

The Ohio State University

Anthem Max & Solstice Corn Herbicide Programs

Trial ID: 17FMCCORN
 Protocol ID: 17FMCCORN
 Project ID: PYROX.COR.17.JPR.01

Location: Trial Year: 2017
 Investigator: Dr. Mark M. Loux
 Study Director: Anthony Dobbels
 Sponsor Contact: Joe Reed, FMC

General Trial Information

Study Director: Anthony Dobbels
Investigator: Dr. Mark M. Loux

Trial Location

City: South Charleston **Country:** USA United States
State/Prov.: Ohio
Postal Code: 45368 **Climate Zone:** USWARM US Warm Continental

Latitude of LL Corner °: 39.8587 N
Longitude of LL Corner °: 83.67063 W
Altitude of LL Corner, Unit: 1072.00 FT
Conducted Under GLP: No
Conducted Under GEP: No
No.

Contacts

Study Director: Anthony Dobbels
Investigator: Dr. Mark M. Loux
Organization: The Ohio State University
Address: 2021 Coffey Road
City+State/Prov: Columbus, Ohio
Postal Code: 43210
Country: USA United States

Cooperator/Landowner

Other Contacts

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: P0825AM
Description: Pioneer RR / LL

Planting Rate, Unit: 32097 S/A
Depth, Unit: 1.75 IN
Row Spacing, Unit: 30 IN

Planting Date: 4-26-2017
Planting Method: PLANTD planted
Planting Equipment: FPP Finger Pickup Planter
Emergence Date: 5-12-2017

Soil Temperature, Unit: 57 F
Soil Moisture: MOIST
Seed Bed: MEDTRA medium/trashy

Pest Description

Pest 1 Type: W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail

Pest 2 Type: W **Code:** AMBTR *Ambrosia trifida*
Common Name: Giant ragweed

Pest 3 Type: W **Code:** AMARE *Amaranthus retroflexus*
Common Name: Redroot pigweed

Pest 4 Type: W **Code:** CHEAL *Chenopodium album*
Common Name: common lambsquarters

Pest 5 Type: W **Code:** ERICA *Erigeron canadensis*
Common Name: Canada horseweed

Site and Design

Treated Plot Width: 10 FT
Treated Plot Length: 30 FT
Treated Plot Area: 300 FT² **Treatments:** 12
Replications: 3

Site Type: FIELD field
Experimental Unit: 1 PLOT plot
Tillage Type: NOTILL no-till
Study Design: RACOBBL Randomized Complete Block (RCB)

No. Previous Crop Year
 1. Wheat 2016

Maintenance

No.	Date	Type	Maintenance Product Name	Form Conc	Form Unit	Form Type	Form Rate	Form Tank
1.	4-17-2017	HERB	Liberty	2.34	LBA/GAL	SL	22	OZ/A yes
2.	4-17-2017	HERB	Roundup PowerMax	4.5	LBAE/GA	SL	22	OZ/A yes

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Soil Description

Description Name: F-9 East
 % OM: 2.8
 pH: 6.4
 CEC: 19.6

Texture: SICL silty clay loam
 Soil Name: Kokomo
 Fert. Level: G good
 Soil Drainage: G good

Additional Measured Elements

Application Description

	A	B	C
Application Date:	4-26-2017	6-6-2017	6-16-2017
Appl. Start Time:	9:20 AM	8:00 AM	9:15 AM
Appl. Stop Time:	9:40 AM	8:15 AM	9:30 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	EPO	POST
Application Placement:	BROSOL	BROFOL	BROFOL
Applied By:	Dobbels	Ackley	Lamb
Air Temperature, Unit:	64 F	59 F	77 F
% Relative Humidity:	78	77	76
Wind Velocity, Unit:	9 MPH	7 MPH	3 MPH
Wind Direction:	SSE	N	SW
Dew Presence (Y/N):	N no	Y yes	Y yes
Soil Temperature, Unit:	57 F	60 F	70 F
Soil Moisture:	MOIST	SLIWET	WET
% Cloud Cover:	10	0	30
Next Moisture Occurred On:	4-27-2016	6-13-2017	6-18-2017
Time to Next Moisture, Unit:	1 DAY	1 WK	2 DAY

Crop Stage At Each Application

	A		B		C	
Crop 1 Code, BBCH Scale:	ZEAMX	BCOR	ZEAMX	BCOR	ZEAMX	BCOR
Stage Scale Used:	BBCH		BBCH		BBCH	
Stage Majority, Percent:	13	100	15	100		
Average Diameter, Unit:	7	IN	13	IN		
Height, Unit:	6	8	12	14		

Pest Stage At Each Application

	A		B		C	
Pest 1 Code, Type, Scale:	SETFA	W	SETFA	W	SETFA	W
Stage Majority, Percent:	13	100	15	100		
Height, Unit:	4	IN	6	IN		
Height Minimum, Maximum:	3	5	4	8		
Density, Unit:	87	M2	87	M2		
Pest 2 Code, Type, Scale:	AMBTR	W	AMBTR	W	AMBTR	W
Stage Majority, Percent:	19	100	19	100		
Height, Unit:	9	IN	12	IN		
Height Minimum, Maximum:	6	12	8	16		
Density, Unit:	3	M2	3	M2		
Pest 3 Code, Type, Scale:	AMARE	W	AMARE	W	AMARE	W
Stage Majority, Percent:	16	100	18	100		
Height, Unit:	2	IN	5	IN		
Height Minimum, Maximum:	1	3	4	6		
Density, Unit:	8	M2	8	M2		
Pest 4 Code, Type, Scale:	CHEAL	W	CHEAL	W	CHEAL	W
Stage Majority, Percent:	18	100				
Height, Unit:	3	IN				
Pest 5 Code, Type, Scale:	ERICA	W	ERICA	W	ERICA	W
Stage Majority, Percent:	19	100				
Height, Unit:	2.5	IN				
Height Minimum, Maximum:	2	3				
Density, Unit:	1	M2				

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Application Equipment

	A	B	C
Appl. Equipment:	10' AI XR	10' AI XR	10' AI XR
Equipment Type:	SPRBAC	SPRBAC	SPRBAC
Operation Pressure, Unit:	46 PSI	46 PSI	46 PSI
Nozzle Type:	AI XR	AI XR	AI XR
Nozzle Size:	110015	110015	110015
Nozzle Spacing, Unit:	18 IN	18 IN	18 IN
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	20 IN	20 IN	20 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH

Carrier: WATER WATER WATER

Spray Volume, Unit: 15 GPA 15 GPA 15 GPA

Mix Size, Unit: 2 Liters 2 Liters 2 Liters

Propellant: CO2 CO2 CO2

Trt No Treatment Application Comment

Date By Notes

No. Date By Deviations

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	SETFA	AMBTR	AMARE	SETFA
Pest Name	Giant foxtail	Giant ragweed	Giant foxtail	Giant ragweed	Redroot pigweed	Giant foxtail
Crop Code			ZEAMX			
Crop Name			Corn			
Rating Date	5-10-2017	5-10-2017	5-26-2017	5-26-2017	5-26-2017	6-27-2017
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Days After First/Last Applic.	14 14	14 14	30 30	30 30	30 30	62 11
Trt-Eval Interval	14 DA-A	14 DA-A	30 DA-A	30 DA-A	30 DA-A	62 DA-A
Days After Emergence	-2 DE-1	-2 DE-1	14 DE-1	14 DE-1	14 DE-1	46 DE-1
Number of Decimals	0	0	0	0	0	0

Trt No.	Treatment Name	Rate	Appl Code	1*	2*	3*	4*	5*	6*	7*
1	Anthem Maxx	4 oz/a	A	100	100	0-	96.7 ab	87 ab	100 a	97.3 a
	1 Atrazine	1 qt/a	A							
	1 Solstice	2.5 oz/a	C							
	1 Roundup PowerMax	22 oz/a	C							
	1 COC	1 % v/v	C							
	1 N PAK AMS	2.5 % v/v	C							
2	Anthem Maxx	2 oz/a	B	100	100	0-	0.0 c	0 c	0 c	99.3 a
	2 Atrazine	1 qt/a	B							
	2 Solstice	2.5 oz/a	B							
	2 Roundup PowerMax	22 oz/a	B							
	2 COC	1 % v/v	B							
	2 N PAK AMS	2.5 % v/v	B							
3	Anthem Maxx	4 oz/a	B	100	100	0-	0.0 c	0 c	0 c	100.0 a
	3 Atrazine	1.5 qt/a	B							
	3 Solstice	2.5 oz/a	B							
	3 Roundup PowerMax	22 oz/a	B							
	3 COC	1 % v/v	B							
	3 N PAK AMS	2.5 % v/v	B							
4	Anthem Maxx	2 oz/a	B	100	100	0-	0.0 c	0 c	0 c	99.3 a
	4 Atrazine	1.5 qt/a	B							
	4 Callisto	3 oz/a	B							
	4 Roundup PowerMax	22 oz/a	B							
	4 COC	1 % v/v	B							
	4 N PAK AMS	2.5 % v/v	B							

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code	SETFA	AMBTR	SETFA	AMBTR	AMARE	SETFA				
Pest Name	Giant foxtail	Giant ragweed	Giant foxtail	Giant ragweed	Redroot pigweed	Giant foxtail				
Crop Code	ZEAMX									
Crop Name	Corn									
Rating Date	5-10-2017	5-10-2017	5-26-2017	5-26-2017	5-26-2017	6-27-2017				
Rating Type	CONTRO	CONTRO	PHYGEN	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Days After First/Last Applic.	14 14	14 14	30 30	30 30	30 30	62 11				
Trt-Eval Interval	14 DA-A	14 DA-A	30 DA-A	30 DA-A	30 DA-A	62 DA-A				
Days After Emergence	-2 DE-1	-2 DE-1	14 DE-1	14 DE-1	14 DE-1	46 DE-1				
Number of Decimals	0	0	0	0	0	0				
Trt No.	Treatment Name	Rate	Appl Code	1*	2*	3*	4*	5*	6*	7*
5	Anthem Maxx	2 oz/a	B	100	100	0-	0.0 c	0 c	0 c	99.3 a
	5 Atrazine	1.5 qt/a	B							
	5 Balance Flexx	3 oz/a	B							
	5 Roundup PowerMax	22 oz/a	B							
	5 COC	1 % v/v	B							
	5 N PAK AMS	2.5 % v/v	B							
6	Acuron	2 qt/a	A	100	100	0-	95.3 ab	75 b	100 a	63.3 bcd
7	Resicore	2.5 qt/a	A	100	100	0-	89.3 ab	83 ab	87 b	66.7 bc
8	Corvus	5.6 oz/a	A	100 d	100 d	0-	86.0 b	82 b	100 a	53.3 d
	8 Atrazine	1 qt/a	A							
9	Anthem Maxx	4 oz/a	A	100	100	0-	91.7 ab	87 ab	100 a	60.0 cd
	9 Atrazine	1.5 qt/a	A							
	9 Callisto	4 oz/a	A							
10	Anthem Maxx	4 oz/a	A	100	100	0-	95.0 ab	97 a	100 a	73.3 b
	10 Atrazine	1.5 qt/a	A							
	10 Balance Flexx	3 oz/a	A							
11	Anthem Maxx	4 oz/a	A	100	100	0-	98.7 a	87 ab	100 a	73.3 b
	11 Atrazine	1.5 qt/a	A							
12	Untreated			0 e	0 e	0-	0.0 c	0 c	0 c	0.0 e
LSD P=.05				.	.	.	12.27	14.0	11.3	12.96
Standard Deviation				0.0	0.0	0.0	7.24	8.3	6.7	7.65
CV				0.0	0.0	0.0	13.32	16.6	11.65	10.38
Bartlett's X2				0.0	0.0	0.0	16.985	11.199	0.0	27.822
P(Bartlett's X2)				.	.	.	0.009*	0.082	.	0.001*
Skewness				-3.1478*	-3.1478*	.	-0.296	-0.2427	-0.3107	-1.2595*
Kurtosis				8.3714*	8.3714*	.	-1.9699*	-1.9265*	-1.9873*	1.2468
Replicate F				0.000	0.000	0.000	1.457	2.212	1.000	2.619
Replicate Prob(F)				1.0000	1.0000	1.0000	0.2546	0.1332	0.3840	0.0955
Treatment F				0.000	0.000	0.000	132.398	85.876	173.159	43.810
Treatment Prob(F)				1.0000	1.0000	1.0000	0.0001	0.0001	0.0001	0.0001

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	AMARE	SETFA	AMBTR	AMARE
Pest Name	Giant ragweed	Redroot pigweed	Giant foxtail	Giant ragweed	Redroot pigweed
Crop Code					
Crop Name					
Rating Date	6-27-2017	6-27-2017	7-26-2017	7-26-2017	7-26-2017
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	62 11	62 11	91 40	91 40	91 40
Trt-Eval Interval	62 DA-A	62 DA-A	91 DA-A	91 DA-A	91 DA-A
Days After Emergence	46 DE-1	46 DE-1	75 DE-1	75 DE-1	75 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Unit	Appl Code	8*	9*	10*	11*	12*
1	Anthem Maxx	4 oz/a	A		100 a	100 a	91 a	100 a	100 a
1	Atrazine	1 qt/a	A						
1	Solstice	2.5 oz/a	C						
1	Roundup PowerMax	22 oz/a	C						
1	COC	1 % v/v	C						
1	N PAK AMS	2.5 % v/v	C						
2	Anthem Maxx	2 oz/a	B		100 a	100 a	90 a	98 a	100 a
2	Atrazine	1 qt/a	B						
2	Solstice	2.5 oz/a	B						
2	Roundup PowerMax	22 oz/a	B						
2	COC	1 % v/v	B						
2	N PAK AMS	2.5 % v/v	B						
3	Anthem Maxx	4 oz/a	B		98 a	100 a	91 a	95 a	100 a
3	Atrazine	1.5 qt/a	B						
3	Solstice	2.5 oz/a	B						
3	Roundup PowerMax	22 oz/a	B						
3	COC	1 % v/v	B						
3	N PAK AMS	2.5 % v/v	B						
4	Anthem Maxx	2 oz/a	B		100 a	100 a	91 a	98 a	100 a
4	Atrazine	1.5 qt/a	B						
4	Callisto	3 oz/a	B						
4	Roundup PowerMax	22 oz/a	B						
4	COC	1 % v/v	B						
4	N PAK AMS	2.5 % v/v	B						

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	AMARE	SETFA	AMBTR	AMARE
Pest Name	Giant ragweed	Redroot pigweed	Giant foxtail	Giant ragweed	Redroot pigweed
Crop Code					
Crop Name					
Rating Date	6-27-2017	6-27-2017	7-26-2017	7-26-2017	7-26-2017
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Days After First/Last Applic.	62 11	62 11	91 40	91 40	91 40
Trt-Eval Interval	62 DA-A	62 DA-A	91 DA-A	91 DA-A	91 DA-A
Days After Emergence	46 DE-1	46 DE-1	75 DE-1	75 DE-1	75 DE-1
Number of Decimals	0	0	0	0	0

Trt No.	Treatment Name	Rate	Appl Code	8*	9*	10*	11*	12*
5	Anthem Maxx	2 oz/a	B	100 a	100 a	85 ab	95 a	100 a
5	Atrazine	1.5 qt/a	B					
5	Balance Flexx	3 oz/a	B					
5	Roundup PowerMax	22 oz/a	B					
5	COC	1 % v/v	B					
5	N PAK AMS	2.5 % v/v	B					
6	Acuron	2 qt/a	A	63 cd	37 bc	72 bc	60 bc	50 bc
7	Resicore	2.5 qt/a	A	70 c	17 cd	60 cd	63 b	47 c
8	Corvus	5.6 oz/a	A	60 d	53 b	57 d	57 c	68 b
8	Atrazine	1 qt/a	A					
9	Anthem Maxx	4 oz/a	A	67 cd	53 b	73 b	60 bc	60 bc
9	Atrazine	1.5 qt/a	A					
9	Callisto	4 oz/a	A					
10	Anthem Maxx	4 oz/a	A	72 bc	50 b	72 bc	60 bc	57 bc
10	Atrazine	1.5 qt/a	A					
10	Balance Flexx	3 oz/a	A					
11	Anthem Maxx	4 oz/a	A	80 b	40 b	72 bc	60 bc	48 c
11	Atrazine	1.5 qt/a	A					
12	Untreated			0 e	0 d	0 e	0 d	0 d
	LSD P=.05			8.5	20.8	13.2	6.2	18.5
	Standard Deviation			5.0	12.3	7.8	3.7	10.9
	CV			6.63	19.65	10.94	5.19	15.76
	Bartlett's X2			18.541	7.298	12.253	3.84	3.583
	P(Bartlett's X2)			0.01*	0.199	0.268	0.573	0.611
	Skewness			-1.5219*	-0.4463	-1.7911*	-1.0074*	-0.7118
	Kurtosis			2.2256*	-1.0775	3.1214*	1.0751	-0.4209
	Replicate F			4.164	4.477	0.183	6.434	1.912
	Replicate Prob(F)			0.0293	0.0234	0.8337	0.0063	0.1715
	Treatment F			98.412	26.296	32.198	188.981	25.461
	Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001

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Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

SETFA, Setaria faberi, Giant foxtail = US

AMBTR, Ambrosia trifida, Giant ragweed = US

AMARE, Amaranthus retroflexus, Redroot pigweed = US

Crop Code

ZEAMX, BCOR, Zea mays, Corn = US

Rating Type

CONTRO = control / burndown or knockdown

PHYGEN = phytotoxicity - general / injury

Rating Unit

% = percent