

## Application Factors and Time of Day - 2.

Project Code: 05-WU12-W300 Location: Horticulture Research Center  
Investigator: Bryan Young

**Investigator:** Bryan Young, Associate Professor, Southern Illinois University

**City State Zip Country:** Carbondale IL 62901 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

**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
<b>Application Date:</b>	06-17-05	06-17-05	06-17-05
<b>Time of Day:</b>	7:00	13:00	19:00
<b>Application Method:</b>	Spray	Spray	Spray
<b>Application Timing:</b>	8-12"W	8-12"W	8-12"W
<b>Applic. Placement:</b>	BROFOL	BROFOL	BROFOL
<b>Air Temp., Unit:</b>	68 F	85 F	83 F
<b>% Relative Humidity:</b>	88	33	42
<b>Wind Velocity, Unit:</b>	0 MPH	3-5 MPH	1-2 MPH
<b>Dew Presence (Y/N):</b>	Y	N	N
<b>Soil Moisture:</b>	NORMAL	NORMAL	NORMAL
<b>% Cloud Cover:</b>	70	40	10

**CROP STAGE AT EACH APPLICATION**

	A	B	C
<b>Crop 1 Code, Stage:</b>	GLXMA V4	GLXMA V4	GLXMA V4
<b>Height, Unit:</b>	5-6 IN	5-6 IN	5-6 IN

**WEED STAGE AT EACH APPLICATION**

	A	B	C
<b>Weed 1 Code:</b>	AMATA	AMATA	AMATA
<b>Stage(leaves):</b>	20-30	20-30	20-30
<b>Height(inches):</b>	8-13	8-13	8-13
<b>Density:</b>	High	High	High

**APPLICATION EQUIPMENT**

	A	B	C
<b>Appl. Equipment:</b>	CO2 sprayer	CO2 sprayer	CO2 sprayer
<b>Operating Pressure:</b>	See note	See note	See note
<b>Nozzle Type:</b>	See note	See note	See note
<b>Nozzle Size:</b>	See note	See note	See note
<b>Boom Length, Unit:</b>	6.67 FT	6.67 FT	6.67 FT
<b>Spray Volume, Unit:</b>	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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Weed Code	AMATA	AMATA	AMATA	AMATA	AMATA
Crop Code					
Rating Data Type	Control	Control	Control	Control	Dry wt.
Rating Unit	Percent	Percent	% INDPLA	% INDPLA	g/INDPLA
Rating Date	07-01-05	07-15-05	07-01-05	07-15-05	07-15-05
Trt-Eval Interval	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					
1	NONTREATED									0	0	0	0	11.20
2	7:00 AM									39	28	63	61	3.73
	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									45	38	5	5	10.30
	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									47	44	39	39	8.34
	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									42	46	42	38	2.79
	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									44	45	15	13	3.88
	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									55	44	33	33	3.60
	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									73	49	99	99	0.56
	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									74	76	99	99	1.35
	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									42	32	66	69	1.64
	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									61	56	78	73	1.95
	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									54	43	3	2	7.54
	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									68	71	95	93	1.11
	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
Crop Code					
Rating Data Type	Control	Control	Control	Control	Dry wt.
Rating Unit	Percent	Percent	% INDPLA	% INDPLA	g/INDPLA
Rating Date	07-01-05	07-15-05	07-01-05	07-15-05	07-15-05
Trt-Eval Interval	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
LSD (P=.05)									
Replicate F									
Replicate Prob(F)									
Treatment F									
Treatment Prob(F)									

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	Coverage	Drops	Coverage	Drops
										TOPCAN Percent	TOPCAN /sq cm	MIDCAN Percent	MIDCAN /sq cm
										06-17-05	06-17-05	06-17-05	06-17-05
										0 DA-A	0 DA-A	0 DA-A	0 DA-A
1	NONTREATED												
2	7:00 AM												
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												
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												
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												
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									19	62	12	49
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									8	36	4	29
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									3	17	4	15
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									29	84	15	91
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												
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												
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												
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												
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	Crop Code	Coverage TOPCAN	Drops TOPCAN	Coverage MIDCAN	Drops MIDCAN
Rating Data Type	Rating Unit	Percent	/sq cm	Percent	/sq cm
06-17-05	06-17-05	06-17-05	06-17-05	06-17-05	06-17-05
Trt-Eval Interval		0 DA-A	0 DA-A	0 DA-A	0 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code
LSD (P=.05)				10.2		36.3		7.6	51.4
Replicate F				0.138		0.321		0.565	0.382
Replicate Prob(F)				0.8738		0.7370		0.5957	0.6977
Treatment F				15.352		7.801		6.849	4.994
Treatment Prob(F)				0.0032		0.0171		0.0230	0.0453

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.