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Relative Performance of Lawn Grass *Cynodon dactylon* under Different Nutrition Levels

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Abstract An experiment was conducted to study the relative performance of lawn grass *Cynodon dactylon* under different nutrition levels with two cultivars viz, *Cynodon dactylon* local type (C_1) and *Cynodon dactylon* hybrid type (C_2) under seven different nutrition levels during 2013-2014. The experiment was laid out in Split Plot Design. The seven treatments comprised of T_0–Control, T_1–Vermicompost 200 g/m^2, T_2–Vermicompost 200 g / m^2 + 10 : 10 : 10 g/m^2 (N : P : K), T_3–Vermicompost 200 g/ m^2 + 20 : 20 : 20 g /m^2 (N : P : K), T_4–40 : 40 : 40 g/m2 (N : P : K), T_5–50 : 50 : 50 g /m^2 (N : P : K) and T_6– 60 : 60 : 60 g / m^2 (N : P : K). From the experiment it was observed that growth characters were influenced by treatments, cultivars which may be due to positive effect on nutrients during the growth period. Thus the best treatment was found to be T_6 and cultivar C_2 and their interaction C_2T_6 was considered best for growth characters (viz high leaf blade area, stolon number, grass spread) as well as quality characters, viz. color, resiliency, rigidity and uniformity.

Keywords *Cynodon dactylon*, Lawn grass, Quality turf, Bermuda grass.

Introduction

Bermuda grass is a heat and drought resistance creeping perennial that is classified in the division Magnoliophyta, class Liliopsida, order Cyperales, and belongs to the grass family, Graminae [1]. Bermudagrass has served as a major turf species for fields, lawns, parks, golf courses. Beyond practical purposes, the turf has helped to beautify many parks and landscapes, while also providing resilient playing fields for many sports [2]. In addition to sports such as football and soccer, bermuda grass is a desirable playing surface for numerous other activities, including polo fields and horse racing tracks [3]. The quick growth rate of bermuda grass as compared to slower growing grasses like Zoysia grass and Centipede grass makes bermuda grass the most suitable turf grass. In bermuda grass recuperative potential is one of its superior qualities [4]. Thus it is well adapted for heavily used areas. Fertilizer should be applied according to a lawn fertilization schedule to get a healthy turf growth. Too little fertilizer results in thin, sometimes yellowing turf by reducing plant growth and quality that has a higher susceptibility to disease such as, red thread and rust ; too much fertilizer also contributes to various turf problems. It produces a dense, fine textured turf under moderate fertilization and frequent mowing. The responses of Cynodon dactylon to different doses of fertilizers are different under field condition. The objective of the work was to standardize the optimum nutrient levels for proper growth and quality of *Cynodon dactylon*.

Materials and Methods

Cynodon dactylon local (C_1) and *Cynodon dactylon* (C_2) hybrid were planted at the Experimental farm,

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Table 1. Leaf blade area (cm^2) at monthly interval.

Cv	15th Apr 13			15th May 13			15th Jun 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	3.47	31.82	17.65	8.43	45.35	26.89	20.73	86.75	53.74
T_1	5.33	40.96	23.15	10.30	45.52	27.91	23.62	92.62	58.12
T_2	7.08	45.14	26.11	11.14	60.27	35.71	29.76	98.85	64.31
T_3	10.65	42.67	26.66	19.60	67.47	43.54	38.83	104.04	71.44
T_4	13.80	51.15	32.48	26.14	71.15	48.65	46.80	112.60	79.70
T_5	14.79	58.10	36.45	25.87	87.58	56.73	54.40	124.97	89.69
T_6	15.12	70.07	43.00	30.02	90.28	60.15	65.63	132.14	98.86
Mean	10.03	48.56		18.79	66.80		39.97	107.42	
		SEd (±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		2.28	4.71		3.23	6.67		0.18	0.38
Effect of cultivar		3.87	16.65		1.65	7.08		0.11	0.46
Effect of interaction		3.23	6.67		4.57	9.43		0.26	0.34

Table 1. Continued.

Cv	15th Jul 13			15th Aug 13			15th Sep 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	48.35	140.67	94.51	70.31	230.57	150.44	53.71	148.77	101.24
T_1	50.11	163.10	106.61	88.06	283.58	185.82	57.31	167.89	112.60
T_2	56.00	179.64	117.82	96.70	305.07	200.89	63.63	172.22	117.93
T_3	64.78	242.38	153.58	121.65	365.15	243.40	77.59	264.94	171.27
T_4	94.90	279.63	187.27	113.55	416.31	264.93	100.41	267.08	183.75
T_5	130.93	356.32	243.63	140.09	495.35	317.72	128.81	300.79	214.80
T_6	152.94	403.21	278.09	163.44	542.69	353.07	144.87	303.43	224.15
Mean	85.43	252.14		113.40	376.96		89.48	232.16	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		17.82	36.78		18.69	38.78		4.10	8.45
Effect of cultivar		6.40	27.54		18.60	81.57		2.54	10.96
Effect of interaction		25.20	52.02		26.43	54.54		5.79	11.96

Table 1. Continued.

Cv	15th Oct 13			15th Nov 13			15th Dec 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	43.36	124.60	83.98	33.37	89.77	61.57	28.56	69.54	49.05
T_1	49.93	143.56	96.75	35.75	102.54	69.15	32.46	98.64	65.55
T_2	57.30	153.26	105.28	44.68	114.60	79.64	40.84	103.57	72.21
T_3	69.48	212.58	141.03	52.70	143.43	98.08	46.66	128.73	87.70
T_4	84.71	218.73	151.72	77.73	176.27	127.00	68.73	168.60	118.67
T_5	116.50	254.57	185.54	87.70	213.34	150.52	79.63	201.46	140.55
T_6	125.74	265.60	195.67	103.3	221.64	162.47	98.66	216.60	157.63
Mean	78.15	196.13		61.18	151.66		56.51	141.02	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.59	1.22		0.16	0.33		0.08	0.17
Effect of cultivar		0.39	1.67		0.06	0.27		0.06	0.26
Effect of interaction		0.84	1.72		0.22	0.46		0.12	0.24

Table 1. Continued.

Cv	15th Jan 14			15th Feb 14			15th Mar 14		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	26.73	65.47	46.10	24.46	64.17	44.32	33.94	89.74	61.84
T_1	29.60	97.63	63.62	27.81	93.72	60.77	47.49	103.49	75.49
T_2	37.67	99.60	68.64	36.70	96.29	67.00	60.41	106.42	83.42
T_3	44.59	125.53	85.06	41.83	117.33	79.58	71.83	133.83	102.83
T_4	63.54	159.46	111.50	59.71	146.43	103.07	87.18	197.43	142.31
T_5	76.53	195.13	135.83	72.46	185.73	129.10	105.29	203.54	154.42
T_6	96.53	201.47	149.00	92.64	197.50	145.07	137.06	211.40	174.23
Mean	53.60	134.89		50.80	128.74		77.60	149.41	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.08	0.18		0.28	0.57		0.63	1.39
Effect of cultivar		0.06	0.29		0.17	0.74		0.33	1.41
Effect of interaction		0.13	0.26		0.39	0.81		0.95	1.96

Deptt. of Horticulture, AAU, Jorhat. The experimental site was located 26°47´N latitude, 94°12´E longitude and at an altitude of 86.6 m above mean sea level. The soil at the experiment was sandy loam with a pH of 5.2. The experimental design was split plot with 2 main plots and 7 subplots. Dibbling method of planting was used with a spacing of 7 cm × 7 cm. Seven fertilizer treatments were applied to the experimental site, i) T_0 : Control ii) T_1 : Vermicompost 200 g/ m^2 (N : P : K), iii) T_2 : Vermicompost 200 g / m^2 + 10 : 10 : 10 g / m^2 (N : P : K), iv) T_3 : Vermicompost 200 g / m^2 +20 : 20 : 20 g / m^2 (N : P : K), V) T_4 : 40 : 40 : 40 g / m^2 (N : P : K) vi) T_5 : 50 : 50 : 50 g / m^2 (N : P : K) and vii) T_6 : 60 : 60 : 60 g / m^2 (N : P : K). A basal dose of well rotten cow dung manure was incorporated to the area before the final land preparation @ 5 kg/m^2. After the final layout the basal dose of fertilizer comprising of half of the nitrogen and full doses of phosphorus and potassium was applied according to the calculated fertilizer dose. A piece of short stem with 3–4 nodes from well established bermuda grass was prepared. The roots are trimmed off and dipped for 1 minute in 0.2% solution of Bavistin to protect the plants from root rot disease. During the experimental period, the turf grass was mowed using reel mower to a height of 3 cm. All the necessary inter cultural operations like weeding, rolling, racking and irrigation practices were followed. The characters like, leaf blade area (cm^2), no of stolons per plant, grass spread (cm), days for completion of full coverage (days), were recorded at monthly interval from April 13 to March 14 and analyzed statistically. The experimental data obtained from various observations were analyzed statistically by using Fisher's method of analysis of variance in split plot design.

Results and Discussion

It was evident from the observations that gradual increase in nutrient concentrations significantly increased the leaf blade area per plant (Table 1). The increasing trend of leaf blade area per plant was observed from April 13 to August 13 and it was decreased from the month of September 13. Again the leaf blade area per plant was increased from March 14. The treatment effect was highest in August 13 while it was found to lowest in February 14. The highest leaf blade area per plant found in treatment T_6 in all the months' observations and the lowest leaf blade area per plant were recorded in treatment T_0. The pronounced effect of nutrition was noted on the leaf blade area per plant which might be attributed to the fact that the increase in leaf blade area might be a N, P, K induced change in phytochrome as it has direct effect on biosynthesis of Cytokines, which has close positive correlation to leaf area. However, in the treatment T_6 (60 : 60 : 60 N, P, K g /m^2) showed the highest leaf blade area per plant (353.07 cm^2) August 13. It might be due to production of more cytokinins and their transport in the plant system under treatment T_6.

The stolon number per plant was found to be increased from April 13 to September 13 and from September 13 onwards there was no stolon development

Table 2. Number of stolons per plant at monthly interval.

Cv	15th Apr 13			15th May 13			15th Jun 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	2.40	2.73	2.57	2.63	3.13	2.88	6.36	6.76	6.56
T_1	2.67	2.93	2.80	2.86	3.57	3.22	7.53	6.84	7.19
T_2	2.73	3.27	3.00	3.27	3.90	3.59	7.63	7.27	7.45
T_3	2.83	3.33	3.08	3.37	4.10	3.74	7.93	8.37	8.15
T_4	2.93	3.43	3.18	3.83	4.43	4.13	8.13	8.70	8.42
T_5	3.23	3.63	3.43	4.40	4.56	4.48	8.56	9.20	8.88
T_6	3.33	3.73	3.53	4.57	5.53	5.05	8.73	9.40	9.07
Mean	2.87	3.29		3.56	4.17		7.84	8.08	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.04	0.08		0.04	0.09		0.03	0.07
Effect of cultivar		0.004	0.02		0.02	0.09		0.02	0.10
Effect of interaction		0.05	0.11		0.06	0.13		0.05	0.09

Table 2. Continued.

Cv	15th Jul 13			15th Aug 13			15th Sep 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	8.40	9.43	8.92	9.87	10.07	9.97	10.47	11.43	10.95
T_1	8.63	9.77	9.20	10.37	10.13	10.25	10.57	11.63	11.10
T_2	8.67	9.83	9.25	10.43	11.07	10.75	10.77	11.80	11.29
T_3	9.37	9.97	9.67	11.16	11.53	11.35	11.30	12.30	11.80
T_4	9.53	10.00	9.77	11.67	12.07	11.87	11.63	12.63	12.13
T_5	9.63	10.33	9.98	11.93	12.70	12.32	11.90	13.43	12.67
T_6	9.63	10.40	10.02	12.33	13.73	13.03	12.53	14.53	13.53
Mean	9.12	9.96		11.11	11.61		11.31	12.54	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.08	0.17		0.17	0.36		0.05	0.10
Effect of cultivar		0.09	0.41		0.28	1.22		0.08	0.33
Effect of interaction		0.12	0.24		0.24	0.51		0.07	0.14

Table 2. Continued.

Cv	15th Oct 13			15th Nov 13			15th Dec 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	10.47	11.43	10.95	10.47	11.43	10.95	10.47	11.43	10.95
T_1	10.57	11.63	11.10	10.57	11.63	11.10	10.57	11.63	11.10
T_2	10.77	11.80	11.29	10.77	11.80	11.29	10.77	11.80	11.29
T_3	11.30	12.30	11.80	11.30	12.30	11.80	11.30	12.30	11.80
T_4	11.63	12.63	12.13	11.63	12.63	12.13	11.63	12.63	12.13
T_5	11.90	13.43	12.67	11.90	13.43	12.67	11.90	13.43	12.67
T_6	12.53	14.53	13.53	12.53	14.53	13.53	12.53	14.53	13.53
Mean	11.31	12.54		11.31	12.54		11.31	12.54	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.05	0.10		0.05	0.10		0.05	0.10
Effect of cultivar		0.08	0.33		0.08	0.33		0.08	0.33
Effect of interaction		0.07	0.14		0.07	0.14		0.07	0.14

Table 2. Continued.

Cv	15th Jan 14			15th Feb 14			15th Mar 14		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	10.47	11.43	10.95	10.47	11.43	10.95	11.40	13.47	12.44
T_1	10.57	11.63	11.10	10.57	11.63	11.10	11.87	13.70	12.79
T_2	10.77	11.80	11.29	10.77	11.80	11.29	12.53	14.13	13.33
T_3	11.30	12.30	11.80	11.30	12.30	11.80	13.57	14.50	14.04
T_4	11.63	12.63	12.13	11.63	12.63	12.13	14.80	14.73	14.77
T_5	11.90	13.43	12.67	11.90	13.43	12.67	15.40	15.53	15.47
T_6	12.53	14.53	13.53	12.53	14.53	13.53	15.77	16.27	16.02
Mean	11.31	12.54		11.31	12.54		13.62	14.62	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.05	0.10		0.05	0.10		0.09	0.20
Effect of cultivar		0.08	0.33		0.08	0.33		0.03	0.14
Effect of interaction		0.07	0.14		0.07	0.14		0.13	0.28

occurs (Table 2). The number of stolon per plant was found to be increased in the month of March 14. Among the treatments T_6 exhibited more number of stolon per plant and treatment T_0 exhibited less number in all the observations. However, the highest stolon number per plant was found March 14 in treatment T_6, followed by lowest number of stolon in treatment T_0 April 13 in all the observations. The data reveals that increasing in the levels of nutrients significantly increased the number of stolon and the highest number (16.02) was found in treatment T_6 March 14. The maximum number of stolon under treatment T_6 was attributed to increased endogenous cytokinin levels. Cytokinin have been shown to increase carbohydrate partitioning to the crown [5]. The number of stolon was not found to be increased from September 13 to February 14. This might be due to unfarvoble environmental conditions (low temperature, low relative humidity and low rainfall) for stolon development during those months. As temperature and sunlight decrease, a number of physiological changes occurs, most importantly accumulation of cryoproctectants (sugars and polyamines) in the cytoplasm and changes to the composition of cell membranes [6]. As the photosynthetic assimilates were comparatively more in C_2 cultivar due to more photosynthetic assimilatory substrate i.e. leaf blade area per plant, which leads to production of more stolons in that cultivar.

The spread per plant was found to be increased with gradual increase in concentration of nutrients. The increasing trend of spread per plant was observed from April 13 to March 14. The treatment effect was highest March 14 followed by lowest April 13. Among the treatments, T_6 exhibited highest spread per plant and treatment T_0 exhibited lowest spread per plant in all the observations. Grass spread per plant (Table 3) reveals that application of 60 : 60 : 60 g/m^2 (T_6) resulted highest (23.35 cm) grass spread March 14. This might be attributed to the fact that this treatment was ideal for better utilization of nutrients which resulted in highest grass spread. Nitrogen enhanced vegetative growth while phosphorus stimulated the root growth, which increased the absorption and better utilization of nutrients which is facilitated by potassium. The individual roles of the three nutrients were found to be optimum in treatment T_6. Again in cultivar C_2, as the vegetative characters were found more profusely, so this leads to more grass spread.

It was revealed from the observations that gradual increase in nutrient significantly decreased the days required for full coverage (Table 4). The shortest day (16.34 days) was taken by highest nutrient concentration (T_6). This might be due to the fact that increased rate of metabolic activities influencing the faster growth of shoot, root, stolon and rhizome. Again in cultivar C_2 and C_2T_6 interaction shortest time (20.43 days and 15.00 days) were observed as culti-

Table 3. Grass spread (cm) per plant at monthly interval.

Cv	15th Apr 13			15th May 13			15th Jun 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	2.93	4.95	3.94	5.21	7.53	6.37	10.36	10.27	10.32
T_1	3.14	5.06	4.10	5.64	7.63	6.64	10.44	10.46	10.45
T_2	3.25	5.18	4.22	5.94	7.75	6.85	10.46	10.91	10.69
T_3	3.43	5.16	4.30	6.07	8.26	7.17	10.90	10.86	10.88
T_4	3.55	5.86	4.71	6.43	8.45	7.44	11.07	11.72	11.40
T_5	3.67	6.62	5.15	6.88	8.78	7.83	11.32	12.14	11.73
T_6	3.86	6.96	5.41	7.86	9.54	8.70	11.59	13.21	12.40
Mean	3.40	5.68		6.29	8.28		10.88	11.37	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.19	0.04		0.03	0.06		0.03	0.07
Effect of cultivar		0.02	0.07		0.02	0.08		0.03	0.14
Effect of interaction		0.03	0.05		0.04	0.08		0.05	0.10

Table 3. Continued.

Cv	15th Jul 13			15th Aug 13			15th Sep 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	10.66	10.94	10.80	12.10	14.29	13.20	12.57	15.44	14.01
T_1	10.85	11.66	11.26	12.17	14.48	13.33	12.76	15.99	14.38
T_2	11.75	12.16	11.96	12.45	14.71	13.58	12.95	16.35	14.65
T_3	12.69	14.10	13.40	14.05	15.06	14.56	14.15	16.85	15.50
T_4	12.73	14.53	13.63	15.47	15.97	15.72	15.35	17.24	16.30
T_5	13.16	14.55	13.86	15.44	16.56	16.00	15.58	17.74	16.66
T_6	14.07	14.84	14.46	15.56	16.61	16.09	15.70	17.62	16.66
Mean	12.27	13.25		13.39	15.38		14.15	16.75	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.02	0.04		0.02	0.04		0.03	0.05
Effect of cultivar		0.01	0.02		0.01	0.04		0.002	0.01
Effect of interaction		0.03	0.06		0.03	0.05		0.04	0.08

Table 3. Continued.

Cv	15th Oct 13			15th Nov 13			15th Dec 13		
Treatments	C_1	C_2	Mean	C_1	C_2	Mean	C_1	C_2	Mean
T_0	12.80	15.68	14.24	13.26	15.93	14.60	13.91	16.79	15.35
T_1	12.94	15.98	14.46	13.36	16.36	14.86	14.14	17.08	15.61
T_2	13.24	16.63	14.94	13.46	16.96	15.21	14.47	17.76	16.12
T_3	14.96	17.44	16.20	15.46	17.64	16.55	16.10	18.13	17.12
T_4	15.82	17.87	16.85	16.55	18.16	17.36	17.01	18.56	17.79
T_5	16.03	17.96	17.00	16.59	18.53	17.56	17.38	18.88	18.13
T_6	16.33	18.07	17.20	16.79	19.06	17.93	17.62	19.11	18.37
Mean	14.59	17.09		15.07	17.52		15.80	18.04	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.02	0.05		0.02	0.04		0.03	0.07
Effect of cultivar		0.02	0.08		0.01	0.03		0.02	0.07
Effect of interaction		0.03	0.07		0.03	0.05		0.04	0.09

Table 3. Continued.

Cv / Treatments	15th Jan 14 C_1	C_2	Mean	15th Feb 14 C_1	C_2	Mean	15th Mar 14 C_1	C_2	Mean
T_0	14.37	17.68	16.03	15.64	18.69	17.17	18.10	20.45	19.28
T_1	14.47	17.78	16.13	16.03	19.15	17.59	18.42	21.02	19.72
T_2	15.13	18.22	16.68	16.21	19.26	17.74	18.59	21.23	19.91
T_3	16.78	18.56	17.67	17.77	20.40	19.09	20.72	23.23	21.98
T_4	17.52	18.84	18.18	18.54	20.45	19.50	21.31	23.43	22.37
T_5	18.03	19.22	18.63	19.62	20.68	20.15	22.06	23.72	22.89
T_6	18.31	19.78	19.05	19.91	20.97	20.44	22.53	24.16	23.35
Mean	16.37	18.58		17.67	19.94		20.25	22.46	
		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.03	0.06		0.03	0.06		0.08	0.16
Effect of cultivar		0.01	0.03		0.01	0.06		0.10	0.45
Effect of interaction		0.04	0.09		0.04	0.08		0.10	0.22

var C_2 was more responsive to fertilizer which leads to early coverage.

Conclusion

From the above findings it could be concluded that in case of both the cultivars significantly, a better performance was observed in respect of growth character as well as some quality parameters like density, green coloration throughout the year in treatment T_6 as compared to other treatment. Again the cultivar C_2 was found to be better than cultivar C_1 to maintain the quality parameters i.e. proper denseness, aesthetically pleasing color. The interaction of cultivar C_2 with treatment T_6 was considered best for growth and quality like color, uniformity, cold tolerance, resiliency and rigidity.

Table 4. Days for completion of full coverage (days).

Treatments	C_1	C_2	Mean
T_0	31.33	27.00	29.17
T_1	28.33	24.00	26.17
T_2	27.67	22.00	24.84
T_3	26.00	20.00	23.00
T_4	23.00	19.00	21.00
T_5	21.33	16.00	18.67
T_6	17.67	15.00	16.34
Mean	25.05	20.43	
		SEd(±)	$CD_{(0.05)}$
Effect of treatment		0.67	1.40
Effect of cultivar		0.38	1.67
Effect of interaction		0.96	NS

References

1. Columbia Encycloedia (2003) Yahoo Online Enclyopedia. Available at: http://education.yahoo.com/reference/encyopedia/entry/Bermudag. Accessed 8 September 2005.
2. Patton AJ, Williams DW, Reicher ZJ (2004) Establishing seeded bermudagrass. Research Science for the golf Course. Environmental Institute for Golf, pp 73—77.
3. Bloodhorse.com (2005) New Bermuda grass to debut at Del Mar. Available at : http://racing. bloodhorse. com/viewstory.asp?id = 29047. Accessed 8 July 2005.
4. Karcher DE, Richardson MD, Landreth JW, McCalla JH (2005) Recovery of Bermudagrass varieties from divot injury. Appld Turfgr Sci. (doi : 10.1094/ATS-2005-0117-01-RS.
5. Ervin EH, Zhang X (2003) Impact of trinexapac-ethyl on leaf cytokinin levels in Kentucky bluegrass, creeping bentgrass and hybrid bermudagrass. (Unpublished data) ASA, CSSA, SSSA, Madison, WI.
6. Leyser O, Day AD (2003) Mechanisms in plant development. Blackwell Publ, Malden.