

## **Evaluation of Commercially Available Plant Growth Regulator Programs for Creeping Bentgrass Fairway Management, 2003**

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### **Objective:**

To evaluate the effectiveness of three commercially available plant growth regulators (PGRs) for the management of creeping bentgrass maintained under fairway conditions.

### **Procedures:**

Plant growth regulators were applied with a pressurized CO<sub>2</sub> (32 psi) sprayer equipped with a flat-fan nozzle 8004E and calibrated to deliver 50 gallons of water carrier and chemical per acre. All treatments were initiated on 15 May, 2003 and re-applied on 27 June. Products used, dates and rates of product application are presented in the data tables. Following the application of all treatments all plots were irrigated with 0.25 inches of water via an overhead sprinkler system after the spray applications had dried on the leaf surface and within 8 hours of application. Treatments were applied to a six year old stand of creeping bentgrass 'L-93' maintained at 0.50 inches by mowing three times per week with clippings removed and fertilized with approximately 3.0 lbs. of N/1000 sq ft. throughout the growing season. Plots were 5 ft x 10 ft, and arranged in a randomized complete block with four replications. Throughout the study the plots were irrigated as needed to prevent stress and promote growth and dollar spot was treated curatively with a contact fungicide (chlorothalonil).

Plots were rated visually for overall turfgrass quality, visual color, chemical injury, and mower scalping. Turfgrass quality was assessed on a 0 to 10 scale where 0 equals brown or dead turf and 10 equals optimal greenness, density and uniformity. Injury was rated on a 0 to 5 scale where 0 equals no injury and 5 equals entire plot area brown. Percent of plot area affected by scalping was assessed on a linear 0 to 10 % scale where 0 = entire plot area green and healthy, and 10 = entire plot area affected. To assess PGR growth suppression effects clippings were harvested on dry turf using a manually propelled reel mower set at 0.5 inches. Prior to each clipping harvest the plots were allowed to grow for two to three days and results are presented on a weight per area per day basis. Clippings were oven dried for several days in a forced air drying oven at 70 °C. After clippings were harvested the entire area was uniformly mowed to ensure an even canopy height across the treatment area.

### **Results:**

Tank-mix combinations of Primo + Cutless and Primo + Trimit caused mild bentgrass discoloration which persisted for approximately three weeks after the initial chemical application (Table 1). This was somewhat surprising based on the application rates of the products used, but could have been due to the unusually late season cool temperatures (< 50 °F day/night-time temperatures) that persisted for the first two weeks of this study. This injury appeared as leaf bronzing on the oldest leaves and because of its long persistence turf was also rated for overall leaf bronzing (Table 2). Compared to the untreated plots, treatments containing Primo at any rate seemed to cause the most injury. Although not strongly visible to the casual observer, some of the more severely injured plots still exhibited slight injury symptoms 23 days after application.

One reason turfgrass managers use PGRs is to manage clipping production and minimize potential scalping. The scalp rating effects among treatments were somewhat inconsistent but the worst scalped plots were the untreated plots which had ratings similar to Cutless and Primo Maxx at the low rates on four of the six rating dates (Table 3). The least scalped plots were those treated at the higher PGR application rates. This would be expected due to the increased vertical growth suppression provided with higher PGR application rates.

Turfgrass quality was strongly affected by injury/bronzing, and scalping (Table 4). Typically, many turfgrass researchers use a rating of 7.5 on a 0-10 scale as a threshold for the lowest minimum acceptable quality value for an intensively managed bentgrass fairway. Several treatments fell below this threshold during the first half of the study, but treatment effects were very inconsistent. The worst quality rating, 6.7, was observed with the Primo + Trimmit combination at the higher (0.25 lb. a.i./A) Trimmit application rate on 7 June. This treatment, however, recovered to very good quality ratings on most observation dates through the remainder of the study. By 10 July most PGR treated plots had ratings  $\geq 8.0$  for the remainder of the study. This was somewhat surprising since bentgrass typically does not perform exceptionally well during mid-late summer months. The cool, moist growing conditions during the summer may have caused this response.

Turfgrass color ratings were variable among PGR treatments (Table 5). Plots treated with the high label rate of Trimmit or the Cutless + Trimmit combinations, had several very good color retention ratings on a rather consistent basis through the season. As expected, on most rating dates, the untreated plots had lower turf quality and color ratings than PGR treated plots.

PGR applications had significant but extremely variable effects on bentgrass clipping production (Table 6). In general throughout the experiment the medium or high PGR application rates provided significant measurable vertical growth suppression compared to the untreated plots. From 16 June to 23 June there was a substantial increase in the clippings produced in most of the treatments. This may be due to a rebound effect of the PGR applications which often is observed five to six weeks after initial PGR applications. The effect was not as noticeable with the tank mix combinations of Cutless or Trimmit at the 0.25 lb. a.i./A rates.

One ancillary objective of this study was to determine if tank-mixing PGRs would allow for lower rates of either Cutless or Trimmit to be used when combined with Primo Maxx at 0.05 lb a.i./A, while still providing a similar rate of growth suppression as the medium (0.25 lb. a.i./A) or high (0.5 lb. a.i./A) rate of Cutless or Trimmit. In general there was little difference between the PGRs Cutless or Trimmit when applied alone at the low rates (0.125 lb. a.i./A) and the tank mix combinations of these products with Primo Maxx. On 27 May and 2 June, however, there were significantly less clippings produced in the Primo tank-mix combinations compared to the medium or high application rates of Cutless or Trimmit alone. This response was also observed on 7 July, approximately two weeks following the second PGR application, for Cutless and the Cutless + Primo Maxx tank mixes, though again the effect was somewhat short-lived, one week. These data demonstrate that Cutless or Trimmit can be

used at lower use rates (0.125 lb./A) when combined with Primo Maxx and still provide growth suppression comparable to higher rates of Cutless or Trimmit alone. For some golf course managers this may result in savings in their chemical budget. On 30 June, three days after the second PGR application there was very little difference in clipping production among treatments. The only treatment that was significantly different from the untreated plots were the plots treated with Primo Maxx at the high (0.1 lb. ai/A) rate. By 30 July numerical differences between treatments were minimal and the biggest differences compared to untreated plots were observed in the Trimmit or Cutless + Trimmit plots treated with Trimmit at 0.25 or 0.5 lb. a.i./A respectively which produced significantly more clippings than Primo Maxx at 0.1 lb. a.i./A.

No PGR or PGR combination consistently impacted any of the factors measured during this study. The unseasonably cool weather following the initial PGR application, 15 May, and the excessive (> 10 inches) rainfall during very late-June and early July combined with overcast, cloudy conditions may be part of the reason for the inconsistent performance of these products.

### **Acknowledgments**

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Table 1. Injury of L-93 creeping bentgrass fairway turf as affected by various plant growth regulators, 2003.

Treatment <sup>a</sup>	Product rate	Plant injury <sup>b</sup>									
		17 May	21 May	26 May	30 May	7 June	19 June	28 June	30 June	2 July	10 July
	lb a.i./A	----- (0-5 scale) -----									
Primo Maxx + Cutless	0.05 + 0.125	0.25 a	0.4 a	0.5 abc	0.4 abc	0.1 ab	0.0 b	0.13 abcd	0.13 abc	0.10 ab	0.10 cd
Primo Maxx + Cutless	0.05 + 0.25	0.08 bc	0.1 c	0.4 bcd	0.3 abcd	0.1 ab	0.0 b	0.13 abcd	0.18 ab	0.15 ab	0.20 abcd
Primo Maxx	0.05	0.03 bc	0.0 c	0.4 bcd	0.3 abcd	0.1 ab	0.0 b	0.10 abcd	0.10 abc	0.08 ab	0.10 cd
Primo Maxx	0.1	0.08 bc	0.1 c	0.4 bcd	0.3 abcd	0.1 ab	0.0 b	0.18 ab	0.18 ab	0.18 a	0.10 cd
Cutless	0.125	0.00 c	0.0 c	0.1 d	0.0 e	0.0 b	0.0 b	0.20 ab	0.20 a	0.20 a	0.03 d
Cutless	0.25	0.03 bc	0.0 c	0.2 cd	0.2 bcde	0.0 b	0.0 b	0.15 ab	0.15 abc	0.15 ab	0.03 d
Cutless	0.50	0.08 bc	0.1 c	0.2 cd	0.2 bcde	0.0 b	0.0 b	0.15 abc	0.05 bc	0.03 b	0.15 bcd
Primo Maxx + Trimmit	0.05 + 0.125	0.13 b	0.2 bc	0.7 ab	0.4 abc	0.3 a	0.0 b	0.03 d	0.03 c	0.03 b	0.08 d
Primo Maxx + Trimmit	0.05 + 0.25	0.28 a	0.3 ab	0.8 a	0.5 a	0.3 a	0.1 a	0.05 cd	0.13 abc	0.13 ab	0.35 ab
Trimmit	0.125	0.00 c	0.0 c	0.2 cd	0.1 cde	0.0 b	0.0 b	0.20 a	0.20 a	0.20 a	0.00 d
Trimmit	0.25	0.00 c	0.0 c	0.2 cd	0.1 cde	0.0 b	0.0 b	0.08 bcd	0.10 abc	0.13 ab	0.15 bcd
Trimmit	0.5	0.00 c	0.0 c	0.3 cd	0.2 bcde	0.0 b	0.0 b	0.03 d	0.18 ab	0.18 a	0.43 a
Cutless + Trimmit	0.125 + 0.125	0.05 bc	0.0 c	0.3 cd	0.2 bcde	0.0 b	0.0 b	0.13 abcd	0.15 abc	0.13 ab	0.20 abcd
Cutless + Trimmit	0.25 + 0.25	0.05 bc	0.0 c	0.3 cd	0.2 bcde	0.0 b	0.0 b	0.08 bcd	0.15 abc	0.15 ab	0.33 abc
Untreated	---	0.13 bc	0.0 c	0.1 d	0.0 e	0.0 b	0.0 b	0.16 ab	0.16 abc	0.14 ab	0.01 d

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.

<sup>b</sup> Plant injury rated on a 0 to 5 scale where 0 equals no injury, 2.5 equals 50 % yellowing and 5.0 equals area completely brown and dead.

Table 2. Leaf bronzing of L-93 creeping bentgrass fairway turf as affected by various plant growth regulator treatments, 2003.

Treatment <sup>a</sup>	Product rate	Bronzing <sup>b</sup>			
		26 May	28 May	30 May	7 June
	lb a.i./A	----- (0-10 scale) -----			
Primo Maxx + Cutless	0.05 + 0.125	4.8 a	4.3 ab	2.8 a	0.8 ab
Primo Maxx + Cutless	0.05 + 0.25	4.3 ab	2.5 cde	1.5 bc	0.3 bc
Primo Maxx	0.05	3.3 bcd	2.5 cde	1.5 bc	0.3 bc
Primo Maxx	0.1	3.5 abc	2.5 cde	1.8 ab	0.5 abc
Cutless	0.125	1.0 gf	0.3 h	0.0 e	0.0 c
Cutless	0.25	1.5 egf	1.0 fgh	0.5 cde	0.0 c
Cutless	0.50	1.5 egf	1.3 fgh	0.3 de	0.0 c
Primo Maxx + Trimmit	0.05 + 0.125	4.8 a	3.3 bc	1.3 bcd	0.3 bc
Primo Maxx + Trimmit	0.05 + 0.25	4.5 ab	4.5 a	2.8 a	1.0 a
Trimmit	0.125	1.0 gf	1.3 fgh	0.5 cde	0.0 c
Trimmit	0.25	1.0 gf	1.0 fgh	0.3 de	0.0 c
Trimmit	0.5	2.0 def	2.0 def	0.3 de	0.0 c
Cutless + Trimmit	0.125 + 0.125	2.5 cde	1.5 efg	0.5 cde	0.0 c
Cutless + Trimmit	0.25 + 0.25	3.3 bcd	3.0 cd	1.8 ab	0.3 bc
Untreated	---	0.0 g	0.8 gh	0.0 e	0.0 c

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.

<sup>b</sup> Bronzing rated on a 0 to 10 scale where 0 equals no bronzing, 10 equals complete bronzing.

Table 3. Scalp injury of L-93 creeping bentgrass fairway turf as affected by various plant growth regulators, 2003.

Treatment <sup>a</sup>	Product rate	Scalping <sup>b</sup>					
		19 June	28 June	30 June	10 July	21 July	28 July
	lb a.i./A	----- (0-10 scale) -----					
Primo Maxx + Cutless	0.05 + 0.125	2.0 abcd	2.8 abc	1.0 cde	0.5 bc	1.0 bc	1.0 b
Primo Maxx + Cutless	0.05 + 0.25	2.5 ab	2.8 abc	2.5 abc	1.0 ab	0.8 bc	0.8 b
Primo Maxx	0.05	2.0 abcd	2.5 abcd	2.5 abc	1.3 ab	0.5 bc	0.8 b
Primo Maxx	0.1	1.5 bcd	1.5 bcd	1.0 cde	0.0 c	0.8 bc	1.0 b
Cutless	0.125	1.3 bcd	1.5 bcd	2.8 ab	1.0 ab	2.5 ab	1.8 ab
Cutless	0.25	2.0 abcd	3.3 ab	2.5 abc	0.5 bc	1.3 bc	1.0 b
Cutless	0.50	2.3 abc	2.5 abcd	2.0 bcd	0.8 bc	2.3 abc	1.8 ab
Primo Maxx + Trimmit	0.05 + 0.125	1.3 bcd	1.3 cd	0.3 e	0.3 bc	0.8 bc	0.5 b
Primo Maxx + Trimmit	0.05 + 0.25	1.0 cd	1.0 cd	0.5 de	0.0 c	0.8 bc	0.5 b
Trimmit	0.125	1.8 bcd	2.5 abcd	2.3 abc	0.8 bc	1.5 bc	1.0 b
Trimmit	0.25	1.3 bcd	1.3 cd	1.3 bcde	0.5 bc	0.8 bc	0.5 b
Trimmit	0.5	1.0 cd	1.3 cd	0.3 e	0.3 bc	0.3 c	0.0 b
Cutless + Trimmit	0.125 + 0.125	1.5 bcd	1.8 bcd	0.3 e	0.0 c	0.8 bc	0.5 b
Cutless + Trimmit	0.25 + 0.25	0.8 d	0.8 d	0.0 e	0.0 c	0.8 bc	0.8 b
Untreated	---	3.3 a	4.1 a	3.8 a	1.8 a	4.1 a	3.3 a

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.

<sup>b</sup> Scalping was visually assessed on a 0 to 10 scale where 0 equals no scalp injury, and 10 equals 100 % of plot area affected.

Table 4. Visual turfgrass quality of L-93 creeping bentgrass fairway turf as affected by various plant growth regulators, 2003.

Treatment <sup>a</sup>	Product rate	Turfgrass quality <sup>b</sup>										
		21 May	28 May	7 June	19 June	28 June	2 July	10 July	14 July	21 July	28 July	4 Aug.
	lb a.i./A	----- (0-10 scale) -----										
Primo Maxx + Cutless	0.05 + 0.125	7.5 b	7.3 c	7.0 cd	7.6 cd	7.8 cde	7.9 abcd	8.0 abc	7.9 ab	7.8 ab	8.4 ab	8.5 a
Primo Maxx + Cutless	0.05 + 0.25	8.0 ab	7.6 bc	7.2 cd	7.8 cd	7.7 de	7.6 cdef	8.2 ab	8.2 a	8.0 ab	8.4 ab	8.4 abc
Primo Maxx	0.05	8.3 a	8.3 ab	7.8 ab	7.5 d	8.0 bcd	7.5 def	8.0 abc	8.0 ab	8.0 ab	8.4 ab	8.3 abc
Primo Maxx	0.1	8.3 a	8.6 a	7.4 abc	7.8 cd	8.0 bcd	8.0 abc	8.0 abc	8.0 ab	8.1 a	8.5 a	8.5 a
Cutless	0.125	8.0 ab	7.9 abc	7.8 ab	7.9 bcd	7.8 cde	7.7 cde	7.8 bc	7.9 ab	7.6 abc	8.4 ab	8.4 abc
Cutless	0.25	8.3 a	8.6 a	7.9 a	7.5 d	7.9 bcde	7.5 def	8.1 ab	8.0 ab	7.8 ab	8.4 ab	8.4 abc
Cutless	0.50	7.9 ab	8.1 abc	7.3 bc	7.9 bcd	7.9 bcde	7.4 ef	7.8 bc	7.9 ab	7.3 bc	8.2 b	8.2 c
Primo Maxx + Trimmit	0.05 + 0.125	7.6 b	8.0 abc	7.2 cd	8.0 abc	8.4 a	8.2 ab	8.3 a	8.2 a	8.1 a	8.5 a	8.5 a
Primo Maxx + Trimmit	0.05 + 0.25	7.9 ab	8.0 abc	6.7 d	7.9 bcd	8.5 a	7.9 abcd	7.9 abc	7.9 ab	8.2 a	8.4 ab	8.5 a
Trimmit	0.125	7.6 ab	7.6 bc	7.3 bc	7.5 d	8.0 bcd	7.6 cdef	8.0 abc	7.8 ab	7.6 abc	8.4 ab	8.4 abc
Trimmit	0.25	8.0 ab	8.1 abc	7.5 abc	8.0 abc	8.2 abc	7.8 bcde	8.2 ab	8.2 a	7.8 ab	8.4 ab	8.5 a
Trimmit	0.5	7.9 ab	8.3 ab	7.2 cd	8.4 a	8.5 a	8.3 a	8.0 abc	8.0 ab	8.3 a	8.4 ab	8.4 abc
Cutless + Trimmit	0.125 + 0.125	7.6 ab	8.0 abc	7.3 bc	8.0 abc	8.3 ab	7.7 cde	8.1 ab	8.0 ab	8.0 ab	8.4 ab	8.4 abc
Cutless + Trimmit	0.25 + 0.25	8.0 ab	7.6 bc	6.7 d	8.3 ab	8.5 a	8.3 a	8.0 abc	8.0 ab	8.1 a	8.3 ab	8.3 bc
Untreated	---	8.1 ab	8.3 ab	7.4 abc	7.6 d	7.5 e	7.2 f	7.7 c	7.7 b	7.0 c	8.3 ab	8.3 bc

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.

<sup>b</sup> Quality was visually assessed on a 0 – 10 scale where 0 = brown or dead turf and 10 = uniform, optimum green color and density.

Table 5. Visual turfgrass color ratings of L-93 creeping bentgrass fairway turf as affected by various plant growth regulators, 2003.

Treatment <sup>a</sup>	Product rate	Color rating <sup>b</sup>							
		7 June	19 June	28 June	2 July	14 July	21 July	28 July	4 Aug.
	lb a.i./A	----- (0-10 scale) -----							
Primo Maxx + Cutless	0.05 + 0.125	7.7 cde	7.7 cd	7.7 cdef	7.9 abc	7.9 abc	7.9 abc	7.9 ab	8.1 ab
Primo Maxx + Cutless	0.05 + 0.25	7.6 cde	7.6 cd	7.8 bcde	7.6 bc	7.7 abc	7.7 abc	7.7 abc	8.0 b
Primo Maxx	0.05	7.6 cde	7.6 cd	7.6 ef	7.8 abc	7.8 abc	7.8 abc	7.8 abc	8.0 b
Primo Maxx	0.1	7.7 cde	7.7 cd	7.7 cdef	7.8 abc	8.0 ab	7.9 abc	7.9 ab	8.0 b
Cutless	0.125	7.6 cde	7.6 cd	7.6 ef	7.7 abc	7.6 abc	7.5 abc	7.5 bc	8.0 b
Cutless	0.25	7.5 de	7.5 d	7.5 efg	7.8 abc	7.8 abc	7.8 abc	7.8 abc	8.0 b
Cutless	0.50	7.7 cde	7.7 cd	7.5 fg	7.8 abc	7.6 abc	7.6 abc	7.9 ab	8.0 b
Primo Maxx + Trimmit	0.05 + 0.125	7.8 cd	7.8 bc	8.0 abc	7.7 abc	7.6 abc	7.6 abc	7.6 abc	8.1 ab
Primo Maxx + Trimmit	0.05 + 0.25	7.8 cd	7.8 bc	7.9 abcd	7.8 abc	7.9 abc	7.9 abc	7.9 ab	8.0 b
Trimmit	0.125	7.5 de	7.5 d	7.6 def	7.6 bc	7.5 bc	7.4 bc	7.4 bc	8.0 b
Trimmit	0.25	7.6 cde	7.7 cd	7.9 abc	7.8 abc	7.8 abc	7.8 abc	7.8 abc	8.3 a
Trimmit	0.5	8.1 a	8.1 a	8.0 ab	8.2 a	8.2 a	8.1 a	8.1 a	8.1 ab
Cutless + Trimmit	0.125 + 0.125	7.8 bc	7.8 bc	7.8 bcde	8.0 ab	8.0 ab	8.0 ab	8.0 ab	8.0 b
Cutless + Trimmit	0.25 + 0.25	8.1 ab	8.0 ab	8.1 a	8.1 ab	8.0 ab	8.1 a	8.2 a	8.0 b
Untreated	---	7.5 e	7.5 d	7.3 g	7.4 c	7.3 c	7.3 c	7.3 c	7.9 b

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.

<sup>b</sup> Color was visually assessed on a 0 to 10 scale where 0 equals brown turf, 7.5 = minimum acceptable level of color for a golf course fairway and 10 equals optimum greenness.

Table 6. Clipping production of L-93 creeping bentgrass fairway turf as affected by various plant growth regulators, 2003.

Treatment <sup>a</sup>	Product rate	Clipping production										
		23 May	27 May	2 June	9 June	16 June	23 June	30 June	7 July	14 July	23 July	30 July
	lb a.i./A	----- (grams/m <sup>2</sup> /day) -----										
Primo Maxx + Cutless	0.05 + 0.125	2.2 bc	0.4 g	0.3 def	0.8 defgh	4.1 abc	3.6 cdef	1.7 cde	0.8 cdef	2.6 bcd	2.4 bcd	3.0 cde
Primo Maxx + Cutless	0.05 + 0.25	2.2 bc	0.7 defg	0.3 def	1.0 bcdef	3.8 abc	4.0 abcde	1.9 bcde	0.9 cde	2.1 cdef	2.0 cd	2.9 cde
Primo Maxx	0.05	2.5 bc	0.5 efg	0.3 def	1.4 bc	4.9 ab	3.9 abcde	2.0 abcd	1.1 c	2.1 cdef	1.7 d	2.9 de
Primo Maxx	0.1	1.4 c	0.4 g	0.2 f	0.6 efgh	2.7 cd	3.5 cdef	1.3 e	0.6 efg	1.8 efg	1.9 cd	3.0 cde
Cutless	0.125	3.9 ab	1.7 ab	1.1 ab	2.4 a	5.0 a	4.1 abcde	2.5 ab	2.0 a	2.9 ab	2.2 bcd	3.1 cde
Cutless	0.25	2.7 abc	1.2 bcd	0.8 bc	1.3 bcd	3.9 abc	3.7 bcdef	2.1 abcd	1.7 ab	2.5 bcd	2.2 bcd	3.0 cde
Cutless	0.50	3.7 ab	1.4 bc	0.7 c	0.9 cdefg	4.2 abc	4.0 abcde	2.0 abcd	1.5 b	2.6 abc	2.0 cd	3.1 cde
Primo Maxx + Trimmit	0.05 + 0.125	2.5 bc	0.4 g	0.2 f	0.5 fgh	3.5 abc	5.1 a	2.1 abcd	0.8 cdef	2.6 bc	2.2 bcd	3.0 cde
Primo Maxx + Trimmit	0.05 + 0.25	2.3 bc	0.5 fg	0.3 ef	0.4 gh	2.9 bcd	4.9 ab	2.2 abcd	0.7 defg	2.1 cdef	3.0 bcd	3.2 cd
Trimmit	0.125	3.4 ab	1.1 bcde	0.7 c	1.2 bcde	3.8 abc	4.3 abc	2.3 abc	1.1 c	2.3 cde	1.8 d	2.9 cde
Trimmit	0.25	3.6 ab	1.1 bcde	0.6 cd	0.8 defgh	2.9 bcd	4.3 abcd	2.2 abcd	0.8 cdef	2.2 cdef	2.8 bcd	3.3 bc
Trimmit	0.5	3.0 abc	0.8 defg	0.4 def	0.3 gh	1.2 d	2.9 ef	2.2 abcd	0.4 g	1.4 g	5.0 a	3.6 ab
Cutless + Trimmit	0.125 + 0.125	3.6 ab	1.0 cdefg	0.6 cde	0.7 efgh	2.3 cd	4.6 abc	2.5 a	1.0 cd	3.2 a	3.3 bc	3.2 cde
Cutless + Trimmit	0.25 + 0.25	2.8 abc	0.7 defg	0.3 def	0.3 h	1.2 d	2.4 f	1.6 de	0.5 fg	1.7 fg	3.6 ab	3.7 a
Untreated	---	4.3 a	1.5 abc	1.2 a	2.4 a	4.3 abc	3.8 abcde	1.9 abcd	1.6 ab	2.2 cdef	1.6 d	2.9 cde

<sup>a</sup> Treatments applied 15 May, and 27 June 2003 in 50 gallons of water/A to a mature L-93 creeping bentgrass maintained at ½ inch.