

North Carolina State University

TRIFLOXYSULFURON FORMULATIONS FOR PURPLE NUTSEDGE CONTROL IN A BERMUDAGRASS FAIRWAY

Trial ID: 04-D26

Study Director: TRAVIS GANNON

Location: PLYMOUTH COUNTRY CLUB

Investigator: Fred Yelverton

Application Description

	A	B
Application Date:	4-28-04	5-26-04
Time of Day:	9-12 NOON	10-12NOON
Application Method:	SPRAY	SPRAY
Application Timing:	APRIL 28	MAY 26
Application Placement:	FOLIAR	FOLIAR
Applied By:	T GANNON	T GANNON
Air Temperature, Unit:	60.9 F	86.1 F
% Relative Humidity:	48	79
Wind Velocity, Unit:	1.9 MPH	1.8 MPH
Dew Presence (Y/N):	N	N
Soil Temperature, Unit:	64 F	81 F
Soil Moisture:	GOOD	GOOD
% Cloud Cover:	5	20

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	CYNDA BGRM	CYNDA BGRM
Stage Scale Used:	MOWED	MOWED
Height, Unit:	0.5 IN	0.5 IN
Height Minimum, Maximum:	0.5 0.5	0.5 0.5

Pest Stage At Each Application

	A	B
Pest 1 Code, Disc., Scale:	CYPRO W	CYPRO W
Stage Majority, Percent:	4 LEAF 80	5 LEAF 80
Stage Minimum, Percent:	3 LEAF 10	5 LEAF 80
Stage Maximum, Percent:	4 LEAF 80	6 LEAF 10
Height, Unit:	0.5 IN	0.5 IN
Height Minimum, Maximum:	0.5 0.5	0.5 0.5
Density, Unit:	3 FT2	7 FT2
Coverage, Unit:	35 %	40 %

Application Equipment

	A	B
Appl. Equipment:	CO2 SPRAY	CO2 SPRAY
Operating Pressure:	25	25
Pressure Unit:	PSI	PSI
Nozzle Type:	FLAT FAN	FLAT FAN
Nozzle Size:	VS8002XR	VS8002XR
Nozzle Spacing, Unit:	10 INCH	10 INCH
Nozzles/Row:	4	4
Boom Length, Unit:	40 INCH	40 INCH
Boom Height, Unit:	10 INCH	10 INCH
Ground Speed, Unit:	3 MPH	3 MPH
Carrier:	WATER	WATER
Spray Volume:	32.5	32.5
Volume Unit:	GPA	GPA
Propellant:	COMP CO2	COMP CO2

North Carolina State University

TRIFLOXYSULFURON FORMULATIONS FOR PURPLE NUTSEDGE CONTROL IN A BERMUDAGRASS FAIRWAY

Trial ID: 04-D26

Study Director: TRAVIS GANNON

Location: PLYMOUTH COUNTRY CLUB

Investigator: Fred Yelverton

Pest Code						CYPRO	CYPRO	CYPRO	CYPRO	CYPRO	CYPRO			
Crop Code														
Rating Date						5-3-04	5-12-04	5-20-04	5-26-04	6-3-04	6-8-04			
Rating Data Type						CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL			
Rating Unit						%	%	%	%	%	%			
Days After Last Applic.						5	14	22	0	8	13			
Trt-Eval Interval						5 DA-A	14 DA-A	22 DA-A	28 DA-A	36 DA-A	41 DA-A			
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
1	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		APRIL 28 A APRIL 28 A		17.5 ab	82.5 ab	81.3 ab	93.8 ab	93.8 a	93.8 ab
2	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		17.5 ab	82.5 ab	85.0 a	93.8 ab	93.8 a	95.0 a
3	MONUMENT X-77	75 L	WG	1.12 oz/a 0.25 % v/v	59 g ai/ha		APRIL 28 A APRIL 28 A		20.0 a	78.8 ab	81.3 ab	93.8 ab	92.5 ab	95.0 a
4	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		APRIL 28 A APRIL 28 A		17.5 ab	85.0 ab	83.8 ab	87.5 bc	86.3 b	87.5 cd
5	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		17.5 ab	78.8 ab	83.8 ab	92.5 ab	91.3 ab	92.5 abc
6	A14350 X-77	0.91 L	L	7.4 oz/a 0.25 % v/v	58.8 g ai/ha		APRIL 28 A APRIL 28 A		12.5 bc	83.8 ab	85.0 a	95.0 a	93.8 a	93.8 ab
7	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		APRIL 28 A APRIL 28 A		15.0 abc	78.8 ab	78.8 b	91.3 ab	88.8 ab	93.8 ab
	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		MAY 26 B MAY 26 B							
8	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		17.5 ab	76.3 b	78.8 b	88.8 abc	93.8 a	93.8 ab
	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		MAY 26 B MAY 26 B							
9	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		APRIL 28 A APRIL 28 A		15.0 abc	83.8 ab	83.8 ab	90.0 ab	92.5 ab	92.5 abc
	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		MAY 26 B MAY 26 B							
10	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		16.3 abc	83.8 ab	83.8 ab	91.3 ab	95.0 a	93.8 ab
	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		MAY 26 B MAY 26 B							
11	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			APRIL 28 A APRIL 28 A		13.8 abc	88.8 a	72.5 c	80.0 d	77.5 c	85.0 d
12	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			APRIL 28 A APRIL 28 A		10.0 c	87.5 a	81.3 ab	82.5 cd	90.0 ab	88.8 bcd
	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			MAY 26 B MAY 26 B							
13	NONTREATED								0.0 d	0.0 c	0.0 d	0.0 e	0.0 d	0.0 e
LSD (P=.05)						7.47	10.57	6.25	7.26	7.37	5.54			
Standard Deviation						5.23	7.40	4.37	5.08	5.16	3.88			
CV						35.77	9.72	5.81	6.12	6.16	4.56			
Grand Mean						14.62	76.15	75.29	83.08	83.75	85.0			
Bartlett's X2						4.223	15.012	10.281	15.172	20.648	13.78			
P(Bartlett's X2)						0.937	0.182	0.328	0.126	0.024*	0.13			
Friedman's X2						17.876	17.349	21.931	25.475	22.071	23.151			
P(Friedman's X2)						0.119	0.137	0.038	0.013	0.037	0.026			
Replicate F						1.267	3.676	2.707	7.198	1.222	1.023			
Replicate Prob(F)						0.3003	0.0208	0.0596	0.0007	0.3159	0.3939			
Treatment F						3.827	39.199	109.492	99.602	98.380	176.020			
Treatment Prob(F)						0.0009	0.0001	0.0001	0.0001	0.0001	0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

North Carolina State University

TRIFLOXYSULFURON FORMULATIONS FOR PURPLE NUTSEDGE CONTROL IN A BERMUDAGRASS FAIRWAY

Trial ID: 04-D26

Study Director: TRAVIS GANNON

Location: PLYMOUTH COUNTRY CLUB

Investigator: Fred Yelverton

Pest Code	CYPRO	CYPRO	CYPRO	CYPRO	TURF	TURF	TURF								
Crop Code	6-21-04	7-7-04	7-21-04	9-29-04	5-3-04	5-12-04	5-20-04								
Rating Date	CONTROL	CONTROL	CONTROL	CONTROL	QUALITY	QUALITY	QUALITY								
Rating Data Type	%	%	%	%	1-9	1-9	1-9								
Rating Unit	26	42	56	126	5	14	22								
Days After Last Applic.	54 DA-A	70 DA-A	84 DA-A	154 DA-A	5 DA-A	14 DA-A	22 DA-A								
Trt-Eval Interval															
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code							
1	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		APRIL 28 A APRIL 28 A		92.5 a	56.3 de	51.3 cd	37.5 d	6.5 a	7.0 a	7.0 a
2	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		95.0 a	91.3 ab	86.3 ab	72.5 b	6.5 a	7.0 a	7.0 a
3	MONUMENT X-77	75 L	WG	1.12 oz/a 0.25 % v/v	59 g ai/ha		APRIL 28 A APRIL 28 A		92.5 a	87.5 abc	94.0 a	88.8 a	6.5 a	7.0 a	7.0 a
4	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		APRIL 28 A APRIL 28 A		81.3 ab	72.5 cd	48.8 cd	46.3 d	6.5 a	7.0 a	7.0 a
5	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		88.8 a	86.3 abc	82.5 ab	68.8 b	6.5 a	7.0 a	7.0 a
6	A14350 X-77	0.91 L	L	7.4 oz/a 0.25 % v/v	58.8 g ai/ha		APRIL 28 A APRIL 28 A		93.8 a	95.0 a	93.3 a	92.0 a	6.5 a	7.0 a	7.0 a
7	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		APRIL 28 A APRIL 28 A		93.8 a	93.8 a	86.3 ab	86.3 a	6.5 a	7.0 a	7.0 a
	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha		MAY 26 B MAY 26 B								
8	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		95.0 a	97.5 a	89.5 a	87.5 a	6.5 a	7.0 a	7.0 a
	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha		MAY 26 B MAY 26 B								
9	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		APRIL 28 A APRIL 28 A		90.0 a	95.0 a	88.3 a	95.8 a	6.5 a	7.0 a	7.0 a
	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha		MAY 26 B MAY 26 B								
10	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		APRIL 28 A APRIL 28 A		92.5 a	100.0 a	97.0 a	85.8 a	6.5 a	7.0 a	7.0 a
	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha		MAY 26 B MAY 26 B								
11	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			APRIL 28 A APRIL 28 A		66.3 b	47.5 e	47.5 d	48.8 cd	6.5 a	7.0 a	7.0 a
12	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			APRIL 28 A APRIL 28 A		82.5 ab	73.8 bcd	67.5 bc	61.3 bc	6.5 a	7.0 a	7.0 a
	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v			MAY 26 B MAY 26 B								
13	NONTREATED								0.0 c	0.0 f	0.0 e	0.0 e	6.5 a	7.0 a	7.0 a
LSD (P=.05)									20.38	18.21	19.29	13.15	0.00	0.00	0.00
Standard Deviation									14.26	12.74	13.50	9.20	0.00	0.00	0.00
CV									17.43	16.62	18.83	13.73	0.0	0.0	0.0
Grand Mean									81.83	76.63	71.69	67.0	6.5	7.0	7.0
Bartlett's X2									55.118	45.673	43.65	21.817	0.0	0.0	0.0
P(Bartlett's X2)									0.001*	0.001*	0.001*	0.026*			
Friedman's X2									22.104	42.321	40.549	41.003	0.0	0.0	0.0
P(Friedman's X2)									0.036	0.001	0.001	0.001	0.001	0.001	0.001
Replicate F									0.942	0.722	0.290	0.050	0.000	0.000	0.000
Replicate Prob(F)									0.4305	0.5455	0.8324	0.9848	1.0000	1.0000	1.0000
Treatment F									13.160	19.586	17.235	36.463	0.000	0.000	0.000
Treatment Prob(F)									0.0001	0.0001	0.0001	0.0001	1.0000	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

North Carolina State University

TRIFLOXYSULFURON FORMULATIONS FOR PURPLE NUTSEDGE CONTROL IN A BERMUDAGRASS FAIRWAY

Trial ID: 04-D26

Study Director: TRAVIS GANNON

Location: PLYMOUTH COUNTRY CLUB

Investigator: Fred Yelverton

Pest Code	TURF												
Crop Code	5-26-04	6-3-04	6-8-04	6-21-04	7-7-04	7-21-04	9-29-04						
Rating Date	QUALITY	QUALITY	QUALITY	QUALITY	QUALITY	QUALITY	QUALITY						
Rating Data Type	1-9	1-9	1-9	1-9	1-9	1-9	1-9						
Rating Unit	0	8	13	26	42	56	126						
Days After Last Applic.	28 DA-A	36 DA-A	41 DA-A	54 DA-A	70 DA-A	84 DA-A	154 DA-A						
Trt-Eval Interval													
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate Rate Unit	Growth Stage	Appl Code						
1	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
2	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
3	MONUMENT X-77	75 L	WG	1.12 oz/a 0.25 % v/v	59 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
4	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
5	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
6	A14350 X-77	0.91 L	L	7.4 oz/a 0.25 % v/v	58.8 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
7	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
	MONUMENT X-77	75 L	WG	0.33 oz/a 0.25 % v/v	17.3 g ai/ha	MAY 26 B MAY 26 B							
8	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
	MONUMENT X-77	75 L	WG	0.56 oz/a 0.25 % v/v	29.4 g ai/ha	MAY 26 B MAY 26 B							
9	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
	A14350 X-77	0.91 L	L	2.16 oz/a 0.25 % v/v	17.2 g ai/ha	MAY 26 B MAY 26 B							
10	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha	APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
	A14350 X-77	0.91 L	L	3.7 oz/a 0.25 % v/v	29.4 g ai/ha	MAY 26 B MAY 26 B							
11	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v		APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
12	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v		APRIL 28 A APRIL 28 A		7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
	MANAGE X-77	75 L	WG	1.33 oz/a 0.25 % v/v		MAY 26 B MAY 26 B							
13	NONTREATED							7.0 a	7.0 a	7.0 a	7.0 a	7.0 a	7.0 a
LSD (P=.05)								0.00	0.00	0.00	0.00	0.00	0.00
Standard Deviation								0.00	0.00	0.00	0.00	0.00	0.00
CV								0.0	0.0	0.0	0.0	0.0	0.0
Grand Mean								7.0	7.0	7.0	7.0	7.0	7.0
Bartlett's X2								0.0	0.0	0.0	0.0	0.0	0.0
P(Bartlett's X2)							
Friedman's X2								0.0	0.0	0.0	0.0	0.0	0.0
P(Friedman's X2)								0.001	0.001	0.001	0.001	0.001	0.001
Replicate F								0.000	0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)								1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F								0.000	0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)								1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Trial Comments

5-3-04 - Trial evaluated for purple nutsedge control and turf quality. Slight bermudagrass yellowing present in select plots.

6-21-04 - Entire trial area was treated with Illoxan (1 oz/M) + NIS (0.25% v/v) due to heavy goosegrass infestation.

7-7-04 - Entire trial area was treated with Illoxan (1 oz/M) + NIS (0.25% v/v) due to heavy goosegrass infestation.