



TURFGRASS GEEK™

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What is the Nitrogen Cycle? (And Why Should a Golf Course Superintendent Care?)

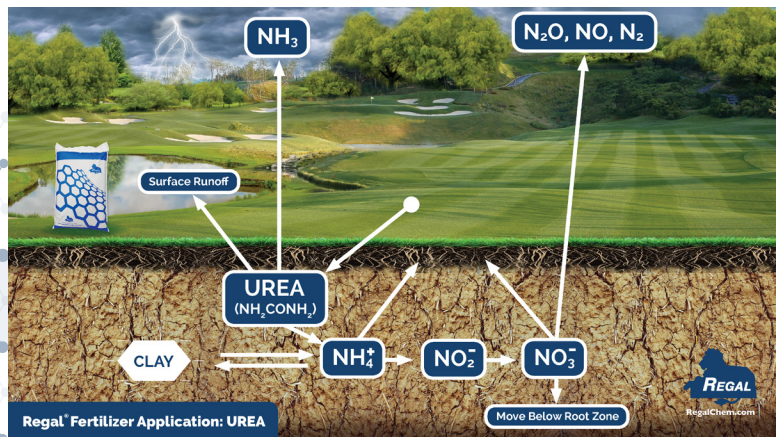
Nitrogen is an odorless, colorless chemical element that forms about 79 percent of the Earth's atmosphere. It plays a crucial part in the life of plants through the Nitrogen Cycle, a process by which nitrogen is converted into multiple chemical forms as it circulates through the environment.

Although it is the most abundant element in the atmosphere, nitrogen cannot benefit grass plants until it is "fixed" or converted into ammonia. A bolt of lightning can fix nitrogen and deliver it to plants through rainfall, but fixation is usually carried out by bacteria found near the roots of plants. As the cycle continues, other bacteria convert the ammonia into nitrates so plants can absorb it and synthesize it into proteins, nucleic acids, and chlorophyll. The last stage of the cycle occurs when microorganisms turn the excess nitrates in the soil into nitrogenous gases, which are released back into the atmosphere.

So why is this relevant to a golf course Superintendent? Because microorganisms are continuously converting nitrogen into its many forms, it is difficult for a standard soil test to provide an accurate status of nitrogen—by far the most critical element for maintaining healthy, thriving turfgrass. Given the dynamic conditions under which nitrogen becomes available for uptake, and the potential leaching of nitrate out of the root zone or moving off-site through water runoff, supplemental nitrogen is usually needed to sustain growth and provide a boost of green. An over-abundance of nitrogen, however, can impede root growth and contaminate groundwater supplies, while a deficit affects vibrancy, density, and plant growth.

With all of these facts and factors affecting nitrogen availability and plant uptake, it is critical to develop a fertilizer program that takes advantage of nitrogen's ability to elicit a dramatic response regarding color and vigor, while also taking into consideration the detrimental effects of misuse, to both the turf and the environment.

Need help to select the correct supplemental liquid or granular nitrogen program for turfgrass color and quality? Talk to your Regal Representative. We're here to help.



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