

MSU Weed Science Research Program

Weed control and crop tolerance with Sequence formulations

Trial ID: SB04-09BB Study Dir.: Sprague, Powell
Conducted: Bean & Beet Investigator: Christy Sprague

Date Planted: 4/16/2009 Row Spacing: 30 IN
Variety: Hilleshog 9042RR No. of Reps: 4
Population: 4 1/8" spacing % OM: 2.4
Soil Type: Silty Clay Loam pH: 7.9
Plot Size: 10 X 30 FT Design: RANDOMIZED COMPLETE BLOCK

Tillage: Fall moldboard plow, spring field cultivated (2X)
Fertilizer: Broadcast 125lb N

Crop and Weed Description

Table with 4 columns: Weed, Code, Common Name, Scientific Name. Row 1: CHEAL, LAMBSQUARTERS, COMMON, CHENOPODIUM ALBUM L. Row 2: BETVU, BEET, SUGAR

Application Description

Table with 3 columns: Application Timing, A, B. Rows include Date Treated, Time Treated, % Cloud Cover, Air Temp., % Relative Humidity, Wind Speed, Soil Temp., Soil/Leaf Surface M, Soil Moist.

Crop Stage at Each Application

Table with 3 columns: Crop Name, A, B. Rows include Height (In.), Stage (L).

Weed Stage at Each Application

Table with 3 columns: Weed 1 Name, A, B. Rows include Height (In.), Stage (L).

Weed Density (plants/sq. ft.)

Table with 2 columns: Date, Weed Name, Density. Row: 7/9/2009, CHEAL, 5

Application Equipment

Table with 11 columns: Appl, Sprayer, Speed, Nozzle, Nozzle, Nozzle, Nozzle, Boom, Width, GPA, Carrier, PSI. Rows A and B.

Comments: Off from the shelf A17577A CS separated. This product also did not mix well. Due to the small amounts of product provided there was only enough product to spray replications 1 and 2 for the first application. The second application was of Touchdown Total when the weeds averaged 4-inches tall.

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Weed Code								BETVU		CHEAL		CHEAL	
Crop Code								injury	injury	control	injury	control	control
Rating Data Type								percent	percent	percent	percent	percent	percent
Rating Unit								5/21/2009	5/29/2009	5/29/2009	6/11/2009	6/11/2009	6/22/2009
Rating Date								6 DA-A	14 DA-A	14 DA-A	27 DA-A	27 DA-A	38 DA-A
Trt-Eval Interval								0	0	0	0	0	0
# Subsamples, Dec.								0	0	0	0	0	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	A17572A	528	EC	1.94	pt/a	2-LF	A	0	0	88	0	73	63
1	AMS		WG	17	lb/100 gal	2-LF	A						
1	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
1	AMS		WG	17	lb/100 gal	+4"weeds	B						
2	A17572A	528	EC	2.92	pt/a	2-LF	A	0	0	99	0	83	80
2	AMS		WG	17	lb/100 gal	2-LF	A						
2	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
2	AMS		WG	17	lb/100 gal	+4"weeds	B						
3	A17572A	528	EC	3.9	pt/a	2-LF	A	0	0	98	0	88	83
3	AMS		WG	17	lb/100 gal	2-LF	A						
3	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
3	AMS		WG	17	lb/100 gal	+4"weeds	B						
4	A17572A	528	EC	5.83	pt/a	2-LF	A	0	0	99	0	93	93
4	AMS		WG	17	lb/100 gal	2-LF	A						
4	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
4	AMS		WG	17	lb/100 gal	+4"weeds	B						
5	Untreated							0	0	0	0	0	0
6	A17577A	534	CS	1.92	pt/a	2-LF	A	0	0	99	0	80	86
6	AMS		WG	17	lb/100 gal	2-LF	A						
6	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
6	AMS		WG	17	lb/100 gal	+4"weeds	B						
7	A17577A	534	CS	2.88	pt/a	2-LF	A	0	0	99	0	70	76
7	AMS		WG	17	lb/100 gal	2-LF	A						
7	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
7	AMS		WG	17	lb/100 gal	+4"weeds	B						
8	A17577A	534	CS	3.84	pt/a	2-LF	A	0	0	99	0	90	86
8	AMS		WG	17	lb/100 gal	2-LF	A						
8	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
8	AMS		WG	17	lb/100 gal	+4"weeds	B						
9	A17577A	534	CS	5.77	pt/a	2-LF	A	0	0	98	0	93	84
9	AMS		WG	17	lb/100 gal	2-LF	A						
9	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
9	AMS		WG	17	lb/100 gal	+4"weeds	B						
10	A17577D	538	CS	1.9	pt/a	2-LF	A	0	0	93	0	65	70
10	AMS		WG	17	lb/100 gal	2-LF	A						
10	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
10	AMS		WG	17	lb/100 gal	+4"weeds	B						
11	A17577D	538	CS	2.86	pt/a	2-LF	A	0	0	90	0	65	73
11	AMS		WG	17	lb/100 gal	2-LF	A						
11	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
11	AMS		WG	17	lb/100 gal	+4"weeds	B						
12	A17577D	538	CS	3.8	pt/a	2-LF	A	0	0	97	0	78	76
12	AMS		WG	17	lb/100 gal	2-LF	A						
12	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
12	AMS		WG	17	lb/100 gal	+4"weeds	B						

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	# Subsamples, Dec.	BETVU injury percent 5/21/2009 6 DA-A	BETVU injury percent 5/29/2009 14 DA-A	CHEAL control percent 5/29/2009 14 DA-A	BETVU injury percent 6/11/2009 27 DA-A	CHEAL control percent 6/11/2009 27 DA-A	CHEAL control percent 6/22/2009 38 DA-A	
13	A17577D	538	CS	5.7	pt/a	2-LF	A	0	0	99	0	87	88
13	AMS		WG	17	lb/100 gal	2-LF	A						
13	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
13	AMS		WG	17	lb/100 gal	+4"weeds	B						
14	A17577D	538	CS	1.9	pt/a	2-LF	A	5	3	97	0	75	75
14	Induce		L	0.25	% v/v	2-LF	A						
14	AMS		WG	17	lb/100 gal	2-LF	A						
14	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
14	AMS		WG	17	lb/100 gal	+4"weeds	B						
15	A17577D	538	CS	2.86	pt/a	2-LF	A	0	0	98	0	73	78
15	Induce		L	0.25	% v/v	2-LF	A						
15	AMS		WG	17	lb/100 gal	2-LF	A						
15	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
15	AMS		WG	17	lb/100 gal	+4"weeds	B						
16	A17577D	538	CS	3.8	pt/a	2-LF	A	0	0	99	0	89	88
16	Induce		L	0.25	% v/v	2-LF	A						
16	AMS		WG	17	lb/100 gal	2-LF	A						
16	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
16	AMS		WG	17	lb/100 gal	+4"weeds	B						
17	A17577D	538	CS	5.7	pt/a	2-LF	A	0	0	99	0	91	91
17	Induce		L	0.25	% v/v	2-LF	A						
17	AMS		WG	17	lb/100 gal	2-LF	A						
17	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
17	AMS		WG	17	lb/100 gal	+4"weeds	B						
18	Sequence	5.25	L	1.43	pt/a	2-LF	A	0	0	90	0	60	60
18	AMS		WG	17	lb/100 gal	2-LF	A						
18	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
18	AMS		WG	17	lb/100 gal	+4"weeds	B						
19	Sequence	5.25	L	2.14	pt/a	2-LF	A	0	0	89	0	60	65
19	AMS		WG	17	lb/100 gal	2-LF	A						
19	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
19	AMS		WG	17	lb/100 gal	+4"weeds	B						
20	Sequence	5.25	L	2.86	pt/a	2-LF	A	0	0	99	0	75	78
20	AMS		WG	17	lb/100 gal	2-LF	A						
20	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
20	AMS		WG	17	lb/100 gal	+4"weeds	B						
21	Sequence	5.25	L	4.3	pt/a	2-LF	A	0	0	99	0	78	68
21	AMS		WG	17	lb/100 gal	2-LF	A						
21	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
21	AMS		WG	17	lb/100 gal	+4"weeds	B						
22	Touchdown Total	4.17	SL	24	fl oz/a	2-LF	A	0	0	99	0	90	92
22	AMS		WG	17	lb/100 gal	2-LF	A						
22	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
22	AMS		WG	17	lb/100 gal	+4"weeds	B						
23	Touchdown Total	4.17	SL	35	fl oz/a	2-LF	A	0	0	99	0	90	93
23	AMS		WG	17	lb/100 gal	2-LF	A						
23	Touchdown Total	4.17	SL	35	fl oz/a	+4"weeds	B						
23	AMS		WG	17	lb/100 gal	+4"weeds	B						

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Weed Code	BETVU		CHEAL	CHEAL		CHEAL							
Crop Code	BETVU	BETVU	BETVU	BETVU	CHEAL	CHEAL							
Rating Data Type	injury	injury	control	injury	control	control							
Rating Unit	percent	percent	percent	percent	percent	percent							
Rating Date	5/21/2009	5/29/2009	5/29/2009	6/11/2009	6/11/2009	6/22/2009							
Trt-Eval Interval	6 DA-A	14 DA-A	14 DA-A	27 DA-A	27 DA-A	38 DA-A							
# Subsamples, Dec.	0	0	0	0	0	0							
Trt No.	Treatment	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
24	Untreated							0	0	0	0	0	0
LSD (P=.05)								3.0	1.5	5.3	0.0	10.2	14.2
Standard Deviation								1.4	0.7	2.6	0.0	4.9	6.9
CV								692.82	692.82	2.89	0.0	6.82	9.46

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Weed Code								CHEAL					
Crop Code								control	BETVU	BETVU	BETVU	BETVU	BETVU
Rating Data Type								perent	count	% sugar	yield	RWST	RWSA
Rating Unit								9/14/2009	# / 100'	9/18/2009	9/18/2009	9/18/2009	9/18/2009
Rating Date								122 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A
Trt-Eval Interval								0	0	1	1	1	0
# Subsamples, Dec.								0	0	1	1	1	0
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
1	A17572A	528	EC	1.94	pt/a	2-LF	A	99	223	18.5	28.7	270.6	7776
1	AMS		WG	17	lb/100 gal	2-LF	A						
1	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
1	AMS		WG	17	lb/100 gal	+4"weeds	B						
2	A17572A	528	EC	2.92	pt/a	2-LF	A	99	213	19.0	29.7	278.8	8291
2	AMS		WG	17	lb/100 gal	2-LF	A						
2	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
2	AMS		WG	17	lb/100 gal	+4"weeds	B						
3	A17572A	528	EC	3.9	pt/a	2-LF	A	98	243	19.0	30.8	278.6	8591
3	AMS		WG	17	lb/100 gal	2-LF	A						
3	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
3	AMS		WG	17	lb/100 gal	+4"weeds	B						
4	A17572A	528	EC	5.83	pt/a	2-LF	A	98	232	18.8	30.8	275.3	8493
4	AMS		WG	17	lb/100 gal	2-LF	A						
4	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
4	AMS		WG	17	lb/100 gal	+4"weeds	B						
5	Untreated							0	185	17.4	5.6	273.7	2718
6	A17577A	534	CS	1.92	pt/a	2-LF	A	98	187	18.9	26.9	274.2	7366
6	AMS		WG	17	lb/100 gal	2-LF	A						
6	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
6	AMS		WG	17	lb/100 gal	+4"weeds	B						
7	A17577A	534	CS	2.88	pt/a	2-LF	A	98	229	19.4	30.1	287.2	8656
7	AMS		WG	17	lb/100 gal	2-LF	A						
7	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
7	AMS		WG	17	lb/100 gal	+4"weeds	B						
8	A17577A	534	CS	3.84	pt/a	2-LF	A	98	227	18.9	32.1	275.5	8858
8	AMS		WG	17	lb/100 gal	2-LF	A						
8	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
8	AMS		WG	17	lb/100 gal	+4"weeds	B						
9	A17577A	534	CS	5.77	pt/a	2-LF	A	99	195	18.8	30.2	271.1	8193
9	AMS		WG	17	lb/100 gal	2-LF	A						
9	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
9	AMS		WG	17	lb/100 gal	+4"weeds	B						
10	A17577D	538	CS	1.9	pt/a	2-LF	A	97	214	18.8	29.1	275.8	8036
10	AMS		WG	17	lb/100 gal	2-LF	A						
10	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
10	AMS		WG	17	lb/100 gal	+4"weeds	B						
11	A17577D	538	CS	2.86	pt/a	2-LF	A	98	230	18.8	30.2	275.3	8323
11	AMS		WG	17	lb/100 gal	2-LF	A						
11	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
11	AMS		WG	17	lb/100 gal	+4"weeds	B						
12	A17577D	538	CS	3.8	pt/a	2-LF	A	98	226	18.9	30.1	279.9	8414
12	AMS		WG	17	lb/100 gal	2-LF	A						
12	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
12	AMS		WG	17	lb/100 gal	+4"weeds	B						

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Weed Code	CHEAL	BETVU	BETVU	BETVU	BETVU	BETVU
Crop Code	control	count	% sugar	yield	RWST	RWSA
Rating Data Type	perent	# / 100'	ton/acre	# / ton	# / acre	# / acre
Rating Unit	9/14/2009	9/18/2009	9/18/2009	9/18/2009	9/18/2009	9/18/2009
Rating Date	122 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A
Trt-Eval Interval	0	0	1	1	1	0
# Subsamples, Dec.						

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code						
13	A17577D	538	CS	5.7	pt/a	2-LF	A	98	207	18.6	29.7	271.8	8095
13	AMS		WG	17	lb/100 gal	2-LF	A						
13	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
13	AMS		WG	17	lb/100 gal	+4"weeds	B						
14	A17577D	538	CS	1.9	pt/a	2-LF	A	99	198	18.8	29.3	278.8	8178
14	Induce		L	0.25	% v/v	2-LF	A						
14	AMS		WG	17	lb/100 gal	2-LF	A						
14	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
14	AMS		WG	17	lb/100 gal	+4"weeds	B						
15	A17577D	538	CS	2.86	pt/a	2-LF	A	99	233	19.6	31.7	292.9	9290
15	Induce		L	0.25	% v/v	2-LF	A						
15	AMS		WG	17	lb/100 gal	2-LF	A						
15	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
15	AMS		WG	17	lb/100 gal	+4"weeds	B						
16	A17577D	538	CS	3.8	pt/a	2-LF	A	99	226	19.1	31.5	281.5	8855
16	Induce		L	0.25	% v/v	2-LF	A						
16	AMS		WG	17	lb/100 gal	2-LF	A						
16	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
16	AMS		WG	17	lb/100 gal	+4"weeds	B						
17	A17577D	538	CS	5.7	pt/a	2-LF	A	99	202	19.2	29.8	279.0	8320
17	Induce		L	0.25	% v/v	2-LF	A						
17	AMS		WG	17	lb/100 gal	2-LF	A						
17	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
17	AMS		WG	17	lb/100 gal	+4"weeds	B						
18	Sequence	5.25	L	1.43	pt/a	2-LF	A	99	202	19.3	29.1	277.1	8066
18	AMS		WG	17	lb/100 gal	2-LF	A						
18	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
18	AMS		WG	17	lb/100 gal	+4"weeds	B						
19	Sequence	5.25	L	2.14	pt/a	2-LF	A	99	227	19.6	30.6	296.2	9053
19	AMS		WG	17	lb/100 gal	2-LF	A						
19	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
19	AMS		WG	17	lb/100 gal	+4"weeds	B						
20	Sequence	5.25	L	2.86	pt/a	2-LF	A	97	224	18.5	30.6	269.9	8240
20	AMS		WG	17	lb/100 gal	2-LF	A						
20	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
20	AMS		WG	17	lb/100 gal	+4"weeds	B						
21	Sequence	5.25	L	4.3	pt/a	2-LF	A	98	225	19.4	28.6	284.5	8127
21	AMS		WG	17	lb/100 gal	2-LF	A						
21	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
21	AMS		WG	17	lb/100 gal	+4"weeds	B						
22	Touchdown Total	4.17	SL	24	fl oz/a	2-LF	A	99	196	19.1	26.4	284.1	7499
22	AMS		WG	17	lb/100 gal	2-LF	A						
22	Touchdown Total	4.17	SL	24	fl oz/a	+4"weeds	B						
22	AMS		WG	17	lb/100 gal	+4"weeds	B						
23	Touchdown Total	4.17	SL	35	fl oz/a	2-LF	A	99	234	18.9	31.2	280.2	8736
23	AMS		WG	17	lb/100 gal	2-LF	A						
23	Touchdown Total	4.17	SL	35	fl oz/a	+4"weeds	B						
23	AMS		WG	17	lb/100 gal	+4"weeds	B						

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Weed Code	CHEAL					
Crop Code		BETVU	BETVU	BETVU	BETVU	BETVU
Rating Data Type	control	count	% sugar	yield	RWST	RWSA
Rating Unit	perent	# / 100'		ton/acre	# / ton	# / acre
Rating Date	9/14/2009	9/18/2009	9/18/2009	9/18/2009	9/18/2009	9/18/2009
Trt-Eval Interval	122 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A	126 DA-A
# Subsamples, Dec.	0	0	1	1	1	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Grow Stg	Appl Code						
24	Untreated						0	182	18.5	5.9	267.7	2239
LSD (P=.05)							2.4	35.4	1.35	4.43	18.64	1327.7
Standard Deviation							1.1	17.1	0.65	2.14	8.96	638.3
CV							1.26	7.95	3.44	7.69	3.22	8.13

Means followed by same letter do not significantly differ (P=.05, LSD)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.