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From Scientific Staff of the
International Plant Nutrition Institute (IPNI)
3500 Parkway Lane, Suite 550
Norcross, Georgia 30092-2806 USA
Phone: 770-447-0335 Fax: 770-448-0439
E-mail: info@ipni.net Website: www.ipni.net

Spring 2009, No. 7

FERTILIZER INPUTS FOR TURF

Turfgrasses have many benefits that can be separated into: 1) functional, 2) aesthetic, and 3) recreational components. Among the functional benefits are soil erosion control, dust stabilization, enhanced groundwater recharge and surface water quality, heat dissipation and temperature moderation, sequestration of CO_2, and several others. Aesthetic benefits of lawns and other turfgrass areas result in a positive therapeutic impact that improves mental health and productivity, contributes to social harmony and stability, and generally improves quality of life, especially in densely populated areas. Turfgrasses also provide a relatively low-cost, safe recreational surface that reduces injuries when compared to non-turf areas. Additionally, the upkeep and maintenance of home lawns provide exercise and a diversion beneficial to mental health. Considering the general benefits of turfgrass, it is apparent that the preservation and maintenance of these areas, including home lawns, is an important objective.

A good fertility program is among the most important factors affecting turf quality. Proper fertilization is often the most cost-effective means of achieving attractive and functional turf. It involves applying the appropriate type and amount of fertilizer at the right time, and must be combined with proper mowing, watering, and pest management for the best results.

Each nutrient plays a specific role in turfgrass growth, development, and reaction to stresses from diseases and other pests. Consequently, specific responses to needed fertilizer application are commonly observed. For example, turfgrass response to N fertilizer is very common and is usually expressed in improved color (darker green, more chlorophyll), density, root growth, stress tolerance, and recuperative potential. Turfgrass response to P fertilizer is often expressed as in improved root growth and branching, drought tolerance, water use efficiency, and seedling establishment. Adequate K fertility is associated with increased disease resistance, increased cold and heat tolerance, and improved overall ability to endure and recover from stressful conditions. Although these nutrient response comments are general and limited, they illustrate that proper nutrition can greatly impact turf quality and performance. It should also be noted that over-fertilization is possible and can have undesirable consequences to turf and the environment.

Among the factors that affect best fertilizer management practices for turf are:

- **Objectives and purpose of the turf area.** The more intensive the use the more intensive will be the management requirements.
- **Grass species.** The turfgrass species that is most appropriate will be determined mainly by the location. Nutrient requirements vary widely among turf species.
- **Soil environment.** Sandy soils are usually more infertile and require more intensive nutrient management than loamy or clayey soils. Soil testing should be used to help guide turf fertilization decisions.
- **Water and irrigation, clipping management, lawn age, and shade are also considerations in determining the need for fertilizer inputs.**

Some municipalities have taken a minimalistic approach to urban turf fertilization by implementing serious restrictions and even all-out bands on the use of P fertilizers on turf in an attempt to reduce nutrient runoff. Ironically, in some cases this can have the opposite of the intended effect. Turf health can be diminished by input reduction, sometimes resulting in an increase rather than a reduction in runoff losses.

Complete and balanced fertilization of turfgrass is important in maintaining the functional, aesthetic, and recreational value of turf. IPNI has recently released a new publication on turf fertilization and BMPs. The publication is available for viewing at the BMP section of the IPNI website: >**www.ipni.net/bmp**<.

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Dr. W.M. (Mike) Stewart, Southern and Central Great Plains Director, IPNI, 2423 Rogers Key, San Antonio, TX 78258. Phone: (210) 764-1588. E-mail: mstewart@ipni.net.

Abbreviations in this article: CO_2 =carbon dioxide; N = nitrogen; P = phosphorus; K = potassium.