IFAS Publication SL21

Organic vs Inorganic Fertilizers

There is much confusion over whether to use organic or inorganic fertilizers on turfgrasses. Both types have advantages and disadvantages; however, the type of fertilizer makes no difference to the turfgrass. Grasses absorb N as nitrate- or ammoniacal-N. Organic N is not used directly by the plant but must first be converted to one of the above chemical forms by soil microorganisms before being taken up by the plant.

The advantages and disadvantages of organic or chemical fertilizers relate to the consumer, not the turfgrass. Inorganic N fertilizers have advantages and disadvantages as listed in Table 2.

Table 2. Advantages and disadvantages of inorganic nitrogen fertilizer sources.

Inorganic Nitrogen Sources	
Advantages	**Disadvantages**
Readily available N	Leach readily
Low cost per pound of N	Danger of fertilizer burn
Easily controlled N levels	High salinity potential
Little problem of residual N	Must be applied frequently at low rates

Organic N fertilizers also have advantages and disadvantages that are listed in Table 3. Select a N source after considering the pros and cons of the various forms. A mixture of the two will most likely result in the best response.

Table 3. Advantages and disadvantages of organic nitrogen fertilizer sources.

Organic Nitrogen Sources	
Advantages	**Disadvantages**
Slow-release of N	May be very expensive per pound of N
Less subject to leaching loss	Not released at adequate rate during cool season
Small danger of turfgrass burn	Application response may be slow
May be applied infrequently at high rates	May contain weed seeds that contaminate turfgrass

Supplemental Iron Application

Many times turfgrasses, such as Centipedegrass, Bahiagrass and St. Augustinegrass, turn yellow during the summer due to lack of N fertilizer. However, fertilization with N in summer is not always desirable since this often encourages disease and insect problems. Many times the addition of iron (Fe) to these grasses provides the desirable dark green color, but does not stimulate excessive grass growth which follows N fertilization. Usually, iron sulfate (2 ounces per 3 to 5 gallons of water per 1000 square feet) or a chelated iron source are used to provide this greening effect. The effect from supplemental iron application is only temporary (approximately 2 to 4 weeks), therefore, repeat applications are necessary for summer-long color.

Precautions

All soluble fertilizers may burn the turfgrass if improperly applied. To avoid burn, never apply fertilizer at greater than the recommended rate of 0.5 pounds of soluble N per 1000 square foot per application or 1 pound of N when a 50/50 combination of soluble and slow-release N is applied. If only slow-release N materials are used up to 3 pounds of N can be applied in a single application. Apply P and K only when required based on a recent soil test and do not exceed the recommended rate of application, especially for P. Always apply fertilizers when the turfgrass leaves are *dry* and water throughly after application. Apply enough water to dissolve the fertilizer and move it below the surface. This can generally be accomplished by applying between 1/4 and 1/2 inch of water through the irrigation system which can usually be accomplished by running a typical turfgrass irrigation system for 15 to 20 minutes. Excess irrigation may leach the soluble N source below the root zone so great care should be taken not water too little or too much.