

GPA and MPH Factorial.

Project Code: 04-RL-GPA-MPH Location: Rendlake, IL
Investigator: Bryan Young

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Ina IL 62846 USA
Trial Status: Final Updated: 8-19-04

Objective:

Determine the influence of application factors (carrier volume and travel speed) on glyphosate efficacy.

Weed Code	Common Name	Scientific Name
1.	AMATA waterhemp, common	Amaranthus rudis Sauer
2.	AMAPA amaranth, Palmer	Amaranthus palmeri S.Wats.

Crop 1: GLXMA soybean Variety: NKS43-B1RR
Planting Method: Seeded Planting Date: 6-11-04
Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 60 FT Reps: 3
Tillage Type: Reduced-Till Study Design: Randomized complete block
Previous Crop, Year: _____, 2003

Field Prep./Maintenance: N 0 LB/A, P2O5 0 LB/A, K2O 0 LB/A

% OM: 1.75 pH: 5.8 CEC: 12.5

Texture: Silt Loam

APPLICATION DESCRIPTION

	A	B
Application Date:	7-13-04	7-13-04
Time of Day:	9:00-1:20pm	1:20 PM
Application Method:	Spray	Spray
Application Timing:	8-12"W	8-12'W
Applic. Placement:	BROFOL	BROFOL
Air Temp., Unit:	88 F	97 F
% Relative Humidity:	64	40
Wind Velocity, Unit:	21 MPH	5 MPH
Dew Presence (Y/N):	Y	N
Soil Temp., Unit:	79 F	79 F
Soil Moisture:	ABONOR	ABONOR
% Cloud Cover:	5	5

CROP STAGE AT EACH APPLICATION

	A	B
Crop 1 Code, Stage:	GLXMA V3-V4	GLXMA V3-V4
Height, Unit:	12-13 IN	12-13 IN

WEED STAGE AT EACH APPLICATION

	A	B
Weed 1 Code:	AMATA	AMATA
Stage(leaves):	10-33	10-33
Height(inches):	12-24	12-24
Density:	High	High
Weed 2 Code:	AMAPA	AMAPA
Stage(leaves):	20-35	20-35
Height(inches):	12-24	12-24
Density:	High	High

APPLICATION EQUIPMENT

	A	B
Appl. Equipment:	CO2 sprayer	CO2 sprayer
Operating Pressure:	See note	See note
Nozzle Type:	See note	See note
Nozzle Size:	See note	See note
Boom Length, Unit:	6.67 FT	6.67 FT
Spray Volume, Unit:	See note	See note

NOTES:

Nozzle type and size, and spray volume are listed in treatment list.
Spray pressure depends on treatment.

Application time started at 9:00 and finished at 1:20, thus conditions at application are listed twice.

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	AMATA	AMATA	AMATA	AMATA	AMATA	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA
						Control	Control	Control	Control	Biomass	Control	Control	Control	Control	Biomass
						Percent	Percent	% INDPLA	% INDPLA	g/PLANT	Percent	Percent	% INDPLA	% INDPLA	g/Plant
						7-26-04	8-9-04	7-26-04	8-9-04	8-9-04	7-26-04	8-9-04	7-26-04	8-9-04	8-9-04
						13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A	13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code						
1	5 MPH														
1	5 GPA					78	86	92	99	2.78	99	99	91	99	4.52
1	XR 11001 NOZZLES														
1	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
1	ACTIVATOR 90	100	LIQ	0.5	% V/V										
2	10 MPH														
2	5 GPA					79	83	96	99	2.86	89	94	99	99	3.02
2	XR 11002 NOZZLES														
2	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
2	ACTIVATOR 90	100	LIQ	0.5	% V/V										
3	15 MPH														
3	5 GPA					77	76	98	99	2.27	96	95	99	99	2.49
3	XR 11003 NOZZLES														
3	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
3	ACTIVATOR 90	100	LIQ	0.5	% V/V										
4	20 MPH														
4	5 GPA					82	85	99	99	4.54	96	99	99	99	7.34
4	XR 11004 NOZZLES														
4	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
4	ACTIVATOR 90	100	LIQ	0.5	% V/V										
5	5 MPH														
5	10 GPA					91	91	99	99	2.02	99	99	99	99	2.75
5	XR 11002 NOZZLES														
5	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
5	ACTIVATOR 90	100	LIQ	0.5	% V/V										
6	10 MPH														
6	10 GPA					95	95	99	99	1.95	99	99	99	99	4.04
6	XR 11004 NOZZLES														
6	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
6	ACTIVATOR 90	100	LIQ	0.5	% V/V										
7	15 MPH														
7	10 GPA					89	88	93	99	2.31	99	99	99	99	4.42
7	XR 11006 NOZZLES														
7	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
7	ACTIVATOR 90	100	LIQ	0.5	% V/V										
8	20 MPH														
8	10 GPA					92	92	99	99	4.59	99	99	99	99	5.35
8	XR 11008 NOZZLES														
8	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A										
8	ACTIVATOR 90	100	LIQ	0.5	% V/V										

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMATA 7-26-04 13 DA-A	AMATA 8-9-04 27 DA-A	AMATA 7-26-04 13 DA-A	AMATA 8-9-04 27 DA-A	AMATA 8-9-04 27 DA-A	AMAPA 7-26-04 13 DA-A	AMAPA 8-9-04 27 DA-A	AMAPA 7-26-04 13 DA-A	AMAPA 8-9-04 27 DA-A	AMAPA 8-9-04 27 DA-A
9	5 MPH									83	89	98	99	1.41	97	99	93	99	5.21
9	15 GPA																		
9	XR 11003 NOZZLES																		
9	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
9	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
10	10 MPH									77	79	99	97	2.05	99	99	96	99	2.27
10	15 GPA																		
10	XR 11006 NOZZLES																		
10	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
10	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
11	15 MPH									79	82	80	94	1.36	98	99	93	97	5.07
11	15 GPA																		
11	XR 11008 NOZZLES																		
11	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
11	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
12	20 MPH									86	90	96	98	3.20	98	99	96	99	7.39
12	15 GPA																		
12	XR 11010 NOZZLES																		
12	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
12	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
13	5 MPH									82	89	99	97	2.85	99	99	93	99	1.21
13	20 GPA																		
13	XR 11004 NOZZLES																		
13	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
13	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
14	10 MPH									93	94	99	99	2.02	99	99	99	99	7.28
14	20 GPA																		
14	XR 11008 NOZZLES																		
14	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
14	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
15	15 MPH									85	87	99	99	2.94	99	99	96	99	5.72
15	20 GPA																		
15	XR 11010 NOZZLES																		
15	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
15	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
16	20 MPH									87	89	98	99	1.26	99	98	96	99	2.94
16	20 GPA																		
16	XR 11015 NOZZLES																		
16	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
16	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
17	NONTREATED									0	0	0	0	18.42	0	0	0	0	20.70

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	AMATA	AMATA	AMATA	AMATA	AMATA	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA
						Control	Control	Control	Control	Biomass	Control	Control	Control	Control	Biomass
						Percent	Percent	% INDPLA	% INDPLA	g/PLANT	Percent	Percent	% INDPLA	% INDPLA	g/Plant
						7-26-04	8-9-04	7-26-04	8-9-04	8-9-04	7-26-04	8-9-04	7-26-04	8-9-04	8-9-04
						13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A	13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code						
18	10 MPH														
18	5 GPA									1.65	98	99	99	99	5.48
18	AI 110015 NOZZLES														
18	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
18	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
19	15 MPH														
19	5 GPA									1.24	99	99	99	99	2.04
19	AI 11002 NOZZLES														
19	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
19	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
20	20 MPH														
20	5 GPA									2.73	99	99	99	99	2.34
20	AI 110025 NOZZLES														
20	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
20	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
21	5 MPH														
21	10 GPA									1.72	99	99	97	99	4.51
21	AI 110015 NOZZLES														
21	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
21	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
22	10 MPH														
22	10 GPA									3.38	98	99	99	99	2.37
22	AI 110025 NOZZLES														
22	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
22	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
23	15 MPH														
23	10 GPA									1.77	99	99	82	98	4.24
23	AI 11004 NOZZLES														
23	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
23	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
24	20 MPH														
24	10 GPA									3.45	99	99	93	99	6.75
24	AI 11005 NOZZLES														
24	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
24	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						
25	5 MPH														
25	15 GPA									4.00	99	99	99	99	4.24
25	AI 11002 NOZZLES														
25	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A						
25	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A						

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Weed Code		AMATA	AMATA	AMATA	AMATA	AMATA	AMAPA	AMAPA	AMAPA	AMAPA	AMAPA								
Crop Code																			
Rating Data Type		Control	Control	Control	Control	Biomass	Control	Control	Control	Control	Biomass								
Rating Unit		Percent	Percent	% INDPLA	% INDPLA	g/PLANT	Percent	Percent	% INDPLA	% INDPLA	g/Plant								
Rating Date		7-26-04	8-9-04	7-26-04	8-9-04	8-9-04	7-26-04	8-9-04	7-26-04	8-9-04	8-9-04								
Trt-Eval Interval		13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A	13 DA-A	27 DA-A	13 DA-A	27 DA-A	27 DA-A								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code										
26	10 MPH									88	87	96	99	1.31	99	99	99	99	3.98
26	15 GPA																		
26	AI 11004 NOZZLES																		
26	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
26	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
27	15 MPH									92	90	99	99	2.11	99	99	99	99	2.64
27	15 GPA																		
27	AI 11006 NOZZLES																		
27	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
27	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
28	20 MPH									85	87	99	99	0.75	98	99	98	99	2.94
28	15 GPA																		
28	AI 11008 NOZZLES																		
28	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
28	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
29	5 MPH									87	85	90	97	1.00	97	99	98	99	2.38
29	20 GPA																		
29	AI 110025 NOZZLES																		
29	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
29	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
30	10 MPH									79	79	94	99	1.49	99	99	99	99	2.34
30	20 GPA																		
30	AI 11005 NOZZLES																		
30	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
30	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
31	15 MPH									86	83	99	99	1.79	99	99	99	99	3.11
31	20 GPA																		
31	AI 11008 NOZZLES																		
31	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A										
31	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A										
LSD (P=.05)										11.8	10.2	7.7	4.8	5.109	5.3	2.8	4.8	1.4	4.608
Replicate F										0.278	0.488	1.749	0.622	0.342	4.448	1.543	0.951	0.544	1.425
Replicate Prob(F)										0.7582	0.6164	0.1829	0.5406	0.7117	0.0158	0.2221	0.3922	0.5832	0.2485
Treatment F										14.856	20.532	42.729	108.902	2.870	87.841	325.290	107.699	1294.341	4.472
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001

Trial Comments

1. Protocol: SIU / ISPOB.
2. Ratings: CI and WC 14 and 28 DAT.
3. DA-A = Days after 8-12"W application. %INDPLA = Percent control of individually selected weed plants. Biomass, g/Plant = Grams per plant (oven dry weight) for individually selected plants.
4. Individual weed plants were selected randomly at application from plants that were approximately 12 inches in height (height of weeds at application ranged between 12-24 inches).