

# Purdue University

## Sharpen crop tolerance POST

Trial ID: 09S-THP-CTC-74      Protocol ID: 09S-THP-CTC-74  
 Location: Throckmorton      Study Director: Paul Marquardt/Melissa Kruger  
 Project ID:      Investigator: Dr. Bill Johnson  
 Sponsor Contact: Purdue/OSU

### General Trial Information

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

**Discipline:** H herbicide  
**Trial Status:** E established  
**Initiation Date:** 5/22/09

### Trial Location

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

### Objectives:

Sharpen crop tolerance POST

### Personnel

**Study Director:** Paul Marquardt/Melissa Kruger      **Title:** Research Associate  
**Affiliation:** Purdue University  
**Address:** 915 W. State Street, Department of Botany & Plant Path.  
**Location:** West Lafayette, IN  
**Postal Code:** 47907      **E-mail:** pmarquar@purdue.edu  
**Phone No.:** 765-494-4621      **Mobile No.:** 765-409-6369  
**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      **Role:** Farm Manager  
**Organization:** Purdue University  
**Address 1:** 8343 US 231 South  
**Phone No.:** 765-538-3422  
**Fax No.:** 765-538-3423  
**City:** Lafayette  
**State/Prov:** Indiana  
**Postal Code:** 47909      **E-mail:** jayyoung@purdue.edu  
**Country:** USA      United States

### Crop Description

**Crop 1:** ZEAMX      Zea mays      Corn  
**Variety:** DKC 60-18  
**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      **Harvest Equipment:** Gleaner F3  
**% Standard Moisture:** 18.0      **Harvested Length, Unit:** 25      FT  
**Weighing Equipment:** Carter Double Bucket      **Moisture Meter:** Cart 3" blade

### Pest Description

**Pest 1 Type:** W      **Code:** AMBTR      Ambrosia trifida  
**Common Name:** Giant ragweed  
**Pest 2 Type:** W      **Code:** SETFA      Setaria faberi  
**Common Name:** Giant foxtail  
**Pest 3 Type:** W      **Code:** IPOSS      Ipomoea sp.  
**Common Name:** Morning glory

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## Site and Design

<b>Plot Width, Unit:</b> 10 FT <b>Plot Length, Unit:</b> 30 FT <b>Plot Area, Unit:</b> 300 FT <sup>2</sup> <b>Replications:</b> 4	<b>Site Type:</b> FIELD field <b>Experimental Unit:</b> 1 PLOT plot <b>Tillage Type:</b> CONTIL conventional-till <b>Study Design:</b> RACOB� Randomized Complete Block (RCB) <b>Untreated Arrangement:</b> INCLUDED single control randomized in each block
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## Field Prep./Maintenance:

Field cultivation and disc 1 day prior to planting

## Soil Description

**Description Name:** TPAC Field 4B  
**% OM:** 2.9      **Texture:** SIL silt loam  
**pH:** 6.2      **Soil Name:** Toronto-Millbrook  
**CEC:** 13.3

## Application Description

	A	B	C	D
<b>Application Date:</b>	5/22/09	6/9/09	6/14/09	6/18/09
<b>Time of Day:</b>		10:45 AM	11:00 AM	
<b>Application Method:</b>	SPRAY	SPRAY	SPRAY	SPRAY
<b>Application Timing:</b>	PREPLA	COVER	POSPOS	COVER
<b>Application Placement:</b>	BROSOI	BANFOL	BANFOL	BANFOL
<b>Applied By:</b>	CB	PM	PM	PM
<b>Air Temperature, Unit:</b>	88 F	74 F	76 F	
<b>% Relative Humidity:</b>	23.3	70	54	
<b>Wind Velocity, Unit:</b>	1.1 MPH	1 MPH	4 MPH	
<b>Wind Direction:</b>	W	W	W	
<b>Dew Presence (Y/N):</b>	N no	N no	N no	
<b>Soil Temperature, Unit:</b>	72 F	70 F	70 F	
<b>Soil Moisture:</b>	DRY	SLIWET	SLIWET	
<b>% Cloud Cover:</b>	80	80	80	

## Crop Stage At Each Application

	A	B	C	D
<b>Crop 1 Code, BBCH Scale:</b>	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR
<b>Stage Scale Used:</b>	BBCH	BBCH	BBCH	BBCH
<b>Stage Majority, Percent:</b>	00 100	V2	V4 80	V5
<b>Stage Minimum, Percent:</b>			V3 20	
<b>Stage Maximum, Percent:</b>		V3	V4 80	V6
<b>Height, Unit:</b>			15 IN	
<b>Height Minimum, Maximum:</b>			12 18	

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Pest Stage At Each Application				
	A	B	C	D
<b>Pest 1 Code, Type, Scale:</b>	AMBTR W	AMBTR W	AMBTR W	AMBTR W
<b>Stage Minimum, Percent:</b>			10	
<b>Stage Maximum, Percent:</b>			10	
<b>Height, Unit:</b>			1 IN	
<b>Height Minimum, Maximum:</b>			0 1	
<b>Density, Unit:</b>			2.5 YD2	
<b>Pest 2 Code, Type, Scale:</b>	SETFA W	SETFA W	SETFA W	SETFA W
<b>Stage Minimum, Percent:</b>			10	
<b>Stage Maximum, Percent:</b>			14	
<b>Height, Unit:</b>			1 IN	
<b>Height Minimum, Maximum:</b>			0 2	
<b>Density, Unit:</b>			38 YD2	
<b>Pest 3 Code, Type, Scale:</b>	IPOSS W	IPOSS W	IPOSS W	IPOSS W
<b>Stage Minimum, Percent:</b>			10	
<b>Stage Maximum, Percent:</b>			14	
<b>Height, Unit:</b>			1 IN	
<b>Height Minimum, Maximum:</b>			0 2	
<b>Density, Unit:</b>			1 YD2	

Application Equipment				
	A	B	C	D
<b>Appl. Equipment:</b>	CO2 Backpack	POLARIS	CO2 BACKPACK	POLARIS
<b>Equipment Type:</b>		SPTRMO	SPRBAC	SPTRMO
<b>Operating Pressure, Unit:</b>	17 psi	17 psi	17 psi	17 psi
<b>Nozzle Type:</b>	XR11002	FLAT FAN	FLAT FAN	FLAT FAN
<b>Nozzle Size:</b>		XR11002	XR11002	XR11002
<b>Nozzle Spacing, Unit:</b>	15 IN	15 IN	15 IN	15 IN
<b>Nozzles/Row:</b>	8	24	8	24
<b>Boom Length, Unit:</b>	10 FT	30 FT	10 FT	30 FT
<b>Boom Height, Unit:</b>	18 IN	18 IN	18 IN	18 IN
<b>Ground Speed, Unit:</b>	3 MPH	3 MPH	3 MPH	3 MPH
<b>Carrier:</b>	H2O	H2O	H2O	H2O
<b>Water Hardness (ppm CaCO3):</b>	Meigs	150	150	150
<b>Spray Volume, Unit:</b>	15 GPA	15 gal/ac	15 gal/ac	15 gal/ac
<b>Mix Size, Unit:</b>	1.8 L	30 Gallons	1.8 liters	30 Gallons
<b>Propellant:</b>	CO2	PUMP	CO2	PUMP
<b>Tank Mix (Y/N):</b>		N no	N no	N no

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Crop Code	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR	ZEAMX BCOR			
BBCH Scale	Zea mays	Zea mays	Zea mays	Zea mays	Zea mays			
Crop Scientific Name	Corn	Corn	Corn	Corn	Corn			
Crop Name	DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18	DKC 60-18			
Crop Variety	20-25"	20-25"	20-25"	20-25"	20-25"			
Description	6/23/09	7/9/09	7/20/09	11/14/09	11/14/09			
Rating Date	PHYGEN	PHYGEN	PHYGEN	YIELD	YIELD			
Rating Type	%	%	%	LB	BU			
Rating Unit	1	1	1	1	1			
Number of Subsamples	V5	V10	V12					
Crop Stage Majority	AR/RH	JD/RH	PM	PM	PM			
Assessed By	32 5	48 21	59 32	176 149	176 149			
Days After First/Last Applic.	32 DP-1	48 DP-1	59 DP-1	176 DP-1	176 DP-1			
Plant-Eval Interval	27 DE-	43 DE-	54 DE-	171 DE	171 DE			
Days After Emergence					TY1			
ARM Action Codes					1			
Number of Decimals	Trt Treatment	Rate	Appl					
	No. Name	Rate Unit	Code	1	2	3	4	5
	1 Untreated			0.3 a	0.0 d	0.0 a	75.90 a-d	229.2 a-d
	2 Sharpen	0.089 lb ai/a A		0.3 a	0.3 d	0.0 a	72.98 a-d	220.3 a-d
	3 Corvus	0.092 lb ai/a A		7.5 a	0.0 d	0.0 a	75.83 a-d	228.9 a-d
	4 Sharpen Corvus	0.089 lb ai/a A 0.092 lb ai/a A		0.0 a	0.0 d	0.0 a	78.70 ab	237.6 ab
	5 Harness Xtra	2.8 lb ai/a A		0.8 a	1.3 d	0.0 a	67.38 d	203.4 d
	6 Sharpen Harness Xtra	0.089 lb ai/a A 2.8 lb ai/a A		1.5 a	0.3 d	0.0 a	79.24 a	239.2 a
	7 Bicep II Magnum	2.75 lb ai/a A		5.3 a	0.0 d	0.0 a	77.30 ab	233.4 ab
	8 Sharpen Bicep II Magnum	0.089 lb ai/a A 2.75 lb ai/a A		5.0 a	0.3 d	0.0 a	74.23 a-d	224.1 a-d
	9 Balance Pro	0.078 lb ai/a A		0.8 a	1.8 d	0.0 a	74.08 a-d	223.7 a-d
	10 Balance Flexx	0.078 lb ai/a A		0.0 a	0.3 d	0.0 a	76.24 abc	230.2 abc
	11 Sharpen	0.089 lb ai/a B		7.0 a	5.3 bc	0.0 a	75.03 a-d	226.5 a-d
	12 Corvus	0.092 lb ai/a B		0.5 a	0.5 d	0.0 a	75.56 a-d	228.1 a-d
	13 Sharpen Corvus	0.089 lb ai/a B 0.092 lb ai/a B		8.3 a	3.3 cd	0.0 a	73.45 a-d	221.8 a-d
	14 Harness Xtra	2.8 lb ai/a B		0.8 a	0.5 d	0.0 a	77.15 abc	232.9 abc
	15 Sharpen Harness Xtra	0.089 lb ai/a B 2.8 lb ai/a B		3.5 a	7.8 a	0.0 a	68.43 cd	206.6 cd
	16 Bicep II Magnum	2.75 lb ai/a B		10.0 a	0.8 d	0.0 a	70.53 a-d	212.9 a-d
	17 Sharpen Bicep II Magnum	0.089 lb ai/a B 2.75 lb ai/a B		5.8 a	6.0 ab	0.0 a	70.00 bcd	211.4 bcd
	18 Balance Pro	0.078 lb ai/a B		3.8 a	2.0 d	0.0 a	74.38 a-d	224.6 a-d
	19 Balance Flexx	0.078 lb ai/a B		0.5 a	0.3 d	0.0 a	75.88 a-d	229.1 a-d
	20 Untreated			0.3 a	0.0 d	0.0 a	77.50 ab	234.0 ab
	LSD (P=.05)			7.98	2.06	0.00	4.905	14.81
	Standard Deviation			5.64	1.45	0.00	3.468	10.47
	CV			183.42	96.14	0.0	4.66	4.66
	Bartlett's X2			90.995	35.953	0.0	14.96	14.962
	P(Bartlett's X2)			0.001*	0.001*	.	0.725	0.725
	Replicate F			0.516	3.427	0.000	4.233	4.230
	Replicate Prob(F)			0.6729	0.0230	1.0000	0.0093	0.0093
	Treatment F			1.329	9.802	0.000	3.526	3.525
	Treatment Prob(F)			0.2025	0.0001	1.0000	0.0001	0.0001

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.

Crop Code  
 ZEAMX, BCOR, Zea mays, = US  
 Rating Type  
 PHYGEN = phytotoxicity - general / injury  
 YIELD = yield  
 Rating Unit  
 % = percent

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LB = pound  
BU = bushel  
Plant-Eval Interval  
32 DP-1 = 1 5/22/09  
48 DP-1 = 1 5/22/09  
59 DP-1 = 1 5/22/09  
176 DP-1 = 1 5/22/09  
ARM Action Codes  
TY1 = 3.019374\*4