

Fertilize based on your lawn mower, not your calendar

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There are many calendar-based approaches in turfgrass management. Homeowners frequently follow various multi-step programs to schedule fertilizer and pest control applications. Professionals tend to apply products like growth regulators, nitrogen fertilizer and control products on set intervals (usually 14 days). In past Turf iNfos, I've discussed [GDD models for timing PGR applications](#) to control growth and [seedhead emergence](#). I've also highlighted new disease models like the [Smith-Kerns dollar spot model](#) to only apply preventative control products when the conditions were ideal for a disease outbreak. These types of data-driven decisions can reduce product applications, help the management budget and improve conditioning. A simple, yet data-driven, way to [schedule nitrogen fertilizer](#) (and PGR applications for professionals) is to monitor growth rate when mowing.

Lawn and commercial turfgrass

The common recommendation is to mow when 1/3 of the leaf is removed by mowing, commonly called the [one-third rule](#). Over the past four years, we've confirmed that the one-third rule results in the fewest number of mowing events and doesn't hurt the turf (scalping; Fig. 1). That means a lawn managed at 3" should be mowed when it reaches 4.5". Still, most homeowners just mow weekly, and sometimes they remove more or less than a third of the leaf because the grass doesn't grow 1.5" every week. This can lead to scalping and disease like brown patch when the growth is too fast or dollar spot and leaf spot diseases and pet damage when the growth is too slow.

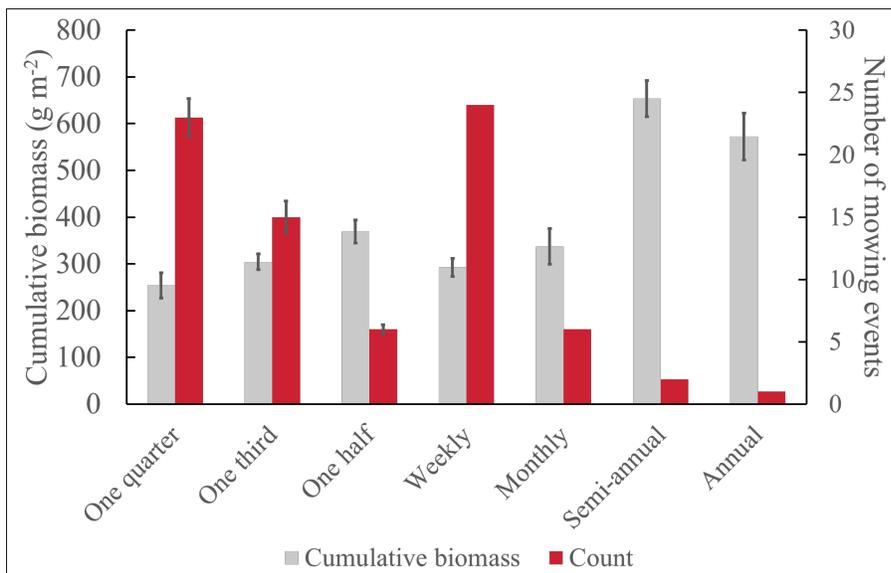


Figure 1. The total clipping yield and number of mowing events required to maintain a tall fescue lawn in Eastern Nebraska. Plots mowed weekly or when one quarter or one third of the leaves were removed sustained acceptable turf quality.

Instead of worrying about fertilizer program “steps,” just look at your clippings. If you are removing less than 1.5” (or you need to mow more than weekly), you may be too lean assuming the lawn is properly watered, the soil isn't too compacted, etc. If the lawn is growing greater than 1.5” a week (or you are mowing more than weekly to stick to the one-third rule), then fertilizer likely isn't needed. This spring is a prime example. Lawns are bolting out of the ground, yet many people are talking about applying “Step 2.” Wait until the growth rate slows down before applying more nitrogen fertilizer.

There are caveats to this fertility plan. Lawns mowed below three inches will likely need to be mowed more than weekly to satisfy the one-third rule. Also, growth rate will slow in late fall. This is normal as the turf enters dormancy. Fertilizer should not be applied in late fall, because the grass won't take much up. Also, some newer cultivars and species grow slowly genetically. Grasses like the "Low-Mow" or "No-Mow" bluegrasses may not grow at 1.5" a week under high fertility conditions. For these grasses, base the nitrogen fertilization on their "normal" growth rate at your site. Finally, the warm-season species like buffalograss seem to have more regular growth rate during the growing season. This approach may not be completely applicable to these species.

Sports and Golf Turf

Last December I wrote a Turf iNfo about [Clipping Volume Collection](#). It can be a tool to help adjust nitrogen and PGR rates to [Drive Your Growth Rate](#). The idea here is most turfgrass managers have an inherent idea of how much grass growth they need to meet the performance and aesthetic expectations at their site. Too few clippings in the mower bucket can lead to poor traffic tolerance, reduced stress recovery, increase low growth diseases, and cause poor turfgrass visual quality. Too many clippings causes the surfaces to get thatchy and slow, be more prone to high growth diseases, and appear too lush. Even writing a qualitative scale (1= minimal growth, 3 = ideal, and 5 = way too much) on a calendar is a better way than not recording the daily clipping yields. Here a recent [YouTube video](#) on the topic.

Turf managers can use this data to adjust the nitrogen fertilizer and PGR application rates for a spoon feeding program. Why use the same PGR and N rates every two weeks if the growth rate is always changing? We should strive to achieve an ideal growth rate that works best at our facility. If there's too much growth, then reduce the N and increase the PGR rate. If clipping yield is too low, then go to the lowest PGR rate – to avoid the rebound – and increase the N rate.

Remember, PGR rate impacts the amount of suppression while [temperature, species, and mowing height](#) impact how long a PGR lasts. This can have impacts on [collar decline at golf courses](#) where PGRs are over-sprayed on collars while treating putting greens. [GreenKeeper](#) can help track those different timings with [GDDs](#). Nitrogen fertilizer response will also change depending on factors like soil moisture, time of year, temperature, and soil compaction.

Conclusions

Don't get too caught up on calendar-based approaches when applying nitrogen fertilizer (and PGRs) to turfgrass. Instead, try to maintain a normal/ideal clipping yield to achieve the best results at your facility or lawn. Look at the clipping yield production, leaf color, and factors like soil moisture to decide if your turfgrass needs more or less nitrogen fertilizer (or PGR).

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Figure 2. Turfgrass researchers collection clippings from golf collar decline research.