

Time of Day Effects with Glyphosate.

Project Code: 03-26C Location: Belleville Research Center

Investigator: Bryan Young, Assistant Professor, Southern Illinois University

City State Zip Country: Belleville IL 62221 USA
 Trial Status: Final Updated: 9-3-03

Objective:

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

Weed Code	Common Name	Scientific Name
1. SETFA	foxtail, giant	Setaria faberi Herrm.
2. XANST	cocklebur, common	Xanthium strumarium L.
3. AMATA	waterhemp, common	Amaranthus rudis Sauer
4. ABUTH	velvetleaf	Abutilon theophrasti Medicus

Crop 1: GLXMA soybean Variety: Asgrow 4403 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: 25 FT Reps: 3
 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, K20 150 LB/A

Soil Name: Rushville % OM: 1.1 pH: 5.4 CEC: 8
 Texture: Silt loam Fert. Level: P1: 76 LB/A, K: 285 LB/A

APPLICATION DESCRIPTION

A

Application Date: 7-23-03
 Time of Day: see note
 Application Method: Spray
 Application Timing: 6-8"W
 Applic. Placement: BROFOL
 Soil Moisture: NORMAL
 % Cloud Cover: 0

CROP STAGE AT EACH APPLICATION

A

Crop 1 Code, Stage: GLXMA V3-V5
 Height, Unit: 6-12 IN

WEED STAGE AT EACH APPLICATION

A

Weed 1 Code: SETFA
 Stage(leaves): 5-10
 Height(inches): 6-12
 Density: High

Weed 2 Code: XANST
 Stage(leaves): 5-10
 Height(inches): 6-12
 Density: Medium

Weed 3 Code: AMATA
 Stage(leaves): 10-20
 Height(inches): 6-12
 Density: Medium

Weed 4 Code: ABUTH
 Stage(leaves): 5-10
 Height(inches): 5-10
 Density: Low

APPLICATION EQUIPMENT

	A
Appl. Equipment:	CO2 sprayer
Operating Pressure:	40 PSI
Nozzle Type:	Flat fan
Nozzle Size:	TT 110015
Boom Length, Unit:	7.5 FT
Spray Volume, Unit:	10 GPA

NOTES:

Time of day for applications A-F are 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM and 9:00 PM, see treatment list. Environmental conditions at each application are listed in comments.
Not harvested.

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Weed Code						SETFA	SETFA	XANST	XANST	AMATA	AMATA	ABUTH	ABUTH
Crop Code						GLXMA	GLXMA						
Rating Data Type						Injury	Injury	Control	Control	Control	Control	Control	Control
Rating Unit						Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date						8-6-03	8-20-03	8-6-03	8-20-03	8-6-03	8-20-03	8-6-03	8-20-03
Trt-Eval Interval						14 DA-A	28 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										
1	NONTREATED									0	0	0	0	0	0	0	0		
2	6:00 AM 2 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	A	0	0	43	33	43	30	17	13	10	7
3	6:00 AM 3 ROUNDUP ULTRA MAX 3 AMS	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	A	0	0	57	62	50	55	17	20	13	13
4	6:00 AM 4 ROUNDUP ULTRA MAX 4 RUSA 703	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	A	0	0	47	47	40	37	13	13	10	10
5	9:00 AM 5 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	B	0	0	53	80	43	80	23	23	27	28
6	9:00 AM 6 ROUNDUP ULTRA MAX 6 AMS	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	B	0	0	70	90	67	90	37	50	37	50
7	9:00 AM 7 ROUNDUP ULTRA MAX 7 RUSA 703	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	B	0	0	70	88	53	90	27	43	23	37
8	12:00 PM 8 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	C	0	0	63	88	53	90	20	40	17	23
9	12:00 PM 9 ROUNDUP ULTRA MAX 9 AMS	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	C	0	0	80	93	68	92	37	73	43	47
10	12:00 PM 10 ROUNDUP ULTRA MAX 10 RUSA 703	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	C	0	0	73	90	62	93	30	50	37	57
11	3:00 PM 11 ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	D	0	0	70	88	58	92	27	53	23	47
12	3:00 PM 12 ROUNDUP ULTRA MAX 12 AMS	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	D	0	0	78	93	62	93	37	70	37	67
13	3:00 PM 13 ROUNDUP ULTRA MAX 13 RUSA 703	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	D	0	0	62	90	50	90	30	67	27	50

Weed Code						SETFA	SETFA	XANST	XANST	AMATA	AMATA	ABUTH	ABUTH
Crop Code						GLXMA	GLXMA						
Rating Data Type						Injury	Injury	Control	Control	Control	Control	Control	Control
Rating Unit						Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date						8-6-03	8-20-03	8-6-03	8-20-03	8-6-03	8-20-03	8-6-03	8-20-03
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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code										
14	6:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	E	0	0	67	85	62	90	20	50	27	33
15	6:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	E	0	0	73	92	60	92	23	57	27	47
15	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"W	E										
16	6:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	E	0	0	67	90	47	88	20	43	27	30
16	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"W	E										
17	9:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	F	0	0	50	33	27	23	13	7	3	0
18	9:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	F	0	0	57	43	30	30	13	17	7	0
18	AMS	100	DRY	1.0	% W/W	1	%W/W	6-8"W	F										
19	9:00 PM ROUNDUP ULTRA MAX	3.7	SL	0.188	LB AE/A	6.5	FL OZ/A	6-8"W	F	0	0	50	33	20	20	10	7	0	0
19	RUSA 703	100	DRY	0.9	LB/A	0.9	LB/A	6-8"W	F										
20	NONTREATED									0	0	0	0	0	0	0	0	0	0
LSD (P=.05)										0.0	0.0	8.8	13.6	9.7	13.8	7.4	13.4	7.0	13.7
Replicate F										0.000	0.000	0.533	0.222	0.693	1.025	1.088	0.786	9.079	7.754
Replicate Prob(F)										1.0000	1.0000	0.5913	0.8021	0.5063	0.3684	0.3471	0.4628	0.0006	0.0015
Treatment F										0.000	0.000	51.430	45.128	35.503	52.633	17.374	26.514	31.310	21.475
Treatment Prob(F)										1.0000	1.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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Trial Comments

1. Protocol: SIU (BGY).
2. Ratings: CI and WC at 14 and 28 DAT.
3. Note any differences in weed canopy at each application.
4. Environmental conditions at each application:
 - Temperature was 64, 72, 78, 80, 77 and 66 F at 6:00, 9:00, 12:00, 15:00, 18:00 and 21:00, respectively.
 - Relative humidity was 98, 60, 48, 42, 44 and 96% at 6:00, 9:00, 12:00, 15:00, 18:00 and 21:00, respectively.
5. DA-A = days after 6-8"W application.