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Adjuvant study with Touchdown HiTech

Trial ID: 09S-THP-CTC-85 Protocol ID: 09S-THP-CTC-85
 Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Terry Clark

General Trial Information

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

Discipline: H herbicide
Trial Status: E established
Initiation Date: 6/15/09 **Planned Completion Date:** 7/24/09

Trial Location

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

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. Bill Johnson **Title:** Professor
Affiliation: Purdue University
Address: 915 W. State Street, Department of Botany & Plant Path.
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** wgj@purdue.edu

Cooperator/Landowner

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

Crop Description

Crop 1: ZEAMX Zea mays Corn
Variety: P33W84
Description: roundup ready
BBCH Scale: BCOR **Planting Date:** 6/15/09
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 Moisture: FAIR fair **Emergence Date:** 6/20/09

Pest Description

Pest 1 Type: W **Code:** AMARE *Amaranthus retroflexus*
Common Name: Redroot pigweed

Pest 2 Type: W **Code:** CHEAL *Chenopodium album*
Common Name: Common lambsquarters

Pest 3 Type: W **Code:** SETFA *Setaria faberi*
Common Name: Giant foxtail

Pest 4 Type: W **Code:** AMBTR *Ambrosia trifida*
Common Name: Giant ragweed

Pest 5 Type: W **Code:** ABUTH *Abutilon theophrasti*
Common Name: Velvetleaf

Pest 6 Type: W **Code:** CIRAR *Cirsium arvense*
Common Name: Canada thistle

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Site and Design

Plot Width, Unit: 5 FT
Plot Length, Unit: 30 FT
Plot Area, Unit: 150 FT²
Replications: 4

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

Field Prep./Maintenance:

Field cultivation and disc 3 weeks before planting.

Soil Description

Description Name: TPAC Field 4B
% OM: 2.9
pH: 6.2
CEC: 13.3

Texture: SIL silt loam
Soil Name: Toronto-Millbrook

Application Description

	A
Application Date:	7/3/09
Time of Day:	11 AM
Application Method:	SPRAY
Application Timing:	POSPOS
Application Placement:	FOLIAR
Applied By:	PM
Air Temperature, Unit:	79 F
% Relative Humidity:	53
Wind Velocity, Unit:	3.5 MPH
Wind Direction:	W
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	72 F
Soil Moisture:	DRY
% Cloud Cover:	60

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	ZEAMX BCOR
Stage Scale Used:	BBCH
Stage Majority, Percent:	V4 90
Stage Minimum, Percent:	V3 10
Stage Maximum, Percent:	V4 90
Height, Unit:	10 IN
Height Minimum, Maximum:	8 12

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Pest Stage At Each Application	
	A
Pest 1 Code, Type, Scale:	AMARE W
Stage Majority, Percent:	34
Stage Minimum, Percent:	32
Stage Maximum, Percent:	36
Height, Unit:	20 IN
Height Minimum, Maximum:	4 36
Density, Unit:	8.5 YD2
Pest 2 Code, Type, Scale:	CHEAL W
Stage Majority, Percent:	35
Stage Minimum, Percent:	31
Stage Maximum, Percent:	39
Height, Unit:	8 IN
Height Minimum, Maximum:	4 12
Density, Unit:	5.5 YD2
Pest 3 Code, Type, Scale:	SETFA W
Stage Majority, Percent:	15
Stage Minimum, Percent:	12
Stage Maximum, Percent:	19
Height, Unit:	12 IN
Height Minimum, Maximum:	6 18
Density, Unit:	150 YD2
Pest 4 Code, Type, Scale:	AMBTR W
Stage Majority, Percent:	36
Stage Minimum, Percent:	32
Stage Maximum, Percent:	38
Height, Unit:	26 IN
Height Minimum, Maximum:	12 40
Density, Unit:	12.5 YD2
Pest 5 Code, Type, Scale:	ABUTH W
Stage Majority, Percent:	33
Stage Minimum, Percent:	31
Stage Maximum, Percent:	35
Height, Unit:	21 IN
Height Minimum, Maximum:	6 36
Density, Unit:	8 YD2
Pest 6 Code, Type, Scale:	CIRAR W
Stage Majority, Percent:	35
Stage Minimum, Percent:	31
Stage Maximum, Percent:	39
Height, Unit:	8 IN
Height Minimum, Maximum:	4 12
Density, Unit:	5.5 YD2

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Application Equipment	
	A
Appl. Equipment:	CO2 BACKPACK
Equipment Type:	SPRBAC
Operating Pressure, Unit:	17 psi
Nozzle Type:	FLAT FAN
Nozzle Size:	XR11002
Nozzle Spacing, Unit:	15 IN
Nozzles/Row:	4
Boom Length, Unit:	5 FT
Boom Height, Unit:	18 IN
Ground Speed, Unit:	3 MPH
Carrier:	H2O
Water Hardness (ppm CaCO3):	150
Spray Volume, Unit:	15 gal/ac
Mix Size, Unit:	1.8 liters
Propellant:	CO2
Tank Mix (Y/N):	N no

Date	By	Notes
7/3/09	PM	Hard water used from Purdue Meig's Horticulture Farm, distilled water from Purdue main campus.

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Adjuvant study with Touchdown HiTech

Trial ID: 09S-THP-CTC-85 Protocol ID: 09S-THP-CTC-85
 Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
 Project ID: Investigator: Dr. Bill Johnson
 Sponsor Contact: Terry Clark

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	SETFA	ABUTH	AMARE	CHEAL
Pest Scientific Name	Ambrosia trifi>	Setaria faberi	Abutilon theop>	Amaranthus ret>	Chenopodium al>
Pest Name	Giant ragweed	Giant foxtail	Velvetleaf	Redroot pigweed	Common lambsqu>
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	P33W84	P33W84	P33W84	P33W84	P33W84
Description	12-18"	12-18"	12-18"	12-18"	12-18"
Rating Date	7/9/09	7/9/09	7/9/09	7/9/09	7/9/09
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Crop Stage Majority	V5	V5	V5	V5	V5
Pest Stage Majority	2-48"	1-24"	2-36"	1-18"	1-24"
Pest Density, Unit	7.5 YD2	30 YD2	5 YD2	2.5 YD2	2 YD2
Assessed By	PM/JM	PM/JM	PM/JM	PM/JM	PM/JM
Days After First/Last Applic.	6 6	6 6	6 6	6 6	6 6
Trt-Eval Interval	6 DA-A	6 DA-A	6 DA-A	6 DA-A	6 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-
Trt Treatment	Rate	Appl			
No. Name	Rate	Unit	Code		
1 Untreated					
2 Touchdown HiTech	0.75 lb ae/a	A			
3 Touchdown HiTech	0.75 lb ae/a	A			
Ammonium Sulfate	1.02 % w/w	A			
4 Touchdown HiTech	0.75 lb ae/a	A			
Preference NIS	0.25 % v/v	A			
5 Touchdown HiTech	0.75 lb ae/a	A			
Preference NIS	0.25 % v/v	A			
Ammonium Sulfate	1.02 % w/w	A			
6 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.039 lb ai/a	A			
7 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.039 lb ai/a	A			
Ammonium Sulfate	1.02 % w/w	A			
8 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.039 lb ai/a	A			
Preference NIS	0.25 % v/v	A			
9 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.039 lb ai/a	A			
Preference NIS	0.25 % v/v	A			
Ammonium Sulfate	1.02 % w/w	A			
10 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.078 lb ai/a	A			
11 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.078 lb ai/a	A			
Ammonium Sulfate	1.02 % w/w	A			
12 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.078 lb ai/a	A			
Preference NIS	0.25 % v/v	A			
13 Touchdown HiTech	0.75 lb ae/a	A			
CT301	0.078 lb ai/a	A			
Preference NIS	0.25 % v/v	A			
Ammonium Sulfate	1.02 % w/w	A			
14 Touchdown HiTech	0.75 lb ae/a	A			
15 Touchdown HiTech	0.75 lb ae/a	A			
Ammonium Sulfate	1.02 % w/w	A			
16 Touchdown HiTech	0.75 lb ae/a	A			
Preference NIS	0.25 % v/v	A			

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	SETFA	ABUTH	AMARE	CHEAL
Pest Scientific Name	Ambrosia trifi>	Setaria faberi	Abutilon theop>	Amaranthus ret>	Chenopodium al>
Pest Name	Giant ragweed	Giant foxtail	Velvetleaf	Redroot pigweed	Common lambsqu>
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	P33W84	P33W84	P33W84	P33W84	P33W84
Description	12-18"	12-18"	12-18"	12-18"	12-18"
Rating Date	7/9/09	7/9/09	7/9/09	7/9/09	7/9/09
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Crop Stage Majority	V5	V5	V5	V5	V5
Pest Stage Majority	2-48"	1-24"	2-36"	1-18"	1-24"
Pest Density, Unit	7.5 YD2	30 YD2	5 YD2	2.5 YD2	2 YD2
Assessed By	PM/JM	PM/JM	PM/JM	PM/JM	PM/JM
Days After First/Last Applic.	6 6	6 6	6 6	6 6	6 6
Trt-Eval Interval	6 DA-A	6 DA-A	6 DA-A	6 DA-A	6 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-
Trt No.	1	2	3	4	5
Treatment Name					
Rate					
Unit					
Appl Code					
17 Touchdown HiTech	0.75 lb ae/a A	87.3 a	90.0 a	92.5 a	98.3 a
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
18 Touchdown HiTech	0.75 lb ae/a A	90.0 a	88.8 a	93.5 a	87.5 a
CT301	0.039 lb ai/a A				
19 Touchdown HiTech	0.75 lb ae/a A	90.0 a	90.8 a	95.0 a	100.0 a
CT301	0.039 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
20 Touchdown HiTech	0.75 lb ae/a A	94.3 a	93.0 a	62.5 a	97.0 a
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
21 Touchdown HiTech	0.75 lb ae/a A	90.0 a	91.8 a	90.8 a	100.0 a
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
22 Touchdown HiTech	0.75 lb ae/a A	59.5 a	83.8 a	75.0 a	97.5 a
CT301	0.078 lb ai/a A				
23 Touchdown HiTech	0.75 lb ae/a A	83.8 a	91.3 a	78.8 a	98.8 a
CT301	0.078 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
24 Touchdown HiTech	0.75 lb ae/a A	67.5 a	88.0 a	87.5 a	99.5 a
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
25 Touchdown HiTech	0.75 lb ae/a A	78.8 a	89.3 a	85.0 a	99.5 a
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
LSD (P=.05)	20.17	7.46	20.54	10.27	26.60
Standard Deviation	14.26	5.27	14.52	7.26	18.81
CV	17.72	6.12	17.98	7.79	22.8
Bartlett's X2	46.289	17.649	51.915	91.895	85.008
P(Bartlett's X2)	0.003*	0.727	0.001*	0.001*	0.001*
Replicate F	2.027	2.975	0.581	1.628	2.372
Replicate Prob(F)	0.1177	0.0372	0.6293	0.1903	0.0774
Treatment F	7.284	47.243	6.576	29.561	5.046
Treatment Prob(F)	0.0001	0.0001	0.0001	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.

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	SETFA	AMARE	CHEAL	ABUTH
Pest Scientific Name	Ambrosia trifidi>	Setaria faberi	Amaranthus ret>	Chenopodium al>	Abutilon theop>
Pest Name	Giant ragweed	Giant foxtail	Redroot pigweed	Common lambsqu>	Velvetleaf
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	P33W84	P33W84	P33W84	P33W84	P33W84
Description	18-36"	18-36"	18-36"	18-36"	18-36"
Rating Date	7/17/09	7/17/09	7/17/09	7/17/09	7/17/09
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Crop Stage Majority	V6	V6	V6	V6	V6
Pest Stage Majority	4-7 FT	2-48"	6-48"	2-10"	4-48"
Pest Density, Unit	15 YD2	100 YD2	7.5 YD2	2.5 YD2	5 YD2
Assessed By	PM/RH	PM/RH	PM/RH	PM/RH	PM/RH
Days After First/Last Applic.	14 14	14 14	14 14	14 14	14 14
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A
Plant-Eval Interval	32 DP-1	32 DP-1	32 DP-1	32 DP-1	32 DP-1
Days After Emergence	27 DE-	27 DE-	27 DE-	27 DE-	27 DE-
Trt Treatment					
No. Name	6	7	8	9	10
Rate					
Unit					
Appl Code					
1 Untreated	0.0 b	0.0 b	0.0 b	0.0 c	0.0 b
2 Touchdown HiTech	0.75 lb ae/a A	98.5 a	99.5 a	99.5 a	92.8 ab
3 Touchdown HiTech	0.75 lb ae/a A	98.3 a	97.5 a	99.5 a	91.0 ab
Ammonium Sulfate	1.02 % w/w A				
4 Touchdown HiTech	0.75 lb ae/a A	99.3 a	99.8 a	98.5 a	97.8 a
Preference NIS	0.25 % v/v A				
5 Touchdown HiTech	0.75 lb ae/a A	98.3 a	100.0 a	98.3 a	96.5 ab
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
6 Touchdown HiTech	0.75 lb ae/a A	99.0 a	99.5 a	98.3 a	94.5 ab
CT301	0.039 lb ai/a A				
7 Touchdown HiTech	0.75 lb ae/a A	94.5 a	98.0 a	95.5 a	89.8 ab
CT301	0.039 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
8 Touchdown HiTech	0.75 lb ae/a A	95.8 a	99.8 a	99.0 a	96.3 ab
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
9 Touchdown HiTech	0.75 lb ae/a A	97.0 a	100.0 a	98.8 a	96.5 ab
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
10 Touchdown HiTech	0.75 lb ae/a A	94.3 a	99.5 a	99.5 a	87.5 ab
CT301	0.078 lb ai/a A				
11 Touchdown HiTech	0.75 lb ae/a A	98.3 a	98.8 a	98.3 a	90.8 ab
CT301	0.078 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
12 Touchdown HiTech	0.75 lb ae/a A	96.8 a	97.0 a	99.0 a	97.8 a
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
13 Touchdown HiTech	0.75 lb ae/a A	98.5 a	100.0 a	100.0 a	98.0 a
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
14 Touchdown HiTech	0.75 lb ae/a A	98.0 a	99.5 a	99.5 a	91.8 ab
15 Touchdown HiTech	0.75 lb ae/a A	98.3 a	100.0 a	98.3 a	90.3 ab
Ammonium Sulfate	1.02 % w/w A				
16 Touchdown HiTech	0.75 lb ae/a A	98.0 a	100.0 a	98.8 a	95.3 ab
Preference NIS	0.25 % v/v A				

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	AMBTR	SETFA	AMARE	CHEAL	ABUTH			
Pest Scientific Name	Ambrosia trifi>	Setaria faberi	Amaranthus ret>	Chenopodium al>	Abutilon theop>			
Pest Name	Giant ragweed	Giant foxtail	Redroot pigweed	Common lambsqu>	Velvetleaf			
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	P33W84	P33W84	P33W84	P33W84	P33W84			
Description	18-36"	18-36"	18-36"	18-36"	18-36"			
Rating Date	7/17/09	7/17/09	7/17/09	7/17/09	7/17/09			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1			
Crop Stage Majority	V6	V6	V6	V6	V6			
Pest Stage Majority	4-7 FT	2-48"	6-48"	2-10"	4-48"			
Pest Density, Unit	15 YD2	100 YD2	7.5 YD2	2.5 YD2	5 YD2			
Assessed By	PM/RH	PM/RH	PM/RH	PM/RH	PM/RH			
Days After First/Last Applic.	14 14	14 14	14 14	14 14	14 14			
Trt-Eval Interval	14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A			
Plant-Eval Interval	32 DP-1	32 DP-1	32 DP-1	32 DP-1	32 DP-1			
Days After Emergence	27 DE-	27 DE-	27 DE-	27 DE-	27 DE-			
Trt Treatment	Rate	Appl						
No. Name	Rate	Unit	Code	6	7	8	9	10
17 Touchdown HiTech	0.75 lb ae/a	A	A	98.0 a	98.8 a	98.8 a	96.8 a	99.3 a
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
18 Touchdown HiTech	0.75 lb ae/a	A	A	95.5 a	98.5 a	100.0 a	85.0 ab	97.0 a
CT301	0.039 lb ai/a	A						
19 Touchdown HiTech	0.75 lb ae/a	A	A	99.0 a	100.0 a	100.0 a	81.5 b	99.5 a
CT301	0.039 lb ai/a	A						
Ammonium Sulfate	1.02 % w/w	A						
20 Touchdown HiTech	0.75 lb ae/a	A	A	94.5 a	100.0 a	99.0 a	96.3 ab	96.5 a
CT301	0.039 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
21 Touchdown HiTech	0.75 lb ae/a	A	A	93.3 a	98.8 a	100.0 a	96.3 ab	98.8 a
CT301	0.039 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
22 Touchdown HiTech	0.75 lb ae/a	A	A	96.8 a	99.8 a	99.5 a	92.5 ab	99.5 a
CT301	0.078 lb ai/a	A						
23 Touchdown HiTech	0.75 lb ae/a	A	A	92.5 a	98.8 a	99.8 a	88.0 ab	97.8 a
CT301	0.078 lb ai/a	A						
Ammonium Sulfate	1.02 % w/w	A						
24 Touchdown HiTech	0.75 lb ae/a	A	A	93.5 a	99.8 a	98.5 a	96.0 ab	97.5 a
CT301	0.078 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
25 Touchdown HiTech	0.75 lb ae/a	A	A	96.3 a	100.0 a	97.3 a	95.0 ab	98.5 a
CT301	0.078 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
LSD (P=.05)				5.63	2.72	2.57	8.24	5.13
Standard Deviation				3.98	1.92	1.82	5.82	3.63
CV				4.28	2.02	1.91	6.52	3.86
Bartlett's X2				47.065	46.456	41.113	76.806	89.682
P(Bartlett's X2)				0.002*	0.001*	0.002*	0.001*	0.001*
Replicate F				8.037	2.903	4.349	0.051	3.347
Replicate Prob(F)				0.0001	0.0406	0.0071	0.9848	0.0237
Treatment F				95.616	427.992	475.140	43.027	117.395
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed			
Pest Code	AMBTR	SETFA	ABUTH	AMARE	CHEAL			
Pest Scientific Name	Ambrosia trifida	Setaria faberii	Abutilon theophrasti	Amaranthus retrofractus	Chenopodium album			
Pest Name	Giant ragweed	Giant foxtail	Velvetleaf	Redroot pigweed	Common lambsquarters			
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	P33W84	P33W84	P33W84	P33W84	P33W84			
Description	36-48"	36-48"	36-48"	36-48"	36-48"			
Rating Date	7/24/09	7/24/09	7/24/09	7/24/09	7/24/09			
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit	%	%	%	%	%			
Number of Subsamples	1	1	1	1	1			
Crop Stage Majority	V8	V8	V8	V8	V8			
Pest Stage Majority	2-8 FT	12-48"	12-48"	12-48"	12-48"			
Pest Density, Unit	5 YD2	100 YD2	2.5 YD2	2 YD2	2 YD2			
Assessed By	PM	PM	PM	PM	PM			
Days After First/Last Applic.	21 21	21 21	21 21	21 21	21 21			
Trt-Eval Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A	21 DA-A			
Plant-Eval Interval	39 DP-1	39 DP-1	39 DP-1	39 DP-1	39 DP-1			
Days After Emergence	34 DE-	34 DE-	34 DE-	34 DE-	34 DE-			
Trt Treatment	Rate	Appl						
No. Name	Rate	Unit	Code	11	12	13	14	15
1 Untreated				0.0 b	0.0 b	0.0 b	0.0 c	0.0 c
2 Touchdown HiTech	0.75 lb ae/a	A		99.0 a	100.0 a	100.0 a	97.5 ab	92.0 ab
3 Touchdown HiTech	0.75 lb ae/a	A		99.0 a	100.0 a	100.0 a	99.5 ab	88.8 ab
Ammonium Sulfate	1.02 % w/w	A						
4 Touchdown HiTech	0.75 lb ae/a	A		99.0 a	100.0 a	99.5 a	98.8 ab	97.5 a
Preference NIS	0.25 % v/v	A						
5 Touchdown HiTech	0.75 lb ae/a	A		96.8 a	100.0 a	100.0 a	96.5 ab	96.5 a
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
6 Touchdown HiTech	0.75 lb ae/a	A		100.0 a	100.0 a	97.5 a	95.5 ab	93.8 a
CT301	0.039 lb ai/a	A						
7 Touchdown HiTech	0.75 lb ae/a	A		97.0 a	100.0 a	99.5 a	97.3 ab	89.5 ab
CT301	0.039 lb ai/a	A						
Ammonium Sulfate	1.02 % w/w	A						
8 Touchdown HiTech	0.75 lb ae/a	A		97.5 a	99.5 a	98.8 a	100.0 a	97.0 a
CT301	0.039 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
9 Touchdown HiTech	0.75 lb ae/a	A		96.3 a	99.0 a	97.5 a	76.3 b	95.0 a
CT301	0.039 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
10 Touchdown HiTech	0.75 lb ae/a	A		98.0 a	100.0 a	99.5 a	97.5 ab	91.5 ab
CT301	0.078 lb ai/a	A						
11 Touchdown HiTech	0.75 lb ae/a	A		98.5 a	99.0 a	99.5 a	98.3 ab	90.3 ab
CT301	0.078 lb ai/a	A						
Ammonium Sulfate	1.02 % w/w	A						
12 Touchdown HiTech	0.75 lb ae/a	A		95.5 a	100.0 a	100.0 a	97.0 ab	98.0 a
CT301	0.078 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
13 Touchdown HiTech	0.75 lb ae/a	A		96.8 a	100.0 a	100.0 a	98.8 ab	97.3 a
CT301	0.078 lb ai/a	A						
Preference NIS	0.25 % v/v	A						
Ammonium Sulfate	1.02 % w/w	A						
14 Touchdown HiTech	0.75 lb ae/a	A		98.8 a	99.5 a	100.0 a	98.3 ab	91.3 ab
15 Touchdown HiTech	0.75 lb ae/a	A		98.0 a	99.5 a	100.0 a	99.5 ab	94.3 a
Ammonium Sulfate	1.02 % w/w	A						
16 Touchdown HiTech	0.75 lb ae/a	A		96.3 a	100.0 a	98.8 a	97.8 ab	95.3 a
Preference NIS	0.25 % v/v	A						

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Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	AMBTR	SETFA	ABUTH	AMARE	CHEAL
Pest Scientific Name	Ambrosia trifi>	Setaria faberi	Abutilon theop>	Amaranthus ret>	Chenopodium al>
Pest Name	Giant ragweed	Giant foxtail	Velvetleaf	Redroot pigweed	Common lambsqu>
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	P33W84	P33W84	P33W84	P33W84	P33W84
Description	36-48"	36-48"	36-48"	36-48"	36-48"
Rating Date	7/24/09	7/24/09	7/24/09	7/24/09	7/24/09
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%
Number of Subsamples	1	1	1	1	1
Crop Stage Majority	V8	V8	V8	V8	V8
Pest Stage Majority	2-8 FT	12-48"	12-48"	12-48"	12-48"
Pest Density, Unit	5 YD2	100 YD2	2.5 YD2	2 YD2	2 YD2
Assessed By	PM	PM	PM	PM	PM
Days After First/Last Applic.	21 21	21 21	21 21	21 21	21 21
Trt-Eval Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A	21 DA-A
Plant-Eval Interval	39 DP-1	39 DP-1	39 DP-1	39 DP-1	39 DP-1
Days After Emergence	34 DE-	34 DE-	34 DE-	34 DE-	34 DE-
Trt Treatment	Rate	Rate	Rate	Rate	Rate
No. Name	Unit	Unit	Unit	Unit	Unit
	Code	Code	Code	Code	Code
	11	12	13	14	15
17 Touchdown HiTech	0.75 lb ae/a A	100.0 a	99.5 a	98.8 ab	95.0 a
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
18 Touchdown HiTech	0.75 lb ae/a A	100.0 a	95.8 a	97.0 ab	86.0 ab
CT301	0.039 lb ai/a A				
19 Touchdown HiTech	0.75 lb ae/a A	100.0 a	100.0 a	98.3 ab	95.0 a
CT301	0.039 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
20 Touchdown HiTech	0.75 lb ae/a A	99.5 a	99.5 a	98.8 ab	94.0 a
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
21 Touchdown HiTech	0.75 lb ae/a A	99.5 a	98.3 a	99.5 ab	96.0 a
CT301	0.039 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
22 Touchdown HiTech	0.75 lb ae/a A	100.0 a	100.0 a	97.8 ab	92.3 ab
CT301	0.078 lb ai/a A				
23 Touchdown HiTech	0.75 lb ae/a A	100.0 a	97.5 a	97.0 ab	81.3 b
CT301	0.078 lb ai/a A				
Ammonium Sulfate	1.02 % w/w A				
24 Touchdown HiTech	0.75 lb ae/a A	99.5 a	99.5 a	98.3 ab	92.5 ab
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
25 Touchdown HiTech	0.75 lb ae/a A	99.5 a	97.0 a	98.3 ab	94.8 a
CT301	0.078 lb ai/a A				
Preference NIS	0.25 % v/v A				
Ammonium Sulfate	1.02 % w/w A				
LSD (P=.05)	3.98	0.88	3.22	12.85	6.92
Standard Deviation	2.81	0.62	2.28	9.09	4.89
CV	3.01	0.65	2.4	9.74	5.47
Bartlett's X2	26.025	0.196	39.36	153.611	33.263
P(Bartlett's X2)	0.205	1.00	0.001*	0.001*	0.058
Replicate F	3.064	1.217	3.273	2.253	2.823
Replicate Prob(F)	0.0334	0.3096	0.0259	0.0895	0.0448
Treatment F	192.945	4155.887	303.321	19.271	60.408
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001

Purdue University

Adjuvant study with Touchdown HiTech

Trial ID: 09S-THP-CTC-85 Protocol ID: 09S-THP-CTC-85
Location: Throckmorton Study Director: Paul Marquardt/Melissa Kruger
Project ID: Investigator: Dr. Bill Johnson
Sponsor Contact: Terry Clark

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

AMARE, Amaranthus retroflexus, = US

CHEAL, Chenopodium album, = US

Crop Code

ZEAMX, BCOR, Zea mays, = US

Rating Type

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

YD2 = per square yard

Plant-Eval Interval

24 DP-1 = 1 6/15/09

32 DP-1 = 1 6/15/09

39 DP-1 = 1 6/15/09