

MSU Weed Science Research Program

Weed resistant management systems in Roundup Ready sugarbeet

Trial ID: SB01-12  
 Conducted: SVREC

Study Dir.: Sprague, Powell  
 Investigator: Christy Sprague

**Date Planted:** Apr/04/2012      **Row Spacing:** 30" IN  
**Variety:** Hillshog 9173      **No. of Reps:** 4  
**Population:** 48,000 seeds/A      **% OM:** 2.2  
**Soil Type:** Clay loam      **pH:** 7.8  
**Plot Size:** 10 X 30 FT      **Design:** RANDOMIZED COMPLETE BLOCK

**Tillage:** Fall chisel; spring soil finished twice  
**Previous crop:** Wheat  
**Fertilizer:** Preplant urea: 125 lb actual N/A

**Crop and Weed Description**

Weed	Code	Common Name	Scientific Name
1.	CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
2.	AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISII FOLIA L.
Crop	Code	Common Name	
1.	BETVU	BEEET, SUGAR	

**Application Description**

	A	B	C	D	E
<b>Application Timing:</b>	PPI	PRE	2 LEAF	4 LEAF	6 LEAF
<b>Date Treated:</b>	Apr/04/2012	Apr/04/2012	May/15/2012	May/24/2012	Jun/04/2012
<b>Time Treated:</b>	10:45 AM	6:45 PM	5:05 PM	10:45 AM	12:00 PM
<b>% Cloud Cover:</b>	0	0	80	10	50
<b>Air Temp., Unit:</b>	50 F	52 F	82 F	82 F	63 F
<b>% Relative Humidity:</b>	51.3	36	42	45	70
<b>Wind Speed/Unit/Dir:</b>	9 mph N	3 mph NE	10 mph E	12 mph S	9 mph N
<b>Soil Temp., Unit:</b>	44.5 F	53 F	74 F	69 F	64 F
<b>Soil/Leaf Surface M:</b>	5 5	5 5	5 5	5 5	5 5
<b>Soil Moist (1=w 5=d):</b>	5	5	5	5	2

**Crop Stage at Each Application**

	A	B	C	D	E
<b>Crop Name:</b>	BETVU	BETVU	BETVU	BETVU	BETVU
<b>Height (In.):</b>	-	-	1.25"	3.5"	7"
<b>Stage (L):</b>	-	-	3	6	9

**Weed Stage at Each Application**

	A	B	C	D	E
<b>Weed 1 Name:</b>	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL
<b>Height (In.):</b>	-	-	1.5"	1.5"	2"
<b>Stage (L):</b>	-	-	7	7	9
<b>Weed 2 Name:</b>	AMBEL	AMBEL	AMBEL	AMBEL	AMBEL
<b>Height (In.):</b>	-	-	1.5"	1.5"	1.5"
<b>Stage (L):</b>	-	-	5	6	7

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

<b>1</b>	
<b>Date:</b>	Jul/09/2012
<b>Weed Name:</b>	CHEAL
<b>Density:</b>	12
<b>Date:</b>	Jul/09/2012
<b>Weed Name:</b>	AMAPO
<b>Density:</b>	<1
<b>Date:</b>	Jul/09/2012
<b>Weed Name:</b>	AMBEL
<b>Density:</b>	5

**Application Equipment**

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Boom				
A	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	20"	20"	100"	19	Water	28
B	Cub	3.8	AirMix	11003	20"	20"	100"	19	Water	28
C	Cub	3.8	AirMix	11003	20"	20"	100"	19	Water	28
D	Cub	3.8	AirMix	11003	20"	20"	100"	19	Water	28
E	Cub	3.8	AirMix	11003	22"	20"	100"	19	Water	28

**Comments:** Incorporated "A" to 2" depth immediately after spraying

## MSU Weed Science Research Program

## Weed resistant management systems in Roundup Ready sugarbeet

Trial ID: SB01-12                      Study Dir.: Sprague, Powell  
 Conducted: SVREC                      Investigator: Christy Sprague

Weed Code	CHEAL	AMBEL	BETVU
Crop Code			BETVU
Rating Data Type	injury	control	injury
Rating Unit	percent	percent	percent
Rating Date	May/22/2012	May/22/2012	May/30/2012
Trt-Eval Interval	7 DA-C	7 DA-C	6 DA-D
ARM Action Codes			
# Subsamples, Dec.	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	0	57	57	0
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
2	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E	0	68	63	4
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
3	Ro-Neet	6	L	2	qt/a	PPI	A	18	35	38	11
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
4	Ro-Neet	6	EC	2	qt/a	PPI	A	16	28	36	11
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
5	Nortron	4	L	3	pt/a	PRE	B	10	38	20	3
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
6	Nortron	4	L	3	pt/a	PRE	B	13	93	80	1
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
7	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	0	43	43	0
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
8	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	0	40	43	0
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
9	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	0	38	38	0
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
10	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	0	38	35	0
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
11	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	3	75	57	3
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				

## MSU Weed Science Research Program

Weed Code							CHEAL	AMBEL			
Crop Code							BETVU		BETVU		
Rating Data Type							injury	control	injury		
Rating Unit							percent	percent	percent		
Rating Date							May/22/2012	May/22/2012	May/30/2012		
Trt-Eval Interval							7 DA-C	7 DA-C	6 DA-D		
ARM Action Codes											
# Subsamples, Dec.							0	0	0		
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
12	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	3	68		
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Outlook	6	L	16	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
13	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	1	50		
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Warrant	3	L	3	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
14	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	1	53		
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	8	79		
	Betamix	1.3	L	3	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
16	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	10	79		
	Betamix	1.3	L	3	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
17	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	9	76		
	Betamix	1.3	L	2	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
18	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15	59		
	Stinger	3	L	4	fl oz/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
19	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	0	45		
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger	3	L	4	fl oz/a	6-leaf	E				
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
20	Untreated							0	0		
LSD (P=.05)								3.9	11.5	11.0	4.8
CV								52.77	15.43	15.61	176.66

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

## MSU Weed Science Research Program

Weed Code	CHEAL	AMBEL	BETVU	CHEAL	AMARE
Crop Code					
Rating Data Type	control	control	injury	control	control
Rating Unit	percent	percent	percent	percent	percent
Rating Date	May/30/2012	May/30/2012	Jun/13/2012	Jun/13/2012	Jun/13/2012
Trt-Eval Interval	6 DA-D	6 DA-D	9 DA-E	9 DA-E	9 DA-E
ARM Action Codes					
# 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	C	59	69	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
2	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	73	84	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
3	Ro-Neet	6	L	2	qt/a	PPI	A	95	93	18	99	99
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D					
	AMS		WG	17	lb/100 gal	4-leaf	D					
4	Ro-Neet	6	EC	2	qt/a	PPI	A	75	98	20	94	99
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D					
	Warrant	3	L	3	pt/a	4-leaf	D					
	AMS		WG	17	lb/100 gal	4-leaf	D					
5	Nortron	4	L	3	pt/a	PRE	B	96	90	0	99	99
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D					
	AMS		WG	17	lb/100 gal	4-leaf	D					
6	Nortron	4	L	3	pt/a	PRE	B	94	86	0	99	99
	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C					
	Betamix	1.3	L	3	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	73	87	1	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger	3	L	4	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	60	81	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Outlook	6	L	16	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	65	76	0	98	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Warrant	3	L	3	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	58	74	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
11	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	86	93	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger	3	L	4	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
12	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	88	87	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Outlook	6	L	16	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					

## MSU Weed Science Research Program

Weed Code	CHEAL	AMBEL	BETVU	CHEAL	AMARE							
Crop Code												
Rating Data Type	control	control	injury	control	control							
Rating Unit	percent	percent	percent	percent	percent							
Rating Date	May/30/2012	May/30/2012	Jun/13/2012	Jun/13/2012	Jun/13/2012							
Trt-Eval Interval	6 DA-D	6 DA-D	9 DA-E	9 DA-E	9 DA-E							
ARM Action Codes												
# Subsamples, Dec.	0	0	0	0	0							
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Grow Stg	Appl Code					
13	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	70	82	0	98	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Warrant	3	L	3	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
14	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	75	86	0	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	76	71	0	99	99
	Betamix	1.3	L	3	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
16	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	76	80	0	99	99
	Betamix	1.3	L	3	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
17	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	63	74	0	99	99
	Betamix	1.3	L	2	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
18	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	64	96	0	99	99
	Stinger	3	L	4	fl oz/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
19	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	54	79	1	99	99
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger	3	L	4	fl oz/a	6-leaf	E					
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
20	Untreated							0	0	0	0	0
	LSD (P=.05)							12.8	14.2	3.0	2.1	0.0
	CV							12.94	12.71	105.76	1.59	0.0

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

## MSU Weed Science Research Program

Weed Code							AMBEL		CHEAL	AMARE	AMBEL	
Crop Code								BETVU				
Rating Data Type							control	injury	control	control	control	
Rating Unit							percent	percent	percent	percent	percent	
Rating Date							Jun/13/2012	Jul/11/2012	Jul/11/2012	Jul/11/2012	Jul/11/2012	
Trt-Eval Interval							9 DA-E	37 DA-E	37 DA-E	37 DA-E	37 DA-E	
ARM Action Codes												
# 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 AMS	4.5	SL	22	fl oz/a	2-leaf	C	94	0	99	99	98
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
2	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	98	0	99	99	99
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
3	Ro-Neet AMS	6	L	2	qt/a	PPI	A	99	0	99	99	98
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D					
4	Ro-Neet AMS	6	EC	2	qt/a	PPI	A	99	0	99	99	98
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D					
	Warrant AMS	3	L	3	pt/a	4-leaf	D					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D					
5	Nortron AMS	4	L	3	pt/a	PRE	B	99	0	98	99	98
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D					
6	Nortron AMS	4	L	3	pt/a	PRE	B	95	0	99	99	99
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C					
	Betamix AMS	1.3	L	3	pt/a	2-leaf	C					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
7	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	95	0	99	99	99
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger AMS	3	L	4	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
8	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	92	0	99	99	97
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Outlook AMS	6	L	16	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
9	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	95	0	99	99	96
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Warrant AMS	3	L	3	pt/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
10	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	90	0	99	99	99
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Dual Magnum AMS	7.62	L	1.33	pt/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
11	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	99	0	99	99	99
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger AMS	3	L	4	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					
12	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	99	0	99	99	98
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E					
	Outlook AMS	6	L	16	fl oz/a	6-leaf	E					
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E					

## MSU Weed Science Research Program

Weed Code							AMBEL		CHEAL	AMARE	AMBEL	
Crop Code								BETVU				
Rating Data Type							control	injury	control	control	control	
Rating Unit							percent	percent	percent	percent	percent	
Rating Date							Jun/13/2012	Jul/11/2012	Jul/11/2012	Jul/11/2012	Jul/11/2012	
Trt-Eval Interval							9 DA-E	37 DA-E	37 DA-E	37 DA-E	37 DA-E	
ARM Action Codes												
# Subsamples, Dec.							0	0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Grow Stg	Appl Code					
13	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	96	0	99	99	
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Warrant	3	L	3	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
14	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	97	0	99	99	
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	91	0	99	99	
	Betamix	1.3	L	3	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
16	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	97	0	99	99	
	Betamix	1.3	L	3	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
17	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	87	0	98	99	
	Betamix	1.3	L	2	pt/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
18	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	99	0	97	99	
	Stinger	3	L	4	fl oz/a	2-leaf	C					
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
19	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	92	0	99	99	
	AMS		WG	17	lb/100 gal	2-leaf	C					
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E					
	Stinger	3	L	4	fl oz/a	6-leaf	E					
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E					
	AMS		WG	17	lb/100 gal	6-leaf	E					
20	Untreated							0	0	0	0	
LSD (P=.05)								7.3	0.0	1.6	0.2	2.5
CV								5.69	0.0	1.22	0.12	1.91

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

## MSU Weed Science Research Program

Weed Code	CHEAL	AMARE	AMBEL	BETVU
Crop Code				
Rating Data Type	control	control	control	count
Rating Unit	percent	percent	percent	100' row
Rating Date	Sep/07/2012	Sep/07/2012	Sep/07/2012	Sep/11/2012
Trt-Eval Interval	95 DA-E	95 DA-E	95 DA-E	160 DA-A
ARM Action Codes				T1
# Subsamples, Dec.	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	96	99	94	426
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
2	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	98	99	95	433
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
3	Ro-Neet	6	L	2	qt/a	PPI	A	89	95	92	442
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
4	Ro-Neet	6	EC	2	qt/a	PPI	A	90	99	94	415
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Warrant AMS	3	L	3	pt/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
5	Nortron	4	L	3	pt/a	PRE	B	93	99	93	440
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	4-leaf	D				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	4-leaf	D				
6	Nortron	4	L	3	pt/a	PRE	B	95	99	96	440
	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C				
	Betamix AMS	1.3	L	3	pt/a	2-leaf	C				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
7	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	96	98	99	428
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger AMS	3	L	4	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
8	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	96	99	96	430
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Outlook AMS	6	L	16	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
9	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	92	99	93	412
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Warrant AMS	3	L	3	pt/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
10	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	2-leaf	C	95	99	91	436
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Dual Magnum AMS	7.62	L	1.33	pt/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
11	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	99	98	99	444
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger AMS	3	L	4	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				
12	Roundup PowerMax AMS	4.5	SL	33	fl oz/a	2-leaf	C	98	99	93	439
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax AMS	4.5	SL	22	fl oz/a	6-leaf	E				
	Outlook AMS	6	L	16	fl oz/a	6-leaf	E				
	Roundup PowerMax AMS	4.5	WG	17	lb/100 gal	6-leaf	E				



## MSU Weed Science Research Program

Weed Code	CHEAL	AMARE	AMBEL	BETVU						
Crop Code				count						
Rating Data Type	control	control	control	100' row						
Rating Unit	percent	percent	percent	100' row						
Rating Date	Sep/07/2012	Sep/07/2012	Sep/07/2012	Sep/11/2012						
Trt-Eval Interval	95 DA-E	95 DA-E	95 DA-E	160 DA-A						
ARM Action Codes				T1						
# Subsamples, Dec.	0	0	0	0						
Trt Treatment	Form	Form	Rate	Grow	Appl					
No. Name	Conc	Type	Rate	Unit	Stg	Code				
13 Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	92	99	94	432
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
Warrant	3	L	3	pt/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
14 Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	94	99	97	435
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
15 Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	94	98	95	452
Betamix	1.3	L	3	pt/a	2-leaf	C				
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
16 Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	96	98	94	459
Betamix	1.3	L	3	pt/a	2-leaf	C				
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
17 Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	88	99	92	416
Betamix	1.3	L	2	pt/a	2-leaf	C				
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
18 Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	90	96	95	417
Stinger	3	L	4	fl oz/a	2-leaf	C				
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
19 Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	98	99	99	436
AMS		WG	17	lb/100 gal	2-leaf	C				
Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
Stinger	3	L	4	fl oz/a	6-leaf	E				
Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
AMS		WG	17	lb/100 gal	6-leaf	E				
20 Untreated							0	0	0	123
LSD (P=.05)							6.0	2.7	7.5	49.2
CV							4.77	2.08	5.9	8.33

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

## MSU Weed Science Research Program

Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	ARM Action Codes	# Subsamples, Dec.	BETVU % sugar	BETVU yield ton/acre	BETVU RWST # / ton	BETVU RWSA # / acre
								Sep/11/2012	Sep/11/2012	Sep/11/2012	Sep/11/2012
								160 DA-A	160 DA-A	160 DA-A	160 DA-A
								1	TY3	0	T2
								1	1	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	C	16.1	23.3	235	5494
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
2	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	16.2	23.4	236	5522
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
3	Ro-Neet	6	L	2	qt/a	PPI	A	16.4	24.4	238	5816
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D				
	AMS		WG	17	lb/100 gal	4-leaf	D				
4	Ro-Neet	6	EC	2	qt/a	PPI	A	16.2	22.4	237	5311
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D				
	Warrant	3	L	3	pt/a	4-leaf	D				
	AMS		WG	17	lb/100 gal	4-leaf	D				
5	Nortron	4	L	3	pt/a	PRE	B	15.5	23.3	224	5198
	Roundup PowerMax	4.5	SL	33	fl oz/a	4-leaf	D				
	AMS		WG	17	lb/100 gal	4-leaf	D				
6	Nortron	4	L	3	pt/a	PRE	B	16.1	23.8	235	5610
	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C				
	Betamix	1.3	L	3	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
7	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	16.5	22.9	242	5557
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger	3	L	4	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
8	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	16.2	22.4	234	5250
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Outlook	6	L	16	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
9	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15.7	21.7	228	4994
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Warrant	3	L	3	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
10	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15.8	23.6	229	5427
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
11	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	15.9	23.9	230	5530
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger	3	L	4	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
12	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	15.5	24.1	222	5343
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Outlook	6	L	16	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				

## MSU Weed Science Research Program

Weed Code											
Crop Code											
Rating Data Type	BETVU	BETVU	BETVU	BETVU							
Rating Unit	% sugar	yield	RWST	RWSA							
Rating Date		ton/acre	# / ton	# / acre							
Trt-Eval Interval	Sep/11/2012	Sep/11/2012	Sep/11/2012	Sep/11/2012							
ARM Action Codes	160 DA-A	160 DA-A	160 DA-A	160 DA-A							
# Subsamples, Dec.	1	TY3	0	T2							
	1	1	0	0							
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Rate	Unit	Stg	Code				
13	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	15.6	22.7	226	5141
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Warrant	3	L	3	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
14	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	16.1	23.7	233	5530
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
15	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	16.6	24.6	244	6010
	Betamix	1.3	L	3	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
16	Roundup PowerMax	4.5	SL	33	fl oz/a	2-leaf	C	16.2	24.5	235	5787
	Betamix	1.3	L	3	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
17	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15.7	22.5	227	5118
	Betamix	1.3	L	2	pt/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
18	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15.9	22.7	232	5250
	Stinger	3	L	4	fl oz/a	2-leaf	C				
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
19	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	C	15.9	22.8	234	5340
	AMS		WG	17	lb/100 gal	2-leaf	C				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	E				
	Stinger	3	L	4	fl oz/a	6-leaf	E				
	Dual Magnum	7.62	L	1.33	pt/a	6-leaf	E				
	AMS		WG	17	lb/100 gal	6-leaf	E				
20	Untreated							16.0	3.1	232	715
LSD (P=.05)								0.56	3.00	9.9	769.5
CV								2.46	9.51	3.0	10.47

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