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Gazing in the Grass

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Welcome to our 20th season of Cornell Turfgrass ShortCUTT (Cornell University Turfgrass Times) newsletter. Our 20th year demands some recognition for the my wonderful colleagues whose observations inform my weekly musings, so please allow me to thank a few folks.

For 20 years the newsletter has emanated from a weekly conference call. The following professionals have shared their Thursday Mornings from 7:30 to 8:00AM ET (I have been known to be in a few different time zones over the years) with myself and experts from around the world. These colleagues are Cornell Cooperative Extension

county-based faculty Walt Nelson, CCE-Monroe County, David Chinery CCE-Rensselaer County, Jennifer Lerner, CCE-Putnam County, Jerry Giordano CCE-Westchester County, and Marie Camenares CCE-Suffolk County, as well as Joellen Lampman, NYS Community IPM.

We are fortunate to have Regional experts willing to listen to and laugh with this New Yorker once a week; big thanks to Victoria Wallace UConn-Extension, Randy Prostack, UMass Extension Weed Specialist, and Rich Buckley, Director of Diagnostic Services at Rutgers University. We have seen a few colleagues move on or retire over the years including Tom Kowalsick, CCE-Suffolk County, Amy Ivy and Emily Selleck CCE-Essex County, Rick Harper, CCE-Westchester County and others. We have also had the pleasure of adding many new voices and observations over the years and Professor Nick Menchyk at SUNY-Farmingdale is our most recent addition and a keen observer and educator.



The growing season is off to a rather normal start weather-wise, following a rather normal, if not slightly warmer than normal, mostly snow-less winter across the Northeast US.

Root growth has been active in plugs taken from fields and putting surfaces from Central NY to Long Island. As of this writing, soils are firmly in the upper 40's low 50's at the 2" depth as far south as Philadelphia, PA. This is expected to increase this week, as historical soil temperature data indicate that soils will reach 55F by mid-week on Long Island. The expected warm temps and the warm rains associated with showery period this week could lead to quick



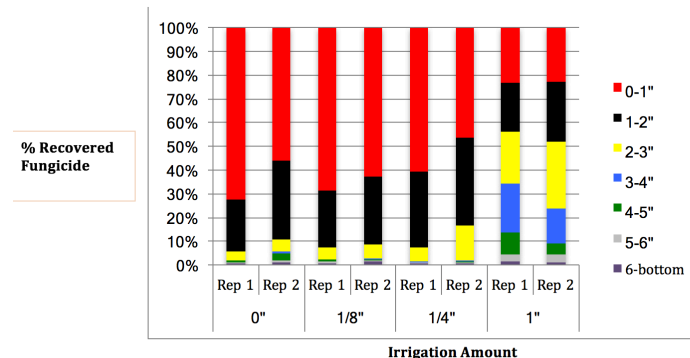
increases. Keep this in mind as you begin to consider soil targeted applications that must penetrate into root zone. ▲

Soil temperature can be considered the gate valve for biological activity in the soil that leads to nutrient release, weed seed germination, insect activity and soil born pathogens. Soil temperature and soil moisture are key data points to correlate growth and development as well as monitoring for pests and making well-timed pesticide applications of the lowest risk products (we use EIQ-what do you use?). In 2019, the Cornell Turfgrass Program will be focusing on data-driven management. The newsletter will highlight data to inform management decisions. This week it is soil borne pathogen management.

Data driven management for **soil borne pathogens** such as summer patch (annual bluegrass, Kentucky bluegrass and now fine fescues shown to be susceptible) and take-all patch (mostly on bentgrasses) MUST include the soil temperature data. The predictive infection model suggests ideal timing of applications should occur when soils are 65F at 2" for five days. Interestingly, ideal growth of the fungi that cause these root infections are synchronized with ideal growth temperatures for cool-season turfgrasses.

Next, these are "drench" applications, that require adequate water be applied to move the fungicide downward into the root zone so it can move upwards in the plant (acropetally in the vascular tissue) and protect the root system. If you do not get the fungicide deep enough the roots BELOW the application are likely to become infected if the area has a history of the diseases.

Again use soil moisture probes and observations to determine the wetting front in the soil and then use that data for water quantity for these types of soil drench applications. To further this point, Professor Jim Kerns from NC State has done some excellent work (see inset image) looking at amount water needed to get fungicides to the proper depth for efficacy. See that reporting at (<https://tinyurl.com/y2fdl5wp>)



Soil borne pathogens (often refereed to ectotrophic root infecting fungi (ERI)) have been particularly troubling pests the last few years with very wet and warm soils allowing for significant infection periods. Following successful colonization of the root system the roots become dysfunctional. Typically, the symptoms will be obvious with the first signs of dry conditions, intense traffic, or other pest predation such as from Annual Bluegrass Weevil. (Speaking of ABW, there are reports of adult activity to the far south of the Northeast Region.)

ERI fungi (summer patch and take all patch) are reduced with the use of acidifying fertilizers such as Ammonium Sulfate (as opposed to the Nitrates that do not lower pH) and is typically more severe on compacted soils that have less root mass. Research from Rutgers University also has found that Manganese or Copper Sulfate applications lead to reductions in the symptoms associated with these pathogens.

Finally, soil management practices that reduce compaction and lead to increased root mass and depth have been shown to reduce ERI fungi. However, recent work from Professor John Ingugiato of UConn demonstrated how *poorly-timed* Spring hollow tine cultivation (this study showed end of May) lead to significant *increases* in summer patch in Kentucky bluegrass. (<https://tinyurl.com/y2b66ms6>). Use data smartly! ▲

