

MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15  
 Conducted: SVREC

Study Dir.: Sprague and Powell  
 Investigator: Christy Sprague

**Date Planted:** May/19/2015                      **Row Spacing:** 30 IN  
**Variety:** Crystal 059                              **No. of Reps:** 4  
**Population:** 49,000 seeds/A                      **% OM:** 3.0  
**Soil Type:** Clay loam                              **pH:** 7.5  
**Plot Size:** 10 X 30 FT                              **Design:** RANDOMIZED COMPLETE BLOCK

**Tillage:** Fall moldboard plow; spring soil finish twice  
**Fertilizer:** 125 lbs actual N per acre applied as urea broadcast and incorporated on April 1, 2015

**Crop and Weed Description**

Weed	Code	Common Name	Scientific Name
1.	CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
2.	AMARE	PIGWEEED, REDROOT	AMARANTHUS RETROFLEXUS L.
3.	POLPY	SMARTWEED, PENNSYLVANIA	POLYGONUM PENNSYLVANICUM L.
Crop	Code	Common Name	
1.	BETVU	BEEET, SUGAR	

**Application Description**

	A	B	C
<b>Application Timing:</b>	2-leaf	6-leaf	canopy
<b>Date Treated:</b>	Jun/11/2015	Jun/24/2015	Jul/20/2015
<b>Time Treated:</b>	11:30 AM	10:00 AM	1:40 PM
<b>% Cloud Cover:</b>	30	15	75
<b>Air Temp., Unit:</b>	75 F	68 F	81 F
<b>% Relative Humidity:</b>	52	56	62
<b>Wind Speed/Unit/Dir:</b>	1 mph W	6 mph SW	7 mph SW
<b>Soil Temp., Unit:</b>	71 F	67 F	74 F
<b>Soil/Leaf Surface M:</b>	5 5	5 5	5 5
<b>Soil Moist (1=w 5=d):</b>	4	4	4

**Crop Stage at Each Application**

	A	B	C
<b>Crop Name:</b>	BETVU	BETVU	BETVU
<b>Height (In.):</b>	1"	4-6"	15"
<b>Stage (L):</b>	2	6	15

**Weed Stage at Each Application**

	A	B	C
<b>Weed 1 Name:</b>	CHEAL	CHEAL	CHEAL
<b>Height (In.):</b>	1"	2-4"	-
<b>Stage (L):</b>	4	6-8	-
<b>Weed 2 Name:</b>	AMARE	AMARE	AMARE
<b>Height (In.):</b>	-	2"	-
<b>Stage (L):</b>	-	6	-
<b>Weed 3 Name:</b>	POLPY	POLPY	POLPY
<b>Height (In.):</b>	-	-	-
<b>Stage (L):</b>	-	-	-

**Weed Density (plants/sq. ft.)**

	1	2	3
<b>Weed Name:</b>	CHEAL	AMARE	POLPY
<b>Density:</b>	8	3	<1

**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	25"	20"	100"	19	Water	28
B	Cub	3.8	AIXR	11003	26"	20"	100"	19	Water	28
C	Cub	3.8	AIXR	11003	28"	20"	100"	19	Water	28

**Comments:** Sugarbeets were originally planted on April 15, 2015. Due to poor emergence sugarbeet were replanted on May 19, 2015.

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Weed Code								BETBU	CHEAL	POLPY	BETBU
Crop Code								injury	control	control	injury
Rating Data Type								percent	percent	percent	percent
Rating Unit								Jun/17/2015	Jun/17/2015	Jun/17/2015	Jun/24/2015
Rating Date								6 DA-A	6 DA-A	6 DA-A	13 DA-A
Trt-Eval Interval								0	0	0	0
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	0	99	99	0
1	AMS		WG	17	lb/100 gal	2-leaf	A				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
1	AMS		WG	17	lb/100 gal	6-leaf	B				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	0
2	Stinger	3	L	2	fl oz/a	2-leaf	A				
2	AMS		WG	17	lb/100 gal	2-leaf	A				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
2	AMS		WG	17	lb/100 gal	6-leaf	B				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	3	99	99	3
3	Stinger	3	L	3	fl oz/a	2-leaf	A				
3	AMS		WG	17	lb/100 gal	2-leaf	A				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
3	AMS		WG	17	lb/100 gal	6-leaf	B				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	4	99	99	1
4	Stinger	3	L	4	fl oz/a	2-leaf	A				
4	AMS		WG	17	lb/100 gal	2-leaf	A				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
4	AMS		WG	17	lb/100 gal	6-leaf	B				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	4	99	99	4
5	Stinger	3	L	6	fl oz/a	2-leaf	A				
5	AMS		WG	17	lb/100 gal	2-leaf	A				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
5	AMS		WG	17	lb/100 gal	6-leaf	B				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	1
6	Stinger	3	L	2	fl oz/a	2-leaf	A				
6	AMS		WG	17	lb/100 gal	2-leaf	A				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
6	Stinger	3	L	2	fl oz/a	6-leaf	B				
6	AMS		WG	17	lb/100 gal	6-leaf	B				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	3	99	99	3
7	Stinger	3	L	3	fl oz/a	2-leaf	A				
7	AMS		WG	17	lb/100 gal	2-leaf	A				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
7	Stinger	3	L	3	fl oz/a	6-leaf	B				
7	AMS		WG	17	lb/100 gal	6-leaf	B				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	5
8	Stinger	3	L	2	fl oz/a	2-leaf	A				
8	AMS		WG	17	lb/100 gal	2-leaf	A				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
8	Stinger	3	L	4	fl oz/a	6-leaf	B				
8	AMS		WG	17	lb/100 gal	6-leaf	B				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	0	99	99	0
9	AMS		WG	17	lb/100 gal	2-leaf	A				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
9	Stinger	3	L	4	fl oz/a	6-leaf	B				
9	AMS		WG	17	lb/100 gal	6-leaf	B				

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Trial ID: SB01-15 Study Dir.: Sprague and Powell  
 Conducted: SVREC Investigator: Christy Sprague

Weed Code								BETBU	CHEAL	POLPY	BETBU
Crop Code								injury	control	control	injury
Rating Data Type								percent	percent	percent	percent
Rating Unit								Jun/17/2015	Jun/17/2015	Jun/17/2015	Jun/24/2015
Rating Date								6 DA-A	6 DA-A	6 DA-A	13 DA-A
Trt-Eval Interval								0	0	0	0
# Subsamples, Dec.								0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	0	99	99	0
10	AMS		WG	17	lb/100 gal	2-leaf	A				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
10	Stinger	3	L	6	fl oz/a	6-leaf	B				
10	AMS		WG	17	lb/100 gal	6-leaf	B				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	1	99	99	0
11	AMS		WG	17	lb/100 gal	2-leaf	A				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
11	Stinger	3	L	8	fl oz/a	6-leaf	B				
11	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	0
12	Stinger	3	L	2	fl oz/a	2-leaf	A				
12	AMS		WG	17	lb/100 gal	2-leaf	A				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
12	Stinger	3	L	4	fl oz/a	6-leaf	B				
12	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	canopy	C				
12	Stinger	3	L	4	fl oz/a	canopy	C				
12	AMS		WG	17	lb/100 gal	canopy	C				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	4	99	99	0
13	Stinger	3	L	2	fl oz/a	2-leaf	A				
13	AMS		WG	17	lb/100 gal	2-leaf	A				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
13	Stinger	3	L	4	fl oz/a	6-leaf	B				
13	Warrant	3	L	3	pt/a	6-leaf	B				
13	AMS		WG	17	lb/100 gal	6-leaf	B				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	0
14	Stinger	3	L	2	fl oz/a	2-leaf	A				
14	AMS		WG	17	lb/100 gal	2-leaf	A				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
14	Stinger	3	L	4	fl oz/a	6-leaf	B				
14	Dual II Magnum	7.64	L	1.33	pt/a	6-leaf	B				
14	AMS		WG	17	lb/100 gal	6-leaf	B				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	2	99	99	0
15	Nortron	4	L	4	fl oz/a	2-leaf	A				
15	AMS		WG	17	lb/100 gal	2-leaf	A				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
15	Nortron	4	L	4	fl oz/a	6-leaf	B				
15	AMS		WG	17	lb/100 gal	6-leaf	B				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	3	99	99	0
16	Stinger	3	L	2	fl oz/a	2-leaf	A				
16	Nortron	4	L	4	fl oz/a	2-leaf	A				
16	AMS		WG	17	lb/100 gal	2-leaf	A				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
16	Stinger	3	L	4	fl oz/a	6-leaf	B				
16	Nortron	4	L	4	fl oz/a	6-leaf	B				
16	AMS		WG	17	lb/100 gal	6-leaf	B				
LSD (P=.05)								2.3	0.0	0.0	2.7
CV								78.72	0.0	0.0	185.65

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

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Weed Code								CHEAL	AMARE	BETBU	CHEAL	AMARE
Crop Code												
Rating Data Type								control	control	injury	control	control
Rating Unit								percent	percent	percent	percent	percent
Rating Date								Jun/24/2015	Jun/24/2015	Jul/09/2015	Jul/09/2015	Jul/09/2015
Trt-Eval Interval								13 DA-A	13 DA-A	15 DA-B	15 DA-B	15 DA-B
# Subsamples, Dec.								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	0	99	99
1	AMS		WG	17	lb/100 gal	2-leaf	A					
1	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
1	AMS		WG	17	lb/100 gal	6-leaf	B					
2	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	4	99	99
2	Stinger	3	L	2	fl oz/a	2-leaf	A					
2	AMS		WG	17	lb/100 gal	2-leaf	A					
2	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
2	AMS		WG	17	lb/100 gal	6-leaf	B					
3	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
3	Stinger	3	L	3	fl oz/a	2-leaf	A					
3	AMS		WG	17	lb/100 gal	2-leaf	A					
3	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
3	AMS		WG	17	lb/100 gal	6-leaf	B					
4	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	98	0	99	99
4	Stinger	3	L	4	fl oz/a	2-leaf	A					
4	AMS		WG	17	lb/100 gal	2-leaf	A					
4	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
4	AMS		WG	17	lb/100 gal	6-leaf	B					
5	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	0	99	99
5	Stinger	3	L	6	fl oz/a	2-leaf	A					
5	AMS		WG	17	lb/100 gal	2-leaf	A					
5	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
5	AMS		WG	17	lb/100 gal	6-leaf	B					
6	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
6	Stinger	3	L	2	fl oz/a	2-leaf	A					
6	AMS		WG	17	lb/100 gal	2-leaf	A					
6	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
6	Stinger	3	L	2	fl oz/a	6-leaf	B					
6	AMS		WG	17	lb/100 gal	6-leaf	B					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
7	Stinger	3	L	3	fl oz/a	2-leaf	A					
7	AMS		WG	17	lb/100 gal	2-leaf	A					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
7	Stinger	3	L	3	fl oz/a	6-leaf	B					
7	AMS		WG	17	lb/100 gal	6-leaf	B					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	98	99	8	99	99
8	Stinger	3	L	2	fl oz/a	2-leaf	A					
8	AMS		WG	17	lb/100 gal	2-leaf	A					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
8	Stinger	3	L	4	fl oz/a	6-leaf	B					
8	AMS		WG	17	lb/100 gal	6-leaf	B					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
9	AMS		WG	17	lb/100 gal	2-leaf	A					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
9	Stinger	3	L	4	fl oz/a	6-leaf	B					
9	AMS		WG	17	lb/100 gal	6-leaf	B					

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								CHEAL	AMARE	BETBU	CHEAL	AMARE
								control	control	injury	control	control
								percent	percent	percent	percent	percent
								Jun/24/2015	Jun/24/2015	Jul/09/2015	Jul/09/2015	Jul/09/2015
								13 DA-A	13 DA-A	15 DA-B	15 DA-B	15 DA-B
								0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
10	AMS		WG	17	lb/100 gal	2-leaf	A					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
10	Stinger	3	L	6	fl oz/a	6-leaf	B					
10	AMS		WG	17	lb/100 gal	6-leaf	B					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	1	99	99
11	AMS		WG	17	lb/100 gal	2-leaf	A					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
11	Stinger	3	L	8	fl oz/a	6-leaf	B					
11	AMS		WG	17	lb/100 gal	6-leaf	B					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	97	99	5	99	99
12	Stinger	3	L	2	fl oz/a	2-leaf	A					
12	AMS		WG	17	lb/100 gal	2-leaf	A					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
12	Stinger	3	L	4	fl oz/a	6-leaf	B					
12	AMS		WG	17	lb/100 gal	6-leaf	B					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	canopy	C					
12	Stinger	3	L	4	fl oz/a	canopy	C					
12	AMS		WG	17	lb/100 gal	canopy	C					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	3	99	99
13	Stinger	3	L	2	fl oz/a	2-leaf	A					
13	AMS		WG	17	lb/100 gal	2-leaf	A					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
13	Stinger	3	L	4	fl oz/a	6-leaf	B					
13	Warrant	3	L	3	pt/a	6-leaf	B					
13	AMS		WG	17	lb/100 gal	6-leaf	B					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	0	99	99
14	Stinger	3	L	2	fl oz/a	2-leaf	A					
14	AMS		WG	17	lb/100 gal	2-leaf	A					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
14	Stinger	3	L	4	fl oz/a	6-leaf	B					
14	Dual II Magnum	7.64	L	1.33	pt/a	6-leaf	B					
14	AMS		WG	17	lb/100 gal	6-leaf	B					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	99	1	99	99
15	Nortron	4	L	4	fl oz/a	2-leaf	A					
15	AMS		WG	17	lb/100 gal	2-leaf	A					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
15	Nortron	4	L	4	fl oz/a	6-leaf	B					
15	AMS		WG	17	lb/100 gal	6-leaf	B					
16	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	97	99	3	99	99
16	Stinger	3	L	2	fl oz/a	2-leaf	A					
16	Nortron	4	L	4	fl oz/a	2-leaf	A					
16	AMS		WG	17	lb/100 gal	2-leaf	A					
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B					
16	Stinger	3	L	4	fl oz/a	6-leaf	B					
16	Nortron	4	L	4	fl oz/a	6-leaf	B					
16	AMS		WG	17	lb/100 gal	6-leaf	B					
LSD (P=.05)								2.3	0.7	5.0	0.0	0.0
CV								1.65	0.51	146.25	0.0	0.0

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

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Weed Code								POLPY	BETBU	CHEAL	AMARE
Crop Code								control	injury	control	control
Rating Data Type								percent	percent	percent	percent
Rating Unit								Jul/09/2015	Aug/13/2015	Aug/13/2015	Aug/13/2015
Rating Date								15 DA-B	24 DA-C	24 DA-C	24 DA-C
Trt-Eval Interval								0	0	0	0
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
1	AMS		WG	17	lb/100 gal	2-leaf	A				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
1	AMS		WG	17	lb/100 gal	6-leaf	B				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
2	Stinger	3	L	2	fl oz/a	2-leaf	A				
2	AMS		WG	17	lb/100 gal	2-leaf	A				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
2	AMS		WG	17	lb/100 gal	6-leaf	B				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
3	Stinger	3	L	3	fl oz/a	2-leaf	A				
3	AMS		WG	17	lb/100 gal	2-leaf	A				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
3	AMS		WG	17	lb/100 gal	6-leaf	B				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
4	Stinger	3	L	4	fl oz/a	2-leaf	A				
4	AMS		WG	17	lb/100 gal	2-leaf	A				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
4	AMS		WG	17	lb/100 gal	6-leaf	B				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
5	Stinger	3	L	6	fl oz/a	2-leaf	A				
5	AMS		WG	17	lb/100 gal	2-leaf	A				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
5	AMS		WG	17	lb/100 gal	6-leaf	B				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
6	Stinger	3	L	2	fl oz/a	2-leaf	A				
6	AMS		WG	17	lb/100 gal	2-leaf	A				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
6	Stinger	3	L	2	fl oz/a	6-leaf	B				
6	AMS		WG	17	lb/100 gal	6-leaf	B				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
7	Stinger	3	L	3	fl oz/a	2-leaf	A				
7	AMS		WG	17	lb/100 gal	2-leaf	A				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
7	Stinger	3	L	3	fl oz/a	6-leaf	B				
7	AMS		WG	17	lb/100 gal	6-leaf	B				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
8	Stinger	3	L	2	fl oz/a	2-leaf	A				
8	AMS		WG	17	lb/100 gal	2-leaf	A				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
8	Stinger	3	L	4	fl oz/a	6-leaf	B				
8	AMS		WG	17	lb/100 gal	6-leaf	B				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
9	AMS		WG	17	lb/100 gal	2-leaf	A				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
9	Stinger	3	L	4	fl oz/a	6-leaf	B				
9	AMS		WG	17	lb/100 gal	6-leaf	B				

MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15 Study Dir.: Sprague and Powell  
 Conducted: SVREC Investigator: Christy Sprague

								POLPY	BETBU	CHEAL	AMARE
								control	injury	control	control
								percent	percent	percent	percent
								Jul/09/2015	Aug/13/2015	Aug/13/2015	Aug/13/2015
								15 DA-B	24 DA-C	24 DA-C	24 DA-C
								0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
10	AMS		WG	17	lb/100 gal	2-leaf	A				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
10	Stinger	3	L	6	fl oz/a	6-leaf	B				
10	AMS		WG	17	lb/100 gal	6-leaf	B				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
11	AMS		WG	17	lb/100 gal	2-leaf	A				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
11	Stinger	3	L	8	fl oz/a	6-leaf	B				
11	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
12	Stinger	3	L	2	fl oz/a	2-leaf	A				
12	AMS		WG	17	lb/100 gal	2-leaf	A				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
12	Stinger	3	L	4	fl oz/a	6-leaf	B				
12	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	canopy	C				
12	Stinger	3	L	4	fl oz/a	canopy	C				
12	AMS		WG	17	lb/100 gal	canopy	C				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
13	Stinger	3	L	2	fl oz/a	2-leaf	A				
13	AMS		WG	17	lb/100 gal	2-leaf	A				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
13	Stinger	3	L	4	fl oz/a	6-leaf	B				
13	Warrant	3	L	3	pt/a	6-leaf	B				
13	AMS		WG	17	lb/100 gal	6-leaf	B				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
14	Stinger	3	L	2	fl oz/a	2-leaf	A				
14	AMS		WG	17	lb/100 gal	2-leaf	A				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
14	Stinger	3	L	4	fl oz/a	6-leaf	B				
14	Dual II Magnum	7.64	L	1.33	pt/a	6-leaf	B				
14	AMS		WG	17	lb/100 gal	6-leaf	B				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
15	Nortron	4	L	4	fl oz/a	2-leaf	A				
15	AMS		WG	17	lb/100 gal	2-leaf	A				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
15	Nortron	4	L	4	fl oz/a	6-leaf	B				
15	AMS		WG	17	lb/100 gal	6-leaf	B				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
16	Stinger	3	L	2	fl oz/a	2-leaf	A				
16	Nortron	4	L	4	fl oz/a	2-leaf	A				
16	AMS		WG	17	lb/100 gal	2-leaf	A				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
16	Stinger	3	L	4	fl oz/a	6-leaf	B				
16	Nortron	4	L	4	fl oz/a	6-leaf	B				
16	AMS		WG	17	lb/100 gal	6-leaf	B				
LSD (P=.05)								0.0	0.0	0.0	0.0
CV								0.0	0.0	0.0	0.0

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

MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15  
 Conducted: SVREC

Study Dir.: Sprague and Powell  
 Investigator: Christy Sprague

Weed Code								POLPY	BETBU	CHEAL	AMARE
Crop Code								control	injury	control	control
Rating Data Type								percent	percent	percent	percent
Rating Unit								Aug/13/2015	Sep/15/2015	Sep/15/2015	Sep/15/2015
Rating Date								24 DA-C	57 DA-C	57 DA-C	57 DA-C
Trt-Eval Interval								0	0	0	0
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
1	AMS		WG	17	lb/100 gal	2-leaf	A				
1	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
1	AMS		WG	17	lb/100 gal	6-leaf	B				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
2	Stinger	3	L	2	fl oz/a	2-leaf	A				
2	AMS		WG	17	lb/100 gal	2-leaf	A				
2	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
2	AMS		WG	17	lb/100 gal	6-leaf	B				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
3	Stinger	3	L	3	fl oz/a	2-leaf	A				
3	AMS		WG	17	lb/100 gal	2-leaf	A				
3	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
3	AMS		WG	17	lb/100 gal	6-leaf	B				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	98	99
4	Stinger	3	L	4	fl oz/a	2-leaf	A				
4	AMS		WG	17	lb/100 gal	2-leaf	A				
4	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
4	AMS		WG	17	lb/100 gal	6-leaf	B				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
5	Stinger	3	L	6	fl oz/a	2-leaf	A				
5	AMS		WG	17	lb/100 gal	2-leaf	A				
5	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
5	AMS		WG	17	lb/100 gal	6-leaf	B				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
6	Stinger	3	L	2	fl oz/a	2-leaf	A				
6	AMS		WG	17	lb/100 gal	2-leaf	A				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
6	Stinger	3	L	2	fl oz/a	6-leaf	B				
6	AMS		WG	17	lb/100 gal	6-leaf	B				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
7	Stinger	3	L	3	fl oz/a	2-leaf	A				
7	AMS		WG	17	lb/100 gal	2-leaf	A				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
7	Stinger	3	L	3	fl oz/a	6-leaf	B				
7	AMS		WG	17	lb/100 gal	6-leaf	B				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
8	Stinger	3	L	2	fl oz/a	2-leaf	A				
8	AMS		WG	17	lb/100 gal	2-leaf	A				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
8	Stinger	3	L	4	fl oz/a	6-leaf	B				
8	AMS		WG	17	lb/100 gal	6-leaf	B				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
9	AMS		WG	17	lb/100 gal	2-leaf	A				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
9	Stinger	3	L	4	fl oz/a	6-leaf	B				
9	AMS		WG	17	lb/100 gal	6-leaf	B				



MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15 Study Dir.: Sprague and Powell  
 Conducted: SVREC Investigator: Christy Sprague

								POLPY	BETBU	CHEAL	AMARE
								control	injury	control	control
								percent	percent	percent	percent
								Aug/13/2015	Sep/15/2015	Sep/15/2015	Sep/15/2015
								24 DA-C	57 DA-C	57 DA-C	57 DA-C
								0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
10	AMS		WG	17	lb/100 gal	2-leaf	A				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
10	Stinger	3	L	6	fl oz/a	6-leaf	B				
10	AMS		WG	17	lb/100 gal	6-leaf	B				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
11	AMS		WG	17	lb/100 gal	2-leaf	A				
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
11	Stinger	3	L	8	fl oz/a	6-leaf	B				
11	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
12	Stinger	3	L	2	fl oz/a	2-leaf	A				
12	AMS		WG	17	lb/100 gal	2-leaf	A				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
12	Stinger	3	L	4	fl oz/a	6-leaf	B				
12	AMS		WG	17	lb/100 gal	6-leaf	B				
12	Roundup PowerMax	4.5	SL	22	fl oz/a	canopy	C				
12	Stinger	3	L	4	fl oz/a	canopy	C				
12	AMS		WG	17	lb/100 gal	canopy	C				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
13	Stinger	3	L	2	fl oz/a	2-leaf	A				
13	AMS		WG	17	lb/100 gal	2-leaf	A				
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
13	Stinger	3	L	4	fl oz/a	6-leaf	B				
13	Warrant	3	L	3	pt/a	6-leaf	B				
13	AMS		WG	17	lb/100 gal	6-leaf	B				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
14	Stinger	3	L	2	fl oz/a	2-leaf	A				
14	AMS		WG	17	lb/100 gal	2-leaf	A				
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
14	Stinger	3	L	4	fl oz/a	6-leaf	B				
14	Dual II Magnum	7.64	L	1.33	pt/a	6-leaf	B				
14	AMS		WG	17	lb/100 gal	6-leaf	B				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
15	Nortron	4	L	4	fl oz/a	2-leaf	A				
15	AMS		WG	17	lb/100 gal	2-leaf	A				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
15	Nortron	4	L	4	fl oz/a	6-leaf	B				
15	AMS		WG	17	lb/100 gal	6-leaf	B				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99	0	99	99
16	Stinger	3	L	2	fl oz/a	2-leaf	A				
16	Nortron	4	L	4	fl oz/a	2-leaf	A				
16	AMS		WG	17	lb/100 gal	2-leaf	A				
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B				
16	Stinger	3	L	4	fl oz/a	6-leaf	B				
16	Nortron	4	L	4	fl oz/a	6-leaf	B				
16	AMS		WG	17	lb/100 gal	6-leaf	B				
LSD (P=.05)								0.0	0.0	0.7	0.4
CV								0.0	0.0	0.51	0.25

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

## MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15  
Conducted: SVRECStudy Dir.: Sprague and Powell  
Investigator: Christy SpragueWeed Code POLPY  
Crop Code  
Rating Data Type control  
Rating Unit percent  
Rating Date Sep/15/2015  
Trt-Eval Interval 57 DA-C  
# Subsamples, Dec. 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	
1	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
1	AMS		WG	17	lb/100 gal	2-leaf	A	
1	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
1	AMS		WG	17	lb/100 gal	6-leaf	B	
2	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
2	Stinger	3	L	2	fl oz/a	2-leaf	A	
2	AMS		WG	17	lb/100 gal	2-leaf	A	
2	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
2	AMS		WG	17	lb/100 gal	6-leaf	B	
3	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
3	Stinger	3	L	3	fl oz/a	2-leaf	A	
3	AMS		WG	17	lb/100 gal	2-leaf	A	
3	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
3	AMS		WG	17	lb/100 gal	6-leaf	B	
4	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
4	Stinger	3	L	4	fl oz/a	2-leaf	A	
4	AMS		WG	17	lb/100 gal	2-leaf	A	
4	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
4	AMS		WG	17	lb/100 gal	6-leaf	B	
5	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
5	Stinger	3	L	6	fl oz/a	2-leaf	A	
5	AMS		WG	17	lb/100 gal	2-leaf	A	
5	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
5	AMS		WG	17	lb/100 gal	6-leaf	B	
6	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
6	Stinger	3	L	2	fl oz/a	2-leaf	A	
6	AMS		WG	17	lb/100 gal	2-leaf	A	
6	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
6	Stinger	3	L	2	fl oz/a	6-leaf	B	
6	AMS		WG	17	lb/100 gal	6-leaf	B	
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
7	Stinger	3	L	3	fl oz/a	2-leaf	A	
7	AMS		WG	17	lb/100 gal	2-leaf	A	
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
7	Stinger	3	L	3	fl oz/a	6-leaf	B	
7	AMS		WG	17	lb/100 gal	6-leaf	B	
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
8	Stinger	3	L	2	fl oz/a	2-leaf	A	
8	AMS		WG	17	lb/100 gal	2-leaf	A	
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
8	Stinger	3	L	4	fl oz/a	6-leaf	B	
8	AMS		WG	17	lb/100 gal	6-leaf	B	
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
9	AMS		WG	17	lb/100 gal	2-leaf	A	
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
9	Stinger	3	L	4	fl oz/a	6-leaf	B	
9	AMS		WG	17	lb/100 gal	6-leaf	B	

## MSU Weed Science Research Program

Impact of glyphosate-resistant horseweed treatments on sugarbeet yield I

Trial ID: SB01-15  
Conducted: SVRECStudy Dir.: Sprague and Powell  
Investigator: Christy SpragueWeed Code POLPY  
Crop Code  
Rating Data Type control  
Rating Unit percent  
Rating Date Sep/15/2015  
Trt-Eval Interval 57 DA-C  
# Subsamples, Dec. 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code	
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
10	AMS		WG	17	lb/100 gal	2-leaf	A	
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
10	Stinger	3	L	6	fl oz/a	6-leaf	B	
10	AMS		WG	17	lb/100 gal	6-leaf	B	
11	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
11	AMS		WG	17	lb/100 gal	2-leaf	A	
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
11	Stinger	3	L	8	fl oz/a	6-leaf	B	
11	AMS		WG	17	lb/100 gal	6-leaf	B	
12	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
12	Stinger	3	L	2	fl oz/a	2-leaf	A	
12	AMS		WG	17	lb/100 gal	2-leaf	A	
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
12	Stinger	3	L	4	fl oz/a	6-leaf	B	
12	AMS		WG	17	lb/100 gal	6-leaf	B	
12	Roundup PowerMax	4.5	SL	22	fl oz/a	canopy	C	
12	Stinger	3	L	4	fl oz/a	canopy	C	
12	AMS		WG	17	lb/100 gal	canopy	C	
13	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
13	Stinger	3	L	2	fl oz/a	2-leaf	A	
13	AMS		WG	17	lb/100 gal	2-leaf	A	
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
13	Stinger	3	L	4	fl oz/a	6-leaf	B	
13	Warrant	3	L	3	pt/a	6-leaf	B	
13	AMS		WG	17	lb/100 gal	6-leaf	B	
14	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
14	Stinger	3	L	2	fl oz/a	2-leaf	A	
14	AMS		WG	17	lb/100 gal	2-leaf	A	
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
14	Stinger	3	L	4	fl oz/a	6-leaf	B	
14	Dual II Magnum	7.64	L	1.33	pt/a	6-leaf	B	
14	AMS		WG	17	lb/100 gal	6-leaf	B	
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
15	Nortron	4	L	4	fl oz/a	2-leaf	A	
15	AMS		WG	17	lb/100 gal	2-leaf	A	
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
15	Nortron	4	L	4	fl oz/a	6-leaf	B	
15	AMS		WG	17	lb/100 gal	6-leaf	B	
16	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A	99
16	Stinger	3	L	2	fl oz/a	2-leaf	A	
16	Nortron	4	L	4	fl oz/a	2-leaf	A	
16	AMS		WG	17	lb/100 gal	2-leaf	A	
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	B	
16	Stinger	3	L	4	fl oz/a	6-leaf	B	
16	Nortron	4	L	4	fl oz/a	6-leaf	B	
16	AMS		WG	17	lb/100 gal	6-leaf	B	
LSD (P=.05)								0.0
CV								0.0

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