

North Carolina State University

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

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: WILMINGTON **Trial Status:** COMPLETED
State/Prov.: NC
Postal Code: 28412 **Initiation Date:** 10-6-03
Country: USA
Directions:

Objectives:

Conclusions:

Cooperator/Landowner

Cooperator: Brian Stackowith **Country:** USA
Organization: Echo Farms Golf Course **Phone No:** 910.791.3393
Address 1: 4114 Echo Farms Blvd
City: Wilmington
State/Prov: NC
Postal Code: 28412

Crop Description

Crop 1: CYNDA Cynodon dactylon BERMUDAGRASS
Variety: Tifway 419
BBCH Scale: BGRM

Crop 2: LOLPE Lolium perenne RYEGRASS, PERENNIAL
Variety: Quick Trans
BBCH Scale: BGRM **Planting Date:** 10-15-03
Planting Method: Broadcast **Rate, Unit:** 12 LB/1000FT2
Seed Bed: Mowed **Soil Temperature, Unit:** 66 F
Soil Moisture: Wet

Site and Design

Plot Width, Unit: 5 FT **Site Type:** Golf Course Driving Range
Plot Length, Unit: 8 FT
Replications: 4 **Study Design:** Randomized Complete Block

Trial Initiation Comments:

Field Prep./Maintenance:

Soil Description

% OM: 0.71 **Texture:** MINERAL
pH: 5.8
CEC: 6.4 **Fert. Level:** GOOD

Moisture Conditions

Overall Moisture Conditions: IRRIGATED AS NEEDED

North Carolina State University

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

Application Description

	A	B	C
Application Date:	10-6-03	10-10-03	10-15-03
Time of Day:	8-9 AM	8-9 AM	8-9 AM
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	OCT 6	OCT 10	OCT 15
Application Placement:	FOLIAR	FOLIAR	FOLIAR
Applied By:	T GANNON	T GANNON	T GANNON
Air Temperature, Unit:	68.6 F	67.3 F	68.5 F
% Relative Humidity:	90	99	50
Wind Velocity, Unit:	0.4 MPH	1.2 MPH	1.2 MPH
Dew Presence (Y/N):	Y	Y	N
Soil Temperature, Unit:	67 F	67 F	66 F
Soil Moisture:	GOOD	WET	WET
% Cloud Cover:	35	100	10

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	CYNDA BGRM	CYNDA BGRM	CYNDA BGRM
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	MOWED 100	MOWED 100	MOWED 100
Height, Unit:	0.5 IN	0.5 IN	0.5 IN
Crop 2 Code, BBCH Scale:	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	N/A 0	N/A 0	N/A 0

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

North Carolina State University

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

Crop Code	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM									
BBCH Scale	10-28-03	11-12-03	12-2-03	12-15-03	1-5-04	1-22-04	2-3-04									
Rating Date	COVER	COVER	COVER	COVER	COVER	COVER	COVER									
Rating Data Type	%	%	%	%	%	%	%									
Rating Unit	13	28	48	61	82	99	111									
Days After Last Applic.	22 DA-A	37 DA-A	57 DA-A	70 DA-A	91 DA-A	108 DA-A	120 DA-A									
Trt-Eval Interval																
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code								
1	CERTAINTY X-77	75	WG	2 oz/a		0.25 % v/v	OCT 6 A	A	47.5 ab	85.0 a	77.5 ab	73.8 a	73.8 a	70.0 a	68.8 a	
2	CERTAINTY X-77	75	WG	2.66 oz/a		0.25 % v/v	OCT 6 A	A	46.3 ab	83.8 a	75.0 ab	71.3 a	73.8 a	70.0 a	67.5 a	
3	CERTAINTY X-77 ROUNDUP PRO	75	WG	2 oz/a		0.25 % v/v	OCT 6 A	A	43.8 abc	85.0 a	75.0 ab	77.5 a	73.8 a	70.0 a	68.8 a	
4	TRANXIT GTA X-77	25	DF	2 oz/a		0.25 % v/v	OCT 6 A	A	47.5 ab	85.0 a	80.0 a	77.5 a	75.0 a	68.8 a	71.3 a	
5	REVOLVER X-77	0.19	SC	0.013 lbai/a		0.25 % v/v	OCT 6 A	A	50.0 a	85.0 a	80.0 a	72.5 a	65.0 a	68.8 a	67.5 a	
6	CERTAINTY X-77	75	WG	2 oz/a		0.25 % v/v	OCT 10 B	B	42.5 bc	85.0 a	77.5 ab	73.8 a	66.3 a	67.5 a	68.8 a	
7	CERTAINTY X-77	75	WG	2.66 oz/a		0.25 % v/v	OCT 10 B	B	45.0 ab	83.8 a	76.3 ab	76.3 a	72.5 a	68.8 a	70.0 a	
8	CERTAINTY X-77 ROUNDUP PRO	75	WG	2 oz/a		0.25 % v/v	OCT 10 B	B	45.0 ab	83.8 a	77.5 ab	77.5 a	75.0 a	66.3 a	68.8 a	
9	TRANXIT GTA X-77	25	DF	2 oz/a		0.25 % v/v	OCT 10 B	B	46.3 ab	83.8 a	75.0 ab	66.3 a	67.5 a	68.8 a	68.8 a	
10	REVOLVER X-77	0.19	SC	0.013 lbai/a		0.25 % v/v	OCT 10 B	B	46.3 ab	83.8 a	75.0 ab	77.5 a	68.8 a	68.8 a	66.3 a	
11	CERTAINTY X-77	75	WG	2 oz/a		0.25 % v/v	OCT 15 C	C	20.0 d	76.3 a	67.5 c	70.0 a	70.0 a	68.8 a	66.3 a	
12	CERTAINTY X-77	75	WG	2.66 oz/a		0.25 % v/v	OCT 15 C	C	18.8 d	80.0 a	73.8 b	68.8 a	67.5 a	66.3 a	61.3 a	
13	CERTAINTY X-77 ROUNDUP PRO	75	WG	2 oz/a		0.25 % v/v	OCT 15 C	C	20.0 d	73.8 a	75.0 ab	71.3 a	68.8 a	68.8 a	65.0 a	
14	TRANXIT GTA X-77	25	DF	2 oz/a		0.25 % v/v	OCT 15 C	C	22.5 d	78.8 a	73.8 b	65.0 a	60.0 a	62.5 a	65.0 a	
15	REVOLVER X-77	0.19	SC	0.013 lbai/a		0.25 % v/v	OCT 15 C	C	37.5 c	83.8 a	77.5 ab	72.5 a	68.8 a	68.8 a	70.0 a	
16	NONTREATED								50.0 a	83.8 a	78.8 ab	72.5 a	72.5 a	68.8 a	67.5 a	
LSD (P=.05)									7.04	8.82	6.04	11.59	9.20	5.29	6.41	
Standard Deviation									4.93	6.17	4.22	8.11	6.44	3.70	4.48	
CV									12.54	7.48	5.56	11.15	9.21	5.43	6.64	
Grand Mean									39.3	82.5	75.94	72.73	69.92	68.2	67.58	
Bartlett's X2									14.093	39.988	16.459	15.454	30.797	15.577	19.623	
P(Bartlett's X2)									0.367	0.001*	0.225	0.419	0.006*	0.211	0.105	
Friedman's X2									41.162	8.752	18.143	14.41	21.309	7.511	10.031	
P(Friedman's X2)									0.001	0.89	0.255	0.495	0.127	0.942	0.818	
Replicate F									1.046	3.251	6.479	0.244	0.940	0.939	1.470	
Replicate Prob(F)									0.3816	0.0303	0.0010	0.8654	0.4294	0.4296	0.2355	
Treatment F									22.583	1.246	2.031	0.954	1.679	1.030	1.180	
Treatment Prob(F)									0.0001	0.2755	0.0341	0.5162	0.0907	0.4439	0.3214	

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

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

Crop Code	LOLPE	LOLPE	LOLPE	LOLPE	TURF	TURF	TURF	
BBCH Scale	BGRM	BGRM	BGRM	BGRM				
Rating Date	2-19-04	3-2-04	3-15-04	3-29-04	10-28-03	11-12-03	12-2-03	
Rating Data Type	COVER	COVER	COVER	COVER	QUALITY	QUALITY	QUALITY	
Rating Unit	%	%	%	%	1-9	1-9	1-9	
Days After Last Applic.	127	139	152	166	13	28	48	
Trt-Eval Interval	136 DA-A	148 DA-A	161 DA-A	175 DA-A	22 DA-A	37 DA-A	57 DA-A	
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Stage	Appl Code
1	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 6 A OCT 6 A	A
2	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 6 A OCT 6 A	A
3	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 6 A OCT 6 A OCT 6 A	A
4	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 6 A OCT 6 A	A
5	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 6 A OCT 6 A	A
6	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 10 B OCT 10 B	B
7	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 10 B OCT 10 B	B
8	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 10 B OCT 10 B OCT 10 B	B
9	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 10 B OCT 10 B	B
10	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 10 B OCT 10 B	B
11	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 15 C OCT 15 C	C
12	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 15 C OCT 15 C	C
13	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 15 C OCT 15 C OCT 15 C	C
14	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 15 C OCT 15 C	C
15	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 15 C OCT 15 C	C
16	NONTREATED							
LSD (P=.05)								
Standard Deviation								
CV								
Grand Mean								
Bartlett's X2								
P(Bartlett's X2)								
Friedman's X2								
P(Friedman's X2)								
Replicate F								
Replicate Prob(F)								
Treatment F								
Treatment Prob(F)								

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

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

						TURF	TURF	TURF	TURF	TURF	TURF	TURF				
						12-15-03	1-5-04	1-22-04	2-3-04	2-19-04	3-2-04	3-15-04				
						QUALITY	QUALITY	QUALITY	QUALITY	QUALITY	QUALITY	QUALITY				
						1-9	1-9	1-9	1-9	1-9	1-9	1-9				
						61	82	99	111	127	139	152				
						70 DA-A	91 DA-A	108 DA-A	120 DA-A	136 DA-A	148 DA-A	161 DA-A				
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Appl Stage	Appl Code							
1	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 6	A		7.2 a	7.0 a	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
2	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 6	A		7.1 a	7.0 a	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
3	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 6	A		7.3 a	7.0 a	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
4	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 6	A		7.3 a	7.1 a	5.9 a	6.0 a	6.0 a	7.0 a	7.0 a
5	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 6	A		6.9 a	6.6 bc	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
6	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 10	B		7.1 a	6.8 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
7	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 10	B		7.3 a	6.9 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
8	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 10	B		7.3 a	7.0 a	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
9	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 10	B		7.1 a	6.8 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
10	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 10	B		7.1 a	6.8 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
11	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 15	C		6.9 a	6.9 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
12	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 15	C		6.6 a	6.8 ab	5.9 a	5.9 a	6.0 a	6.9 a	7.0 a
13	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 15	C		6.6 a	6.9 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
14	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 15	C		6.3 a	6.4 c	5.9 a	5.9 a	5.8 b	7.0 a	7.0 a
15	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 15	C		6.9 a	6.8 ab	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
16	NONTREATED									6.8 a	7.0 a	6.0 a	6.0 a	6.0 a	7.0 a	7.0 a
LSD (P=.05)						0.71	0.36	0.15	0.13	0.10	0.09	0.00				
Standard Deviation						0.49	0.25	0.11	0.09	0.07	0.06	0.00				
CV						7.07	3.64	1.8	1.49	1.21	0.89	0.0				
Grand Mean						6.98	6.86	5.98	5.98	5.98	6.99	7.0				
Bartlett's X2						25.451	10.19	2.225	0.0	0.0	0.0	0.0				
P(Bartlett's X2)						0.044*	0.424	0.329	0.001*	.	.	.				
Friedman's X2						14.768	15.215	1.153	1.235	2.647	0.662	0.0				
P(Friedman's X2)						0.468	0.436	1.00	1.00	1.00	1.00	1.00				
Replicate F						0.527	0.308	0.224	0.652	1.000	1.000	0.000				
Replicate Prob(F)						0.6658	0.8191	0.8793	0.5858	0.4016	0.4016	1.0000				
Treatment F						1.211	1.998	0.448	0.913	3.000	1.000	0.000				
Treatment Prob(F)						0.2991	0.0374	0.9540	0.5562	0.0022	0.4718	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

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

Crop Code		TURF	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM	LOLPE BGRM										
BBCH Scale		3-29-04	12-2-03	12-15-03	1-5-04	1-22-04	2-3-04	2-19-04										
Rating Date		QUALITY	PHYTO	PHYTO	PHYTO	PHYTO	PHYTO	PHYTO										
Rating Data Type		1-9	%	%	%	%	%	%										
Rating Unit		166	48	61	82	99	111	127										
Days After Last Applic.		175 DA-A	57 DA-A	70 DA-A	91 DA-A	108 DA-A	120 DA-A	136 DA-A										
Trt-Eval Interval																		
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Appl Stage	Code									
1	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 6 OCT 6	A A		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
2	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 6 OCT 6	A A		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
3	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 6 OCT 6 OCT 6	A A A		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
4	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 6 OCT 6	A A		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
5	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 6 OCT 6	A A		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
6	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 10 OCT 10	B B		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
7	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 10 OCT 10	B B		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
8	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 10 OCT 10 OCT 10	B B B		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
9	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 10 OCT 10	B B		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
10	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 10 OCT 10	B B		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
11	CERTAINTY X-77	75 L	WG	2 oz/a 0.25 % v/v			OCT 15 OCT 15	C C		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
12	CERTAINTY X-77	75 L	WG	2.66 oz/a 0.25 % v/v			OCT 15 OCT 15	C C		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
13	CERTAINTY X-77 ROUNDUP PRO	75 L 3 L	WG	2 oz/a 0.25 % v/v 0.1875 qt/a			OCT 15 OCT 15 OCT 15	C C C		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
14	TRANXIT GTA X-77	25 L	DF	2 oz/a 0.25 % v/v			OCT 15 OCT 15	C C		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
15	REVOLVER X-77	0.19 L	SC	0.013 lbai/a 0.25 % v/v			OCT 15 OCT 15	C C		7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
16	NONTREATED									7.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
LSD (P=.05)										0.00	0.00	0.00	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	0.00	0.00	0.00
CV										0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grand Mean										7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bartlett's X2										0.0	0.0	0.0	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	0.0	0.0	0.0
P(Friedman's X2)										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Replicate F										0.000	0.000	0.000	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	1.0000	1.0000	1.0000
Treatment F										0.000	0.000	0.000	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	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

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

Crop Code	LOLPE	LOLPE	LOLPE									
BBCH Scale	BGRM	BGRM	BGRM									
Rating Date	3-2-04	3-15-04	3-29-04									
Rating Data Type	PHYTO	PHYTO	PHYTO									
Rating Unit	%	%	%									
Days After Last Applic.	139	152	166									
Trt-Eval Interval	148 DA-A	161 DA-A	175 DA-A									
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Other Rate	Other Rate	Growth Unit	Stage	Appl Code			
1	CERTAINTY X-77	75	WG	2 oz/a			OCT 6	A		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 6	A				
2	CERTAINTY X-77	75	WG	2.66 oz/a			OCT 6	A		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 6	A				
3	CERTAINTY X-77	75	WG	2 oz/a			OCT 6	A		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 6	A				
	ROUNDUP PRO	3 L		0.1875 qt/a			OCT 6	A				
4	TRANXIT GTA X-77	25	DF	2 oz/a			OCT 6	A		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 6	A				
5	REVOLVER X-77	0.19	SC	0.013 lbai/a			OCT 6	A		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 6	A				
6	CERTAINTY X-77	75	WG	2 oz/a			OCT 10	B		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 10	B				
7	CERTAINTY X-77	75	WG	2.66 oz/a			OCT 10	B		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 10	B				
8	CERTAINTY X-77	75	WG	2 oz/a			OCT 10	B		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 10	B				
	ROUNDUP PRO	3 L		0.1875 qt/a			OCT 10	B				
9	TRANXIT GTA X-77	25	DF	2 oz/a			OCT 10	B		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 10	B				
10	REVOLVER X-77	0.19	SC	0.013 lbai/a			OCT 10	B		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 10	B				
11	CERTAINTY X-77	75	WG	2 oz/a			OCT 15	C		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 15	C				
12	CERTAINTY X-77	75	WG	2.66 oz/a			OCT 15	C		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 15	C				
13	CERTAINTY X-77	75	WG	2 oz/a			OCT 15	C		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 15	C				
	ROUNDUP PRO	3 L		0.1875 qt/a			OCT 15	C				
14	TRANXIT GTA X-77	25	DF	2 oz/a			OCT 15	C		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 15	C				
15	REVOLVER X-77	0.19	SC	0.013 lbai/a			OCT 15	C		0.0 a	0.0 a	0.0 a
		L		0.25 % v/v			OCT 15	C				
16	NONTREATED									0.0 a	0.0 a	0.0 a
LSD (P=.05)										0.00	0.00	0.00
Standard Deviation										0.00	0.00	0.00
CV										0.0	0.0	0.0
Grand Mean										0.0	0.0	0.0
Bartlett's X2										0.0	0.0	0.0
P(Bartlett's X2)										.	.	.
Friedman's X2										0.0	0.0	0.0
P(Friedman's X2)										1.00	1.00	1.00
Replicate F										0.000	0.000	0.000
Replicate Prob(F)										1.0000	1.0000	1.0000
Treatment F										0.000	0.000	0.000
Treatment Prob(F)										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

10-8-03 - Unable to apply treatments today due to 2 inches of rainfall.

10-10-03 - Treatments that were to be applied 10-8 were applied today. Trial area was extremely wet and during application it was misting lightly.

10-15-03 - Trial area was mown to 0.5 inch and clippings were blown off. Treatments were applied. No annual bluegrass is present in trial area. Trial was overseeded with Quick Trans perennial ryegrass (Lot# B10-3-QT-1) which was purchased from Southern Seed.

North Carolina State University

TOLERANCE OF OVERSEEDED PERENNIAL RYEGRASS TO ANNUAL BLUEGRASS CONTROL TREATMENTS

Trial ID: 04-D02
Location: ECHO FARMS GC

Study Director: TRAVIS GANNON
Investigator: Fred Yelverton

10-28-03 - Trial was evaluated for perennial ryegrass cover and turf quality. Select treated plots are displaying yellowing of perennial ryegrass and reductions in cover.

11-12-03 - Trial was evaluated for perennial ryegrass cover and turf quality.

12-2-03 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Ryegrass is thinner in select areas resulting in decreased ryegrass cover ratings, not necessarily a result of treatments. Very little annual bluegrass is present in turf canopy.

12-15-03 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Annual bluegrass is beginning to be more prevalent in non-overseeded areas outside of test area.

1-5-04 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Annual bluegrass is beginning to be more prevalent in non-overseeded areas outside of test area.

1-22-03 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Annual bluegrass is beginning to be more prevalent in non-overseeded areas outside of test area.

2-3-04 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Annual bluegrass is beginning to be more prevalent in non-overseeded areas outside of test area. Cold periods have reduced overall turf quality. 0.75 lb N per 1000 ft² was applied to trial area.

2-19-04 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Additional annual bluegrass is beginning to be more apparent within the trial area. Outside trial area in non-overseeded areas, a few (<10%) of the annual bluegrass plants have emerging seedheads. No seedheads are present in overseeded trial area at this point.

3-2-04 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Currently, there are no seedheads present in overseeded trial area, thus unable to rate for annual bluegrass control at this time.

3-29-04 - Trial was evaluated for perennial ryegrass cover, phytotoxicity, and turf quality. Poa annua is not dense enough in trial area to evaluate.

4-14-04 - Poa annua is not dense enough in trial area to evaluate, trial concluded.