

FIRST YEAR PRELIMINARY REPORT

Effect of Mower Type and Frequency On Putting Green Performance 2004

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Methodology

Four walk-behind greens mowers were evaluated for their influence on creeping bentgrass putting green performance.

Experimental plots were established at the Cornell University Turfgrass Research Facility in Ithaca, NY on a creeping bentgrass/annual bluegrass (*Agrostis palustris/Poa annua*) soil-based putting green (pH = 6.7). Plots were 8 ft. x 10 ft. (2.4 m x 3.0 m) in size, and there were three replications of each treatment arranged in a randomized complete block design.

Plots were topdressed with straight sand once prior to the beginning of the trial. Contec 19-2-15 fertilizer was applied during the first week of the experiment at the rate of 1 lb. N/1000 ft² (92.9 m²). Approximately 12 inches of rain was received during the 9 weeks of the trial, nearly twice the normal amount. Therefore, no supplemental irrigation was applied. Average daily temperatures ranged from a low of 55° F (13° C) to a high of 75° F (24° C).

Technical specifications for the mowers used in the study are presented below.

	Toro Greensmaster Flex 21	Toro Greensmaster 1000	Jacobsen Tournament Cut- 22 Independent Floating Reel	Jacobsen Greens King 518A
Width of Cut	21" (53.3 cm)	21" (53.3 cm)	22" (55.9 cm)	18" (45.7 cm)
Height of Cut	1/16-19/64" (1.5- 7.5 mm)	5/64-1" (1.9-25 mm)	3/64-7/16" (1.2- 11.1 mm)	3/64-7/16" (1.2- 11.1 mm)
Weight	238 lbs. (108 kg)	208 lbs. (94.3 kg)	178 lbs. (81 kg)	215 lbs. (97 kg)
Reel	11 blades 5" (12.7 cm) diameter	11 blades 5" (12.7 cm) diameter	11 blades 5" (12.7 cm) diameter	11 blades 5" (12.7 cm) diameter
Bedknife	High carbon through-hardened steel	High carbon austempered steel	Hardened carbon steel	Hardened carbon steel
Roller	Grooved	Grooved	Grooved	Grooved

Treatments began on June 21 and continued through August 20. The following table shows the various cutting heights and frequency of cut.

Mower Type	Bench Height (inch/mm)	Frequency
Toro Greensmaster 1000 Fixed	0.125/3.17	7 d single
Toro Greensmaster 1000 Fixed	0.125/3.17	5 d single + 2 d double
Toro Greensmaster 1000 Fixed	0.125/3.17	4 d single + 3 d double
Toro Greensmaster Flex 21	0.100/2.54	7 d single
Toro Greensmaster Flex 21	0.100/2.54	5 d single + 2 d double
Toro Greensmaster Flex 21	0.100/2.54	4 d single + 3 d double
Jacobsen Cut-22 Floating Reel	0.075/1.90	7 d single
Jacobsen Cut-22 Floating Reel	0.075/1.90	5 d single + 2 d double
Jacobsen Cut-22 Floating Reel	0.075/1.90	4 d single + 3 d double
Jacobsen Greens King 518A Fixed	0.125/3.17	7 d single
Jacobsen Greens King 518A Fixed	0.125/3.17	5 d single + 2 d double
Jacobsen Greens King 518A Fixed	0.125/3.17	4 d single + 3 d double

Plots were rated for turf quality on a scale of 1 to 9; where 1 = poor quality, 9 = excellent quality, and 6 = acceptable quality. Plots were also rated on two dates (July 25 and August 21) for % basal crown rot anthracnose (*Colletotrichum graminicola*).

There were significant differences in turf quality depending on the mower. The table below presents the overall turf quality means for the 4 mowers.

Mower	Turf Quality
Jake Float	7.3 a
Jake Fixed	7.2 a
Toro Flex	6.7 b
Toro Fixed	5.5 c

Means followed by the same letter are not significantly different ($p=0.05$) according to the LSD test.

There were also significant differences among the 3 mowing frequencies. Turf quality means for each frequency are shown in the table below.

Frequency	Turf Quality
7 d single	7.2 a
5d single + 2 d double	6.8 b
4 d single + 3 d double	6.1 c

Means followed by the same letter are not significantly different ($p=0.05$) according to the LSD test.

The interaction effect between mower and frequency was not significant ($p=0.05$).

Plots were also rated twice for % anthracnose. The treatments means below indicate that the Toro Fixed mower had a significantly higher incidence of anthracnose than the other three mowers.

Mower	% Anthracnose
Toro Fixed	21.7 a
Toro Flex	10.6 b
Jake Fixed	6.7 bc
Jake Float	2.8 c

Means followed by the same letter are not significantly different ($p=0.05$) according to the LSD test.

Not surprisingly, plots receiving the most severe mowing regimen also had the highest incidence of disease.

Frequency	% Anthracnose
4 d single + 3 d double	18.1 a
5 d single + 2 d double	8.8 b
7 d single	4.4 c

Means followed by the same letter are not significantly different ($p=0.05$) according to the LSD test.