



Maximize your applied Nitrogen by supplying supporting nutrients using MLSN Soil Guidelines

MLSN stands for Minimum Levels for Sustainable Nutrition. Of thousands of soil samples from turf that were classified as:

- •Not poor performing essentially good looking, quality turfgrass.
- pH between 5.5 and 8.5 (avoids aluminum toxicity below 5.5 and alkalinity hazard above 8.5).
- Total exchange capacity <6 cmol/kg if the turf performed well at certain nutrient levels in low-nutrient-holding soils (sand-based greens, etc.), those same nutrient levels would be sufficient in high-nutrient-holding "heavier" soils (native soils under fairways/roughs).

Only 10% of the soil samples had good turf with concentrations of each nutrient BELOW the following concentrations (in ppm) – 90% of quality turf existed where nutrient levels were AT or ABOVE these guidelines.

- pH....>5.5
- Phosphorus (P ppm)......21
- Magnesium (Mg ppm) 47
- Sulfur as sulfate (S ppm)......7



Applied and/or available Nitrogen controls how much of these nutrients are used by turfgrass (turfgrass takes up K, P, Ca, Mg, and S in known ratios to N uptake)

Nitrogen is applied based on the desired growth and recovery of turf. For instance 4-6 lbs. N/1000/year in golf course rough will create excess growth and maintenance, but 4-6 lbs. N/1000/year, or more in some cases, on other turf like golf course putting greens or highly trafficked athletic fields, can help promote important recovery and disease/stress resistance.

If applied Nitrogen is known, AND how much K, P, Ca, Mg, and S that the applied Nitrogen will require the plant to use from the soil is known, AND the minimum level of each individual nutrient required by 90% of healthy turf is known...

The amount of K, P, Ca, Mg, and S that needs to be applied can be calculated to get the most out of the planned amount of applied N.







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