

MSU Weed Science Research Program

Benefits of PRE herbicides for weed control and yield in LibertyLink soybean

Trial ID: SOY04-15 Study Dir.: Sprague and Powell
 Conducted: Campus C-12 Investigator: Christy Sprague

Date Planted: May/06/2015 Row Spacing: 30 IN
 Variety: MCIA 2512LL No. of Reps: 4
 Population: 150,000 seeds/A % OM: 3.5
 Soil Type: Sandy clay loam pH: 7.7
 Plot Size: 10 X 30 FT Design: RANDOMIZED COMPLETE BLOCK

Tillage: Fall chisel plow; spring soil finish twice

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	ANGR	mainly foxtail species	SETARIA SP.
2.	CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
3.	AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
Crop	Code	Common Name	
1.	GLXMA	SOYBEAN	

Application Description

	A	B	C	D
Application Timing:	PRE	EPOS	POST	LPOS
Date Treated:	May/06/2015	Jun/03/2015	Jun/09/2015	Jun/22/2015
Time Treated:	8:45 PM	11:00 AM	1:30 PM	9:15 AM
% Cloud Cover:	20	0	20	10
Air Temp., Unit:	70 F	75 F	70 F	76 F
% Relative Humidity:	58	46	70	66
Wind Speed/Unit/Dir:	1 mph E	2 mph S	4 mph W	3 mph S
Soil Temp., Unit:	63 F	62 F	62 F	75 F
Soil/Leaf Surface M:	4	5 5	4 5	4 5
Soil Moist (1=w 5=d):	4	4	3	3

Crop Stage at Each Application

	A	B	C	D
Crop Name:	GLXMA	GLXMA	GLXMA	GLXMA
Height (In.):	-	4"	6"	14"
Stage (L):	-	V1	V2	V4

Weed Stage at Each Application

	A	B	C	D
Weed 1 Name:	ANGR	ANGR	ANGR	ANGR
Height (In.):	-	1.5"	0.5"	8-12"
Stage (L):	-	2	1	3-4
Weed 2 Name:	CHEAL	CHEAL	CHEAL	CHEAL
Height (In.):	-	1.5"	2"	7-8"
Stage (L):	-	4	4	6
Weed 3 Name:	AMBEL	AMBEL	AMBEL	AMBEL
Height (In.):	-	2"	1-3"	8-10"
Stage (L):	-	4	4-6	6-8

Weed Density (plants/sq. ft.)

	1	2	3
Date:	Jun/09/2015	Jun/09/2015	Jun/09/2015
Weed Name:	ANGR	CHEAL	AMBEL
Density:	249	10	157

Application Equipment

Appl	Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	GPA	Carrier	PSI
A	Cub	3.8	AIXR	11003	20"	20"	100"	19	Water	28
B	Cub	3.8	AIXR	11003	24"	20"	100"	19	Water	28
C	Cub	3.8	AIXR	11003	28"	20"	100"	19	Water	28
D	Cub	3.8	AIXR	11003	28"	20"	100"	19	Water	28

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Study Dir.: Sprague and Powell
 Investigator: Christy Sprague

Weed Code								GLXMA	ANGR	CHEAL	AMBEL	GLXMA
Crop Code								injury	control	control	control	injury
Rating Data Type								percent	percent	percent	percent	percent
Rating Unit								Jun/03/2015	Jun/03/2015	Jun/03/2015	Jun/03/2015	Jun/10/2015
Rating Date								0 DA-B	0 DA-B	0 DA-B	0 DA-B	7 DA-B
Trt-Eval Interval								0	0	0	0	0
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Authority MAXX	66	WG	6.4	oz/a	PRE	A	0	91	99	23	4
1	Liberty	2.34	L	29	fl oz/a	EPOS	B					
1	AMS		WG	8.5	lb/100 gal	EPOS	B					
2	Authority MTZ	45	WG	16	oz/a	PRE	A	0	95	99	65	3
2	Liberty	2.34	L	29	fl oz/a	EPOS	B					
2	AMS		WG	8.5	lb/100 gal	EPOS	B					
3	Liberty	2.34	L	29	fl oz/a	EPOS	B	0	0	0	0	4
3	AMS		WG	8.5	lb/100 gal	EPOS	B					
4	Authority MAXX	66	WG	6.4	oz/a	PRE	A	0	91	99	21	0
4	Liberty	2.34	L	29	fl oz/a	POST	C					
4	AMS		WG	8.5	lb/100 gal	POST	C					
5	Authority MTZ	45	WG	16	oz/a	PRE	A	0	98	99	64	0
5	Liberty	2.34	L	29	fl oz/a	POST	C					
5	AMS		WG	8.5	lb/100 gal	POST	C					
6	Liberty	2.34	L	29	fl oz/a	POST	C	0	0	0	0	0
6	AMS		WG	8.5	lb/100 gal	POST	C					
7	Untreated							0	0	0	0	0
8	Authority MAXX	66	WG	6.4	oz/a	PRE	A	0	89	99	23	0
8	Liberty	2.34	L	29	fl oz/a	LPOS	D					
8	AMS		WG	8.5	lb/100 gal	LPOS	D					
9	Authority MTZ	45	WG	16	oz/a	PRE	A	0	95	99	66	0
9	Liberty	2.34	L	29	fl oz/a	LPOS	D					
9	AMS		WG	8.5	lb/100 gal	LPOS	D					
10	Liberty	2.34	L	29	fl oz/a	LPOS	D	0	0	0	0	0
10	AMS		WG	8.5	lb/100 gal	LPOS	D					
LSD (P=.05)								0.0	4.9	0.0	5.2	0.8
CV								0.0	6.06	0.0	13.61	50.43

Means followed by same letter do not significantly differ (P=.05, LSD)

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Trial ID: SOY04-15

Study Dir.: Sprague and Powell

Conducted: Campus C-12

Investigator: Christy Sprague

Weed Code								ANGR	CHEAL	AMBEL	GLXMA	ANGR
Crop Code								control	control	control	injury	control
Rating Data Type								percent	percent	percent	percent	percent
Rating Unit								Jun/10/2015	Jun/10/2015	Jun/10/2015	Jun/17/2015	Jun/17/2015
Rating Date								7 DA-B	7 DA-B	7 DA-B	8 DA-C	8 DA-C
Trt-Eval Interval								0	0	0	0	0
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Authority MAXX	66	WG	6.4	oz/a	PRE	A	98	99	99	0	89
1	Liberty	2.34	L	29	fl oz/a	EPOS	B					
1	AMS		WG	8.5	lb/100 gal	EPOS	B					
2	Authority MTZ	45	WG	16	oz/a	PRE	A	98	99	99	0	80
2	Liberty	2.34	L	29	fl oz/a	EPOS	B					
2	AMS		WG	8.5	lb/100 gal	EPOS	B					
3	Liberty	2.34	L	29	fl oz/a	EPOS	B	81	99	84	0	69
3	AMS		WG	8.5	lb/100 gal	EPOS	B					
4	Authority MAXX	66	WG	6.4	oz/a	PRE	A	95	99	0	0	94
4	Liberty	2.34	L	29	fl oz/a	POST	C					
4	AMS		WG	8.5	lb/100 gal	POST	C					
5	Authority MTZ	45	WG	16	oz/a	PRE	A	88	99	61	0	94
5	Liberty	2.34	L	29	fl oz/a	POST	C					
5	AMS		WG	8.5	lb/100 gal	POST	C					
6	Liberty	2.34	L	29	fl oz/a	POST	C	0	0	0	1	74
6	AMS		WG	8.5	lb/100 gal	POST	C					
7	Untreated							0	0	0	0	0
8	Authority MAXX	66	WG	6.4	oz/a	PRE	A	87	99	0	0	82
8	Liberty	2.34	L	29	fl oz/a	LPOS	D					
8	AMS		WG	8.5	lb/100 gal	LPOS	D					
9	Authority MTZ	45	WG	16	oz/a	PRE	A	90	99	61	0	71
9	Liberty	2.34	L	29	fl oz/a	LPOS	D					
9	AMS		WG	8.5	lb/100 gal	LPOS	D					
10	Liberty	2.34	L	29	fl oz/a	LPOS	D	0	0	0	0	0
10	AMS		WG	8.5	lb/100 gal	LPOS	D					
LSD (P=.05)								4.2	0.0	3.2	0.7	7.7
CV								4.51	0.0	5.42	644.5	8.08

Means followed by same letter do not significantly differ (P=.05, LSD)

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Trial ID: SOY04-15
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Weed Code								CHEAL	AMBEL	GLXMA	ANGR	CHEAL
Crop Code								control	control	injury	control	control
Rating Data Type								percent	percent	percent	percent	percent
Rating Unit								Jun/17/2015	Jun/17/2015	Jun/23/2015	Jun/23/2015	Jun/23/2015
Rating Date								8 DA-C	8 DA-C	14 DA-C	14 DA-C	14 DA-C
Trt-Eval Interval								0	0	0	0	0
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Authority MAXX	66	WG	6.4	oz/a	PRE	A	99	97	0	89	99
1	Liberty	2.34	L	29	fl oz/a	EPOS	B					
1	AMS		WG	8.5	lb/100 gal	EPOS	B					
2	Authority MTZ	45	WG	16	oz/a	PRE	A	99	89	0	79	99
2	Liberty	2.34	L	29	fl oz/a	EPOS	B					
2	AMS		WG	8.5	lb/100 gal	EPOS	B					
3	Liberty	2.34	L	29	fl oz/a	EPOS	B	98	95	0	68	92
3	AMS		WG	8.5	lb/100 gal	EPOS	B					
4	Authority MAXX	66	WG	6.4	oz/a	PRE	A	99	98	0	93	99
4	Liberty	2.34	L	29	fl oz/a	POST	C					
4	AMS		WG	8.5	lb/100 gal	POST	C					
5	Authority MTZ	45	WG	16	oz/a	PRE	A	99	99	0	88	99
5	Liberty	2.34	L	29	fl oz/a	POST	C					
5	AMS		WG	8.5	lb/100 gal	POST	C					
6	Liberty	2.34	L	29	fl oz/a	POST	C	99	99	0	74	97
6	AMS		WG	8.5	lb/100 gal	POST	C					
7	Untreated							0	0	0	0	0
8	Authority MAXX	66	WG	6.4	oz/a	PRE	A	99	0	0	76	99
8	Liberty	2.34	L	29	fl oz/a	LPOS	D					
8	AMS		WG	8.5	lb/100 gal	LPOS	D					
9	Authority MTZ	45	WG	16	oz/a	PRE	A	99	60	0	69	99
9	Liberty	2.34	L	29	fl oz/a	LPOS	D					
9	AMS		WG	8.5	lb/100 gal	LPOS	D					
10	Liberty	2.34	L	29	fl oz/a	LPOS	D	0	0	0	0	0
10	AMS		WG	8.5	lb/100 gal	LPOS	D					
LSD (P=.05)								1.0	3.1	0.0	10.6	3.1
CV								0.85	3.31	0.0	11.45	2.76

Means followed by same letter do not significantly differ (P=.05, LSD)

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Weed Code								AMBEL		ANGR	CHEAL	AMBEL
Crop Code									GLXMA			
Rating Data Type								control	injury	control	control	control
Rating Unit								percent	percent	percent	percent	percent
Rating Date								Jun/23/2015	Jul/13/2015	Jul/13/2015	Jul/13/2015	Jul/13/2015
Trt-Eval Interval								14 DA-C	21 DA-D	21 DA-D	21 DA-D	21 DA-D
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Authority MAXX	66	WG	6.4	oz/a	PRE	A	93	0	85	99	84
1	Liberty	2.34	L	29	fl oz/a	EPOS	B					
1	AMS		WG	8.5	lb/100 gal	EPOS	B					
2	Authority MTZ	45	WG	16	oz/a	PRE	A	88	0	71	99	70
2	Liberty	2.34	L	29	fl oz/a	EPOS	B					
2	AMS		WG	8.5	lb/100 gal	EPOS	B					
3	Liberty	2.34	L	29	fl oz/a	EPOS	B	90	0	56	90	76
3	AMS		WG	8.5	lb/100 gal	EPOS	B					
4	Authority MAXX	66	WG	6.4	oz/a	PRE	A	97	0	88	99	87
4	Liberty	2.34	L	29	fl oz/a	POST	C					
4	AMS		WG	8.5	lb/100 gal	POST	C					
5	Authority MTZ	45	WG	16	oz/a	PRE	A	93	0	86	99	85
5	Liberty	2.34	L	29	fl oz/a	POST	C					
5	AMS		WG	8.5	lb/100 gal	POST	C					
6	Liberty	2.34	L	29	fl oz/a	POST	C	98	0	66	86	85
6	AMS		WG	8.5	lb/100 gal	POST	C					
7	Untreated							0	0	0	0	0
8	Authority MAXX	66	WG	6.4	oz/a	PRE	A	0	0	82	99	83
8	Liberty	2.34	L	29	fl oz/a	LPOS	D					
8	AMS		WG	8.5	lb/100 gal	LPOS	D					
9	Authority MTZ	45	WG	16	oz/a	PRE	A	48	0	82	99	91
9	Liberty	2.34	L	29	fl oz/a	LPOS	D					
9	AMS		WG	8.5	lb/100 gal	LPOS	D					
10	Liberty	2.34	L	29	fl oz/a	LPOS	D	0	0	58	84	88
10	AMS		WG	8.5	lb/100 gal	LPOS	D					
LSD (P=.05)								10.0	0.0	8.2	9.1	5.8
CV								11.32	0.0	8.41	7.31	5.37

Means followed by same letter do not significantly differ (P=.05, LSD)

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Weed Code
 Crop Code
 Rating Data Type
 Rating Unit
 Rating Date
 Trt-Eval Interval
 # Subsamples, Dec.

GLXMA
 moisture
 percent
 Oct/16/2015
 116 DA-D
 1

GLXMA
 yield
 bu/acre
 Oct/16/2015
 at 13% M
 1

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	GLXMA moisture percent	GLXMA yield bu/acre
1	Authority MAXX	66	WG	6.4	oz/a	PRE	A	15.3	73.1
1	Liberty	2.34	L	29	fl oz/a	EPOS	B		
1	AMS		WG	8.5	lb/100 gal	EPOS	B		
2	Authority MTZ	45	WG	16	oz/a	PRE	A	15.0	73.4
2	Liberty	2.34	L	29	fl oz/a	EPOS	B		
2	AMS		WG	8.5	lb/100 gal	EPOS	B		
3	Liberty	2.34	L	29	fl oz/a	EPOS	B	15.2	76.8
3	AMS		WG	8.5	lb/100 gal	EPOS	B		
4	Authority MAXX	66	WG	6.4	oz/a	PRE	A	15.2	77.6
4	Liberty	2.34	L	29	fl oz/a	POST	C		
4	AMS		WG	8.5	lb/100 gal	POST	C		
5	Authority MTZ	45	WG	16	oz/a	PRE	A	15.2	77.2
5	Liberty	2.34	L	29	fl oz/a	POST	C		
5	AMS		WG	8.5	lb/100 gal	POST	C		
6	Liberty	2.34	L	29	fl oz/a	POST	C	14.9	78.1
6	AMS		WG	8.5	lb/100 gal	POST	C		
7	Untreated							15.7	36.9
8	Authority MAXX	66	WG	6.4	oz/a	PRE	A	15.1	78.1
8	Liberty	2.34	L	29	fl oz/a	LPOS	D		
8	AMS		WG	8.5	lb/100 gal	LPOS	D		
9	Authority MTZ	45	WG	16	oz/a	PRE	A	15.5	79.5
9	Liberty	2.34	L	29	fl oz/a	LPOS	D		
9	AMS		WG	8.5	lb/100 gal	LPOS	D		
10	Liberty	2.34	L	29	fl oz/a	LPOS	D	15.0	77.8
10	AMS		WG	8.5	lb/100 gal	LPOS	D		
LSD (P=.05)								0.62	6.22
CV								2.81	5.86

Means followed by same letter do not significantly differ (P=.05, LSD)