

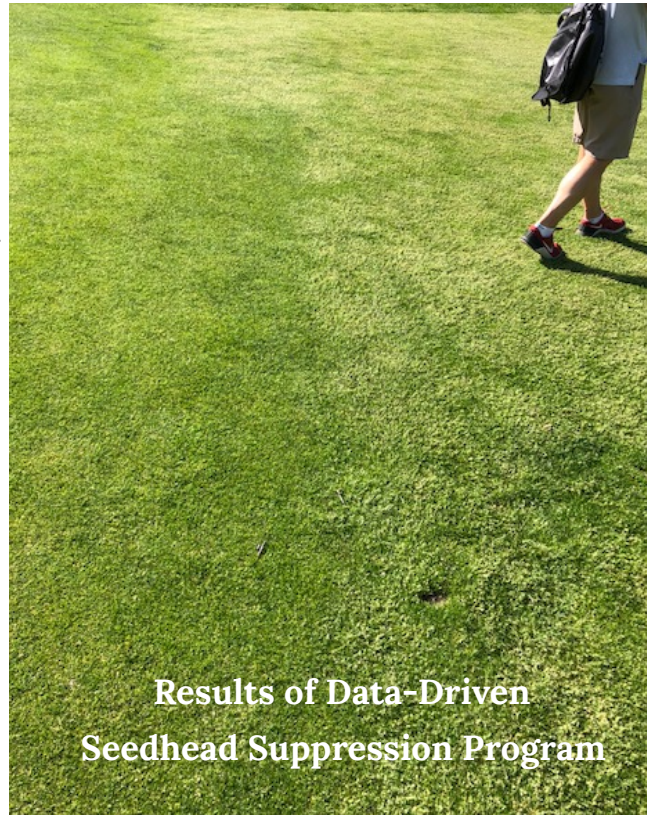
Gazing in the Grass

Frank S. Rossi, Ph.D.

The warm and dry weather began to assert influence over our growing conditions this past week as reports of mowing in earnest are more widespread. The lack of more top growth is likely the result of dry conditions prevalent through most of the Northeast. Surface soil moisture levels are low creating some challenges for weak shallow root systems, especially prevalent on more annual types of annual bluegrass. However, most lawn, sports and other native soil-based turf that is not suffering from compaction is well rooted and more than able to withstand the moisture stress over the last few weeks. Additionally, most well rooted sand based surfaces are firm and fast to start the season. The forecast is calling for a warm and wet week ahead, but the wet will be very isolated in a narrow band centered somewhere between NYC and DC. So for many the dry conditions will likely continue.

The rapid advance of the season in the last week has helped soils warm and landscape plants bloom. The most common form of DATA we use to monitor the advance of the growing season is Growing degree day (GDD) accumulation. For example, last week GDD accumulation doubled from the previous week, yet the season continues to lag 1-2 weeks behind normal. GDD models surged for PGR's and weed control, insect growth stages, and soil borne pathogen activity. Each of these management issues require the use of DATA beyond the calendar date. Find good sources of weather and pest data, including our Cornell Turfgrass FORECAST website @ <http://www.nrcc.cornell.edu/industry/grass/html/> and GDD tracker @ <http://www.gddtracker.net/>. GDD DATA (150 base 50 for dandelion control) plus plant phenological DATA (Forsythia half-green half-gold for ABW), combined with soil temperature (55F @ 2" depth for Patch diseases) and moisture (12 percent on sandy loam soil) DATA are the underpinnings of a DATA-DRIVEN turf management program. The picture of the week is an excellent example of data-driven management using the base 32 GDD model for seeded suppression with Ethephon (AKA Proxy). A data-driven Spring application in conjunction with applications last Autumn are providing excellent results across the Northeast.

The dry soil conditions that are likely to persist for some of the Northeast this week will make the need to irrigate deeply more important than usual if making a soil-drench fungicide application. Effectiveness of these products is ultimately dependent on the depth of soil penetration. Spiking and wetting agents with 0.25 to 0.50" of water will aid this process.



Results of Data-Driven
Seedhead Suppression Program



Frequently Asked Questions (FAQ): *My sales person was discussing Enhanced Efficiency Turfgrass Fertilizers, particularly as it relates to Nitrogen. I'm not sure I understand the value. What are they and what does latest research say?*

Nitrogen fertilizer use is among the most important management decisions required of a turfgrass professional. The source of nitrogen used has implications on color and growth response as well as potential risk of movement downward via leaching, surface runoff, and gaseous losses to the atmosphere. Fertilizer companies have begun to refer to products called enhanced efficiency nitrogen fertilizers that include **slow or stabilized released N**. According to the Association of American Plant Food Control Officials(AAPFCO), *enhanced efficiency fertilizers allow increased uptake of nutrients with reduced potential of gaseous, leaching, or runoff losses when compared to soluble fertilizers such as urea or ammonium sulfate. Stabilized fertilizers* are products amended with additives that reduce the rate of nitrogen loss through ammonia volatilization or nitrification. **Slow release fertilizers release** plant nutrients at a slower rate relative to soluble nitrogen products. Nitrogen-containing **stabilized fertilizers** on the turfgrass market act on two processes: the transformation of urea to ammonia gas (urea hydrolysis), and the conversion of ammonium to nitrate (nitrification). *Urease inhibitors* are added to fertilizers to inhibit urease enzyme activity and slow the conversion from urea to ammonia, thereby reducing volatilization. *Nitrification inhibitors* are designed to specifically target *Nitrosomonas* bacteria, and keep N in more stable ammonium form. Ammonium tends to be stable because it is positively charged and adheres to clay and organic matter. Nitrate is negatively charged, and is more susceptible to leaching during rainy periods and in sandy soils. **Slow release N sources** include products coated with *sulfur (SCU)* or *polymers (PCU)* or urea reacted with formaldehyde to produce *methylene ureas*, as well as *natural organic N*. In each case the source of N is designed to release more slowly than water soluble, however determining if this fertilizer technology is the best value for turf performance and best from an environmental perspective requires further assessment. Current research conducted in WI, IL, and NE does NOT indicate improved turf performance from enhanced efficiency products over straight urea or ammonium sulfate. As far as environmental concerns, keep application rates of soluble N no more than 0.5-0.7 lbs per application, and keep total N rates for season below 2.5-3 lbs unless very high traffic stress is present. Enhanced efficiency fertilizer can have more value where regular applications are burdensome and long release is required.

Data Driven?

Many industries from sports to finance and agriculture, are being transformed by data. There is often resistance to this discussion among turf managers about the need for “data”. I would argue data is already actively in use in turfgrass management programs. Accurate Spring timing of maintenance practices ensures effectiveness. Practices such as Pre and post emergence herbicides, Annual bluegrass seedhead suppression as well as ABW control programs, and early season soil drenched fungicide application for patch diseases are all most effective when implemented at research-based timings that often coincide with the original data source, phenological indicators. Start developing your “data” network for enhanced decision-making using sources such as the GreenKeeperAPP . The best for data-driven driven management decisions. Access sites at: <http://greenkeeperapp.com>.

