969 a
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Cadet	0.005	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	COC	1	% v/v	C						
	N-Pak AMS	17	lb ai/100 gal	C						
9	Sharpen	0.0223	lb ai/a	B	0.3 c	48.8 abc	86.3 a	97.5 a	94.0 a	17.0451372 a
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Cadet	0.0064	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	COC	1	% v/v	C						
	N-Pak AMS	17	lb ai/100 gal	C						
10	Sharpen	0.0223	lb ai/a	B	5.0 a	42.5 abc	87.5 a	96.8 a	97.0 a	16.5338418 a
	Spartan	0.125	lb ai/a	B						
	Classic	0.0156	lb ai/a	B						
	Resource	0.0403	lb ai/a	C						
	Roundup WeatherMax	1.13	lb ae/a	C						
	N-Pak AMS	17	lb ai/100 gal	C						
11	Sharpen	0.0223	lb ai/a	B	0.0 c	33.8 bc	100.0 a	22.5 bc	86.3 a	11.9860013 bc
	Spartan	0.125	lb ai/a	B						
	Roundup WeatherMax	1.13	lb ae/a	C						
	N-Pak AMS	17	lb ai/100 gal	C						
12	UNTREATED				0.0 c	0.0 c	0.0 b	0.0 c	0.0 b	16.2243745 a
LSD (P=.05)		0.90				35.27	26.19	29.14	24.32	2.56495168
Standard Deviation		0.62				24.43	18.14	20.18	16.84	1.77639037
CV		75.72				53.47	24.88	29.12	22.92	11.27
Bartlett's X2		4.759				10.367	21.425	49.395	39.848	7.934
P(Bartlett's X2)		0.446				0.322	0.006*	0.001*	0.001*	0.719
Replicate F		1.421				5.039	1.433	1.281	3.729	0.242
Replicate Prob(F)		0.2583				0.0055	0.2509	0.2971	0.0206	0.8666
Treatment F		23.068				4.892	14.940	16.553	17.446	6.350
Treatment Prob(F)		0.0001				0.0002	0.0001	0.0001	0.0001	0.0001

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Trt No.	Treatment Name	Rate	Unit	Appl Code	26	27
1	UNTREATED				9.72280981 a	33.4 c
2	Tackle	1.03 lb ai/a	A		10.31663998 a	43.4 ab
	NIS	0.25 % v/v	A			
	N-Pak AMS	17 lb ai/100 gal	A			
3	Tackle	1.03 lb ai/a	A		9.80308821 a	47.2 a
	NIS	0.25 % v/v	A			
	N-Pak AMS	17 lb ai/100 gal	A			
	Tackle	1.03 lb ai/a	C			
	NIS	0.25 % v/v	C			
	N-Pak AMS	17 lb ai/100 gal	C			
4	Glyphos X-tra	0.75 lb ae/a	A		9.36273287 a	53.4 a
	N-Pak AMS	17 lb ai/100 gal	A			
	Tackle	1.03 lb ai/a	C			
	NIS	0.25 % v/v	C			
	N-Pak AMS	17 lb ai/100 gal	C			
5	Glyphos X-tra	0.75 lb ae/a	A		9.55416012 a	54.0 a
	N-Pak AMS	17 lb ai/100 gal	A			
	Tackle	2.06 lb ai/a	C			
	NIS	0.25 % v/v	C			
	N-Pak AMS	17 lb ai/100 gal	C			
6	Glyphos X-tra	0.75 lb ae/a	A		9.53506947 a	55.3 a
	N-Pak AMS	17 lb ai/100 gal	A			
	Extreme	0.81 lb ai/a	C			
	NIS	0.25 % v/v	C			
	N-Pak AMS	17 lb ai/100 gal	C			
7	Sharpen	0.0223 lb ai/a	B		9.56169319 a	49.7 a
	Spartan	0.125 lb ai/a	B			
	Classic	0.0156 lb ai/a	B			
	Cadet	0.00356 lb ai/a	C			
	Roundup WeatherMax	1.13 lb ae/a	C			
	COC	1 % v/v	C			
	N-Pak AMS	17 lb ai/100 gal	C			

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Pest Type					
Pest Code					
Pest Scientific Name					
Pest Name					
Crop Code		GLXMA	GLXMA		
BBCH Scale		BSOY	BSOY		
Crop Scientific Name		Glycine max	Glycine max		
Crop Name		Soybean	Soybean		
Crop Variety		AG 2939	AG 2939		
Description					
Rating Date		11-11-2010	11-11-2010		
Rating Type		MOISTURE	YIELD		
Rating Unit		%	BU		
Number of Subsamples		1	1		
Crop Stage Majority					
Pest Stage Majority					
Pest Density, Unit					
Assessed By					
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	
					26
					27
8	Sharpen	0.0223	lb ai/a	B	9.44121360 a
	Spartan	0.125	lb ai/a	B	47.7 a
	Classic	0.0156	lb ai/a	B	
	Cadet	0.005	lb ai/a	C	
	Roundup WeatherMax	1.13	lb ae/a	C	
	COC	1	% v/v	C	
	N-Pak AMS	17	lb ai/100 gal	C	
9	Sharpen	0.0223	lb ai/a	B	9.66060449 a
	Spartan	0.125	lb ai/a	B	51.4 a
	Classic	0.0156	lb ai/a	B	
	Cadet	0.0064	lb ai/a	C	
	Roundup WeatherMax	1.13	lb ae/a	C	
	COC	1	% v/v	C	
	N-Pak AMS	17	lb ai/100 gal	C	
10	Sharpen	0.0223	lb ai/a	B	9.61836339 a
	Spartan	0.125	lb ai/a	B	49.9 a
	Classic	0.0156	lb ai/a	B	
	Resource	0.0403	lb ai/a	C	
	Roundup WeatherMax	1.13	lb ae/a	C	
	N-Pak AMS	17	lb ai/100 gal	C	
11	Sharpen	0.0223	lb ai/a	B	9.69795801 a
	Spartan	0.125	lb ai/a	B	36.1 bc
	Roundup WeatherMax	1.13	lb ae/a	C	
	N-Pak AMS	17	lb ai/100 gal	C	
12	UNTREATED				9.66562272 a
LSD (P=.05)					0.683509359
Standard Deviation					7.67
CV					0.473373252
Bartlett's X2					4.9
P(Bartlett's X2)					11.17
Replicate F					29.122
Replicate Prob(F)					7.335
Treatment F					0.002*
Treatment Prob(F)					0.771
Replicate F					1.883
Replicate Prob(F)					0.1517
Treatment F					0.9025
Treatment Prob(F)					6.566
					0.4468
					0.0001

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Column 7: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; VE; 3-15"; PM
 Column 8: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; VE; 5-36"; PM
 Column 9: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V1; per square yard; GN
 Column 10: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V1; per square yard; GN
 Column 11: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V1; per square yard; GN
 Column 12: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V1; per square yard; GN
 Column 13: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V2; 6-15"; per square yard; RH
 Column 14: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V2; 5-36"; per square yard; RH
 Column 15: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; V2; 18-24"; per square yard; RH
 Column 16: US; AG 2939; phytotoxicity - general / injury; percent; V2; RH
 Column 17: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; SB-V4/R1; 3-10"; per square yard; JR
 Column 18: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; SB-V4/R1; 2-6"; per square yard; JR
 Column 19: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; SB-V4/R1; 24-36"; per square yard; R
 Column 20: US; AG 2939; phytotoxicity - general / injury; percent; SB-V4/R1; JR
 Column 21: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; R4; PM
 Column 22: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; R4; 4-24"; per square yard; PM
 Column 23: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; R4; 18-36"; per square yard; PM
 Column 24: Weed or volunteer crop; US; US; AG 2939; control / burndown or knockdown; percent; R4; 2-6"; per square yard; PM
 Column 25: US; AG 2939; yield; pound
 Column 26: US; AG 2939; MOISTURE; percent
 Column 27: US; AG 2939; yield; bushel