

MSU Weed Science Research Program

Timing glyphosate applications in Roundup Ready sugarbeet by GDD

Trial ID: SB09-09 Study Dir.: Sprague, Powell
Conducted: Adam's Field Investigator: Christy Sprague

Date Planted: 5/5/2009 Row Spacing: 30 IN
Variety: Hilleshog 9042 No. of Reps: 4
Population: 4 3/8 spacing % OM: 2.5
Soil Type: Loam pH: 7.8
Plot Size: 10 X 30 FT Design: RANDOMIZED COMPLETE BLOCK

Tillage: Fall chisel plow, spring soil finished twice
Fertilizer: 100lb 19-19-19 with planter

Crop and Weed Description

Table with 4 columns: Weed, Code, Common Name, Scientific Name. Lists weeds like PENNYCRESS, CHICKWEED, LAMBSQUARTERS, AMARANTH, and crop BEEET, SUGAR.

Application Description

Table with 8 columns (A-G) and multiple rows of application data including timing, date, time, cloud cover, temperature, humidity, wind speed, and soil moisture.

Crop Stage at Each Application

Table with 8 columns (A-G) showing crop name, height in inches, and stage (L) for each application point.

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Weed Stage at Each Application

	A	B	C	D	E	F	G
Weed 1 Name:	THLAR	THLAR	THLAR	THLAR	THLAR	THLAR	THLAR
Height (In.):	3-10	4-8	3-8	2-8	2-10	-	-
Stage (L):	many	many	many	many	many	-	-
Weed 2 Name:	STEME	STEME	STEME	STEME	STEME	STEME	STEME
Height (In.):	1/2-3	1/2-2	12-16	6-18	6-20	-	-
Stage (L):	many	many	many	many	many	-	-
Weed 3 Name:	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL
Height (In.):	1/4-1	1/2-1 1/2	1/2-3	1/2-4	4-8	2"	1 1/2
Stage (L):	2-4	2-6	4-6	2-10	many	many	4
Weed 4 Name:	AMAPO	AMAPO	AMAPO	AMAPO	AMAPO	AMAPO	AMAPO
Height (In.):	1/8-1/2	1/2-1	1/2-1 1/2	1/2-4	4-8	3	2
Stage (L):	2-4	2-5	6	2-10	many	10	8
Weed 5 Name:	ANGR	ANGR	ANGR	ANGR	ANGR	ANGR	ANGR
Height (In.):	2-5	2	1/2-1 1/2	1-2	3-6	3	2
Stage (L):	2-many	2	2-3	4-8	many	4	4
Weed 6 Name:	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Height (In.):	1-2 1/2	1-3	1/2-5	1-5	2-7	5"	-
Stage (L):	many	2-8	many	many	many	many	-
H		I					
Weed 1 Name:	THLAR	THLAR					
Height (In.):	-	-					
Stage (L):	-	-					
Weed 2 Name:	STEME	STEME					
Height (In.):	-	-					
Stage (L):	-	-					
Weed 3 Name:	CHEAL	CHEAL					
Height (In.):	-	1					
Stage (L):	-	4					
Weed 4 Name:	AMAPO	AMAPO					
Height (In.):	2	4					
Stage (L):	4	6					
Weed 5 Name:	ANGR	ANGR					
Height (In.):	1	4					
Stage (L):	2	4					
Weed 6 Name:	LAMAM	LAMAM					
Height (In.):	-	-					
Stage (L):	-	-					

Weed Density (plants/sq. ft.)

	1	2	3	4
Date:	6/29/2009	6/29/2009	6/29/2009	6/29/2009
Weed Name:	ANGR	AMBEL	AMAPO	CHEAL
Density:	6	<1	3	2

Application Equipment

Appl	Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	GPA	Carrier	PSI
A	Cub	3.8	AirMix	11003	24"	20"	100"	19	Water	28
B	Cub	3.8	AirMix	11003	24"	20"	100"	19	Water	28
C	Cub	3.8	AirMix	11003	26"	20"	100"	19	Water	28
D	Cub	3.8	AirMix	11003	26"	20"	100"	19	Water	28
E	Cub	3.8	AirMix	11003	24"	20"	100"	19	Water	28
F	Cub	3.8	AirMix	11003	27"	20"	100"	19	Water	28
G	Cub	3.8	AirMix	11003	27"	20"	100"	19	Water	28
H	Cub	3.8	AirMix	11003	25"	20"	100"	19	Water	28
I	Cub	3.8	AirMix	11003	25"	20"	100"	19	Water	28

Comments: Rep 1 was lost to flooding and erosion.

7/13/09 Sprayed Headline (9.2 fl oz/A) on all treatments for Cercospora leaf spot

7/30/09 Sprayed Amistar (3 oz/A) on all treatments for Cercospora leaf spot

9/1/09 Sprayed Gem (3.5 oz/A) on all treatments for Cercospora leaf spot

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	# Subsamples, Dec.	BETVU competition percent 6/29/2009 34 DA-A	ANGR control percent 6/29/2009 34 DA-A	AMAPO control percent 6/29/2009 34 DA-A	CHEAL control percent 6/29/2009 34 DA-A	BETVU competition percent 7/8/2009 43 DA-A
							0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Weed-Free (start at coty)							9	74	83	91	0
1	Roundup PowerMax	4.5	L	22	fl oz/a	coty	A					
1	AMS		WG	17	lb/100 gal	coty	A					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	D					
1	AMS		WG	17	lb/100 gal	+ 2" wds	D					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	I					
1	AMS		WG	17	lb/100 gal	+ 2" wds	I					
2	Roundup PowerMax	4.5	L	22	fl oz/a	2" weeds	C	16	61	81	93	3
2	AMS		WG	17	lb/100 gal	2" weeds	C					
2	Roundup PowerMax	4.5	L	22	fl oz/a	+ 4" wds	G					
2	AMS		WG	17	lb/100 gal	+4" wds	G					
3	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	11	93	88	95	0
3	AMS		WG	17	lb/100 gal	400 GDD	A					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	E					
3	AMS		WG	17	lb/100 gal	+400 GDD	E					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	G					
3	AMS		WG	17	lb/100 gal	+400 GDD	G					
4	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	10	99	99	99	0
4	AMS		WG	17	lb/100 gal	400 GDD	A					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
4	AMS		WG	17	lb/100 gal	+600 GDD	F					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	G					
4	AMS		WG	17	lb/100 gal	+600 GDD	G					
5	Roundup PowerMax	4.5	L	22	fl oz/a	600 GDD	B	8	99	99	99	2
5	AMS		WG	17	lb/100 gal	600 GDD	B					
5	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
5	AMS		WG	17	lb/100 gal	+600 GDD	F					
6	Roundup PowerMax	4.5	L	22	fl oz/a	800 GDD	D	18	79	84	91	28
6	AMS		WG	17	lb/100 gal	800 GDD	D					
6	Roundup PowerMax	4.5	L	22	fl oz/a	+800 GDD	H					
6	AMS		WG	17	lb/100 gal	+800 GDD	H					
7	Roundup PowerMax	4.5	L	22	fl oz/a	1000 GDD	E	25	95	95	95	25
7	AMS		WG	17	lb/100 gal	1000 GDD	E					
8	Untreated							0	0	0	0	27
LSD (P=.10)								9.7	10.5	4.5	3.2	17.3
Standard Deviation								8.0	8.7	3.7	2.6	12.1
CV								66.49	11.56	4.67	3.13	113.48

Means followed by same letter do not significantly differ (P=.10, LSD)
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Weed Code							ANGR	CHEAL	AMAPO	AMBEL	BETVU	
Crop Code												
Rating Data Type							control	control	control	control	injury	
Rating Unit							percent	percent	percent	percent	percent	
Rating Date							7/8/2009	7/8/2009	7/8/2009	7/8/2009	7/27/2009	
Trt-Eval Interval							43 DA-A	43 DA-A	43 DA-A	43 DA-A	62 DA-A	
# Subsamples, Dec.							0	0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code					
1	Weed-Free (start at coty)							99	99	99	99	0
1	Roundup PowerMax	4.5	L	22	fl oz/a	coty	A					
1	AMS		WG	17	lb/100 gal	coty	A					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	D					
1	AMS		WG	17	lb/100 gal	+ 2" wds	D					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	I					
1	AMS		WG	17	lb/100 gal	+ 2" wds	I					
2	Roundup PowerMax	4.5	L	22	fl oz/a	2" weeds	C	99	99	99	99	0
2	AMS		WG	17	lb/100 gal	2" weeds	C					
2	Roundup PowerMax	4.5	L	22	fl oz/a	+ 4" wds	G					
2	AMS		WG	17	lb/100 gal	+4" wds	G					
3	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	99	99	99	99	0
3	AMS		WG	17	lb/100 gal	400 GDD	A					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	E					
3	AMS		WG	17	lb/100 gal	+400 GDD	E					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	G					
3	AMS		WG	17	lb/100 gal	+400 GDD	G					
4	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	99	99	99	99	0
4	AMS		WG	17	lb/100 gal	400 GDD	A					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
4	AMS		WG	17	lb/100 gal	+600 GDD	F					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	G					
4	AMS		WG	17	lb/100 gal	+600 GDD	G					
5	Roundup PowerMax	4.5	L	22	fl oz/a	600 GDD	B	99	99	99	99	0
5	AMS		WG	17	lb/100 gal	600 GDD	B					
5	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
5	AMS		WG	17	lb/100 gal	+600 GDD	F					
6	Roundup PowerMax	4.5	L	22	fl oz/a	800 GDD	D	92	99	99	99	0
6	AMS		WG	17	lb/100 gal	800 GDD	D					
6	Roundup PowerMax	4.5	L	22	fl oz/a	+800 GDD	H					
6	AMS		WG	17	lb/100 gal	+800 GDD	H					
7	Roundup PowerMax	4.5	L	22	fl oz/a	1000 GDD	E	92	96	92	99	0
7	AMS		WG	17	lb/100 gal	1000 GDD	E					
8	Untreated							0	0	0	0	0
LSD (P=.10)								2.7	0.6	2.1	0.0	0.0
Standard Deviation								1.9	0.4	1.4	0.0	0.0
CV								2.19	0.47	1.67	0.0	0.0

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Weed Code							ANGR	CHEAL	AMAPO	AMBEL	BETVU	
Crop Code											count	
Rating Data Type							control	control	control	control	100/row	
Rating Unit							percent	percent	percent	percent	100/row	
Rating Date							7/27/2009	7/27/2009	7/27/2009	7/27/2009	9/30/2009	
Trt-Eval Interval							62 DA-A	62 DA-A	62 DA-A	62 DA-A	127 DA-A	
# Subsamples, Dec.							0	0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	Weed-Free (start at coty)							99	98	99	99	218
1	Roundup PowerMax	4.5	L	22	fl oz/a	coty	A					
1	AMS		WG	17	lb/100 gal	coty	A					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	D					
1	AMS		WG	17	lb/100 gal	+ 2" wds	D					
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	I					
1	AMS		WG	17	lb/100 gal	+ 2" wds	I					
2	Roundup PowerMax	4.5	L	22	fl oz/a	2" weeds	C	99	98	99	99	227
2	AMS		WG	17	lb/100 gal	2" weeds	C					
2	Roundup PowerMax	4.5	L	22	fl oz/a	+ 4" wds	G					
2	AMS		WG	17	lb/100 gal	+4" wds	G					
3	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	98	97	98	99	206
3	AMS		WG	17	lb/100 gal	400 GDD	A					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	E					
3	AMS		WG	17	lb/100 gal	+400 GDD	E					
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	G					
3	AMS		WG	17	lb/100 gal	+400 GDD	G					
4	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	99	99	99	99	198
4	AMS		WG	17	lb/100 gal	400 GDD	A					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
4	AMS		WG	17	lb/100 gal	+600 GDD	F					
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	G					
4	AMS		WG	17	lb/100 gal	+600 GDD	G					
5	Roundup PowerMax	4.5	L	22	fl oz/a	600 GDD	B	99	99	99	99	224
5	AMS		WG	17	lb/100 gal	600 GDD	B					
5	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F					
5	AMS		WG	17	lb/100 gal	+600 GDD	F					
6	Roundup PowerMax	4.5	L	22	fl oz/a	800 GDD	D	98	98	99	99	227
6	AMS		WG	17	lb/100 gal	800 GDD	D					
6	Roundup PowerMax	4.5	L	22	fl oz/a	+800 GDD	H					
6	AMS		WG	17	lb/100 gal	+800 GDD	H					
7	Roundup PowerMax	4.5	L	22	fl oz/a	1000 GDD	E	85	83	83	99	220
7	AMS		WG	17	lb/100 gal	1000 GDD	E					
8	Untreated							0	0	0	0	178
LSD (P=.10)								0.9	3.6	1.6	0.0	25.1
Standard Deviation								0.6	2.5	1.1	0.0	17.5
CV								0.73	3.01	1.33	0.0	8.22

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Weed Code

Crop Code

Rating Data Type

Rating Unit

Rating Date

Trt-Eval Interval

Subsamples, Dec.

BETVU % sugar	BETVU yield ton/acre	BETVU RWST # / ton	BETVU RWSA # / acre
9/30/2009 127 DA-A 1	9/30/2009 127 DA-A 1	9/30/2009 127 DA-A 1	9/30/2009 127 DA-A 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	BETVU % sugar	BETVU yield ton/acre	BETVU RWST # / ton	BETVU RWSA # / acre
1	Weed-Free (start at coty)							16.1	31.0	241.0	7459
1	Roundup PowerMax	4.5	L	22	fl oz/a	coty	A				
1	AMS		WG	17	lb/100 gal	coty	A				
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	D				
1	AMS		WG	17	lb/100 gal	+ 2" wds	D				
1	Roundup PowerMax	4.5	L	22	fl oz/a	+ 2" wds	I				
1	AMS		WG	17	lb/100 gal	+ 2" wds	I				
2	Roundup PowerMax	4.5	L	22	fl oz/a	2" weeds	C	16.2	29.1	239.7	6973
2	AMS		WG	17	lb/100 gal	2" weeds	C				
2	Roundup PowerMax	4.5	L	22	fl oz/a	+ 4" wds	G				
2	AMS		WG	17	lb/100 gal	+4" wds	G				
3	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	15.6	31.6	227.2	7233
3	AMS		WG	17	lb/100 gal	400 GDD	A				
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	E				
3	AMS		WG	17	lb/100 gal	+400 GDD	E				
3	Roundup PowerMax	4.5	L	22	fl oz/a	+400 GDD	G				
3	AMS		WG	17	lb/100 gal	+400 GDD	G				
4	Roundup PowerMax	4.5	L	22	fl oz/a	400 GDD	A	16.1	28.7	242.1	6936
4	AMS		WG	17	lb/100 gal	400 GDD	A				
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F				
4	AMS		WG	17	lb/100 gal	+600 GDD	F				
4	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	G				
4	AMS		WG	17	lb/100 gal	+600 GDD	G				
5	Roundup PowerMax	4.5	L	22	fl oz/a	600 GDD	B	15.7	29.1	234.1	6815
5	AMS		WG	17	lb/100 gal	600 GDD	B				
5	Roundup PowerMax	4.5	L	22	fl oz/a	+600 GDD	F				
5	AMS		WG	17	lb/100 gal	+600 GDD	F				
6	Roundup PowerMax	4.5	L	22	fl oz/a	800 GDD	D	15.5	26.3	229.6	6046
6	AMS		WG	17	lb/100 gal	800 GDD	D				
6	Roundup PowerMax	4.5	L	22	fl oz/a	+800 GDD	H				
6	AMS		WG	17	lb/100 gal	+800 GDD	H				
7	Roundup PowerMax	4.5	L	22	fl oz/a	1000 GDD	E	15.7	24.2	230.7	5578
7	AMS		WG	17	lb/100 gal	1000 GDD	E				
8	Untreated							15.2	4.5	225.2	1048
LSD (P=.10)								0.68	4.33	12.40	1164.6
Standard Deviation								0.47	2.99	8.58	805.4
CV								2.96	11.71	3.67	13.4

Means followed by same letter do not significantly differ (P=.10, LSD)

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