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Nozzle Efficacy Comparison with Tank-mixes of Dicamba and Glyphosate

Trial ID: 11S-PIP-CTF-01 Protocol ID: 11S-PIP-CTF-01
 Location: PPAC Study Director: Paul Marquardt
 Project ID: 11S-PIP-CTF-1 Investigator: Dr. Bill Johnson
 Sponsor Contact: John Frihauf

General Trial Information

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

Discipline: H herbicide
Trial Status: E established
Initiation Date: 5-3-2011

Trial Location

City: Wanatah
State/Prov.: IN
Postal Code: 46390
Country: USA

Personnel

Study Director: Paul Marquardt **Title:** Research Associate
Affiliation: Purdue University
Address: 915 W. State Street
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** pmarquar@purdue.edu
Phone No.: 765-494-0891 **Mobile No.:** 765-409-6369
Investigator: Dr. Bill Johnson **Title:** Professor
Affiliation: Purdue University
Address: 915 W. State Street
Location: West Lafayette, IN
Postal Code: 47907 **E-mail:** wji@purdue.edu
Phone No.: 765-494-4656 **Mobile No.:** 765-404-9801

Cooperator/Landowner

Cooperator: Jon Leuck **Role:** Director
Organization: Pinney Purdue Agricultural Center **Org. Type:** University
Address 1: 11402 S. County Line Rd.
City: Wanatah **Phone No.:** 219-733-2379
State/Prov.: IN **Mobile No.:** 765-479-3759
Postal Code: 46390 **E-mail:** leuckj@purdue.edu
Country: USA United States

Pest Description

Pest 1 Type: W **Code:** AMBTR Ambrosia trifida
Common Name: Giant ragweed

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

Pest 3 Type: W **Code:** ABUTH Abutilon theophrasti
Common Name: Velvetleaf

Pest 4 Type: W **Code:** IPOSS Ipomoea sp.
Common Name: Morning glory

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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 FT ²	Tillage Type: CONTIL conventional-till	
Replications: 4	Study Design: RACOB� Randomized Complete Block (RCB)	
	Untreated Arrangement: INCLUDED	single control randomized in each block

Soil Description

Description Name: PPAC-Field M2

% Sand: 40	% OM: 2	Texture: SL sandy loam
% Silt: 40	pH: 6.5	
% Clay: 20	CEC: 6.3	Fert. Level: P poor
	Soil Drainage: E excellent	

Application Description

	A
Application Date:	6-21-2011
Time of Day:	10:00 AM
Application Method:	SPRAY
Application Timing:	EAPOWE
Application Placement:	FOLIAR
Applied By:	JR
Air Temperature, Unit:	83 F
% Relative Humidity:	76
Wind Velocity, Unit:	6 MPH
Wind Direction:	S
Dew Presence (Y/N):	N no
Soil Moisture:	MOIST
% Cloud Cover:	70

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Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMBTR W
Stage Minimum, Percent:	10 20
Stage Maximum, Percent:	35 80
Height, Unit:	13.5 IN
Height Minimum, Maximum:	1 24
Density, Unit:	13 YD2
Pest 2 Code, Type, Scale:	CHEAL W
Stage Minimum, Percent:	10 30
Stage Maximum, Percent:	33 70
Height, Unit:	3.5 IN
Height Minimum, Maximum:	1 6
Density, Unit:	5.5 YD2
Pest 3 Code, Type, Scale:	ABUTH W
Stage Minimum, Percent:	10 25
Stage Maximum, Percent:	14 75
Height, Unit:	4.5 IN
Height Minimum, Maximum:	1 8
Density, Unit:	3 YD2
Pest 4 Code, Type, Scale:	IPOSS W
Stage Minimum, Percent:	10 75
Stage Maximum, Percent:	11 25
Height, Unit:	2.5 IN
Height Minimum, Maximum:	1 4
Density, Unit:	2 YD2

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Application Equipment

	A
Appl. Equipment:	CO2 Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	40 PSI
Nozzle Size:	11002
Nozzle Spacing, Unit:	30 IN
Nozzles/Row:	3
Boom Length, Unit:	7.5 FT
Boom Height, Unit:	30 IN
Ground Speed, Unit:	2.25 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

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 Location: PPAC Study Director: Paul Marquardt
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Pest Type	W Weed								
Pest Code	AMBTR	ABUTH	CHEAL	AMBTR	ABUTH	CHEAL	AMBTR		
Pest Scientific Name	Ambrosia trifi>	Abutilon theop>	Chenopodium al>	Ambrosia trifi>	Abutilon theop>	Chenopodium al>	Ambrosia trifi>		
Pest Name	Giant ragweed	Velvetleaf	Common lambsqu>	Giant ragweed	Velvetleaf	Common lambsqu>	Giant ragweed		
Description	FALLOW								
Rating Date	6-27-2011	6-27-2011	6-27-2011	7-5-2011	7-5-2011	7-5-2011	7-13-2011		
Rating Type	CONTRO								
Rating Unit	%	%	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1	1	1		
Pest Stage Majority	6-30 IN	3-15 IN	2-8 IN	6-44 IN	4-24 IN	4-12 IN	12-60 IN		
Pest Density, Unit	15 YD2	5.5 YD2	7.5 YD2	15 YD2	5.5 YD2	7.5 YD2	15 YD2		
Assessed By	RH/PM	RH/PM	RH/PM	CB	CB	CB	PM		
Days After First/Last Applic.	6 6	6 6	6 6	14 14	14 14	14 14	22 22		
Trt-Eval Interval	6 DA-A	22 DA-A							
Trt Treatment	Rate	Appl							
No. Name	Rate Unit	Code	1	2	3	4	5	6	7
1 UNTREATED	0.0 d		0.0 c	0.0 b	0.0 b				
2 XR Nozzles Clarity 210 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	73.0 bc		65.0 b	89.8 ab	97.2 ab	55.0 b	99.3 a	97.3 a	
3 TT Nozzles Clarity 210 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	80.0 b		68.8 ab	87.5 b	97.3 ab	67.5 b	100.0 a	93.3 a	
4 AIXR Nozzles Clarity 210 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	79.5 b		70.0 ab	90.0 ab	97.8 ab	73.8 b	99.0 a	96.8 a	
5 TTI Nozzles Clarity 210 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	68.1 c		70.0 ab	93.3 ab	95.6 b	50.0 b	98.3 a	94.5 a	
6 AIXR Nozzles Clarity 280 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	77.2 bc		73.8 ab	92.0 ab	97.6 ab	63.8 b	100.0 a	96.3 a	
7 AIXR Nozzles Clarity 420 g ae/ha A Roundup WeatherMAX 840 g ae/ha A NIS 0.25 % v/v A	88.2 a		82.5 a	97.3 a	100.0 a	95.3 a	100.0 a	100.0 a	
8 AITTJ60 Clarity 210 g ae/ha A Roundup WeatherMAX 420 g ae/ha A NIS 0.25 % v/v A	71.1 bc		71.0 ab	92.8 ab	97.5 ab	55.0 b	100.0 a	99.0 a	

Means followed by same letter do not significantly differ (P=0.05, 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	W Weed	W Weed
Pest Code	AMBTR	ABUTH	CHEAL	AMBTR	ABUTH	CHEAL	AMBTR
Pest Scientific Name	Ambrosia trif>	Abutilon theop>	Chenopodium al>	Ambrosia trif>	Abutilon theop>	Chenopodium al>	Ambrosia trif>
Pest Name	Giant ragweed	Velvetleaf	Common lambsqu>	Giant ragweed	Velvetleaf	Common lambsqu>	Giant ragweed
Description	FALLOW	FALLOW	FALLOW	FALLOW	FALLOW	FALLOW	FALLOW
Rating Date	6-27-2011	6-27-2011	6-27-2011	7-5-2011	7-5-2011	7-5-2011	7-13-2011
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	%	%	%	%	%	%	%
Number of Subsamples	1	1	1	1	1	1	1
Pest Stage Majority	6-30 IN	3-15 IN	2-8 IN	6-44 IN	4-24 IN	4-12 IN	12-60 IN
Pest Density, Unit	15 YD2	5.5 YD2	7.5 YD2	15 YD2	5.5 YD2	7.5 YD2	15 YD2
Assessed By	RH/PM	RH/PM	RH/PM	CB	CB	CB	PM
Days After First/Last Applic.	6 6	6 6	6 6	14 14	14 14	14 14	22 22
Trt-Eval Interval	6 DA-A	6 DA-A	6 DA-A	6 DA-A	6 DA-A	6 DA-A	22 DA-A
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	1	2	3	4	5
9 UNTREATED			0.0 d	0.0 c	0.0 c	0.0 c	0.0 c
LSD (P=.05)	7.12	9.78	5.51	2.67	18.90	1.47	6.19
Standard Deviation	4.79	6.69	3.77	1.81	12.95	1.01	4.24
CV	8.03	12.01	5.28	2.39	25.32	1.3	5.63
Bartlett's X2	3.667	6.124	12.022	1.075	9.456	1.547	9.036
P(Bartlett's X2)	0.722	0.409	0.061	0.956	0.149	0.462	0.108
Replicate F	1.409	1.467	2.346	1.048	1.208	1.062	1.315
Replicate Prob(F)	0.2726	0.2497	0.0993	0.3929	0.3282	0.3837	0.2924
Treatment F	205.344	91.112	464.024	2261.093	24.282	7613.513	405.934
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Pest Type	W Weed						
Pest Code	ABUTH	CHEAL	AMBTR	ABUTH	CHEAL		
Pest Scientific Name	Abutilon theop>	Chenopodium al>	Ambrosia trifi>	Abutilon theop>	Chenopodium al>		
Pest Name	Velvetleaf	Common lambsqu>	Giant ragweed	Velvetleaf	Common lambsqu>		
Description	FALLOW	FALLOW	FALLOW	FALLOW	FALLOW		
Rating Date	7-13-2011	7-13-2011	8-2-2011	8-2-2011	8-2-2011		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Pest Stage Majority	6-24 IN	6-24 IN	12-60 IN	6-24 IN	6-24 IN		
Pest Density, Unit	- YD2	- YD2	15 YD2	- YD2	- YD2		
Assessed By	PM	PM	JR/JS	JR/JS	JR/JS		
Days After First/Last Applic.	22 22	22 22	42 42	42 42	42 42		
Trt-Eval Interval	22 DA-A						
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	8	9	10	11	12
1 UNTREATED	0.0 d		0.0 b	0.0 b	0.0 b	0.0 c	0.0 b
2 XR Nozzles	72.0 c		100.0 a	97.5 a	70.0 ab		98.3 a
Clarity	210 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						
3 TT Nozzles	76.3 bc		100.0 a	98.8 a	61.3 b		100.0 a
Clarity	210 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						
4 AIXR Nozzles	82.0 b		100.0 a	95.5 a	73.3 ab		94.5 a
Clarity	210 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						
5 TTI Nozzles	74.5 bc		100.0 a	93.3 a	45.0 b		92.5 a
Clarity	210 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						
6 AIXR Nozzles	77.0 bc		100.0 a	91.3 a	60.0 b		95.0 a
Clarity	280 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						
7 AIXR Nozzles	90.8 a		100.0 a	100.0 a	92.5 a		100.0 a
Clarity	420 g ae/ha A						
Roundup WeatherMAX	840 g ae/ha A						
NIS	0.25 % v/v A						
8 AITTJ60	70.0 c		100.0 a	99.5 a	57.5 b		97.5 a
Clarity	210 g ae/ha A						
Roundup WeatherMAX	420 g ae/ha A						
NIS	0.25 % v/v A						

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Pest Type	W Weed						
Pest Code	ABUTH	CHEAL	AMBTR	ABUTH	CHEAL		
Pest Scientific Name	Abutilon theop>	Chenopodium al>	Ambrosia trifi>	Abutilon theop>	Chenopodium al>		
Pest Name	Velvetleaf	Common lambsqu>	Giant ragweed	Velvetleaf	Common lambsqu>		
Description	FALLOW	FALLOW	FALLOW	FALLOW	FALLOW		
Rating Date	7-13-2011	7-13-2011	8-2-2011	8-2-2011	8-2-2011		
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
Rating Unit	%	%	%	%	%		
Number of Subsamples	1	1	1	1	1		
Pest Stage Majority	6-24 IN	6-24 IN	12-60 IN	6-24 IN	6-24 IN		
Pest Density, Unit	- YD2	- YD2	15 YD2	- YD2	- YD2		
Assessed By	PM	PM	JR/JS	JR/JS	JR/JS		
Days After First/Last Applic.	22 22	22 22	42 42	42 42	42 42		
Trt-Eval Interval	22 DA-A						
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	8	9	10	11	12
9 UNTREATED	0.0 d		0.0 b	0.0 b	0.0 c	0.0 c	0.0 b
LSD (P=.05)	6.73		0.00	8.58	20.47	20.47	7.45
Standard Deviation	4.61		0.00	5.88	14.03	14.03	5.11
CV	7.66		0.0	7.83	27.47	27.47	6.78
Bartlett's X2	5.939		0.0	20.285	7.236	7.236	5.754
P(Bartlett's X2)	0.312		.	0.001*	0.30	0.30	0.218
Replicate F	0.492		0.000	5.072	0.828	0.828	0.941
Replicate Prob(F)	0.6910		1.0000	0.0073	0.4913	0.4913	0.4364
Treatment F	226.265		0.000	210.703	20.442	20.442	280.445
Treatment Prob(F)	0.0001		1.0000	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)
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Trial ID: 11S-PIP-CTF-01 Protocol ID: 11S-PIP-CTF-01
Location: PPAC Study Director: Paul Marquardt
Project ID: 11S-PIP-CTF-1 Investigator: Dr. Bill Johnson
Sponsor Contact: John Frihauf

Pest Type

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

Pest Code

AMBTR, Ambrosia trifida, = US

ABUTH, Abutilon theophrasti, = US

CHEAL, Chenopodium album, = US

Rating Type

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

YD2 = per square yard