

High summer growth rates and puffy greens in summer

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Most textbooks indicate cool-season turfgrass dramatically slow growth rate in the middle of summer, modern research suggests, however, many species are actually growing very rapidly this time of year. Lawns still need to be mowed and the clipping buckets are full at most golf courses. Greens also appear puffy and scalp easily right now.

Why is this happening and why is it at odds with classic textbook growth curves?

- First, those curves were created over 60 years ago and the stands were not irrigated. Drought stress at any time of year will immediately reduce leaf elongation and slow cell division. This reduces clipping yield.
- Thanks to turfgrass breeders, modern grasses are likely more heat tolerant. Early cultivars were forage grasses rather than the dense, emerald green, high performance cultivars of today.
- Warm and wet soils release nitrogen fertilizer to the grass (nitrogen mineralization). This stimulates growth rate, despite the high air temperatures. Turf managers that are collecting clipping yields routinely observe a dramatic increase in clipping yield following heavy rainfall. Older turf stands with a history of nitrogen fertilizer and high soil organic matter have the greatest soil mineralization potential.
- Not all cool-season grasses respond to heat stress in the same manner. Growth chamber research at UNL found that creeping bentgrass responds to nitrogen fertilizer when daily average air temperatures are in excess of 90F, but are slow to grow when the average temperature is less than 50F. It is the complete opposite for perennial ryegrass. That species grew aggressively at cooler temperatures, but clipping yield production ceased when temperatures averaged 95F. This is more typical of the textbook growth curve than the creeping bentgrass response.

How should we manage rapid growth rate in mid-summer?

- Stay up with mowing and don't scalp. Our research shows that regular mowing (i.e. mowing to the 1/3 rule or more frequently) results in slower growth rate than scalping.
- Don't over fertilize turf in spring and fall. This leads to an accumulation of soil organic matter which can mineralize during the summer months. Many slow release fertilizers, like organic products, may not release during cooler weather but can rapidly mineralize nitrogen in the summer.
- Try to keep the soil dry to minimize nitrogen mineralization potential. This also helps sustain roots.
- Use high PGR rates or combine different PGRs on fine turfgrass surfaces. Application rate impacts the amount of suppression while air temperature impacts the duration of suppression. If growth is too high, then try to counter it with a higher PGR rate.
- Use the puffy bentgrass as a way to signal the need to incorporate more sand topdressing into your putting surfaces. When growth is slow, it can be challenging to get a lot of sand into the canopy. Our research suggests roughly 20 cubic feet of sand should be applied per 1000 ft² each year (roughly one ton per 1000 ft²). When coupled with research showing sand topdressing reduces anthracnose and other pathogen activity, summer topdressing is recommended.

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