

Spring Greens Fertilization

Which nitrogen source should be favoured?



With the coming of another season on the golf course comes the inevitable knocking on the door of eager golfers wanting to get back into the swing of things. It seems like the snow has only just started to melt when the phone starts ringing off the hook in the Pro Shop, all callers with the same question; "When are you going to open?"

Superintendents are busy ensuring that the golf course is clean, green and ready for opening day with optimum turf quality. Many factors challenge turf quality which include biotic or abiotic turf damage and cold soil temperatures which minimize nutrient uptake.

The choice of nitrogen source is critical in promoting quick repair and regrowth of damaged areas or to simply provide a quick "green up" of the turf. The most common sources of readily available nitrogen used in the spring are potassium nitrate, ammonium sulphate and urea. These tend to be the preferred sources when tackling early season fertilization and are found in almost all blends designed for this time of year.

Potassium Nitrate

Early thaws tend to bring up the subject of potassium nitrate. As a raw material, it supplies both nitrogen and potash and is a common component of early spring fertilizer blends. The uptake of nitrate nitrogen is best in well-aerated soils such as sand base greens. Although it provides rapid colour and growth for recovery in spring, the use of potassium nitrate as a straight raw material has some disadvantages that must be considered. A N-to-K ratio of 1:3.5 is very low as a start to the spring and does not fulfill the typical needs of turfgrass at this time of year. Also, being only a source of readily available nitrogen and pure nitrate nitrogen, the risk of leaching is higher. It is important to remember that the benefits of potassium nitrate are best achieved when applied in a blended fertilizer. **Nutrite 29-7-15 Solu-turf** provides a balanced formulation which can be employed in a spoon feeding integrated fertilization approach.

Ammonium Sulphate

Ammonium sulphate supplies nitrogen in an ammoniacal form. This source is easily taken up and used by turf plants and as a positively charged ion it resists leaching by adhering to negatively charged soil particles. This form of nitrogen also tends to give turf a more vivid colour. Ammonium sulphate is an acidifying fertilizer that is useful on high pH soils and can also be particularly useful when used on turf areas that historically have had issues with take-all and summer patch diseases. The available sulphur temporarily creates a slightly acidified rootzone area that is less conducive to the development of these diseases. Take-all Patch disease is more prevalent in alkaline soils ($\text{pH} \geq 7.5$). Pathogen development is significantly suppressed in acidic soils ($\text{pH} \leq 6.0$).

Urea

Urea becomes more available to turf plants when soil temperatures are closer to 10° C. This causes the urease enzyme to break down into plant-available form and become more active. Ammoniacal nitrogen is the first breakdown product of urea which is further reduced to nitrate nitrogen. The use of UMAXX® stabilized nitrogen helps keep the urea nitrogen in the ammoniacal form longer, making it more efficient by increasing uptake and reducing losses to the environment.

Which nitrogen source should be favoured?

When following a **Best Management Practices** approach to spring fertilization, it is necessary for managers to first determine the reason for fertilizing. There are quite different approaches for colour enhancement versus recovery. If colour enhancement is the intended result, large amounts of readily available nitrogen should be avoided as promoting top growth at this time of year will be done at the expense of the root system. To this end, it may be better from a root growth perspective to make nitrogen applications at lower rates with greater frequency and achieve enhanced colour with the iron component from **Get Green soluble fertilizer**.

Should winter injury and thin turf necessitate a regimen of readily available nitrogen be used, soil temperatures should dictate the source, application rates and intervals. In cooler soils, potassium nitrate and ammonium sulphate would be the most available source, but also have the greatest risk of leaching and volatilization. Urea would be better in terms of efficiency but, not available as early. The best strategy would be to use products that combine these sources at low rates (0.10 – 0.20 lb N/1,000 ft²), applied most efficiently in a sprayed form and at short intervals. Nutrite recommends **29-7-15** and **15-2-6 Soluble Nutri-Spray products**. Following this method, plant nutrient uptake is maximized for better spring recovery and green-up.

Following **Best Management Practices** for early spring fertilization is relatively easy if you take into account all of the factors involved in the availability of plant nutrients and the best way to apply them. The **BMP** will assist in providing a clean, green playing surface while taking into account environmental stewardship.