Purpose of this Booklet

This booklet is provided as a guide to the 2003 sugar beet weed control research plots. The experiments outlined in this booklet were located at Ridgetown College

We appreciate the cooperation and assistance provided by the chemical companies and their representatives, their ideas, the chemical samples they have provided for the research work carried out at Ridgetown College, University of Guelph, as well as the monetary assistance so kindly provided by a number of chemical companies. Funding for the 2003 research program on sugar beet weed control was provided by the following:

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Eric Vyn

We trust that the information provided by this research will further the science of weed control by assisting companies with the registration and labeling of their products. This information will also allow research and extension personnel to suggest proper herbicide recommendations, thereby enabling growers to achieve consistent, broad spectrum weed control with a minimum of crop damage.

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2003
RIDGETOWN
WEATHER DATA

RAINFALL IN MM.

DATE	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.
1	3.8	15.2	0	0	0	25.0	0
2	0	12.4	0	0	5.2	0.4	0.2
3	0	0	0	0	21.0	0	4.8
4	25.0	0	0.8	1.8	0.2	0	0.6
5	0.4	16.8	0.4	0	7.6	0	0
6	6.2	0	0	0	1.0	0	0
7	0.2	0	0	0	0	0	0
8	0	1.6	11.8	0.2	0	0	0
9	0	2.4	0.2	1.4	0	0	0
10	0	0.4	0	12.2	0	0	0
11	0	7.2	0.6	1.2	0	0.2	0
12	0	0.6	17.0	3.0	1.6	0	0
13	0	0.2	0.2	0.2	0.2	0	0
14	0	0	0.2	0	0	0.6	34.4
15	0	1.2	0	4.6	0	19.8	2.4
16	0	1.6	0	0.2	1.0	0	0
17	0	0	0.2	0	0	0	0
18	0	0	0	0	0	0	0
19	0	0	12.2	0	0	29.6	0
20	2.6	13.8	0	1.8	0	0	0
21	0	0	0	8.8	0	0	0
22	0	0.2	0	0.6	0	24.8	4.2
23	0.2	11.7	0	0	0	0.2	0
24	0	1.5	0	0	0	5.8	0.2
25	0	0	0	0	0	1.2	2.4
26	0	0	4.6	0	13.0	0.6	7.0
27	0.2	3.0	0.2	0	0	14.0	0
28	0	0	0	0	0	0	7.6
29	0	0	5.2	0	1.0	0.2	0.2
30	55.8	0.8	0	0	0	0.2	0
31		18.4		0	0.8		0
TOTAL	94.4	109.0	41.4	36.0	52.6	122.6	64.0
30 YEAR AVG.	**80.2**	**75.4**	**80.0**	**83.6**	**100.0**	**90.7**	**62.2**

TEMPERATURE (C)

MEAN MAX	26.4	23.5	30.9	30.5	31.3	26.9	25.7
MEAN MIN	-6.3	1.5	4.2	8.4	6.5	3.6	-2.4
MEAN	10.0	12.5	17.6	19.4	18.9	15.2	11.6

TEMPERATURE, 30 YEAR AVERAGE (C)

MEAN MAX	12.4	19.5	24.5	27.1	25.8	22.0	15.2
MEAN MIN	2.4	8.4	13.8	16.2	15.3	11.7	5.7
MEAN	7.4	13.9	19.2	21.6	20.6	16.8	10.4

BAYER CODE ABBREVIATIONS

Code	Common Name	Scientific Name
ABUTH	Velvetleaf	*Abutilon theophrasti*
ACARH	Three-seeded mercury	*Acalypha rhombiodea*
AMAPO	Green pigweed	*Amaranthus powellii*
AMARE	Redroot pigweed	*Amaranthus retroflexus*
AMASS	Pigweed species	*Amaranthus sp.*
AMBEL	Common ragweed	*Ambrosia artemisiifolia*
ARTBI	Biennial wormwood	*Artemisia biennis*
ATXPA	Spreading atriplex	*Atriplex patula*
CAGSE	Hedge bindweed	*Calystegia sepium*
CAPBP	Shepherd's-purse	*Capsella bursa-pastoris*
CHEAL	Common lamb's-quarters	*Chenopodium album*
CIRAR	Canada thistle	*Cirsium arvense*
CONAR	Field bindweed	*Convolvulus arvensis*
DAUCA	Wild carrot	*Daucus carrota*
EQUAR	Field horsetail	*Equisetum arvense*
ERIAN	Annual fleabane	*Erigeron annuss*
ERICA	Canada fleabane	*Erigeron canadensis*
ERYCH	Wormseed mustard	*Erysimum cheiranthoides*
GAETE	Hempnettle	*Galeopsis tetrahit*
HIBTR	Flower-of-an-hour	*Hibiscus trionum*
LACSE	Prickly lettuce	*Lactuca serriola*
LAMAM	Henbit	*Lamium amplexicaule*
OXAST	Common yellow woodsorrel	*Oxalis stricta*
PLAMA	Broad-leaved plantain	*Plantago major*
POLCO	Wild buckwheat	*Polygonum convolvulus*
POLLA	Green smartweed	*Polygonum lapathifolium*
POLPE	Lady's-thumb	*Polygonum persicaria*
POROL	Purslane	*Portulaca oleracea*
SINAR	Wild mustard	*Sinapis arvensis*
SIYAN	Bur-cucumber	*Sicyos angulatus*
SOLCA	Horsenettle	*Solanum carolinense*
SOLPT	Eastern black nightshade	*Solanum ptycanthum*
SONAR	Perennial sowthistle	*Sonchus arvensis*
SONAS	Spiny annual sowthistle	*Sonchus asper*
SONOL	Annual sowthistle	*Sonchus oleraceus*
SOOCA	Canada goldenrod	*Solidago canadensis*
STAPA	Marsh hedge-nettle	*Stachys palustris*
STEME	Common chickweed	*Stellaria media*
TAROF	Dandelion	*Taraxacum officinale*
THLAR	Field pennycress	*Thlaspi arvense*
TRFPR	Red clover	*Trifolium pratense*
TRFSS	Clover species	*Trifolum spp.*
XANST	Common cocklebur	*Xanthium strumarium*
AGRGI	Redtop	*Agrostis gigantea*
AGRRE	Quackgrass	*Agropyron repens*
CCHPA	Longspine sandbur	*Cenchrus pauciflorus*
DIGIS	Smooth crabgrass	*Digitaria ischaemum*
DIGSA	Large (hairy) crabgrass	*Digitaria sanguinalis*
ECHCG	Barnyard grass	*Echinochloa crus-galli*
PANCA	Witch grass	*Panicum capillare*
PANDI	Fall panicum	*Panicum dichotomiflorum*
PANMI	Proso millet	*Panicum miliaceum*
SETFA	Giant foxtail	*Setaria faberii*
SETLU	Yellow foxtail	*Setaria glauca*
SETVI	Green foxtail	*Setaria viridis*

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SUGAR BEETS

DAVE BILYEA, DARREN ROBINSON Experiment ID: SB03M1

CROP: BEAVA, SUGAR BEET (E17). Planted: Apr-24-03, 118000 SE/HA, 2 CM Deep, 75 CM Row Width. Planting Method: MONOSEM VACUUM PLANTER.
Emerged On: May-04-03.
FIELD Site. Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 1.5 M x 44 M. Expt. Location: RCAT – K range.
D.A.T. = Days after initial postemergence treatment applied. Back half of plots maintained weed free. "A" applied Apr. 26/03. Post B applied May 22/03, Post C applied May 7/03, Post D applied May 17/03, Post E applied May 28/03, Post F applied June 6/03, Post G applied June 17/03.
Site Description: Soil Texture: LOAM. %OM: 5.5 %Sand: 51.3 %Silt: 32.4 %Clay: 16.4 pH: 7.2 CEC: 19.

APPLICATION DESCRIPTION

Application:	A	B	C	D	E	F	G
Date :	Apr-26-03	May-07-03	May-17-03	May-22-03	May-26-03	Jun-06-03	Jun-17-03
Time of Day:	0900	0700	0800	1000	1400	1100	800
Method :	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Timing :	PREPRE	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS
Placement :	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp. :	10 C	9.8 C	18 C	12 C	22 C	24 C	20 C
% Humidity :	42	89	68	49	59	58	80
Wind Speed :	8 KPH	3 KPH	15 KPH	11 KPH	12 KPH	9 KPH	10 KPH
Dew Present:		Y	N	N	N	N	N
Soil Moisture		EXCESSIVE	EXCESSIVE	ADEQUATE	ADEQUATE	ADEQUATE	ADEQUATE
Cloud Cover:	0%	100%	50%	50%	80%	10%	70%
Equipment :	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY
Pressure :	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR
Noz.Spacing:	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM
Boom Length:	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M
Boom Height:	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM
Carrier :	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Appl.Volume:	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA
Propellant :	CO2	CO2	CO2	CO2	CO2	CO2	CO2

STAGE AT APPLICATION

	A	B	C	D	E	F	G
Crop 1 BEAVA	COT	COT	2 LF	3 LF	4 LF	4-5 LF	8-9 LF
Weed 1 ABUTH		COT	COT	COT	COT- 1 LF	2 LF	COT
Stg.Scale:							
Density :		9 SQ M	13 SQ M	10 SQ M	16 SQ M	8 SQ M	7 SQ M
Weed 2 CHEAL					COT -2 LF	2-4 LF	COT
Stg.Scale:							
Density :					13 SQ M	13 SQ M	6 SQ M
Weed 4 SETVI						2-3 LF	1-3 LF
Density :						11 SQ M	37 SQ M

	Weed Code												ABUTH	CHEAL
	Crop Code							BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA
	Part Rated										STAND A	STAND B		
	Rating Data Type							INJURY	INJURY	INJURY	COUNT	COUNT	CONTROL	CONTROL
	Rating Unit							%	%	%	4 M ROW	4 M ROW	%	%
	Rating Date							May-16-03	May-23-03	Jun-06-03	Jun-11-03	Jun-11-03	Jun-06-03	Jun-06-03
	Crop Stage							2 LF	2-4 LF	4-6 LF	4-6 LF	4-6 LF	4-6 LF	4-6 LF
	Crop Stage Scale							1.0 CM	1.5-2 CM	3 CM	3 CM	3 CM		
	Weed Stage												2 LF	2-4 LF
	Weed Density, Unit												8 SQ.M.	13 SQ.M.
	Trt-Eval Interval							9 DAT	16 DAT	30 DAT	35 DAT	35 DAT	30 DAT	30 DAT
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code							
1	UNTREATED CHECK							0 a	0 c	0 c	26 ab	30 ab	0 d	0 b
2	NORTRON	480	SC	1.5	LAC	pre	A	0 a	1 bc	1 bc	27 ab	31 ab	96 c	99 a
	PYRAMIN	430	SC	2.1	L/AC	pre	A							
	BETAMIX	150	EC	2.7	L/AC	post	B							
	MERGE		SO	0.4	L/AC	post	B							
3	NORTRON	480	SC	1.5	L/AC	pre	A	0 a	0 c	0 c	25 abc	30 ab	99 a	99 a
	PYRAMIN	430	SC	2.1	L/AC	pre	A							
	BETAMIX	150	EC	2.7	L/AC	post	B							
	NORTRON	480	SC	1.4	L/AC	post	B							
4	NORTRON	480	SC	1.5	L/AC	pre	A	0 a	13 a	14 a	18 cd	21 c	99 a	99 a
	PYRAMIN	430	SC	2.1	L/AC	pre	A							
	BETAMIX	150	EC	1.35	L/AC	post	C							
	UPBEET	50	DF	14	G/AC	post	C							
	BETAMIX	150	EC	1.35	L/AC	post	D							
	LONTREL	360	SN	0.135	L/AC	post	D							
	UPBEET	50	DF	14	G/AC	post	D							
	MERGE		SO	0.4	L/AC	post	D							

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	BEAVA INJURY % May-16-03 2 LF 1.0 CM 9 DAT		BEAVA INJURY % May-23-03 2-4 LF 1.5-2 CM 16 DAT		BEAVA INJURY % Jun-06-03 4-6 LF 3 CM 30 DAT		BEAVA STAND COUNT A 4 M ROW Jun-11-03 4-6 LF 3 CM 35 DAT		BEAVA STAND COUNT B 4 M ROW Jun-11-03 4-6 LF 3 CM 35 DAT		ABUTH BEAVA CONTROL % Jun-06-03 4-6 LF 2 LF 8 SQ.M. 30 DAT		CHEAL BEAVA CONTROL % Jun-06-03 4-6 LF 2-4 LF 13 SQ.M. 30 DAT	
5	NORTRON	480	SC	1.5	L/AC	pre	A	0	a	3	bc	3	bc	24	bcd	31	ab	98	ab	99	a
	PYRAMIN	430	SC	2.1	L/AC	pre	A														
	BETAMIX	150	EC	0.67	L/AC	post	C														
	LONTREL	360	SN	0.067	L/AC	post	C														
	UPBEET	50	DF	7.2	G/AC	post	C														
	MERGE		SO	0.4	L/AC	post	C														
	BETAMIX	150	EC	0.67	L/AC	post	E														
	LONTREL	360	SN	0.067	G/AC	post	E														
	UPBEET	50	DF	7.2	L/AC	post	E														
	MERGE		SO	0.4	L/AC	post	E														
	BETAMIX	150	EC	0.67	L/AC	post	F														
	LONTREL	360	SN	0.067	L/AC	post	F														
	UPBEET	50	DF	7.2	L/AC	post	F														
	MERGE		SO	0.4	L/AC	post	F														
	BETAMIX	150	EC	0.67	L/AC	post	G														
	LONTREL	360	SN	0.067	L/AC	post	G														
	UPBEET	50	DF	7.2	G/AC	post	G														
	MERGE		SO	0.41	L/AC	post	G														
6	NORTRON	480	SC	1.5	L/AC	pre	A	0	a	3	bc	3	bc	26	ab	29	ab	99	a	99	a
	PYRAMIN	430	SC	2.1	L/AC	pre	A														
	PYRAMIN	430	SC	2.0	L/AC	post	B														
	CITOWETT PLUS		SO	0.25	% V/V	post	B														
7	NORTRON	480	SC	1.5	L/AC	pre	A	0	a	0	c	0	c	26	ab	28	abc	99	a	99	a
	PYRAMIN	430	SC	2.1	L/AC	pre	A														
	PYRAMIN	430	SC	2.0	L/AC	post	B														
	NORTRON	480	SC	1.4	L/AC	post	B														
8	NORTRON	480	SC	1.5	L/AC	pre	A	0	a	9	ab	9	ab	17	d	21	c	99	a	99	a
	PYRAMIN	430	SC	2.1	L/AC	pre	A														
	PYRAMIN	430	SC	1.10	L/AC	post	C														
	UPBEET	50	DF	14	G/AC	post	C														
	PYRAMIN	430	EC	1.01	L/AC	post	D														
	LONTREL	360	SN	1.01	L/AC	post	D														
	UPBEET	50	DF	14	G/AC	post	D														
	CITOWETT PLUS		SO	0.25	% V/V	post	D														
9	NORTRON	480	SC	1.5	L/AC	pre	A	0	a	9	ab	9	ab	20	bcd	25	bc	99	a	99	a
	PYRAMIN	430	SC	2.1	L/AC	pre	A														
	PYRAMIN	430	SC	0.5	L/AC	post	C														
	LONTREL	360	SN	.067	L/AC	post	C														
	UPBEET	50	DF	7.2	G/AC	post	C														
	CITOWETT PLUS		SO	0.25	% V/V	post	C														
	PYRAMIN	430	SC	0.5	L/AC	post	E														
	LONTREL	360	SN	.067	L/AC	post	E														
	UPBEET	50	DF	7.2	G/AC	post	E														
	CITOWETT PLUS		SO	0.25	% V/V	post	E														
	PYRAMIN	430	SC	0.5	L/AC	post	F														
	LONTREL	360	SN	.067	L/AC	post	F														
	UPBEET	50	DF	7.2	G/AC	post	F														
	CITOWETT PLUS		SO	0.25	% V/V	post	F														
	PYRAMIN	430	SC	0.5	L/AC	post	G														
	LONTREL	360	SN	.067	L/AC	post	G														
	UPBEET	50	DF	7.2	G/AC	post	G														
	CITOWETT PLUS		SO	0.25	% V/V	post	G														
10	BETAMIX	150	EC	.67	L/AC	post	C	0	a	5	abc	6	abc	31	a	28	abc	97	bc	99	a
	LONTREL	360	SN	.067	L/AC	post	C														
	UPBEET	50	DF	7.2	G/AC	post	C														
	MERGE		SO	0.4	L/AC	post	C														
	BETAMIX	150	EC	0.67	L/AC	post	E														
	LONTREL	360	SN	.067	L/AC	post	E														
	UPBEET	50	DF	7.2	G/AC	post	E														
	MERGE		SO	0.4	L/AC	post	E														
	BETAMIX	150	EC	.67	L/AC	post	F														
	LONTREL	360	SN	.067	GL/AC	post	F														
	UPBEET	50	DF	7.2	G/AC	post	F														
	MERGE		SO	1	L/HA	post	F														
	BETAMIX	150	EC	0.67	L/AC	post	G														
	LONTREL	360	SN	.067	L/AC	post	G														
	UPBEET	50	DF	7.2	G/AC	post	G														
	MERGE		SO	0.4	L/AC	post	G														

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M1**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code																	
	Weed Code																					ABUTH		CHEAL
	Crop Code							BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA			
	Part Rated													STAND	A	STAND	B						
	Rating Data Type							INJURY		INJURY		INJURY		COUNT		COUNT		CONTROL		CONTROL			
	Rating Unit							%		%		%		4 M ROW		4 M ROW		%		%			
	Rating Date							May-16-03		May-23-03		Jun-06-03		Jun-11-03		Jun-11-03		Jun-06-03		Jun-06-03			
	Crop Stage							2 LF		2-4 LF		4-6 LF		4-6 LF		4-6 LF		4-6 LF		4-6 LF			
	Crop Stage Scale							1.0 CM		1.5-2 CM		3 CM		3 CM		3 CM							
	Weed Stage																	2 LF		2-4 LF			
	Weed Density, Unit																	8 SQ.M.		13 SQ.M.			
	Trt-Eval Interval							9 DAT		16 DAT		30 DAT		35 DAT		35 DAT		30 DAT		30 DAT			
11	PYRAMIN	430	SC	0.5	L/AC	post	C	0	a	6	abc	6	abc	26	ab	35	a	99	a	99	a		
	LONTREL	360	SN	.067	L/AC	post	C																
	UPBEET	50	DF	7.2	G/AC	post	C																
	CITOWETT PLUS		SO	0.25	% V/V	post	C																
	PYRAMIN	430	SC	0.5	L/AC	post	E																
	LONTREL	360	SN	.067	L/AC	post	E																
	UPBEET	50	DF	7.2	G/AC	post	E																
	CITOWETT PLUS		SO	0.25	% V/V	post	E																
	PYRAMIN	430	SC	0.5	L/AC	post	F																
	LONTREL	360	SN	.067	L/AC	post	F																
	UPBEET	50	DF	7.2	G/AC	post	F																
	CITOWETT PLUS		SO	0.25	% V/V	post	F																
	PYRAMIN	430	SC	0.5	L/AC	post	G																
	LONTREL	360	SN	.067	L/AC	post	G																
	UPBEET	50	DF	7.2	G/AC	post	G																
	CITOWETT PLUS		SO	0.25	% V/V	post	G																
	LSD (P=.05)							0.0		7.9		7.7		7.1		7.8		1.5		0.0			
	Standard Deviation							0.0		5.4		5.3		4.9		5.4		1.0		0.0			
	CV							0.0		126.04		117.34		20.31		19.34		1.17		0.0			

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

DAVE BILYEA, DARREN ROBINSON Experiment ID: SB03M1

Weed Code								SETVI		ABUTH		CHEAL		PANDI		SETVI							
Crop Code								BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA			
Part Rated																		WEEDY		HOED			
Rating Data Type								CONTROL		CONTROL		CONTROL		CONTROL		CONTROL		YIELD		YIELD			
Rating Unit								%		%		%		%		%		NO/PLOT		NO/PLOT			
Rating Date								Jun-06-03		Jul-02-03		Jul-02-03		Jul-02-03		Jul-02-03		Oct-16-03		Oct-16-03			
Crop Stage								4-6 LF		10-11 LF		10-11 LF		10-11 LF		10-11 LF							
Crop Stage Scale																							
Weed Stage								2-3 LF		2-4 LF		16-20+ L		5-7 LF		3-7 LF							
Weed Density, Unit								11 SQ.M.		10 SQ.M.		25 SQ M		8 SQ M		18 SQ M							
Trt-Eval Interval								30 DAT		56 DAT		56 DAT		56 DAT		56 DAT							
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code																
1	UNTREATED CHECK							0	c	0	d	0	c	0	c	0	c	25	cd	57	a		
2	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	96	bc	99	a	97	a	96	ab	44	ab	57	a		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	BETAMIX	150	EC	2.7	L/AC	post	B																
	MERGE		SO	0.4	L/AC	post	B																
3	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	97	abc	99	a	98	a	98	a	40	a-d	52	ab		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	BETAMIX	150	EC	2.7	L/AC	post	B																
	NORTRON	480	SC	1.4	L/AC	post	B																
4	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	96	bc	99	a	96	a	97	a	26	cd	34	d		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	BETAMIX	150	EC	1.35	L/AC	post	C																
	UPBEET	50	DF	14	G/AC	post	C																
	BETAMIX	150	EC	1.35	L/AC	post	D																
	LONTREL	360	SN	.135	L/AC	post	D																
	UPBEET	50	DF	14	G/AC	post	D																
	MERGE		SO	0.4	L/AC	post	D																
5	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	98	ab	99	a	99	a	98	a	42	abc	53	ab		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	BETAMIX	150	EC	.67	L/AC	post	C																
	LONTREL	360	SN	.067	L/ACG A/HA	post	C																
	UPBEET	50	DF	7.2	G/AC	post	C																
	MERGE		SO	0.4	L/AC	post	C																
	BETAMIX	150	EC	0.67	L/AC	post	E																
	LONTREL	360	SN	.067	L/AC	post	E																
	UPBEET	50	DF	7.2	G/AC	post	E																
	MERGE		SO	1	L/HA	post	E																
	BETAMIX	150	EC	.67	L/AC	post	F																
	LONTREL	360	SN	.067	L/AC	post	F																
	UPBEET	50	DF	7.2	G/AC	post	F																
	MERGE		SO	0.4	L/AC	post	F																
	BETAMIX	150	EC	0.67	L/AC	post	G																
	LONTREL	360	SN	.067	L/AC	post	G																
	UPBEET	50	DF	7.2	G/AC	post	G																
	MERGE		SO	0.4	L/AC	post	G																
6	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	95	c	97	b	96	a	97	a	39	a-d	58	a		
	PYRAMIN	430	SC	2,1	L/AC	pre	A																
	PYRAMIN	430	SC	2.0	L/AC	post	B																
	CITOWETT PLUS		SO	0.25	% V/V	post	B																
7	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	97	abc	99	a	98	a	99	a	48	a	48	abc		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	PYRAMIN	430	SC	2.0	L/AC	post	B																
	NORTRON	480	SC	1.4	L/AC	post	B																
8	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	97	abc	98	ab	95	a	96	a	23	d	41	bcd		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	PYRAMIN	430	SC	1.01	L/AC	post	C																
	UPBEET	50	DF	14	G/AC	post	C																
	PYRAMIN	430	EC	1.01	L/AC	post	D																
	LONTREL	360	SN	.135	L/AC	post	D																
	UPBEET	50	DF	14	G/AC	post	D																
	CITOWETT PLUS		SO	0.25	% V/V	post	D																
9	NORTRON	480	SC	1.5	L/AC	pre	A	99	a	99	a	99	a	97	a	98	a	28	bcd	36	cd		
	PYRAMIN	430	SC	2.1	L/AC	pre	A																
	PYRAMIN	430	SC	0.5	L/AC	post	C																
	LONTREL	360	SN	.067	L/AC	post	C																
	UPBEET	50	DF	7.2	L/AC	post	C																
	CITOWETT PLUS		SO	0.25	% V/V	post	C																
	PYRAMIN	430	SC	0.5	L/AC	post	E																
	LONTREL	360	SN	.067	L/AC	post	E																
	UPBEET	50	DF	7.2	L/AC	post	E																
	CITOWETT PLUS		SO	0.25	% V/V	post	E																
	PYRAMIN	430	SC	0.5	L/AC	post	F																
	LONTREL	360	SN	.067	L/AC	post	F																
	UPBEET	50	DF	7.2	L/AC	post	F																
	CITOWETT PLUS		SO	0.25	% V/V	post	F																
	PYRAMIN	430	SC	0.5	L/AC	post	G																
	LONTREL	360	SN	0.67	L/AC	post	G																
	UPBEET	50	DF	7.2	G/AC	post	G																
	CITOWETT PLUS		SO	0.25	% V/V	post	G																

DAVE BILYEA, DARREN ROBINSON Experiment ID: SB03M1

Weed Code								SETVI	ABUTH	CHEAL	PANDI	SETVI		
Crop Code								BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA
Part Rated													WEEDY	HOED
Rating Data Type								CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	YIELD	YIELD
Rating Unit								%	%	%	%	%	NO/PLOT	NO/PLOT
Rating Date								Jun-06-03	Jul-02-03	Jul-02-03	Jul-02-03	Jul-02-03	Oct-16-03	Oct-16-03
Crop Stage								4-6 LF	10-11 LF	10-11 LF	10-11 LF	10-11 LF		
Crop Stage Scale														
Weed Stage								2-3 LF	2-4 LF	16-20+ L	5-7 LF	3-7 LF		
Weed Density, Unit								11 SQ.M.	10 SQ.M.	25 SQ M	8 SQ M	18 SQ M		
Trt-Eval Interval								30 DAT	56 DAT	56 DAT	56 DAT	56 DAT		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code							
10	BETAMIX	150	EC	.67	L/AC	post	C	98 b	99 a	99 a	76 b	96 ab	35 a-d	47 abc
	LONTREL	360	SN	.067	L/AC	post	C							
	UPBEET	50	DF	7.2	G/AC	post	C							
	MERGE		SO	0.4	L/AC	post	C							
	BETAMIX	150	EC	.67	L/AC	post	E							
	LONTREL	360	SN	.067	L/AC	post	E							
	UPBEET	50	DF	7.2	G/AC	post	E							
	MERGE		SO	0.4	L/AC	post	E							
	BETAMIX	150	EC	.67	L/AC	post	F							
	LONTREL	360	SN	.067	L/AC	post	F							
	UPBEET	50	DF	7.2	L/AC	post	F							
	MERGE		SO	0.4	L/AC	post	F							
	BETAMIX	150	EC	0.5	L/AC	post	G							
	LONTREL	360	SN	.067	L/AC	post	G							
	UPBEET	50	DF	7.2	G/AC	post	G							
	MERGE		SO	0.4	L/AC	post	G							
11	PYRAMIN	430	SC	0.5	L/AC	post	C	99 a	99 a	99 a	89 ab	91 b	31 a-d	44 bcd
	LONTREL	360	SN	0.067	L/AC	post	C							
	UPBEET	50	DF	7.2	G/AC	post	C							
	CITOWETT PLUS		SO	0.25	% V/V	post	C							
	PYRAMIN	430	SC	0.5	L/AC	post	E							
	LONTREL	360	SN	0.067	L/AC	post	E							
	UPBEET	50	DF	7.2	L/AC	post	E							
	CITOWETT PLUS		SO	0.25	% V/V	post	E							
	PYRAMIN	430	SC	0.5	L/AC	post	F							
	LONTREL	360	SN	.067	L/AC	post	F							
	UPBEET	50	DF	7.2	G/AC	post	F							
	CITOWETT PLUS		SO	0.25	% V/V	post	F							
	PYRAMIN	430	SC	0.5	L/AC	post	G							
	LONTREL	360	SN	.067	L/AC	post	G							
	UPBEET	50	DF	7.2	G/AC	post	G							
	CITOWETT PLUS		SO	0.25	% V/V	post	G							
LSD (P=.05)								0.9	2.6	1.4	19.5	4.8	18.0	12.7
Standard Deviation								0.6	1.8	0.9	13.5	3.3	12.5	8.8
CV								0.67	2.08	1.06	15.77	3.76	36.1	18.44

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

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M1**

Weed Code																
Crop Code								**BEAVA**		**BEAVA**		**BEAVA**		**BEAVA**		
Part Rated								**WEEDY**		**HOED**		**WEEDY**		**HOED**		
Rating Data Type								**YIELD**		**YIELD**		**YIELD**		**YIELD**		
Rating Unit								**T/HA**		**T/HA**		**T/AC**		**T/AC**		
Rating Date								**Oct-16-03**		**Oct-16-03**		**Oct-16-03**		**Oct-16-03**		
Crop Stage																
Crop Stage Scale																
Weed Stage																
Weed Density, Unit																
Trt-Eval Interval																
Trt No.	**Treatment Name**	**Form Conc**	**Form Type**	**Rate**	**Rate Unit**	**Grow Stg**	**Appl Code**									
1	**UNTREATED CHECK**							**31.7**	**d**	**76.6**	**d**	**14.1**	**d**	**34.2**	**d**	
2	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**68.6**	**abc**	**113.9**	**abc**	**30.6**	**abc**	**50.8**	**abc**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	BETAMIX	**150**	**EC**	**2.7**	**L/AC**	**post**	**B**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**B**									
3	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**78.2**	**a**	**124.8**	**a**	**34.9**	**a**	**55.7**	**a**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	BETAMIX	**150**	**EC**	**2.7**	**L/AC**	**post**	**B**									
	NORTRON	**480**	**SC**	**1.4**	**L/AC**	**post**	**B**									
4	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**50.7**	**bcd**	**83.9**	**bcd**	**22.6**	**bcd**	**37.4**	**bcd**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	BETAMIX	**150**	**EC**	**1.35**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**14**	**G/AC**	**post**	**C**									
	BETAMIX	**150**	**EC**	**1.35**	**L/AC**	**post**	**D**									
	LONTREL	**360**	**SN**	**.135**	**L/AC**	**post**	**D**									
	UPBEET	**50**	**DF**	**14**	**G/AC**	**post**	**D**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**D**									
5	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**71.2**	**ab**	**114.2**	**ab**	**31.7**	**ab**	**50.9**	**ab**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	BETAMIX	**150**	**EC**	**0.67**	**L/AC**	**post**	**C**									
	LONTREL	**360**	**SN**	**0.067**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**7.2**	**L/AC**	**post**	**C**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**C**									
	BETAMIX	**150**	**EC**	**0.67**	**L/AC**	**post**	**E**									
	LONTREL	**360**	**SN**	**0.067**	**L/AC**	**post**	**E**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**E**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**E**									
	BETAMIX	**150**	**EC**	**0.67**	**L/AC**	**post**	**F**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**F**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**F**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**F**									
	BETAMIX	**150**	**EC**	**0.67**	**L/AC**	**post**	**G**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**G**									
	UPBEET	**50**	**DF**	**9**	**G/AC**	**post**	**G**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**G**									
6	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**69.6**	**abc**	**119.4**	**a**	**31.1**	**abc**	**53.2**	**a**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	PYRAMIN	**430**	**SC**	**2.7**	**L/AC**	**post**	**B**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**B**									
7	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**73.0**	**ab**	**119.5**	**a**	**32.5**	**ab**	**53.3**	**a**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	PYRAMIN	**430**	**SC**	**2.7**	**L/AC**	**post**	**B**									
	NORTRON	**480**	**SC**	**1.4**	**L/AC**	**post**	**B**									
8	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**44.6**	**cd**	**85.1**	**bcd**	**19.9**	**cd**	**38.0**	**bcd**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	PYRAMIN	**430**	**SC**	**2.0**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**14**	**G/AC**	**post**	**C**									
	PYRAMIN	**430**	**EC**	**1.01**	**L/AC**	**post**	**D**									
	LONTREL	**360**	**SN**	**.135**	**L/AC**	**post**	**D**									
	UPBEET	**50**	**DF**	**14**	**G/AC**	**D**										
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**D**									
9	**NORTRON**	**480**	**SC**	**1.5**	**L/AC**	**pre**	**A**	**48.5**	**bcd**	**84.6**	**bcd**	**21.6**	**bcd**	**37.7**	**bcd**	
	PYRAMIN	**430**	**SC**	**2.1**	**L/AC**	**pre**	**A**									
	PYRAMIN	**430**	**SC**	**0.5**	**L/AC**	**post**	**C**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**C**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**C**									
	PYRAMIN	**430**	**SC**	**0.5**	**L/AC**	**post**	**E**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**E**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**E**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**E**									
	PYRAMIN	**430**	**SC**	**0.5**	**L/AC**	**post**	**F**									
	LONTREL	**360**	**SN**	**0.067**	**L/AC**	**post**	**F**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**F**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**F**									
	PYRAMIN	**430**	**SC**	**0.5**	**L/AC**	**post**	**G**									
	LONTREL	**360**	**SN**	**0.067**	**L/AC**	**post**	**G**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**G**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**G**									

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M1**

Weed Code																
Crop Code									**BEAVA**		**BEAVA**		**BEAVA**		**BEAVA**	
Part Rated									**WEEDY**		**HOED**		**WEEDY**		**HOED**	
Rating Data Type									**YIELD**		**YIELD**		**YIELD**		**YIELD**	
Rating Unit									**T/HA**		**T/HA**		**T/AC**		**T/AC**	
Rating Date									**Oct-16-03**		**Oct-16-03**		**Oct-16-03**		**Oct-16-03**	
Crop Stage																
Crop Stage Scale																
Weed Stage																
Weed Density, Unit																
Trt-Eval Interval																
Trt No.	**Treatment Name**	**Form Conc**	**Form Type**	**Rate**	**Rate Unit**	**Grow Stg**	**Appl Code**									
10	**BETAMIX**	**150**	**EC**	**.67**	**L/AC**	**post**	**C**	**52.6**	**a-d**	**94.2**	**a-d**	**23.5**	**a-d**	**42.0**	**a-d**	
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**C**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**C**									
	BETAMIX	**150**	**EC**	**.67**	**L/AC**	**post**	**E**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**E**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**E**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**E**									
	BETAMIX	**150**	**EC**	**.67**	**L/AC**	**post**	**F**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**F**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**F**									
	Merge		**SO**	**0.4**	**L/AC**	**post**	**F**									
	BETAMIX	**150**	**EC**	**.67**	**L/AC**	**post**	**G**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**G**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**G**									
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**G**									
11	**PYRAMIN**	**430**	**SC**	**.50**	**L/AC**	**post**	**C**	**50.0**	**bcd**	**81.6**	**cd**	**22.3**	**bcd**	**36.4**	**cd**	
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**C**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**C**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**C**									
	PYRAMIN	**430**	**SC**	**.50**	**L/AC**	**post**	**E**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**E**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**E**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**E**									
	PYRAMIN	**430**	**SC**	**.50**	**L/AC**	**post**	**F**									
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**F**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**F**									
	CITOWETT PLUS		**SO**	**0.25**	**% V/V**	**post**	**F**									
	PYRAMIN	**430**	**SC**	**.50**	**L/AC**	**post**	**G**									
	LONTREL	**360**	**SN**	**60**	**.067**	**post**	**G**									
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**G**									
	Citowett Plus		**SO**	**0.25**	**% V/V**	**post**	**G**									
LSD (P=.05)								**25.84**		**32.33**		**11.53**		**14.42**		
Standard Deviation								**17.90**		**22.39**		**7.98**		**9.99**		
CV								**30.82**		**22.44**		**30.82**		**22.44**		

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

Trial Comments

Conclusions:One half of this trial was kept weed free to determine the effect of different herbicide programs on visual injury and yield of sugar beet. We applied single postemergence treatments BETAMIX (1000 g a.i. ha-1), PYRAMIN (2150 g a.i. ha-1), standard split treatments BETAMIX + UPBEET + LONTREL (500+17.5+120 g a.i. ha-1) andPYRAMIN+ UPBEET + LONTREL (1075+17.5+120 g a.i. ha-1),and micro-rate treatments of BETAMIX + UPBEET + LONTREL (250+9+60 g a.i. ha-1) and PYRAMIN + UPBEET + LONTREL (537.5+9+60 g a.i. ha-1) following pre-emergent treatments of NORTRON + PYRAMIN (1750+2260 g a.i. ha-1), and micro-rates BETAMIX + UPBEET + LONTREL (250+9+60 g a.i. ha-1) and PYRAMIN + UPBEET + LONTREL (537.5+9+60 g a.i. ha-1) alone.The other half of the trial was not hand weeded to determine treatment effects on weed efficacy.
Stunted plants and reduced emergence were observed when NORTRON + PYRAMIN applied preemergence was followed by standard split applications of BETAMIX + UPBEET + LONTREL, PYRAMIN + UPBEET + LONTREL, or micro-rates of PYRAMIN + UPBEET + LONTREL.
Visual injury was commercially significant (i.e. >10%) only in the standard split applications of BETAMIX + UPBEET + LONTREL. Visual injury in the remaining treatments was less than 10%, and was outgrown before the end of the growing season.

Stand counts and final beet numbers were reduced when NORTRON + applied preemergence was followed by standard split applications of BETAMIX + UPBEET + LONTREL or PYRAMIN+ UPBEET + LONTREL. The remaining treatments did not reduce stand counts compar ed to the untreated, weed-free check.

All treatments provided excellent season long control of velvetleaf, common lamb's-quarters and green foxtail. The micro-rate treatments of PYRAMIN+ UPBEET + LONTREL and BETAMIX + UPBEET + LONTREL did not provide full season control of fall panicum.

Sugar beet yields in all treatments were comparable to, or greater than, yield in the untreated weed-free check. Standard splits of PYRAMIN + UPBEET + LONTREL, following low rates of NORTRON + PYRAMIN have potential to p rovide equivalent yields to standard splits and micro-rates BETAMIX + UPBEET + LONTREL

APPLICATION OF MICRO RATES IN SUGAR BEETS ACCORDING TO CROP HEAT UNITS

DAVE BILYEA, DARREN ROBINSON — Experiment ID: SB03M2

CROP: BEAVA, SUGAR BEET (E17). Planted: Apr-24-03, 118000 SE/HA, 2 CM Deep, 75 CM Row Width. Planting Method: MONOSEM VACUUM PLANTER. Emerged On: May-04-03.FIELD Site. Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 1.5 M x 44 M. Expt. Location: RCAT - K WEST. Back half of all plots were weeded.Treatments applied on the following dates TR. 2 - APR. 26, TR. 3 - MAY 8, MAY 26. TR. 3 - MAY 8, MAY 26, JUNE 6, JUNE 16 TR. 4 - MAY 8, MAY 26, JUNE 6,JUNE 20 TR. 5 - MAY 8, MAY 26, JUNE 10, JUNE 20 TR. 6 - MAY 8, MAY 30, JUNE 10, JUNE 20 TR. 7 - MAY 8, MAY 30, JUNE 10, JUNE 20 TR. 8 - MAY 8, MAY 17, MAY 26, JUNE 6, JUNE 16 TR. 9 - MAY 8, MAY 17, MAY 30, JUNE 10. DAT = days following initial postemergence application
Site Description: Soil Texture: LOAM. %OM: 5.5 %Sand: 51.3 %Silt: 32.4 %Clay: 16.4 pH: 7.2 CEC:19

APPLICATION DESCRIPTION

Application:	A	B	C	D	E	F	G	H
Date :	Apr-26-03	May-07-03	May-17-03	May-26-03	Jun-06-03	Jun-10-03	Jun-16-03	Jun-20-03
Time of Day:	0900	0700	0800	1400	1100	1100	1100	800
Method :	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Timing :	PREPRE	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS
Placement :	BROSOI	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp. :	10	9.8	18 C	22 C	24 C	20 C	26 C	15 C
% Humidity :	42	89	68	59	58	70	64	78
Wind Speed :	8 KPH	3 KPH	15 KPH	12 KPH	9 KPH	10 KPH	8 KPH	9 KPH
Dew Present:		Y	N	N	N	N	N	N
Soil Moist.:	DRY	EXCESSIVE	ADEQUATE	ADEQUATE	ADEQUATE	ADEQUATE	ADEQUATE	ADQUATE
Cloud Cover:	0%	100%	50%	80%	10%	50%	90%	0%
Equipment :	CO2 SPRAY	CO2 SPRAY	C02 Backp	C02 Backp	C02 Backp	C02 Backp	C02 Backp	C02 Backp
Pressure :	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR
Noz.Spacing:	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM
Boom Length:	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M
Boom Height:	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM	50 CM
Carrier :	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Appl.Volume:	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA
Propellant :	CO2	CO2	CO2	CO2	CO2	CO2	CO2	CO2

STAGE AT APPLICATION

Crop 1 BEAVA	COT	C0T	1-2 LF	3 LF	4-6 LF	7-8 LF	8-9 LF
Weed 1 ABUTH	COT	COT-2 LF	COT-2 LF	2-3 LF	2-3 LF		
Density :	3 SQ M	8 SQ M	8 SQ M	13 SQ M	13 SQ M	0 SQ M	0 SQ M
Weed 2 CHEAL	COT	COT- 2 LF	COT-2LF	2-4 LF	2-4 LF	COT- 2LF	COT- 2 LF
Density :	1 SQ M	1 SQ M	3 SQ M	17 SQ M	17 SQ M	6 SQ M	6 SQ M
Weed 4 SETVI				2-3 LF	2-3 LF	1-3	1-3
Density :				9 SQ M	9 SQ M	41 SQ M	41 SQ M

Weed Code							ABUTH
Crop Code	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA
Part Rated					STAND A	STAND B	
Rating Data Type	INJURY	INJURY	INJURY	INJURY	COUNT	COUNT	CONTROL
Rating Unit	%	%	%	%	# /m2	# /m2	%
Rating Date	May-16-03	May-23-03	Jun-06-03	Jun-20-03	Jun-11-03	Jun-11-03	Jun-06-03
Crop Stage	2 LF	3 LF	4 LF	8-9 LF	4-5 LF	4-5 LF	4 LF
Crop Stage Scale	1.0 CM	1.5-2 CM	3 CM	5 CM	3 CM	3 CM	
Weed Stage							2 LF
Weed Density, Unit							8 SQ M
Trt-Eval Interval	9 DAT	16 DAT	30 DAT	44 DAT	35 DAT	35 DAT	28 DAT

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code									
1	UNTREATED CHECK							0	a	0	a	0	a	0.0	a	26	a	30	a	0	c
2	PYRAMIN	430	SC	2.1	L/AC		A	0	a	0	a	0	a	0.0	a	27	a	31	a	97	b
	NORTRON	480	SC	1.5	L/AC		A														
3	BETAMIX	150	EC	.67	L/AC		B	0	a	0	a	0	a	0.0	a	25	a	28	a	98	ab
	UPBEET	50	DF	7.2	G/AC		B														
	LONTREL	360	SN	.067	L/AC		B														
	MERGE		SO	0.4	L/AC		B														
4	BETAMIX	150	EC	.67	L/AC		C	0	a	0	a	0	a	0.0	a	27	a	24	a	98	ab
	UPBEET	50	DF	7.2	G/AC		C														
	LONTREL	360	SN	.067	L/AC		C														
	MERGE		SO	0.4	L/AC		C														
5	BETAMIX	150	EC	.67	L/AC		D	0	a	0	a	0	a	0.0	a	26	a	21	a	99	a
	UPBEET	50	DF	7.2	G/AC		D														
	LONTREL	360	SN	.067	L/AC		D														
	MERGE		SO	0.4	L/AC		D														
6	BETAMIX	150	EC	0.67	L/AC		E	0	a	0	a	0	a	0.0	a	24	a	26	a	98	ab
	UPBEET	50	DF	7.2	G/AC		E														
	LONTREL	360	SN	.067	L/AC		E														
	MERGE		SO	0.4	L/AC		E														
7	BETAMIX	150	EC	0.67	L/AC		F	0	a	0	a	0	a	0.0	a	29	a	23	a	97	b
	UPBEET	50	DF	7.2	G/AC		F														
	LONTREL	360	SN	0.067	L/AC		F														
	MERGE		SO	0.4	L/AC		F														
8	BETAMIX	150	EC	0.67	L/AC		G	0	a	0	a	0	a	0.0	a	25	a	24	a	98	ab
	UPBEET	50	DF	7.2	G/AC		G														
	LONTREL	360	SN	.067	L/AC		G														
	MERGE		SO	0.4	L/AC		G														

APPLICATION OF MICRO RATES IN SUGAR BEETS ACCORDING TO CROP HEAT UNITS

DAVE BILYEA, DARREN ROBINSON — Experiment ID: SB03M2

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code													
Weed Code								BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		ABUTH
Crop Code								BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA
Part Rated																STAND A		STAND B		
Rating Data Type								INJURY		INJURY		INJURY		INJURY		COUNT		COUNT		CONTROL
Rating Unit								%		%		%		%		# /m2		# /m2		%
Rating Date								May-16-03		May-23-03		Jun-06-03		Jun-20-03		Jun-11-03		Jun-11-03		Jun-06-03
Crop Stage								2 LF		3 LF		4 LF		8-9 LF		4-5 LF		4-5 LF		4 LF
Crop Stage Scale								1.0 CM		1.5-2 CM		3 CM		5 CM		3 CM		3 CM		
Weed Stage																				2 LF
Weed Density, Unit																				8 SQ M
Trt-Eval Interval								9 DAT		16 DAT		30 DAT		44 DAT		35 DAT		35 DAT		28 DAT
9	BETAMIX	150	EC	248	G A/HA		H	0	a	0	a	0	a	0.0	a	25	a	20	a	98 ab
	UPBEET I	5	DF	9	G A/HA		H													
	LONTREL	360	SN	60	G A/HA		H													
	Merge		SO	1	L/HA		H													
LSD (P=.05)								0.0		0.0		0.0		0.00		8.4		11.5		1.8
Standard Deviation								0.0		0.0		0.0		0.00		5.8		7.9		1.2
CV								0.0		0.0		0.0		0.0		22.37		31.4		1.43

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

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code													
Weed Code								CHEAL		SETVI		ABUTH		CHEAL		PANDI		SETVI		
Crop Code								BEAVA		BEAVA										BEAVA
Part Rated																				WEEDY
Rating Data Type								CONTROL		CONTROL		CONTROL		CONTROL		CONTROL		CONTROL		YIELD 2R
Rating Unit								%		%		%		%		%		%		NO/PLOT
Rating Date								Jun-06-03		Jun-06-03		Jul-02-03		Jul-02-03		Jul-02-03		Jul-02-03		Oct-16-03
Crop Stage								4 LF		4 LF		11-12 LF		11-12 LF		11-12 LF		11-12 LF		
Crop Stage Scale																				
Weed Stage								2-4 LF		2-3		2-4 LF		10-20+LF		3-11 LF		2-7		
Weed Density, Unit								13 SQ M		11 SQ M		2 SQ M		4 SQ M		42 SQ M		5 SQ M		
Trt-Eval Interval								30 DAT		30 DATE		56 DAT		56 DAT		56 DAT		56 DAT		
1	UNTREATED CHECK							0	c	0	b	0	c	0	c	0	c	34	a	
2	PYRAMIN	430	SC	2.1	L/AC		A	98	b	99	a	93	b	87	b	94	b	28	a	
	NORTRON	480	SC	1.5	L/AC		A													
3	BETAMIX	150	EC	0.67	L/AC		B	99	a	99	a	99	a	99	a	99	a	40	a	
	UPBEET	50	DF	7.2	G/AC		B													
	LONTREL	360	SN	.067	L/AC		B													
	MERGE		SO	0.4	L/HA		B													
4	BETAMIX	150	EC	0.67	L/AC		C	99	a	99	a	99	a	99	a	96	ab	98	a	37 a
	UPBEET	50	DF	7.2	G/AC		C													
	LONTREL	360	SN	0.067	L/AC		C													
	MERGE		SO	0.4	L/AC		C													
5	BETAMIX	150	EC	0.67	L/AC		D	99	a	99	a	99	a	99	a	97	ab	99	a	41 a
	UPBEET	50	DF	7.2	G/AC		D													
	LONTREL	360	SN	.067	L/AC		D													
	MERGE		SO	0.4	L/AC		D													
6	BETAMIX	150	EC	0.67	L/AC		E	99	a	99	a	99	a	99	a	96	ab	97	a	35 a
	UPBEET	50	DF	7.2	G/AC		E													
	LONTREL	360	SN	.067	L/AC		E													
	MERGE		SO	7.2	G/AC		E													
7	BETAMIX	150	EC	.67	L/AC		F	99	a	99	a	99	a	99	a	98	a	98	a	42 a
	UPBEET	50	DF	7.2	G/AC		F													
	LONTREL	360	SN	.067	L/AC		F													
	MERGE		SO	0.4	L/AC		F													
8	BETAMIX	150	EC	.67	L/AC		G	99	a	99	a	99	a	99	a	99	a	99	a	34 a
	UPBEET	50	DF	7.2	G/AC		G													
	LONTREL	360	SN	.067	L/AC		G													
	MERGE		SO	0.4	L/AC		G													
9	BETAMIX	150	EC	.67	L/AC		H	99	a	99	a	99	a	99	a	98	a	98	a	37 a
	UPBEET	50	DF	7.2	G/AC		H													
	LONTREL	360	SN	.067	L/AC		H													
	MERGE		SO	0.4	L/AC		H													
LSD (P=.05)								1.0		0.0		4.4		9.0		3.9		3.3		15.5
Standard Deviation								0.7		0.0		3.0		6.2		2.7		2.3		10.6
CV								0.76		0.0		3.45		7.11		3.13		2.6		29.19

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

APPLICATION OF MICRO RATES IN SUGAR BEETS ACCORDING TO CROP HEAT UNITS

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M2**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code									
Weed Code																
Crop Code								BEAVA		BEAVA		BEAVA		BEAVA		BEAVA
Part Rated								HOED		WEEDY		HOED		WEEDY		HOED
Rating Data Type								YIELD 2R		YIELD 2R		YIELD 2R		YIELD 2R		YIELD 2R
Rating Unit								NO/PLOT		T/HA		T/HA		T/A		T/A
Rating Date								Oct-16-03		Oct-16-03		Oct-16-03		Oct-16-03		Oct-16-03
Crop Stage																
Crop Stage Scale																
Weed Stage																
Weed Density, Unit																
Trt-Eval Interval																
1	UNTREATED CHECK							44	a	43.6	b	63.0	a	19.5	b	28.1 a
2	PYRAMIN	430	SC	2.1	L/AC		A	43	a	46.0	ab	73.2	a	20.5	ab	32.6 a
	NORTRON	480	SC	1.5	L/AC		A									
3	BETAMIX	150	EC	.67	L/AC		B	39	a	60.1	ab	64.0	a	26.8	ab	28.5 a
	UPBEET	50	DF	7.2	G/AC		B									
	LONTREL	360	SN	.067	L/AC		B									
	MERGE		SO	0.4	L/AC		B									
4	BETAMIX	150	EC	.67	L/AC		C	41	a	68.5	a	68.0	a	30.6	a	30.3 a
	UPBEET	50	DF	7.2	G/AC		C									
	LONTREL	360	SN	.067	L/AC		C									
	MERGE		SO	0.4	L/AC		C									
5	BETAMIX	150	EC	.67	L/AC		D	40	a	61.5	ab	68.4	a	27.5	ab	30.5 a
	UPBEET	50	DF	7.2	G/AC		D									
	LONTREL	360	SN	.067	L/AC		D									
	MERGE		SO	0.4	L/AC		D									
6	BETAMIX	150	EC	0.67	L/AC		E	42	a	57.9	ab	76.2	a	25.8	ab	34.0 a
	UPBEET	50	DF	7.2	G/AC		E									
	LONTREL	360	SN	.067	L/AC		E									
	MERGE		SO	0.4	L/AC		E									
7	BETAMIX	150	EC	.67	L/AC		F	40	a	65.0	ab	70.2	a	29.0	ab	31.3 a
	UPBEET	50	DF	7.2	G/AC		F									
	LONTREL	360	SN	.067	L/AC		F									
	MERGE		SO	0.4	L/AC		F									
8	BETAMIX	150	EC	.67	L/AC		G	40	a	59.2	ab	72.9	a	26.4	ab	32.5 a
	UPBEET	50	DF	7.2	G/AC		G									
	LONTREL	360	SN	60	L/AC		G									
	MERGE		SO	0.4	L/AC		G									
9	BETAMIX	150	EC	.67	L/AC		H	35	a	63.3	ab	59.8	a	28.3	ab	26.7 a
	UPBEET	50	DF	7.2	G/AC		H									
	LONTREL	360	SN	.067	L/AC		H									
	MERGE		SO	0.4	L/AC		H									
LSD (P=.05)								14.0		23.58		19.49		10.52		8.69
Standard Deviation								9.6		16.15		13.35		7.21		5.96
CV								23.87		27.68		19.52		27.68		19.52

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

Trial Comments

Conclusions: This experiment was established to compare the use of crop heat units (CHUs) with calendar days for weed control efficacy, yield, and visual injury of sugar beets.Tank mixtures of BETAMIX + UPBEET + LONTREL (248+9+60 g a.i. ha-1) were applied every 150 or 200 CHUs, at alternating 150 or 200 CHU intervals, every 10 days, or by scouting for weeds at the cotyledon to one-leaf stage.

None of the treatments resulted in visual injury of above-ground growth of sugar beets, nor did they reduce sugar beet stands 21 days after the first micro-rate application (DAT) or the number of harvestable sugar beets in the weed-free portion of each treatment.

All treatments provided excellent season-long control of velvetleaf, common lamb's-quarters, fall panicum and green foxtail. The preemergence application of NORTRON+PYRAMIN provided excellent season-long control of velvetleaf, fall panicum and green foxtail, and good control of common lamb's-quarters.

Harvestable sugar beet number and yields were not different among any of treatments.

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M3**

CROP: BEAVA, SUGAR BEET (E17). Planted: Apr-24-03, 118000 SE/HA, 2 CM Deep, 75 CM Row Width. Planting Method: MONOSEM VACUUM PLANTER.Emerged On: May-04-03. DAT = Days after initial postemergence treatment
FIELD Site. Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 1.5 M x 44 M. Expt. Location: RCAT - K.
Site Description: Soil Texture: LOAM. %OM: 5.5 %Sand: 51.3 %Silt: 32.4 %Clay: 16.4 pH: 7.2 CEC: 19.

APPLICATION DESCRIPTION

Application:	A	B	C	D	E
Date	May-07-03	May-17-03	May-26-03	Jun-06-03	Jun-17-03
Time of Day	0700	0800	1400	1100	800
Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Timing	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS
Placement	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp.	9.8	18 C	22 C	24 C	20 C
% Humidity	89	68	59	58	80
Wind Speed	3 KPH	15 KPH	12 KPH	9 KPH	10 KPH
Dew Present	Y	N	N	N	N
Soil Moist.	EXCESSIVE	ADEQUATE	ADEQUATE	ADEQUATE	ADEQUATE
Cloud Cover	100%	50%	80%	10%	70%
Equipment	CO2 SPRAY	C02 Backp	C02 Backp	C02 Backp	C02 Backp
Pressure	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa
Nozzle Type	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR
Noz.Spacing	50 CM	50 CM	50 CM	50 CM	50 CM
Boom Length	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M
Boom Height	50 CM	50 CM	50 CM	50 CM	50 CM
Carrier	WATER	WATER	WATER	WATER	WATER
Appl.Volume	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA
Propellant	CO2	CO2	CO2	CO2	CO2

STAGE AT APPLICATION

Crop 1 BEAVA		3 LF	4 LF	8-9 LF	
Weed 1 ABUTH	COT	COT	COT	2 LF	COT
Stg.Scale:					
Density	5 SQ M	24 SQ M	7 SQ M	12 SQ M	6 SQ M
Weed 2 CHEAL		COT	COT -2 LF	2-4 LF	COT-2 LF
Stg.Scale:					
Density		3 SQ M	9 SQ M	13 SQ M	22 SQ M
Weed 4 SETVI			1 LF	2 LF	1-3 LF
Stg.Scale:					
Density			8 SQ M	5 SQ M	11 SQ M

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	9 DAT	16 DAT	30 DAT	44 DAT	35 DAT	35 DAT	30 DAT
	Weed Code													ABUTH
	Crop Code							BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA
	Part Rated											STAND A	STAND B	
	Rating Data Type							INJURY	INJURY %	INJURY %	INJURY %	COUNT	COUNT	CONTROL
	Rating Unit							%	%	%	%	#/M	#/M	%
	Rating Date							May-16-03	May-23-03	Jun-06-03	Jun-20-03	Jun-11-03	Jun-11-03	Jun-06-03
	Crop Stage							2 LF	3 LF	4 LF	8-10 LF	4-5 LF	4-5 LF	4-6 LF
	Crop Stage Scale													
	Weed Stage													2 LF
	Weed Density, Unit													12 SQ M
	Trt-Eval Interval							9 DAT	16 DAT	30 DAT	44 DAT	35 DAT	35 DAT	30 DAT
1	UNTREATED CHECK							0 a	0 a	0 a	0 a	26 a	27 a	0 c
2	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	21 a	23 ab	99 a
	UPBEET	50	DF	7.2	G/AC	post	A							
	MERGE		SO	0.4	L/AC	post	A							
3	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	22 a	25 ab	97 b
	UPBEET	50	DF	7.2	G/AC	post	A							
	ASSURE II	96	EC	.076	L/AC	post	A							
	MERGE		SO	0.4	L/AC	post	A							
4	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	18 a	19 b	99 a
	UPBEET	50	DF	7.2	G/AC	post	A							
	LONTREL	360	SN	.067	L/AC	post	A							
	MERGE		SO	0.4	L/AC	post	A							
5	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	20 a	23 ab	99 a
	UPBEET	50	DF	7.2	G/AC	post	A							
	LONTREL	360	SN	0.67	L/AC	post	A							
	ASSURE II	96	EC	.076	L/AC	post	A							
	MERGE		SO	0.4	L/AC	post	A							
6	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	20 a	19 b	99 a
	UPBEET	50	DF	7.2	G/AC	post	A							
	ASSURE II	96	EC	0.3	L/AC	post	B							
	MERGE		SO	0.4	L/HA	post	A							
7	BETAMIX	150	EC	0.67	L/AC	post	A	0 a	0 a	0 a	0 a	23 a	19 b	99 a
	UPBEET	50	DF	7.2	G/AC	post	A							
	LONTREL	360	SN	0.067	L/AC	post	A							
	ASSURE II	96	EC	0.3	L/AC	post	B							
	MERGE		SO	0.4	L/AC	post	A							

MICRO RATE AND GRAMINICIDE TANK MIXES IN SUGAR BEETS

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M3**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	BEAVA INJURY %		BEAVA INJURY %		BEAVA INJURY %		BEAVA STAND COUNT A #/M		BEAVA STAND COUNT B #/M		ABUTH BEAVA CONTROL %	
	Crop Code							BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		ABUTH BEAVA	
	Part Rated																		
	Rating Data Type							INJURY		INJURY	%	INJURY	%	INJURY	%	COUNT		COUNT		CONTROL	
	Rating Unit							%		%		%		%		#/M		#/M		%	
	Rating Date							May-16-03		May-23-03		Jun-06-03		Jun-20-03		Jun-11-03		Jun-11-03		Jun-06-03	
	Crop Stage							2 LF		3 LF		4 LF		8-10 LF		4-5 LF		4-5 LF		4-6 LF	
	Crop Stage Scale																				
	Weed Stage																			2 LF	
	Weed Density, Unit																			12 SQ M	
	Trt-Eval Interval							9 DAT		16 DAT		30 DAT		44 DAT		35 DAT		35 DAT		30 DAT	
8	BETAMIX	150	EC	0.67	L/AC	post	A	0	a	0	a	0	a	0	a	21	a	25	ab	99	a
	UPBEET	50	DF	7.2	G/AC	post	A														
	POAST ULTRA	450	EC	0.45	L/AC	post	B														
	MERGE		SO	0.4	L/AC	post	A														
9	BETAMIX	150	EC	0.67	L/AC	post	A	0	a	0	a	0	a	0	a	19	a	21	ab	99	a
	UPBEET	50	DF	7.2	G/AC	post	A														
	LONTREL	360	SN	0.67	L/AC	post	A														
	POAST ULTRA	450	EC	0.45	L/AC	post	B														
	MERGE		SO	0.4	L/AC	post	A														
	LSD (P=.05)							0.0		0.0		0.0		0.00		7.7		6.9		1.1	
	Standard Deviation							0.0		0.0		0.0		0.00		5.3		4.7		0.8	
	CV							0.0		0.0		0.0		0.0		25.31		21.17		0.88	

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

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CHEAL BEAVA CONTROL %		SETVI BEAVA CONTROL %		ABUTH BEAVA CONTROL %		CHEAL BEAVA CONTROL %		PANDI BEAVA CONTROL %		SETVI BEAVA CONTROL %		BEAVA WEEDY YIELD NO/PLOT	
	Crop Code							BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA	
	Part Rated																				
	Rating Data Type																				
	Rating Unit																				
	Rating Date							Jun-06-03		Jun-06-03		Jul-02-03		Jul-02-03		Jul-02-03		Jul-02-03		Oct-13-03	
	Crop Stage							4-6 LF		4-6 LF		11 LF		11 LF		11 LF		11 LF			
	Crop Stage Scale																				
	Weed Stage							2-4 LF		2 LF		2-3 LF		8-20+LF		3-9 LF		3-7 LF			
	Weed Density, Unit							13 SQ M		5 SQ M		4 SQ M		23 SQ M		3 SQ M		9 SQ M			
	Trt-Eval Interval							30 DAT		30 DAT		56 DAT		56 DAT		56 DAT		56 DAT			
1	UNTREATED CHECK							0	b	0	b	0	c	0	c	0	d	0	c	43	a
2	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	98	b	97	b	95	c	96	b	39	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	MERGE		SO	0.4	L/AC	post	A														
3	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	99	a	99	a	99	a	99	a	38	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	ASSURE II	96	EC	.076	L/AC	post	A														
	MERGE		SO	0.4	L/AC	post	A														
4	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	99	a	99	a	96	bc	98	a	35	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	LONTREL	360	SN	.067	L/AC	post	A														
	MERGE		SO	0.4	L/AC	post	A														
5	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	99	a	99	a	98	ab	99	a	31	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	LONTREL	360	SN	0.067	L/AC	post	A														
	ASSURE II	96	EC	.076	L/AC	post	A														
	MERGE		SO	0.4	L/AC	post	A														
6	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	99	a	99	a	99	a	99	a	37	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	ASSURE II	96	EC	0.3	L/AC	post	B														
	MERGE		SO	0.4	L/AC	post	A														
7	BETAMIX	150	EC	0.67	L/AC	post	A	99	a	99	a	99	a	99	a	99	a	99	a	36	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	LONTREL	360	SN	.067	L/AC	post	A														
	ASSURE II	96	EC	0.3	L/AC	post	B														
	MERGE		SO	0.4	L/AC	post	A														
8	BETAMIX	150	EC	.67	L/AC	post	A	99	a	99	a	99	a	99	a	99	a	99	a	36	ab
	UPBEET	50	DF	7.2	G/AC	post	A														
	POAST ULTRA	450	EC	0.45	L/AC	post	B														
	MERGE		SO	0.4	L/AC	post	A														
9	BETAMIX	150	EC	.67	L/AC	post	A	99	a	99	a	99	a	99	a	98	ab	99	a	29	b
	UPBEET	50	DF	7.2	G/AC	post	A														
	LONTREL	360	SN	.067	L/AC	post	A														
	POAST ULTRA	450	EC	.45	L/AC	post	B														
	MERGE		SO	0.45	L/HA	post	A														
	LSD (P=.05)							0.0		0.0		1.0		1.1		2.3		1.3		11.7	
	Standard Deviation							0.0		0.0		0.7		0.8		1.6		0.9		8.0	

CV	**0.0**	**0.0**	**0.76**	**0.88**	**1.81**	**1.05**	**22.24**

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

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M3**

Weed Code															
Crop Code								**BEAVA**		**BEAVA**		**BEAVA**		**BEAVA**		**BEAVA**	
Part Rated								**HOED**		**WEEDY**		**HOED**		**WEEDY**		**HOED**	
Rating Data Type								**YIELD**		**YIELD**		**YIELD**		**YIELD**		**YIELD**	
Rating Unit								**NO/PLOT**		**T/HA**		**T/HA**		**T/AC**		**T/AC**	
Rating Date								**Oct-13-03**		**Oct-13-03**		**Oct-13-03**		**Oct-13-03**		**Oct-13-03**	
Crop Stage															
Crop Stage Scale															
Weed Stage															
Weed Density, Unit															
Trt-Eval Interval															
Trt No.	**Treatment Name**	**Form Conc**	**Form Type**	**Rate**	**Rate Unit**	**Grow Stg**	**Appl Code**								
1	**UNTREATED CHECK**							**42**	**a**	**64.5**	**a**	**72.5**	**a**	**28.8**	**a**	**32.3**	**a**
2	**BETAMIX**	**150**	**EC**	**0.67**	**L/AC**	**post**	**A**	**39**	**a**	**53.9**	**a**	**81.0**	**a**	**24.0**	**a**	**36.1**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
3	**BETAMIX**	**150**	**EC**	**0.67**	**L/AC**	**post**	**A**	**43**	**a**	**57.4**	**a**	**75.3**	**a**	**25.6**	**a**	**33.6**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	ASSURE II	**96**	**EC**	**.076**	**L/AC**	**post**	**A**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
4	**BETAMIX**	**150**	**EC**	**.67**	**L/AC**	**post**	**A**	**35**	**a**	**66.4**	**a**	**75.4**	**a**	**29.6**	**a**	**33.6**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**A**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
5	**BETAMIX**	**150**	**EC**	**0.67**	**L/AC**	**post**	**A**	**40**	**a**	**60.8**	**a**	**68.4**	**a**	**27.1**	**a**	**30.5**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**A**										
	ASSURE II	**96**	**EC**	**.076**	**L/AC**	**post**	**A**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
6	**BETAMIX**	**150**	**EC**	**.67**	**L/AC**	**post**	**A**	**36**	**a**	**65.9**	**a**	**69.1**	**a**	**29.4**	**a**	**30.8**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	ASSURE II	**96**	**EC**	**0.3**	**L/AC**	**post**	**B**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
7	**BETAMIX**	**150**	**EC**	**0.67**	**L/AC**	**post**	**A**	**37**	**a**	**67.4**	**a**	**73.0**	**a**	**30.1**	**a**	**32.6**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**A**										
	ASSURE II	**96**	**EC**	**0.3**	**L/AC**	**post**	**B**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
8	**BETAMIX**	**150**	**EC**	**0.67**	**L/AC**	**post**	**A**	**41**	**a**	**63.1**	**a**	**67.5**	**a**	**28.2**	**a**	**30.1**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	POAST ULTRA	**450**	**EC**	**.45**	**L/AC**	**post**	**B**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
9	**BETAMIX**	**150**	**EC**	**.67**	**L/AC**	**post**	**A**	**34**	**a**	**57.6**	**a**	**74.0**	**a**	**25.7**	**a**	**33.0**	**a**
	UPBEET	**50**	**DF**	**7.2**	**G/AC**	**post**	**A**										
	LONTREL	**360**	**SN**	**.067**	**L/AC**	**post**	**A**										
	POAST ULTRA	**450**	**EC**	**.45**	**L/AC**	**post**	**B**										
	MERGE		**SO**	**0.4**	**L/AC**	**post**	**A**										
LSD (P=.05)								**12.2**		**15.13**		**14.71**		**6.75**		**6.56**	
Standard Deviation								**8.4**		**10.37**		**10.08**		**4.63**		**4.50**	
CV								**21.78**		**16.76**		**13.82**		**16.76**		**13.82**	

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

Trial Comments

:Conclusions:This trial was established to examine the effect of adding ASSURE II(18 72 g a.i. ha-1) or POAST ULTRA(500 g a.i. ha-1) to tank mixtures of BETAMIX + UPBEET (248+9 g a.i. ha-1) and BETAMIX + UPBEET + LONTREL (248+9+60 g a.i. ha-1)on annual grass control, and sugar beet injury and yield.

There was no visual injury, reduction in stand, or yield loss in any treatments.

Excellent season-long control of velvetleaf, common lamb's-quarters, fall panicum and green foxtail was observed in all treatments.

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M4**

CROP: BEAVA, SUGAR BEET (E17). Planted: Apr-21-03, 118000 SE/HA, 2 CM Deep, 75 CM Row Width. Planting Method: MONOSEM VACUUM PLANTER.
Emerged On: May-04-03. DAT = Days after initial postemergence treatment.
FIELD Site. Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 1.5 M x 44 M. Expt. Location: RCAT - K.

Site Description: Soil Texture: LOAM. %OM: 5.5 %Sand: 51.3 %Silt: 32.4 %Clay: 16.4 pH: 7.2 CEC: 19.

APPLICATION DESCRIPTION

Application:	A	B	C	D	E
Date	May-07-03	May-17-03	May-26-03	Jun-06-03	Jun-17-03
Time of Day	0700	0800	1400	1320	800
Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Timing	POSPOS	POSPOS	POSPOS	POSPOS	POSPOS
Placement	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Air Temp.	9.8	18 C	22 C	25 C	20 C
% Humidity	89	68	59	36	80
Wind Speed	3 KPH	15 KPH	12 KPH	10 KPH	10 KPH
Dew Present	Y	N	N	N	N
Soil Moist.	EXCESSIVE	ADEQUATE	ADEQUATE	ADEQUATE	ADEQUATE
Cloud Cover	100%	50%	80%	10%	70%
Equipment	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	C02 Backp
Pressure	207 kPa	207 kPa	207 kPa	207 kPa	207 kPa
Nozzle Type	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size	8002 XR	8002 XR	8002 XR	8002 XR	8002 XR
Noz.Spacing	50 CM	50 CM	50 CM	50 CM	50 CM
Boom Length	1.5 M	1.5 M	1.5 M	1.5 M	1.5 M
Boom Height	50 CM	50 CM	50 CM	50 CM	50 CM
Carrier	WATER	WATER	WATER	WATER	WATER
Appl.Volume	200 L/HA	200 L/HA	200 L/HA	200 L/HA	200 L/HA
Propellant	CO2	CO2	CO2	CO2	CO2

STAGE AT APPLICATION

Crop 1 BEAVA	2 LF	3 LF	4LF	8-9 LF
Weed 1 ABUTH	COT	COT	COT	3 LF	COT
Density	11 SQ M	25 SQ M	4 SQ M	19 SQ M	5 SQ M
Weed 2 CHEAL			COT-2 LF	2-6 LF	2 LF
Density			6 SQ M	15 SQ M	4 SQ M
Weed 4 SETVI				2-3 LF	2-3 LF
Density				10 SQ M	9 SQ M

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	BEAVA INJURY	BEAVA INJURY	BEAVA INJURY	BEAVA INJURY	BEAVA STAND COUNT A	BEAVA STAND COUNT B	ABUTH BEAVA CONTROL
	Rating Data Type													
	Rating Unit							%	%	%	%	#/M	#/M	%
	Rating Date							May-16-03	May-23-03	Jun-06-03	Jun-20-03	Jun-11-03	Jun-11-03	Jun-06-03
	Crop Stage							2 LF	2-3 LF	4 LF	8-9 LF	4-5 LF	4-5 LF	4 LF
	Crop Stage Scale													
	Weed Stage													3 LF
	Weed Density, Unit													19 SQ M
	Trt-Eval Interval							9 DAT	16 DAT	30 DAT	42 DAT	35 DAT	35 DAT	30 DAT
1	UNTREATED CHECK							0 a	0 a	0 a	0 c	30 abc	36 a	0 c
2	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	3 abc	31 ab	30 a	98 a
	UPBEET	50	DF	7.2	L/AC	POST	A							
3	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	3 abc	28 abc	32 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	MERGE		SO	0.4	L/AC	POST	A							
4	BETAMIX	150	EC	.67	L/AC	POST	A	0 a	0 a	0 a	4 abc	30 abc	35 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	METHYLATED SEED OIL		SO	1.5%	V/V	POST	A							
5	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	1 bc	30 abc	35 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	REDDY-IT		SO	0.25	% V/V	POST	A							
	UAN 28%		SO	0.5	L/AC	POST	A							
6	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	3 abc	28 abc	33 a	74 b
	UPBEET	50	DF	7.2	G/AC	POST	A							
	AGRAL90		SO	0.2	% V/V	POST	A							
7	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	8 a	27 abc	31 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	MERGE		SO	0.4	L/AC	POST	A							
	HEADLINE	250	EC	0.36	L/AC	POST	B							
8	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	4 abc	26 abc	32 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	LONTREL	360	SN	0.067	L/AC	POST	A							
9	BETAMIX	150	EC	0.67	L/AC	POST	A	0 a	0 a	0 a	5 abc	28 abc	28 a	99 a
	UPBEET	50	DF	7.2	G/AC	POST	A							
	LONTREL	360	SN	0.067	L/AC	POST	A							
	MERGE		SO	0.4	L/AC	POST	A							

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M4**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	BEAVA INJURY		BEAVA INJURY		BEAVA INJURY		BEAVA STAND COUNT		BEAVA A STAND COUNT		BEAVA B CONTROL	
	Weed Code																	ABUTH	
	Crop Code							BEAVA		BEAVA		BEAVA		BEAVA		BEAVA		BEAVA	
	Part Rated																		
	Rating Data Type							INJURY		INJURY		INJURY		STAND COUNT		STAND COUNT		CONTROL	
	Rating Unit							%		%		%		#/M		#/M		%	
	Rating Date							May-16-03		May-23-03		Jun-06-03		Jun-20-03		Jun-11-03		Jun-11-03		Jun-06-03	
	Crop Stage							2 LF		2-3 LF		4 LF		8-9 LF		4-5 LF		4-5 LF		4 LF	
	Crop Stage Scale																		
	Weed Stage																	3 LF	
	Weed Density, Unit																	19 SQ M	
	Trt-Eval Interval							9 DAT		16 DAT		30 DAT		42 DAT		35 DAT		35 DAT		30 DAT	
10	BETAMIX	150	EC	0.67	L/AC	POST	A	0	a	0	a	0	a	8	a	23	bc	32	a	99	a
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
	METHYLATED SEED OIL		SO	1.5%	V/V	POST	A														
11	BETAMIX	150	EC	0.67	L/AC	POST	A	0	a	0	a	0	a	5	abc	25	abc	29	a	99	a
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
	REDDY-IT		SO	0.25	% V/V	POST	A														
	UAN 28%		SO	0.5	L/AC	POST	A														
12	BETAMIX	150	EC	0.67	L/AC	POST	A	0	a	0	a	0	a	4	abc	32	a	35	a	99	a
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	.067	L/AC	POST	A														
	AGRAL90		SO	0.2	% V/V	POST	A														
13	BETAMIX	150	EC	0.67	L/AC	POST	A	0	a	0	a	0	a	6	ab	22	c	27	a	99	a
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	.067	L/AC	POST	A														
	MERGE		SO	0.4	L/AC	POST	A														
	HEADLINE	250	EC	0.36	L/AC	POST	B														
	LSD (P=.05)							0.0		0.0		0.0		5.6		7.8		10.2		19.7	
	Standard Deviation							0.0		0.0		0.0		3.9		5.4		7.1		13.8	
	CV							0.0		0.0		0.0		98.97		19.8		22.35		15.39	

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

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M4**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code	CHEAL BEAVA CONTROL % Jun-06-03 4 LF 2-6 LF 15 SQ M 30 DAT		SETVI BEAVA CONTROL % Jun-06-03 4 LF 2-3 10 SQ M 30 DAT		ABUTH BEAVA CONTROL % Jul-02-03 2-3 LF 8 SQ M 56 DAT		CHEAL BEAVA CONTROL % Jul-02-03 10-20+ 14 SQ M 56 DAT		PANDI BEAVA CONTROL % Jul-02-03 3-7 LF 17 SQ M 56 DAT		SETVI BEAVA CONTROL % Jul-02-03 5-9 LF 27 SQ M 56 DAT		BEAVA WEEDY NO/PLOT TOTAL Oct-16-03	
1	UNTREATED CHECK						0	c	0	c	0	b	0	b	0	d	0	c	44	bcd
2	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	98	ab	99	a	56	a
	UPBEET	50	DF	7.2	G/AC	POST	A														
3	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	98	ab	98	a	53	ab
	UPBEET	50	DF	7.2	G/AC	POST	A														
	MERGE		SO	0.4	L/AC	POST	A														
4	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	99	a	50	abc
	UPBEET	50	DF	7.2	G/AC	POST	A														
	METHYLATED SEED OIL		SO	1.5	% V/V	POST	A														
5	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	98	ab	99	a	48	a-d
	UPBEET	50	DF	7.2	G/AC	POST	A														
	REDDY-IT		SO	0.25	% V/V	POST	A														
	UAN 28%		SO	0.5	L/AC	POST	A														
6	BETAMIX	150	EC	0.67	L/AC	POST	A	74	b	74	b	99	a	99	a	97	bc	98	a	48	a-d
	UPBEET	50	DF	7.2	G/AC	POST	A														
	AGRAL90		SO	0.2	% V/V	POST	A														
7	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	99	a	38	d
	UPBEET	50	DF	7.2	G/AC	POST	A														
	MERGE		SO	0.4	L/AC	POST	A														
	HEADLINE	250	EC	0.36	L/AC	POST	B														
8	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	96	c	99	a	50	abc
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
9	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	98	a	46	a-d
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
	MERGE		SO	0.4	L/AC	POST	A														
10	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	99	a	42	cd
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
	METHYLATED SEED OIL		SO	1.5	% V/V	POST	A														
11	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	99	a	99	a	45	bcd
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.67	L/AC	POST	A														
	REDDY-IT		SO	0.25	% V/V	POST	A														
	UAN 28%		SO	0.5	L/AC	POST	A														
12	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	98	a	51	abc
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	L/AC	POST	A														
	AGRAL90		SO	0.2	% V/V	POST	A														
13	BETAMIX	150	EC	0.67	L/AC	POST	A	99	a	99	a	99	a	99	a	97	bc	96	b	38	d
	UPBEET	50	DF	7.2	G/AC	POST	A														
	LONTREL	360	SN	0.067	G/AC	POST	A														
	MERGE		SO	0.4	L/AC	POST	A														
	HEADLINE	250	EC	0.36	L/AC	POST	B														
LSD (P=.05)								19.6		19.6		0.0		0.0		1.8		1.7		10.4	
Standard Deviation								13.7		13.7		0.0		0.0		1.3		1.2		7.3	
CV								15.34		15.34		0.0		0.0		1.43		1.32		15.54	

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

DAVE BILYEA, DARREN ROBINSON **Experiment ID: SB03M4**

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code									
Weed Code																
Crop Code								BEAVA		BEAVA		BEAVA		BEAVA		BEAVA
Part Rated								HOED		WEEDY		HOED		WEEDY		HOED
Rating Data Type								NO/PLOT		YIELD		YIELD		YIELD		YIELD
Rating Unit								TOTAL		T/HA		T/HA		T/AC		T/AC
Rating Date								Oct-16-03		Oct-16-03		Oct-16-03		Oct-16-03		Oct-16-03
Crop Stage																
Crop Stage Scale																
Weed Stage																
Weed Density, Unit																
Trt-Eval Interval																
1	UNTREATED CHECK							61	a	59.4	d	97.5	ab	26.5	d	43.5	ab
2	BETAMIX	150	EC	0.67	L/AC	POST	A	60	a	74.8	a-d	105.0	a	33.4	a-d	46.8	a
	UPBEET	50	DF	7.2	G/AC	POST	A										
3	BETAMIX	150	EC	0.67	L/AC	POST	A	56	ab	75.6	abc	93.6	ab	33.7	abc	41.7	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	MERGE		SO	0.4	L/AC	POST	A										
4	BETAMIX	150	EC	0.67	L/AC	POST	A	57	ab	84.4	a	95.6	ab	37.6	a	42.7	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	METHYLATED SEED OIL		SO	1.5	% V/V	POST	A										
5	BETAMIX	150	EC	0.67	L/AC	POST	A	57	ab	77.4	abc	97.7	ab	34.5	abc	43.6	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	REDDY-IT		SO	0.25	% V/V	POST	A										
	UAN 28%		SO	0.5	L/AC	POST	A										
6	BETAMIX	150	EC	0.67	L/AC	POST	A	51	ab	74.3	a-d	95.6	ab	33.1	a-d	42.7	ab
	UPBEET	50	DF	7.2	L/AC	POST	A										
	AGRAL90		SO	0.2	% V/V	POST	A										
7	BETAMIX	150	EC	0.67	L/AC	POST	A	45	b	62.4	cd	89.2	ab	27.8	cd	39.8	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	MERGE		SO	0.4	L/AC	POST	A										
	HEADLINE	250	EC	0.36	L/AC	POST	B										
8	BETAMIX	150	EC	0.67	L/AC	POST	A	52	ab	75.9	abc	89.8	ab	33.9	abc	40.0	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	L/AC	POST	A										
9	BETAMIX	150	EC	0.67	L/AC	POST	A	48	ab	79.0	ab	93.5	ab	35.2	ab	41.7	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	L/AC	POST	A										
	MERGE		SO	0.4	L/AC	POST	A										
10	BETAMIX	150	EC	0.67	L/AC	POST	A	47	b	69.6	a-d	83.9	b	31.0	a-d	37.4	b
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	L/AC	POST	A										
	METHYLATED SEED OIL		SO	1.5	% V/V	POST	A										
11	BETAMIX	150	EC	0.67	L/AC	POST	A	49	ab	76.6	abc	83.8	b	34.2	abc	37.4	b
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	L/AC	POST	A										
	REDDY-IT		SO	0.25	% V/V	POST	A										
	UAN 28%		SO	0.5	L/AC	POST	A										
12	BETAMIX	150	EC	0.67	L/AC	POST	A	54	ab	75.2	abc	93.1	ab	33.6	abc	41.5	ab
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	L/AC	POST	A										
	AGRAL90		SO	0.2	% V/V	POST	A										
13	BETAMIX	150	EC	0.67	L/AC	POST	A	49	ab	65.8	bcd	86.6	b	29.3	bcd	38.6	b
	UPBEET	50	DF	7.2	G/AC	POST	A										
	LONTREL	360	SN	0.067	GL/AC	POST	A										
	MERGE		SO	0.4	L/AC	POST	A										
	HEADLINE	250	EC	.36	L/AC	POST	B										
LSD (P=.05)								12.7		15.72		16.89		7.01		7.54	
Standard Deviation								8.9		11.00		11.82		4.91		5.27	
CV								16.86		15.04		12.75		15.04		12.75	

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

Trial Comments

Conclusions: One half of this trial was kept weed free to determine the effect of adjuvant (MERGE, MSO, REDDY-IT+28% UAN, AND AGRAL 90) or the addition of Headline® fungicide 225 g a.i. ha-1) in tank mixtures of BETAMIX + UPBEET (248+9 g a.i. ha-1), BETAMIX UPBEET + LONTREL (248+9+60 g a.i. ha-1) on visual injury and yield of sugar beets. The other hal f of the trial was not hand weeded to determine treatment effects on weed efficacy.

Visual injury was noted following the final micro-rate application on June 17th, when micro-rates were tank-mixed with Headline® fungicide, or when the MSO was used as an adjuvant. The beets were at the 8-9 leaf stage at this application timing.

All treatments provided excellent full-season control of velvetleaf, common lamb's-quarters, fall panicum and green foxtail.

Marketable yields were not less than the weed-free untreated check in any of the treatments, though there was a trend for yield reduction when micro-rates were tank-mixed with Headline fungicide.