Purdue University

Dimethenamid herbicide efficacy in corn

Trial ID: 09S-THP-CTC-40 Protocol ID: 09S-THP-CTC-40
Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Gery Welker

General Trial Information

Study Director: Melissa Kruger/Paul Marquardt **Title:** Lab Tech VIII/Research Assoc.
Investigator: Dr. William G. Johnson **Title:** Associate Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: 5/22/09 **Planned Completion Date:** 7/16/09

Trial Location

City: Lafayette
State/Prov.: Indiana
Postal Code: 47909-9049
Country: USA United States

Objectives:
Demonstrate ROI with residual and weed gap control in RR corn.
Show consistency of sequential vs. total post on weed control and corn yield.

Personnel

Study Director: Melissa Kruger/Paul Marquardt **Title:** Lab Tech VIII/Research Assoc.
Affiliation: Purdue University
Address: 915 W. State St.
Location: West Lafayette, IN USA
Postal Code: 47907 **E-mail:** mmkruger@purdue.edu/pmarquar@purdue.edu
Phone No.: 765-494-4621
Investigator: Dr. William G. Johnson **Title:** Associate Professor
Affiliation: Purdue University
Address: 915 W. State St.
Location: West Lafayette, IN USA
Postal Code: 47907 **E-mail:** wgj@purdue.edu
Phone No.: 765-494-4656

Cooperator/Landowner

Cooperator: Throckmorton-Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 South
City: Lafayette
State/Prov: Indiana
Postal Code: 47909-9049 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DKC60-18 **Description:** Roundup Ready
BBCH Scale: BCOR **Planting Date:** 5/22/09
Planting Method: DIRDRI direct drilled **Rate, Unit:** 32000 S/A
Depth, Unit: 2 IN
Row Spacing, Unit: 30 IN **Spacing Within Row, Unit:** 6 IN
Seed Bed: MEDIUM medium **Soil Temperature, Unit:** 72 F
Soil Moisture: DRY dry **Emergence Date:** 5/27/09
Harvested Width, Unit: 10 FT **Harvested Length, Unit:** 25 FT

Purdue University

Pest Description

Pest 1 Type: W **Code:** IPOHE Ipomoea hederacea
Common Name: Ivyleaf morningglory

Pest 2 Type: W **Code:** SETFA Setaria faberi
Common Name: Giant foxtail

Pest 3 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

Pest 4 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: Velvetleaf

Pest 5 Type: W **Code:** CHEAL Chenopodium album
Common Name: Common lambsquarters

Pest 6 Type: W **Code:** AMARE Amaranthus retroflexus
Common Name: Redroot pigweed

Site and Design

Plot Width, Unit: 10 FT **Site Type:** FIELD field
Plot Length, Unit: 30 FT
Plot Area, Unit: 300 FT2 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Field Prep./Maintenance:
Disc/Cultivation on May 21, 2009

Soil Description

Description Name: Silty Loam
% OM: 3.1 **Texture:** SIL silt loam
pH: 6 **Soil Name:** Tornonto-Millbrook
CEC: 11.1

Application Description

	A	B	C
Application Date:	5/22/09	6/14/09	6/18/09
Time of Day:		11:30 AM	2:30 PM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PREPRE	EAPOWE	LAPOWE
Application Placement:	BROSOI	BANT	BANT
Applied By:	CB	PM	MH
Air Temperature, Unit:	88 F	76 F	80 F
% Relative Humidity:	23.3	54	72
Wind Velocity, Unit:	1.1 MPH	4 MPH	2 MPH
Wind Direction:	W	W	W
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	72 F	70 F	74 F
Soil Moisture:	none	DRY	WET
% Cloud Cover:	80	80	60

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:	00 100	14	14 60
Stage Minimum, Percent:		14 100	14 60
Stage Maximum, Percent:		14 100	15 40
Height, Unit:		18 IN	24 IN
Height Minimum, Maximum:		12	18

Purdue University

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Type, Scale:	IPOHE W	IPOHE W	IPOHE W
Stage Majority, Percent:		32 60	
Stage Minimum, Percent:		30 40	30
Stage Maximum, Percent:		32 60	35
Height, Unit:		3 IN	6 IN
Height Minimum, Maximum:		0 3	0 6
Density, Unit:		1 YD2	1 YD2
Pest 2 Code, Type, Scale:	SETFA W	SETFA W	SETFA W
Stage Majority, Percent:		33 60	
Stage Minimum, Percent:		31 20	30
Stage Maximum, Percent:		34 20	33
Height, Unit:		6 IN	10 IN
Height Minimum, Maximum:		0 6	0 10
Density, Unit:		20 YD2	25 YD2
Pest 3 Code, Type, Scale:	AMBTR W	AMBTR W	AMBTR W
Stage Majority, Percent:		32 60	
Stage Minimum, Percent:		30 20	30
Stage Maximum, Percent:		34 20	35
Height, Unit:		6 IN	18 IN
Height Minimum, Maximum:		0 6	0 18
Density, Unit:		5 YD2	5 YD2
Pest 4 Code, Type, Scale:	ABUTH W	ABUTH W	ABUTH W
Stage Majority, Percent:		31 60	
Stage Minimum, Percent:		30	
Stage Maximum, Percent:		32	
Height, Unit:		3 IN	
Height Minimum, Maximum:		0 3	
Density, Unit:		1 YD2	
Pest 5 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent:		32	
Stage Minimum, Percent:		30	30
Stage Maximum, Percent:		31	33
Height, Unit:		1 IN	4 IN
Height Minimum, Maximum:		0 1	0 4
Density, Unit:		5 YD2	5 YD2
Pest 6 Code, Type, Scale:	AMARE W	AMARE W	AMARE W
Stage Majority, Percent:		32	
Stage Minimum, Percent:		30	30
Stage Maximum, Percent:		33	38
Height, Unit:		4 IN	5 IN
Height Minimum, Maximum:		0 4	0 5
Density, Unit:		5 YD2	2 YD2

Purdue University

Application Equipment

	A	B	C
Appl. Equipment:	CO2 Backpack	CO2 Backpack	CO2 Backpack
Operating Pressure, Unit:	17 PSI	17 PSI	17 PSI
Nozzle Size:	XR11002	XR11002	XR11002
Nozzle Spacing, Unit:	15 IN	15 IN	15 IN
Nozzles/Row:	8	8	8
Boom Length, Unit:	10 FT	10 FT	10 FT
Boom Height, Unit:	18 IN	18 IN	18 IN
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH
Carrier:	H2O	H2O	H2O
Water Hardness (ppm CaCO3):	Meigs	Meigs	Meigs
Spray Volume, Unit:	15 GAL/AC	15 GAL/AC	15 GAL/AC
Mix Size, Unit:	1.8 Liters	1.8 Liters	1.8 Liters
Propellant:	CO2	CO2	CO2

Purdue University

Dimethenamid herbicide efficacy in corn

Trial ID: 09S-THP-CTC-40 Protocol ID: 09S-THP-CTC-40
Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Gery Welker

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5
	Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed
	Pest Code				AMBTR	SETFA	ABUTH	CHEAL	AMARE
	Pest Scientific Name				Ambrosia trifi>	Setaria faberi	Abutilon theop>	Chenopodium al>	Amaranthus ret>
	Pest Name				Giant ragweed	Giant foxtail	Velvetleaf	Common lambsqu>	Redroot pigweed
	Crop Code				ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
	BBCH Scale				BCOR	BCOR	BCOR	BCOR	BCOR
	Crop Scientific Name				Zea mays	Zea mays	Zea mays	Zea mays	Zea mays
	Crop Name				Corn	Corn	Corn	Corn	Corn
	Crop Variety				DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18
	Description								
	Part Rated				PLATOT P	PLATOT P	PLATOT P	PLATOT P	PLATOT P
	Rating Date				6/15/09	6/15/09	6/15/09	6/15/09	6/15/09
	Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
	Rating Unit				%	%	%	%	%
	Number of Subsamples				1	1	1	1	1
	Crop Stage Majority				V4	V4	V4	V4	V4
	Pest Stage Majority				0-9"	0-10"	0-5"	0-3"	0-9"
	Pest Stage Minimum/Maximum								
	Pest Density, Unit				10 YD2	20 YD2	4.5 YD2	3 YD2	3 YD2
	Assessed By				AR	AR	AR	AR	AR
	Days After First/Last Applic.				24 1	24 1	24 1	24 1	24 1
	Trt-Eval Interval				24 DA-A	24 DA-A	24 DA-A	24 DA-A	17 DA-A
	Plant-Eval Interval				24 DP-1	24 DP-1	24 DP-1	24 DP-1	24 DP-1
	Days After Emergence				19 DE-	19 DE-	19 DE-	19 DE-	19 DE-
	ARM Action Codes								
	Number of Decimals								
1	UNTREATED				0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
2	Roundup WeatherMax	0.77	lb ae/a	B	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
	Ammonium Sulfate	2	% v/v	B					
3	Status	0.0875	lb ai/a	B	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
	Roundup WeatherMax	0.77	lb ae/a	B					
	Ammonium Sulfate	2	% v/v	B					
4	Status	0.175	lb ai/a	B	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
	Roundup WeatherMax	0.77	lb ae/a	B					
	Ammonium Sulfate	2	% v/v	B					
5	Guardsman Max	1.56	lb ai/a	A	87.5 a	97.5 a	73.8 a	100.0 a	100.0 a
	Roundup WeatherMax	0.77	lb ae/a	C					
	Ammonium Sulfate	2	% v/v	C					
6	Guardsman Max	1.56	lb ai/a	A	76.3 b	96.5 a	73.8 a	100.0 a	100.0 a
	Status	0.0875	lb ai/a	C					
	Roundup WeatherMax	0.77	lb ae/a	C					
	Ammonium Sulfate	2	% v/v	C					
7	Roundup WeatherMax	0.77	lb ae/a	C	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
	Ammonium Sulfate	2	% v/v	C					
	LSD (P=.05)				8.30	1.20	22.59	0.00	0.00
	Standard Deviation				5.59	0.81	15.21	0.00	0.00
	CV				23.9	2.91	72.17	0.0	0.0
	Bartlett's X2				0.177	1.158	0.057	0.0	0.0
	P(Bartlett's X2)				0.674	0.282	0.812	.	.
	Replicate F				0.333	1.171	0.252	0.000	0.000
	Replicate Prob(F)				0.8014	0.3484	0.8587	1.0000	1.0000
	Treatment F				205.648	13769.782	22.400	0.000	0.000
	Treatment Prob(F)				0.0001	0.0001	0.0001	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Purdue University

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	6	7	8	9	10	11
	Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
	Pest Code				AMBTR	SETFA	ABUTH	SETFA	ABUTH	AMBTR
	Pest Scientific Name				Ambrosia trifi>	Setaria faberi	Abutilon theop>	Setaria faberi	Abutilon theop>	Ambrosia trifi>
	Pest Name				Giant ragweed	Giant foxtail	Velvetleaf	Giant foxtail	Velvetleaf	Giant ragweed
	Crop Code				ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX
	BBCH Scale				BCOR	BCOR	BCOR	BCOR	BCOR	BCOR
	Crop Scientific Name				Zea mays	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays
	Crop Name				Corn	Corn	Corn	Corn	Corn	Corn
	Crop Variety				DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18
	Description							6-9'	6-9'	6-9'
	Part Rated				PLATOT P	PLATOT P	PLATOT P			
	Rating Date				7/8/09	7/8/09	7/8/09	7/13/09	7/13/09	7/13/09
	Rating Type				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
	Rating Unit				%	%	%	%	%	%
	Number of Subsamples				1	1	1	1	1	1
	Crop Stage Majority				V10	V10	V10	V11	V11	V11
	Pest Stage Majority				0-10"	0-5"	0-3"	12-48"	12-80"	8-40"
	Pest Stage Minimum/Maximum				4-3NODE	2-6NODE	4-8NODE			
	Pest Density, Unit				8 YD2	70 YD2	3 YD2	75 YD2	10 YD2	2 YD2
	Assessed By				CB	CB	CB	MK/CS	MK/CS	MK/CS
	Days After First/Last Applic.				47 20	47 20	47 20	52 25	52 25	52 25
	Trt-Eval Interval				47 DA-A	47 DA-A	47 DA-A			
	Plant-Eval Interval				47 DP-1	47 DP-1	47 DP-1	52 DP-1	52 DP-1	52 DP-1
	Days After Emergence				42 DE-	42 DE-	42 DE-	47 DE-	47 DE-	47 DE-
	ARM Action Codes									
	Number of Decimals									
1	UNTREATED				0.0 b	0.0 b	0.0 b	0.0 b	0.0 b	0.0 b
2	Roundup WeatherMax	0.77	lb ae/a	B	95.8 a	93.3 a	100.0 a	96.0 a	99.8 a	97.8 a
	Ammonium Sulfate	2	% v/v	B						
3	Status	0.0875	lb ai/a	B	97.5 a	99.0 a	99.8 a	97.8 a	100.0 a	97.8 a
	Roundup WeatherMax	0.77	lb ae/a	B						
	Ammonium Sulfate	2	% v/v	B						
4	Status	0.175	lb ai/a	B	98.8 a	97.3 a	100.0 a	96.0 a	100.0 a	98.5 a
	Roundup WeatherMax	0.77	lb ae/a	B						
	Ammonium Sulfate	2	% v/v	B						
5	Guardsman Max	1.56	lb ai/a	A	98.5 a	99.8 a	100.0 a	99.3 a	100.0 a	99.3 a
	Roundup WeatherMax	0.77	lb ae/a	C						
	Ammonium Sulfate	2	% v/v	C						
6	Guardsman Max	1.56	lb ai/a	A	98.3 a	98.3 a	99.8 a	99.0 a	99.8 a	99.5 a
	Status	0.0875	lb ai/a	C						
	Roundup WeatherMax	0.77	lb ae/a	C						
	Ammonium Sulfate	2	% v/v	C						
7	Roundup WeatherMax	0.77	lb ae/a	C	98.0 a	99.0 a	99.3 a	98.0 a	99.5 a	99.0 a
	Ammonium Sulfate	2	% v/v	C						
	LSD (P=.05)				3.97	4.44	0.91	2.38	0.45	1.65
	Standard Deviation				2.67	2.99	0.61	1.60	0.30	1.11
	CV				3.19	3.56	0.71	1.92	0.35	1.31
	Bartlett's X2				4.62	19.555	4.895	9.96	0.082	4.416
	P(Bartlett's X2)				0.464	0.002*	0.087	0.041*	0.96	0.491
	Replicate F				0.072	1.286	1.372	5.066	3.130	1.113
	Replicate Prob(F)				0.9744	0.3093	0.2831	0.0102	0.0514	0.3699
	Treatment F				764.760	614.151	15256.151	2119.040	62401.702	4519.839
	Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Purdue University

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	12	13
	Pest Type					
	Pest Code					
	Pest Scientific Name					
	Pest Name					
	Crop Code				ZEAMX	ZEAMX
	BBCH Scale				BCOR	BCOR
	Crop Scientific Name				Zea mays	Zea mays
	Crop Name				Corn	Corn
	Crop Variety				DKC 60-18	DKC 60-18
	Description					
	Part Rated					
	Rating Date				11/13/09	11/13/09
	Rating Type				YIELD	YIELD
	Rating Unit				LB	BU
	Number of Subsamples				1	1
	Crop Stage Majority					
	Pest Stage Majority					
	Pest Stage Minimum/Maximum					
	Pest Density, Unit					
	Assessed By				PM	PM
	Days After First/Last Applic.				175 148	175 148
	Trt-Eval Interval					
	Plant-Eval Interval				175 DP-1	175 DP-1
	Days After Emergence				170 DE	170 DE
	ARM Action Codes					TY1
	Number of Decimals					1
1	UNTREATED				50.68 b	153.0 b
2	Roundup WeatherMax	0.77	lb ae/a	B	82.68 a	249.6 a
	Ammonium Sulfate	2	% v/v	B		
3	Status	0.0875	lb ai/a	B	84.43 a	254.9 a
	Roundup WeatherMax	0.77	lb ae/a	B		
	Ammonium Sulfate	2	% v/v	B		
4	Status	0.175	lb ai/a	B	80.88 a	244.2 a
	Roundup WeatherMax	0.77	lb ae/a	B		
	Ammonium Sulfate	2	% v/v	B		
5	Guardsman Max	1.56	lb ai/a	A	82.95 a	250.5 a
	Roundup WeatherMax	0.77	lb ae/a	C		
	Ammonium Sulfate	2	% v/v	C		
6	Guardsman Max	1.56	lb ai/a	A	81.58 a	246.3 a
	Status	0.0875	lb ai/a	C		
	Roundup WeatherMax	0.77	lb ae/a	C		
	Ammonium Sulfate	2	% v/v	C		
7	Roundup WeatherMax	0.77	lb ae/a	C	83.93 a	253.4 a
	Ammonium Sulfate	2	% v/v	C		
	LSD (P=.05)				14.394	43.46
	Standard Deviation				9.689	29.25
	CV				12.4	12.4
	Bartlett's X2				11.485	11.483
	P(Bartlett's X2)				0.075	0.075
	Replicate F				0.560	0.560
	Replicate Prob(F)				0.6482	0.6483
	Treatment F				6.323	6.323
	Treatment Prob(F)				0.0010	0.0010

Purdue University

Dimethenamid herbicide efficacy in corn

Trial ID: 09S-THP-CTC-40 Protocol ID: 09S-THP-CTC-40
Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Gery Welker

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
AMBTR, Ambrosia trifida, = US
SETFA, Setaria faberi, = US
ABUTH, Abutilon theophrasti, = US
CHEAL, Chenopodium album, = US
AMARE, Amaranthus retroflexus, = US
Crop Code
ZEAMX, BCOR, Zea mays, = US
Part Rated
PLATOT = plant - total
P = Pest is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
YIELD = yield
Rating Unit
% = percent
LB = pound
BU = bushel

YD2 = per square yard
Plant-Eval Interval
24 DP-1 = 1 5/22/09
47 DP-1 = 1 5/22/09
52 DP-1 = 1 5/22/09
175 DP-1 = 1 5/22/09
ARM Action Codes
TY1 = 3.019374*12