

Lawn and Athletic Field Establishment

Management Highlights

- Target pH: Home lawns: 6.0
Industrial lawns and athletic fields: 6.5
- Apply lime prior to seeding (in the fall, when possible August 15 - November 1).
- Apply 0.5 lb N/1000 square feet and P and K as recommended prior to seeding.
- Three to four weeks after germination apply 1 lb N/1000 square feet.
- Next season (either following spring or fall depending upon grass type) switch to an appropriate lawn maintenance program. See the appropriate lawn maintenance recommendations or Soil Test Note 9 (Bluegrass-Fescue-Ryegrass Lawns) or Soil Test Note 10 (Bermudagrass-Zoysiagrass Lawns) for additional information. Maintenance recommendations for industrial lawns and athletic fields can be found in *Section 4B: Golf Courses, Industrial Lawns and Athletic Fields*.

Introduction

Site preparation is one of the most important steps in successfully establishing a lawn. Correcting existing problems with soil pH, soil test P and soil test K are much easier to accomplish prior to seeding or installing sod than after grass is actively growing and helps to ensure the vigor of the plants. Once the lawn or athletic field has been established, follow one of the maintenance programs outlined in the appropriate recommendation section to ensure continued success.

Soil pH and Liming

The target pH for *home lawns* on Delaware soils is **6.0**. For industrial lawns and athletic fields, a target pH of **6.5** is recommended to counteract the soil acidification that may accompany the higher rates of nitrogen fertilization used in those situations. The lime recommendation for a particular 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 encourage good plant growth and prevent deficiency of micronutrients such as iron.

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*.

Lime is best applied several months prior to establishing the lawn or athletic field so that there is sufficient time for pH adjustment to occur. Thorough incorporation of the lime into the soil will improve that effectiveness of the application.

When applying lime to an area with actively growing plants, do not spread more than 50 lbs lime per 1000 square feet at a time or plant injury may occur. If more than 50 lbs/1000 square feet has been recommended, make two or more treatments of 40-50 lbs each several months apart until the full rate has been applied.

Nutrient Recommendations

Nutrient recommendations for lawn establishment are designed to correct any existing problems in the soil and establish an optimum level of fertility. Recommendations are based on the nutrient requirements of the turf grass and the soil test values for P and K. To determine the nutrient recommendation for a specific site, select the **P-K Index Value** from Table 1 using the soil test P and soil test K values shown on the Soil Test Report Form. Next, using that index value, select the appropriate nutrient recommendation from Table 2, below. All recommendations include two applications of N: a small application of ½ lb N/1000 square feet applied just prior to seeding and a second application of 1 lb N/1000 square feet three to four weeks after germination. Next growing season, switch to an appropriate lawn maintenance program.

Installing Sod

When installing sod, the same site preparation is crucial. Follow the recommendations outlined below but substitute the phrase *prior to laying sod* for *prior to seeding*. Likewise, the second application of N should be made three to four weeks after the sod has been laid rather than after germination.

Table 1. P-K Index value as a function of soil test P and soil test K.

Soil Test K (FIVs)	Soil Test P (FIV)s			
	1 - 25	26 - 50	51 - 100	101 - 150
1 - 25	1	2	3	4
26 - 50	5	6	7	8
51 - 100	9	10	11	12
101 - 150	13	14	15	16

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Table 2. Nutrient recommendations for lawn establishment as a function of the P-K index value.

PK Index Value	Nutrient Recommendation
1,2	<p>Apply 16 lbs 0-25-25 <i>or</i> 8 lbs triple super phosphate (0-46-0) <i>and</i> 7 lbs muriate of potash (0-0-60) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
3,4	<p>Apply 2 lbs triple super phosphate (0-46-0) <i>and</i> 7 lbs muriate of potash (0-0-46) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
5,6	<p>Apply 12 lbs 0-25-25 <i>or</i> 6 lbs triple super phosphate (0-46-0) <i>and</i> 5 lbs muriate of potash (0-0-60) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
7,8	<p>Apply 2 lbs triple super phosphate (0-46-0) <i>and</i> 5 lbs muriate of potash (0-0-60) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>

PK Index Value	Nutrient Recommendation
9,10	<p>Apply 6 lbs triple super phosphate (0-46-0) <i>and</i> 2 lbs muriate of potash (0-0-60) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
11,12	<p>Apply 8 lbs 0-25-25 <i>or</i> 4 lbs triple super phosphate (0-46-0) <i>and</i> 2 lbs muriate of potash (0-0-60) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
13,14	<p>Apply 8 lbs triple super phosphate (0-46-0) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
15	<p>Apply 2 lbs triple super phosphate (0-46-0) per 1000 square feet and incorporate by spading, plowing or rototilling.</p> <p>Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>
16	<p>Soil test P and K are adequate. Just prior to seeding, apply and rake in 10 lbs 5-10-10 (or equivalent water-soluble fertilizer) <i>or</i> 1.5 lb ammonium nitrate (34-0-0) or 1 lb urea (46-0-0) per 1000 square feet.</p> <p>Three to four weeks after germination, apply 1 lb N per 1000 square feet. Next season, switch to an appropriate lawn maintenance program.</p>

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Additional Information

See Soil Test Notes 1, 9 and 10 (Appendix APP-7) and Extension Bulletin #155: *Successful Lawn Management* for additional information about lawn establishment