

MSU Weed Science Research Program

High input sugarbeet systems - Syngenta I

Trial ID: SB01-13 Study Dir.: Sprague, Powell
 Conducted: SVREC Investigator: Christy Sprague

Date Planted: May/02/2013 **Row Spacing:** 30 IN
Variety: HM-28RR **No. of Reps:** 4
Population: 4 3/8" **% OM:** 3.2
Soil Type: Clay loam **pH:** 8.0
Plot Size: 10 X 50 FT **Design:** RANDOMIZED COMPLETE BLOCK

Tillage: Previous crop wheat. Fall moldboard plow, spring field cultivate and soil finish

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	ZEAMX	CORN, VOLUNTEER	ZEA MAYS L.
2.	CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
3.	AMARE	PIGWEEED, REDROOT	AMARANTHUS RETROFLEXUS L.
Crop	Code	Common Name	
1.	BETVU	BEET, SUGAR	

Application Description

	A	B	C	D	E	F
Application Timing:	2-leaf	4-leaf	6-leaf	55 DSV	+55 DSV1	+55 DSV2
Date Treated:	Jun/03/2013	Jun/03/2013	Jun/18/2013	Jul/03/2013	Jul/17/2013	Aug/01/2013
Time Treated:	11:00 AM	3:00 PM	1:00 PM	11:00 AM	10:15 AM	4:00 PM
% Cloud Cover:	10	25	0	25	10	50
Air Temp., Unit:	55 F	66 F	65 F	72 F	88 F	76 F
% Relative Humidity:	20	35	46	75	65	60
Wind Speed/Unit/Dir:	3 mph NW	4 mph NW	6 mph NE	4 mph NE	2 mph NW	5 mph W
Soil Temp., Unit:	61 F	63 F	68 F	73 F	86 F	74 F
Soil/Leaf Surface M:	4 4	5 5	5 5	5 5	5 5	5 4
Soil Moist (1=w 5=d):	4	5	3	3	4	3

Crop Stage at Each Application

	A	B	C	D	E	F
Crop Name:	BETVU	BETVU	BETVU	BETVU	BETVU	BETVU
Height (In.):	3"	3"	5"	8-10"	18-22"	18-22"
Stage (L):	4	4	6	10	18	20

Weed Stage at Each Application

	A	B	C	D	E	F
Weed 1 Name:	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
Height (In.):	5	5	12	-	-	-
Stage (L):	V2	V2	V6	-	-	-
Weed 2 Name:	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL	CHEAL
Height (In.):	1	1	2	4.5	3	-
Stage (L):	8	8	12	many	18	-
Weed 3 Name:	AMARE	AMARE	AMARE	AMARE	AMARE	AMARE
Height (In.):	-	-	1"	-	-	-
Stage (L):	-	-	4	-	-	-

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
	Type	MPH	Type	Size	Height	Spacing	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	backpack	3.8	AIXR	11003	24"	20"	100"	19	water	28
D	Cub	3.8	AirMix	11003	24"	20"	100"	19	water	28
E	backpack	3.8	AIXR	11003	30"	20"	100"	19	water	28
F	Cub	3.8	AirMix	11003	30"	20"	100"	19	water	28

Comments: Plots were evaluated for Rhizoctonia crown and root rot and Cercospora leaf spot. These diseases were not detected in any of the plots evaluated. Management strategies were 100% effective.

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Trial ID: SB01-13 Study Dir.: Sprague, Powell
 Conducted: SVREC Investigator: Christy Sprague

Weed Code										
Crop Code							BETVU	BETVU	BETVU	BETVU
Rating Data Type							stand count	stand count	stand count	injury
Rating Unit							100' row	100' row	100' row	percent
Rating Date							May/09/2013	Jun/03/2013	Jun/13/2013	Jun/13/2013
Trt-Eval Interval							7 DAP	0 DA-A	10 DA-A	10 DA-A
# Subsamples, Dec.							0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							9	148	163	0
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							14	139	150	0
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							18.6	44.6	48.6	0.0
	CV							70.35	13.85	13.78	0.0

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

MSU Weed Science Research Program

Weed Code							ZEAMX	CHEAL	AMARE	BETVU	
Crop Code							control	control	control	injury	
Rating Data Type							percent	percent	percent	percent	
Rating Unit							Jun/13/2013	Jun/13/2013	Jun/13/2013	Jun/18/2013	
Rating Date							10 DA-A	10 DA-A	10 DA-A	15 DA-A	
Trt-Eval Interval							0	0	0	0	
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							10	99	99	0
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							10	99	99	0
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							0.0	0.9	0.0	0.0
	CV							0.0	0.41	0.0	0.0

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

MSU Weed Science Research Program

Weed Code							ZEAMX	CHEAL	AMARE	BETVU
Crop Code							control	control	control	injury
Rating Data Type							percent	percent	percent	percent
Rating Unit							Jun/18/2013	Jun/18/2013	Jun/18/2013	Jun/26/2013
Rating Date							15 DA-A	15 DA-A	15 DA-A	8 DA-C
Trt-Eval Interval							0	0	0	0
# Subsamples, Dec.										
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code			
1	Apron + Maxim seed						10	99	99	0
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A			
	AMS		WG	17	lb/100 gal	2-leaf	A			
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C			
	Assure II	0.88	L	8	fl oz/a	6-leaf	C			
	AMS		WG	17	lb/100 gal	6-leaf	C			
	Eminent	1	L	13	fl oz/a	55 DSV	D			
	Eminent	1	L	13	fl oz/a	+55 DSV1	E			
	SuperTin	80	WP	2	lb/a	+55 DSV2	F			
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F			
2	Apron + Maxim + Cruiser						10	99	99	0
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A			
	AMS		WG	17	lb/100 gal	2-leaf	A			
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B			
	Sequence	5.25	L	3.5	pt/a	6-leaf	C			
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C			
	AMS		WG	17	lb/100 gal	6-leaf	C			
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D			
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E			
	SuperTin	80	WP	2	lb/a	+55 DSV2	F			
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F			
	LSD (P=.05)						0.0	0.9	0.0	0.0
	CV						0.0	0.41	0.0	0.0

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

MSU Weed Science Research Program

Weed Code		ZEAMX	CHEAL	AMARE	BETVU
Crop Code					
Rating Data Type		control	control	control	injury
Rating Unit		percent	percent	percent	percent
Rating Date		Jun/26/2013	Jun/26/2013	Jun/26/2013	Jul/03/2013
Trt-Eval Interval		8 DA-C	8 DA-C	8 DA-C	15 DA-C
# Subsamples, Dec.		0	0	0	0

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							91	99	99	0
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							91	99	99	0
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							10.1	0.0	0.0	0.0
	CV							4.98	0.0	0.0	0.0

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

MSU Weed Science Research Program

Weed Code							ZEAMX	CHEAL	AMARE	BETVU	
Crop Code											
Rating Data Type							control	control	control	injury	
Rating Unit							percent	percent	percent	percent	
Rating Date							Jul/03/2013	Jul/03/2013	Jul/03/2013	Jul/17/2013	
Trt-Eval Interval							15 DA-C	15 DA-C	15 DA-C	29 DA-C	
# Subsamples, Dec.							0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							99	99	99	0
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							99	99	99	0
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							0.9	0.8	0.0	0.0
	CV							0.41	0.36	0.0	0.0

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

MSU Weed Science Research Program

Weed Code							ZEAMX	CHEAL	AMARE	ZEAMX	
Crop Code											
Rating Data Type							control	control	control	control	
Rating Unit							percent	percent	percent	percent	
Rating Date							Jul/17/2013	Jul/17/2013	Jul/17/2013	Aug/15/2013	
Trt-Eval Interval							29 DA-C	29 DA-C	29 DA-C	58 DA-C	
# Subsamples, Dec.							0	0	0	0	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							99	98	99	99
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							99	98	99	99
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							1.6	1.6	0.0	0.0
	CV							0.72	0.72	0.0	0.0

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

MSU Weed Science Research Program

Weed Code	CHEAL	AMARE	ZEAMX	CHEAL						
Crop Code										
Rating Data Type	control	control	control	control						
Rating Unit	percent	percent	percent	percent						
Rating Date	Aug/15/2013	Aug/15/2013	Sep/21/2013	Sep/21/2013						
Trt-Eval Interval	58 DA-C	58 DA-C	95 DA-C	95 DA-C						
# Subsamples, Dec.	0	0	0	0						
Trt Treatment	Form	Form	Rate	Grow	Appl					
No. Name	Conc	Type	Rate	Unit	Stg	Code				
1	Apron + Maxim seed						95	99	99	95
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A			
	AMS		WG	17	lb/100 gal	2-leaf	A			
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C			
	Assure II	0.88	L	8	fl oz/a	6-leaf	C			
	AMS		WG	17	lb/100 gal	6-leaf	C			
	Eminent	1	L	13	fl oz/a	55 DSV	D			
	Eminent	1	L	13	fl oz/a	+55 DSV1	E			
	SuperTin	80	WP	2	lb/a	+55 DSV2	F			
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F			
2	Apron + Maxim + Cruiser						97	99	99	97
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A			
	AMS		WG	17	lb/100 gal	2-leaf	A			
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B			
	Sequence	5.25	L	3.5	pt/a	6-leaf	C			
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C			
	AMS		WG	17	lb/100 gal	6-leaf	C			
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D			
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E			
	SuperTin	80	WP	2	lb/a	+55 DSV2	F			
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F			
LSD (P=.05)							2.4	0.0	0.0	7.7
CV							1.11	0.0	0.0	3.56

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

MSU Weed Science Research Program

Weed Code								AMARE	BETVU	BETVU	BETVU
Crop Code								control	stand count	% sugar	yield
Rating Data Type								percent	100' row		ton/acre
Rating Unit								Sep/21/2013	Sep/25/2013	Sep/25/2013	Sep/25/2013
Rating Date								95 DA-C	114 DA-A	114 DA-A	114 DA-A
Trt-Eval Interval								0	0	1	1
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Rate Unit	Grow Stg	Appl Code				
1	Apron + Maxim seed							99	129	19.7	22.6
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C				
	Assure II	0.88	L	8	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Eminent	1	L	13	fl oz/a	55 DSV	D				
	Eminent	1	L	13	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
2	Apron + Maxim + Cruiser							99	130	20.0	19.5
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A				
	AMS		WG	17	lb/100 gal	2-leaf	A				
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B				
	Sequence	5.25	L	3.5	pt/a	6-leaf	C				
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C				
	AMS		WG	17	lb/100 gal	6-leaf	C				
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D				
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E				
	SuperTin	80	WP	2	lb/a	+55 DSV2	F				
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F				
	LSD (P=.05)							0.0	27.4	1.08	8.10
	CV							0.0	9.43	2.43	12.65

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

MSU Weed Science Research Program

Weed Code							BETVU	BETVU	
Crop Code							RWST	RWSA	
Rating Data Type							#/ton	#/acre	
Rating Unit							Sep/25/2013	Sep/25/2013	
Rating Date							114 DA-A	114 DA-A	
Trt-Eval Interval							0	0	
# Subsamples, Dec.									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Grow Stg	Appl Code		
1	Apron + Maxim seed							297	6723
	Roundup PowerMax	4.5	SL	22	fl oz/a	2-leaf	A		
	AMS		WG	17	lb/100 gal	2-leaf	A		
	Roundup PowerMax	4.5	SL	22	fl oz/a	6-leaf	C		
	Assure II	0.88	L	8	fl oz/a	6-leaf	C		
	AMS		WG	17	lb/100 gal	6-leaf	C		
	Eminent	1	L	13	fl oz/a	55 DSV	D		
	Eminent	1	L	13	fl oz/a	+55 DSV1	E		
	SuperTin	80	WP	2	lb/a	+55 DSV2	F		
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F		
2	Apron + Maxim + Cruiser							296	5734
	Touchdown Total	4.17	SL	28	fl oz/a	2-leaf	A		
	AMS		WG	17	lb/100 gal	2-leaf	A		
	Quadris (7" band)	2.08	SC	10.5	fl oz/a	4-leaf	B		
	Sequence	5.25	L	3.5	pt/a	6-leaf	C		
	Fusilade DX	2	L	12	fl oz/a	6-leaf	C		
	AMS		WG	17	lb/100 gal	6-leaf	C		
	Inspire XT	4.17	L	7	fl oz/a	55 DSV	D		
	Inspire XT	4.17	L	7	fl oz/a	+55 DSV1	E		
	SuperTin	80	WP	2	lb/a	+55 DSV2	F		
	Topsin	20	WG	0.5	lb/a	+55 DSV2	F		
	LSD (P=.05)							17.3	2483.1
	CV							2.6	13.1

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