

MSU Weed Science Research Program

Weed control systems in Roundup Ready 2 Xtend soybean - "Regulated"

Trial ID: SOY15-14
 Conducted: Campus T-18

Study Dir.: Sprague and Powell
 Investigator: Christy Sprague

Date Planted: May/22/2014
Variety: RR2 XTEND
Population: 150,000 seeds/A
Soil Type: Loam
Plot Size: 10 x 30 FT

Row Spacing: 30 IN
No. of Reps: 4
% OM: 3.3
pH: 6.0
Design: RANDOMIZED COMPLETE BLOCK

Tillage: Spring disk & chisel, spring soil finish 2x.
Fertilizer: None

Crop and Weed Description

Code	Common Name	Scientific Name
1. ANGR	mainly foxtail species	SETARIA SP.
2. CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
3. AMAPO	AMARANTH, POWELL	AMARANTHUS POWELLII S.WATS.
4. AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
5. ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
Crop Code	Common Name	
1. GLXMA	SOYBEAN	

Application Description

	A	B	C	D
Application Timing:	PRE	EPOS	POST	LPOS
Date Treated:	May/22/2014	Jun/16/2014	Jun/27/2014	Jul/10/2014
Time Treated:	3:50 PM	2:41 PM	11:45 AM	4:00 PM
% Cloud Cover:	50	60	40	50
Air Temp., Unit:	69 F	83 F	80 F	75 F
% Relative Humidity:	46	46	51	52
wind Speed/Unit/Dir:	9 mph NW	6 mph SW	4 mph SE	2 mph NE
Soil Temp., Unit:	60 F	77 F	70 F	68 F
Soil/Leaf Surface M:	5 -	5 5	4 5	4 5
Soil Moist (1=w 5=d):	5	5	3	4

Crop Stage at Each Application

	A	B	C	D
Crop Name:	GLXMA	GLXMA	GLXMA	GLXMA
Height (In.):	-	6"	12"	18"
Stage (L):	-	V2	V4	V7

Weed Stage at Each Application

	A	B	C	D
Weed 1 Name:	ANGR	ANGR	ANGR	ANGR
Height (In.):	-	5"	10-13"	2-9"
Stage (L):	-	4	5-6	2-6"
Weed 2 Name:	CHEAL	CHEAL	CHEAL	CHEAL
Height (In.):	-	2-3"	3-7"	4"
Stage (L):	-	6-8	10-many	8
Weed 3 Name:	AMAPO	AMAPO	AMAPO	AMAPO
Height (In.):	-	2-3"	6"	2"
Stage (L):	-	6-8	many	4"
Weed 4 Name:	AMBEL	AMBEL	AMBEL	AMBEL
Height (In.):	-	1-2"	3-10"	-
Stage (L):	-	4	6-many	-
Weed 5 Name:	ABUTH	ABUTH	ABUTH	ABUTH
Height (In.):	-	2"	3-6"	-
Stage (L):	-	3	4-7	-

Weed Density (plants/sq. ft.)

	1	2	3	4	5
Date:	Jul/17/2014	Jul/17/2014	Jul/17/2014	Jul/17/2014	Jul/17/2014
Weed Name:	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Density:	10	5	<1	<1	<1

Application Equipment

App#	Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom width	GPA	Carrier	PSI
A	Cub	3.8	TTI	11003	21"	20"	100"	19	Water	30
B	Cub	3.8	TTI	11003	26"	20"	100"	19	Water	30
C	Cub	3.8	TTI	11003	30"	20"	100"	19	Water	30
D	Cub	3.8	TTI	11003	28"	20"	100"	19	Water	30

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Weed Code									ANGR	CHEAL	AMAPO
Crop Code									GLXMA		
Rating Data Type									injury	control	control
Rating Unit									percent	percent	percent
Rating Date									Jun/23/2014	Jun/23/2014	Jun/23/2014
Trt-Eval Interval									7 DA-B	7 DA-B	7 DA-B
# Subsamples, Dec.											

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax	4.5	SL	28	fl oz/a	EPOS	B	4	98	95	99
1	MON 10		L	2	% v/v	EPOS	B				
1	Roundup PowerMax	4.5	SL	28	fl oz/a	LPOS	D				
1	MON 10		L	2	% v/v	LPOS	D				
2	Roundup Xtend	3	SL	2	qt/a	EPOS	B	5	99	99	99
2	Warrant	3	L	3	pt/a	EPOS	B				
2	MON 10		L	2	% v/v	EPOS	B				
3	Valor XLT	40.3	WG	3	oz/a	PRE	A	1	45	70	94
3	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C				
3	MON 10		L	2	% v/v	POST	C				
4	Valor XLT	40.3	WG	3	oz/a	PRE	A	0	28	71	94
4	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C				
4	MON 10		L	2	% v/v	POST	C				
4	Flexstar GT 3.5	2.82	L	3.5	pt/a	LPOS	D				
4	MSO		L	1	% v/v	LPOS	D				
4	MON 10		L	2	% v/v	LPOS	D				
5	Valor XLT	40.3	WG	3	oz/a	PRE	A	0	39	64	99
5	Roundup Xtend	3	SL	2	qt/a	POST	C				
5	MON 10		L	2	% v/v	POST	C				
6	Valor XLT	40.3	WG	3	oz/a	PRE	A	2	49	70	96
6	Roundup Xtend	3	SL	2	qt/a	POST	C				
6	Warrant	3	L	3	pt/a	POST	C				
6	MON 10		L	2	% v/v	POST	C				
7	Boundary	6.5	L	1.5	pt/a	PRE	A	0	69	51	99
7	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C				
7	MSO		L	1	% v/v	POST	C				
7	MON 10		L	2	% v/v	POST	C				
8	Boundary	6.5	L	1.5	pt/a	PRE	A	1	69	59	89
8	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C				
8	Dual II Magnum	7.64	L	1	pt/a	POST	C				
8	MSO		L	1	% v/v	POST	C				
8	MON 10		L	2	% v/v	POST	C				
9	Untreated							0	0	0	0
10	Roundup Xtend	3	SL	2	qt/a	EPOS	B	6	99	99	98
10	MON 10		L	2	% v/v	EPOS	B				
10	Roundup Xtend	3	SL	2	qt/a	LPOS	D				
10	MON 10		L	2	% v/v	LPOS	D				

LSD (P=.05)	2.3	10.1	7.8	8.4
CV	83.12	11.79	7.93	6.71

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

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Weed Code	AMBEL	ABUTH	GLXMA	ANGR	CHEAL
Crop Code					
Rating Data Type	control	control	injury	control	control
Rating Unit	percent	percent	percent	percent	percent
Rating Date	Jun/23/2014	Jun/23/2014	Jul/03/2014	Jul/03/2014	Jul/03/2014
Trt-Eval Interval	7 DA-B	7 DA-B	6 DA-C	6 DA-C	6 DA-C
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	EPOS	B	99	99	0	96	91
1	MON 10		L	2	% v/v	EPOS	B					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	LPOS	D					
1	MON 10		L	2	% v/v	LPOS	D					
2	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	5	99	99
2	Warrant	3	L	3	pt/a	EPOS	B					
2	MON 10		L	2	% v/v	EPOS	B					
3	Valor XLT	40.3	WG	3	oz/a	PRE	A	65	83	1	93	94
3	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
3	MON 10		L	2	% v/v	POST	C					
4	Valor XLT	40.3	WG	3	oz/a	PRE	A	61	73	3	90	95
4	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
4	MON 10		L	2	% v/v	POST	C					
4	Flexstar GT 3.5	2.82	L	3.5	pt/a	LPOS	D					
4	MSO		L	1	% v/v	LPOS	D					
4	MON 10		L	2	% v/v	LPOS	D					
5	Valor XLT	40.3	WG	3	oz/a	PRE	A	70	75	7	94	99
5	Roundup Xtend	3	SL	2	qt/a	POST	C					
5	MON 10		L	2	% v/v	POST	C					
6	Valor XLT	40.3	WG	3	oz/a	PRE	A	65	55	7	95	96
6	Roundup Xtend	3	SL	2	qt/a	POST	C					
6	Warrant	3	L	3	pt/a	POST	C					
6	MON 10		L	2	% v/v	POST	C					
7	Boundary	6.5	L	1.5	pt/a	PRE	A	63	61	15	99	93
7	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
7	MSO		L	1	% v/v	POST	C					
7	MON 10		L	2	% v/v	POST	C					
8	Boundary	6.5	L	1.5	pt/a	PRE	A	65	43	15	99	93
8	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
8	Dual II Magnum	7.64	L	1	pt/a	POST	C					
8	MSO		L	1	% v/v	POST	C					
8	MON 10		L	2	% v/v	POST	C					
9	Untreated							0	0	0	0	0
10	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	2	99	99
10	MON 10		L	2	% v/v	EPOS	B					
10	Roundup Xtend	3	SL	2	qt/a	LPOS	D					
10	MON 10		L	2	% v/v	LPOS	D					

LSD (P=.05)	14.1	10.5	1.8	2.1	4.9
CV	14.17	10.53	22.57	1.7	3.92

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Weed Code	AMAPO	AMBEL	ABUTH	GLXMA	ANGR
Crop Code					
Rating Data Type	control	control	control	injury	control
Rating Unit	percent	percent	percent	percent	percent
Rating Date	Jul/03/2014	Jul/03/2014	Jul/03/2014	Jul/11/2014	Jul/11/2014
Trt-Eval Interval	6 DA-C	6 DA-C	6 DA-C	14 DA-C	14 DA-C
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	EPOS	B	98	97	97	0	91
1	MON 10		L	2	% v/v	EPOS	B					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	LPOS	D					
1	MON 10		L	2	% v/v	LPOS	D					
2	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	99	0	99
2	Warrant	3	L	3	pt/a	EPOS	B					
2	MON 10		L	2	% v/v	EPOS	B					
3	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	92	99	0	99
3	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
3	MON 10		L	2	% v/v	POST	C					
4	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	94	93	15	99
4	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
4	MON 10		L	2	% v/v	POST	C					
4	Flexstar GT 3.5	2.82	L	3.5	pt/a	LPOS	D					
4	MSO		L	1	% v/v	LPOS	D					
4	MON 10		L	2	% v/v	LPOS	D					
5	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	93	99	1	99
5	Roundup Xtend	3	SL	2	qt/a	POST	C					
5	MON 10		L	2	% v/v	POST	C					
6	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	94	96	2	99
6	Roundup Xtend	3	SL	2	qt/a	POST	C					
6	Warrant	3	L	3	pt/a	POST	C					
6	MON 10		L	2	% v/v	POST	C					
7	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	98	5	99
7	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
7	MSO		L	1	% v/v	POST	C					
7	MON 10		L	2	% v/v	POST	C					
8	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	99	8	99
8	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
8	Dual II Magnum	7.64	L	1	pt/a	POST	C					
8	MSO		L	1	% v/v	POST	C					
8	MON 10		L	2	% v/v	POST	C					
9	Untreated							0	0	0	0	0
10	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	99	2	97
10	MON 10		L	2	% v/v	EPOS	B					
10	Roundup Xtend	3	SL	2	qt/a	LPOS	D					
10	MON 10		L	2	% v/v	LPOS	D					

LSD (P=.05)	0.9	5.0	4.4	1.6	1.5
CV	0.71	3.97	3.49	35.1	1.18

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

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Weed Code	CHEAL	AMAPO	AMBEL	ABUTH	GLXMA
Crop Code					
Rating Data Type	control	control	control	control	injury
Rating Unit	percent	percent	percent	percent	percent
Rating Date	Jul/11/2014	Jul/11/2014	Jul/11/2014	Jul/11/2014	Jul/24/2014
Trt-Eval Interval	14 DA-C	14 DA-C	14 DA-C	14 DA-C	14 DA-D
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CHEAL	AMAPO	AMBEL	ABUTH	GLXMA
1	Roundup PowerMax	4.5	SL	28	fl oz/a	EPOS	B	89	99	98	99	0
1	MON 10		L	2	% v/v	EPOS	B					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	LPOS	D					
1	MON 10		L	2	% v/v	LPOS	D					
2	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	98	99	0
2	Warrant	3	L	3	pt/a	EPOS	B					
2	MON 10		L	2	% v/v	EPOS	B					
3	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	0
3	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
3	MON 10		L	2	% v/v	POST	C					
4	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	11
4	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
4	MON 10		L	2	% v/v	POST	C					
4	Flexstar GT 3.5	2.82	L	3.5	pt/a	LPOS	D					
4	MSO		L	1	% v/v	LPOS	D					
4	MON 10		L	2	% v/v	LPOS	D					
5	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	0
5	Roundup Xtend	3	SL	2	qt/a	POST	C					
5	MON 10		L	2	% v/v	POST	C					
6	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	0
6	Roundup Xtend	3	SL	2	qt/a	POST	C					
6	Warrant	3	L	3	pt/a	POST	C					
6	MON 10		L	2	% v/v	POST	C					
7	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	99	99	2
7	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
7	MSO		L	1	% v/v	POST	C					
7	MON 10		L	2	% v/v	POST	C					
8	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	99	99	2
8	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
8	Dual II Magnum	7.64	L	1	pt/a	POST	C					
8	MSO		L	1	% v/v	POST	C					
8	MON 10		L	2	% v/v	POST	C					
9	Untreated							0	0	0	0	0
10	Roundup Xtend	3	SL	2	qt/a	EPOS	B	98	99	99	99	2
10	MON 10		L	2	% v/v	EPOS	B					
10	Roundup Xtend	3	SL	2	qt/a	LPOS	D					
10	MON 10		L	2	% v/v	LPOS	D					

LSD (P=.05)	1.1	0.0	1.3	0.0	1.1
CV	0.85	0.0	0.98	0.0	45.83

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

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Weed Code	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Crop Code					
Rating Data Type	control	control	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Rating Date	Jul/24/2014	Jul/24/2014	Jul/24/2014	Jul/24/2014	Jul/24/2014
Trt-Eval Interval	14 DA-D	14 DA-D	14 DA-D	14 DA-D	14 DA-D
# Subsamples, Dec.					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
1	Roundup PowerMax	4.5	SL	28	fl oz/a	EPOS	B	99	99	99	99	99
1	MON 10		L	2	% v/v	EPOS	B					
1	Roundup PowerMax	4.5	SL	28	fl oz/a	LPOS	D					
1	MON 10		L	2	% v/v	LPOS	D					
2	Roundup Xtend	3	SL	2	qt/a	EPOS	B	97	98	99	98	99
2	Warrant	3	L	3	pt/a	EPOS	B					
2	MON 10		L	2	% v/v	EPOS	B					
3	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	99
3	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
3	MON 10		L	2	% v/v	POST	C					
4	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	99
4	Roundup PowerMax	4.5	SL	28	fl oz/a	POST	C					
4	MON 10		L	2	% v/v	POST	C					
4	Flexstar GT 3.5	2.82	L	3.5	pt/a	LPOS	D					
4	MSO		L	1	% v/v	LPOS	D					
4	MON 10		L	2	% v/v	LPOS	D					
5	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	99
5	Roundup Xtend	3	SL	2	qt/a	POST	C					
5	MON 10		L	2	% v/v	POST	C					
6	Valor XLT	40.3	WG	3	oz/a	PRE	A	99	99	99	99	99
6	Roundup Xtend	3	SL	2	qt/a	POST	C					
6	Warrant	3	L	3	pt/a	POST	C					
6	MON 10		L	2	% v/v	POST	C					
7	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	99	99	99
7	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
7	MSO		L	1	% v/v	POST	C					
7	MON 10		L	2	% v/v	POST	C					
8	Boundary	6.5	L	1.5	pt/a	PRE	A	99	99	99	99	99
8	Flexstar GT 3.5	2.82	L	3.5	pt/a	POST	C					
8	Dual II Magnum	7.64	L	1	pt/a	POST	C					
8	MSO		L	1	% v/v	POST	C					
8	MON 10		L	2	% v/v	POST	C					
9	Untreated							0	0	0	0	0
10	Roundup Xtend	3	SL	2	qt/a	EPOS	B	99	99	99	99	99
10	MON 10		L	2	% v/v	EPOS	B					
10	Roundup Xtend	3	SL	2	qt/a	LPOS	D					
10	MON 10		L	2	% v/v	LPOS	D					

LSD (P=.05)	0.8	0.9	0.0	1.0	0.2
CV	0.65	0.7	0.0	0.74	0.18

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