

North Carolina State University

SULFONYLUREA HERBICIDES FOR YELLOW NUTSEDGE CONTROL IN A BERMUDAGRASS SODFIELD

Trial ID: 04-D10
Location: SANDHILLS TURF

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

General Trial Information

Study Director: TRAVIS GANNON **Title:** RESEARCH ASSOCIATE
Affiliation: NORTH CAROLINA STATE UNIVERSITY
Postal Code: 27695 **E-mail:** TRAVIS_GANNON@NCSSU.EDU
Investigator: FRED YELVERTON **Title:** PROFESSOR
Affiliation: NORTH CAROLINA STATE UNIVERSITY
Postal Code: 27695 **E-mail:** FRED_YELVERTON@NCSSU.EDU

Trial Location
City: EAGLE SPRINGS **Trial Status:** COMPLETED
State/Prov.: NC
Postal Code: 27242 **Initiation Date:** 6-1-04
Country: USA
Directions:

Objectives:

Conclusions:

Cooperator/Landowner

Cooperator: PAT HARRIS **Country:** USA
Organization: SANDHILLS TURF **Phone No:** 910.673.2177
Address 1: 255 NC HIGHWAY 211
City: EAGLE SPRINGS
State/Prov: NC
Postal Code: 27242

Crop Description

Crop 1: CYNDA Cynodon dactylon Bermuda grass
Variety: TIFWAY 419
BBCH Scale: BGRM

Pest Description

Pest 1 Type: W **Code:** CYPES Cyperus esculentus
Common Name: YELLOW NUTSEDGE

Site and Design

Plot Width, Unit: 5 FT **Site Type:** SODFIELD
Plot Length, Unit: 8 FT
Replications: 4 **Study Design:** Randomized Complete Block

Trial Initiation Comments:

Field Prep./Maintenance:

Soil Description

% OM: 1.87 **Texture:** MINERAL
pH: 5.1
CEC: 7.7 **Fert. Level:** EXCELLENT

Moisture Conditions

Overall Moisture Conditions: IRRIGATED AS NEEDED

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Application Description

	A	B	C
Application Date:	6-1-04	6-9-04	7-13-04
Time of Day:	2-3 PM	11-12NOON	9-10 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	JUNE 1	JUNE 9	JULY 13
Application Placement:	FOLIAR	FOLIAR	FOLIAR
Applied By:	T GANNON	T GANNON	T GANNON
Air Temperature, Unit:	87.5 F	82.5 F	79.1 F
% Relative Humidity:	32	90	95
Wind Velocity, Unit:	3.8 MPH	1.1 MPH	0.8 MPH
Dew Presence (Y/N):	N	N	Y
Soil Temperature, Unit:	89 F	79 F	79 F
Soil Moisture:	GOOD	GOOD	GOOD
% Cloud Cover:	5	85	10

Crop Stage At Each Application

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

Pest Stage At Each Application

	A	B	C
Pest 1 Code, Disc., Scale:	CYPES W	CYPES W	CYPES W
Stage Majority, Percent:	5 LEAF 70	5 LEAF 70	5 LEAF
Stage Minimum, Percent:	3 LEAF 10	3 LEAF 10	3 LEAF
Stage Maximum, Percent:	7 LEAF 10	7 LEAF 10	7 LEAF
Height, Unit:	0.5 IN	0.5 IN	1 IN
Height Minimum, Maximum:	0.5 0.5	0.5 0.5	1 1
Density, Unit:	3 FT2	3 FT2	1 FT2
Coverage, Unit:	25 %	25 %	10 %

Application Equipment

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

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					CYPES	CYPES	CYPES	CYPES	CYPES	CYPES				
					6-9-04	6-16-04	6-24-04	6-28-04	7-8-04	7-13-04				
					CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL				
					%	%	%	%	%	%				
					0	7	15	19	29	0				
Trt-Eval Interval					8 DA-A	15 DA-A	23 DA-A	27 DA-A	37 DA-A	42 DA-A				
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Other Rate	Other Rate	Growth Unit Stage	Appl Code						
1	DPX-F5384 X-77	60 DF	L	1.67 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	0.0 b	33.8 d	52.5 b	91.3 a	100.0 a	90.0 a
2	DPX-F6025 X-77	25 WDG	L	1 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	0.0 b	85.0 a	87.5 a	92.5 a	100.0 a	92.5 a
3	DPX-KU253 X-77	42 WDG	L	0.5 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	0.0 b	85.0 a	88.8 a	95.0 a	100.0 a	97.5 a
4	DPX-T6376 DPX-F6025 X-77	60 DF 25 WDG	L	0.104 oz/a 0.64 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A	0.0 b	76.3 ab	87.5 a	93.8 a	100.0 a	96.3 a
5	DPX-F5384 DPX-T6376 X-77	60 DF 60 DF	L	1.33 oz/a 0.104 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A	0.0 b	47.5 c	63.8 b	90.0 a	97.5 a	30.0 b
6	MONUMENT X-77	75 WG	L	0.56 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	0.0 b	81.3 a	91.3 a	95.0 a	100.0 a	96.3 a
7	MONUMENT X-77 MONUMENT X-77	75 WG 75 WG	L L	0.33 oz/a 0.25 % v/v 0.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JULY 13 C JULY 13 C	A A C C	0.0 b	81.3 a	90.0 a	95.0 a	100.0 a	96.3 a
8	MANAGE X-77	75 WG	L	1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	0.0 b	80.0 a	90.0 a	95.0 a	100.0 a	97.5 a
9	MANAGE X-77 MANAGE X-77	75 WG 75 WG	L L	1.33 oz/a 0.25 % v/v 1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JULY 13 C JULY 13 C	A A C C	0.0 b	63.8 b	91.3 a	93.8 a	100.0 a	96.3 a
10	MSMA 6.6 X-77 MSMA 6.6 X-77	6.6 L 6.6 L	L L	2 lb ai/a 0.25 % v/v 2 lb ai/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 9 B JUNE 9 B	A A B B	13.8 a	87.5 a	91.3 a	92.5 a	97.5 a	95.0 a
11	NONTREATED								0.0 b	0.0 e	0.0 c	0.0 b	0.0 b	0.0 c
LSD (P=.05)					4.12	13.24	13.90	5.39	2.92	13.76				
Standard Deviation					2.85	9.17	9.63	3.73	2.02	9.53				
CV					228.3	13.99	12.7	4.4	2.24	11.81				
Grand Mean					1.25	65.57	75.8	84.89	90.45	80.68				
Bartlett's X2					0.0	12.405	39.823	5.596	0.0	10.85				
P(Bartlett's X2)					.	0.088	0.001*	0.348	0.001*	0.286				
Friedman's X2					5.625	29.057	27.739	12.386	10.909	19.375				
P(Friedman's X2)					0.846	0.001	0.002	0.26	0.365	0.036				
Replicate F					1.000	1.267	2.115	2.106	2.222	1.743				
Replicate Prob(F)					0.4064	0.3033	0.1192	0.1204	0.1060	0.1794				
Treatment F					8.442	36.571	34.501	228.261	881.000	48.638				
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001				

Means followed by same letter do not significantly differ (P=.05, LSD)
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Pest Code		CYPES	CYPES	CYPES	TURF	TURF	TURF	TURF
Crop Code		7-28-04	8-11-04	9-13-04	6-9-04	6-16-04	6-24-04	6-28-04
Rating Date		CONTROL	CONTROL	CONTROL	QUALITY	QUALITY	QUALITY	QUALITY
Rating Data Type		%	%	%	1-9	1-9	1-9	1-9
Rating Unit		15	29	62	0	7	15	19
Days After Last Applic.		57 DA-A	71 DA-A	104 DA-A	8 DA-A	15 DA-A	23 DA-A	27 DA-A
Trt-Eval Interval								
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit Stage	Appl Code
1	DPX-F5384 X-77	60 DF L		1.67 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
								77.5 d 73.8 d 70.0 d 7.0 a 7.0 a 7.0 a 7.0 a
2	DPX-F6025 X-77	25 WDG L		1 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
								90.0 abc 86.3 bc 82.5 c 7.0 a 7.0 a 7.0 a 7.0 a
3	DPX-KU253 X-77	42 WDG L		0.5 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
								100.0 a 100.0 a 98.8 a 7.0 a 7.0 a 7.0 a 7.0 a
4	DPX-T6376 DPX-F6025 X-77	60 DF L		0.104 oz/a 0.64 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A
								83.8 cd 78.8 cd 83.8 c 7.0 a 7.0 a 7.0 a 7.0 a
5	DPX-F5384 DPX-T6376 X-77	60 DF L		1.33 oz/a 0.104 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A
								16.3 e 21.3 e 11.3 e 7.0 a 7.0 a 7.0 a 7.0 a
6	MONUMENT X-77	75 WG L		0.56 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
								100.0 a 100.0 a 100.0 a 7.0 a 7.0 a 7.0 a 7.0 a
7	MONUMENT X-77	75 WG L		0.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
	MONUMENT X-77	75 WG L		0.33 oz/a 0.25 % v/v			JULY 13 C JULY 13 C	C
								100.0 a 100.0 a 100.0 a 7.0 a 7.0 a 7.0 a 7.0 a
8	MANAGE X-77	75 WG L		1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
								87.5 bcd 87.5 b 82.5 c 7.0 a 7.0 a 7.0 a 7.0 a
9	MANAGE X-77	75 WG L		1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
	MANAGE X-77	75 WG L		1.33 oz/a 0.25 % v/v			JULY 13 C JULY 13 C	C
								97.5 ab 96.3 a 91.3 b 7.0 a 7.0 a 7.0 a 7.0 a
10	MSMA 6.6 X-77	6.6 L L		2 lb ai/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A
	MSMA 6.6 X-77	6.6 L L		2 lb ai/a 0.25 % v/v			JUNE 9 B JUNE 9 B	B
								92.5 abc 85.0 bc 83.8 c 6.7 b 6.0 b 6.9 a 7.0 a
11	NONTREATED							
								0.0 f 0.0 f 0.0 f 7.0 a 7.0 a 7.0 a 7.0 a
LSD (P=.05)				10.61	8.72	5.95	0.10	0.25
Standard Deviation				7.35	6.04	4.12	0.07	0.17
CV				9.56	8.02	5.64	1.04	2.52
Grand Mean				76.82	75.34	73.07	6.97	6.91
Bartlett's X2				11.018	12.99	10.327	0.0	0.0
P(Bartlett's X2)				0.088	0.043*	0.112	.	.
Friedman's X2				32.659	36.614	36.477	5.625	10.0
P(Friedman's X2)				0.001	0.001	0.001	0.846	0.44
Replicate F				1.039	1.137	0.657	1.000	1.000
Replicate Prob(F)				0.3897	0.3500	0.5849	0.4064	0.4064
Treatment F				90.347	123.231	282.621	6.818	12.000
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001

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Pest Code					TURF	TURF	TURF	TURF	TURF
Crop Code					7-8-04	7-13-04	7-28-04	8-11-04	9-13-04
Rating Date					QUALITY	QUALITY	QUALITY	QUALITY	QUALITY
Rating Data Type					1-9	1-9	1-9	1-9	1-9
Rating Unit					29	0	15	29	62
Days After Last Applic.					37 DA-A	42 DA-A	57 DA-A	71 DA-A	104 DA-A
Trt-Eval Interval									
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit	Other Rate	Other Rate	Growth Stage	Appl Code	
1	DPX-F5384 X-77	60 DF	L	1.67 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	7.0 a
2	DPX-F6025 X-77	25 WDG	L	1 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	7.0 a
3	DPX-KU253 X-77	42 WDG	L	0.5 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	7.0 a
4	DPX-T6376 DPX-F6025 X-77	60 DF 25 WDG	L	0.104 oz/a 0.64 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A	7.0 a
5	DPX-F5384 DPX-T6376 X-77	60 DF 60 DF	L	1.33 oz/a 0.104 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 1 A	A	7.0 a
6	MONUMENT X-77	75 WG	L	0.56 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	7.0 a
7	MONUMENT X-77 MONUMENT X-77	75 WG 75 WG	L L	0.33 oz/a 0.25 % v/v 0.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JULY 13 C JULY 13 C	A	7.0 a
8	MANAGE X-77	75 WG	L	1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A	A	7.0 a
9	MANAGE X-77 MANAGE X-77	75 WG 75 WG	L L	1.33 oz/a 0.25 % v/v 1.33 oz/a 0.25 % v/v			JUNE 1 A JUNE 1 A JULY 13 C JULY 13 C	A	7.0 a
10	MSMA 6.6 X-77 MSMA 6.6 X-77	6.6 L 6.6 L	L L	2 lb ai/a 0.25 % v/v 2 lb ai/a 0.25 % v/v			JUNE 1 A JUNE 1 A JUNE 9 B JUNE 9 B	A	7.0 a
11	NONTREATED								7.0 a
LSD (P=.05)					0.00	0.00	0.00	0.00	0.00
Standard Deviation					0.00	0.00	0.00	0.00	0.00
CV					0.0	0.0	0.0	0.0	0.0
Grand Mean					7.0	7.0	7.0	7.0	7.0
Bartlett's X2					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
P(Friedman's X2)					1.00	1.00	1.00	1.00	1.00
Replicate F					0.000	0.000	0.000	0.000	0.000
Replicate Prob(F)					1.0000	1.0000	1.0000	1.0000	1.0000
Treatment F					0.000	0.000	0.000	0.000	0.000
Treatment Prob(F)					1.0000	1.0000	1.0000	1.0000	1.0000

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Trial Comments