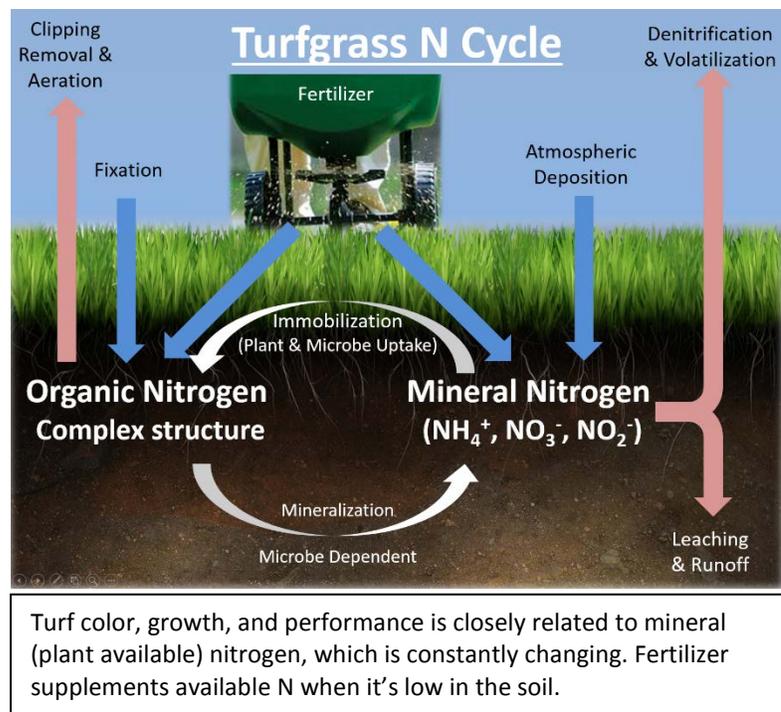


Why does turf need fertilizer?

May 10, 2015

Ever wonder why we need to fertilize our turf? The most obvious answer is to increase turfgrass color, performance, and growth. Turfgrass is extremely responsive to nitrogen fertilizer. Even a small increase can have a big impact on turfgrass color and growth. This is because turfgrass is chronically nitrogen deficient. Even a highly maintained turfgrass area typically receives less than one-third the amount of nitrogen required to maximize clipping production. Research shows that Kentucky bluegrass and creeping bentgrass will increase clipping yield up to 15-20 lbs of N per 1000 ft² annually. Obviously, turfgrass managers aren't fertilizing to maximize growth. I certainly wouldn't want to mow my lawn daily to abide to the 1/3 rule of mowing. Instead, turfgrass is fertilized to maintain acceptable color and uniform performance while supporting enough growth to recover from stresses like traffic or pest damage. So the exact amount of N required will depend on user expectations, soil fertility, and environmental conditions.

The real reason we fertilize turfgrass is to replace nutrients as they become unavailable to the plant. We focus on nitrogen, not because other nutrients are not important, but because N is typically the most limiting nutrient. It is also the most dynamic in the soil system. Other nutrients like potassium and phosphorus can be measured with a simple soil test. A quick soil test interpretation NebGuide can be found [here](#). Soil testing for nitrogen is not as useful because the amount of plant available nitrogen changes very frequently. For example, plant available nitrogen becomes unavailable when it is taken up by microbes or other plants (immobilization). It can become plant available during the process of mineralization, which is greatest during the middle of the summer. A significant amount of nitrogen can also become available during the winter, especially during numerous freeze-thaw cycles in fertile soils. Many lawns are benefiting from this mineralized nitrogen right now and it's tough to keep up with mowing. Bagging clippings is another significant source of N loss from the turf ecosystem. Other processes including denitrification, leaching, or volatilization of fertilizer can also be a source of nitrogen loss. Nitrogen fertilizer is required to replace nitrogen that is lost and ultimately unavailable to the turfgrass.



The dynamic nature of the nitrogen cycle make scheduling the amount and timing of nitrogen applications difficult. Managers can use the responsiveness of turfgrass to nitrogen to their advantage. Discolored or chlorotic turf with limited growth is lacking plant available nitrogen. Application of nitrogen will improve this condition. For Nebraska lawns, this typically occurs in late spring and early fall. The question of how much to apply is also difficult because losses may be great some years and small

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relative to mineralization other years. As a rule, returning clippings can take the place of at least one fertilizer application. Also, well-established turf (older than 15 years old) will require significantly less nitrogen than a new lawn; possibly 50% less or greater. This is because a new lawn will accumulate or immobilize nitrogen while an older lawn will mineralize nitrogen from organic matter.

Scheduling nitrogen fertilizer is difficult. Monitor color and growth to estimate plant available nitrogen and adjust your fertilizer programs accordingly.

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