

North Carolina State University

MON 44951 75WDG - Sequential Timing Interval Comparison for Post Emergent Annual
Bluegrass Control

Trial ID: 03-D05
Location: Pinehurst #6

Study Dir.: Travis Gannon
Investigator: Fred Yelverton

APPLICATION EQUIPMENT

	A	B	C	D
Appl. Equipment:	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY	CO2 SPRAY
Operating Pressure:	42 PSI	42 PSI	42 PSI	42 PSI
Nozzle Type:	FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN
Nozzle Size:	VS8002XR	VS8002XR	VS8002XR	VS8002XR
Nozzle Spacing, Unit:	10 INCH	10 INCH	10 INCH	10 INCH
Nozzles/Row:	4	4	4	4
Boom Length, Unit:	40 INCH	40 INCH	40 INCH	40 INCH
Boom Height, Unit:	10 INCH	10 INCH	10 INCH	10 INCH
Ground Speed, Unit:	3 MPH	3 MPH	3 MPH	3 MPH
Carrier:	WATER	WATER	WATER	WATER
Spray Volume, Unit:	32.5 GPA	32.5 GPA	32.5 GPA	32.5 GPA
Propellant:	COMP CO2	COMP CO2	COMP CO2	COMP CO2

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											POAAN	POAAN	POAAN	POAAN	POAAN					
											CONTROL	CONTROL	CONTROL	CONTROL	CONTROL					
											%	%	%	%	%					
											3-4-03	3-10-03	3-17-03	3-24-03	3-31-03					
											8 DA-A	14 DA-A	21 DA-A	28 DA-A	35 DA-A					
Trt	Treatment	Form	Form	Rate	Rate	Product	Product	Grow	Appl	Spray										
No.	Name	Conc	Type	Unit	Unit	Rate	Unit	Stg	Code	Volume										
1	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		0.0	a	0.0	a	16.3	bc	20.0	b	10.0	d
			L	0.25	% v/v			FEB 24	A											
2	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		0.0	a	0.0	a	15.0	bc	23.8	b	22.5	c
			L	0.25	% v/v			FEB 24	A											
3	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		0.0	a	0.0	a	21.3	ab	42.5	a	27.5	bc
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 10	B											
			L	0.25	% v/v			MAR 10	B											
4	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		0.0	a	0.0	a	27.5	a	43.8	a	37.5	a
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 10	B											
			L	0.25	% v/v			MAR 10	B											
5	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		0.0	a	0.0	a	13.8	c	36.3	a	27.5	bc
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 17	C											
			L	0.25	% v/v			MAR 17	C											
6	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		0.0	a	0.0	a	13.8	c	38.8	a	33.8	ab
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 17	C											
			L	0.25	% v/v			MAR 17	C											
7	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		0.0	a	0.0	a	12.5	c	23.8	b	35.0	ab
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 24	D											
			L	0.25	% v/v			MAR 24	D											
8	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		0.0	a	0.0	a	11.3	c	20.0	b	25.0	c
			L	0.25	% v/v			FEB 24	A											
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 24	D											
			L	0.25	% v/v			MAR 24	D											
9	Nontreated										0.0	a	0.0	a	0.0	d	0.0	c	0.0	e
LSD (P=.05)											0.00		0.00		7.38		11.58		8.66	
Standard Deviation											0.00		0.00		5.06		7.93		5.93	
CV											0.0		0.0		34.68		28.71		24.4	
Grand Mean											0.0		0.0		14.58		27.64		24.31	
Bartlett's X2											0.0		0.0		9.753		10.983		4.567	
P(Bartlett's X2)											.		.		0.203		0.139		0.713	
Replicate F											0.000		0.000		10.163		1.099		1.178	
Replicate Prob(F)											1.0000		1.0000		0.0002		0.3687		0.3390	
Treatment F											0.000		0.000		8.674		12.618		17.013	
Treatment Prob(F)											1.0000		1.0000		0.0001		0.0001		0.0001	

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

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Location: Pinehurst #6

Investigator: Fred Yelverton

Weed Code											POAAN	POAAN	LOLPE	LOLPE	LOLPE
Crop Code											CONTROL	CONTROL	PHYTO	PHYTO	PHYTO
Rating Data Type											%	%	%	%	%
Rating Unit											4-14-03	4-28-03	3-4-03	3-10-03	3-17-03
Rating Date											49 DA-A	63 DA-A	8 DA-A	14 DA-A	21 DA-A
Trt-Eval Interval															
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Product Rate	Product Rate Unit	Grow Stg	Appl Code	Spray Volume					
1	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		15.0 c	20.0 c	0.0 a	0.0 a	25.0 bc
			L	0.25	% v/v			FEB 24	A						
2	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		43.8 b	38.8 bc	0.0 a	0.0 a	26.3 bc
			L	0.25	% v/v			FEB 24	A						
3	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		56.3 ab	68.8 a	0.0 a	0.0 a	32.5 b
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 10	B						
			L	0.25	% v/v			MAR 10	B						
4	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		62.5 a	78.8 a	0.0 a	0.0 a	45.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 10	B						
			L	0.25	% v/v			MAR 10	B						
5	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		46.3 ab	45.0 b	0.0 a	0.0 a	22.5 c
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 17	C						
			L	0.25	% v/v			MAR 17	C						
6	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		52.5 ab	72.5 a	0.0 a	0.0 a	25.0 bc
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 17	C						
			L	0.25	% v/v			MAR 17	C						
7	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		58.8 ab	66.3 a	0.0 a	0.0 a	22.5 c
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 24	D						
			L	0.25	% v/v			MAR 24	D						
8	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		51.3 ab	70.0 a	0.0 a	0.0 a	22.5 c
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 24	D						
			L	0.25	% v/v			MAR 24	D						
9	Nontreated										0.0 c	0.0 d	0.0 a	0.0 a	0.0 d
LSD (P=.05)											17.25	18.80	0.00	0.00	7.94
Standard Deviation											11.82	12.88	0.00	0.00	5.44
CV											27.54	25.21	0.0	0.0	22.14
Grand Mean											42.92	51.11	0.0	0.0	24.58
Bartlett's X2											5.06	11.721	0.0	0.0	9.204
P(Bartlett's X2)											0.653	0.11	.	.	0.162
Replicate F											3.438	4.050	0.000	0.000	3.461
Replicate Prob(F)											0.0328	0.0183	1.0000	1.0000	0.0321
Treatment F											12.907	17.741	0.000	0.000	18.563
Treatment Prob(F)											0.0001	0.0001	1.0000	1.0000	0.0001

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Investigator: Fred Yelverton

Weed Code										LOLPE	LOLPE	LOLPE	TURF	TURF	
Crop Code										PHYTO	PHYTO	PHYTO	QUALITY	QUALITY	
Rating Data Type										%	%	%	1-9	1-9	
Rating Unit										3-24-03	3-31-03	4-14-03	3-4-03	3-10-03	
Rating Date										28 DA-A	35 DA-A	49 DA-A	8 DA-A	14 DA-A	
Trt-Eval Interval															
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Product Rate	Product Unit	Grow Stg	Appl Code	Spray Volume					
1	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		2.5 c	0.0 d	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
2	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		6.3 c	0.0 d	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
3	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		60.0 a	18.8 c	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 10	B						
			L	0.25	% v/v			MAR 10	B						
4	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		61.3 a	67.5 a	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 10	B						
			L	0.25	% v/v			MAR 10	B						
5	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		47.5 b	20.0 c	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 17	C						
			L	0.25	% v/v			MAR 17	C						
6	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		57.5 ab	37.5 b	0.0 c	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 17	C						
			L	0.25	% v/v			MAR 17	C						
7	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		5.0 c	17.5 c	7.5 b	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 24	D						
			L	0.25	% v/v			MAR 24	D						
8	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		8.8 c	20.0 c	11.3 a	7.0 a	7.0 a
			L	0.25	% v/v			FEB 24	A						
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 24	D						
			L	0.25	% v/v			MAR 24	D						
9	Nontreated										0.0 c	0.0 d	0.0 c	7.0 a	7.0 a
LSD (P=.05)											10.86	8.95	2.85	0.00	0.00
Standard Deviation											7.44	6.13	1.95	0.00	0.00
CV											26.93	30.45	93.81	0.0	0.0
Grand Mean											27.64	20.14	2.08	7.0	7.0
Bartlett's X2											5.399	2.22	1.315	0.0	0.0
P(Bartlett's X2)											0.611	0.818	0.252	.	.
Replicate F											4.226	0.806	0.182	0.000	0.000
Replicate Prob(F)											0.0156	0.5028	0.9077	1.0000	1.0000
Treatment F											55.846	50.114	18.818	0.000	0.000
Treatment Prob(F)											0.0001	0.0001	0.0001	1.0000	1.0000

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Investigator: Fred Yelverton

Weed Code											TURF	TURF	TURF	TURF
Crop Code											QUALITY	QUALITY	QUALITY	QUALITY
Rating Data Type											1-9	1-9	1-9	1-9
Rating Unit											3-17-03	3-24-03	3-31-03	4-14-03
Rating Date											21 DA-A	28 DA-A	35 DA-A	49 DA-A
Trt-Eval Interval														
Trt No.	Treatment Name	Form Conc	Form Type	Form Rate	Rate Unit	Product Rate	Product Unit	Grow Stg	Appl Code	Spray Volume				
1	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		5.8 b	7.0 a	6.9 a	6.5 ab
			L	0.25	% v/v			FEB 24	A					
2	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		5.7 bc	6.9 a	6.9 a	6.8 a
			L	0.25	% v/v			FEB 24	A					
3	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		5.4 c	4.9 c	5.9 cd	5.9 bc
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 10	B					
			L	0.25	% v/v			MAR 10	B					
4	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		4.8 d	5.1 c	4.6 e	3.6 d
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 10	B					
			L	0.25	% v/v			MAR 10	B					
5	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		5.8 bc	5.7 b	6.3 bc	6.5 ab
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 17	C					
			L	0.25	% v/v			MAR 17	C					
6	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		5.7 bc	5.1 bc	5.8 d	5.6 c
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 17	C					
			L	0.25	% v/v			MAR 17	C					
7	MON 44951 X-77	75	WG	0.01	lb ai/a			FEB 24	A		5.8 b	6.9 a	6.3 b	6.5 ab
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.01	lb ai/a			MAR 24	D					
			L	0.25	% v/v			MAR 24	D					
8	MON 44951 X-77	75	WG	0.02	lb ai/a			FEB 24	A		5.8 bc	6.8 a	6.4 b	6.2 abc
			L	0.25	% v/v			FEB 24	A					
	MON 44951 X-77	75	WG	0.02	lb ai/a			MAR 24	D					
			L	0.25	% v/v			MAR 24	D					
9	Nontreated										6.6 a	6.9 a	6.9 a	6.5 ab
LSD (P=.05)											0.33	0.59	0.36	0.69
Standard Deviation											0.23	0.41	0.25	0.47
CV											3.96	6.61	3.98	7.8
Grand Mean											5.71	6.15	6.22	6.02
Bartlett's X2											6.829	16.477	9.643	8.941
P(Bartlett's X2)											0.337	0.021*	0.291	0.347
Replicate F											1.586	7.000	1.617	6.206
Replicate Prob(F)											0.2187	0.0015	0.2116	0.0028
Treatment F											17.057	20.463	34.731	16.966
Treatment Prob(F)											0.0001	0.0001	0.0001	0.0001

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Trial Comments

9-4-02 - Vertical mowed area in two directions and removed debris.

10-15-02 - Trial area was overseeded with Allsport (by Lesco) perennial ryegrass (450 lb seed / acre).

1-1-03 - Trial area oversprayed with Prograss (0.75 oz/M or 0.38 lb ai/a).

2-24-03 - Trial initiated. Trial area extremely wet, otherwise application conditions were optimal. Annual bluegrass population sparse in parts of trial. Annual bluegrass is mature and clumpy in nature.

3-4-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality. No injury or control symptoms present.

3-10-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality. No injury or control symptoms present.

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3-17-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality and sequential treatments were applied. Treated plots displaying ryegrass phytotoxicity.

3-24-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality and sequential treatments were applied. Treated plots displaying ryegrass phytotoxicity.

3-31-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality. Select treated plots displaying ryegrass phytotoxicity. Full seedhead emergence of annual bluegrass is present. Reductions in turf quality are due in part to annual bluegrass seedhead emergence.

4-7-03 - Trial area visited, raining, too wet to evaluate.

4-14-03 - Trial evaluated for annual bluegrass control, ryegrass injury, and turf quality. Ryegrass phytotoxicity present earlier is no longer present, however, it eliminated some of the ryegrass and ultimately is releasing the bermudagrass.

4-28-03 - Trial evaluated for annual bluegrass control (final rating of season). Annual bluegrass beginning to dissipate in canopy.