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TO DETERMINE THE HERBICIDAL EFFICACY AND SELECTIVITY WHEN HARROW IS APPLIED PREPLANT TO CORN IN 2013

Trial ID: 13S-THP-NTC-31 Protocol ID: 13S-THP-NTC-31
 Location: USA Study Director: Bill Johnson
 Project ID: HZEAMXRIM2THI1301 Investigator: Dr. Bill Johnson
 Sponsor Contact: Cheminova - Jim Barrentine

General Trial Information

Study Director: Bill Johnson
Investigator: Dr. Bill Johnson **Title:** Professor

Discipline: H herbicide
Trial Status: E established
Initiation Date: Mar-19-2013

Trial Location

City: Lafayette
State/Prov.: IN
Postal Code: 47909
Country: USA

Keywords: CORN, HARROW (CHA-057), RIMSULFURON 50%, THIFENSULFURON 25%, GLYFOS X-TRA , BASIS, EFFICACY, CROP RESPONSE, BURNDOWN

Objectives:

COMPARE HARROW AS PREPLANT/PRE TO BASIS HERBICIDE WHEN APPLIED TO CORN

Personnel

Study Director: Bill Johnson
Investigator: Dr. Bill Johnson **Title:** Professor
Affiliation: Purdue University
Address: 915 W State Street
Location: West Lafayette, IN, USA
Postal Code: 47907 **E-mail:** wj@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

Cooperator/Landowner

Cooperator: Throckmorton Purdue Ag Center **Role:** Purdue Ag Center
Organization: Purdue University
Address 1: 8343 US 231 S
City: Lafayette **Phone No.:** 765-538-3422
State/Prov: IN **Fax No.:** 765-538-3423
Postal Code: 47909 **E-mail:** jayyoung@purdue.edu
Country: USA United States

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: DEKALB DKC61-21
BBCH Scale: BCOR **Description:** RR/LL
Planting Method: SEEDED seeded **Planting Date:** May-13-2013
Depth, Unit: 1.5 IN **Rate, Unit:** 32000 S/A
Row Spacing, Unit: 30 IN
Soil Moisture: SLIWET slightly wet **Soil Temperature, Unit:** 59 F
Emergence Date: May-20-2013

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Pest Description

- Pest 1 Type:** W **Code:** CHEAL *Chenopodium album*
Common Name: Common lambsquarters
- Pest 2 Type:** W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail
- Pest 3 Type:** W **Code:** SORVU *Sorghum vulgare*
Common Name: Shattercane
- Pest 4 Type:** W **Code:** PANDI *Panicum dichotomiflorum*
Common Name: Fall panicum
- Pest 5 Type:** W **Code:** ABUTH *Abutilon theophrasti*
Common Name: Velvetleaf
- Pest 6 Type:** W **Code:** AMBEL *Ambrosia artemisiifolia*
Common Name: Common ragweed
- Pest 7 Type:** W **Code:** AMATA *Amaranthus tamariscinus*
Common Name: Common waterhemp
- Pest 8 Type:** W **Code:** LAMAM *Lamium amplexicaule*
Common Name: Henbit
- Pest 9 Type:** W **Code:** ERICA *Conyza canadensis*
Common Name: Canada horseweed
- Pest10 Type:** W **Code:** TAROF *Taraxacum officinale*
Common Name: Common dandelion
- Pest11 Type:** W **Code:** THLSS *Thlaspi* sp.
Common Name: Pennycress
- Pest12 Type:** W **Code:** LACSE *Lactuca serriola*
Common Name: Prickly lettuce
- Pest13 Type:** W **Code:** STEME *Stellaria media*
Common Name: Common chickweed
- Pest14 Type:** W **Code:** COIMA *Conium maculatum*
Common Name: Poison hemlock

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:** NOTILL no-till
Replications: 4 **Study Design:** RACOB Randomized Complete Block (RCB)
Untreated Arrangement: INCLUDED single control randomized in each block

Maintenance

No.	Date	Maintenance Treatment Name	Rate	Rate Unit
1.	May-29-2013	PowerMax	22	OZ/A
2.	Jun-18-2013	PowerMax'	22	OZ/A

Soil Description

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

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Application Description

	A
Application Date:	May-1-2013
Time of Day:	8:30 AM
Application Method:	SPRAY
Application Timing:	EPP-7
Application Placement:	SOIL
Applied By:	MW
Air Temperature, Unit:	70 F
% Relative Humidity:	58
Wind Velocity, Unit:	4.5 MPH
Wind Direction:	S
Dew Presence (Y/N):	Y yes
Soil Temperature, Unit:	56 F
Soil Moisture:	SLIWET
% Cloud Cover:	0

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMX BCOR

Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	CHEAL W
Pest 2 Code, Type, Scale:	SETFA W
Pest 3 Code, Type, Scale:	SORVU W
Pest 4 Code, Type, Scale:	PANDI W
Pest 5 Code, Type, Scale:	ABUTH W
Pest 6 Code, Type, Scale:	AMBEL W
Pest 7 Code, Type, Scale:	AMATA W
Pest 8 Code, Type, Scale:	LAMAM W
Height, Unit:	7 IN
Density, Unit:	10 FT2
Pest 9 Code, Type, Scale:	ERICA W
Height, Unit:	3.5 IN
Density, Unit:	7 YD2
Pest10 Code, Type, Scale:	TAROF W
Height, Unit:	6 IN
Density, Unit:	4 YD2
Pest11 Code, Type, Scale:	THLSS W
Height, Unit:	13 IN
Density, Unit:	10 YD2
Pest12 Code, Type, Scale:	LACSE W
Height, Unit:	6.5 IN
Density, Unit:	4 YD2
Pest13 Code, Type, Scale:	STEME W
Height, Unit:	4 IN
Density, Unit:	6 FT2
Pest14 Code, Type, Scale:	COIMA W
Height, Unit:	2 IN
Density, Unit:	2 FT2

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Application Equipment

	A
Appl. Equipment:	CUB
Equipment Type:	SPTRMO
Nozzle Type:	FLAT FAN
Nozzle Size:	XR 110 02
Nozzle Spacing, Unit:	20 IN
Nozzles/Row:	6
Boom Length, Unit:	10 FT
Boom Height, Unit:	19 IN
Ground Speed, Unit:	2.1 MPH
Carrier:	MEIGS
Spray Volume, Unit:	20 gal/ac

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Reps: 4 Plots: 10 by 30 feet
 Spray vol: 20 gal/ac Mix size: 2.5 liters (min 2.0856)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Other Rate	Other Unit	Growth Unit	Appl Code	Appl Description	Amt to Measure	Product	Rep 1	2	3	4
1	UNTREATED												101	402	603	801
2	HARROW GLYFOS X-TRA NIS	75 %W/W 3 LBAE/GAL	WGD SL L	0.0117 lb ai/a 0.75 lb ae/a 0.25 % v/v	0.25 oz/a 32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A PREPLA A	7 Days EPP 7 Days EPP 7 Days EPP	0.2337 g/mx 31.25 ml/mx 6.249 ml/mx		102	303	503	902
3	HARROW GLYFOS X-TRA NIS	75 %W/W 3 LBAE/GAL	WGD SL L	0.0234 lb ai/a 0.75 lb ae/a 0.25 % v/v	0.50 oz/a 32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A PREPLA A	7 Days EPP 7 Days EPP 7 Days EPP	0.4673 g/mx 31.25 ml/mx 6.249 ml/mx		103	401	601	701
4	HARROW GLYFOS X-TRA NIS	75 %W/W 3 LBAE/GAL	WGD SL L	0.047 lb ai/a 0.75 lb ae/a 0.25 % v/v	1 oz/a 32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A PREPLA A	7 Days EPP 7 Days EPP 7 Days EPP	0.9386 g/mx 31.25 ml/mx 6.249 ml/mx		201	302	702	901
5	BASIS GLYFOS X-TRA NIS	75 %W/W 3 LBAE/GAL	WGD SL L	0.0234 lb ai/a 0.75 lb ae/a 0.25 % v/v	0.50 oz/a 32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A PREPLA A	7 Days EPP 7 Days EPP 7 Days EPP	0.4673 g/mx 31.25 ml/mx 6.249 ml/mx		202	502	803	1001
6	GLYFOS X-TRA NIS	3 LBAE/GAL	SL L	0.75 lb ae/a 0.25 % v/v	32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A	7 Days EPP 7 Days EPP	31.25 ml/mx 6.249 ml/mx		203	403	703	903
7	Lexar EZ (3.7 SC) GLYFOS X-TRA NIS	3.7 LB/GAL 3 LBAE/GAL	SL SL L	2.78 lb ai/a 0.75 lb ae/a 0.25 % v/v	3 qt/a 32 fl oz/a 0.25 % v/v				PREPLA A PREPLA A PREPLA A	7 Days EPP 7 Days EPP 7 Days EPP	93.91 ml/mx 31.25 ml/mx 6.249 ml/mx		301	501	602	802

Sort Order: Treatment

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Pest Type	W Weed							
Pest Code	STEME	LACSE	TAROF	LAMAM	ERICA	BROTE		
Pest Scientific Name	Stellaria media	Lactuca serrio>	Taraxacum offi>	Lamium amplexi>	Conyza canaden>	Bromus tectorum		
Pest Name	Common chickwe>	Prickly lettuce	Common dandel>	Henbit	Canada horsewe>	Downy brome		
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX		
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR		
Crop Scientific Name	Zea mays							
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn		
Rating Date	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1		
Crop Stage Majority								
Pest Stage Majority	6 IN	12 IN	6 IN	6 IN	4 IN	16 IN		
Pest Density, Unit	10 FT2	7 FT2	2 YD2	5 YD2	4 FT2	7 FT2		
Assessed By	MW	MW	MW	MW	MW	MW		
Days After First/Last Applic.	12 12	12 12	12 12	12 12	12 12	12 12		
Trt-Eval Interval	12 DA-A							
Plant-Eval Interval	0 DP-1							
Days After Emergence	-7 DE-1							
Trt Treatment	Rate	Appl						
No. Name	Rate	Unit Code Plot	1	2	3	4	5	6
1 UNTREATED		101	0.0	0.0	0.0	0.0	0.0	0.0
		402	0.0	0.0	0.0	0.0	0.0	0.0
		603	0.0	0.0	0.0	0.0	0.0	0.0
		801	0.0	0.0	0.0	0.0	0.0	0.0
		Mean =	0.0	0.0	0.0	0.0	0.0	0.0
2 HARROW	0.0117 lb ai/a	A 102	40.0	50.0	20.0	30.0	30.0	40.0
GLYFOS X-TRA	0.75 lb ae/a	A 303	80.0	99.0	50.0	99.0	99.0	50.0
NIS	0.25 % v/v	A 503	90.0	65.0	60.0	20.0	50.0	70.0
		902	60.0	30.0	10.0	99.0	99.0	50.0
		Mean =	67.5	61.0	35.0	62.0	69.5	52.5
3 HARROW	0.0234 lb ai/a	A 103	95.0	80.0	40.0	75.0	99.0	70.0
GLYFOS X-TRA	0.75 lb ae/a	A 401	95.0	30.0	50.0	40.0	40.0	60.0
NIS	0.25 % v/v	A 601	85.0	50.0	50.0	20.0	99.0	70.0
		701	95.0	70.0	60.0	30.0	70.0	85.0
		Mean =	92.5	57.5	50.0	41.3	77.0	71.3
4 HARROW	0.047 lb ai/a	A 201	80.0	60.0	10.0	50.0	20.0	60.0
GLYFOS X-TRA	0.75 lb ae/a	A 302	99.0	99.0	10.0	50.0	99.0	20.0
NIS	0.25 % v/v	A 702	60.0	80.0	45.0	99.0	30.0	45.0
		901	80.0	70.0	20.0	99.0	50.0	65.0
		Mean =	79.8	77.3	21.3	74.5	49.8	47.5
5 BASIS	0.0234 lb ai/a	A 202	85.0	60.0	10.0	20.0	50.0	50.0
GLYFOS X-TRA	0.75 lb ae/a	A 502	99.0	99.0	0.0	99.0	30.0	40.0
NIS	0.25 % v/v	A 1001	85.0	50.0	50.0	50.0	99.0	60.0
		803	50.0	10.0	20.0	99.0	10.0	20.0
		Mean =	79.8	54.8	20.0	67.0	47.3	42.5

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Pest Type	W Weed	W Weed								
Pest Code	STEME	LACSE	TAROF	LAMAM	ERICA	BROTE				
Pest Scientific Name	Stellaria media	Lactuca serrio>	Taraxacum offi>	Lamium amplexi>	Conyza canadens>	Bromus tectorum				
Pest Name	Common chickwe>	Prickly lettuce	Common dandel>	Henbit	Canada horsewe>	Downy brome				
Crop Code	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX	ZEAMX				
BBCH Scale	BCOR	BCOR	BCOR	BCOR	BCOR	BCOR				
Crop Scientific Name	Zea mays	Zea mays								
Crop Name	Corn	Corn	Corn	Corn	Corn	Corn				
Rating Date	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority										
Pest Stage Majority	6 IN	12 IN	6 IN	6 IN	4 IN	16 IN				
Pest Density, Unit	10 FT2	7 FT2	2 YD2	5 YD2	4 FT2	7 FT2				
Assessed By	MW	MW	MW	MW	MW	MW				
Days After First/Last Applic.	12 12	12 12	12 12	12 12	12 12	12 12				
Trt-Eval Interval	12 DA-A	12 DA-A								
Plant-Eval Interval	0 DP-1	0 DP-1								
Days After Emergence	-7 DE-1	-7 DE-1								
Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	Plot	1	2	3	4	5	6
6 GLYFOS X-TRA	0.75 lb ae/a	A	203		90.0	60.0	70.0	70.0	40.0	40.0
NIS	0.25 % v/v	A	403		85.0	40.0	40.0	20.0	40.0	60.0
			703		90.0	45.0	45.0	50.0	50.0	60.0
			903		50.0	20.0	40.0	20.0	99.0	30.0
			Mean =		78.8	41.3	48.8	40.0	57.3	47.5
7 Lexar EZ (3.7 SC)	2.78 lb ai/a	A	301		95.0	85.0	75.0	95.0	95.0	40.0
GLYFOS X-TRA	0.75 lb ae/a	A	501		95.0	85.0	60.0	99.0	50.0	70.0
NIS	0.25 % v/v	A	602		90.0	50.0	40.0	99.0	40.0	50.0
			802		85.0	70.0	20.0	99.0	99.0	30.0
			Mean =		91.3	72.5	48.8	98.0	71.0	47.5

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code	THLSS	ERICA	LACSE	BROTE	TAROF					
Pest Scientific Name	Thlaspi sp.	Conyza canadensis	Lactuca serriola	Bromus tectorum	Taraxacum officinale					
Pest Name	Pennycress	Canada horseweed	Prickly lettuce	Downy brome	Common dandelion					
Crop Code	ZEAMX					ZEAMX				
BBCH Scale	BCOR					BCOR				
Crop Scientific Name	Zea mays					Zea mays				
Crop Name	Corn					Corn				
Rating Date	May-13-2013	May-29-2013	May-29-2013	May-29-2013	May-29-2013	May-29-2013				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN				
Rating Unit	%	%	%	%	%	%				
Number of Subsamples	1	1	1	1	1	1				
Crop Stage Majority		V2	V2	V2	V2	V2				
Pest Stage Majority	14 IN	12 IN	24 IN	36 IN	7 IN					
Pest Density, Unit	4 YD2	10 FT2	5 YD2	5 FT2						
Assessed By	MW	MW	MW	MW	MW	MW				
Days After First/Last Applic.	12 12	28 28	28 28	28 28	28 28	28 28				
Trt-Eval Interval	12 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A				
Plant-Eval Interval	0 DP-1	16 DP-1	16 DP-1	16 DP-1	16 DP-1	16 DP-1				
Days After Emergence	-7 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1				
Trt Treatment	Rate	Appl								
No. Name	Rate	Unit	Code	Plot	7	8	9	10	11	12
1 UNTREATED				101	0.0	0.0	0.0	0.0	0.0	0.0
				402	0.0	0.0	0.0	0.0	0.0	0.0
				603	0.0	0.0	0.0	0.0	0.0	0.0
				801	0.0	0.0	0.0	0.0	0.0	0.0
				Mean =	0.0	0.0	0.0	0.0	0.0	0.0
2 HARROW	0.0117 lb ai/a	A		102	99.0	99.0	99.0	95.0	80.0	0.0
GLYFOS X-TRA	0.75 lb ae/a	A		303	99.0	95.0	99.0	99.0	85.0	0.0
NIS	0.25 % v/v	A		503	99.0	65.0	90.0	99.0	90.0	0.0
				902	70.0	99.0	99.0	99.0	75.0	0.0
				Mean =	91.8	89.5	96.8	98.0	82.5	0.0
3 HARROW	0.0234 lb ai/a	A		103	99.0	99.0	99.0	99.0	85.0	0.0
GLYFOS X-TRA	0.75 lb ae/a	A		401	40.0	65.0	90.0	99.0	90.0	0.0
NIS	0.25 % v/v	A		601	99.0	90.0	99.0	99.0	90.0	0.0
				701	60.0	80.0	99.0	99.0	85.0	0.0
				Mean =	74.5	83.5	96.8	99.0	87.5	0.0
4 HARROW	0.047 lb ai/a	A		201	70.0	50.0	80.0	99.0	70.0	0.0
GLYFOS X-TRA	0.75 lb ae/a	A		302	99.0	99.0	99.0	90.0	70.0	0.0
NIS	0.25 % v/v	A		702	50.0	85.0	99.0	99.0	60.0	0.0
				901	70.0	85.0	99.0	99.0	70.0	0.0
				Mean =	72.3	79.8	94.3	96.8	67.5	0.0
5 BASIS	0.0234 lb ai/a	A		202	99.0	80.0	99.0	99.0	70.0	0.0
GLYFOS X-TRA	0.75 lb ae/a	A		502	99.0	85.0	99.0	99.0	85.0	0.0
NIS	0.25 % v/v	A		1001	40.0	90.0	99.0	99.0	99.0	0.0
				803	50.0	60.0	70.0	70.0	50.0	0.0
				Mean =	72.0	78.8	91.8	91.8	76.0	0.0

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	
Pest Code	THLSS	ERICA	LACSE	BROTE	TAROF	
Pest Scientific Name	Thlaspi sp.	Conyza canadensis	Lactuca serriola	Bromus tectorum	Taraxacum officinale	
Pest Name	Pennycress	Canada horseweed	Prickly lettuce	Downy brome	Common dandelion	
Crop Code	ZEAMX					ZEAMX
BBCH Scale	BCOR					BCOR
Crop Scientific Name	Zea mays					Zea mays
Crop Name	Corn					Corn
Rating Date	May-13-2013	May-29-2013	May-29-2013	May-29-2013	May-29-2013	May-29-2013
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority		V2	V2	V2	V2	V2
Pest Stage Majority	14 IN	12 IN	24 IN	36 IN	7 IN	
Pest Density, Unit	4 YD2	10 FT2	5 YD2	5 FT2		
Assessed By	MW	MW	MW	MW	MW	MW
Days After First/Last Applic.	12 12	28 28	28 28	28 28	28 28	28 28
Trt-Eval Interval	12 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A	28 DA-A
Plant-Eval Interval	0 DP-1	16 DP-1	16 DP-1	16 DP-1	16 DP-1	16 DP-1
Days After Emergence	-7 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1	9 DE-1
Trt No.						
Treatment Name						
Rate						
Unit						
Appl Code						
Plot	7	8	9	10	11	12
6 GLYFOS X-TRA	0.75 lb ae/a A					
NIS	0.25 % v/v A					
Mean =						
7 Lexar EZ (3.7 SC)	2.78 lb ai/a A					
GLYFOS X-TRA	0.75 lb ae/a A					
NIS	0.25 % v/v A					
Mean =						

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Pest Type	W Weed	W Weed	W Weed	W Weed							
Pest Code	ERICA	LACSE	AMBTR	SETFA							
Pest Scientific Name	Conyza canadensis	Lactuca serriola	Ambrosia trifida	Setaria faberii							
Pest Name	Canada horseweed	Prickly lettuce	Giant ragweed	Giant foxtail							
Crop Code						ZEAMX	ZEAMX				
BBCH Scale						BCOR	BCOR				
Crop Scientific Name						Zea mays	Zea mays				
Crop Name						Corn	Corn				
Rating Date	Jun-17-2013	Jun-17-2013	Jun-17-2013	Jun-17-2013	Jul-24-2013	Oct-18-2013	Oct-18-2013				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYSTU	MOICON	YIELD				
Rating Unit	%	%	%	%	%	%	bu/ac				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority											
Pest Stage Majority	36 IN	20 IN	6 IN								
Pest Density, Unit	6 YF2	5 FT2	2 YD2								
Assessed By	MW	MW	MW	MW	MW						
Days After First/Last Applic.	47 47	47 47	47 47	47 47	84 84	170 170	170 170				
Trt-Eval Interval	47 DA-A	47 DA-A	47 DA-A	47 DA-A	84 DA-A	170 DA-A	170 DA-A				
Plant-Eval Interval	35 DP-1	35 DP-1	35 DP-1	35 DP-1	72 DP-1	158 DP-1	158 DP-1				
Days After Emergence	28 DE-1	28 DE-1	28 DE-1	28 DE-1	65 DE-1	151 DE-1	151 DE-1				
Trt Treatment	Rate	Appl									
No. Name	Rate	Unit	Code	Plot	13	14	15	16	17	18	19
1 UNTREATED				101	0.0	0.0	0.0	0.0	0.0	19.70	0.40
				402	0.0	0.0	0.0	0.0	40.0	22.30	41.30
				603	0.0	0.0	0.0	0.0	50.0	23.80	55.30
				801	0.0	0.0	0.0	0.0	60.0	19.70	10.50
				Mean =	0.0	0.0	0.0	0.0	37.5	21.38	26.88
2 HARROW	0.0117 lb ai/a	A		102	90.0	90.0	90.0	95.0	0.0	19.60	190.90
GLYFOS X-TRA	0.75 lb ae/a	A		303	90.0	99.0	80.0	80.0	0.0	20.80	219.20
NIS	0.25 % v/v	A		503	50.0	90.0	85.0	75.0	15.0	20.90	185.60
				902	99.0	99.0	50.0	65.0	5.0	20.00	229.70
				Mean =	82.3	94.5	76.3	78.8	5.0	20.33	206.35
3 HARROW	0.0234 lb ai/a	A		103	95.0	99.0	99.0	90.0	0.0	20.40	230.90
GLYFOS X-TRA	0.75 lb ae/a	A		401	60.0	99.0	40.0	75.0	10.0	18.60	225.70
NIS	0.25 % v/v	A		601	85.0	99.0	30.0	90.0	5.0	19.50	206.90
				701	70.0	80.0	40.0	70.0	7.0	19.70	187.40
				Mean =	77.5	94.3	52.3	81.3	5.5	19.55	212.73
4 HARROW	0.047 lb ai/a	A		201	70.0	70.0	60.0	60.0	10.0	19.03*	231.96*
GLYFOS X-TRA	0.75 lb ae/a	A		302	95.0	99.0	99.0	90.0	10.0	19.80	233.80
NIS	0.25 % v/v	A		702	75.0	90.0	60.0	95.0	7.0	19.00	221.40
				901	85.0	85.0	85.0	60.0	5.0	20.50	236.30
				Mean =	81.3	86.0	76.0	76.3	8.0	19.58	230.87
5 BASIS	0.0234 lb ai/a	A		202	95.0	99.0	99.0	85.0	5.0	20.10	243.50
GLYFOS X-TRA	0.75 lb ae/a	A		502	80.0	99.0	90.0	85.0	5.0	21.50	215.70
NIS	0.25 % v/v	A		1001	85.0	99.0	20.0	65.0	0.0	19.90	229.30
				803	70.0	80.0	30.0	60.0	10.0	20.05*	225.62*
				Mean =	82.5	94.3	59.8	73.8	5.0	20.39	228.53

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Pest Type	W Weed	W Weed	W Weed	W Weed							
Pest Code	ERICA	LACSE	AMBTR	SETFA							
Pest Scientific Name	Conyza canadensis	Lactuca serriola	Ambrosia trifida	Setaria faberii							
Pest Name	Canada horseweed	Prickly lettuce	Giant ragweed	Giant foxtail							
Crop Code						ZEAMX	ZEAMX				
BBCH Scale						BCOR	BCOR				
Crop Scientific Name						Zea mays	Zea mays				
Crop Name						Corn	Corn				
Rating Date	Jun-17-2013	Jun-17-2013	Jun-17-2013	Jun-17-2013	Jul-24-2013	Oct-18-2013	Oct-18-2013				
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYSTU	MOICON	YIELD				
Rating Unit	%	%	%	%	%	%	bu/ac				
Number of Subsamples	1	1	1	1	1	1	1				
Crop Stage Majority											
Pest Stage Majority	36 IN	20 IN	6 IN								
Pest Density, Unit	6 YF2	5 FT2	2 YD2								
Assessed By	MW	MW	MW	MW	MW						
Days After First/Last Applic.	47 47	47 47	47 47	47 47	84 84	170 170	170 170				
Trt-Eval Interval	47 DA-A	47 DA-A	47 DA-A	47 DA-A	84 DA-A	170 DA-A	170 DA-A				
Plant-Eval Interval	35 DP-1	35 DP-1	35 DP-1	35 DP-1	72 DP-1	158 DP-1	158 DP-1				
Days After Emergence	28 DE-1	28 DE-1	28 DE-1	28 DE-1	65 DE-1	151 DE-1	151 DE-1				
Trt Treatment	Rate	Appl									
No. Name	Rate	Unit	Code	Plot	13	14	15	16	17	18	19
6 GLYFOS X-TRA	0.75 lb ae/a	A	203		85.0	95.0	99.0	95.0	0.0	20.10	209.60
NIS	0.25 % v/v	A	403		60.0	85.0	99.0	65.0	20.0	20.80	219.80
			703		70.0	99.0	30.0	30.0	15.0	24.10	171.80
			903		99.0	70.0	40.0	60.0	7.0	19.60	211.50
			Mean =		78.5	87.3	67.0	62.5	10.5	21.15	203.18
7 Lexar EZ (3.7 SC)	2.78 lb ai/a	A	301		95.0	99.0	95.0	80.0	0.0	19.30	240.00
GLYFOS X-TRA	0.75 lb ae/a	A	501		99.0	99.0	90.0	40.0	0.0	19.30	272.80
NIS	0.25 % v/v	A	602		99.0	99.0	90.0	90.0	0.0	20.10	193.30
			802		99.0	99.0	90.0	75.0	0.0	20.20	218.20
			Mean =		98.0	99.0	91.3	71.3	0.0	19.73	231.08

Purdue University

TO DETERMINE THE HERBICIDAL EFFICACY AND SELECTIVITY WHEN HARROW IS APPLIED PREPLANT TO CORN IN 2013

Trial ID: 13S-THP-NTC-31 Protocol ID: 13S-THP-NTC-31
 Location: USA Study Director: Bill Johnson
 Project ID: HZEAMXRIM2THI1301 Investigator: Dr. Bill Johnson
 Sponsor Contact: Cheminova - Jim Barrentine

Pest Type

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

Pest Code

STEME, Stellaria media, = US
 LACSE, Lactuca serriola, = US
 TAROF, Taraxacum officinale, = US
 LAMAM, Lamium amplexicaule, = US
 ERICA, Conyza canadensis, = US
 BROTE, Bromus tectorum, = US
 THLSS, Thlaspi sp., = US
 AMBTR, Ambrosia trifida, = US
 SETFA, Setaria faberi, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Rating Type

CONTRO = control / burndown or knockdown
 PHYGEN = phytotoxicity - general / injury
 PHYSTU = phytotoxicity - stunting
 MOICON = moisture content
 YIELD = yield

Rating Unit

% = percent
 bu/ac = bushels per acre

FT2 = per square foot
 YD2 = per square yard

Plant-Eval Interval

0 DP-1 = 1 ZEAMX May-13-2013
 16 DP-1 = 1 ZEAMX May-13-2013
 35 DP-1 = 1 ZEAMX May-13-2013
 72 DP-1 = 1 ZEAMX May-13-2013
 158 DP-1 = 1 ZEAMX May-13-2013

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 Sponsor Contact: Cheminova - Jim Barrentine

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	STEME	LACSE	TAROF	LAMAM	ERICA	BROTE
Pest Scientific Name	Stellaria media	Lactuca serrio>	Taraxacum offi>	Lamium amplexi>	Conyza canaden>	Bromus tectorum
Pest Name	Common chickwe>	Prickly lettuce	Common dandel>	Henbit	Canada horsewe>	Downy brome
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
Rating Date	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013	May-13-2013
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority						
Pest Stage Majority	6 IN	12 IN	6 IN	6 IN	4 IN	16 IN
Pest Density, Unit	10 FT2	7 FT2	2 YD2	5 YD2	4 FT2	7 FT2
Assessed By	MW	MW	MW	MW	MW	MW
Days After First/Last Applic.	12 12	12 12	12 12	12 12	12 12	12 12
Trt-Eval Interval	12 DA-A	12 DA-A	12 DA-A	12 DA-A	12 DA-A	12 DA-A
Plant-Eval Interval	0 DP-1	0 DP-1	0 DP-1	0 DP-1	0 DP-1	0 DP-1
Days After Emergence	-7 DE-1	-7 DE-1	-7 DE-1	-7 DE-1	-7 DE-1	-7 DE-1
Trt Treatment						
No. Name	1	2	3	4	5	6
1 UNTREATED	0.0 b	0.0 b	0.0 b	0.0 b	0.0 a	0.0 b
2 HARROW GLYFOS X-TRA NIS	0.0117 lb ai/a A 0.75 lb ae/a A 0.25 % v/v A	67.5 a	61.0 a	35.0 a	62.0 a	69.5 a
3 HARROW GLYFOS X-TRA NIS	0.0234 lb ai/a A 0.75 lb ae/a A 0.25 % v/v A	92.5 a	57.5 a	50.0 a	41.3 ab	77.0 a
4 HARROW GLYFOS X-TRA NIS	0.047 lb ai/a A 0.75 lb ae/a A 0.25 % v/v A	79.8 a	77.3 a	21.3 ab	74.5 a	49.8 a
5 BASIS GLYFOS X-TRA NIS	0.0234 lb ai/a A 0.75 lb ae/a A 0.25 % v/v A	79.8 a	54.8 a	20.0 ab	67.0 a	47.3 a
6 GLYFOS X-TRA NIS	0.75 lb ae/a A 0.25 % v/v A	78.8 a	41.3 a	48.8 a	40.0 ab	57.3 a
7 Lexar EZ (3.7 SC) GLYFOS X-TRA NIS	2.78 lb ai/a A 0.75 lb ae/a A 0.25 % v/v A	91.3 a	72.5 a	48.8 a	98.0 a	71.0 a
LSD (P=.05)	20.79	31.15	25.71	42.60	47.79	22.14
Standard Deviation	13.99	20.97	17.30	28.68	32.17	14.90
CV	20.01	40.3	54.13	52.44	60.57	33.79
Bartlett's X2	9.451	3.367	3.626	13.949	0.449	1.492
P(Bartlett's X2)	0.092	0.644	0.604	0.016*	0.994	0.914
Replicate F	2.187	1.962	1.188	0.488	0.215	0.669
Replicate Prob(F)	0.1248	0.1559	0.3423	0.6952	0.8844	0.5822
Treatment F	20.875	6.059	4.849	4.751	2.605	8.373
Treatment Prob(F)	0.0001	0.0013	0.0041	0.0046	0.0537	0.0002

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.

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Pest Type	W Weed	W Weed	W Weed						
Pest Code	LACSE	AMBTR	SETFA						
Pest Scientific Name	Lactuca serriol>	Ambrosia trifid>	Setaria faberi						
Pest Name	Prickly lettuce	Giant ragweed	Giant foxtail						
Crop Code					ZEAMX	ZEAMX			
BBCB Scale					BCOR	BCOR			
Crop Scientific Name					Zea mays	Zea mays			
Crop Name					Corn	Corn			
Rating Date	Jun-17-2013	Jun-17-2013	Jun-17-2013	Jul-24-2013	Oct-18-2013	Oct-18-2013			
Rating Type	CONTRO	CONTRO	CONTRO	PHYSTU	MOICON	YIELD			
Rating Unit	%	%	%	%	%	bu/ac			
Number of Subsamples	1	1	1	1	1	1			
Crop Stage Majority									
Pest Stage Majority	20 IN	6 IN							
Pest Density, Unit	5 FT2	2 YD2							
Assessed By	MW	MW	MW	MW					
Days After First/Last Applic.	47 47	47 47	47 47	84 84	170 170	170 170			
Trt-Eval Interval	47 DA-A	47 DA-A	47 DA-A	84 DA-A	170 DA-A	170 DA-A			
Plant-Eval Interval	35 DP-1	35 DP-1	35 DP-1	72 DP-1	158 DP-1	158 DP-1			
Days After Emergence	28 DE-1	28 DE-1	28 DE-1	65 DE-1	151 DE-1	151 DE-1			
Trt Treatment	Rate	Appl							
No. Name	Rate	Unit	Code	14	15	16	17	18	19
1 UNTREATED				0.0 b	0.0 b	0.0 b	37.5 a	21.38 a	26.88 b
2 HARROW	0.0117 lb ai/a	A		94.5 a	76.3 a	78.8 a	5.0 b	20.33 a	206.35 a
GLYFOS X-TRA	0.75 lb ae/a	A							
NIS	0.25 % v/v	A							
3 HARROW	0.0234 lb ai/a	A		94.3 a	52.3 a	81.3 a	5.5 b	19.55 a	212.73 a
GLYFOS X-TRA	0.75 lb ae/a	A							
NIS	0.25 % v/v	A							
4 HARROW	0.047 lb ai/a	A		86.0 a	76.0 a	76.3 a	8.0 b	19.58 a	230.87 a
GLYFOS X-TRA	0.75 lb ae/a	A							
NIS	0.25 % v/v	A							
5 BASIS	0.0234 lb ai/a	A		94.3 a	59.8 a	73.8 a	5.0 b	20.39 a	228.53 a
GLYFOS X-TRA	0.75 lb ae/a	A							
NIS	0.25 % v/v	A							
6 GLYFOS X-TRA	0.75 lb ae/a	A		87.3 a	67.0 a	62.5 a	10.5 b	21.15 a	203.18 a
NIS	0.25 % v/v	A							
7 Lexar EZ (3.7 SC)	2.78 lb ai/a	A		99.0 a	91.3 a	71.3 a	0.0 b	19.73 a	231.08 a
GLYFOS X-TRA	0.75 lb ae/a	A							
NIS	0.25 % v/v	A							
LSD (P=.05)	11.92			32.39	24.66	15.52	1.856	33.169	
Standard Deviation	8.03			21.80	16.60	10.45	1.238	22.126	
CV	10.12			36.13	26.18	102.28	6.1	11.56	
Bartlett's X2	2.307			13.553	3.585	20.616	10.022	4.121	
P(Bartlett's X2)	0.68			0.019*	0.611	0.001*	0.124	0.66	
Replicate F	2.098			3.925	1.161	1.877	1.508	1.373	
Replicate Prob(F)	0.1362			0.0256	0.3518	0.1697	0.2506	0.2868	
Treatment F	77.220			7.298	11.878	5.683	1.433	44.113	
Treatment Prob(F)	0.0001			0.0005	0.0001	0.0018	0.2625	0.0001	

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 BROTE, Bromus tectorum, = US
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 AMBTR, Ambrosia trifida, = US
 SETFA, Setaria faberi, = US

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ZEAMX, BCOR, Zea mays, = US

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