

Turfgrass

Plantings of turfgrass for athletic fields and other recreational activities are widespread in Arizona. Unlike other “crops” which are harvested and sold, turfgrass derives its value from its visual appearance and durability. Many interrelated management practices such as timely irrigation, pest and disease control, use of proper mowing and aeration techniques and sound fertilization practices are all necessary to grow high quality turf that can recuperate quickly under heavy use.

The fertilizer recommendations in this guide are for high quality bermudagrass turf. Rates may need to be adjusted for different levels of management and turf quality or if other turfgrass varieties are grown. With good management, a total of about 3.5 to 5.5 lbs. of N per 1000 square feet per year (150 to 250 lbs. per acre per year) are required for high quality bermudagrass turf.

• New plantings

Lawns, golf course fairways and athletic fields are generally intended as permanent installations. Proper seedbed preparation and amendment applications are essential if optimum responses to N fertilization are to be realized. A soil test before stand establishment can be useful in determining the suitability of a particular site for turf, as well as indicate the need for nitrogen during the establishment year.

Nitrogen should not normally be applied to newly seeded, sprigged or sodded areas. An application of 1/3 to 1/2 lb. N per 1000 square feet can be

uniformly incorporated into the seedbed if the preplant soil test level for NO₃-N is below 5 ppm. Nitrogen applied to newly seeded stands may burn the tender young seedlings and encourage the growth of competing weeds.

After the grass has been mowed for the first time, apply up to 1 lb. N per 1000 square feet per month during the growing season. Acceptable growth may be achieved at lower N rates. In general, use the lowest N rate that gives adequate appearance and durability, as higher N rates usually require more mowing and maintenance.

• Established plantings

On established stands, the first application of N should be made as the grass begins vigorous growth in the spring. The last application should be in September or October prior to dormancy. Application rates should be about 1 lb. of N per 1000 square feet every 4 to 6 weeks, decreasing to 1/4 to 1/2 lb. N in early September. Applying excessive levels of N will usually require more mowing and maintenance and can hasten thatch buildup and increase susceptibility to disease. Soils containing 80% or more sand will require more frequent, lighter applications of N.

Municipal sewage effluent is increasingly being used to irrigate many turf plantings. In many cases effluents contain appreciable amounts of nitrogen which should be considered when formulating a nitrogen fertilizer program. A periodic test for total nitrogen content in the effluent is recommended.

Table 50.
Quantities of various nitrogen fertilizers which contain one pound of actual N.

Fertilizer Name	Fertilizer Analysis % N-P ₂ O ₅ -K ₂ O	Weight Containing 1 lb. of Actual N lbs.
Ammonium sulfate	21-0-0	4.8
Ammonium nitrate	33.5-0-0	3.0
Calcium nitrate	15.5-0-0	6.5
Urea	46-0-0	2.1
Ammonium phosphate sulfate	16-20-0	6.2
10-6-6 Blend	10-6-6	10.0
Solution urea ammonium nitrate	32-0-0	3.1 (or 2.3 pints)

- **Importance of forms of N**

All sources of N are similar in their effectiveness if equivalent amounts of actual N are applied (Table 50).

A variety of slow-release N fertilizers may also be used on turf areas to supply N over extended periods. The convenience of using these materials rather than conventional water-soluble products must be considered in light of their higher unit cost and the unpredictability of their nitrogen release characteristics. To be effective, slow release N fertilizers should release available N at about the same rate as N is needed by the growing turf. A brief listing and description of the more common types of slow-release N fertilizers is given in Table 14 in Section II.

If manure is used, it should be applied in the fall or early spring and supplemented with other N sources during the growing season.

- **Methods of application**

Nitrogen fertilizers should be applied *uniformly* to turf areas. Application patterns with overlap or skips will give an uneven appearance. Use a well calibrated ground applicator or inject N into the irrigation water. This injection is best accomplished when using a well designed sprinkler system with uniform coverage. Solutions of ammonium nitrate, calcium nitrate, urea or ammonium sulfate are suitable for injection into pressurized sprinkler systems. Anhydrous ammonia or aqua ammonia should not be used in sprinkler or drip systems. An application of soluble N fertilizer should always be followed immediately with a thorough irrigation to rinse nutrients off the leaves to reduce the risk of foliar burning and reduce the potential for ammonia volatilization losses. Excess watering can promote N deficiency in turf by leaching soluble N below the root zone.

- **Nutrient removal**

A well fertilized bermudagrass turf will produce 3 to 5 tons of clippings per acre per year, containing about 175 to 275 lbs. N.