

Glyphosate Rate and Application Volume Effects on Drift Reduction Nozzles and Agents.

Project Code: 03-50W-M120 **Location:** Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
Trial Status: Final **Updated:** 11-4-03

Objective:

Determine the influence of increasing the glyphosate rate and/or application volume to overcome any reduction in control of common waterhemp when applied with drift reduction nozzles and/or agents.

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. AMBTR	ragweed, giant	Ambrosia trifida L.
3. AMATA	waterhemp, common	Amaranthus rudis Sauer

Crop 1:	GLXMA soybean	Variety:	Asgrow 4603 RR
Planting Method:	Seeded	Planting Date:	6-20-03
Rate:	75 lb/A	Depth:	1.0 IN
Row Spacing:	30 IN		

Plot Width, Unit:	10 FT	Plot Length, Unit:	27 FT	Reps:	4
Tillage Type:	Reduced-Till	Study Design:	Randomized complete block		
Previous Crop, Year:	ZEAMX, 2002				

Field Prep./Maintenance: N 0 LB/A, P205 50 LB/A, K2O 200 LB/A

Soil Name:	Weir	% OM:	1.4	pH:	6.5	CEC:	12
Texture:	Silt loam	Fert. Level:	P1: 77 LB/A, K: 198 LB/A				

APPLICATION DESCRIPTION

A

Application Date: 7-15-03
Time of Day: 9:30
Application Method: Spray
Application Timing: 6-8"W
Applic. Placement: BROFOL
Air Temp., Unit: 76 F
% Relative Humidity: 92
Wind Velocity, Unit: 2-3 MPH
Dew Presence (Y/N): N
Soil Moisture: NORMAL
% Cloud Cover: 100

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage: GLXMA V2
Height, Unit: 6 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code: SETFA
Stage(leaves): 3-6
Height(inches): 4-10
Density: Medium

Weed 2 Code: AMBTR
Stage(leaves): 6-8
Height(inches): 5-11
Density: Medium

Weed 3 Code: AMATA
Stage(leaves): 6-10
Height(inches): 5-8
Density: Medium

APPLICATION EQUIPMENT

A

Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	See note
Nozzle Size:	XR 110015
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	See note

NOTES:

Nozzles are flat fan and air induction, GPA per treatment, see treatment list.
Harvested Oct-31-03, (2) 30 inch rows by 24 ft.

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Weed Code											SETFA	SETFA	AMBTR	AMBTR	AMATA	AMATA
Crop Code											GLXMA	GLXMA				
Rating Data Type											Yield	Injury	Control	Control	Control	Control
Rating Unit											bu/A	Percent	Percent	Percent	Percent	Percent
Rating Date											10-31-03	7-29-03	7-29-03	8-12-03	7-29-03	8-12-03
Trt-Eval Interval											14 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Spray Volume	Volume Unit	Yield	Injury	Control	Control	Control	Control
1	NONTREATED											27	0	0	0	0	0
2	FLAT FAN NOZZLES											39	0	75	95	58	36
2	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	10	GAL/AC					45
3	FLAT FAN NOZZLES											39	0	71	96	44	36
3	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	10	GAL/AC					41
3	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	10	GAL/AC					
4	FLAT FAN NOZZLES											40	0	90	95	61	50
4	ROUNDUP ULTRA MAX	3.7	SL	0.282	LB AE/A	9.8	OZ/A		6-8"W	A	10	GAL/AC					55
5	FLAT FAN NOZZLES											39	0	89	96	70	56
5	ROUNDUP ULTRA MAX	3.7	SL	0.282	LB AE/A	9.8	OZ/A		6-8"W	A	10	GAL/AC					71
5	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	10	GAL/AC					
6	AIR INDUCTION NOZZLES											33	0	75	94	51	36
6	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	10	GAL/AC					51
7	AIR INDUCTION NOZZLES											33	0	63	93	48	36
7	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	10	GAL/AC					41
7	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	10	GAL/AC					
8	AIR INDUCTION NOZZLES											38	0	81	95	61	43
8	ROUNDUP ULTRA MAX	3.7	SL	0.282	LB AE/A	9.8	OZ/A		6-8"W	A	10	GAL/AC					54
9	AIR INDUCTION NOZZLES											34	0	89	96	70	63
9	ROUNDUP ULTRA MAX	3.7	SL	0.282	LB AE/A	9.8	OZ/A		6-8"W	A	10	GAL/AC					66
9	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	10	GAL/AC					
10	FLAT FAN NOZZLES											34	0	83	91	58	33
10	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	15	GAL/AC					49
11	FLAT FAN NOZZLES											34	0	76	90	44	46
11	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	15	GAL/AC					53
11	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	15	GAL/AC					
12	AIR INDUCTION NOZZLES											33	0	75	90	56	36
12	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	15	GAL/AC					54
13	AIR INDUCTION NOZZLES											33	0	70	88	50	39
13	ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A		6-8"W	A	15	GAL/AC					50
13	HPG	77.5	WG	8.0	OZ A/100 GAL	10.3	OZ/100 GAL		6-8"W	A	15	GAL/AC					

Weed Code											SETFA	SETFA	AMBTR	AMBTR	AMATA	AMATA	
Crop Code											GLXMA	GLXMA					
Rating Data Type											Yield	Injury	Control	Control	Control	Control	
Rating Unit											bu/A	Percent	Percent	Percent	Percent	Percent	
Rating Date											10-31-03	7-29-03	7-29-03	8-12-03	7-29-03	8-12-03	
Trt-Eval Interval											14 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A	14 DA-A	28 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Spray Volume	Volume Unit	GLXMA Yield	GLXMA Injury	SETFA Control	SETFA Control	AMBTR Control	AMBTR Control	AMATA Control	AMATA Control
14	FLAT FAN NOZZLES 14 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"W	A	20	GAL/AC	29	0	73	90	51	33	53	44
15	FLAT FAN NOZZLES 15 ROUNDUP ULTRA MAX 15 HPG	3.7 77.5	SL WG	0.188 8.0	LB AE/A OZ A/100 GAL	6.5 10.3	OZ/A OZ/100 GAL	6-8"W	A	20 20	GAL/AC GAL/AC	28	0	61	90	41	31	40	44
16	AIR INDUCTION NOZZLES 16 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	OZ/A	6-8"W	A	20	GAL/AC	32	0	53	88	40	41	39	34
17	AIR INDUCTION NOZZLES 17 ROUNDUP ULTRA MAX 17 HPG	3.7 77.5	SL WG	0.188 8.0	LB AE/A OZ A/100 GAL	6.5 10.3	OZ/A OZ/100 GAL	6-8"W	A	20 20	GAL/AC GAL/AC	34	0	44	86	29	30	41	35
18	NONTREATED											22	0	0	0	0	0	0	0
	LSD (P=.05)											8.0	0.0	6.7	2.4	5.0	9.8	5.7	6.9
	Replicate F											0.229	0.000	4.526	3.162	0.404	0.250	0.759	1.778
	Replicate Prob(F)											0.8759	1.0000	0.0069	0.0323	0.7510	0.8607	0.5220	0.1631
	Treatment F											2.648	0.000	126.391	1236.947	127.052	20.392	126.455	57.795
	Treatment Prob(F)											0.0038	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: SIU/ISPOB.
2. Ratings: WC 14 and 28 DAT; weed counts at 21 DAT as (2) 0.25 square meter samples per plot.
3. Reduce walking speed for higher GPA treatments, do not use larger nozzles.
4. DA-A = days after 6-8"W application.
5. Weed counts were not taken.