

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19 Study Dir.: Sprague, Powell, Stiles
 Conducted: SVREC Investigator: Christy Sprague

Planting Date: Apr-24-2019 **Row Spacing:** 30 IN
Variety: Crystal G675 **No. of Reps:** 4
Population: 4.25 " spacing **% OM:** 2.5
Soil Type: CL clay loam **pH:** 7.1
Plot Size: 10 X 30 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Fall moldboard plowed; early spring field cultivated
Fertilizer:

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1	CHEAL	lambsquarters, common	Chenopodium album
2	POLPY	smartweed, Pennsylvania	Polygonum pensylvanicum
3	AMBEL	ragweed, common	Ambrosia artemisiifolia

Crop	Code	Common Name
1	BETVU	Sugarbeet

Application Description

	A	B	C
Application Timing:	PRE	2 leaf	6-8 leaf
Date Treated:	Apr-24-2019	May-24-2019	Jun-12-2019
Time Treated:	4:30 PM	9:10 AM	7:30 PM
% Cloud Cover:	50	70	90
Air Temp., Unit:	60 F	58 F	73 F
% Relative Humidity:	26	80	45
Wind Speed/Unit/Dir:	4 mph E	4 mph NNE	7 mph S
Soil Temp, Unit:	56 F	61 F	69 F
Leaf Moist/Dew Presence (Y/N):	5	5	4
Soil Moist:	3	5	4

Crop Stage at Each Application

	A	B	C
Crop 1 Name:	BETVU	BETVU	BETVU
Height:	1 "	6-8 " (7)	
Stage:	2L	6-8L	

Weed Stage at Each Application

	A	B	C
Weed 1 Name:	CHEAL	CHEAL	CHEAL
Height:	1.5 "	2-6 " (4)	
Stage:	4-6L	10-20L	
Weed 2 Name:	POLPY	POLPY	POLPY
Height:	1.5 "	2-6 " (4)	
Stage:	2L	12-16L	
Weed 3 Name:	AMBEL	AMBEL	AMBEL
Height:		6 "	
Stage:		8L	

Weed Density

	1	2	3
Date:	Jun-12-2019	Jun-12-2019	Jun-12-2019
Weed Name:	CHEAL	POLPY	AMBEL
Density:	3 FT2	1 FT2	1 FT2

Application Equipment

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 mph	AIXR	11003	18 "	20 "	100 "	19 GAL/AC	WATER	30 psi
B	CUB	3.8 mph	AIXR	11003	22 "	20 "	100 "	19 GAL/AC	WATER	30 psi
C	CUB	3.8 mph	AIXR	11003	22 "	20 "	100 "	19 GAL/AC	WATER	30 psi

Comments: Several plots in the 3rd and 4th reps were lost due to flooding.

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Pest Code						
Crop Type, Code						
Rating Date						
Rating Type						
Rating Unit						
Trt-Eval Interval						
Number of Decimals						
		BETVU	CHEAL	BETVU	CHEAL	POLPY
		May-31-2019	May-31-2019	Jun-7-2019	Jun-7-2019	Jun-7-2019
		injury	injury	injury	control	control
		percent	percent	percent	percent	percent
		14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B
		0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B	1	86	0	100	100
1	AMS		WG	17 lb/100 gal		2 leaf	B					
1	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
1	AMS		WG	17 lb/100 gal		6-8 leaf	C					
2	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B	8	96	11	100	100
2	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
2	AMS		WG	17 lb/100 gal		2 leaf	B					
2	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
2	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
2	AMS		WG	17 lb/100 gal		6-8 leaf	C					
3	Warrant	3	L	3 pt/a		2 leaf	B	14	92	13	100	100
3	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
3	AMS		WG	17 lb/100 gal		2 leaf	B					
3	Warrant	3	L	3 pt/a		6-8 leaf	C					
3	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
3	AMS		WG	17 lb/100 gal		6-8 leaf	C					
4	Outlook	6	L	12 fl oz/a		2 leaf	B	18	80	11	100	100
4	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
4	AMS		WG	17 lb/100 gal		2 leaf	B					
4	Outlook	6	L	12 fl oz/a		6-8 leaf	C					
4	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
4	AMS		WG	17 lb/100 gal		6-8 leaf	C					
5	Ethofumesate	4	L	2 pt/a		PRE	A	4	93	7	100	100
5	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B					
5	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
5	AMS		WG	17 lb/100 gal		2 leaf	B					
5	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
5	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
5	AMS		WG	17 lb/100 gal		6-8 leaf	C					
6	Ethofumesate	4	L	2 pt/a		PRE	A	8	96	9	100	100
6	Warrant	3	L	3 pt/a		2 leaf	B					
6	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
6	AMS		WG	17 lb/100 gal		2 leaf	B					
6	Warrant	3	L	3 pt/a		6-8 leaf	C					
6	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
6	AMS		WG	17 lb/100 gal		6-8 leaf	C					

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	BETVU	CHEAL	BETVU	CHEAL	POLPY
Pest Code					
Crop Type, Code					
Rating Date	May-31-2019	May-31-2019	Jun-7-2019	Jun-7-2019	Jun-7-2019
Rating Type	injury	injury	injury	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
7	Ethofumesate	4	L	2	pt/a	PRE	A	14	100	13	100	100
7	Outlook	6	L	12	fl oz/a	2 leaf	B					
7	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
7	AMS		WG	17	lb/100 gal	2 leaf	B					
7	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
7	AMS		WG	17	lb/100 gal	6-8 leaf	C					
8	Ethofumesate	4	L	2	pt/a	PRE	A	11	94	7	100	100
8	Ethofumesate	4	L	2	pt/a	2 leaf	B					
8	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
8	Destiny HC		L	1.5	pt/a	2 leaf	B					
8	AMS		WG	17	lb/100 gal	2 leaf	B					
8	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
8	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
8	AMS		WG	17	lb/100 gal	6-8 leaf	C					
9	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	7	91	4	100	100
9	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
9	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
9	AMS		WG	17	lb/100 gal	2 leaf	B					
9	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
9	AMS		WG	17	lb/100 gal	6-8 leaf	C					
10	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	11	90	14	100	100
10	Warrant	3	L	3	pt/a	2 leaf	B					
10	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
10	AMS		WG	17	lb/100 gal	2 leaf	B					
10	Warrant	3	L	3	pt/a	6-8 leaf	C					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
10	AMS		WG	17	lb/100 gal	6-8 leaf	C					
11	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	17	97	23	100	100
11	Outlook	6	L	12	fl oz/a	2 leaf	B					
11	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
11	AMS		WG	17	lb/100 gal	2 leaf	B					
11	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
11	AMS		WG	17	lb/100 gal	6-8 leaf	C					

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Pest Code		CHEAL	CHEAL	POLPY
Crop Type, Code		BETVU	BETVU	
Rating Date		May-31-2019	Jun-7-2019	Jun-7-2019
Rating Type		injury	injury	control
Rating Unit		percent	percent	percent
Trt-Eval Interval		14 DA-B	14 DA-B	14 DA-B
Number of Decimals		0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
12	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	7	99	14	100	100
12	Ethofumesate	4	L	2	pt/a	2 leaf	B					
12	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
12	Destiny HC		L	1.5	pt/a	2 leaf	B					
12	AMS		WG	17	lb/100 gal	2 leaf	B					
12	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
12	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
12	AMS		WG	17	lb/100 gal	6-8 leaf	C					
13	Ethofumesate	4	L	2	pt/a	2 leaf	B	11	96	2	100	100
13	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
13	Destiny HC		L	1.5	pt/a	2 leaf	B					
13	AMS		WG	17	lb/100 gal	2 leaf	B					
13	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
13	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
13	AMS		WG	17	lb/100 gal	6-8 leaf	C					
14	Ethofumesate	4	L	2	pt/a	PRE	A	18	99	12	100	100
14	Warrant	3	L	1.5	pt/a	2 leaf	B					
14	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
14	AMS		WG	17	lb/100 gal	2 leaf	B					
14	Warrant	3	L	1.5	pt/a	6-8 leaf	C					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
14	AMS		WG	17	lb/100 gal	6-8 leaf	C					
15	Ethofumesate	4	L	2	pt/a	PRE	A	12	100	20	100	100
15	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
15	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
15	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
15	Destiny HC		L	1.5	pt/a	2 leaf	B					
15	AMS		WG	17	lb/100 gal	2 leaf	B					
15	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
15	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
15	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
15	AMS		WG	17	lb/100 gal	6-8 leaf	C					

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Pest Code		CHEAL		CHEAL	POLPY
Crop Type, Code		BETVU		BETVU	
Rating Date		May-31-2019		Jun-7-2019	Jun-7-2019
Rating Type		injury		injury	control
Rating Unit		percent		percent	percent
Trt-Eval Interval		14 DA-B		14 DA-B	14 DA-B
Number of Decimals		0		0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
16	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	11	95	10	100	100
16	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
16	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
16	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
16	Destiny HC		L	1.5	pt/a	2 leaf	B					
16	AMS		WG	17	lb/100 gal	2 leaf	B					
16	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
16	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
16	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
16	AMS		WG	17	lb/100 gal	6-8 leaf	C					
	LSD P=.05							10.8	8.6	10.9	.	.
	Standard Deviation							7.5	6.0	7.6	0.0	0.0
	CV							70.12	6.37	71.06	0.0	0.0

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Pest Code	AMBEL	BETVU	CHEAL	POLPY	AMBEL
Crop Type, Code	Jun-7-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019
Rating Date	control	injury	control	control	control
Rating Type	percent	percent	percent	percent	percent
Rating Unit	14 DA-B	7 DA-C	7 DA-C	7 DA-C	7 DA-C
Trt-Eval Interval	0	0	0	0	0
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B	100	0	100	100	100
1	AMS		WG	17 lb/100 gal		2 leaf	B					
1	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
1	AMS		WG	17 lb/100 gal		6-8 leaf	C					
2	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B	75	9	100	100	100
2	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
2	AMS		WG	17 lb/100 gal		2 leaf	B					
2	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
2	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
2	AMS		WG	17 lb/100 gal		6-8 leaf	C					
3	Warrant	3	L	3 pt/a		2 leaf	B	100	13	100	100	100
3	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
3	AMS		WG	17 lb/100 gal		2 leaf	B					
3	Warrant	3	L	3 pt/a		6-8 leaf	C					
3	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
3	AMS		WG	17 lb/100 gal		6-8 leaf	C					
4	Outlook	6	L	12 fl oz/a		2 leaf	B	100	15	100	100	100
4	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
4	AMS		WG	17 lb/100 gal		2 leaf	B					
4	Outlook	6	L	12 fl oz/a		6-8 leaf	C					
4	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
4	AMS		WG	17 lb/100 gal		6-8 leaf	C					
5	Ethofumesate	4	L	2 pt/a		PRE	A	100	6	100	100	100
5	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B					
5	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
5	AMS		WG	17 lb/100 gal		2 leaf	B					
5	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
5	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
5	AMS		WG	17 lb/100 gal		6-8 leaf	C					
6	Ethofumesate	4	L	2 pt/a		PRE	A	100	13	100	100	99
6	Warrant	3	L	3 pt/a		2 leaf	B					
6	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
6	AMS		WG	17 lb/100 gal		2 leaf	B					
6	Warrant	3	L	3 pt/a		6-8 leaf	C					
6	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
6	AMS		WG	17 lb/100 gal		6-8 leaf	C					

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Pest Code	AMBEL	BETVU	CHEAL	POLPY	AMBEL
Crop Type, Code					
Rating Date	Jun-7-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019
Rating Type	control	injury	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-B	7 DA-C	7 DA-C	7 DA-C	7 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code	AMBEL	BETVU	CHEAL	POLPY	AMBEL
7	Ethofumesate	4	L	2	pt/a	PRE	A	100	7	100	100	100
7	Outlook	6	L	12	fl oz/a	2 leaf	B					
7	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
7	AMS		WG	17	lb/100 gal	2 leaf	B					
7	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
7	AMS		WG	17	lb/100 gal	6-8 leaf	C					
8	Ethofumesate	4	L	2	pt/a	PRE	A	100	17	99	100	100
8	Ethofumesate	4	L	2	pt/a	2 leaf	B					
8	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
8	Destiny HC		L	1.5	pt/a	2 leaf	B					
8	AMS		WG	17	lb/100 gal	2 leaf	B					
8	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
8	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
8	AMS		WG	17	lb/100 gal	6-8 leaf	C					
9	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	8	100	100	100
9	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
9	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
9	AMS		WG	17	lb/100 gal	2 leaf	B					
9	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
9	AMS		WG	17	lb/100 gal	6-8 leaf	C					
10	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	12	100	100	100
10	Warrant	3	L	3	pt/a	2 leaf	B					
10	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
10	AMS		WG	17	lb/100 gal	2 leaf	B					
10	Warrant	3	L	3	pt/a	6-8 leaf	C					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
10	AMS		WG	17	lb/100 gal	6-8 leaf	C					
11	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	20	100	100	100
11	Outlook	6	L	12	fl oz/a	2 leaf	B					
11	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
11	AMS		WG	17	lb/100 gal	2 leaf	B					
11	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
11	AMS		WG	17	lb/100 gal	6-8 leaf	C					

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Pest Code	AMBEL		CHEAL	POLPY	AMBEL
Crop Type, Code		BETVU			
Rating Date	Jun-7-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019
Rating Type	control	injury	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-B	7 DA-C	7 DA-C	7 DA-C	7 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
12	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	10	100	100	100
12	Ethofumesate	4	L	2	pt/a	2 leaf	B					
12	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
12	Destiny HC		L	1.5	pt/a	2 leaf	B					
12	AMS		WG	17	lb/100 gal	2 leaf	B					
12	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
12	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
12	AMS		WG	17	lb/100 gal	6-8 leaf	C					
13	Ethofumesate	4	L	2	pt/a	2 leaf	B	100	4	100	100	100
13	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
13	Destiny HC		L	1.5	pt/a	2 leaf	B					
13	AMS		WG	17	lb/100 gal	2 leaf	B					
13	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
13	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
13	AMS		WG	17	lb/100 gal	6-8 leaf	C					
14	Ethofumesate	4	L	2	pt/a	PRE	A	100	10	99	100	100
14	Warrant	3	L	1.5	pt/a	2 leaf	B					
14	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
14	AMS		WG	17	lb/100 gal	2 leaf	B					
14	Warrant	3	L	1.5	pt/a	6-8 leaf	C					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
14	AMS		WG	17	lb/100 gal	6-8 leaf	C					
15	Ethofumesate	4	L	2	pt/a	PRE	A	100	20	100	100	100
15	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
15	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
15	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
15	Destiny HC		L	1.5	pt/a	2 leaf	B					
15	AMS		WG	17	lb/100 gal	2 leaf	B					
15	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
15	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
15	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
15	AMS		WG	17	lb/100 gal	6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code	AMBEL		CHEAL	POLPY	AMBEL
Crop Type, Code		BETVU			
Rating Date	Jun-7-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019	Jun-19-2019
Rating Type	control	injury	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-B	7 DA-C	7 DA-C	7 DA-C	7 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
16	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	4	100	100	
16	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
16	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
16	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
16	Destiny HC		L	1.5	pt/a	2 leaf	B					
16	AMS		WG	17	lb/100 gal	2 leaf	B					
16	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
16	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
16	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
16	AMS		WG	17	lb/100 gal	6-8 leaf	C					
LSD P=.05								21.0	14.0	1.3	.	1.0
Standard Deviation								14.6	9.7	0.9	0.0	0.7
CV								14.83	93.85	0.9	0.0	0.73

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		CHEAL	POLPY	AMBEL	
Crop Type, Code	BETVU				BETVU
Rating Date	Jun-26-2019	Jun-26-2019	Jun-26-2019	Jun-26-2019	Sep-18-2019
Rating Type	injury	control	control	control	injury
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-C	14 DA-C	14 DA-C	14 DA-C	98 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B	0	100	100	98	0
1	AMS		WG	17 lb/100 gal		2 leaf	B					
1	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
1	AMS		WG	17 lb/100 gal		6-8 leaf	C					
2	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B	6	100	100	99	0
2	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
2	AMS		WG	17 lb/100 gal		2 leaf	B					
2	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
2	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
2	AMS		WG	17 lb/100 gal		6-8 leaf	C					
3	Warrant	3	L	3 pt/a		2 leaf	B	11	100	100	100	0
3	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
3	AMS		WG	17 lb/100 gal		2 leaf	B					
3	Warrant	3	L	3 pt/a		6-8 leaf	C					
3	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
3	AMS		WG	17 lb/100 gal		6-8 leaf	C					
4	Outlook	6	L	12 fl oz/a		2 leaf	B	13	100	100	100	0
4	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
4	AMS		WG	17 lb/100 gal		2 leaf	B					
4	Outlook	6	L	12 fl oz/a		6-8 leaf	C					
4	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
4	AMS		WG	17 lb/100 gal		6-8 leaf	C					
5	Ethofumesate	4	L	2 pt/a		PRE	A	10	100	100	100	0
5	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B					
5	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
5	AMS		WG	17 lb/100 gal		2 leaf	B					
5	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
5	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
5	AMS		WG	17 lb/100 gal		6-8 leaf	C					
6	Ethofumesate	4	L	2 pt/a		PRE	A	10	100	100	100	0
6	Warrant	3	L	3 pt/a		2 leaf	B					
6	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
6	AMS		WG	17 lb/100 gal		2 leaf	B					
6	Warrant	3	L	3 pt/a		6-8 leaf	C					
6	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
6	AMS		WG	17 lb/100 gal		6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		CHEAL	POLPY	AMBEL	
Crop Type, Code		BETVU			BETVU
Rating Date		Jun-26-2019	Jun-26-2019	Jun-26-2019	Sep-18-2019
Rating Type		injury	control	control	injury
Rating Unit		percent	percent	percent	percent
Trt-Eval Interval		14 DA-C	14 DA-C	14 DA-C	98 DA-C
Number of Decimals		0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
7	Ethofumesate	4	L	2	pt/a	PRE	A	3	100	100	100	0
7	Outlook	6	L	12	fl oz/a	2 leaf	B					
7	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
7	AMS		WG	17	lb/100 gal	2 leaf	B					
7	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
7	AMS		WG	17	lb/100 gal	6-8 leaf	C					
8	Ethofumesate	4	L	2	pt/a	PRE	A	18	100	100	100	0
8	Ethofumesate	4	L	2	pt/a	2 leaf	B					
8	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
8	Destiny HC		L	1.5	pt/a	2 leaf	B					
8	AMS		WG	17	lb/100 gal	2 leaf	B					
8	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
8	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
8	AMS		WG	17	lb/100 gal	6-8 leaf	C					
9	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	8	100	100	100	0
9	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
9	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
9	AMS		WG	17	lb/100 gal	2 leaf	B					
9	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
9	AMS		WG	17	lb/100 gal	6-8 leaf	C					
10	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	14	100	100	100	0
10	Warrant	3	L	3	pt/a	2 leaf	B					
10	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
10	AMS		WG	17	lb/100 gal	2 leaf	B					
10	Warrant	3	L	3	pt/a	6-8 leaf	C					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
10	AMS		WG	17	lb/100 gal	6-8 leaf	C					
11	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	15	100	100	100	0
11	Outlook	6	L	12	fl oz/a	2 leaf	B					
11	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
11	AMS		WG	17	lb/100 gal	2 leaf	B					
11	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
11	AMS		WG	17	lb/100 gal	6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		CHEAL	POLPY	AMBEL	
Crop Type, Code	BETVU				BETVU
Rating Date	Jun-26-2019	Jun-26-2019	Jun-26-2019	Jun-26-2019	Sep-18-2019
Rating Type	injury	control	control	control	injury
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-C	14 DA-C	14 DA-C	14 DA-C	98 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
12	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	13	100	100	100	0
12	Ethofumesate	4	L	2	pt/a	2 leaf	B					
12	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
12	Destiny HC		L	1.5	pt/a	2 leaf	B					
12	AMS		WG	17	lb/100 gal	2 leaf	B					
12	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
12	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
12	AMS		WG	17	lb/100 gal	6-8 leaf	C					
13	Ethofumesate	4	L	2	pt/a	2 leaf	B	3	100	100	100	0
13	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
13	Destiny HC		L	1.5	pt/a	2 leaf	B					
13	AMS		WG	17	lb/100 gal	2 leaf	B					
13	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
13	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
13	AMS		WG	17	lb/100 gal	6-8 leaf	C					
14	Ethofumesate	4	L	2	pt/a	PRE	A	3	99	100	100	0
14	Warrant	3	L	1.5	pt/a	2 leaf	B					
14	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
14	AMS		WG	17	lb/100 gal	2 leaf	B					
14	Warrant	3	L	1.5	pt/a	6-8 leaf	C					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
14	AMS		WG	17	lb/100 gal	6-8 leaf	C					
15	Ethofumesate	4	L	2	pt/a	PRE	A	11	100	100	100	0
15	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
15	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
15	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
15	Destiny HC		L	1.5	pt/a	2 leaf	B					
15	AMS		WG	17	lb/100 gal	2 leaf	B					
15	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
15	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
15	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
15	AMS		WG	17	lb/100 gal	6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		CHEAL	POLPY	AMBEL	
Crop Type, Code	BETVU				BETVU
Rating Date	Jun-26-2019	Jun-26-2019	Jun-26-2019	Jun-26-2019	Sep-18-2019
Rating Type	injury	control	control	control	injury
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	14 DA-C	14 DA-C	14 DA-C	14 DA-C	98 DA-C
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
16	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	8	100	100	100	0
16	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
16	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
16	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
16	Destiny HC		L	1.5	pt/a	2 leaf	B					
16	AMS		WG	17	lb/100 gal	2 leaf	B					
16	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
16	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
16	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
16	AMS		WG	17	lb/100 gal	6-8 leaf	C					
LSD P=.05								14.6	0.6	.	2.2	.
Standard Deviation								10.2	0.4	0.0	1.5	0.0
CV								113.49	0.44	0.0	1.5	0.0

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code	CHEAL	POLPY	AMBEL	BETVU	BETVU
Crop Type, Code	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019
Rating Date	control	control	control	stand count	% sugar
Rating Type	percent	percent	percent	100' row	
Rating Unit	98 DA-C	98 DA-C	98 DA-C	98 DA-C	98 DA-C
Trt-Eval Interval	0	0	0	0	1
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
1	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B	100	100	98	216	18.7
1	AMS		WG	17 lb/100 gal		2 leaf	B					
1	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
1	AMS		WG	17 lb/100 gal		6-8 leaf	C					
2	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B	100	100	99	209	18.3
2	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
2	AMS		WG	17 lb/100 gal		2 leaf	B					
2	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
2	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
2	AMS		WG	17 lb/100 gal		6-8 leaf	C					
3	Warrant	3	L	3 pt/a		2 leaf	B	100	100	100	199	18.3
3	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
3	AMS		WG	17 lb/100 gal		2 leaf	B					
3	Warrant	3	L	3 pt/a		6-8 leaf	C					
3	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
3	AMS		WG	17 lb/100 gal		6-8 leaf	C					
4	Outlook	6	L	12 fl oz/a		2 leaf	B	100	100	100	208	18.3
4	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
4	AMS		WG	17 lb/100 gal		2 leaf	B					
4	Outlook	6	L	12 fl oz/a		6-8 leaf	C					
4	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
4	AMS		WG	17 lb/100 gal		6-8 leaf	C					
5	Ethofumesate	4	L	2 pt/a		PRE	A	100	100	100	200	18.9
5	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B					
5	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
5	AMS		WG	17 lb/100 gal		2 leaf	B					
5	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C					
5	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
5	AMS		WG	17 lb/100 gal		6-8 leaf	C					
6	Ethofumesate	4	L	2 pt/a		PRE	A	100	100	100	194	18.5
6	Warrant	3	L	3 pt/a		2 leaf	B					
6	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B					
6	AMS		WG	17 lb/100 gal		2 leaf	B					
6	Warrant	3	L	3 pt/a		6-8 leaf	C					
6	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C					
6	AMS		WG	17 lb/100 gal		6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code	CHEAL	POLPY	AMBEL	BETVU	BETVU
Crop Type, Code	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019
Rating Date	control	control	control	stand count	% sugar
Rating Type	percent	percent	percent	100' row	
Rating Unit	98 DA-C	98 DA-C	98 DA-C	98 DA-C	98 DA-C
Trt-Eval Interval	0	0	0	0	1
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
7	Ethofumesate	4	L	2	pt/a	PRE	A	100	100	100	192	18.4
7	Outlook	6	L	12	fl oz/a	2 leaf	B					
7	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
7	AMS		WG	17	lb/100 gal	2 leaf	B					
7	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
7	AMS		WG	17	lb/100 gal	6-8 leaf	C					
8	Ethofumesate	4	L	2	pt/a	PRE	A	100	100	100	177	17.6
8	Ethofumesate	4	L	2	pt/a	2 leaf	B					
8	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
8	Destiny HC		L	1.5	pt/a	2 leaf	B					
8	AMS		WG	17	lb/100 gal	2 leaf	B					
8	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
8	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
8	AMS		WG	17	lb/100 gal	6-8 leaf	C					
9	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	100	100	171	17.8
9	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
9	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
9	AMS		WG	17	lb/100 gal	2 leaf	B					
9	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
9	AMS		WG	17	lb/100 gal	6-8 leaf	C					
10	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	100	100	179	17.8
10	Warrant	3	L	3	pt/a	2 leaf	B					
10	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
10	AMS		WG	17	lb/100 gal	2 leaf	B					
10	Warrant	3	L	3	pt/a	6-8 leaf	C					
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
10	AMS		WG	17	lb/100 gal	6-8 leaf	C					
11	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	100	100	184	18.1
11	Outlook	6	L	12	fl oz/a	2 leaf	B					
11	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
11	AMS		WG	17	lb/100 gal	2 leaf	B					
11	Outlook	6	L	12	fl oz/a	6-8 leaf	C					
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
11	AMS		WG	17	lb/100 gal	6-8 leaf	C					

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code	CHEAL	POLPY	AMBEL	BETVU	BETVU
Crop Type, Code	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019
Rating Date	control	control	control	stand count	% sugar
Rating Type	percent	percent	percent	100' row	
Rating Unit	98 DA-C	98 DA-C	98 DA-C	98 DA-C	98 DA-C
Trt-Eval Interval	0	0	0	0	1
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code					
12	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	100	100	169	18.3
12	Ethofumesate	4	L	2	pt/a	2 leaf	B					
12	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
12	Destiny HC		L	1.5	pt/a	2 leaf	B					
12	AMS		WG	17	lb/100 gal	2 leaf	B					
12	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
12	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
12	AMS		WG	17	lb/100 gal	6-8 leaf	C					
13	Ethofumesate	4	L	2	pt/a	2 leaf	B	100	100	100	202	18.7
13	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
13	Destiny HC		L	1.5	pt/a	2 leaf	B					
13	AMS		WG	17	lb/100 gal	2 leaf	B					
13	Ethofumesate	4	L	2	pt/a	6-8 leaf	C					
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
13	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
13	AMS		WG	17	lb/100 gal	6-8 leaf	C					
14	Ethofumesate	4	L	2	pt/a	PRE	A	99	100	100	201	18.1
14	Warrant	3	L	1.5	pt/a	2 leaf	B					
14	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
14	AMS		WG	17	lb/100 gal	2 leaf	B					
14	Warrant	3	L	1.5	pt/a	6-8 leaf	C					
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
14	AMS		WG	17	lb/100 gal	6-8 leaf	C					
15	Ethofumesate	4	L	2	pt/a	PRE	A	100	100	100	184	18.2
15	Ethofumesate	4	L	6	fl oz/a	2 leaf	B					
15	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B					
15	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B					
15	Destiny HC		L	1.5	pt/a	2 leaf	B					
15	AMS		WG	17	lb/100 gal	2 leaf	B					
15	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C					
15	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C					
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C					
15	Destiny HC		L	1.5	pt/a	6-8 leaf	C					
15	AMS		WG	17	lb/100 gal	6-8 leaf	C					

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code	CHEAL	POLPY	AMBEL	BETVU	BETVU
Crop Type, Code	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019	Sep-18-2019
Rating Date	control	control	control	stand count	% sugar
Rating Type	percent	percent	percent	100' row	
Rating Unit	98 DA-C	98 DA-C	98 DA-C	98 DA-C	98 DA-C
Trt-Eval Interval	0	0	0	0	1
Number of Decimals					

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code			
16	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	100	100	100
16	Ethofumesate	4	L	6	fl oz/a	2 leaf	B			206
16	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B			18.4
16	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B			
16	Destiny HC		L	1.5	pt/a	2 leaf	B			
16	AMS		WG	17	lb/100 gal	2 leaf	B			
16	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C			
16	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C			
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C			
16	Destiny HC		L	1.5	pt/a	6-8 leaf	C			
16	AMS		WG	17	lb/100 gal	6-8 leaf	C			

LSD P=.05	0.6	.	2.2	43.5	1.10
Standard Deviation	0.4	0.0	1.5	30.2	0.77
CV	0.44	0.0	1.5	15.65	4.2

Missing data estimates are included in columns: Average=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22
 Could not calculate LSD (% mean diff) for columns 4,5,9,13,15,17 because error mean square = 0.

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code			
Crop Type, Code		BETVU	BETVU
Rating Date		Sep-18-2019	Sep-18-2019
Rating Type		yield	RWSA
Rating Unit		ton/acre	#/acre
Trt-Eval Interval		98 DA-C	98 DA-C
Number of Decimals		1	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
1	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B	19.2	5666
1	AMS		WG	17 lb/100 gal		2 leaf	B		
1	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
1	AMS		WG	17 lb/100 gal		6-8 leaf	C		
2	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B	20.4	5808
2	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B		
2	AMS		WG	17 lb/100 gal		2 leaf	B		
2	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C		
2	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
2	AMS		WG	17 lb/100 gal		6-8 leaf	C		
3	Warrant	3	L	3 pt/a		2 leaf	B	16.8	4844
3	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B		
3	AMS		WG	17 lb/100 gal		2 leaf	B		
3	Warrant	3	L	3 pt/a		6-8 leaf	C		
3	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
3	AMS		WG	17 lb/100 gal		6-8 leaf	C		
4	Outlook	6	L	12 fl oz/a		2 leaf	B	20.1	5753
4	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B		
4	AMS		WG	17 lb/100 gal		2 leaf	B		
4	Outlook	6	L	12 fl oz/a		6-8 leaf	C		
4	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
4	AMS		WG	17 lb/100 gal		6-8 leaf	C		
5	Ethofumesate	4	L	2 pt/a		PRE	A	18.3	5647
5	Dual II Magnum	7.64	L	1 pt/a		2 leaf	B		
5	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B		
5	AMS		WG	17 lb/100 gal		2 leaf	B		
5	Dual II Magnum	7.64	L	1 pt/a		6-8 leaf	C		
5	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
5	AMS		WG	17 lb/100 gal		6-8 leaf	C		
6	Ethofumesate	4	L	2 pt/a		PRE	A	17.3	5134
6	Warrant	3	L	3 pt/a		2 leaf	B		
6	Roundup PowerMax	4.5	SL	32 fl oz/a		2 leaf	B		
6	AMS		WG	17 lb/100 gal		2 leaf	B		
6	Warrant	3	L	3 pt/a		6-8 leaf	C		
6	Roundup PowerMax	4.5	SL	22 fl oz/a		6-8 leaf	C		
6	AMS		WG	17 lb/100 gal		6-8 leaf	C		

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		
Crop Type, Code	BETVU	BETVU
Rating Date	Sep-18-2019	Sep-18-2019
Rating Type	yield	RWSA
Rating Unit	ton/acre	#/acre
Trt-Eval Interval	98 DA-C	98 DA-C
Number of Decimals	1	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
7	Ethofumesate	4	L	2	pt/a	PRE	A	18.8	5588
7	Outlook	6	L	12	fl oz/a	2 leaf	B		
7	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
7	AMS		WG	17	lb/100 gal	2 leaf	B		
7	Outlook	6	L	12	fl oz/a	6-8 leaf	C		
7	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
7	AMS		WG	17	lb/100 gal	6-8 leaf	C		
8	Ethofumesate	4	L	2	pt/a	PRE	A	16.6	4691
8	Ethofumesate	4	L	2	pt/a	2 leaf	B		
8	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
8	Destiny HC		L	1.5	pt/a	2 leaf	B		
8	AMS		WG	17	lb/100 gal	2 leaf	B		
8	Ethofumesate	4	L	2	pt/a	6-8 leaf	C		
8	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
8	Destiny HC		L	1.5	pt/a	6-8 leaf	C		
8	AMS		WG	17	lb/100 gal	6-8 leaf	C		
9	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	17.4	4759
9	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B		
9	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
9	AMS		WG	17	lb/100 gal	2 leaf	B		
9	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C		
9	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
9	AMS		WG	17	lb/100 gal	6-8 leaf	C		
10	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	17.7	4794
10	Warrant	3	L	3	pt/a	2 leaf	B		
10	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
10	AMS		WG	17	lb/100 gal	2 leaf	B		
10	Warrant	3	L	3	pt/a	6-8 leaf	C		
10	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
10	AMS		WG	17	lb/100 gal	6-8 leaf	C		
11	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	18.3	4787
11	Outlook	6	L	12	fl oz/a	2 leaf	B		
11	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
11	AMS		WG	17	lb/100 gal	2 leaf	B		
11	Outlook	6	L	12	fl oz/a	6-8 leaf	C		
11	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
11	AMS		WG	17	lb/100 gal	6-8 leaf	C		

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		
Crop Type, Code	BETVU	BETVU
Rating Date	Sep-18-2019	Sep-18-2019
Rating Type	yield	RWSA
Rating Unit	ton/acre	#/acre
Trt-Eval Interval	98 DA-C	98 DA-C
Number of Decimals	1	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
12	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	17.8	5082
12	Ethofumesate	4	L	2	pt/a	2 leaf	B		
12	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
12	Destiny HC		L	1.5	pt/a	2 leaf	B		
12	AMS		WG	17	lb/100 gal	2 leaf	B		
12	Ethofumesate	4	L	2	pt/a	6-8 leaf	C		
12	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
12	Destiny HC		L	1.5	pt/a	6-8 leaf	C		
12	AMS		WG	17	lb/100 gal	6-8 leaf	C		
13	Ethofumesate	4	L	2	pt/a	2 leaf	B	17.6	5015
13	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
13	Destiny HC		L	1.5	pt/a	2 leaf	B		
13	AMS		WG	17	lb/100 gal	2 leaf	B		
13	Ethofumesate	4	L	2	pt/a	6-8 leaf	C		
13	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
13	Destiny HC		L	1.5	pt/a	6-8 leaf	C		
13	AMS		WG	17	lb/100 gal	6-8 leaf	C		
14	Ethofumesate	4	L	2	pt/a	PRE	A	16.6	4717
14	Warrant	3	L	1.5	pt/a	2 leaf	B		
14	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
14	AMS		WG	17	lb/100 gal	2 leaf	B		
14	Warrant	3	L	1.5	pt/a	6-8 leaf	C		
14	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
14	AMS		WG	17	lb/100 gal	6-8 leaf	C		
15	Ethofumesate	4	L	2	pt/a	PRE	A	16.6	4524
15	Ethofumesate	4	L	6	fl oz/a	2 leaf	B		
15	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B		
15	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
15	Destiny HC		L	1.5	pt/a	2 leaf	B		
15	AMS		WG	17	lb/100 gal	2 leaf	B		
15	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C		
15	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C		
15	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
15	Destiny HC		L	1.5	pt/a	6-8 leaf	C		
15	AMS		WG	17	lb/100 gal	6-8 leaf	C		

Sugarbeet tolerance of overlapping residuals for control of herbicide-resistant waterhemp

Trial ID: SB01-19

Location: SVREC

Investigator: Christy Sprague

Study Director: Sprague, Powell, Stiles

Pest Code		
Crop Type, Code	BETVU	BETVU
Rating Date	Sep-18-2019	Sep-18-2019
Rating Type	yield	RWSA
Rating Unit	ton/acre	#/acre
Trt-Eval Interval	98 DA-C	98 DA-C
Number of Decimals	1	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Timing	Appl Code		
16	Dual II Magnum	7.64	L	0.5	pt/a	PRE	A	18.2	5398
16	Ethofumesate	4	L	6	fl oz/a	2 leaf	B		
16	Dual II Magnum	7.64	L	1	pt/a	2 leaf	B		
16	Roundup PowerMax	4.5	SL	32	fl oz/a	2 leaf	B		
16	Destiny HC		L	1.5	pt/a	2 leaf	B		
16	AMS		WG	17	lb/100 gal	2 leaf	B		
16	Ethofumesate	4	L	6	fl oz/a	6-8 leaf	C		
16	Dual II Magnum	7.64	L	1	pt/a	6-8 leaf	C		
16	Roundup PowerMax	4.5	SL	22	fl oz/a	6-8 leaf	C		
16	Destiny HC		L	1.5	pt/a	6-8 leaf	C		
16	AMS		WG	17	lb/100 gal	6-8 leaf	C		

LSD P=.05	4.54	1518.0
Standard Deviation	3.15	1055.2
CV	17.55	20.54