

Monsanto Market Development Corn Trial

Trial ID: 15MONMARK      Location: Western Branch      Trial Year: 2015  
 Protocol ID: 15MONMARK      Investigator: Dr. Mark M. Loux  
 Project ID:      Study Director: Anthony Dobbels  
                                  Sponsor Contact: Rod Stevenson, Monsanto

**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** °: 39.85625 N  
**Longitude of LL Corner** °: -83.67021 W

**Conducted Under GLP:** No  
**Conducted Under GEP:** No

**Contacts**

**Study Director:** Anthony Dobbels

**Investigator:** Dr. Mark M. Loux

**Crop Description**

**Crop 1:** ZEAMX      Zea mays  
**Variety:** SCS 1105 AM RR / LL  
**Description:** Seed Consultants

Corn

**Planting Rate, Unit:** 32097 S/A  
**Depth, Unit:** 2 IN  
**Row Spacing, Unit:** 30 IN

**Planting Date:** 5-3-2015  
**Planting Method:** PLANTD      planted  
**Planting Equipment:** FPP      Finger Pickup Planter  
**Emergence Date:** 5-9-2015  
**Harvest Date:** 10-5-2015  
**Harvested Width, Unit:** 5 FT  
**Harvested Length, Unit:** 30 FT  
**Harvest Equipment:** Massey Ferguson 8 XP  
**% Standard Moisture:** 15.5  
**Moisture Meter:** Harvest Master  
**Weighing Equipment:** Harvest Master

**Soil Temperature, Unit:** 60 F  
**Soil Moisture:** NORMAL normal, adequate  
**Seed Bed:** MEDIUM medium

**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:** CHEAL *Chenopodium album*  
**Common Name:** Common lambsquarters
- Pest 4 Type:** W **Code:** AMARE *Amaranthus retroflexus*  
**Common Name:** Redroot pigweed
- Pest 5 Type:** W **Code:** ABUTH *Abutilon theophrasti*  
**Common Name:** velvetleaf
- Pest 6 Type:** W **Code:** POLPY *Persicaria pensylvanica*  
**Common Name:** Pennsylvania smartweed
- Pest 7 Type:** W **Code:** SOLPT *Solanum ptycanthum*  
**Common Name:** Eastern black nightshade
- Pest 8 Type:** W **Code:** HIBTR *Hibiscus trionum*  
**Common Name:** Venice mallow
- Pest 9 Type:** W **Code:** IPOHE *Ipomoea hederacea*  
**Common Name:** Ivyleaf morningglory
- Pest10 Type:** W **Code:** SIDSP *Sida spinosa*  
**Common Name:** Prickly sida

**Site and Design**

**Treated Plot Width:** 10 FT  
**Treated Plot Length:** 30 FT  
**Treated Plot Area:** 300 FT2 **Treatments:** 14  
**Replications:** 4

**Site Type:** FIELD field  
**Experimental Unit:** 1 PLOT plot  
**Tillage Type:** CONTIL conventional-till  
**Study Design:** RACOB� Randomized Complete Block (RCB)

**No. Previous Crop Year**  
1. Soybean 2014

**Soil Description**

**Description Name:** Big E  
**% OM:** 2.8 **Texture:** SIL silt loam  
**pH:** 5.9 **Soil Name:** Kokomo  
**CEC:** 17.44 **Fert. Level:** G good  
**Soil Drainage:** G good

**Additional Measured Elements**

Date	Element	Quantity	Unit
4-24-2015	NH3	180	LBS

**Application Description**

	A	B	C
<b>Application Date:</b>	5-4-2015	5-22-2015	6-3-2015
<b>Appl. Start Time:</b>	11:00 AM	9:00 AM	9:15 AM
<b>Appl. Stop Time:</b>	11:20 AM	9:30 AM	9:30 AM
<b>Application Method:</b>	SPRAY	SPRAY	SPRAY
<b>Application Timing:</b>	PRE	EPO	POST
<b>Application Placement:</b>	BROSOI	BROFOL	BROFOL
<b>Applied By:</b>	Bethel	Barclay	Barclay
<b>Air Temperature, Unit:</b>	73 F	55 F	60 F
<b>% Relative Humidity:</b>	45	69	85
<b>Wind Velocity, Unit:</b>	10 MPH	7 MPH	4 MPH
<b>Wind Direction:</b>	SW	WSW	NNE
<b>Dew Presence (Y/N):</b>	N no	N no	Y yes
<b>Soil Temperature, Unit:</b>	58 F	52 F	59 F
<b>Soil Moisture:</b>	DRY	DRY	WET
<b>% Cloud Cover:</b>	40	0	100
<b>Next Moisture Occurred On:</b>	5-5-2015	5-26-2015	6-5-2015
<b>Time to Next Moisture, Unit:</b>	14 HR	4 DAY	2 DAY

	<b>Crop Stage At Each Application</b>					
	<b>A</b>		<b>B</b>		<b>C</b>	
<b>Crop 1 Code, BBCH Scale:</b>	ZEAMX	BCOR	ZEAMX	BCOR	ZEAMX	BCOR
<b>Stage Scale Used:</b>			BBCH		BBCH	
<b>Stage Majority, Percent:</b>			12	100	15	100
<b>Height, Unit:</b>			5	IN	12	IN
<b>Height Minimum, Maximum:</b>			4.5	5		

## Pest Stage At Each Application

	A		B		C	
<b>Pest 1 Code, Type, Scale:</b>	SETFA	W	SETFA	W	SETFA	W
<b>Stage Majority, Percent:</b>			13	100	13	90
<b>Stage Minimum, Percent:</b>					13	90
<b>Stage Maximum, Percent:</b>					14	10
<b>Height, Unit:</b>			3	IN	5	IN
<b>Height Minimum, Maximum:</b>			1	3	3	6
<b>Density, Unit:</b>			197	M2	78	m2
<b>Pest 2 Code, Type, Scale:</b>	AMBTR	W	AMBTR	W	AMBTR	W
<b>Stage Majority, Percent:</b>			12	80	14	80
<b>Stage Minimum, Percent:</b>			12	80	14	80
<b>Stage Maximum, Percent:</b>			14	20	16	20
<b>Height, Unit:</b>			2	IN	4	IN
<b>Height Minimum, Maximum:</b>			2	4	4	5
<b>Density, Unit:</b>			14	M2	6	m2
<b>Pest 3 Code, Type, Scale:</b>	CHEAL	W	CHEAL	W	CHEAL	W
<b>Stage Majority, Percent:</b>			14	90	14	80
<b>Stage Minimum, Percent:</b>			12	10	14	80
<b>Stage Maximum, Percent:</b>			14	90	18	20
<b>Diameter, Unit:</b>			1	IN		
<b>Height, Unit:</b>			1.5	IN	1	IN
<b>Height Minimum, Maximum:</b>			0.5	1.5	1	2
<b>Density, Unit:</b>			32	M2	2	m2
<b>Pest 4 Code, Type, Scale:</b>	AMARE	W	AMARE	W	AMARE	W
<b>Stage Majority, Percent:</b>			14	100		
<b>Diameter, Unit:</b>			0.5	IN		
<b>Height, Unit:</b>			1	IN		
<b>Height Minimum, Maximum:</b>			0.5	1		
<b>Density, Unit:</b>			4	M2		
<b>Pest 5 Code, Type, Scale:</b>	ABUTH	W	ABUTH	W	ABUTH	W
<b>Stage Majority, Percent:</b>			11	90		
<b>Stage Minimum, Percent:</b>			10	10		
<b>Stage Maximum, Percent:</b>			11	90		
<b>Diameter, Unit:</b>			0.5	IN		
<b>Height, Unit:</b>			0.25	IN		
<b>Height Minimum, Maximum:</b>			0.25	0.5		
<b>Density, Unit:</b>			2	M2		
<b>Pest 6 Code, Type, Scale:</b>	POLPY	W	POLPY	W	POLPY	W
<b>Stage Majority, Percent:</b>			11	100	12	100
<b>Diameter, Unit:</b>			0.5	IN		
<b>Height, Unit:</b>			1	IN	1	IN
<b>Height Minimum, Maximum:</b>			0.25	1		
<b>Density, Unit:</b>			1	M2	1	m2
<b>Pest 7 Code, Type, Scale:</b>	SOLPT	W	SOLPT	W	SOLPT	W
<b>Stage Majority, Percent:</b>			12	100		
<b>Diameter, Unit:</b>			0.125	IN		
<b>Height, Unit:</b>			0.25	IN		
<b>Height Minimum, Maximum:</b>			0.125	0.25		
<b>Density, Unit:</b>			4	M2		
<b>Pest 8 Code, Type, Scale:</b>	HIBTR	W	HIBTR	W	HIBTR	W
<b>Stage Majority, Percent:</b>			10	100	12	100
<b>Diameter, Unit:</b>			0.5	IN		
<b>Height, Unit:</b>			0.5	IN	1	IN
<b>Height Minimum, Maximum:</b>			0.5	0.75	1	2
<b>Density, Unit:</b>			1	M2	1	m2
<b>Pest 9 Code, Type, Scale:</b>	IPOHE	W	IPOHE	W	IPOHE	W
<b>Stage Majority, Percent:</b>					12	100
<b>Stage Minimum, Percent:</b>					12	
<b>Stage Maximum, Percent:</b>					13	
<b>Height, Unit:</b>					2.5	IN
<b>Height Minimum, Maximum:</b>					2	3
<b>Density, Unit:</b>					0.5	M2
<b>Pest10 Code, Type, Scale:</b>	SIDSP	W	SIDSP	W	SIDSP	W
<b>Stage Majority, Percent:</b>					12	100
<b>Height, Unit:</b>					1	IN
<b>Height Minimum, Maximum:</b>					0.5	1
<b>Density, Unit:</b>					0.25	M2

**Application Equipment**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Appl. Equipment:</b>	6 FOOT BOOM	10' AI XR	10' AI XR
<b>Equipment Type:</b>	SPRBAC	SPRBAC	SPRBAC
<b>Operation Pressure, Unit:</b>	46 PSI	46 PSI	46 PSI
<b>Nozzle Type:</b>	AI XR	AI XR	AI XR
<b>Nozzle Size:</b>	110015	110015	110015
<b>Nozzle Spacing, Unit:</b>	18 IN	18 IN	18 IN
<b>Boom Length, Unit:</b>	6.67 FT	10 FT	10 FT
<b>Boom Height, Unit:</b>	20 IN	20 IN	20 IN
<b>Ground Speed, Unit:</b>	3 MPH	3 MPH	3 MPH
<b>Carrier:</b>	WATER	WATER	WATER
<b>Spray Volume, Unit:</b>	15 GPA	15 GPA	15 GPA
<b>Mix Size, Unit:</b>	2 Liters	2 Liters	2 Liters
<b>Propellant:</b>	CO2	CO2	CO2

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Pest Type									
Pest Code									
Pest Scientific Name									
Pest Name									
Crop Code		ZEAMX	ZEAMX	ZEAMX	ZEAMX				
BBCH Scale		BCOR	BCOR	BCOR	BCOR				
Crop Scientific Name		Zea mays	Zea mays	Zea mays	Zea mays				
Crop Name		Corn	Corn	Corn	Corn				
Rating Date		10-5-2015	10-5-2015	10-5-2015	10-5-2015				
Rating Type		YIELD	MOICON	YIELD	WEITES				
Rating Unit		LBS	%	BU	LBS				
Sample Size, Unit	1	PLOT		1	A				
Number of Subsamples		1	1	1	1				
Assessed By									
Rating Timing									
Days After First/Last Applic.		154	124	154	124	154	124	154	124
Trt-Eval Interval									
Plant-Eval Interval		155 DP-1	155 DP-1	155 DP-1	155 DP-1				
Days After Emergence		149 DE-1	149 DE-1	149 DE-1	149 DE-1				
ARM Action Codes					TY1				
Number of Decimals			1	1	1				1

Trt No.	Treatment Name	Other Rate	Other Rate	Appl Unit	Appl Code	Appl Description	29	30	31	32
1	Harness Xtra 5.6	2.6 qt/a		A	PRE		48.2 ab	17.7 bcd	243.5 ab	57.7 a
1	Roundup PowerMax	32 oz/a		C	POST					
1	Class Act Next Gen	2.5 % v/v		C	POST					
2	Degree Xtra	3 qt/a		A	PRE		47.6 ab	18.3 ab	239.0 ab	57.5 a
2	Roundup PowerMax	32 oz/a		C	POST					
2	Class Act Next Gen	2.5 % v/v		C	POST					
3	Tripleflex	1.5 qt/a		A	PRE		47.6 ab	17.8 bcd	240.1 ab	58.0 a
3	Atrazine	1 qt/a		A	PRE					
3	Roundup PowerMax	32 oz/a		C	POST					
3	Class Act Next Gen	2.5 % v/v		C	POST					
4	Harness Xtra 5.6	2 qt/a		A	PRE		49.2 a	17.7 bcd	248.3 a	58.4 a
4	Balance Flexx	3 oz/a		A	PRE					
4	Roundup PowerMax	32 oz/a		C	POST					
4	Class Act Next Gen	2.5 % v/v		C	POST					
5	Degree Xtra	2.3 qt/a		A	PRE		48.4 ab	17.9 a-d	244.1 ab	57.6 a
5	Balance Flexx	3 oz/a		A	PRE					
5	Roundup PowerMax	32 oz/a		C	POST					
5	Class Act Next Gen	2.5 % v/v		C	POST					
6	Corvus	4 lb ai/a		A	PRE		37.7 c	17.2 d	191.3 c	58.0 a
6	Atrazine	1 qt/a		A	PRE					
7	Lumax EZ	3 qt/a		A	PRE		36.3 c	17.4 cd	184.1 c	57.5 a
8	Halex GT	2 qt/a		B	EPO		46.6 ab	18.0 abc	234.4 ab	57.9 a
8	Class Act Next Gen	2.5 % v/v		B	EPO					
9	Atrazine	1 qt/a		A	PRE		45.0 b	17.7 bcd	227.3 b	57.8 a
9	Halex GT	2.5 qt/a		B	EPO					
9	Class Act Next Gen	2.5 % v/v		B	EPO					

Means followed by same letter do not significantly differ (P=.05, LSD)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=29,30,31,32

Trt	Treatment	Other Rate	Other Rate	Unit	Appl Code	Appl Description	29	30	31	32
	10 Realm Q 4 oz						47.7 ab	17.9 bcd	240.4 ab	57.9 a
	10 Rimsulfuron	1.2 oz/a			A	PRE				
	10 Mesotrione	2.5 oz/a			A	PRE				
	10 Isoxadifen-ethyl	0.3 oz/a			A	PRE				
	10 Cinch ATZ	2.6 qt/a			A	PRE				
	10 Abundit Extra	47 oz/a			C	POST				
	10 Class Act Next Gen	2.5 % v/v			C	POST				
	11 Degree Xtra	2.5 qt/a			A	PRE	46.0 ab	17.9 abc	231.8 ab	57.7 a
	11 Roundup PowerMax	32 oz/a			C	POST				
	11 Impact	0.75 oz/a			C	POST				
	11 Warrant	48 oz/a			C	POST				
	11 Class Act Next Gen	2.5 % v/v			C	POST				
	12 Degree Xtra	2.5 qt/a			A	PRE	46.2 ab	18.6 a	230.6 ab	57.6 a
	12 Roundup PowerMax	32 oz/a			C	POST				
	12 Impact	0.75 oz/a			C	POST				
	12 Class Act Next Gen	2.5 % v/v			C	POST				
	13 Degree Xtra	2.5 qt/a			A	PRE	47.9 ab	18.0 abc	241.3 ab	57.7 a
	13 Roundup PowerMax	32 oz/a			C	POST				
	13 Status	3 oz/a			C	POST				
	13 Class Act Next Gen	2.5 % v/v			C	POST				
	14 Degree Xtra	2.5 qt/a			A	PRE	46.3 ab	18.2 ab	232.7 ab	58.2 a
	14 Roundup PowerMax	32 oz/a			C	POST				
	14 Tripleflex	1.5 qt/a			C	POST				
	14 Class Act Next Gen	2.5 % v/v			C	POST				
	LSD P=.05						3.78	0.69	18.57	0.67
	Standard Deviation						2.64	0.48	12.97	0.47
	CV						5.78	2.7	5.62	0.81
	Grand Mean						45.78	17.88	230.65	57.83
	Bartlett's X2						25.782	19.231	27.555	13.315
	P(Bartlett's X2)						0.018*	0.116	0.01*	0.424
	Skewness						-1.8467*	-0.089	-1.7944*	-0.1934
	Kurtosis						4.3861*	0.7103	4.2735*	-0.5615
	Replicate F						4.504	0.256	4.835	1.013
	Replicate Prob(F)						0.0085	0.8568	0.0060	0.3977
	Treatment F						8.646	2.009	8.726	1.478
	Treatment Prob(F)						0.0001	0.0474	0.0001	0.1709

Crop Code

ZEAMX, BCOR, Zea mays, = US

Rating Type

YIELD = yield

MOICON = moisture content

WEITES = weight - test

Rating Unit

% = percent

BU = bushel

PLOT = total plot

A = acre

Plant-Eval Interval

155 DP-1 = 1 ZEAMX 5-3-2015

ARM Action Codes

TY1 =  $5.185714 * [29] * (100 - @MVAVGREP([30])) / 84.5$