

Glyphosate-resistant horseweed control in Enlist E3 soybean

Trial ID: NTS09-19 Study Dir.: Sprague, Powell, Stiles
 Conducted: Isabella Co. Investigator: Christy Sprague

Planting Date: May-29-2019 **Row Spacing:** 30 IN
Variety: STINE 24EA12 Enlist **No. of Reps:** 4
Population: 150000 seeds/A **% OM:** 2.6
Soil Type: LS loamy sand **pH:** 5.1
Plot Size: 10 X 30 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: No-tilled into soybean stubble

Fertilizer:

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1	ERICA	horseweed	Conyza canadensis
Crop	Code	Common Name	
1	GLXMA	Soybean	

Application Description

	A	B	C
Application Timing:	PRE	POST	LPOS
Date Treated:	May-29-2019	Jun-26-2019	Jul-8-2019
Time Treated:	1:00 PM	6:45 PM	11:15 AM
% Cloud Cover:	80	75	10
Air Temp., Unit:	66 F	80 F	72 F
% Relative Humidity:	88	44	55
Wind Speed/Unit/Dir:	3 mph SW	4 mph W	3 mph E
Soil Temp, Unit:	64 F	81 F	72 F
Leaf Moist/Dew Presence (Y/N):	4	5	5
Soil Moist:	4	5	4

Crop Stage at Each Application

	A	B	C
Crop 1 Name:	GLXMA	GLXMA	GLXMA
Height:		4-6 " (5)	10 "
Stage:		V2	V6

Weed Stage at Each Application

	A	B	C
Weed 1 Name:	ERICA	ERICA	ERICA
Height:	0.125-4 " (2)	0.125-14 " (5)	0.5-16 " (5)
Stage:	bolt	bolt	bolt

Weed Density

1
Date: Jul-8-2019
Weed Name: ERICA
Density: 25 FT2

Application Equipment

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 mph	AIXR	11003	26 "	20 "	100 "	19 GAL/AC	WATER	30 psi
B	CUB	3.8 mph	AIXR	11003	26 "	20 "	100 "	19 GAL/AC	WATER	30 psi
C	CUB	3.8 mph	AIXR	11003	36 "	20 "	100 "	19 GAL/AC	WATER	30 psi

Comments:

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Pest Code	ERICA		GLXMA		ERICA	
	Jun-5-2019	Jun-19-2019	Jun-19-2019	Jun-26-2019	Jun-26-2019	Jun-26-2019
Crop Type, Code						
Rating Date						
Rating Type	control	injury	control	injury	control	
Rating Unit	percent	percent	percent	percent	percent	
Trt-Eval Interval	7 DA-A	21 DA-A	21 DA-A	28 DA-A	28 DA-A	
Number of Decimals	0	0	0	0	0	

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		PRE	A	10	0	10	0	3
1	AMS		WG	17 lb/100 gal		PRE	A					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
1	AMS		WG	17 lb/100 gal		POST	B					
2	Enlist Duo	3.3	SL	3.5 pt/a		PRE	A	60	0	56	0	50
2	AMS		WG	17 lb/100 gal		PRE	A					
2	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
2	AMS		WG	17 lb/100 gal		POST	B					
2	Enlist Duo	3.3	SL	4.75 pt/a		LPOS	C					
2	AMS		WG	17 lb/100 gal		LPOS	C					
3	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	63	0	63	0	58
3	AMS		WG	17 lb/100 gal		PRE	A					
3	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
3	AMS		WG	17 lb/100 gal		POST	B					
3	Liberty	2.34	SL	32 fl oz/a		LPOS	C					
3	AMS		WG	17 lb/100 gal		LPOS	C					
4	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	73	0	73	0	69
4	Metribuzin	75	WG	6 oz/a		PRE	A					
4	AMS		WG	17 lb/100 gal		PRE	A					
4	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
4	AMS		WG	17 lb/100 gal		POST	B					
4	Enlist One	3.8	SL	32 fl oz/a		LPOS	C					
4	Liberty	2.34	SL	32 fl oz/a		LPOS	C					
4	AMS		WG	17 lb/100 gal		LPOS	C					
5	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	68	0	55	0	59
5	AMS		WG	17 lb/100 gal		PRE	A					
5	Enlist Duo	3.3	SL	4.75 pt/a		POST	B					
5	AMS		WG	17 lb/100 gal		POST	B					
6	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	78	0	73	0	70
6	Metribuzin	75	WG	6 oz/a		PRE	A					
6	AMS		WG	17 lb/100 gal		PRE	A					
6	Enlist Duo	3.3	SL	4.75 pt/a		POST	B					
6	AMS		WG	17 lb/100 gal		POST	B					
7	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	64	0	63	0	59
7	AMS		WG	17 lb/100 gal		PRE	A					
7	Liberty	2.34	SL	32 fl oz/a		POST	B					
7	AMS		WG	17 lb/100 gal		POST	B					
8	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	81	0	76	0	78
8	Metribuzin	75	WG	6 oz/a		PRE	A					
8	AMS		WG	17 lb/100 gal		PRE	A					
8	Liberty	2.34	SL	32 fl oz/a		POST	B					
8	AMS		WG	17 lb/100 gal		POST	B					

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Pest Code	ERICA		GLXMA		ERICA		GLXMA		ERICA				
Crop Type, Code	Jun-5-2019		Jun-19-2019		Jun-19-2019		Jun-26-2019		Jun-26-2019				
Rating Date	control		injury		control		injury		control				
Rating Type	percent		percent		percent		percent		percent				
Rating Unit	7 DA-A		21 DA-A		21 DA-A		28 DA-A		28 DA-A				
Trt-Eval Interval	0		0		0		0		0				
Number of Decimals													
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code						
9	Enlist Duo	3.3	SL	4.75	pt/a	PRE	A	66	0	60	0	58	
9	AMS		WG	17	lb/100 gal	PRE	A						
9	Enlist One	3.8	SL	32	fl oz/a	POST	B						
9	Liberty	2.34	SL	32	fl oz/a	POST	B						
9	AMS		WG	17	lb/100 gal	POST	B						
10	Enlist Duo	3.3	SL	4.75	pt/a	PRE	A	76	0	77	0	74	
10	Metribuzin	75	WG	6	oz/a	PRE	A						
10	AMS		WG	17	lb/100 gal	PRE	A						
10	Enlist One	3.8	SL	32	fl oz/a	POST	B						
10	Liberty	2.34	SL	32	fl oz/a	POST	B						
10	AMS		WG	17	lb/100 gal	POST	B						
11	Sharpen	2.85	L	1	fl oz/a	PRE	A	86	0	64	0	59	
11	Roundup PowerMax	4.5	SL	32	fl oz/a	PRE	A						
11	MSO		L	1	% v/v	PRE	A						
11	AMS		WG	17	lb/100 gal	PRE	A						
11	Liberty	2.34	SL	32	fl oz/a	POST	B						
11	AMS		WG	17	lb/100 gal	POST	B						
12	Sharpen	2.85	L	1	fl oz/a	PRE	A	89	0	65	0	62	
12	Roundup PowerMax	4.5	SL	32	fl oz/a	PRE	A						
12	MSO		L	1	% v/v	PRE	A						
12	AMS		WG	17	lb/100 gal	PRE	A						
12	Enlist One	3.8	SL	32	fl oz/a	POST	B						
12	Liberty	2.34	SL	32	fl oz/a	POST	B						
12	AMS		WG	17	lb/100 gal	POST	B						
LSD P=.05								10.4	.	9.3	.	13.9	
Standard Deviation								7.2	0.0	6.5	0.0	9.7	
CV								10.72	0.0	10.61	0.0	16.67	

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Pest Code	ERICA	ERICA	GLXMA	ERICA	ERICA
Crop Type, Code	Jul-3-2019	Jul-17-2019	Aug-7-2019	Aug-21-2019	Sep-17-2019
Rating Date	control	control	injury	control	control
Rating Type	percent	percent	percent	percent	percent
Rating Unit	7 DA-B	9 DA-C	30 DA-C	44 DA-C	71 DA-C
Trt-Eval Interval	0	0	0	0	0
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		PRE	A	15	25	0	20	15
1	AMS		WG	17 lb/100 gal		PRE	A					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
1	AMS		WG	17 lb/100 gal		POST	B					
2	Enlist Duo	3.3	SL	3.5 pt/a		PRE	A	44	70	0	99	98
2	AMS		WG	17 lb/100 gal		PRE	A					
2	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
2	AMS		WG	17 lb/100 gal		POST	B					
2	Enlist Duo	3.3	SL	4.75 pt/a		LPOS	C					
2	AMS		WG	17 lb/100 gal		LPOS	C					
3	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	44	91	0	94	91
3	AMS		WG	17 lb/100 gal		PRE	A					
3	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
3	AMS		WG	17 lb/100 gal		POST	B					
3	Liberty	2.34	SL	32 fl oz/a		LPOS	C					
3	AMS		WG	17 lb/100 gal		LPOS	C					
4	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	65	94	0	100	100
4	Metribuzin	75	WG	6 oz/a		PRE	A					
4	AMS		WG	17 lb/100 gal		PRE	A					
4	Roundup PowerMax	4.5	SL	32 fl oz/a		POST	B					
4	AMS		WG	17 lb/100 gal		POST	B					
4	Enlist One	3.8	SL	32 fl oz/a		LPOS	C					
4	Liberty	2.34	SL	32 fl oz/a		LPOS	C					
4	AMS		WG	17 lb/100 gal		LPOS	C					
5	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	89	86	0	88	88
5	AMS		WG	17 lb/100 gal		PRE	A					
5	Enlist Duo	3.3	SL	4.75 pt/a		POST	B					
5	AMS		WG	17 lb/100 gal		POST	B					
6	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	94	87	0	96	96
6	Metribuzin	75	WG	6 oz/a		PRE	A					
6	AMS		WG	17 lb/100 gal		PRE	A					
6	Enlist Duo	3.3	SL	4.75 pt/a		POST	B					
6	AMS		WG	17 lb/100 gal		POST	B					
7	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	100	97	0	94	93
7	AMS		WG	17 lb/100 gal		PRE	A					
7	Liberty	2.34	SL	32 fl oz/a		POST	B					
7	AMS		WG	17 lb/100 gal		POST	B					
8	Enlist Duo	3.3	SL	4.75 pt/a		PRE	A	100	99	0	95	94
8	Metribuzin	75	WG	6 oz/a		PRE	A					
8	AMS		WG	17 lb/100 gal		PRE	A					
8	Liberty	2.34	SL	32 fl oz/a		POST	B					
8	AMS		WG	17 lb/100 gal		POST	B					

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Rating Date	Jul-3-2019	Jul-17-2019	Aug-7-2019	Aug-21-2019	Sep-17-2019
Rating Type	control	control	injury	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	7 DA-B	9 DA-C	30 DA-C	44 DA-C	71 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
9	Enlist Duo	3.3	SL	4.75	pt/a	PRE	A	99	98	0	94	91
9	AMS		WG	17	lb/100 gal	PRE	A					
9	Enlist One	3.8	SL	32	fl oz/a	POST	B					
9	Liberty	2.34	SL	32	fl oz/a	POST	B					
9	AMS		WG	17	lb/100 gal	POST	B					
10	Enlist Duo	3.3	SL	4.75	pt/a	PRE	A	99	100	0	99	100
10	Metribuzin	75	WG	6	oz/a	PRE	A					
10	AMS		WG	17	lb/100 gal	PRE	A					
10	Enlist One	3.8	SL	32	fl oz/a	POST	B					
10	Liberty	2.34	SL	32	fl oz/a	POST	B					
10	AMS		WG	17	lb/100 gal	POST	B					
11	Sharpen	2.85	L	1	fl oz/a	PRE	A	98	98	0	99	96
11	Roundup PowerMax	4.5	SL	32	fl oz/a	PRE	A					
11	MSO		L	1	% v/v	PRE	A					
11	AMS		WG	17	lb/100 gal	PRE	A					
11	Liberty	2.34	SL	32	fl oz/a	POST	B					
11	AMS		WG	17	lb/100 gal	POST	B					
12	Sharpen	2.85	L	1	fl oz/a	PRE	A	99	98	0	99	97
12	Roundup PowerMax	4.5	SL	32	fl oz/a	PRE	A					
12	MSO		L	1	% v/v	PRE	A					
12	AMS		WG	17	lb/100 gal	PRE	A					
12	Enlist One	3.8	SL	32	fl oz/a	POST	B					
12	Liberty	2.34	SL	32	fl oz/a	POST	B					
12	AMS		WG	17	lb/100 gal	POST	B					
LSD P=.05								6.9	5.9	.	6.1	8.2
Standard Deviation								4.8	4.1	0.0	4.2	5.7
CV								6.08	4.75	0.0	4.73	6.5