

September 30, 2019

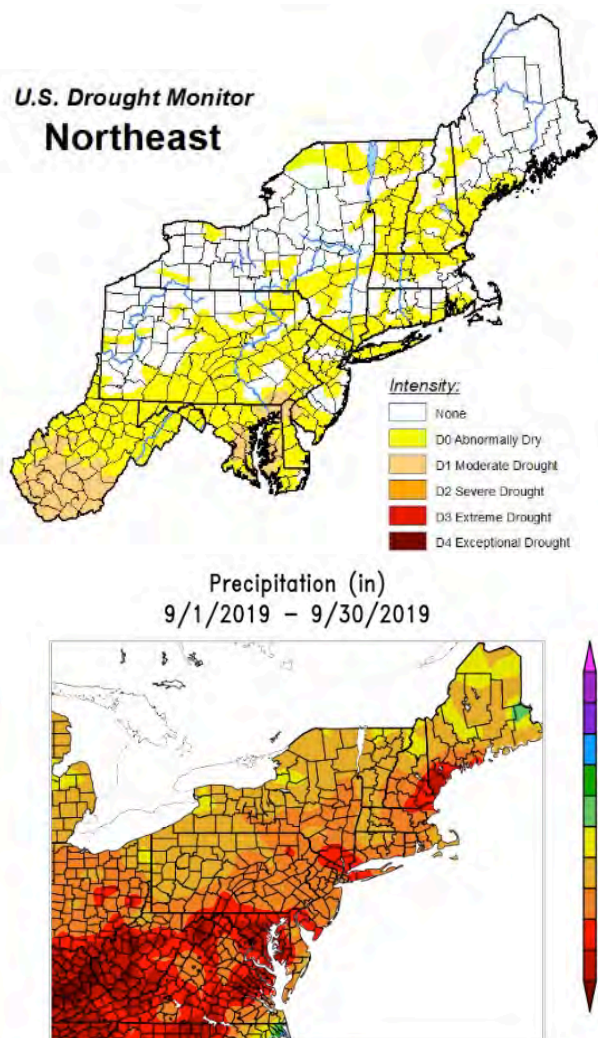
Volume 20:12

Gazing in the Grass

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The start of Autumn in the Northeast has brought a return of summer-like weather with warm days and nights (10 degrees above normal), often with high humidity. Interestingly, it is now about the driest it has been in much of the Northeast in over 14 months. The drought map indicates many areas experiencing early phases of drought. Precipitation amounts are as low as 25% of normal. Topsoil moisture in most Northeast states is lower than the 10 year average at this time, indicating that successful renovation or establishment of turfgrass areas will REQUIRE supplemental water. Ironically, last Autumn the conditions were so wet that it was difficult to accomplish the work needed without causing more damage. This year a good time for soil amendment and drainage is now lacking the typical precipitation for this time of the season, complicating establish of grass from seed or sod. All of the weather data is visible at our Cornell Turfgrass FORECAST website (<http://turf.eas.cornell.edu/app>)

Normally, this time of the season offers excellent growing conditions with long days and cooler evening temperatures that favor cool-season grasses over many of the common weeds found in turfgrass stands. **Good establishment of turf density before Winter is key to preventing Spring weed issues.** Irrigated playing surfaces have a significant advantage at this time of year as the dry weather forces more reliance on effective irrigation practices. Typically new seedlings should not dry at the surface, hence the advent of mulch, straw, etc. to hold soil moisture. This is a critical time for new establishments to get to adequate density prior to the onset of lower temperatures and less favorable growing conditions. This is true for heavily trafficked sports fields that are beginning to visibly thin. Its time to begin an overseeding program with rapid germinating Perennial Ryegrass (PR) or if a Turf Type Tall Fescue stand (TTTF) overseed with TTTF, both at 2-4 lbs per 1000 every few weeks starting now will assist with maintaining density under traffic as growth of mature turf slows during the transition to Winter.



Nitrogen fertilization remains an important topic in managing landscapes from farms to lawns. The application of synthetic fertilizer is implicated as a measurable contributor to climate change and as a risk to water quality. As a result, it requires due diligence in the green industry to maximize the efficient use of fertilizer that meets agronomic/ecosystem benefits without compromising water quality. These two facts can no longer be separated when making supplemental fertilizer decisions. There is no justification that can be made for gratuitous application of fertilizer because a “program” blindly called for a fertilizer application when it is clear growth is adequate and traffic levels are low, or a personal favorite “we’ve always done it that way”. The latter is the current focus of this “gazing”.

For decades Land grant Universities across the Northern US (including this Land Grant Scientist) would recommend applications of N fertilizer be made after top growth has ceased, usually that is when the daily average minimum temperature is 50F for 3-5 days. Typically this would be from early as Halloween in ADK to December on Long Island. This almost always assured good Spring Green-up and sometimes significant clipping production early often requiring increased mowing frequency. *This recommendation is no longer justifiable.*

Professor Karl Guillard with graduate student Salvatore Magnifico of UConn published a study conducted from 2000-2003 titled *Fall Fertilization Timing Effects on Nitrate Leaching and Turfgrass Color and Growth*. In this paper they applied 2 lbs of N per 1000 sq feet over 24 months with the 4 late season treatments providing a third pound of actual N at dates spaced from September to December (temperatures avg. 60F in Sept., 52F in Oct. and 36F in Nov. and 27F in Dec.). The N source was 80% water soluble-N and 20% Water Insoluble N. The leachate that moved past the turfgrass rootzone was collected and reported in the graph above. *In short, the later the N was applied in season the more leached past the root zone posing a risk to ground water quality.* In fact, close inspection of the graph suggests that applying N after Sept. 15 increase overall N mass loss by 50%, essentially wasting N that was paid for, applied and lost. They noted no meaningful differences between color and clipping production related to late season timing. Concluding that the agronomic benefit in Spring was still evident from Sept. applications.

Additional research has been conducted that has shown N uptake in shoots and roots from late season applications decreases as growth slows. (see image). This correlation was further reported in research conducted by Professor Doug Soldat and Marty Petrovic that showed N uptake was reduced as EvapoTranspiration (ET) declined later in the season. This is consistent with the concept that N moves in water via Mass Flow therefore as water movement to the roots slow, so does N uptake.

Consequently, an important Best Management Practice (BMP) at this time of year is to lower late-season N rates, use soluble N sources, and apply while active growth and ET continues. This could be from Mid Sept. in the ADK to late Oct. in SE NY. ▲

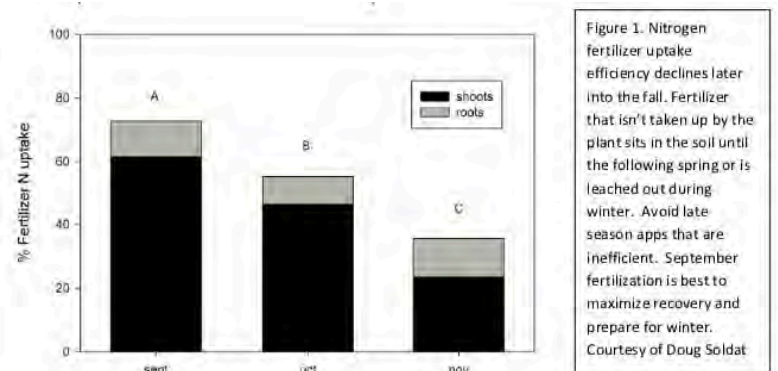
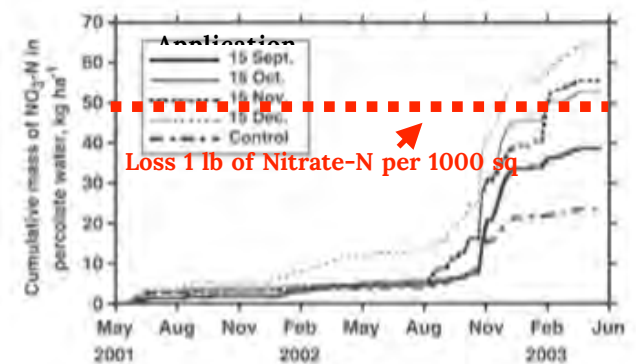


Figure 1. Nitrogen fertilizer uptake efficiency declines later into the fall. Fertilizer that isn't taken up by the plant sits in the soil until the following spring or is leached out during winter. Avoid late season apps that are inefficient. September fertilization is best to maximize recovery and prepare for winter. Courtesy of Doug Soldat

