Fertilization of High-Traffic Bermudagrass Athletic Fields

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Fertilization is one way to promote rapid recovery of worn turf areas. Nitrogen (N) is the key element for turfgrass growth. Nitrogen promotes rapid recovery of wear damaged turfgrass plants, but excessive N levels within the turf result in soft, succulent turf more prone to tearing. High N also favors shoot growth at the expense of root growth.

Calculating Fertilizer Nutrient Application Rates

The "formula" listed on the fertilizer bags give the percentage of the major nutrients contained in that bag., For example, in the bag of 19-26-5 starter fertilizer, 19 percent of the weight of the fertilizer is nitrogen (N); 26 percent of the weight of the fertilizer is phosphorous (P); and 5 percent of the weight of the fertilizer is potaaium (K) (or compounds containing these nutrients)

To determine the actual amount of each nutrient in the bag of fertilizer, multiply the weight of the bag by the percentage of that nutrient in decimal form.

To determine the actual nitrogen content in a 100 pound bag of 19-26-5 starter fertilizer:
100 (pounds) x .19 (percentage of Nitrogen) = 19 actual pounds of Nitrogen*

To determine how many pounds of a specific fertilizer are required to reach a specific amount of one nutrient, divide the percentage of that nutrient (in decimal form) as contained in the bag into the desired number of pounds of that nutrient.

For example, in the 19-26-5 starter fertilizer, to determine how much fertilizer is needed to reach a desired rate of 1 pound of Nitrogen: 1 divided by .19 = 5.26 pounds.

Therefore, 5.26 pounds of fertilizer must be applied to the designated area (in this case 1,000 square feet) to supply 1 pound of Nitrogen.

** When nutrients are present in compounds, the % of actual nutrient within the compound must be calculated.*

The amount of N you should apply also depends on the soil type and on weather conditions. In Florida, it is not unusual to use 7 to 10 pounds of N per 1000 square feet annually on native soil bermudagrass, depending on location in Florida and overseeding. This is due to Florida's sandy soils and long growing season. In more northern areas that have heavier soils (more silt and clay) and a shorter growing season, field managers should use appreciably less fertilizer. Regardless of location, the maximum N rate per application should not exceed 1 pound of N per 1000 square feet. The most effective way to promote recovery of worn turf areas is to use fertilizers with quick-release N sources. Apply them at low rates (0.25 to 0.5 pounds N per 1000 square feet) every 2 to 4 weeks during the most active period of growth. If you have areas of extremely high wear (e.g., between the hash marks, goal mouths, just outside base paths), treat these areas separately. Spot treating worn areas also does not put as great a strain on your fertilizer budget.

Apply fertilizer containing other nutrients based on soil tests. Do not apply phosphorous fertilizer if it is not suggested by the soil tests recommendations since phosphorus levels are often sufficient in soils. Potassium (K) may be applied at rates up to those used for N, even though lower rates are often adequate. Potassium probably increases traffic tolerance indirectly by increasing turfgrass tolerance to physiological stresses caused by the environment, such as drought.

Bermudagrass football and soccer fields receive heavy use in the late fall and early spring, when turf growth is minimal. To encourage turf recuperation during these periods, fertilize worn areas a little later in the fall and a little earlier in the spring than less-trafficked areas. Remember to use lower rates since the turf is not as efficient at utilizing the applied nutrients. If the bermudagrass field is overseeded with a cool-season grass such as annual or perennial ryegrass, apply 0.2 to 0.3 pounds N per 1000 square feet every 2 to 3 weeks to maintain density and color. Cool-season grass such as the ryegrasses do not need as much fertilizer during their growing season as

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bermudagrass. No fertility program can prevent turf loss in areas subjected to excessively high traffic, so reseeding or resodding some areas will occasionally be necessary.

The important point to understand is that all fields have limitations. Field use schedules should be made before the "season" in order to protect fields from over-use that could damage a field. Reasonable use, combined with good cultural practices, will help ensure playable safe fields all year.

Time s Running Out!

October 15th is the deadline for mailing Field of the Year materials, Founders Award nominations and SAFE Scholarship information.

Re-check your criterion - make sure you have everything you need - and get it in the mail!

Don t miss your chance!

For questions/additional information, please contact STMA Headquarters.