Evaluation of My Holiday Lawn Kentucky Bluegrass at Various Mowing Intervals

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Objective: Evaluate the visual quality and clipping production of My Holiday Lawn at four different mowing frequencies at with and without traffic stress.

Study Period: May 31 to end of September 2017

Experimental Design: Split block design, four replications

Treatments:
1) Mown weekly, no traffic
2) Mown weekly, with traffic
3) Mown every other week, no traffic
4) Mown every other week, with traffic
5) Mown monthly, no traffic
6) Mown monthly, with traffic
7) Mown on Holidays (Memorial Day, Independence Day, Labor Day), no traffic
8) Mown on Holidays (Memorial Day, Independence Day, Labor Day), with traffic

Location: University of Wisconsin's O.J. Noer Turfgrass Research and Education Facility, Verona, WI

Methods: A stand of My Holiday Lawn was established at the O.J. Noer Turfgrass Facility in Spring 2016 on a silt loam soil, and reached complete cover by fall 2016. The plot area was be treated similarly to a home lawn in Wisconsin and mowed at 2.5 inches and fertilized with approximately 4 lbs of N per thousand square feet during the 2017 season. Fertilizer (2 lbs/1000 sq. ft) was applied using a polymer-coated urea with a season-long release pattern on June 23, and then additional N was applied using a liquid spoon feeding approach where approximately 0.2 lbs N (using urea) was applied every other week for the entire growing season. The area was irrigated to prevent dormancy, and no chemical weed control was necessary. A split block design was utilized where the mowing treatments above were randomly assigned within each block. Individual plots measured 10 ft. by 5 ft. Then, traffic or no traffic was randomly assigned to half of each block in a strip. A Brinkman traffic simulator was used to simulate traffic by making six passes across the trafficked treatments every week. Turfgrass visual quality was evaluated every other week using the NTEP scale of 1-9, where 9 represents the best turf quality, 6 represents

minimally acceptable turf quality, and 1 represents dead or brown turf. Clippings were collected from all plots monthly, except for the holiday schedule treatments which will be collected three times during the season. Clippings were dried, cleaned of debris, and weighted for an estimate of seasonal clipping production.

Results: Mowing frequency and traffic had an impact on visual turfgrass quality (Table 1). Traffic significantly reduced turfgrass quality for the weekly treatment, but did not have a significant effect on the treatments that were mown less frequently. Traffic influenced clipping collection to a greater degree than visual quality. For example, the amount of clippings from the Holiday schedule under traffic was less than half of the clippings from the non-trafficked Holiday treatment. This finding is also reflected in the mowing height measurements (taken immediately prior to mowing).

The clipping collection data from individual dates are show in Table 2. We collected all of the clippings for the season from the Monthly and Holiday schedules but had to estimate annual clipping production by interpolation for the other two schedules (i.e. multiplied the sum of the weekly clippings by 4, multiplied the sum of the bi-weekly clippings by 2). We found that mowing more frequently results in lower clipping production. This is consistent with findings from some of our earlier work, which suggests that violating the 1/3 rule results in increased growth. In this case, for the no traffic situation, using a monthly or holiday schedule produces 33-57% more clippings than mowing weekly. There was no difference in clipping production from mowing weekly or every other week. However, traffic had an even greater influence on clipping production than mowing frequency did (Table 2). Adding traffic to a weekly mowing schedule decreased clipping production by a factor of 2.5. The reductions in clippings were less severe for the less frequent mowing schedules, but were always greater than a factor of 2.

The visual quality data for individual dates is shown in Table 3. In general, the more frequent mowing schedules (weekly, and bi-weekly) maintained the greatest turfgrass quality. However, the monthly mowing frequency was able to maintain acceptable turfgrass quality for the majority of the study period under traffic and no traffic conditions. The Holiday mowing schedule was also acceptable of greater on many individual dates, but fell below acceptable on more dates than the other treatments. This is actually quite impressive for a grass that was only mowed four times all year.

In summary, My Holiday Lawn was able to maintain acceptable or above acceptable turfgrass quality for the majority of the year in scenarios where mowing was at least monthly, with or without traffic. Even when mowed very infrequently, My Holiday Lawn maintained acceptable turfgrass quality for a good portion of the season. While we did not compare My Holiday Lawn to other grasses, it is apparent that under these conditions (4 lbs N/1000 square feet, good silt loam soil in Wisconsin, etc.) My Holiday Lawn can produce a very high quality turf with infrequent mowing and can withstand traffic.

Table 1 - Average visual quality, clipping weights, and mowing height from 23 June – 31 October 2017. Results followed by different letters within each column are statistically different according to Fisher's Least Significant Difference (alpha=0.05).

Treatment	Visual Quality	Clippings per Collection	Mowing Height
	1-9 (9 is best)	g m^{-2}	cm
Weekly (No Traffic)	7.1 a	11.2 de	7.0 c
Bi-weekly (No Traffic)	6.7 ab	21.1 de	7.9 bc
Monthly (No Traffic)	6.4 b	59.0 b	9.4 ab
Holiday (No Traffic)	5.7 d	116.7 a	10.3 a
Weekly (Traffic)	6.4 bc	4.3 e	6.6 c
Bi-weekly (Traffic)	6.5 b	12.7 de	6.6 c
Monthly (Traffic)	6.3 bc	28.2 cd	7.6 bc
Holiday (Traffic)	6.0 cd	49.3 bc	7.8 bc

Table 2 – Clipping yield for individual rating dates during 2017 growing season. Results followed by different letters within each column are statistically different according to Fisher's Least Significant Difference (alpha=0.05). (* indicates dates with holiday clippings included, 4th of July, Labor Day, Halloween) Mowing error led to reset of clippings on 24 May and Memorial Day clippings were not collected.

Treatment	23 June	26 July	22 August	19 Sept	17 Oct	Estimated Annual Clippings
			g m^{-2}			
Weekly (No Traffic)	1.0 c	18.7 de	14.0 c	13.0 bc	9.1 cd	223
Bi-weekly (No Traffic)	6.1 c	39.0 c	26.8 c	21.3 b	12.3 cd	211
Monthly (No Traffic)	13.4 c	87.9 a	85.4 b	72.7 a	35.4 ab	295
Holiday (No Traffic)	57.4 a	N/A	237.8 a	N/A	54.9 a	350
Weekly (Traffic)	0.8 c	11.3 e	4.3 c	3.3 d	2.0 d	87
Bi-weekly (Traffic)	6.7 c	32.2 cd	11.9 c	7.7 cd	5.2 cd	127
Monthly (Traffic)	11.2 c	60.2 b	39.8 c	22.3 b	7.7 cd	141
Holiday (Traffic)	33.9 b	N/A	87.2 b	N/A	26.8 bc	148

Table 3 – Visual quality (1-9) for individual rating dates during the 2017 season. Results followed by different letters within each column are statistically different according to Fisher's Least Significant Difference (alpha=0.05).

Treatment	23 June	11 July	20 July	4 Aug	17 Aug	1 Sept	19 Sept	17 Oct	31 Oct
	---------------------------------- 1-9 (9 is best) --								
Weekly (No Traffic)	5.0 b	7.8 a	7.8 a	7.3 a	7.0 a	7.5 a	7.5 a	7.0 a	7.0 a
Bi-weekly (No Traffic)	6.0 a	7.3 ab	7.3 ab	6.8 abc	6.0 b	7.0 abc	7.3 a	6.3 ab	6.3 b
Monthly (No Traffic)	5.0 b	7.0 b	6.8 b	6.3 cd	6.8 ab	7.0 abc	7.0 a	6.0 bc	6.3 b
Holiday (No Traffic)	4.8 b	7.0 b	6.8 b	6.0 d	6.0 b	5.5 d	5.5 b	5.0 d	5.0 c
Weekly (Traffic)	5.3 b	7.3 ab	6.5 b	7.3 a	6.3 ab	7.3 ab	7.5 a	5.3 cd	5.3 c
Bi-weekly (Traffic)	6.0 a	7.5 ab	7.3 ab	7.0 ab	6.5 ab	6.8 bc	7.0 a	5.3 cd	5.3 c
Monthly (Traffic)	5.0 b	7.5 ab	7.0 ab	6.5 bcd	7.0 a	6.5 c	7.0 a	5.3 cd	5.0 c
Holiday (Traffic)	5.0 b	7.0 b	7.0 ab	6.5 bcd	6.5 ab	5.8 d	6.0 b	5.0 d	5.3 c