

MSU Weed Science Research Program

Liberty-based weed control programs in corn

Trial ID: C05-18_Updated Study Dir.: Burns, Stiles, Powell, Craft
 Conducted: Campus T-17 Investigator: Erin Burns

Planting Date: May-29-2018 **Row Spacing:** 30 IN
Variety: P9840AM **No. of Reps:** 4
Population: 34600 seeds/A **% OM:** 3.4
Soil Type: LOAM **pH:** 6.2
Plot Size: 10 X 35 FT **Study Design:** Randomized Complete Block (RCB)

Tillage/Previous Crops: Fall chisel plowed; spring soil finished twice
Fertilizer: 300lbs/A urea incorporated
 150lbs/A 19-19-19 starter

Crop and Weed Description

Weed	Code	Common Name	Scientific Name
1	ANGR	mainly foxtail species	Annual grass
2	CHEAL	common lambsquarters	Chenopodium album
3	AMAPO	Powell amaranth	Amaranthus powellii
4	AMBEL	Common ragweed	Ambrosia artemisiifolia
5	ABUTH	velvetleaf	Abutilon theophrasti
Crop	Code	Common Name	
1	ZEAMX	Corn	

Application Description

	A	B
Application Timing:	PRE	POST
Date Treated:	Jun-1-2018	Jun-25-2018
Time Treated:	12:30 PM	11:05 AM
% Cloud Cover:	60	85
Air Temp., Unit:	85 F	68 F
% Relative Humidity:	45	66.8
Wind Speed/Unit/Dir:	5.5 MPH NE	7 MPH E
Soil Temp, Unit:	76 F	69 F
Leaf Moist/Dew Presence (Y/N):	3	3
Soil Moist:	4	3

Crop Stage at Each Application

	A	B
Crop 1 Name:	ZEAMX	ZEAMX
Height:		
Stage:		V4

Weed Stage at Each Application

	A	B
Weed 1 Name:	ANGR	ANGR
Height:		3 IN
Stage:		7 L
Weed 2 Name:	CHEAL	CHEAL
Height:		2 IN
Stage:		14 L
Weed 3 Name:	AMAPO	AMAPO
Height:		3 IN
Stage:		24 L
Weed 4 Name:	AMBEL	AMBEL
Height:		2.5 IN
Stage:		10 L
Weed 5 Name:	ABUTH	ABUTH
Height:		4 IN
Stage:		6 L

Weed Density

	1	2	3	4	5
Date:	Jun-1-2018	Jun-1-2018	Jun-1-2018	Jun-1-2018	Jun-1-2018
Weed Name:	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Density:	2 FT2	3 FT2	1 FT2	1 FT2	2 FT2

Application Equipment

Appl	Sprayer Type	Ground Speed	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	Spray Volume	Carrier	Operation Pressure
A	CUB	3.8 MPH	AIXR	11003	22 "	20 "	100 "	19 GPA	WATER	30 PSI
B	CUB	3.8 MPH	AIXR	11003	26 "	20 "	100 "	19 GPA	WATER	30 PSI

Comments:

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 Sponsor Contact:

Pest Code				ANGR	CHEAL	AMAPO	AMBEL	ABUTH		ANGR	
Crop Code			ZEAMX						ZEAMX		
Rating Date			Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jul-5-2018	Jul-5-2018	
Rating Type			injury	control	control	control	control	control	injury	control	
Rating Unit			percent	percent	percent	percent	percent	percent	percent	percent	
Trt-Eval Interval			24 DA-A	24 DA-A	24 DA-A	24 DA-A	24 DA-A	24 DA-A	10 DA-B	10 DA-B	
Trt No.	Treatment Name	Rate Unit	Rate	Appl Code							
1	Balance Flexx	4 fl oz/a	A	0	96	100	100	100	100	0	99
1	Atrazine	1.1 lb/a	A								
1	Liberty	32 fl oz/a	B								
1	Capreno	3 fl oz/a	B								
1	AMS	8.5 lb/100 gal	B								
2	Corvus	3.5 fl oz/a	A	0	96	100	100	100	98	4	100
2	Atrazine	1.1 lb/a	A								
2	Liberty	32 fl oz/a	B								
2	DiFlexx Duo	24 fl oz/a	B								
2	AMS	8.5 lb/100 gal	B								
3	Harness MAX	40 fl oz/a	A	0	99	100	100	100	100	0	100
3	Atrazine	1.1 lb/a	A								
3	Roundup PowerMax	32 fl oz/a	B								
3	Atrazine	0.55 lb/a	B								
3	AMS	8.5 lb/100 gal	B								
4	Harness MAX	40 fl oz/a	A	0	100	100	100	100	100	0	100
4	Atrazine	1.1 lb/a	A								
4	Liberty	32 fl oz/a	B								
4	Atrazine	0.55 lb/a	B								
4	AMS	8.5 lb/100 gal	B								
5	Resicore	2.4 qt/a	A	0	100	100	100	100	100	0	100
5	Atrazine	1.1 lb/a	A								
5	Durango DMA	32 fl oz/a	B								
5	Resolve Q	1.25 oz/a	B								
5	AMS	8.5 lb/100 gal	B								
6	Untreated			0	0	0	0	0	0	0	0
7	Resicore	2.4 qt/a	A	0	100	100	100	100	100	0	100
7	Atrazine	1.1 lb/a	A								
7	Liberty	32 fl oz/a	B								
7	Resolve Q	1.25 oz/a	B								
7	AMS	8.5 lb/100 gal	B								
8	Verdict	14 fl oz/a	A	0	99	100	100	100	99	0	100
8	Atrazine	1.1 lb/a	A								
8	Roundup PowerMax	32 fl oz/a	B								
8	Armezon	0.75 fl oz/a	B								
8	AMS	8.5 lb/100 gal	B								
9	Verdict	14 fl oz/a	A	0	100	100	100	100	100	0	100
9	Atrazine	1.1 lb/a	A								
9	Liberty	32 fl oz/a	B								
9	Armezon	0.75 fl oz/a	B								
9	AMS	8.5 lb/100 gal	B								
10	Acuron	2.5 qt/a	A	0	100	100	100	100	100	0	100
10	Roundup PowerMax	32 fl oz/a	B								
10	Status	2.5 oz/a	B								
10	AMS	8.5 lb/100 gal	B								

Could not calculate LSD (% mean diff) for columns 1,5,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,27,28,29,30 because error mean square = 0.

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Pest Code			ANGR	CHEAL	AMAPO	AMBEL	ABUTH		ANGR			
Crop Code		ZEAMX						ZEAMX				
Rating Date		Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jun-25-2018	Jul-5-2018	Jul-5-2018			
Rating Type		injury	control	control	control	control	control	injury	control			
Rating Unit		percent	percent	percent	percent	percent	percent	percent	percent			
Trt-Eval Interval		24 DA-A	24 DA-A	24 DA-A	24 DA-A	24 DA-A	24 DA-A	10 DA-B	10 DA-B			
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code								
11	Acuron	2.5 qt/a		A	0	100	100	100	100	99	0	100
11	Liberty	32 fl oz/a		B								
11	Status	2.5 oz/a		B								
11	AMS	8.5 lb/100 gal		B								
LSD P=.05					.	2.6	0.6	0.4	.	1.8	0.5	0.5
Standard Deviation					0.0	1.8	0.4	0.3	0.0	1.2	0.3	0.3
CV					0.0	2.04	0.48	0.33	0.0	1.35	95.74	0.38

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Pest Code		CHEAL	AMAPO	AMBEL	ABUTH	ZEAMX	ANGR	CHEAL	AMAPO	AMBEL
Crop Code										
Rating Date		Jul-5-2018	Jul-5-2018	Jul-5-2018	Jul-5-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018
Rating Type		control	control	control	control	injury	control	control	control	control
Rating Unit		percent	percent	percent	percent	percent	percent	percent	percent	percent
Trt-Eval Interval		10 DA-B	10 DA-B	10 DA-B	10 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code						
1	Balance Flexx	4 fl oz/a		A	100	100	100	100	100	100
1	Atrazine	1.1 lb/a		A						
1	Liberty	32 fl oz/a		B						
1	Capreno	3 fl oz/a		B						
1	AMS	8.5 lb/100 gal		B						
2	Corvus	3.5 fl oz/a		A	100	100	100	100	100	100
2	Atrazine	1.1 lb/a		A						
2	Liberty	32 fl oz/a		B						
2	DiFlexx Duo	24 fl oz/a		B						
2	AMS	8.5 lb/100 gal		B						
3	Harness MAX	40 fl oz/a		A	100	100	100	100	100	100
3	Atrazine	1.1 lb/a		A						
3	Roundup PowerMax	32 fl oz/a		B						
3	Atrazine	0.55 lb/a		B						
3	AMS	8.5 lb/100 gal		B						
4	Harness MAX	40 fl oz/a		A	100	100	100	100	100	100
4	Atrazine	1.1 lb/a		A						
4	Liberty	32 fl oz/a		B						
4	Atrazine	0.55 lb/a		B						
4	AMS	8.5 lb/100 gal		B						
5	Resicore	2.4 qt/a		A	100	100	100	100	100	100
5	Atrazine	1.1 lb/a		A						
5	Durango DMA	32 fl oz/a		B						
5	Resolve Q	1.25 oz/a		B						
5	AMS	8.5 lb/100 gal		B						
6	Untreated				0	0	0	0	0	0
7	Resicore	2.4 qt/a		A	100	100	100	100	100	100
7	Atrazine	1.1 lb/a		A						
7	Liberty	32 fl oz/a		B						
7	Resolve Q	1.25 oz/a		B						
7	AMS	8.5 lb/100 gal		B						
8	Verdict	14 fl oz/a		A	100	100	100	100	100	100
8	Atrazine	1.1 lb/a		A						
8	Roundup PowerMax	32 fl oz/a		B						
8	Armezon	0.75 fl oz/a		B						
8	AMS	8.5 lb/100 gal		B						
9	Verdict	14 fl oz/a		A	100	100	100	100	100	100
9	Atrazine	1.1 lb/a		A						
9	Liberty	32 fl oz/a		B						
9	Armezon	0.75 fl oz/a		B						
9	AMS	8.5 lb/100 gal		B						
10	Acuron	2.5 qt/a		A	100	100	100	100	100	100
10	Roundup PowerMax	32 fl oz/a		B						
10	Status	2.5 oz/a		B						
10	AMS	8.5 lb/100 gal		B						

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Pest Code	CHEAL	AMAPO	AMBEL	ABUTH	ZEAMX	ANGR	CHEAL	AMAPO	AMBEL
Crop Code									
Rating Date	Jul-5-2018	Jul-5-2018	Jul-5-2018	Jul-5-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018	Jul-9-2018
Rating Type	control	control	control	control	injury	control	control	control	control
Rating Unit	percent	percent	percent	percent	percent	percent	percent	percent	percent
Trt-Eval Interval	10 DA-B	10 DA-B	10 DA-B	10 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B	14 DA-B
Trt No.	Treatment Name	Rate	Unit	Appl Code					
11	Acuron	2.5	qt/a	A	100	100	100	100	100
11	Liberty	32	fl oz/a	B					
11	Status	2.5	oz/a	B					
11	AMS	8.5	lb/100 gal	B					
LSD P=.05		0.0			0.0	0.0	0.0	0.0	0.0
Standard Deviation		0.0			0.0	0.0	0.0	0.0	0.0
CV		0.0			0.0	0.0	0.0	0.0	0.0

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Pest Code			ABUTH		ANGR	CHEAL	AMAPO	AMBEL	ABUTH		ZEAMX
Crop Code				ZEAMX							
Rating Date			Jul-9-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Aug-8-2018	ZEAMX
Rating Type			control	injury	control	control	control	control	control	injury	
Rating Unit			percent	percent	percent	percent	percent	percent	percent	percent	
Trt-Eval Interval			14 DA-B	29 DA-B	29 DA-B	29 DA-B	29 DA-B	29 DA-B	29 DA-B	44 DA-B	
Trt No.	Treatment Name	Rate Unit	Appl Code								
1	Balance Flexx	4 fl oz/a	A	100	0	100	100	100	100	100	0
1	Atrazine	1.1 lb/a	A								
1	Liberty	32 fl oz/a	B								
1	Capreno	3 fl oz/a	B								
1	AMS	8.5 lb/100 gal	B								
2	Corvus	3.5 fl oz/a	A	100	0	100	100	100	100	100	0
2	Atrazine	1.1 lb/a	A								
2	Liberty	32 fl oz/a	B								
2	DiFlexx Duo	24 fl oz/a	B								
2	AMS	8.5 lb/100 gal	B								
3	Harness MAX	40 fl oz/a	A	100	0	100	100	100	100	100	0
3	Atrazine	1.1 lb/a	A								
3	Roundup PowerMax	32 fl oz/a	B								
3	Atrazine	0.55 lb/a	B								
3	AMS	8.5 lb/100 gal	B								
4	Harness MAX	40 fl oz/a	A	100	0	100	100	100	100	100	0
4	Atrazine	1.1 lb/a	A								
4	Liberty	32 fl oz/a	B								
4	Atrazine	0.55 lb/a	B								
4	AMS	8.5 lb/100 gal	B								
5	Resicore	2.4 qt/a	A	100	0	100	100	100	100	100	0
5	Atrazine	1.1 lb/a	A								
5	Durango DMA	32 fl oz/a	B								
5	Resolve Q	1.25 oz/a	B								
5	AMS	8.5 lb/100 gal	B								
6	Untreated			0	0	0	0	0	0	0	0
7	Resicore	2.4 qt/a	A	100	0	100	100	100	100	100	0
7	Atrazine	1.1 lb/a	A								
7	Liberty	32 fl oz/a	B								
7	Resolve Q	1.25 oz/a	B								
7	AMS	8.5 lb/100 gal	B								
8	Verdict	14 fl oz/a	A	100	0	100	100	100	100	100	0
8	Atrazine	1.1 lb/a	A								
8	Roundup PowerMax	32 fl oz/a	B								
8	Armezon	0.75 fl oz/a	B								
8	AMS	8.5 lb/100 gal	B								
9	Verdict	14 fl oz/a	A	100	0	100	100	100	100	100	0
9	Atrazine	1.1 lb/a	A								
9	Liberty	32 fl oz/a	B								
9	Armezon	0.75 fl oz/a	B								
9	AMS	8.5 lb/100 gal	B								
10	Acuron	2.5 qt/a	A	100	0	100	100	100	100	100	0
10	Roundup PowerMax	32 fl oz/a	B								
10	Status	2.5 oz/a	B								
10	AMS	8.5 lb/100 gal	B								

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Pest Code	ABUTH		ZEAMX		ANGR	CHEAL	AMAPO	AMBEL	ABUTH	ZEAMX	
Crop Code	Jul-9-2018		Jul-24-2018		Jul-24-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Jul-24-2018	Aug-8-2018	
Rating Date	control		injury		control	control	control	control	control	injury	
Rating Type	percent		percent		percent	percent	percent	percent	percent	percent	
Rating Unit	14 DA-B		29 DA-B		29 DA-B	29 DA-B	29 DA-B	29 DA-B	29 DA-B	44 DA-B	
Trt-Eval Interval											
Trt No.	Treatment Name	Rate	Unit	Appl Code							
11	Acuron	2.5	qt/a	A	100	0	100	100	100	100	0
11	Liberty	32	fl oz/a	B							
11	Status	2.5	oz/a	B							
11	AMS	8.5	lb/100 gal	B							
LSD	P=.05				0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Standard Deviation				0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CV				0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Pest Code	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Crop Code					
Rating Date	Aug-8-2018	Aug-8-2018	Aug-8-2018	Aug-8-2018	Aug-8-2018
Rating Type	control	control	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	44 DA-B	44 DA-B	44 DA-B	44 DA-B	44 DA-B

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code				
1	Balance Flexx	4 fl oz/a		A	99	100	100	100
1	Atrazine	1.1 lb/a		A				
1	Liberty	32 fl oz/a		B				
1	Capreno	3 fl oz/a		B				
1	AMS	8.5 lb/100 gal		B				
2	Corvus	3.5 fl oz/a		A	100	100	100	100
2	Atrazine	1.1 lb/a		A				
2	Liberty	32 fl oz/a		B				
2	DiFlexx Duo	24 fl oz/a		B				
2	AMS	8.5 lb/100 gal		B				
3	Harness MAX	40 fl oz/a		A	100	100	100	100
3	Atrazine	1.1 lb/a		A				
3	Roundup PowerMax	32 fl oz/a		B				
3	Atrazine	0.55 lb/a		B				
3	AMS	8.5 lb/100 gal		B				
4	Harness MAX	40 fl oz/a		A	100	100	100	100
4	Atrazine	1.1 lb/a		A				
4	Liberty	32 fl oz/a		B				
4	Atrazine	0.55 lb/a		B				
4	AMS	8.5 lb/100 gal		B				
5	Resicore	2.4 qt/a		A	100	100	100	100
5	Atrazine	1.1 lb/a		A				
5	Durango DMA	32 fl oz/a		B				
5	Resolve Q	1.25 oz/a		B				
5	AMS	8.5 lb/100 gal		B				
6	Untreated				0	0	0	0
7	Resicore	2.4 qt/a		A	100	100	100	100
7	Atrazine	1.1 lb/a		A				
7	Liberty	32 fl oz/a		B				
7	Resolve Q	1.25 oz/a		B				
7	AMS	8.5 lb/100 gal		B				
8	Verdict	14 fl oz/a		A	100	100	100	100
8	Atrazine	1.1 lb/a		A				
8	Roundup PowerMax	32 fl oz/a		B				
8	Armezon	0.75 fl oz/a		B				
8	AMS	8.5 lb/100 gal		B				
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9	AMS	8.5 lb/100 gal		B				
10	Acuron	2.5 qt/a		A	100	100	100	100
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Pest Code	ANGR	CHEAL	AMAPO	AMBEL	ABUTH
Crop Code					
Rating Date	Aug-8-2018	Aug-8-2018	Aug-8-2018	Aug-8-2018	Aug-8-2018
Rating Type	control	control	control	control	control
Rating Unit	percent	percent	percent	percent	percent
Trt-Eval Interval	44 DA-B	44 DA-B	44 DA-B	44 DA-B	44 DA-B

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code				
11	Acuron	2.5	qt/a	A	100	100	100	100
11	Liberty	32	fl oz/a	B				
11	Status	2.5	oz/a	B				
11	AMS	8.5	lb/100 gal	B				

LSD P=.05	1.1
Standard Deviation	0.8	0.0	0.0	0.0	0.0
CV	0.83	0.0	0.0	0.0	0.0