

Weed Management in Horticultural Crops

Research Report

2001

D.E. Robinson, D. Bilyea, and K. McNaughton

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Brian Whyte – Seaforth

Technical Assistants:

Research Technicians:

Dave Bilyea
Todd Cowan
Kris McNaughton

Research Assistants:

Kristy Burns
Brienne Dennis
Jen Dennis
Tara Flanagan
Paula Garrett
Shauna Hearn
Joe Hoyles
Suzy Hoyles
Lori Klatt
Erin McNaughton
Adrienne Schaafsma
Sarah Snobelen
Steve Snobelen
Steve Vanstempvoort

It is hoped 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.

D.E. Robinson
Ridgetown College/University of Guelph
N0P 2C0
(519) 674-1604
drobinso@ridgetownc.uoguelph.ca

**2001
RIDGETOWN
WEATHER DATA**

RAINFALL IN MM.								
DATE	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.
1	1.2	0	6.2	1.8	0	0	0	0
2	0.4	0	10.8	0	0	0	0	14.4
3	4.6	0	2.2	1.6	0	0	0	12.8
4	0	0.2	0	3.0	0	0	1.4	0
5	0.6	0.6	0	0	0	0	31.6	0
6	9.0	0	0.2	0	0	0	3.6	0
7	9.6	0.4	0	0	11.4	0	0.2	0
8	0	12	0	0	0	4.0	0	4.4
9	1.6	0	0	0	0	2.8	0	0
10	0	0	22.2	3.0	10.4	4.8	0	0
11	1.0	20	2.8	0	0	0	19.4	0
12	3.4	0	0	0	3.0	0	17.4	0
13	0	0	0	0	0	1.8	1.6	0
14	0	0.2	0	0	0	0	20.6	0.2
15	17.8	1.2	1.6	0	0	0	0	17.8
16	6.0	0	1.4	0	2.8	0	11.8	1.2
17	0.2	1.0	0	0	0	0	0.2	0
18	0	0.4	0	0	0.4	0	0	0.2
19	0	0	7.6	0	5.8	23.8	0	5.6
20	7.2	0	1.6	0	1.0	0	0	0
21	6.6	16.6	1.4	6.8	0	16.2	10.8	0
22	0	2.4	5.2	0.2	0.6	0.2	1.4	0
23	0	0.2	0	0	0.2	8.8	10.6	0
24	0	2.0	5.2	0	0	7.0	3.2	1.6
25	0	4.8	0	1.0	0	11.4	11.4	8.8
26	0.2	6.2	0	0	11.0	6.2	3.4	0
27	2.0	6.8	0	0	0.2	6.0	11.6	0.4
28	0	14.2	0	0	2.2	0.2	0	3.6
29	0	0.2	0	0	0	0	0	15.4
30	0	0	2.0	0	0	0	1.2	5.6
31		0		0	4.2		4.4	
TOTAL	71.4	89.4	70.4	17.4	53.2	93.2	165.8	92.0
30 YEAR AVG.	80.2	75.4	80.0	83.6	100.0	90.7	62.2	80.0

TEMPERATURE (C)

MEAN MAX	14.3	19.8	25.0	27.0	28.2	21.8	15.6	12.2
MEAN MIN	2.7	9.4	14.0	14.9	14.9	9.4	6.2	3.4
MEAN	8.5	14.6	19.5	21.0	21.6	15.6	10.9	7.8

TEMPERATURE, 30 YEAR AVERAGE (C)

MEAN MAX	12.4	19.5	24.5	27.1	25.8	22.0	15.2	7.9
MEAN MIN	2.4	8.4	13.8	16.2	15.3	11.7	5.7	0.8
MEAN	7.4	13.9	19.2	21.6	20.6	16.8	10.4	4.3

BAYER CODE ABBREVIATIONS

Code	Common Name	Scientific Name
ABUTH	Velvetleaf	<i>Abutilon theophrasti</i>
ACARH	Three-seeded mercury	<i>Acalypha rhombiodes</i>
AMAPO	Green pigweed	<i>Amaranthus powellii</i>
AMARE	Redroot pigweed	<i>Amaranthus retroflexus</i>
AMBEL	Common ragweed	<i>Ambrosia artemisiifolia</i>
ARTBI	Biennial wormwood	<i>Artemisia biennis</i>
CAPBP	Shepherd's-purse	<i>Capsella bursa-pastoris</i>
CCHPA	Longspine sandbur	<i>Cenchrus pauciflorus</i>
CHEAL	Common lamb's-quarter	<i>Chenopodium album</i>
CIRAR	Canada thistle	<i>Cirsium arvense</i>
CNISA	Hemp	<i>Cannabis sativa</i>
CONAR	Field bindweed	<i>Convolvulus arvensis</i>
EQUAR	Field horsetail	<i>Equisetum arvense</i>
ERIAN	Annual fleabane	<i>Erigeron annuus</i>
ERICA	Canada fleabane	<i>Erigeron canadensis</i>
ERYCH	Wormseed mustard	<i>Erysimum cheiranthoides</i>
EUPHE	Sun spurge	<i>Euphorbia heiocopia</i>
GAETE	Hempnettle	<i>Galeopsis tetrahit</i>
HIBTR	Flower-of-an-hour	<i>Hibiscus trionum</i>
LACSE	Prickly lettuce	<i>Lactuca serriola</i>
LAPCO	Nippleweed	<i>Lapsana communis</i>
OXAST	Common yellow woodsorrel	<i>Oxalis stricta</i>
PLAMA	Broad-leaved plantain	<i>Plantago major</i>
POLCO	Wild buckwheat	<i>Polygonum convolvulus</i>
POLLA	Green smartweed	<i>Polygonum lapathifolium</i>
POLPE	Lady's-thumb	<i>Polygonum persicaria</i>
SINAR	Wild mustard	<i>Sinapis arvensis</i>
SIYAN	Bur-cucumber	<i>Sicyos angulatus</i>
SOLCA	Horsenettle	<i>Solanum carolinense</i>
SOLPT	Eastern black nightshade	<i>Solanum ptycanthum</i>
SONAR	Perennial sowthistle	<i>Sonchus arvensis</i>
SONAS	Spiny annual sowthistle	<i>Sonchus asper</i>
SONOL	Annual sowthistle	<i>Sonchus oleraceus</i>
SOOCA	Canada goldenrod	<i>Solidago canadensis</i>
STAPA	Marsh hedge-nettle	<i>Stachys palustris</i>
STEME	Common chickweed	<i>Stellaria media</i>
TAROF	Dandelion	<i>Taraxacum officinale</i>
THLAR	Field pennycress	<i>Thlaspi arvense</i>
TRFSS	Clover species	<i>Trifolium spp.</i>
XANST	Common cocklebur	<i>Xanthium strumarium</i>
AGRGI	Redtop	<i>Agrostis gigantea</i>
AGRRE	Quackgrass	<i>Agropyron repens</i>
DIGSA	Large crabgrass	<i>Digitaria sanguinalis</i>
ECHCG	Barnyard grass	<i>Echinochloa crus-galli</i>
PANCA	Witch grass	<i>Panicum capillare</i>
PANDI	Fall panicum	<i>Panicum dichotomiflorum</i>
PANMI	Proso millet	<i>Panicum miliaceum</i>
SETLU	Yellow foxtail	<i>Setaria glauca</i>
SETVI	Green foxtail	<i>Setaria viridis</i>

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CLASSIC RECROP STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB99C4

CROP: BEAVA, BEET, SUGAR (4546LL). Planted: May-01-01, 75 cm Row Width. Planting Method: Precision planter. Emerged On: May-13-01.

Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 7 M x 18 M. Expt. Location: Ridgetown.

Site Description: Soil Texture: Very fine sandy loam. %OM: 4.5 %Sand: 79 %Silt: 15 %Clay: 6 pH: 6.4

APPLICATION DESCRIPTION

Application: A
 Date : Jun-25-99
 Time of Day: 10:00
 Method : Spray
 Timing : Post 3Tri
 Placement : Foliar
 % Humidity : 30 %
 Equipment : C02
 Pressure : 207 kpa
 Nozzle Type: Flat fan
 Nozzle Size: Xr8002
 Noz.Spacing: 50 cm
 Boom Length: 2 m
 Boom Height: 50 cm
 Carrier : water

Weed Code

Crop Code	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA
Part Rated									
Rating Data Type	INJURY	INJURY	INJURY	COUNTS	FRESH WT	DRY WT	YIELD	YIELD	
Rating Unit	%	%	%		KG	KG	T/HA	T/AC	
Rating Date	May-21-01	May-29-01	Jun-11-01	Jun-15-01	Jun-12-01	Jul-26-01	Nov-05-01	Nov-05-01	
Tri-Eval Interval	7 DAE	14 DAE	28 DAE	4 m row					

Tri	Treatment	Rate	Unit	Grow	Appl									
No.	Name			Stg	Code									
1	Chlorimuron-ethyl	0.009	KG A/HA	3TR	A	0	a 0	a 0	a 17	a 0.039	a 0.0070	a 46.6	a 21.0	a
	Agral 90	0.200	% V/V											
2	Chlorimuron-ethyl	0.018	KG A/HA	3TR	A	0	a 0	a 0	a 11	a 0.020	a 0.0061	a 35.1	a 15.8	a
	Agral 90	0.200	% V/V											
3	Untreated check					0	a 0	a 0	a 17	a 0.035	a 0.0068	a 43.0	a 19.4	a
LSD (P=.05)						0.0	0.0	0.0	11.6	0.0355	0.00675	32.50	14.62	
Standard Deviation						0.0	0.0	0.0	6.7	0.0205	0.00390	18.78	8.45	
CV						0.0	0.0	0.0	44.47	65.7	58.87	45.17	45.13	

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

Trial Comments

Conclusions: This trial was established in 1999 to test the effect of postemergence chlorimuron-ethyl applications (at 9 and 18 g a.i. ha⁻¹) made to soybeans, on rotational crops planted in subsequent years. Sugar beets were the only crop planted in 2001.

There was no visual injury, either chlorosis or stunting, of sugar beets two years after application of chlorimuron-ethyl at either rate. Stand count, fresh and dry weight, and yield were not significantly less in either treatment, though all these variables tended to decrease at the high rate of chlorimuron-ethyl.

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

CROP: LYPES, TOMATO (HEINZ 9478). Planted: Jun-13-01, 2.5 cm Deep, 75 cm Row Width. Planting Method: TRANSPLANTED. Emerged On: Jun-13-01.
 PIBSS, PEA, PISUM SP. (BOLERO). Planted: May-01-01 Planting Method: PRECISION PLANTER. Emerged On: May-15-01.
 SOLTU, POTATO (SUPERIOR). Planted: May-01-01, 100 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: May-26-01.
 BEAVA, BEET, SUGAR (4546 LL). Planted: May-01-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: May-16-01.
 PHSVX, BEAN, WHITE (AC COMPASS). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSVX, BEAN, WHITE (OAC THUNDER). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSVN, BEAN, KIDNEY (RED HAWK). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSVN, BEAN, KIDNEY (MONTCALM). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSCR, BEAN, PHASEOLUS SP.- CRANBERRY (HOOTER). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSCR, BEAN, PHASEOLUS SP.-CRANBERRY (SVM TAYLOR). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSBB, BEAN, PHASEOLUS SP.-BLACK BEAN (HARBLACK). Planted: Jun-13-01, 75 CM Row Width. Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 PHSBB, BEAN, PHASEOLUS SP.- BLACK BEAN (MIDNIGHT). Planted: Jun-13-01 Planting Method: PRECISION PLANTER. Emerged On: Jun-18-01.
 Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 4. Plot Size: 6 M x 12 M. Expt. Location: RCAT - RANGE D1&D2.

Site Description: Soil Texture: Loam. %OM: 4.6 %Sand: 51 %Silt: 31 %Clay: 18 pH: 6.8

APPLICATION DESCRIPTION

Application: A
 Date : Jun-23-00
 Time of Day: 0700
 Method :
 Timing : PRE
 Placement : SOIL
 Air Temp. : 16 C
 % Humidity : 64
 Wind Speed : 8 kph
 Dew Present: N
 Soil Moist.: dry
 Cloud Cover: 100%
 Equipment : CO2 backp
 Pressure : 207 kPa
 Nozzle Type: FLAT FAN
 Nozzle Size: XR8002
 Noz.Spacing: 50 CM
 Boom Length: 2 M
 Boom Height: 48 CM
 Carrier : WATER
 Appl.Volume: 200 L/HA
 Propellant : CO2

Application: B Application: B
 Date : Jun-23-00 Crop 1 ZEAMX 4-5 Lf
 Time of Day: 1200 Height : 9 cm
 Method : CO2 SPRAY
 Timing : Post
 Placement : FOLIAR
 Air Temp. : 24 C
 % Humidity : 61
 Wind Speed : 12 kph
 Dew Present: N
 Soil Moist.: dry
 Cloud Cover: 0%
 Equipment : CO2 backp
 Pressure : 207 kPa
 Nozzle Type: FLAT FAN
 Nozzle Size: XR8002
 Noz.Spacing: 50 CM
 Boom Length: 2 M
 Boom Height: 48 CM
 Carrier : WATER
 Appl.Volume: 200 L/HA
 Propellant : CO2

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

Crop Code	LYPES	LYPES	LYPES	LYPES	LYPES	LYPES	LYPES	LYPES	LYPES	PIBST
Part Rated										
Rating Data Type	INJURY	INJURY	INJURY	FRESH WT	DRY WT.	RED	GREEN	RED+GR	INJURY	
Rating Unit	%	%	%	KG	KG	T/HA	T/HA	T/HA	%	
Rating Date	Jun-21-01	Jun-28-01	Jul-19-01	Jul-11-01	Jul-20-01	Sep-04-01	Sep-04-01	Sep-04-01	May-22-01	
	7 DAT	14 DAT	28 DAT	2 R x 1m	2 R x 1m	2 m x 2r	2 m x 2r	2 m x 2r	7 DAE	

Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code										
1	UNTREATED CHECK					0	a 0	a 0	a 0.180	a 0.045	ab 10.2	a 8.7	a 18.9	a 0	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0	a 0	a 0	a 0.142	a 0.038	ab 8.1	a 10.8	a 18.9	a 0	a
	ATRAZINE	1063	G A/HA	PRE	A										
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0	a 0	a 0.139	a 0.034	ab 12.0	a 9.9	a 21.9	a 0	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0	a 0	a 0.121	a 0.034	ab 10.6	a 10.8	a 21.4	a 0	a
	ATRAZINE	2126	G A/HA	PRE	A										
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0	a 0	a 0	a 0.191	a 0.047	a 8.6	a 11.4	a 20.0	a 0	a
	MSO	1.75	L/HA	6-7 LF	B										
	UAN	2.5	L/HA	6-7 LF	B										
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0	a 0	a 0	a 0.122	a 0.035	ab 12.6	a 10.7	a 23.3	a 0	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0	a 0	a 0	a 0.111	a 0.030	b 8.8	a 10.2	a 19.0	a 0	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
LSD (P=.05)						0.0	0.0	0.0	0.0978	0.0155	5.14	2.76	6.91	0.0	
Standard Deviation						0.0	0.0	0.0	0.0658	0.0104	3.46	1.86	4.65	0.0	
CV						0.0	0.0	0.0	45.75	27.79	34.06	17.97	22.69	0.0	

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

Crop Code	PIBST	PIBST	PIBST	PIBST	PIBST	SOLTU	SOLTU	SOLTU	SOLTU
Part Rated									
Rating Data Type	INJURY	INJURY	FRESH WT	DRY WT.	T/HA	INJURY	INJURY	INJURY	FRESH WT
Rating Unit	%	%	KG	KG	T/HA	%	%	%	KG
Rating Date	May-30-01	Jun-13-01	Jun-14-01		Jul-06-01	Jun-04-01	Jun-12-01	Jun-28-01	Jun-28-01
	14 DAE	28 DAE	1 sq m	1 sq m	2 sq m	7 DAE	14 DAE	28 DAE	2 r x 1m

Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code										
1	UNTREATED CHECK					0	a 0	a 0.325	a 0.064	ab 2.4	a 0	a 0	a 0	a 0.778	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0	a 0	a 0.264	a 0.047	b 1.7	a 0	a 0	a 0	a 0.708	a
	ATRAZINE	1063	G A/HA	PRE	A										
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0	a 0.377	a 0.071	ab 2.2	a 0	a 0	a 0	a 0.876	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0	a 0.371	a 0.071	ab 1.8	a 0	a 0	a 0	a 0.774	a
	ATRAZINE	2126	G A/HA	PRE	A										
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0	a 0	a 0.387	a 0.079	a 2.2	a 0	a 0	a 0	a 0.727	a
	MSO	1.75	L/HA	6-7 LF	B										
	UAN	2.5	L/HA	6-7 LF	B										
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0	a 0	a 0.363	a 0.067	ab 2.0	a 0	a 0	a 0	a 0.845	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0	a 0	a 0.246	a 0.060	ab 1.6	a 0	a 0	a 0	a 0.616	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
LSD (P=.05)						0.0	0.0	0.1611	0.0280	0.85	0.0	0.0	0.0	0.2886	
Standard Deviation						0.0	0.0	0.1085	0.0188	0.57	0.0	0.0	0.0	0.1943	
CV						0.0	0.0	32.54	28.65	28.68	0.0	0.0	0.0	25.55	

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

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	SOLTU	SOLTU	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	
		DRY WT	KG	Jul-20-01	2 r x 1m		T/HA	INJURY	INJURY	INJURY	STAND	FRESH WT	DRY WT	COUNTS	
								%	%	%	NO/4 M	KG	KG	No/PLOT	
								7 DAE	14 DAE	28 DAE		10 plant	10 plant	4m x 1r	
1	UNTREATED CHECK					0.122	a 14.6	a 0	a 0	a 0	a 24	a 0.053	a 0.006	a 20	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0.127	a 10.3	a 0	a 0	a 0	a 15	b 0.049	a 0.009	a 18	a
	ATRAZINE	1063	G A/HA	PRE	A										
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0.145	a 14.2	a 0	a 0	a 0	a 22	ab 0.061	a 0.005	a 23	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0.130	a 11.7	a 0	a 0	a 0	a 22	ab 0.061	a 0.005	a 22	a
	ATRAZINE	2126	G A/HA	PRE	A										
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0.125	a 13.8	a 0	a 0	a 0	a 18	ab 0.080	a 0.009	a 22	a
	MSO	1.75	L/HA	6-7 LF	B										
	UAN	2.5	L/HA	6-7 LF	B										
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0.140	a 14.7	a 0	a 0	a 0	a 22	ab 0.047	a 0.003	a 26	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0.119	a 11.4	a 0	a 0	a 0	a 18	ab 0.043	a 0.004	a 20	a
	MSO	3.5	L/HA	6-7 LF	B										
	UAN	5.0	L/HA	6-7 LF	B										
LSD (P=.05)						0.0289	6.29	0.0	0.0	0.0	8.3	0.0430	0.0098	8.8	
Standard Deviation						0.0194	4.24	0.0	0.0	0.0	5.6	0.0289	0.0066	5.9	
CV						14.98	32.69	0.0	0.0	0.0	27.77	51.42	110.29	27.61	

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

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	BEAVA	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSBB	
		YIELD	T/HA	Oct-31-01	4m x 1r		INJURY	INJURY	INJURY	INJURY	INJURY	INJURY	INJURY	
			%				%	%	%	%	%	%	%	
							7 DAE	7 DAE	7 DAE	7 DAE	7 DAE	7 DAE	7 DAE	
							COMPASS	THUNDER	MONTCLAM	R. HAWK	HARBLACK	HOOTER	TAYLOR	
1	UNTREATED CHECK					23.4	a 0	a 0	a 0	a 0	a 0	b 0	b 0	b
2	ISOXAFULTOLE	105	G A/HA	PRE	A	15.9	b 0	a 0	a 0	a 0	a 0	b 0	b 0	b
	ATRAZINE	1063	G A/HA	PRE	A									
3	ISOXAFULTOLE	210	G A/HA	PRE	A	16.8	b 0	a 0	a 0	a 0	a 5	a 6	a 5	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	20.1	ab 0	a 0	a 0	a 0	a 6	a 8	a 8	a
	ATRAZINE	2126	G A/HA	PRE	A									
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	21.3	ab 0	a 0	a 0	a 0	a 4	a 4	ab 4	ab
	MSO	1.75	L/HA	6-7 LF	B									
	UAN	2.5	L/HA	6-7 LF	B									
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	20.4	ab 0	a 0	a 0	a 0	a 0	b 0	b 0	b
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	19.4	ab 0	a 0	a 1	a 3	a 6	a 8	a 8	a
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
LSD (P=.05)						5.72	0.0	0.0	1.4	2.8	2.6	3.8	4.2	
Standard Deviation						3.85	0.0	0.0	0.9	1.9	1.7	2.5	2.8	
CV						19.63	0.0	0.0	529.15	529.15	56.83	71.1	83.55	

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

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	PHSBB	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSBB
		INJURY	%	Jun-28-01	7 DAE		%	Jun-28-01	14 DAE	14 DAE	14 DAE	14 DAE	14 DAE
						MIDNIGHT	COMPASS	THUNDER	MONTCALM	R. HAWK	HOOTER	TAYLOR	HARBLACK
Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code								
1	UNTREATED CHECK					0	b 0	a 0	b 0	b 0	b 0	c 0	b
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0	b 1	a 1	ab 1	ab 0	b 3	ab 4	ab 1
	ATRAZINE	1063	G A/HA	PRE	A								
3	ISOXAFULTOLE	210	G A/HA	PRE	A	5	a 1	a 0	b 1	ab 1	ab 1	b 1	c 0
4	ISOXAFULTOLE	210	G A/HA	PRE	A	6	a 1	a 1	b 1	ab 1	ab 1	b 1	bc 1
	ATRAZINE	2126	G A/HA	PRE	A								
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	4	a 1	a 0	b 0	b 0	b 3	ab 1	c 0
	MSO	1.75	L/HA	6-7 LF	B								
	UAN	2.5	L/HA	6-7 LF	B								
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0	b 1	a 0	b 1	ab 1	ab 1	b 1	bc 0
	MSO	3.5	L/HA	6-7 LF	B								
	UAN	5.0	L/HA	6-7 LF	B								
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	6	a 2	a 4	a 4	a 3	a 6	a 6	a 3
	MSO	3.5	L/HA	6-7 LF	B								
	UAN	5.0	L/HA	6-7 LF	B								
LSD (P=.05)						2.6	2.7	3.1	3.4	2.9	3.4	3.0	1.9
Standard Deviation						1.7	1.8	2.1	2.3	1.9	2.3	2.0	1.3
CV						56.83	201.66	266.03	220.14	286.28	109.48	108.12	224.58

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

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	PHSBB	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSBB
		INJURY	%	Jul-04-01	14 DAE		%	Jul-04-01	28 DAE	28 DAE	28 DAE	28 DAE	28 DAE
						MIDNIGHT	COMPASS	THUNDER	MONTCALM	R. HAWK	HOOTER	TAYLOR	HARBLACK
Trt No.	Treatment Name	Rate	Rate Unit	Grow Stg	Appl Code								
1	UNTREATED CHECK					0	c 0	a 0	a 0	a 0	a 0	b 0	b 0
2	ISOXAFULTOLE	105	G A/HA	PRE	A	4	ab 0	a 0	a 0	a 0	a 0	b 0	b 0
	ATRAZINE	1063	G A/HA	PRE	A								
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0	c 0	a 0	a 0	a 0	a 0	b 0	b 0
4	ISOXAFULTOLE	210	G A/HA	PRE	A	1	c 0	a 0	a 0	a 0	a 0	b 0	b 0
	ATRAZINE	2126	G A/HA	PRE	A								
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	1	bc 0	a 0	a 0	a 0	a 0	b 0	b 0
	MSO	1.75	L/HA	6-7 LF	B								
	UAN	2.5	L/HA	6-7 LF	B								
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	1	bc 0	a 0	a 0	a 0	a 0	b 0	b 0
	MSO	3.5	L/HA	6-7 LF	B								
	UAN	5.0	L/HA	6-7 LF	B								
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	6	a 0	a 0	a 0	a 0	a 5	a 5	a 0
	MSO	3.5	L/HA	6-7 LF	B								
	UAN	5.0	L/HA	6-7 LF	B								
LSD (P=.05)						2.5	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Standard Deviation						1.7	0.0	0.0	0.0	0.0	0.0	0.4	0.0
CV						94.14	0.0	0.0	0.0	0.0	0.0	58.79	0.0

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

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	PHSBB	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSBB		
					INJURY	FRESH WT	FRESH WT	FRESH WT	FRESH WT	FRESH WT	FRESH WT	FRESH WT		
					%	KG	KG	KG	KG	KG	KG	KG		
					Jul-16-01	Jul-16-01	Jul-16-01	Jul-16-01	Jul-16-01	Jul-16-01	Jul-16-01	Jul-16-01		
					28 DAE	1 m row	1 m row	1 m row	1 m row	1 m row	1 m row	1 m row		
					MIDNIGHT	THUNDER	COMPASS	RED HAWK	MONTCALM	TAYLOR	HOOTER	MIDNIGHT		
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code									
1	UNTREATED CHECK					0	a 0.0613	ab 0.1075	a 0.1225	a 0.2612	a 0.0812	a 0.1213	a 0.0838	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0	a 0.0475	b 0.0813	a 0.0900	a 0.0712	a 0.0500	a 0.0700	b 0.0763	a
	ATRAZINE	1063	G A/HA	PRE	A									
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0.0875	a 0.0962	a 0.1238	a 0.2400	a 0.0875	a 0.1150	a 0.0938	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0	a 0.0658	ab 0.0750	a 0.0988	a 0.1488	a 0.0512	a 0.0850	ab 0.0587	a
	ATRAZINE	2126	G A/HA	PRE	A									
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0	a 0.0808	ab 0.1050	a 0.1325	a 0.0813	a 0.0750	a 0.1025	ab 0.0888	a
	MSO	1.75	L/HA	6-7 LF	B									
	UAN	2.5	L/HA	6-7 LF	B									
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0	a 0.0750	ab 0.0987	a 0.1150	a 0.0662	a 0.1013	a 0.1025	ab 0.0850	a
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0	a 0.0775	ab 0.0988	a 0.1125	a 0.0825	a 0.0812	a 0.1013	ab 0.0862	a
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
LSD (P=.05)						0.0	0.03328	0.04604	0.05008	0.25978	0.05685	0.04236	0.04091	
Standard Deviation						0.0	0.02240	0.03099	0.03371	0.17486	0.03827	0.02851	0.02754	
CV						0.0	31.66	32.75	29.68	128.67	50.78	28.62	33.67	

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

Crop Code	Part Rated	Rating Data Type	Rating Unit	Rating Date	PHSBB	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSBB		
					FRESH WT	DRY WT	DRY WT	DRY WT	DRY WT	DRY WT	DRY WT	DRY WT		
					KG	KG	KG	KG	KG	KG	KG	KG		
					Jul-16-01	Jul-25-01	Jul-25-01	Jul-25-01	Jul-25-01	Jul-25-01	Jul-25-01	Jul-25-01		
					1 m row	1 m row	1 m row	1 m row	1 m row	1 m row	1 m row	1 m row		
					HARBLACK	THUNDER	COMPASS	RED HAWK	MONTCALM	TAYLOR	HOOTER	MIDNIGHT		
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code									
1	UNTREATED CHECK					0.0987	ab 0.0213	a 0.0212	a 0.0237	ab 0.0162	ab 0.0115	a 0.0250	a 0.0200	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0.0650	b 0.0103	a 0.0225	a 0.0127	ab 0.0115	ab 0.0153	a 0.0137	a 0.0250	a
	ATRAZINE	1063	G A/HA	PRE	A									
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0.0825	ab 0.0225	a 0.0125	a 0.0225	ab 0.0162	ab 0.0225	a 0.0225	a 0.0225	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0.0775	ab 0.0137	a 0.0112	a 0.0213	ab 0.0088	b 0.0100	a 0.0162	a 0.0090	a
	ATRAZINE	2126	G A/HA	PRE	A									
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0.0850	ab 0.0263	a 0.0212	a 0.0300	a 0.0137	ab 0.0250	a 0.0287	a 0.0200	a
	MSO	1.75	L/HA	6-7 LF	B									
	UAN	2.5	L/HA	6-7 LF	B									
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0.1000	a 0.0150	a 0.0225	a 0.0113	b 0.0188	ab 0.0362	a 0.0175	a 0.0150	a
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0.0987	ab 0.0212	a 0.0200	a 0.0200	ab 0.0200	a 0.0150	a 0.0200	a 0.0150	a
	MSO	3.5	L/HA	6-7 LF	B									
	UAN	5.0	L/HA	6-7 LF	B									
LSD (P=.05)						0.03423	0.02290	0.01353	0.01750	0.01017	0.03044	0.01644	0.01826	
Standard Deviation						0.02304	0.01542	0.00911	0.01178	0.00685	0.02049	0.01106	0.01229	
CV						26.55	82.85	48.57	58.28	45.53	105.84	53.88	68.03	

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

ISOXAFULTOLE/ATRAZINE AND AE F130360 RECROPPING STUDY ON LOW ACREAGE, HIGH VALUE CROPS

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB00B1

Crop Code	PHSB	PHSVX	PHSVX	PHSVN	PHSVN	PHSCR	PHSCR	PHSB
Part Rated								
Rating Data Type	DRY WT	YIELD	YIELD	YIELD	YIELD	YIELD	YIELD	YIELD
Rating Unit	KG	KG/HA	KG/HA	KG/HA	KG/HA	KG/HA	KG/HA	KG/HA
Rating Date	Jul-25-01	Sep-27-01	Sep-27-01	Sep-27-01	Sep-27-01	Sep-27-01	Sep-27-01	Sep-27-01
Tri-Eval Interval	1 m row	THUNDER	COMPASS	REDHAWK	MONTCALM	TAYLOR	TAYLOR	MIDNIGHT

Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code																
1	UNTREATED CHECK					0.0175	b	513.8	ab	642.1	a	513.8	ab	360.0	ab	164.6	bc	163.6	bc	594.7	a
2	ISOXAFULTOLE	105	G A/HA	PRE	A	0.0125	b	377.3	b	412.2	a	337.2	b	305.2	b	135.8	bc	135.0	bc	559.5	a
	ATRAZINE	1063	G A/HA	PRE	A																
3	ISOXAFULTOLE	210	G A/HA	PRE	A	0.0175	b	305.1	b	439.9	a	469.7	ab	403.0	ab	152.3	bc	151.3	bc	806.0	a
4	ISOXAFULTOLE	210	G A/HA	PRE	A	0.0127	b	437.6	ab	618.3	a	509.8	ab	446.0	ab	321.0	a	319.1	a	919.5	a
	ATRAZINE	2126	G A/HA	PRE	A																
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	0.0200	ab	328.8	b	527.1	a	393.4	ab	340.4	ab	321.0	a	319.1	a	641.7	a
	MSO	1.75	L/HA	6-7 LF	B																
	UAN	2.5	L/HA	6-7 LF	B																
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	0.0313	a	622.2	a	622.3	a	574.0	a	508.6	a	255.2	ab	253.6	ab	688.6	a
	MSO	3.5	L/HA	6-7 LF	B																
	UAN	5.0	L/HA	6-7 LF	B																
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	0.0225	ab	389.4	ab	404.3	a	343.2	b	301.3	b	82.3	c	81.8	c	571.2	a
	MSO	3.5	L/HA	6-7 LF	B																
	UAN	5.0	L/HA	6-7 LF	B																
LSD (P=.05)						0.01140		233.75		324.11		211.35		188.41		152.58		151.64		376.13	
Standard Deviation						0.00767		157.34		218.17		141.66		126.82		102.70		102.07		253.18	
CV						40.07		37.03		41.66		31.57		33.32		50.19		50.19		37.07	

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

Crop Code	PHSB
Part Rated	
Rating Data Type	YIELD
Rating Unit	KG/HA
Rating Date	Sep-27-01
	HARBLACK

Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code																	
1	UNTREATED CHECK					745.1	ab															
2	ISOXAFULTOLE	105	G A/HA	PRE	A	618.3	ab															
	ATRAZINE	1063	G A/HA	PRE	A																	
3	ISOXAFULTOLE	210	G A/HA	PRE	A	979.0	a															
4	ISOXAFULTOLE	210	G A/HA	PRE	A	955.2	a															
	ATRAZINE	2126	G A/HA	PRE	A																	
5	FORAMSULFURON	62	G A/HA	6-7 LF	B	602.4	ab															
	MSO	1.75	L/HA	6-7 LF	B																	
	UAN	2.5	L/HA	6-7 LF	B																	
6	FORAMSULFURON	124	G A/HA	6-7 LF	B	764.9	ab															
	MSO	3.5	L/HA	6-7 LF	B																	
	UAN	5.0	L/HA	6-7 LF	B																	
7	FORAMSULFURON	140	G A/HA	6-7 LF	B	491.5	b															
	MSO	3.5	L/HA	6-7 LF	B																	
	UAN	5.0	L/HA	6-7 LF	B																	
LSD (P=.05)						439.92																
Standard Deviation						296.11																
CV						40.2																

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

Trial Comments

Conclusions: This study was established in 2000 to test for the effect of preemergence applications of isoxaflutole + atrazine (105 + 1063 g a.i. ha⁻¹ and 210 + 2126 g a.i. ha⁻¹), isoxaflutole (210 g a.i. ha⁻¹) and postemergence applications of AE F130360 - foramsulfuron - (62, 124 and 140 g a.i. ha⁻¹) applied to field corn on rotational crops (tomatoes, peas, potatoes, sugar beets, white beans, kidney beans, cranberry beans and black beans) planted in 2001.

1. Tomatoes. There was no visual injury in any of the isoxaflutole, isoxaflutole + atrazine or foramsulfuron treatments. Fresh and dry plant weight did not significantly decrease at 21 days after crop emergence, though a trend for reduced weights was apparent in all treatments and with increasing rate of foramsulfuron. Despite the reductions in plant weight, there was no yield reduction in any of the treatments.
2. Peas. There was no visual injury at 7, 14, or 28 days after emergence. There was not a decrease in plant fresh or dry weight, tenderness or yield of peas in any of the treatments.
3. Potatoes. There was no visual injury at 7, 14, or 28 days after emergence. There was not a decrease in plant fresh or dry weight of potatoes in any of the treatments. Though not significant, there was a trend to reduced yield in either of the isoxaflutole + atrazine treatments, which was not observed when isoxaflutole had been applied alone in the previous year.
4. Sugar beets. There was no visual injury at 7, 14, or 28 days after emergence. There was not a decrease in plant fresh or dry weight, stand count or yield of sugar beets in any of the treatments.
5. White beans. Neither white bean variety - AC Compass or OAC Thunder - exhibited visual injury at 7 or 28 days after emergence. At 14 days after emergence, both varieties showed some temporary chlorosis where the highest rate of foramsulfuron (140 g a.i. ha⁻¹) had been applied the previous year. There was not a decrease in plant fresh or dry weight or yield of white beans in any of the treatments.
6. Kidney beans. Red Hawk and Montcalm showed slight visual injury at 7 and 14 days after emergence, however neither kidney bean variety exhibited visual injury by 28 days after emergence. There was not a decrease in plant fresh or dry weight or yield of kidney beans in any of the treatments.
7. Cranberry beans. Each of the cranberry bean varieties - Hooter and SVM Taylor - showed slight visual injury at 7 and 14 days after emergence at high rates of isoxaflutole, isoxaflutole + atrazine and foramsulfuron applied in the previous year. By 28 days after emergence, visual injury was recorded only in the foramsulfuron treatment. While not significant, both varieties showed a trend for reduced fresh and dry weight in the isoxaflutole + atrazine treatments (at both rates tested). There was not a decrease in fresh or dry weight of either variety in any of the foramsulfuron treatments. Despite the visual injury and reductions in plant weight, there was no reduction in yield for either Hooter or SVM Taylor in any of the treatments.
8. Black beans. At 7 and 14 days after emergence, both Harblack and Midnight varieties showed some visual injury in the isoxaflutole + atrazine and foramsulfuron treatments. By 28 days after emergence however, both black bean varieties had outgrown the visual injury. There was no decrease in fresh weight in any of the treatments. There was a significant decrease in Harblack plant dry weight in the isoxaflutole + atrazine (210 + 2126 g a.i. ha⁻¹) treatment. Midnight showed a trend for reduced dry weight in this treatment, but the reduction was not significant. Despite the visual injury and reduction in plant dry weight, there were no yield reductions in either variety.

MESOTRIONE RECROPPING STUDY II

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB01B3

CROP: GLXMA, SOYBEAN (91B52 RR). Planted: Jun-12-01, 225000 SE/HA, 2 CM Deep, 75 CM Row Width. Planting Method: Transplanter. Emerged On: Jun-18-01.
 TRZAS, WHEAT, SPRING (CELTIC). Planted: Jun-12-01, 130 KG/HA, 2.5 cm Deep, 18 cm Row Width. Planting Method: SEED DRILL. Emerged On: Jun-18-01.
 MEDSA, ALFALFA (8920 MF). Planted: Jun-12-01, 15 kg/ha, 1 cm Deep, 17.8 cm Row Width. Planting Method: Seed Drill. Emerged On: Jun-18-01.
 BEAVA, BEET, SUGAR (4546 LL). Planted: Jun-12-01, 130000 SE/HA, 1 cm Deep, 75 cm Row Width. Planting Method: Seed drill. Emerged On: Jun-18-01.
 PHSBB, BEAN, PHASEOLUS SP.- BLACK BEAN (MIDNIGHT). Planted: Jun-12-01, 225000 se/ha, 2 cm Deep, 75 cm Row Width. Planting Method: Precision planter. Emerged On: Jun-18-01.
 PHSCR, BEAN, PHASEOLUS SP- CRANBERRY BEAN (SVM TAYLOR). Planted: Jun-12-01, 225000 se/ha, 2 cm Deep, 75 cm Row Width. Planting Method: Precision planter. Emerged On: Jun-18-01.
 PHSVX, BEAN, WHITE (AC COMPASS). Planted: Jun-12-01, 225000 se/ha, 2 cm Deep, 75 cm Row Width. Planting Method: Precision planter. Emerged On: Jun-18-01.
 PHSVN, BEAN, KIDNEY (MONTCALM). Planted: Jun-12-01, 225000 se/ha, 2 cm Deep, 75 cm Row Width. Planting Method: Precision planter. Emerged On: Jun-18-01.
 GLXMA, SOYBEAN (91B52 RR). Planted: Jun-12-01, 225000 se/ha, 2 cm Deep, 75 cm Row Width. Planting Method: Precision planter. Emerged On: Jun-18-01.
 TRZAW, WHEAT, WINTER (25R37- SOFT RED). Planted: Oct-10-01, 18 CM Row Width. Planting Method: DRILLED. Emerged On: Oct-22-01.
 TRZAW, WHEAT, WINTER (MAXINE- HARD RED). Planted: Oct-10-01, 18 CM Row Width. Planting Method: DRILLED. Emerged On: Oct-22-01.
 TRZAW, WHEAT, WINTER (25W60- SOFT WHITE). Planted: Oct-10-01, 18 CM Row Width. Planting Method: DRILLED. Emerged On: Oct-22-01.
 Expt. Design: RANDOMIZED COMPLETE BLOCK. Reps: 3. Plot Size: 6 M x 16 M. Expt. Location: RC - Range M3.

Site Description: Soil Texture: LOAMY FINE SAND. %OM: 6.2 %Sand: 80.7 %Silt: 12.4 %Clay: 6.9 pH: 6.7

APPLICATION DESCRIPTION

Application:	A	B	C	D
Date	May-01-01	May-15-01	May-29-01	Jun-12-01
Time of Day	9:30	9:00	10:30	7:00
Method	CO2	CO2	CO2	CO2
Timing	42 DBP	28 DBP	14 DBP	0 DBP
Placement	PRE PLANT	PRE PLANT	PREPLANT	PRE PLANT
Air Temp.	15 C	12 C	22 C	18 C
% Humidity	55	100	53	80
Wind Speed	7 KPH	5 KPH	6 KPH	13 KPH
Dew Present	N	N	N	N
Soil Moist.	dry	DAMP	DAMP	DAMP
Cloud Cover	50%	100%	100%	95%
Equipment	CO2 Bicyc	CO2 Bicyc	CO2 Bicyc	CO2 Bicyc
Pressure	207 kPa	207 kPa	207 kPa	207 kPa
Nozzle Type	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size	XR8002	XR8002	XR8002	XR8002
Noz.Spacing	50 CM	50 CM	50 CM	50 CM
Boom Length	3 M	3 M	3 M	3 M
Boom Height	48 CM	48 CM	48 CM	48 CM
Carrier	WATER	WATER	WATER	WATER
Propellant	CO2	CO2	CO2	CO2

Crop Code	GLXMA						TRZAW															
Part Rated	INJURY						INJURY															
Rating Data Type	FRESH WT						Yield															
Rating Unit	%						%															
Rating Date	Jun-28-01	Jul-04-01	Jul-17-01	Jul-16-01	Jul-25-01	Oct-11-01	Jun-28-01	Jul-04-01	Jul-17-01													
Crop Stage	2nd Tr		4th Tr		1.5 m2		2 Lf		Tillers													
Crop Stage Scale	10 DAE		16 DAE		29 DAE		10 DAE		16 DAE													
Tri-Eval Interval	10 DAE						10 DAE															
Tri Treatment	Rate	Grow	Appl																			
No. Name	Rate	Unit	Stg	Code																		
1 Untreated Check	0	c	0	d	0	b	0.397	ab	0.080	ab	2.0	ab	0	a	0	c	0	b				
2 mesotrione	175	G A/HA	42 - PP	A	0	c	2	d	0	b	0.460	a	0.083	a	2.4	a	0	c	0	b		
3 mesotrione	350	G A/HA	42 - PP	A	22	bc	13	cd	0	b	0.362	abc	0.068	abc	1.3	b	0	a	8	bc	0	b
4 mesotrione	175	G A/HA	28 - PP	B	28	b	22	bc	8	ab	0.375	abc	0.068	abc	1.3	b	0	a	13	b	0	b
5 mesotrione	350	G A/HA	28 - PP	B	18	bc	33	ab	10	ab	0.322	abc	0.060	bc	1.1	b	0	a	12	b	0	b
6 mesotrione	175	G A/HA	14 - PP	C	17	bc	20	bc	5	b	0.338	abc	0.062	abc	1.6	ab	0	a	13	b	3	ab
7 mesotrione	350	G A/HA	14 - PP	C	27	b	30	b	7	ab	0.282	bcd	0.048	cd	1.7	ab	0	a	18	b	5	ab
8 mesotrione	175	G A/HA	0 - PP	D	38	ab	47	a	23	a	0.227	cd	0.050	cd	1.4	b	0	a	17	b	3	ab
9 mesotrione	350	G A/HA	0 - PP	D	63	a	47	a	17	ab	0.157	d	0.030	d	1.6	ab	0	a	32	a	7	a
LSD (P=.05)	26.0	14.7	16.7	0.1527	0.0224	0.99	0.0	11.0	5.8													
Standard Deviation	15.0	8.5	9.7	0.0882	0.0129	0.57	0.0	6.3	3.4													
CV	63.31	35.74	124.26	27.21	21.17	35.43	0.0	50.33	165.33													

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

MESOTRIONE RECROPPING STUDY II

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB01B3

Crop Code	TRZAW	TRZAW	MEDSA	MEDSA	MEDSA	MEDSA	MEDSA	MEDSA	BEAVA	BEAVA					
Part Rated															
Rating Data Type	FRESH WT	DRY WT	INJURY	INJURY	INJURY	FRESH WT	DRY WT	INJURY	INJURY						
Rating Unit	KG	KG	%	%	%	KG	KG	%	%						
Rating Date	Jul-16-01	Jul-25-01	Jun-28-01	Jul-04-01	Jul-17-01	Jul-16-01	Jul-25-01	Jun-28-01	Jul-04-01						
Crop Stage	1 m2	1 m2	Cot	1-2 Tr	3rd Tr	1 m2	1 m2	Cot	3 Lf						
Crop Stage Scale															
Trt-Eval Interval			10 DAE	16 DAE	29 DAE			10 DAE	16 DAE						
Trt No.	Treatment Name	Rate	Grow Unit	Stg	Appl Code										
1	Untreated Check					0.330	a 0.055	a 0	b 0	d 0	b 0.105	bcd 0.028	a-d 0	c 0	b
2	mesotrione	175	G A/HA	42 - PP	A	0.355	a 0.062	a 0	b 0	d 0	b 0.130	abc 0.037	a-d 0	c 63	a
3	mesotrione	350	G A/HA	42 - PP	A	0.325	a 0.057	a 3	b 8	cd 0	b 0.082	bcd 0.030	a-d 67	b 67	a
4	mesotrione	175	G A/HA	28 - PP	B	0.275	a 0.052	a 17	ab 0	d 0	b 0.215	a 0.055	a 100	a 97	a
5	mesotrione	350	G A/HA	28 - PP	B	0.308	a 0.057	a 13	b 10	cd 0	b 0.137	ab 0.043	abc 100	a 100	a
6	mesotrione	175	G A/HA	14 - PP	C	0.230	a 0.038	a 8	b 3	d 0	b 0.178	ab 0.053	ab 100	a 98	a
7	mesotrione	350	G A/HA	14 - PP	C	0.305	a 0.063	a 12	b 22	c 3	b 0.073	bcd 0.023	bcd 100	a 100	a
8	mesotrione	175	G A/HA	0 - PP	D	0.280	a 0.052	a 23	ab 45	b 5	b 0.028	cd 0.017	cd 100	a 100	a
9	mesotrione	350	G A/HA	0 - PP	D	0.272	a 0.033	a 47	a 70	a 17	a 0.013	d 0.007	d 100	a 100	a
LSD (P=.05)						0.2137	0.0473	32.1	14.2	7.6	0.1080	0.0311	33.3	42.6	
Standard Deviation						0.1235	0.0273	18.5	8.2	4.4	0.0624	0.0180	19.2	24.6	
CV						41.47	52.53	135.14	46.73	158.75	58.39	54.82	25.98	30.53	

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

Crop Code	BEAVA	BEAVA	BEAVA	BEAVA	BEAVA	LYPES	LYPES	LYPES	LYPES						
Part Rated															
Rating Data Type	INJURY	FRESH WT	DRY WT	YIELD	YIELD	INJURY	INJURY	INJURY	FRESH WT						
Rating Unit	%	KG	KG	NO/PLOT	T/HA	%	%	%	KG						
Rating Date	Jul-17-01	Jul-16-01	Jul-25-01	Oct-29-01	Oct-29-01	Jun-28-01	Jul-04-01	Jul-17-01	Jul-16-01						
Crop Stage	5 Lf	10 plant	10 plant	3 M2	3 M2	3 Lf	6 Lf	8 Lf	10 plant						
Crop Stage Scale															
Trt-Eval Interval						10 DAP	16 DAP	29 DAP							
Trt No.	Treatment Name	Rate	Grow Unit	Stg	Appl Code										
1	Untreated Check					0	b 0.270	a 0.035	a 32	a 77.2	a 0	d 0	d 0	b 3.117	a
2	mesotrione	175	G A/HA	42 - PP	A	65	a 0.205	a 0.027	a 11	b 32.3	b 7	cd 0	d 0	b 2.690	ab
3	mesotrione	350	G A/HA	42 - PP	A	67	a 0.177	a 0.023	a 7	b 15.8	b 28	cd 22	cd 2	b 2.165	abc
4	mesotrione	175	G A/HA	28 - PP	B	97	a 0.143	a 0.027	a 2	b 6.4	b 18	cd 10	d 0	b 2.810	ab
5	mesotrione	350	G A/HA	28 - PP	B	100	a 0.005	a 0.002	a 0	b 0.0	b 30	bc 42	bc 12	b 1.063	cd
6	mesotrione	175	G A/HA	14 - PP	C	93	a 0.000	a 0.000	a 1	b 4.2	b 22	cd 5	d 0	b 2.398	abc
7	mesotrione	350	G A/HA	14 - PP	C	100	a 0.000	a 0.000	a 0	b 0.0	b 25	cd 23	bcd 3	b 1.638	bc
8	mesotrione	175	G A/HA	0 - PP	D	98	a 0.000	a 0.000	a 1	b 2.5	b 58	ab 53	ab 32	ab 1.640	bc
9	mesotrione	350	G A/HA	0 - PP	D	100	a 0.000	a 0.000	a 0	b 0.0	b 83	a 73	a 65	a 0.083	d
LSD (P=.05)						45.1	0.2711	0.0371	12.4	32.64	29.9	31.4	34.5	1.4195	
Standard Deviation						26.1	0.1566	0.0214	7.2	18.86	17.3	18.2	19.9	0.8200	
CV						32.59	176.22	170.12	119.92	122.55	57.2	71.58	158.11	41.92	

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

Weed Code	LYPES	LYPES	LYPES	LYPES	LYPES	PHSBB	PHSCR	PHSVX	PHSVN						
Crop Code															
Part Rated															
Rating Data Type	DRY WT	T/HA	T/HA	T/HA	T/HA	INJURY	INJURY	INJURY	INJURY						
Rating Unit	KG	RED	GREEN	RED+GR	ROTS	%	%	%	%						
Rating Date	Jul-25-01	Sep-05-01	Sep-05-01	Sep-05-01	Sep-05-01	Jun-28-01	Jun-28-01	Jun-28-01	Jun-28-01						
Crop Stage	10 plant	3 m2	3 m2	3 m2	3 m2	Primary	Primary	Primary	Primary						
Crop Stage Scale															
Trt-Eval Interval						10 DAE	10 DAE	10 DAE	10 DAE						
Trt No.	Treatment Name	Rate	Grow Unit	Stg	Appl Code										
1	Untreated Check					0.780	a 50.33	ab 55.52	ab 105.85	a 7.75	ab 0	b 0	d 0	c 0	b
2	mesotrione	175	G A/HA	42 - PP	A	0.710	ab 67.29	a 46.12	ab 113.41	a 9.37	ab 3	b 7	cd 0	c 5	b
3	mesotrione	350	G A/HA	42 - PP	A	0.520	abc 41.18	abc 50.78	ab 91.96	a 8.88	ab 5	b 17	bcd 5	bc 7	b
4	mesotrione	175	G A/HA	28 - PP	B	0.672	ab 45.23	abc 38.22	ab 83.44	ab 14.06	a 28	ab 38	a-d 17	bc 40	ab
5	mesotrione	350	G A/HA	28 - PP	B	0.172	c 25.11	bc 60.44	a 85.55	ab 3.47	b 22	ab 30	a-d 15	bc 13	b
6	mesotrione	175	G A/HA	14 - PP	C	0.560	abc 62.00	a 59.57	a 121.57	a 4.83	ab 13	b 20	bcd 17	bc 10	b
7	mesotrione	350	G A/HA	14 - PP	C	0.322	abc 42.44	abc 60.58	a 103.02	a 6.04	ab 30	ab 57	ab 35	abc 25	b
8	mesotrione	175	G A/HA	0 - PP	D	0.303	bc 35.56	abc 53.88	ab 89.43	a 4.45	b 40	ab 55	abc 48	ab 27	b
9	mesotrione	350	G A/HA	0 - PP	D	0.307	abc 12.59	c 19.34	b 31.93	b 4.62	b 65	a 77	a 67	a 72	a
LSD (P=.05)						0.4762	33.260	37.734	57.192	9.279	46.5	49.9	45.9	41.9	
Standard Deviation						0.2751	19.214	21.799	33.040	5.360	26.9	28.8	26.5	24.2	
CV						56.99	45.3	44.14	35.99	76.01	116.94	86.48	117.26	109.91	

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

MESOTRIONE RECROPPING STUDY II

DAVE BILYEA, DARREN ROBINSON

Experiment ID: PB01B3

Crop Code	PHSBB	PHSCR	PHSVX	PHSVN	PHSBB	PHSCR	PHSVX	PHSVN	PHSVX														
Part Rated																							
Rating Data Type	INJURY	INJURY	INJURY	INJURY	INJURY	INJURY	INJURY	INJURY	FRESH WT														
Rating Unit	%	%	%	%	%	%	%	%	KG														
Rating Date	Jul-04-01	Jul-04-01	Jul-04-01	Jul-04-01	Jul-17-01	Jul-17-01	Jul-17-01	Jul-17-01	Jul-16-01														
Crop Stage	1-2 Tr	1-2 Tr	1-2 Tr	1-2 Tr	3rd Tr	3rd Tr	3rd Tr	3rd Tr	.75 m2														
Crop Stage Scale																							
Trt-Eval Interval	16 DAE	16 DAE	16 DAE	16 DAE	29 DAE	29 DAE	29 DAE	29 DAE															
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code																		
1	Untreated Check					0	d	0	c	0	c	0	d	0	b	0	c	0	b	0	c	0.433	ab
2	mesotrione	175	G A/HA	42 - PP	A	0	d	0	c	0	c	0	d	0	b	0	c	0	b	0	c	0.507	a
3	mesotrione	350	G A/HA	42 - PP	A	7	bcd	20	c	7	bc	15	cd	0	b	17	c	3	b	17	c	0.365	abc
4	mesotrione	175	G A/HA	28 - PP	B	7	bcd	23	c	0	c	13	cd	0	b	7	c	0	b	2	c	0.488	a
5	mesotrione	350	G A/HA	28 - PP	B	25	abc	35	bc	28	bc	23	bc	20	a	35	bc	5	b	3	c	0.258	b-e
6	mesotrione	175	G A/HA	14 - PP	C	5	cd	17	c	10	bc	8	cd	3	b	18	c	7	ab	2	c	0.327	a-d
7	mesotrione	350	G A/HA	14 - PP	C	27	ab	68	ab	35	b	37	b	8	ab	63	ab	30	ab	7	c	0.180	cde
8	mesotrione	175	G A/HA	0 - PP	D	18	bcd	75	a	72	a	80	a	8	ab	68	ab	50	a	50	b	0.077	e
9	mesotrione	350	G A/HA	0 - PP	D	40	a	82	a	73	a	83	a	20	a	80	a	43	ab	87	a	0.128	de
LSD (P=.05)						21.3	35.4	34.5	18.8	16.3	40.0	43.6	25.8	0.2094									
Standard Deviation						12.3	20.5	19.9	10.9	9.4	23.1	25.2	14.9	0.1210									
CV						86.45	57.53	79.79	37.67	140.87	72.17	163.99	80.54	39.39									

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

Crop Code	PHSVN	PHSBB	PHSCR	PHSVX	PHSVN	PHSBB	PHSCR	PHSBB	PHSCR														
Part Rated																							
Rating Data Type	FRESH WT	FRESH WT	FRESH WT	DRY WT	DRY WT	DRY WT	DRY WT	YIELD	YIELD														
Rating Unit	KG	KG	KG	KG	KG	KG	KG	KG/HA	KG/HA														
Rating Date	Jul-16-01	Jul-16-01	Jul-16-01	Jul-25-01	Jul-25-01	Jul-25-01	Jul-25-01	Sep-28-01	Sep-28-01														
Crop Stage	.75 m2	.75 m2	.75 m2	.75 m2	.75 m2	.75 m2	.75 m2																
Crop Stage Scale								Midnight	Svm Tay														
Trt-Eval Interval																							
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code																		
1	Untreated Check					0.382	a	0.313	a	0.503	a	0.067	ab	0.055	a	0.073	a	0.042	ab	1175.4	ab	1251.2	a
2	mesotrione	175	G A/HA	42 - PP	A	0.377	a	0.317	a	0.324	b	0.075	a	0.048	a	0.055	b	0.053	a	1319.6	a	1278.0	a
3	mesotrione	350	G A/HA	42 - PP	A	0.284	ab	0.248	ab	0.332	b	0.065	ab	0.048	a	0.042	bc	0.045	ab	952.0	abc	702.4	b
4	mesotrione	175	G A/HA	28 - PP	B	0.318	ab	0.275	a	0.238	bc	0.062	ab	0.047	ab	0.035	c	0.045	ab	1116.9	abc	609.1	bc
5	mesotrione	350	G A/HA	28 - PP	B	0.210	b	0.163	ab	0.128	cd	0.038	bc	0.040	ab	0.013	d	0.013	cd	691.4	bc	411.6	bcd
6	mesotrione	175	G A/HA	14 - PP	C	0.352	ab	0.292	a	0.283	bc	0.038	bc	0.050	a	0.057	ab	0.040	abc	893.5	abc	658.5	bc
7	mesotrione	350	G A/HA	14 - PP	C	0.212	b	0.162	ab	0.073	d	0.035	bc	0.028	b	0.013	d	0.023	bcd	877.5	abc	159.1	cd
8	mesotrione	175	G A/HA	0 - PP	D	0.020	c	0.202	ab	0.065	d	0.010	c	0.002	c	0.010	d	0.028	a-d	733.9	bc	290.9	bcd
9	mesotrione	350	G A/HA	0 - PP	D	0.028	c	0.085	b	0.023	d	0.012	c	0.008	c	0.005	d	0.012	d	558.4	c	82.3	d
LSD (P=.05)						0.1439	0.1834	0.1562	0.0320	0.0187	0.0170	0.0280	581.64	513.62									
Standard Deviation						0.0831	0.1059	0.0903	0.0185	0.0108	0.0098	0.0162	334.28	295.19									
CV						34.27	46.36	41.22	41.43	29.79	29.14	48.29	36.17	48.81									

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

Weed Code	PHSVX	PHSVN	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW	TRZAW												
Crop Code																				
Part Rated																				
Rating Data Type	Yield	Yield	Injury	Injury	Injury	Stand count	Stand count	Stand count												
Rating Unit	Kg/ha	Kg/ha	%	%	%	No/2m ro	No/2m ro	No/2m ro												
Rating Date	Sep-28-01	Sep-28-01	Nov-15-01	Nov-15-01	Nov-15-01	Nov-16-01	Nov-16-01	Nov-16-01												
Crop Stage			25R37	MAXINE	25W60	25R37	MAXINE	25W60												
Crop Stage Scale	Compass	Montcalm	3 LF	3 LF	3 LF	3 LF	3 LF	3 LF												
Trt-Eval Interval																				
Trt No.	Treatment Name	Rate	Unit	Grow Stg	Appl Code															
1	Untreated Check					866.7	a	777.3	ab	0	a	0	a	51	a	52	a	59	a	
2	mesotrione	175	G A/HA	42 - PP	A	1183.7	a	986.0	a	0	a	0	a	50	a	58	a	58	a	
3	mesotrione	350	G A/HA	42 - PP	A	919.5	a	652.1	ab	0	a	0	a	53	a	59	a	59	a	
4	mesotrione	175	G A/HA	28 - PP	B	924.8	a	709.5	ab	0	a	0	a	58	a	62	a	61	a	
5	mesotrione	350	G A/HA	28 - PP	B	861.4	a	584.3	ab	0	a	0	a	49	a	58	a	67	a	
6	mesotrione	175	G A/HA	14 - PP	C	993.5	a	719.9	ab	0	a	0	a	48	a	60	a	63	a	
7	mesotrione	350	G A/HA	14 - PP	C	856.1	a	568.6	ab	0	a	0	a	48	a	58	a	71	a	
8	mesotrione	175	G A/HA	0 - PP	D	507.3	a	365.2	b	0	a	0	a	53	a	59	a	59	a	
9	mesotrione	350	G A/HA	0 - PP	D	502.0	a	292.1	b	0	a	0	a	57	a	57	a	61	a	
LSD (P=.05)						789.93	489.68	0.0	0.0	0.0	12.4	11.1	17.8							
Standard Deviation						456.35	282.89	0.0	0.0	0.0	7.2	6.4	10.3							
CV						53.93	45.02	0.0	0.0	0.0	13.78	11.0	16.57							

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

Trial Comments

Conclusions: This study was established in 2001 to test for the effect of preplant applications of mesotrione (175 and 350 g a.i. ha⁻¹) on rotational crops (soybeans, spring wheat, alfalfa, sugar beets, edible beans and tomatoes) planted later that growing season.

1. Soybeans. Early season injury to soybeans planted 0, 14, 28 and 42 days after mesotrione application most treatments was commercially significant. In most treatments, soybeans outgrew this early season damage, except when planted 0 days after treatment with 350 g a.i. ha⁻¹ mesotrione. Soybean plants in this treatment also showed significant reductions in fresh and dry weight. In the remaining treatments fresh and dry weight showed a trend for reduction as recropping interval decreased from 42 days after application. There was a trend for reduced yield as mesotrione rate increased and recropping interval decreased, but no significant yield reductions were noted. A recropping interval of 42 days after mesotrione application was necessary to avoid statistically significant soybean visual injury and plant biomass reductions in this trial.

2. Spring wheat. Commercially significant visual injury to wheat was noted in most treatments (except when planted 42 days after application at a rate of 175 g a.i. ha⁻¹), but by the end of the growing season visual injury was not commercially significant in any of the treatments. A reduction in plant fresh and dry weight was not observed for wheat. A recropping interval of 28 days was necessary to avoid statistically significant visual injury to spring wheat in this trial.

3. Alfalfa. Alfalfa showed commercially significant visual injury in the 0, 14 and 28 recropping intervals at both mesotrione rates early in the season. Alfalfa outgrew the visual damage by the end of the growing season, and despite a decrease in plant fresh weight in the 0 day recropping interval, we did not observe a decrease in plant dry weight. A recropping interval of 14 days was needed to avoid statistically significant visual injury to alfalfa in this trial.

4. Sugar beets. At all planting times after application of mesotrione at either 175 or 350 g a.i. ha⁻¹, commercially significant visual injury of sugar beets was observed. There was a trend to reduced fresh and dry weight at shorter plantback intervals and at the higher mesotrione rate. When planted at 0 or 14 days after mesotrione application, no sugar beet above ground biomass was present at the time that plant samples were taken for fresh and dry weight measurements. Yield decreased significantly even at the lowest rate of mesotrione at the longest recropping interval. There was a consistent relationship between the length of recropping interval and yield decline at mesotrione rate of 175 g a.i. ha⁻¹. At mesotrione rate of 350 g a.i. ha⁻¹, there were no harvestable plants when the recropping interval was 28 days or shorter. The longest recropping interval (42 days) was not long enough to avoid statistically significant injury, biomass and yield reduction of sugar beets.

5. Edible beans. During the first two sample periods, commercially significant visual injury to all of the edible bean types (white, kidney, black and cranberry) was observed when planted 0, 14 and 28 days after mesotrione application. Fresh and dry weights of white, kidney and black bean were reduced at these plantback intervals at both 175 and 350 g a.i. ha⁻¹. At 350 g a.i. ha⁻¹, cranberry beans also sustained significant visual injury 42 days after application. Cranberry beans showed a trend to reduced fresh and dry weights at shorter plantback intervals as mesotrione rates increased. The longest recropping interval (42 days) was not long enough to avoid statistically significant injury from preemergence mesotrione applications. Yields of the black, white and kidney beans did not significantly decrease, though there was a trend for reduced yields as recropping interval declined to 0 and 14 days at the high rate of mesotrione. Cranberry beans showed yield reductions at 0 and 14 days after application of mesotrione at 175 g a.i. ha⁻¹, and at 0, 14 and 28 days after application of mesotrione at 350 g a.i. ha⁻¹. Black, white and kidney beans required 42 days between mesotrione application and planting to avoid statistically significant injury and biomass reductions.

6. Tomatoes. Tomatoes showed commercially significant early season visual injury at all plantback intervals. By the end of the growing season, tomatoes outgrew some of the visual injury when planted 42 days after mesotrione application. Visual injury increased as recropping interval decreased from 42 to 0 days after application. A significant decrease in fresh weight was observed only at 0 days after mesotrione application, however there was a trend to reduced fresh and dry weight as recropping interval decreased, and at the higher rate of mesotrione. Yield reductions were not statistically significant, but there was a trend for reduced yield as recropping interval decreased and mesotrione rate increased. There tended to be a greater proportion of green tomatoes at harvest as recropping interval declined and as mesotrione rate increased. The longest recropping interval (42 days) was not long enough to avoid statistically significant injury to tomatoes from preemergence mesotrione applications.