

SEASHORE PASPALUM GREENS SPEEDS: THE MOISTURE VARIABLE

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R.R. Duncan, PhD Platinum TE[™] Paspalum

Very few golfers and even owners of golf courses understand the implications that persistent periods of wet weather (including sporadic rainfall, high humidity, foggy conditions) have on greens conditions at low mowing heights regardless of any specific temperature (hot or cold) variables that may exist. Maintenance activities to sustain a specified green speed are restricted when wet conditions are prolonged, resulting in a cascading effect on grass appearance, playability, and necessary grass performance maintenance activities.

Wet conditions promote disease, algae, and nutrient availability problems. Cultivation and fertility programs must be altered and this disruption in the application schedules has a direct cumulative effect on overall grass performance and specifically on greens speeds. Recapturing this lost maintenance time is difficult, especially when the wet conditions persist. An additional issue is the increased compaction of the upper soil profile with normal maintenance equipment and golf play that occurs on wet soils.

Maintenance schedules that encompass mowing frequency, height-of-cut, grooming, brushing, sand topdressing, and rolling all directly impact greens speeds. Excessively wet grass will often not cut properly, and scalping can result even when mower heights have not been changed between mowing events. Saturated soil conditions will generally result in soft putting greens surfaces that are prone to mechanical damage, such as scalping. Aggressive implementation of groomers, rollers, and any other cultivation must be avoided to minimize soil compaction problems. Raising height of cut is usually recommended during prolonged wet weather and greens speeds will become slower and slower plus require more time to achieve desired greens speeds.

Regaining the expected greens speeds after these rainy periods is not accomplished over night, and superintendents must conservatively manage the greens surface to keep from losing canopy density. Needle tine cultivation or hydroject applications, while minimally impacting greens surface playability, is often warranted to assist in drying out the greens to the point that proper greens maintenance programs can be re-implemented with the goal of recapturing the expected greens speeds.

Gains in greens speeds will be incremental in inches-per-day, primarily because as the soil profiles dry down, grass regrowth is activated and this regrowth compounds the ball roll/speed problem. Timely applications of gibberellininhibitor plant growth regulators are generally required to minimize the growthspurt-activated slow down in greens speeds. Paspalum will require 1-8 oz/acre applications weekly, depending on site and product concentrations.

Seashore paspalum has an inherently higher internal water content (which causes the plant to retain more water and results in a time-lag phase in which the plant readjusts internal cellular turgor pressure) compared to other warm season grasses. Consequently, emergence from wet weather will always require a certain time frame for the grass to transition from plump (excess internal moisture) cells in the leaves to readjusted normal turgid cells that can potentially result in acceptable greens speeds. This readjustment period does not normally occur quickly and varies by location. The higher the humidity, the slower the readjustment to required greens speeds. Maintaining % potassium for turgor pressure adjustments in the shoot cells is a key management strategy.

Proactive and preventative rotational chemistry and mode-of-action fungicide application programs are usually warranted during these persistently wet environmental conditions in order to minimize disease damage to the greens surface. Careful fertilizer applications must be scheduled and for seashore paspalum, minimal nitrate-N (this nutrient produces puffy cells in leaves when concentrations are higher than required sufficiency levels) and weekly potassium (needed for turgor pressure adjustments) applications are critical for recapturing greens speeds.

Leaf expansion in paspalum occurs with normal fertility applications. If levels of nitrate-N are absorbed and sequestered in leaves above 2.8-3.0% N, these leaves are often larger than normal. When wet conditions prevent regular grooming of these fatter leaves, greens speeds can be reduced below desired required levels. In general, smaller leaves normally occur when applying granular fertilizer products compared to liquid products. But high salinity irrigation water and colder or cooler weather conditions normally dictate more frequent applications of liquid fertilizer products.

One final comment: when wet weather conditions occur during major golf tournaments, the same limitations of what can be done regarding greens maintenance applies and it is evident when greens speeds are reduced due to uncontrollable environmental conditions.

Management options to consider:

- 1. Weekly liquid potassium applications to maintain sufficiency requirements of at least 3% K.
- 2. If rolling the greens can be accomplished, the first roll of the morning will generally impact the moisture barrier just under the canopy and on top of the upper soil profile layer with minimal improvement in greens speed. A second rolling after sunshine exposure and wind movement later in the morning or early afternoon can improve greens speed that can carry over to some degree the next morning.
- **3.** Application of liquid silicates, such as potassium silicate, can improve the stiffness of the shoot blades and help potentially improve greens speed to some degree.
- 4. If light grooming is possible with the wet environment conditions, repositioning the leaf tips vertically followed by light sand topdressing can help improve greens speed to some degree. Platinum TE has a genetically controlled vertical leaf tip orientation that with proper management can be advantageous for sustaining expected greens speeds. The vertical leaf tip orientation results in exposure to less wax-ladened leaf surfaces that can slow down ball roll due to friction issues.
- 5. An air2g2 or solid tining aeration can be used to help dry-down the upper soil profile and hopefully escalate moisture evaporation out of the moistureladened zone. Core aeration or dryject prior to the wet weather period followed by filling the holes with sand can help hold those holes open for a longer period of time and promote better upward moisture evaporation.
- 6. Minimize liquid fertilizer applications, if possible, since leaves tend to be larger compared with leaves that have root-absorbed granular fertilizers.

References

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