

Influence of Application Timing for Star-of-Bethlehem Control.

Project Code: 05-Evans-N60 Location: Murphysboro, IL
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Murphysboro IL 62959 USA
 Trial Status: Established Updated: 12-02-05

Objective:

Evaluate the influence of herbicide application timing for burndown control of star-of-Bethlehem.

Weed Code Common Name Scientific Name
 1. OTGUM star-of-Bethlehem Ornithogalum umbellatum L.

Crop 1: ZEAMX corn, field
 Planting Method: Seeded
 Rate: 28000 S/A Depth: 1.5 IN
 Row Spacing: 30 IN

Plot Width, Unit: 10 FT Plot Length, Unit: 25 FT Reps: 3
 Tillage Type: No-Till Study Design: Randomized complete block
 Previous Crop, Year: GLXMA, 2004

APPLICATION DESCRIPTION

	A	B	C	D	E
Application Date:	03-04-05	03-24-05	04-14-05	04-13-05	11-25-05
Time of Day:	12:15	11:30	17:30		
Application Method:	Spray	Spray	Spray	Tillage	Tillage
Application Timing:	MARCH1	MARCH21	APRIL11	SPRING	FALL
Applic. Placement:	BROFOL	BROFOL	BROFOL		
Air Temp., Unit:	65 F	53 F	68 F		
% Relative Humidity:	34	56	34		
Wind Velocity, Unit:	7-10 MPH	5-7 MPH	8-10 MPH		
Dew Presence (Y/N):	N	N	N		
Soil Temp., Unit:	50 F	49 F	65 F		
Soil Moisture:	ABONOR	ABONOR	NORMAL		
% Cloud Cover:	P.CLOUDY	CLOUDY	CLEAR		

CROP STAGE AT EACH APPLICATION

	A	B	C	D	E
Crop 1 Code, Stage:	ZEAMX NA	ZEAMX NA	ZEAMX NA	ZEAMX NA	ZEAMX NA
Height, Unit:	NA IN	NA NA	NA NA	NA NA	NA NA

WEED STAGE AT EACH APPLICATION

	A	B	C	D	E
Weed 1 Code:	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM
Stage (leaves):	1-7	7-8	6-8	6-8	2-3
Height (inches):	3-8	4-8	8-10	8-10	2-3
Density:	High	High	High	High	Low

APPLICATION EQUIPMENT

	A	B	C	D	E
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	Rototiller	Rototiller
Operating Pressure:	40 PSI	40 PSI	40 PSI		
Nozzle Type:	Flat fan	Flat fan	Flat fan		
Nozzle Size:	8003	8003	8003		
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT		
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA		

NOTES:

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		OTGUM											
		Control	Control	Control	Control	Control							
		Percent	Percent	Percent	Percent	Percent							
		03-12-05	03-25-05	03-31-05	04-07-05	04-14-05							
		8 DA-A	21 DA-A	7 DA-B	14 DA-B	21 DA-B							
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code					
1	NONTREATED								0	0		0	0
2	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	MARCH1	A	95	62		48	35
2	ACTIVATOR 90	100	LIQ	0.25 % v/v	0.25	% v/v	MARCH1	A					
3	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	MARCH1	A	5	14		18	10
4	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH1	A	38	43		42	32
4	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	MARCH1	A					
5	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	MARCH1	A	96	65		57	43
5	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH1	A					
5	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	MARCH1	A					
6	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	MARCH1	A	35	43		62	83
6	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH1	A					
7	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	MARCH21	B			87	63	60
7	ACTIVATOR 90	100	LIQ	0.25 % v/v	0.25	% v/v	MARCH21	B					
8	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	MARCH21	B			17	13	5
9	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH21	B			45	90	89
9	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	MARCH21	B					
10	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	MARCH21	B			90	82	85
10	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH21	B					
10	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	MARCH21	B					
11	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	MARCH21	B			45	93	94
11	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	MARCH21	B					
12	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	APRIL11	C					
12	ACTIVATOR 90	100	LIQ	0.25 % v/v	0.25	% v/v	APRIL11	C					
13	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	APRIL11	C					
14	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	APRIL11	C					
14	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	APRIL11	C					
15	GRAMOXONE MAX	3	SL	0.75 lb ae/a	2	pt/a	APRIL11	C					
15	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	APRIL11	C					
15	PRIME OIL COC	100	LIQ	1.0 % v/v	1	% v/v	APRIL11	C					
16	ROUNDUP W-MAX	4.5	SL	0.77 lb ae/a	22	fl oz/a	APRIL11	C					
16	VALOR	51	WG	0.08 lb ai/a	2.5	oz/a	APRIL11	C					
17	TILLAGE						SPRING	D					
18	TILLAGE						FALL	E					
LSD (P=.05)									2.9	10.8	3.6	11.6	8.6
Replicate F									0.279	1.225	0.444	0.802	0.109
Replicate Prob(F)									0.7623	0.3343	0.6561	0.4624	0.8974
Treatment F									2063.713	56.533	776.667	63.047	149.343
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001	0.0001

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Weed Code	OTGUM	OTGUM	OTGUM	OTGUM
Crop Code				
Rating Data Type	SMABUL	MEDBUL	LARBUL	TOTBUL
Rating Unit	mil/A	mil/A	mil/A	mil/A
Rating Date	05-06-05	05-06-05	05-06-05	05-06-05
Tri-Eval Interval	0 DAP	0 DAP	0 DAP	0 DAP

Tri No.	Treatment Name	Form Conc	Form Type	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code				
1	NONTREATED								18.38	4.29	3.78	26.45
2	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH1	A	6.04	2.59	1.87	10.50
2	ACTIVATOR 90	100 LIQ		0.25 % v/v	0.25 % v/v		MARCH1	A				
3	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		MARCH1	A	17.20	4.00	2.74	23.94
4	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH1	A	15.52	5.60	2.70	23.81
4	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		MARCH1	A				
5	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH1	A	9.62	2.32	1.62	13.57
5	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH1	A				
5	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		MARCH1	A				
6	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		MARCH1	A	6.68	2.88	3.69	13.25
6	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH1	A				
7	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH21	B	12.84	3.01	2.72	18.56
7	ACTIVATOR 90	100 LIQ		0.25 % v/v	0.25 % v/v		MARCH21	B				
8	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		MARCH21	B	9.40	5.41	3.63	18.44
9	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH21	B	21.47	5.60	3.15	30.22
9	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		MARCH21	B				
10	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH21	B	15.49	4.31	1.83	21.63
10	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH21	B				
10	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		MARCH21	B				
11	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		MARCH21	B	16.64	4.60	3.13	24.37
11	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH21	B				
12	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		APRIL11	C	11.14	3.03	2.61	16.78
12	ACTIVATOR 90	100 LIQ		0.25 % v/v	0.25 % v/v		APRIL11	C				
13	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		APRIL11	C	15.18	4.44	4.36	23.98
14	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C	17.42	4.90	4.04	26.36
14	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		APRIL11	C				
15	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		APRIL11	C	25.33	5.46	3.90	34.68
15	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C				
15	PRIME OIL COC	100 LIQ		1.0 % v/v	1 % v/v		APRIL11	C				
16	ROUNDUP W-MAX	4.5 SL		0.77 lb ae/a	22 fl oz/a		APRIL11	C	19.56	6.80	4.60	30.97
16	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C				
17	TILLAGE						SPRING	D				
18	TILLAGE						FALL	E				
LSD (P=.05)									14.639	2.842	2.296	16.715
Replicate F									1.646	0.352	1.868	1.953
Replicate Prob(F)									0.2097	0.7064	0.1719	0.1595
Treatment F									1.099	1.713	1.313	1.381
Treatment Prob(F)									0.3972	0.1021	0.2545	0.2190

Trial Comments

1. Protocol: ISPOB (similar to 04-Dahmer-E).
2. Ratings:
 WC (overall, weeds present at application, and new emergence) all plots 21 DAT and at planting, bulb counts at planting, emergence, and density as (2) 0.0625 square meter quadrants (one fourth of a quarter meter squared), remove bulbs from soil and evaluate mushiness, photos.
3. DA-A = Days after MARCH1 application. DA-B = Days after MARCH21 application. DAP = Days after planting. 0 DAP = at planting.
 Ratings at 14 DA-B were also 34 DA-A.
 Ratings at 21 DA-B were also 41 DA-A.
 By 4-21-05, star-of-Bethlehem are dying naturally, not able to rate.
4. SMABUL = Small bulbs (0.5 cm and smaller). MEDBUL = Medium sized bulbs (0.5 to 1.0 cm). LARBUL = Large bulbs (greater than 1.0 cm). TOTBUL = Total bulbs (any size). mil/A = million/A.
5. Treatments 17 and 18 will be evaluated in spring 2006, as well as bulb counts 1 year after treatment.