

Application Factors and Time of Day.

Project Code: 04-RL-TOD Location: Ina, IL
Investigator: Bryan Young

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Ina IL 62846 USA
Trial Status: Final Updated: 8-20-04

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 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	C
Application Date:	7-9-04	7-9-04	7-9-04
Time of Day:	7:00	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:	77 F	90 F	86 F
% Relative Humidity:	90	47	65
Wind Velocity, Unit:	5 MPH	5 MPH	1 MPH
Dew Presence (Y/N):	Y	N	N
Soil Temp., Unit:	76 F	83 F	82 F
Soil Moisture:	ABN	ABN	ABN
% 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:	9-10 IN	9-10 IN	9-10 IN

WEED STAGE AT EACH APPLICATION

	A	B	C
Weed 1 Code:	AMATA	AMATA	AMATA
Stage(leaves):	9-18	9-18	9-18
Height(inches):	6-23	6-23	6-23
Density:	High	High	High
Weed 2 Code:	AMAPA	AMAPA	AMAPA
Stage(leaves):	11-18	11-18	11-18
Height(inches):	6-20	6-20	6-20
Density:	High	High	High

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. At application "C" (7pm), leaves of weeds were drooping. AMPAL = 0-90 degrees, AMATA = 0-10 degrees.

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	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
										7-23-04 8-6-04 7-23-04 8-6-04 8-6-04 7-23-04 8-6-04 7-23-04 8-6-04 8-6-04
										13 DA-A 27 DA-A 13 DA-A 27 DA-A 27 DA-A 13 DA-A 8-9-04 13 DA-A 27 DA-A 27 DA-A
1	NONTREATED									0 0 0 0 46.65 0 0 0 0 74.01
2	7:00 AM									78 84 91 93 1.16 96 97 98 99 3.17
	20 GPA									
	5 MPH									
	XR 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
3	7:00 AM									77 73 78 73 3.41 97 97 99 99 1.17
	20 GPA									
	5 MPH									
	AI 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
4	7:00 AM									94 96 98 99 2.00 99 99 99 99 1.19
	5 GPA									
	20 MPH									
	XR 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
5	7:00 AM									91 87 98 99 1.11 96 99 99 99 0.85
	5 GPA									
	20 MPH									
	AI 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
6	1:00 PM									92 93 98 99 0.53 98 99 99 99 1.76
	20 GPA									
	5 MPH									
	XR 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
7	1:00 PM									94 97 95 99 1.33 99 99 99 99 1.46
	20 GPA									
	5 MPH									
	AI 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	
8	1:00 PM									94 97 91 96 1.31 99 99 99 99 0.62
	5 GPA									
	20 MPH									
	XR 11003 NOZZLES									
	ROUNDUP ORIGINAL	3	SL	0.188	LB AE/A	8	FL OZ/A	8-12"W	A	
	ACTIVATOR 90	100	LIQ	0.5	% V/V	0.5	% V/V	8-12"W	A	

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code	AMATA 7-23-04 13 DA-A	AMATA 8-6-04 27 DA-A	AMATA 7-23-04 13 DA-A	AMATA 8-6-04 27 DA-A	AMATA 8-6-04 27 DA-A	AMAPA 7-23-04 13 DA-A	AMAPA 8-6-04 8-9-04	AMAPA 7-23-04 13 DA-A	AMAPA 8-6-04 27 DA-A	AMAPA 8-6-04 27 DA-A	
9	1:00 PM 9 5 GPA 9 20 MPH 9 AI 11003 NOZZLES 9 ROUNDUP ORIGINAL 9 ACTIVATOR 90	3 100	SL LIQ	0.188 0.5	LB AE/A % V/V	8 0.5	FL OZ/A % V/V	8-12"W 8-12"W	A A	89	92	98	99	0.81	98	99	99	99	99	1.38
10	7:00 PM 10 20 GPA 10 5 MPH 10 XR 11003 NOZZLES 10 ROUNDUP ORIGINAL 10 ACTIVATOR 90	3 100	SL LIQ	0.188 0.5	LB AE/A % V/V	8 0.5	FL OZ/A % V/V	8-12"W 8-12"W	A A	85	86	97	99	0.69	99	98	99	99	99	0.89
11	7:00 PM 11 20 GPA 11 5 MPH 11 AI 11003 NOZZLES 11 ROUNDUP ORIGINAL 11 ACTIVATOR 90	3 100	SL LIQ	0.188 0.5	LB AE/A % V/V	8 0.5	FL OZ/A % V/V	8-12"W 8-12"W	A A	88	92	95	99	1.06	99	99	98	99	99	1.22
12	7:00 PM 12 5 GPA 12 20 MPH 12 XR 11003 NOZZLES 12 ROUNDUP ORIGINAL 12 ACTIVATOR 90	3 100	SL LIQ	0.188 0.5	LB AE/A % V/V	8 0.5	FL OZ/A % V/V	8-12"W 8-12"W	A A	91	96	94	97	1.57	99	99	99	99	99	1.82
13	7:00 PM 13 5 GPA 13 20 MPH 13 AI 11003 NOZZLES 13 ROUNDUP ORIGINAL 13 ACTIVATOR 90	3 100	SL LIQ	0.188 0.5	LB AE/A % V/V	8 0.5	FL OZ/A % V/V	8-12"W 8-12"W	A A	91	94	99	99	0.85	99	99	99	99	99	0.55
LSD (P=.05)										8.6	8.5	11.7	11.8	6.934	3.5	1.7	1.5	0.0	21.699	
Replicate F										1.927	0.708	0.792	1.190	0.648	1.512	1.524	2.793	0.000	1.001	
Replicate Prob(F)										0.1675	0.5024	0.4645	0.3216	0.5322	0.2406	0.2381	0.0812	1.0000	0.3822	
Treatment F										72.588	79.660	44.333	46.059	28.114	506.771	2117.427	3027.328	0.000	7.359	
Treatment Prob(F)										0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	1.0000	0.0001	

Trial Comments

1. Protocol: SIU/ISPOB.
2. Ratings: CI and WC 14 and 28 DAT.
3. Mix amounts are per gallon of water, and must be adjusted for each treatment.
4. 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 8-12 inches in height (height of weeds at application ranged between 6 and 23 inches).