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Short CUTT

Gazing in the Grass

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Oddly enough about half the growing season is behind us and another 15 or so weeks lie ahead. The rainfall was the story last week with 3-4+ inches region wide except for some persistent dry areas in Southeastern CT and RI. Baltimore was the big winner (loser) with 10" of rainfall. The rainfall had alleviated the significant drought in much of the northeast where > 90% of the topsoil has been low to very low in moisture. Rainfall has filled the soil profile and now persistent warm weather will lead to additional abiotic stress, especially in those areas with poor drainage. Interestingly, ET remained about three quarters to one inch for the week. This indicates that the moisture demand is present and well drained sand-based systems will likely need some attention due to surface drying. Additionally, weak and damaged root systems from patch diseases may also contribute to counter-intuitive wilting.

Following the rainfall and relief of drought stress, grass areas unable to recover active growth might be permanently dormant–AKA as dead! Chinch bugs are again emerging as a primary issue in unirrigated areas such as low maintenance lawns and high grass areas on golf courses. This is surprising as many of these areas are planted with endophyte infected turfgrass species. Research on the endophyte organisms that associate with turfgrass species has found that there can be significant loss of endophyte viability under less than ideal seed storage conditions. **Most purchased seed does not provide a guaranteed analysis of endophyte infection level and therefore there is reason to suspect that the benefit from endophytes cannot be fully realized if the endophyte is not viable in the seed and does not develop into a viable strain in the leaf sheath.** Studies that have investigated overseeding with endophyte infected seed into existing stands of KBG have found that it is difficult to achieve more than 20% viability in a stand. There is some anecdotal evidence that suggests a stand will be protected from surface feeding insects if only 50% of the plants are infected as often the insects are deterred and immediately seek alternative locations or low feeding leads to increased mortality. Finally, one study found under severe stress conditions endophyte infected plants, often considered to have enhanced stress and disease tolerance, actually died in greater numbers than plants without the endophyte, suggesting the relationship can actually be taxing on a plant.

Look for tell-tale signs of frass (inect ex on stems of damaged plants that will pull easily from the surface. Also, much like scouting for annual bluegrass weevil, soap flushes or floatation will aid in determining extent of chinch bug infestation. In rare cases insecticides are warranted.

Frequently Asked Questions (FAQ):

The persistent heat stress is wreaking havoc on my fine turf areas. I've heard about cytokinins to enhance heat stress tolerance. Does it work?

Many years of research conducted at Virginia Tech University investigated the anti-oxidant characteristics of cytokinin containing compounds notably seaweed-based products and humic acid containing products. The research was able to demonstrate increased root viability and root mass as well as higher chlorophyll levels when turf was heat stressed indicating that anti-oxidants present in these products are stabilizing chlorophyll. Root viability is closely associated with water and nutrient uptake and use efficiency, especially under drought conditions. In addition, active root systems may synthesize more cytokinins. Research indicates that auxin treatments improved root growth and leaf cytokinin content in tall fescue under drought stress. Additional research reported that Primo (trinexepac-ethyl) application increased leaf cytokinin content in creeping bentgrass and Kentucky bluegrass. Primo and auxins applied alone or in combination, may enhance root function under heat and drought stress conditions. Of course these benefits are only realized if the PGR applications are made in accordance with GDD models that measure product metabolism and regulation efficacy. If plants are permitted to "release or rebound" from growth regulation, there could be a depletion of these resources and a decline in performance from over-growth.

Regarding heat and drought stress over the last several years research continues to confirm earlier studies that demonstrate the benefit of seaweed and humic acid products. In fact, specific research indicates the combination of these products seems to provide an additive effect. Interestingly, not only are the cytokinin hormones applied with these products but there seems to be a stimulation of cytokinin and auxin (both growth promoting compounds) production in the plant when these products are applied and through the use of Primo. The benefits of these products on managing heat stress is best attained by using them in the spring as a pre-condition for stress. These products are not meant to replace ideal growing conditions and management to alleviate stress. However, regular and proper use throughout the season on high value putting green and sports turf may be beneficial for managing turf under persistent heat stress conditions.

Walk and Talk in the Adirondacks! Are you next?

Professional development as well as fulfilling requirements for various certification programs makes convenient education important for the progressive turfgrass manager. The Cornell University Turfgrass Program initiated a "Walk and Talk" educational program in Spring 2017 at Glens Falls CC and in Spring 2018 at Mohawk Golf Club. Both were well attended provided the latest information on the challenges turfgrass managers are facing in real-time! This summer the program ventured into the Adirondacks for over 40 attendees that walked around the three courses at the Lake Placid Golf Club. Discussions ensued regarding sand topdressing programs, weed control, managing turf under heat stress (yes it gets hot in the ADK!), and how to align a maintenance program with the golfing public and market to identify sustainable practices and pricing. Ultimately the group lingered for an hour after the program, some stayed and played golf, others kept on with questions. More information about our walk and talk program is available at http://turf.cals.cornell.edu/ and for the next one in Western NY this Fall check in with WNYGCSA at https://www.wnygcsa.org/