

Ohio State University
Horticulture and Crop Science

Corn Yield Advantage

Title No. 2:
 Trial ID: 12GMOECA Protocol ID: 12GMOECA
 Location: Western Branch F-7 Study Director: Anthony F. Dobbels
 Project ID: US-C9F-I-01.0 Investigator: Dr. Mark M. Loux
 Sponsor Contact: Caren Schmidt, BASF

General Trial Information

Study Director: Anthony F. Dobbels Title: Research Specialist
 Investigator: Dr. Mark M. Loux

Trial Location

City: South Charleston Latitude of LL Corner °: 39.85739 N
 State/Prov.: Ohio Longitude of LL Corner °: 83.6701 W
 Postal Code: 45368
 Country: USA

Crop Description

Crop 1: ZEAMX Zea mays Corn
 Variety: Dekalb 61-21 RIB Description: RR/LL
 BBCH Scale: BCOR Planting Date: Apr-19-2012
 Planting Method: SEEDED seeded Rate, Unit: 32097 S/A
 Depth, Unit: 2 IN
 Row Spacing, Unit: 30 IN
 Seed Bed: MEDIUM medium Soil Temperature, Unit: 75 F
 Soil Moisture: GOOD good Emergence Date: May-4-2012

Pest Description

Pest 1 Type: W Code: SETFA *Setaria faberi*
 Common Name: Giant foxtail
 Pest 2 Type: W Code: AMARE *Amaranthus retroflexus*
 Common Name: Redroot pigweed
 Pest 3 Type: W Code: AMBTR *Ambrosia trifida*
 Common Name: Giant ragweed
 Pest 4 Type: W Code: CHEAL *Chenopodium album*
 Common Name: Common lambsquarters
 Pest 5 Type: W Code: POLPY *Persicaria pensylvanica*
 Common Name: Pennsylvania smartweed
 Pest 6 Type: W Code: ABUTH *Abutilon theophrasti*
 Common Name: velvetleaf

Site and Design

Plot Width, Unit: 10 FT Site Type: FIELD field
 Plot Length, Unit: 30 FT Experimental Unit: 1 PLOT plot
 Plot Area, Unit: 300 FT² Tillage Type: CONTIL conventional-till
 Replications: 6 Study Design: RACOB� Randomized Complete Block (RCB)
 Untreated Arrangement: INCLUDED single control randomized in each block

Trial Initiation Comments:

Soil Description

Description Name: Big E
 % OM: 2.2 Texture: SICL silty clay loam
 pH: 6.1 Soil Name: Kokomo
 CEC: 14

Application Description

	A	B	C	D
Application Date:	Apr-19-2012	May-23-2012	Jun-15-2012	Jul-5-2012
Time of Day:	1:30 P.M.	9:00am	9:00am	10:00 AM
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PRE	12" CRN	V10	TASSEL
Application Placement:	BROSOL	BROFOL	BROFOL	BROFOL
Applied By:			Dobbels	Dobbels
Air Temperature, Unit:	76 F	69 F	76 F	80.2 F
% Relative Humidity:	48	67	65	74.2
Wind Velocity, Unit:	2 MPH	2 MPH	6 mph	3.3 MPH
Wind Direction:	N	NNE	SE	NNW
Dew Presence (Y/N):	N no	N no	N no	Y yes
Soil Temperature, Unit:	60 F	67 F	70 f	80 F
Soil Moisture:	GOOD	DRY	GOOD	GOOD
% Cloud Cover:	7	85	0	90
Next Rain Occurred On:	Apr-20-2012	May-31-2012	Jun-17-2012	Jul-15-2012

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Crop Stage At Each Application

	A		B		C		D	
Crop 1 Code, BBCH Scale:	ZEAMX	BCOR	ZEAMX	BCOR	ZEAMX	BCOR	ZEAMX	BCOR
Stage Scale Used:	BBCH		BBCH		BBCH		BBCH	
Stage Majority, Percent:	14	100	39	100	59	100		
Height, Unit:	12	in	36	in	110	IN		
Height Minimum, Maximum:					110	120		

Pest Stage At Each Application

	A		B		C		D	
Pest 1 Code, Type, Scale:	SETFA	W	SETFA	W	SETFA	W	SETFA	W
Stage Majority, Percent:			13	100				
Height, Unit:	4	IN						
Height Minimum, Maximum:	1	8						
Density, Unit:			27.3	M2				
Pest 2 Code, Type, Scale:	AMARE	W	AMARE	W	AMARE	W	AMARE	W
Stage Majority, Percent:			14	100				
Height, Unit:	2	IN						
Height Minimum, Maximum:	1	3						
Density, Unit:			10.4	M2				
Pest 3 Code, Type, Scale:	AMBTR	W	AMBTR	W	AMBTR	W	AMBTR	W
Stage Majority, Percent:			19	100				
Height, Unit:	6	IN						
Height Minimum, Maximum:	4	10						
Density, Unit:			61.3	M2				
Pest 4 Code, Type, Scale:	CHEAL	W	CHEAL	W	CHEAL	W	CHEAL	W
Stage Majority, Percent:			16	100				
Height, Unit:	2	IN						
Height Minimum, Maximum:	1	3						
Density, Unit:			26.6	M2				
Pest 5 Code, Type, Scale:	POLPY	W	POLPY	W	POLPY	W	POLPY	W
Stage Majority, Percent:			14	100				
Height, Unit:	1.5	IN						
Height Minimum, Maximum:	1	2						
Density, Unit:			2.6	M2				
Pest 6 Code, Type, Scale:	ABUTH	W	ABUTH	W	ABUTH	W	ABUTH	W
Stage Majority, Percent:			12	100				
Height, Unit:	2	IN						
Height Minimum, Maximum:	1	3						
Density, Unit:			1	M2				

Application Equipment

	A		B		C		D	
Appl. Equipment:	10 Foot Boom	10 Foot Boom	10 Foot Boom	6 foot boom				
Equipment Type:	SPRBAC	SPRBAC	SPRBAC	SPRBAC				
Operation Pressure, Unit:	46 PSI	46 PSI	46 PSI	46 PSI				
Nozzle Type:	AI XR	AI XR	AI XR	AI XR				
Nozzle Size:	110015	110015	110015	110015				
Nozzle Spacing, Unit:	18 IN	18 IN	18 IN	18 IN				
Boom Length, Unit:	10 FT	10 FT	10 FT	6 FT				
Boom Height, Unit:	20 IN	20 IN	20 IN	20 IN				
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	3 MPH				
Carrier:	WATER	WATER	WATER	WATER				
Spray Volume, Unit:	15 GPA	15 GPA	15 GPA	15 GPA				
Mix Size, Unit:	2 Liters	2 Liters	2 Liters	2 Liters				
Propellant:	CO2	CO2	CO2	CO2				

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Pest Type	W Weed	W Weed	W Weed	W Weed
Pest Code	SETFA	AMBTR	CHEAL	AMARE
Pest Scientific Name	Setaria faberi	Ambrosia trifida	Chenopodium album	Amaranthus retrofractus
Pest Name	Giant foxtail	Giant ragweed	Common lambsquarters	Redroot pigweed
Crop Code	ZEAMX			
BBCH Scale	BCOR			
Crop Scientific Name	Zea mays			
Crop Name	Corn			
Rating Date	May-22-2012	May-22-2012	May-22-2012	May-22-2012
Rating Type	PHYTO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%
Number of Subsamples	1	1	1	1
Rating Timing	AT POST	AT POST	AT POST	AT POST
Days After First/Last Applic.	33 33	33 33	33 33	33 33
Trt-Eval Interval	33 DA-A	33 DA-A	33 DA-A	33 DA-A
Plant-Eval Interval	33 DP-1	33 DP-1	33 DP-1	33 DP-1
Days After Emergence	18 DE-1	18 DE-1	18 DE-1	18 DE-1
Number of Decimals	0	0	0	0

Trt Treatment	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	1	2	3	4	5
1 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B		0 a	0 b	0 c	0 b	0 b
1 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
2 Guardsman Max	1.88 lb ai/a		48 oz/a		PRE A		0 a	100 a	65 b	93 a	100 a
2 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
2 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
3 Verdict	0.78 lb ai/a		18 oz/a		PRE A		0 a	100 a	75 a	100 a	100 a
3 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
3 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
4 Verdict	0.78 lb ai/a		18 oz/a		PRE A		0 a	99 a	79 a	97 a	97 a
4 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
4 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
4 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
4 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
4 Interlock	4 oz/a		4 oz/a		R-1						
5 Verdict	0.78 lb ai/a		18 oz/a		PRE A		0 a	100 a	79 a	99 a	100 a
5 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
5 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN						
5 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
5 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
5 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
5 Interlock	4 oz/a		4 oz/a		R-1						
6 Verdict	0.78 lb ai/a		18 oz/a		PRE A		0 a	100 a	81 a	98 a	100 a
6 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
6 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN						
6 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
6 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
6 AG-8050	0.5 % v/v		0.3 qt/a		R-1						
7 Verdict	0.78 lb ai/a		18 oz/a		PRE A		0 a	100 a	79 a	93 a	100 a
7 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
7 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
7 Headline SC	0.0975 lb ai/a		6 oz/a		V-10 C						
7 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
7 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
7 Interlock	4 oz/a		4 oz/a		R-1						
LSD (P=.05)							0.0	1.0	8.9	7.9	3.6
Standard Deviation							0.0	0.9	7.6	6.7	3.1
CV							0.0	1.0	11.55	8.1	3.62

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed						
Pest Code	ABUTH	POLPY	SETFA	AMBTR							
Pest Scientific Name	Abutilon theop>	Persicaria pen>	Setaria faberi	Ambrosia trifi>							
Pest Name	velvetleaf	Pennsylvania	Giant foxtail	Giant	ragweed						
Crop Code			ZEAMX								
BCH Scale			BCOR								
Crop Scientific Name			Zea mays								
Crop Name			Corn								
Rating Date	May-22-2012	May-22-2012	Jun-19-2012	Jun-19-2012	Jun-19-2012						
Rating Type	CONTRO	CONTRO	PHYSTU	CONTRO	CONTRO						
Rating Unit	%	%	%	%	%						
Number of Subsamples	1	1	1	1	1						
Rating Timing	AT POST	AT POST									
Days After First/Last Applic.	33 33	33 33	61 4	61 4	61 4						
Trt-Eval Interval	33 DA-A	33 DA-A	27 DA-B	27 DA-B	27 DA-B						
Plant-Eval Interval	33 DP-1	33 DP-1	61 DP-1	61 DP-1	61 DP-1						
Days After Emergence	18 DE-1	18 DE-1	46 DE-1	46 DE-1	46 DE-1						
Number of Decimals	0	0	0	0	0						
Trt Treatment	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	6	7	8	9	10
1 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B		0 c	0 b	7 a	91 a	77 a
1 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
2 Guardsman Max	1.88 lb ai/a		48 oz/a		PRE A		90 b	100 a	1 b	87 a	72 a
2 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
2 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
3 Verdict	0.78 lb ai/a		18 oz/a		PRE A		100 a	100 a	0 b	83 a	73 a
3 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
3 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
4 Verdict	0.78 lb ai/a		18 oz/a		PRE A		100 a	100 a	0 b	85 a	78 a
4 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
4 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
4 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
4 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
4 Interlock	4 oz/a		4 oz/a		R-1						
5 Verdict	0.78 lb ai/a		18 oz/a		PRE A		100 a	100 a	0 b	83 a	78 a
5 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
5 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN						
5 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
5 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
5 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
5 Interlock	4 oz/a		4 oz/a		R-1						
6 Verdict	0.78 lb ai/a		18 oz/a		PRE A		100 a	100 a	0 b	84 a	81 a
6 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
6 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN						
6 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
6 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
6 AG-8050	0.5 % v/v		0.3 qt/a		R-1						
7 Verdict	0.78 lb ai/a		18 oz/a		PRE A		100 a	100 a	0 b	82 a	77 a
7 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B						
7 N-PAK AMS	5 % v/v		3 qt/a		12" CRN						
7 Headline SC	0.0975 lb ai/a		6 oz/a		V-10 C						
7 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D						
7 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1						
7 Interlock	4 oz/a		4 oz/a		R-1						
LSD (P=.05)							7.5	0.0	3.3	8.8	7.4
Standard Deviation							6.3	0.0	2.8	7.5	6.3
CV							7.5	0.0	240.29	8.83	8.26

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Pest Type	W Weed	W Weed	W Weed	W Weed						
Pest Code	CHEAL	AMARE	ABUTH	POLPY						
Pest Scientific Name	Chenopodium al-	Amaranthus ret>	Abutilon theop>	Persicaria pen>						
Pest Name	Common lambsqu>	Redroot pigweed	velvetleaf	Pennsylvania s>						
Crop Code										
BBCH Scale										
Crop Scientific Name										
Crop Name										
Rating Date	Jun-19-2012	Jun-19-2012	Jun-19-2012	Jun-19-2012						
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	%	%	%	%						
Number of Subsamples	1	1	1	1						
Rating Timing										
Days After First/Last Applic.	61 4	61 4	61 4	61 4						
Trt-Eval Interval	27 DA-B	27 DA-B	27 DA-B	27 DA-B						
Plant-Eval Interval	61 DP-1	61 DP-1	61 DP-1	61 DP-1						
Days After Emergence	46 DE-1	46 DE-1	46 DE-1	46 DE-1						
Number of Decimals	0	0	0	0						
Trt Treatment	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	11	12	13	14
1 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B		60 b	59 a	82 a	88 b
1 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
2 Guardsman Max	1.88 lb ai/a		48 oz/a		PRE A		87 a	70 a	75 a	100 a
2 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
2 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
3 Verdict	0.78 lb ai/a		18 oz/a		PRE A		88 a	68 a	91 a	100 a
3 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
3 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
4 Verdict	0.78 lb ai/a		18 oz/a		PRE A		90 a	66 a	93 a	100 a
4 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
4 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
4 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D					
4 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1					
4 Interlock	4 oz/a		4 oz/a		R-1					
5 Verdict	0.78 lb ai/a		18 oz/a		PRE A		85 a	74 a	92 a	99 a
5 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
5 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN					
5 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
5 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D					
5 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1					
5 Interlock	4 oz/a		4 oz/a		R-1					
6 Verdict	0.78 lb ai/a		18 oz/a		PRE A		93 a	73 a	97 a	100 a
6 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
6 Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN					
6 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
6 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D					
6 AG-8050	0.5 % v/v		0.3 qt/a		R-1					
7 Verdict	0.78 lb ai/a		18 oz/a		PRE A		91 a	73 a	93 a	100 a
7 Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN B					
7 N-PAK AMS	5 % v/v		3 qt/a		12" CRN					
7 Headline SC	0.0975 lb ai/a		6 oz/a		V-10 C					
7 Headline AMP	0.131 lb ai/a		10 oz/a		R-1 D					
7 Preference NIS	0.25 % v/v		1 qt/100 gal		R-1					
7 Interlock	4 oz/a		4 oz/a		R-1					
LSD (P=.05)							9.0	11.9	18.5	6.8
Standard Deviation							7.6	10.1	15.7	5.7
CV							9.02	14.57	17.69	5.83

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Pest Type	D Disease
Pest Code	CERCZM
Pest Scientific Name	Cercospora zea>
Pest Name	Grey leaf spot>
Crop Code	
BBCH Scale	
Crop Scientific Name	
Crop Name	
Rating Date	Aug-2-2012
Rating Type	INFEST
Rating Unit	%
Number of Subsamples	1
Rating Timing	
Days After First/Last Applic.	105 28
Trt-Eval Interval	28 DA-D
Plant-Eval Interval	105 DP-1
Days After Emergence	90 DE-1
Number of Decimals	0

Trt No.	Treatment Name	Rate	Unit	Other Rate	Other Unit	Growth Stage	Appl Code	15
1	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	4 a
1	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
2	Guardsman Max	1.88 lb ai/a		48 oz/a		PRE	A	3 ab
2	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
2	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
3	Verdict	0.78 lb ai/a		18 oz/a		PRE	A	3 ab
3	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
3	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
4	Verdict	0.78 lb ai/a		18 oz/a		PRE	A	2 b
4	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
4	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
4	Headline AMP	0.131 lb ai/a		10 oz/a		R-1	D	
4	Preference NIS	0.25 % v/v		1 qt/100 gal		R-1		
4	Interlock	4 oz/a		4 oz/a		R-1		
5	Verdict	0.78 lb ai/a		18 oz/a		PRE	A	2 bc
5	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
5	Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN		
5	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
5	Headline AMP	0.131 lb ai/a		10 oz/a		R-1	D	
5	Preference NIS	0.25 % v/v		1 qt/100 gal		R-1		
5	Interlock	4 oz/a		4 oz/a		R-1		
6	Verdict	0.78 lb ai/a		18 oz/a		PRE	A	0 cd
6	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
6	Headline SC	0.0975 lb ai/a		6 oz/a		12" CRN		
6	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
6	Headline AMP	0.131 lb ai/a		10 oz/a		R-1	D	
6	AG-8050	0.5 % v/v		0.3 qt/a		R-1		
7	Verdict	0.78 lb ai/a		18 oz/a		PRE	A	0 d
7	Roundup PowerMax	0.77 lb ae/a		22 oz/a		12" CRN	B	
7	N-PAK AMS	5 % v/v		3 qt/a		12" CRN		
7	Headline SC	0.0975 lb ai/a		6 oz/a		V-10	C	
7	Headline AMP	0.131 lb ai/a		10 oz/a		R-1	D	
7	Preference NIS	0.25 % v/v		1 qt/100 gal		R-1		
7	Interlock	4 oz/a		4 oz/a		R-1		

LSD (P=.05)	1.4
Standard Deviation	1.2
CV	63.03