

# Understanding the Many Forms of Nitrogen

It was just nine years ago that the Lange-Stegmann Co., a family-owned business since 1926, had the opportunity to purchase a technology that improves nitrogen efficiency. This would ultimately be the birth of AGROTAIN International, as well as the start of UMAXX, UFLEXX and HYDREXX Stabilized Nitrogen products.

Over the years, it's not a coincidence that AGROTAIN has come to be known as the nitrogen management experts. Stabilized nitrogen products provide superintendents with maximum nitrogen control, and our people strive to educate superintendents on the benefits of our technology and its ability to improve nitrogen efficiency.



By Mike Stegmann

Every turf professional understands the importance of nitrogen. It influences turf health and quality more than any other nutrient and, for this reason, nitrogen efficiency is a key component of every turf management program and a top concern among turf professionals. But to get at the root of nitrogen efficiency, it's important to understand

the many forms of nitrogen used in today's fertilizers.

Water-soluble nitrogen fertilizers, such as ammonium nitrate, ammonium sulfate and urea, supply a form of nitrogen that's immediately available for the plant to use. Although these options provide a quick-greening, quick-release nitrogen has many drawbacks. It readily leaches, can cause lush growth and has a limited response time. It also has a high potential to burn if applied in hot or dry conditions. For all these reasons, quick release is best for small areas where frequent applications are possible or even desirable, and when used in combination with control products or growth regulators.

The consequences of quick-release nitrogen can be avoided and the benefits of nitrogen prolonged with an enhanced-efficiency fertilizer. While most turf professionals are familiar with fertilizer products commonly referred to as "slow" or "controlled" release, it's important to recognize another category of enhanced-efficiency fertilizer.

In 1994, the Association of American Plant Food Control

Officials (AAPFCO) and The Fertilizer Institute established the Slow Release Fertilizer Task Force. In addition to clarifying the slow-release category, the task force acknowledged a similar but separate category of enhanced-efficiency nitrogen: stabilized nitrogen.

Stabilized nitrogen is a urea product that provides results much like comparable slow-release nitrogen sources. The fertilizer products called slow release are those that release, or convert to a plant-available form at a slower rate than quick-release nitrogen. Stabilized nitrogen is plant available as soon as it's watered in. What the plant can't use is held. In this plant-available form, the potential loss from volatility, denitrification and leaching is minimized.

In essence, stabilized nitrogen products deliver a long-lasting, consistent source of nitrogen to plants regardless of soil temperature or moisture with minimal escape into the air or groundwater. These traits make stabilized nitrogen products the ideal all-weather choice for turf professionals.

Regardless the season, stabilized nitrogen products make predicting the weather — especially cold weather or major swings in rainfall — a thing of the past for turf professionals. Because stabilized nitrogen doesn't rely on microbial activity for nitrogen availability, cold soil temperatures have little effect on its efficiency. The stabilized nitrogen that's applied is available to the plant as soon as watering — either through rainfall or irrigation — takes place. What the plant doesn't immediately use will be held onto the soil colloid as a reserve for future use, ensuring a consistent even feed.

Perhaps, most importantly, given constant budget constraints, the switch to stabilized nitrogen products can also provide superintendents with time, labor and cost savings. ■

*Stegmann is president of Lange-Stegmann Company and AGROTAIN International.*

