

MSU Weed Science Research Program

Evaluation of tolpyralate (SL-573) for weed control in corn

Trial ID: C05-14 Study Dir.: Sprague and Powell
 Conducted: Campus T-17 Investigator: Christy Sprague

Date Planted: May/08/2014 Row Spacing: 30 IN
 Variety: DKC 48-12 No. of Reps: 4
 Population: 32,000 seeds/A % OM: 3.6
 Soil Type: Loam pH: 6.2
 Plot Size: 10 X 35 FT Design: RANDOMIZED COMPLETE BLOCK

Tillage: Fall chisel plow, spring soil finish
 Fertilizer: 300 lb urea broadcast, 150 lb 19-19-19 starter

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1.	ANGR	mainly foxtail species	SETARIA SP.
2.	CHEAL	LAMBSQUARTERS, COMMON	CHENOPODIUM ALBUM L.
3.	AMAPO	AMARANTH, POWELL	AMARANTHUS POWELLII S.WATS.
4.	AMBEL	RAGWEED, COMMON	AMBROSIA ARTEMISIIFOLIA L.
5.	ABUTH	VELVETLEAF	ABUTILON THEOPHRASTI MEDIK.
Crop	Code	Common Name	
1.	ZEAMX	CORN, FIELD	

Application Description

A
 Application Timing: POST
 Date Treated: Jun/05/2014
 Time Treated: 5:45 PM
 % Cloud Cover: 10
 Air Temp., Unit: 74 F
 % Relative Humidity: 35
 Wind Speed/Unit/Dir: 3 mph N
 Soil Temp., Unit: 72 F
 Soil/Leaf Surface M: 5 5
 Soil Moist (1=w 5=d): 5

Crop Stage at Each Application

A
 Crop Name: ZEAMX
 Height (In.): 11"
 Stage (L): V4

Weed Stage at Each Application

A
 Weed 1 Name: ANGR
 Height (In.): 4-5"
 Stage (L): 4
 Weed 2 Name: CHEAL
 Height (In.): 2-4"
 Stage (L): 6-10
 Weed 3 Name: AMAPO
 Height (In.): 2-2.5"
 Stage (L): 6-8
 Weed 4 Name: AMBEL
 Height (In.): 2-3"
 Stage (L): 4-6
 Weed 5 Name: ABUTH
 Height (In.): 3"
 Stage (L): 4

Weed Density (plants/sq. ft.)

Date:	1	2	3	4	5
Jul/17/2014	Jul/17/2014	Jul/17/2014	Jul/17/2014	Jul/17/2014	Jul/17/2014
Weed Name:	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Density:	2	3	<1	5	2

Application Equipment

Appl	Sprayer	Speed	Nozzle	Nozzle	Nozzle	Nozzle	Boom			
	Type	MPH	Type	Size	Height	Spacing	Width	GPA	Carrier	PSI
A	Cub	3.8	AIXR	11003	25"	20"	100"	19	Water	30

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Weed Code								ZEAMX	ANGR	CHEAL	AMAPO
Crop Code								injury	control	control	control
Rating Data Type								percent	percent	percent	percent
Rating Unit								Jun/12/2014	Jun/12/2014	Jun/12/2014	Jun/12/2014
Rating Date								7 DA-A	7 DA-A	7 DA-A	7 DA-A
Trt-Eval Interval								0	0	0	0
# Subsamples, Dec.											
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code				
1	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	0	89	80	99
1	MSO		L	1	% v/v	POST	A				
1	AMS		WG	8.5	lb/100 gal	POST	A				
2	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	0	89	81	99
2	MSO		L	1	% v/v	POST	A				
2	AMS		WG	8.5	lb/100 gal	POST	A				
3	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	0	97	99	99
3	AAtrex	90	WG	0.56	lb/a	POST	A				
3	MSO		L	1	% v/v	POST	A				
3	AMS		WG	8.5	lb/100 gal	POST	A				
4	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	0	98	99	99
4	AAtrex	90	WG	0.56	lb/a	POST	A				
4	MSO		L	1	% v/v	POST	A				
4	AMS		WG	8.5	lb/100 gal	POST	A				
5	Untreated							0	0	0	0
6	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	0	98	99	99
6	AAtrex	90	WG	0.56	lb/a	POST	A				
6	Roundup PowerMax	4.5	SL	22	fl oz/a	POST	A				
6	MSO		L	1	% v/v	POST	A				
6	AMS		WG	8.5	lb/100 gal	POST	A				
7	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	0	99	99	99
7	AAtrex	90	WG	0.56	lb/a	POST	A				
7	Liberty	2.34	SL	22	fl oz/a	POST	A				
7	MSO		L	1	% v/v	POST	A				
7	AMS		WG	8.5	lb/100 gal	POST	A				
8	Impact	4	L	0.75	fl oz/a	POST	A	0	87	83	99
8	MSO		L	1	% v/v	POST	A				
8	AMS		WG	8.5	lb/100 gal	POST	A				
9	Impact	4	L	0.75	fl oz/a	POST	A	0	96	99	99
9	AAtrex	90	WG	0.56	lb/a	POST	A				
9	MSO		L	1	% v/v	POST	A				
9	AMS		WG	8.5	lb/100 gal	POST	A				
10	Callisto	4	L	3	fl oz/a	POST	A	0	30	98	99
10	AAtrex	90	WG	0.56	lb/a	POST	A				
10	Crop oil concentrate		L	1	% v/v	POST	A				
10	AMS		WG	8.5	lb/100 gal	POST	A				
LSD (P=.05)								0.0	1.8	2.7	0.0
CV								0.0	1.56	2.23	0.0

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

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								AMBEL	ABUTH	ZEAMX	ANGR
								control	control	injury	control
								percent	percent	percent	percent
								Jun/12/2014	Jun/12/2014	Jun/19/2014	Jun/19/2014
								7 DA-A	7 DA-A	14 DA-A	14 DA-A
								0	0	0	0
Trt	Treatment	Form	Form	Rate	Grow	Appl					
No.	Name	Conc	Type	Unit	Stg	Code					
1	SL-573 (tolpyralate)	3.33	L	1 fl oz/a	POST	A	71	86	0	94	
1	MSO		L	1 % v/v	POST	A					
1	AMS		WG	8.5 lb/100 gal	POST	A					
2	SL-573 (tolpyralate)	3.33	L	1.37 fl oz/a	POST	A	74	84	0	98	
2	MSO		L	1 % v/v	POST	A					
2	AMS		WG	8.5 lb/100 gal	POST	A					
3	SL-573 (tolpyralate)	3.33	L	1 fl oz/a	POST	A	97	96	0	99	
3	AAtrex	90	WG	0.56 lb/a	POST	A					
3	MSO		L	1 % v/v	POST	A					
3	AMS		WG	8.5 lb/100 gal	POST	A					
4	SL-573 (tolpyralate)	3.33	L	1.37 fl oz/a	POST	A	98	99	0	99	
4	AAtrex	90	WG	0.56 lb/a	POST	A					
4	MSO		L	1 % v/v	POST	A					
4	AMS		WG	8.5 lb/100 gal	POST	A					
5	Untreated						0	0	0	0	
6	SL-573 (tolpyralate)	3.33	L	1 fl oz/a	POST	A	98	99	0	99	
6	AAtrex	90	WG	0.56 lb/a	POST	A					
6	Roundup PowerMax	4.5	SL	22 fl oz/a	POST	A					
6	MSO		L	1 % v/v	POST	A					
6	AMS		WG	8.5 lb/100 gal	POST	A					
7	SL-573 (tolpyralate)	3.33	L	1 fl oz/a	POST	A	99	99	0	99	
7	AAtrex	90	WG	0.56 lb/a	POST	A					
7	Liberty	2.34	SL	22 fl oz/a	POST	A					
7	MSO		L	1 % v/v	POST	A					
7	AMS		WG	8.5 lb/100 gal	POST	A					
8	Impact	4	L	0.75 fl oz/a	POST	A	70	82	0	95	
8	MSO		L	1 % v/v	POST	A					
8	AMS		WG	8.5 lb/100 gal	POST	A					
9	Impact	4	L	0.75 fl oz/a	POST	A	99	97	0	98	
9	AAtrex	90	WG	0.56 lb/a	POST	A					
9	MSO		L	1 % v/v	POST	A					
9	AMS		WG	8.5 lb/100 gal	POST	A					
10	Callisto	4	L	3 fl oz/a	POST	A	93	97	0	10	
10	AAtrex	90	WG	0.56 lb/a	POST	A					
10	Crop oil concentrate		L	1 % v/v	POST	A					
10	AMS		WG	8.5 lb/100 gal	POST	A					
LSD (P=.05)								3.6	3.8	0.0	2.6
CV								3.13	3.09	0.0	2.25

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Weed Code								CHEAL	AMAPO	AMBEL	ABUTH	ZEAMX
Crop Code								control	control	control	control	injury
Rating Data Type								percent	percent	percent	percent	percent
Rating Unit								Jun/19/2014	Jun/19/2014	Jun/19/2014	Jun/19/2014	Jul/03/2014
Rating Date								14 DA-A	14 DA-A	14 DA-A	14 DA-A	28 DA-A
Trt-Eval Interval								0	0	0	0	0
# Subsamples, Dec.												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code					
1	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	92	97	0
1	MSO		L	1	% v/v	POST	A					
1	AMS		WG	8.5	lb/100 gal	POST	A					
2	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	99	99	93	99	0
2	MSO		L	1	% v/v	POST	A					
2	AMS		WG	8.5	lb/100 gal	POST	A					
3	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	99	99	0
3	AAtrex	90	WG	0.56	lb/a	POST	A					
3	MSO		L	1	% v/v	POST	A					
3	AMS		WG	8.5	lb/100 gal	POST	A					
4	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	99	99	99	99	0
4	AAtrex	90	WG	0.56	lb/a	POST	A					
4	MSO		L	1	% v/v	POST	A					
4	AMS		WG	8.5	lb/100 gal	POST	A					
5	Untreated							0	0	0	0	0
6	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	99	99	0
6	AAtrex	90	WG	0.56	lb/a	POST	A					
6	Roundup PowerMax	4.5	SL	22	fl oz/a	POST	A					
6	MSO		L	1	% v/v	POST	A					
6	AMS		WG	8.5	lb/100 gal	POST	A					
7	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	99	99	0
7	AAtrex	90	WG	0.56	lb/a	POST	A					
7	Liberty	2.34	SL	22	fl oz/a	POST	A					
7	MSO		L	1	% v/v	POST	A					
7	AMS		WG	8.5	lb/100 gal	POST	A					
8	Impact	4	L	0.75	fl oz/a	POST	A	99	91	78	88	0
8	MSO		L	1	% v/v	POST	A					
8	AMS		WG	8.5	lb/100 gal	POST	A					
9	Impact	4	L	0.75	fl oz/a	POST	A	99	99	99	98	0
9	AAtrex	90	WG	0.56	lb/a	POST	A					
9	MSO		L	1	% v/v	POST	A					
9	AMS		WG	8.5	lb/100 gal	POST	A					
10	Callisto	4	L	3	fl oz/a	POST	A	99	99	98	99	0
10	AAtrex	90	WG	0.56	lb/a	POST	A					
10	Crop oil concentrate		L	1	% v/v	POST	A					
10	AMS		WG	8.5	lb/100 gal	POST	A					
LSD (P=.05)								0.5	3.1	4.5	3.4	0.0
CV								0.36	2.44	3.61	2.65	0.0

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								ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Weed Code								control	control	control	control	control
Crop Code								percent	percent	percent	percent	percent
Rating Data Type								Jul/03/2014	Jul/03/2014	Jul/03/2014	Jul/03/2014	Jul/03/2014
Rating Unit								28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Rating Date								0	0	0	0	0
Trt-Eval Interval												
# Subsamples, Dec.												
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Unit	Grow Stg	Appl Code					
1	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	95	99	99	99	99
1	MSO		L	1	% v/v	POST	A					
1	AMS		WG	8.5	lb/100 gal	POST	A					
2	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	97	99	99	99	97
2	MSO		L	1	% v/v	POST	A					
2	AMS		WG	8.5	lb/100 gal	POST	A					
3	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	98	99	99	99	99
3	AAtrex	90	WG	0.56	lb/a	POST	A					
3	MSO		L	1	% v/v	POST	A					
3	AMS		WG	8.5	lb/100 gal	POST	A					
4	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	99	99	99	99	99
4	AAtrex	90	WG	0.56	lb/a	POST	A					
4	MSO		L	1	% v/v	POST	A					
4	AMS		WG	8.5	lb/100 gal	POST	A					
5	Untreated							0	0	0	0	0
6	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	99	99	99
6	AAtrex	90	WG	0.56	lb/a	POST	A					
6	Roundup PowerMax	4.5	SL	22	fl oz/a	POST	A					
6	MSO		L	1	% v/v	POST	A					
6	AMS		WG	8.5	lb/100 gal	POST	A					
7	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	99	99	99	99	99
7	AAtrex	90	WG	0.56	lb/a	POST	A					
7	Liberty	2.34	SL	22	fl oz/a	POST	A					
7	MSO		L	1	% v/v	POST	A					
7	AMS		WG	8.5	lb/100 gal	POST	A					
8	Impact	4	L	0.75	fl oz/a	POST	A	90	90	83	81	90
8	MSO		L	1	% v/v	POST	A					
8	AMS		WG	8.5	lb/100 gal	POST	A					
9	Impact	4	L	0.75	fl oz/a	POST	A	99	99	99	99	95
9	AAtrex	90	WG	0.56	lb/a	POST	A					
9	MSO		L	1	% v/v	POST	A					
9	AMS		WG	8.5	lb/100 gal	POST	A					
10	Callisto	4	L	3	fl oz/a	POST	A	0	99	99	99	99
10	AAtrex	90	WG	0.56	lb/a	POST	A					
10	Crop oil concentrate		L	1	% v/v	POST	A					
10	AMS		WG	8.5	lb/100 gal	POST	A					
LSD (P=.05)								2.4	3.0	1.3	1.4	3.5
CV								2.15	2.38	1.04	1.13	2.76

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

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Weed Code
 Crop Code
 Rating Data Type
 Rating Unit
 Rating Date
 Trt-Eval Interval
 # Subsamples, Dec.

ZEAMX
 moisture
 percent
 Nov/09/2014
 157 DA-A
 1

ZEAMX
 yield
 bu/acre
 Nov/09/2014
 at 13% M
 0

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Grow Stg	Appl Code		
1	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	16.7	217
1	MSO		L	1	% v/v	POST	A		
1	AMS		WG	8.5	lb/100 gal	POST	A		
2	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	16.8	221
2	MSO		L	1	% v/v	POST	A		
2	AMS		WG	8.5	lb/100 gal	POST	A		
3	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	16.8	238
3	AAtrex	90	WG	0.56	lb/a	POST	A		
3	MSO		L	1	% v/v	POST	A		
3	AMS		WG	8.5	lb/100 gal	POST	A		
4	SL-573 (tolpyralate)	3.33	L	1.37	fl oz/a	POST	A	16.9	218
4	AAtrex	90	WG	0.56	lb/a	POST	A		
4	MSO		L	1	% v/v	POST	A		
4	AMS		WG	8.5	lb/100 gal	POST	A		
5	Untreated							16.9	184
6	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	16.4	240
6	AAtrex	90	WG	0.56	lb/a	POST	A		
6	Roundup PowerMax	4.5	SL	22	fl oz/a	POST	A		
6	MSO		L	1	% v/v	POST	A		
6	AMS		WG	8.5	lb/100 gal	POST	A		
7	SL-573 (tolpyralate)	3.33	L	1	fl oz/a	POST	A	15.9	228
7	AAtrex	90	WG	0.56	lb/a	POST	A		
7	Liberty	2.34	SL	22	fl oz/a	POST	A		
7	MSO		L	1	% v/v	POST	A		
7	AMS		WG	8.5	lb/100 gal	POST	A		
8	Impact	4	L	0.75	fl oz/a	POST	A	16.9	213
8	MSO		L	1	% v/v	POST	A		
8	AMS		WG	8.5	lb/100 gal	POST	A		
9	Impact	4	L	0.75	fl oz/a	POST	A	16.4	231
9	AAtrex	90	WG	0.56	lb/a	POST	A		
9	MSO		L	1	% v/v	POST	A		
9	AMS		WG	8.5	lb/100 gal	POST	A		
10	Callisto	4	L	3	fl oz/a	POST	A	16.3	237
10	AAtrex	90	WG	0.56	lb/a	POST	A		
10	Crop oil concentrate		L	1	% v/v	POST	A		
10	AMS		WG	8.5	lb/100 gal	POST	A		
LSD (P=.05)								0.96	28.9
CV								3.98	8.93

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