

Application Factors and Time of Day - 1.

Project Code: 05-RL-TOD Location: Ina, IL
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Ina IL 62846 USA
Trial Status: Final **Updated:** 12-02-05

Objective:

Determine the influence of application factors and time of day on efficacy of glyphosate.

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
Planting Method: Seeded
Row Spacing: 30 IN

Plot Width, Unit: 10 FT **Plot Length, Unit:** 50 FT **Reps:** 3
Tillage Type: Reduced-Till **Study Design:** Randomized complete block

APPLICATION DESCRIPTION

	A	B	C
Application Date:	06-15-05	06-15-05	06-15-05
Time of Day:	7:30	13:00	19:00
Application Method:	Spray	Spray	Spray
Application Timing:	8-12"W	8-12"W	8-12"W
Applic. Placement:	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	74 F	77 F	80 F
% Relative Humidity:	74	60	42
Wind Velocity, Unit:	5 MPH	5 MPH	8 MPH
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	73 F	75 F	77 F
Soil Moisture:	NORMAL	NORMAL	NORMAL
% Cloud Cover:	0	0	0

CROP STAGE AT EACH APPLICATION

	A	B	C
Crop 1 Code, Stage:	GLXMA V3	GLXMA V3	GLXMA V3
Height, Unit:	8 IN	8 IN	8 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	AMATA	AMATA	AMATA
Stage (leaves):	10-12	10-12	10-12
Height (inches):	8-12	8-12	8-12
Density:	High	High	High
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Stage (leaves):	12-20	12-20	12-20
Height (inches):	10-13	10-13	10-13

APPLICATION EQUIPMENT

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

NOTES:

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

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										AMATA	AMATA	AMATA	AMATA	AMATA	AMAPA	AMAPA
										Control	Control	Control	Control	Dry wt.	Control	Control
										Percent	Percent	% INDPLA	% INDPLA	g/INDPLA	Percent	Percent
										06-29-05	07-13-05	06-29-05	07-13-05	07-13-05	06-29-05	07-13-05
										14 DA-A	28 DA-A	14 DA-A	28 DA-A	28 DA-A	14 DA-A	28 DA-A
Trt	Treatment	Form	Form	Rate	Prod	Prod	Grow	Appl								
No.	Name	Conc	Type	Unit	Rate	Unit	Stg	Code								
1	NONTREATED									0	0	0	0	1.86	0	0
2	7:00 AM									93	92	99	99	1.01	99	93
2	20 GPA															
2	5 MPH															
2	XR 11003 NOZZLES															
2	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
3	7:00 AM									85	83	99	99	0.66	99	97
3	20 GPA															
3	5 MPH															
3	AI 11003 NOZZLES															
3	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
4	7:00 AM									56	53	59	46	1.25	71	67
4	5 GPA															
4	20 MPH															
4	XR 11003 NOZZLES															
4	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
5	7:00 AM									8	6	21	10	1.19	8	8
5	5 GPA															
5	20 MPH															
5	AI 11003 NOZZLES															
5	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
6	1:00 PM									42	35	99	99	0.64	93	87
6	20 GPA															
6	5 MPH															
6	XR 11003 NOZZLES															
6	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
7	1:00 PM									82	74	82	96	0.64	97	96
7	20 GPA															
7	5 MPH															
7	AI 11003 NOZZLES															
7	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
8	1:00 PM									85	72	99	99	0.80	96	91
8	5 GPA															
8	20 MPH															
8	XR 11003 NOZZLES															
8	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
9	1:00 PM									94	91	99	99	0.70	98	97
9	5 GPA															
9	20 MPH															
9	AI 11003 NOZZLES															
9	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
10	7:00 PM									35	49	56	43	0.86	64	63
10	20 GPA															
10	5 MPH															
10	XR 11003 NOZZLES															
10	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
11	7:00 PM									89	85	99	99	1.00	99	97
11	20 GPA															
11	5 MPH															
11	AI 11003 NOZZLES															
11	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
12	7:00 PM									82	84	99	99	0.99	95	91
12	5 GPA															
12	20 MPH															
12	XR 11003 NOZZLES															
12	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							
13	7:00 PM									89	85	99	99	0.38	97	94
13	5 GPA															
13	20 MPH															
13	AI 11003 NOZZLES															
13	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A							

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Weed Code	AMATA	AMATA	AMATA	AMATA	AMATA	AMAPA	AMAPA				
Crop Code											
Rating Data Type	Control	Control	Control	Control	Dry wt.	Control	Control				
Rating Unit	Percent	Percent	% INDPLA	% INDPLA	g/INDPLA	Percent	Percent				
Rating Date	06-29-05	07-13-05	06-29-05	07-13-05	07-13-05	06-29-05	07-13-05				
Trt-Eval Interval	14 DA-A	28 DA-A	14 DA-A	28 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		
LSD (P=.05)		20.5		23.4		29.2		30.4	0.929	19.5	20.7
Replicate F		0.678		0.417		1.518		2.052	0.318	0.675	1.856
Replicate Prob(F)		0.5171		0.6635		0.2395		0.1504	0.7304	0.5187	0.1781
Treatment F		22.153		15.532		11.419		12.823	1.365	26.941	22.687
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0001	0.2487	0.0001	0.0001

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Weed Code	Crop Code	Rating Data Type	Rating Unit	Rating Date	Trt-Eval Interval	AMAPA			Coverage TOPCAN Percent	Drops TOPCAN /sq cm	AMAPA		
						Control % INDPLA 06-29-05 14 DA-A	Control % INDPLA 07-13-05 28 DA-A	Dry wt. g/INDPLA 07-13-05 28 DA-A			Coverage MIDCAN Percent	Drops MIDCAN /sq cm	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code				
1	NONTREATED										0	0	3.47
2	7:00 AM										99	99	0.41
2	20 GPA												
2	5 MPH												
2	XR 11003 NOZZLES												
2	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
3	7:00 AM										99	99	1.05
3	20 GPA									0	3	5	7
3	5 MPH												
3	AI 11003 NOZZLES												
3	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
4	7:00 AM										98	98	1.15
4	5 GPA									1	20	1	12
4	20 MPH												
4	XR 11003 NOZZLES												
4	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
5	7:00 AM										15	7	1.97
5	5 GPA									4	10	2	8
5	20 MPH												
5	AI 11003 NOZZLES												
5	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
6	1:00 PM										99	99	1.47
6	20 GPA									34	85	4	30
6	5 MPH												
6	XR 11003 NOZZLES												
6	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
7	1:00 PM										99	99	0.73
7	20 GPA												
7	5 MPH												
7	AI 11003 NOZZLES												
7	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
8	1:00 PM										99	99	1.10
8	5 GPA												
8	20 MPH												
8	XR 11003 NOZZLES												
8	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
9	1:00 PM										99	99	1.06
9	5 GPA												
9	20 MPH												
9	AI 11003 NOZZLES												
9	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
10	7:00 PM										99	99	0.84
10	20 GPA												
10	5 MPH												
10	XR 11003 NOZZLES												
10	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
11	7:00 PM										99	99	1.20
11	20 GPA												
11	5 MPH												
11	AI 11003 NOZZLES												
11	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
12	7:00 PM										99	99	1.42
12	5 GPA												
12	20 MPH												
12	XR 11003 NOZZLES												
12	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				
13	7:00 PM										99	99	0.87
13	5 GPA												
13	20 MPH												
13	AI 11003 NOZZLES												
13	ROUNDUP W-MAX	4.5	SL	0.188	lb ae/a	5.35	fl oz/a	8-12"W	A				

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Weed Code	AMAPA			Coverage	Drops	Coverage	Drops									
Crop Code	Control	Control	Dry wt.	TOPCAN	TOPCAN	MIDCAN	MIDCAN									
Rating Data Type	% INDPLA	% INDPLA	g/INDPLA	Percent	/sq cm	Percent	/sq cm									
Rating Unit	06-29-05	07-13-05	07-13-05	06-15-05	06-15-05	06-15-05	06-15-05									
Rating Date	14 DA-A	28 DA-A	28 DA-A	0 DA-A	0 DA-A	0 DA-A	0 DA-A									
Trt-Eval Interval																
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code							
LSD (P=.05)				0.6		1.5		1.868		4.1		15.3		9.0		14.9
Replicate F				0.235		1.714		0.085		1.635		1.019		1.132		2.478
Replicate Prob(F)				0.7921		0.2014		0.9184		0.2711		0.4159		0.3827		0.1643
Treatment F				32678.238		4973.401		1.402		182.780		71.696		0.601		6.094
Treatment Prob(F)				0.0001		0.0001		0.2316		0.0001		0.0001		0.6378		0.0298

Trial Comments

1. Protocol: SIU/ISPOB.
2. Ratings: CI and WC 14 and 28 DAT.
3. DA-A = Days after 8-12"W application, same day for all applications.
4. % INDPLA = Percent for individual plants. Dry wt. = Oven dry weight. g/INDPLA = grams per individual plant.
 Coverage and Drops = Evaluation of the spray pattern as measured by oil-sensitive spray cards.
 /sq cm = Per square centimeter. TOPCAN and MIDCAN = Top and middle of the crop canopy, respectively.