

Industrial Lawns and Athletic Fields - Maintenance - Bluegrass/Fescue Mixes

Management Highlights

- Target pH: 6.5
- Apply 2-4 lbs N/1000 square feet per growing season. Apply at least 2/3 of application in the fall.
- Applications of quickly available sources of N should be limited to 1 lb N/1000 square feet per application to avoid turf damage.

Introduction

Nitrogen management is the most important aspect of fertilizing large turf plantings such as industrial lawns and athletic fields. Management practices must be modified as necessary according to weather conditions, cutting schedule, and intensity of use. The following recommendations are aimed at maintaining optimum pH, P, K, Ca and Mg levels in the soil. Nitrogen recommendations are based on research and commonly accepted practices.

Soil pH and Liming

The target pH for industrial lawns and athletic fields on Delaware soils is 6.5. The lime recommendation for a specific site is calculated from the soil pH and buffer pH measurements using the steps outlined in *Calculating the Lime Requirement -- Chapter 4, Section 4.4*. Avoid overliming in order to prevent deficiency of micronutrients such as iron. Apply a maximum of 50 lbs lime/ 1000 square feet or 1 ton/ac per application. If the lime recommendation is greater than 50 lbs, split the rate into two or more treatments and apply several months apart until the full amount has been applied.

In most cases, the lime requirement can be met by either calcitic or dolomitic limestone.

Dolomitic limestone is recommended if:

- soil test Mg is less than 50 FIVs, or
- soil test Mg is between 50 and 100 FIVs *and less than soil test Ca*.

Calcitic limestone is recommended if:

- soil test Mg is greater than 100 FIVs, or
- soil test Mg is between 50 and 100 FIVs *and greater than soil test Ca*.

Nitrogen Management

The recommended nitrogen (N) rate for industrial lawns and athletic fields varies with use and management. For *industrial lawns or athletic fields* where low maintenance is desirable, a rate of **2 lbs N/1000 square feet** or **80 lbs N/ac** is recommended per growing season. For *athletic fields* where high maintenance is planned, a N rate of **4 lbs N/1000 square feet** or **160 lbs N/ac** per growing season is recommended.

Fall is the preferred time for N application to bluegrass/fescue mixes of turfgrass. A single application can be made if a slow-release fertilizer material containing at least 35% of the total N as water-insoluble N is used. If water-soluble sources N are to be used, make several applications of 1 lb N/1000 square feet or 40 lbs N/ac one month apart (e.g., September 1, October 1 and November 1) until the entire rate has been applied. If necessary, a small amount (e.g., less than 1 lb N/1000 square feet or 40 lbs N/ac) can be applied in the spring, but only if needed to maintain color and vigor. *No N should be applied after April 15.*

CAUTION: *Be careful when using quickly available sources of N. To avoid turf damage, never exceed 1 lb N/1000 square feet or 40 lbs N/ac in a single application.*

Phosphorus Management

Phosphorus (P) deficiency is rarely a concern on Delaware soils. Long-term applications of fertilizers and manures have resulted in P accumulations on many soils which are capable of supplying plant needs for several years with no further additions.

To determine whether P fertilization is necessary for a specific site, conduct a routine soil test. University of Delaware P recommendations for industrial lawns and athletic fields are dependent upon the soil test P value. A summary of P recommendations is given in Table 1 below. Phosphorus fertilizers can be applied at any time of the year unless the source also contains N, in which case the timing and method of application should be based upon management of N.

Table 1. Phosphorus fertilizer recommendations for industrial lawns and athletic fields.

P Index Value										
0	10	20	30	40	50	60	70	80	90	
----- lbs P ₂ O ₅ / 1000 square feet -----										
6	5.75	5.5	4	3.5	3	2.5	2	1.5	1	
----- lbs P ₂ O ₅ / ac -----										
240	230	220	160	140	120	100	80	60	40	

Potassium Management

The need for potassium (K) fertilization is best determined by a routine soil test. University of Delaware K recommendations for industrial lawns and athletic fields are based upon the soil test K value. A summary of those K recommendations is given in Table 2 below.

Potassium fertilizers are best applied in fall, winter or spring. If the source contains N, the timing and method of application should be based upon appropriate management of N. Muriate of potash (KCl), a commonly used source of K, is soluble and can result in some burning of the turf if applied under hot, dry conditions. Avoid summer applications.

Table 2. Potassium fertilizer recommendations for industrial lawns and athletic fields and tees.

K Index Value										
0	10	20	30	40	50	60	70	80	90	
----- lbs K ₂ O / 1000 square feet -----										
6	5.75	5.5	4	3.5	3	2.5	2	1.5	1	
----- lbs K ₂ O / ac -----										
240	230	220	160	140	120	100	80	60	40	

Calcium and Magnesium Management

Calcium (Ca) and magnesium (Mg) needs of industrial lawns and athletic fields are usually met through routine liming. *Magnesium application is recommended if the soil test Mg value is less than 38 FIVs.* If liming has been recommended, use dolomitic limestone to raise soil pH and increase soil Mg. If, however, liming is not necessary but Mg fertilization is still indicated, apply soluble Mg as Mg sulfate or Mg chloride to increase soil Mg. Appropriate application rates are given below in Table 3.

Table 3. Application rates for soluble Mg as a function of Mg fertility index value.

Mg Index Value									
0	5	10	15	20	25	30	35	40	
----- lbs soluble Mg / ac -----									
80	70	60	50	50	30	20	10	0	

Other Nutrients

No other nutrients are known to be limiting to industrial lawns and athletic fields in Delaware.

Additional Information

See Soil Test Notes 1 and 9 (Appendix APP-7) for additional information about nutrient management of industrial lawns and athletic fields.