

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

Project Code: 04-Dahmer-E Location: Marion, IL  
 Investigator: Bryan Young

Investigator: Bryan Young, Associate Professor, Southern Illinois University

City State Zip Country: Marion IL 62959 USA  
 Trial Status: Final Updated: 12-05-05

**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  
 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

**APPLICATION DESCRIPTION**

	A	B	C
Application Date:	03-02-04	03-21-04	04-14-04
Time of Day:	9:00	9:00	9:00
Application Method:	Spray	Spray	Spray
Application Timing:	MARCH1	MARCH21	APRIL11
Applic. Placement:	BROFOL	BROFOL	BROFOL
Air Temp., Unit:	53 F	43 F	58 F
% Relative Humidity:	52	34	34
Wind Velocity, Unit:	2-5 MPH	2-5 MPH	0-3 MPH
Dew Presence (Y/N):	N	N	N
Soil Temp., Unit:	45 F	46 F	48 F
Soil Moisture:	ABONOR	ABONOR	ABONOR
% Cloud Cover:	5	0	0

**CROP STAGE AT EACH APPLICATION**

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

**WEED STAGE AT EACH APPLICATION**

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

**APPLICATION EQUIPMENT**

	A	B	C
Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer
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	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM	
								Control	Control	Control	Control	Plants	Plants	Plants	
								Percent	Percent	Percent	Percent	Mil/A	Mil/A	Mil/A	
								21 DAT	42 DAT	05-04-04 0 DAP	04-08-05 339 DAP	21 DAT	42 DAT	05-04-04 0 DAP	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code							
1	NONTREATED								0	0	0	0	2.68	3.04	3.52
2	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH1	A	47	30	12	33	3.68	3.66	3.88
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	8	0	0	5	3.50	3.44	3.90
4	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH1	A	52	40	0	45	2.27	2.17	2.37
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	62	47	27	58	1.83	1.27	1.52
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	53	48	3	30	2.04	1.84	1.64
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	73	40	40	96	2.94	2.02	2.02
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	10	3	3	30	2.74	2.61	2.61
9	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH21	B	73	57	57	8	3.10	2.33	2.33
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	83	67	67	96	2.62	1.89	1.89
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	78	67	67	63	2.74	1.84	1.84
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	99		99	62	2.81		2.81
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	3		3	25	3.05		3.05
14	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C	91		91	38	1.60		1.60
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	99		99	81	1.99		2.25
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	99		99	20	2.96		2.96
16	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C							
LSD (P=.05)									5.5	9.1	7.9	27.2	1.945	1.586	1.433
Replicate F									1.777	0.421	0.416	0.865	3.641	7.302	2.182
Replicate Prob(F)									0.1864	0.6620	0.6636	0.4311	0.0384	0.0042	0.1304
Treatment F									344.546	65.658	220.061	10.438	0.743	1.896	2.477
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001	0.7238	0.1072	0.0168

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										OTGUM	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM	OTGUM
										SMABUL	MEDBUL	LARBUL	TOTBUL	SMABUL	MEDBUL	LARBUL	TOTBUL
										Mil/A	Mil/A	Mil/A	Mil/A	Mil/A	Mil/A	Mil/A	Mil/A
										05-04-04	05-04-04	05-04-04	05-04-04	05-04-05	05-04-05	05-04-05	05-04-05
										0 DAP	0 DAP	0 DAP	0 DAP	365 DAP	365 DAP	365 DAP	365 DAP
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Prod Rate	Prod Unit	Grow Stg	Appl Code									
1	NONTREATED								18.54	25.08	3.13	46.75	2.70	12.07	6.93	21.70	
2	GRAMOXONE MAX	3 SL		0.75 lb ae/a	2 pt/a		MARCH1	A	12.07	12.26	0.41	24.75	0.27	5.27	5.08	10.62	
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					5.58	22.84	24.25	52.67	
4	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH1	A	27.17	20.45	1.06	48.68	1.35	11.64	5.95	18.94	
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					0.44	3.44	1.74	5.62	
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					4.00	11.26	4.60	19.87	
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	17.49	10.00	0.10	27.59	0.00	0.15	0.10	0.25	
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					1.16	8.75	2.26	12.18	
9	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		MARCH21	B	25.58	23.15	0.68	49.41	2.95	13.07	10.33	26.34	
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					0.00	0.02	0.08	0.10	
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					0.81	6.12	7.59	14.52	
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	19.35	18.25	0.41	38.02	0.41	2.36	2.78	5.56	
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					1.53	8.01	2.92	12.47	
14	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C	19.58	23.23	2.16	44.97	3.05	9.15	3.55	15.74	
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					0.10	1.74	1.58	3.42	
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					2.10	13.94	6.04	22.07	
16	VALOR	51 WG		0.08 lb ai/a	2.5 oz/a		APRIL11	C									
LSD (P=.05)									14.112	8.084	0.886	21.356	2.828	11.860	10.268	21.105	
Replicate F									0.095	0.301	0.829	0.200	4.818	1.880	2.704	3.458	
Replicate Prob(F)									0.9104	0.7458	0.4599	0.8215	0.0153	0.1701	0.0832	0.0445	
Treatment F									1.227	4.872	14.795	2.168	2.760	2.179	2.630	3.078	
Treatment Prob(F)									0.3580	0.0096	0.0001	0.1196	0.0087	0.0338	0.0118	0.0043	

Trial Comments

1. Protocol: ISPOB.
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. DAT = Days after treatment. DAP = Days after planting. 0 DAP = at planting. 365 DAP = at planting the following year.  
 Ratings at 21 days after the MARCH1, MARCH21, and APRIL11 applications were on 3-22-04, 4-14-04, and 5-4-04, respectively.  
 Ratings at 42 days after the MARCH1 and MARCH21 applications were on 4-14-04 and 5-4-04, respectively.  
 Ratings on 5-4-04, at planting, were 63, 42, and 21 days after the MARCH1, MARCH21, and APRIL11 applications, respectively.
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.