

# Turf Fertilization: A Basic Review



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Stick to these suggestions and you won't go wrong

Mowing, watering and fertilizing are the three big cultural practices when it comes to providing clients with acceptable turfgrass. There's just no getting away from them.



Light applications of fast-release nitrogen can be helpful in suppressing stem rust and improving turfgrass color and health.

PHOTOS BY JOHN C. FECH, UNL.

Discussion of turf fertility should always include what's needed and what's not. Millions of dollars are spent every year on unneeded fertilizer applications, and when compared with ornamentals in the landscape, turfgrass is considered to be a "fertilizer hog." Generally, medium to high-maintenance turf requires about three times more nitrogen than shrubs, perennials and ground covers.

Turfgrass requires 17 elements to reach its peak color and vigor. For the sake of simplicity, you can separate them into four groups, at least in terms of relative amounts required. The first are the essential elements of carbon, hydrogen and oxygen. They're followed by nitrogen, phosphorous and potassium, the N-P-K that most of us are so familiar with. Next comes secondary nutrients, which include sulfur, magnesium and calcium. Finally, iron, zinc, manganese, copper, boron, molybdenum, chlorine and nickel are considered microelements. They're required in very small amounts by turf plants.

Keep in mind that even though turf requires small quantities of microelements, they're necessary and can become unavailable due to excessive calcium or hydrogen ions in the soil. When these extremes are present, low or high pH conditions are created, essentially binding certain nutrients to soil particles, taking them out of the soil solution and rendering them unavailable to plants. One of the most common problems associated with these

extremes is high pH soils that tie up iron, resulting in iron deficiency and yellow turf.

## **Foo foo dust**

Wherever there is a need for products or services, there will be unscrupulous merchandisers eager to make a fast buck. The turf industry is no exception. There are many reasons why turf products with no or limited value are sold, including a lack of understanding of what is and isn't necessary for healthy growth. Some products have earned the nickname "foo foo dust" because it's difficult to determine what benefit, if any, their active ingredients provide turfgrass plants.

In other cases, growth stimulants or conditioners are misnamed as fertilizer products. These materials may be of significant benefit to turf, but are not fertilizers. Plant growth regulators, organic matter agents and biostimulants fall into this category.

Turfgrass fertilization is, to a certain extent, regional. In general, soils in the eastern United States are acid in nature and benefit from periodic applications of lime, but in the Midwest and parts of the West, soils tend to be basic. Applications of lime to these soils are neutral at best, and can be harmful if large quantities are applied. Gypsum is another product that is commonly misapplied due to regional differences in soil characteristics. A commonly advertised benefit of gypsum is that it will deflocculate, or "loosen," compacted clay soils. This claim has not been demonstrated, except in the case of soils that do not drain well because of saline-sodic conditions.

## **Quick versus slow**

Quite often, we're asked the question, "What kind of fertilizer should I apply, quick or slow-release?" In most cases, the answer is "both."

Each fertilizer source has inherent qualities that impact turfgrass. Two of the most important are salt index and residual. Generally, the quick-release products – urea, ammonium nitrate and ammonium sulfate – are short-lived and have the potential to burn the turf because of a high salt index. The slow-release products – IBDU, sulfur-coated urea, urea formaldehyde, methylene urea, feather meal, bonemeal and kelp extracts – are available for use by turf plants for a longer period of time and have lower burn potential. Of course, you get what you pay for as slow-release fertilizers are generally more expensive than fast-release products because they are more costly to produce.

Quick-release products are best suited when fast greening is desirable, such as early spring for sports turf managers or (in small quantities) when turf is suffering from stem rust or snow mold and needs a shot of nitrogen to recover. They also have value for impressing hard-to-please lawn care customers.

Slow-release products are becoming increasingly popular because they deliver

nutrients over an extended period of time, which decreases the likelihood of the development of foliar diseases due to overstimulation and rapid leaf growth. Remember, the faster you get the grass to grow, the more often you have to mow it.

In order to reap the benefits of both, combination products are often recommended. These contain a fraction of fast-release nitrogen for customer happiness and a fraction of slow-release fertilizer for the long-term health of the turf. Regardless of which you apply – fast, slow or a combination of both – the soil must be able to absorb the nutrients. Compacted or frozen soils greatly limit the infiltration and absorption of fertilizers. Applying fertilizer on frozen ground is a bad practice because it can run off with rain or melting snow and pollute nearby ponds, lakes, streams or rivers.

## **Be careful out there**

Due to worries over phosphorous movement into public water supplies, several states have adopted legislation that severely restricts or forbids application of phosphorous containing fertilizers to turf, unless soil testing indicates that the soil is deficient in phosphorus. Because of these concerns, soil testing is becoming increasingly important and may be required by local and state governing bodies. Become familiar with all fertilizer application legislation in your area.



Sweep up fertilizer that lands on impervious surfaces. You don't want it running off and ending up in nearby streams or lakes.

While this trend has caused angst for some turf managers, it actually fits in nicely with the notion of applying only what is lacking. Yes, there are soils deficient in phosphorus, but it's not as common as previously thought. However, when turf plants have underdeveloped root systems, such as during establishment or recovery from root diseases, not being able to apply phosphorous is a limitation. Generally, most states or regions that have banned the use of phosphorus fertilizers nevertheless allow their use in establishing turfgrass. Stay current on "fertilizer laws" in your area.

Whatever you put on a lawn can end up in a water supply. Make sure you sweep or blow fertilizer from impervious surfaces such as sidewalks and driveways. This is one of the reasons that slow-release products are worth the cost; they have a lower leaching potential. They're still just as prone to causing damage to the water supply by washing into the street and storm sewer as fast-release products, but when applied correctly they cause less water pollution.

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