

## Fertilizer Overview

### New Lawns

It's best to submit a soil sample for testing when establishing a new lawn to determine how much lime and fertilizer should be added to your soil. This is especially important if you are planting centipedegrass. It prefers acidic soils and low levels of phosphorus and may not require the addition of lime and phosphorus.

**Fertilize before planting.** Apply fertilizer and lime when the soil is prepared based on these guidelines:

*If you obtained a soil test:* Apply the amount of lime and fertilizer recommended for your soil by the soil testing laboratory. For additional information about interpreting a soil test, visit this Web site: <http://www.ncagr.com/agronomi/uyrst.htm>.

*If you did not obtain a soil test:* Follow these recommendations for all grasses except centipedegrass.

1. Apply 75 pounds of ground limestone per 1,000 sq ft.
2. Apply a starter type fertilizer (one that is high in phosphorus) based on the type of grass and the planting method. Fertilizer bags have a three-number system indicating the primary nutrients, such as 8-8-8 or 5-10-10. These numbers denote the N-P-K ratio—the percentage of each nutrient in a fertilizer. The percentages are always noted in the following order:

N	Nitrogen for green color and growth.
P <sub>2</sub> O <sub>5</sub>	Phosphorus for good establishment and rooting.
K <sub>2</sub> O	Potassium to enhance pest and environmental stress tolerance.

Some common examples of starter type fertilizers required for a 1,000 sq ft area include 40 pounds of 5-10-10, 20 pounds of 10-20-20, or 16 pounds of 18-24-6. For sandy soils, typical to the coastal plain and sandhills of North Carolina, fertilizer rates should be increased by 20 percent.

**Fertilize after planting.** Apply fertilizers uniformly and with care using a centrifugal (rotary) or drop-type spreader. Apply half the fertilizer in one direction and the other half moving at right angles to the first pass to ensure thorough and uniform coverage.

*For seeded lawns:* Fertilize the new seedlings approximately six to eight weeks after emergence. For more specific maintenance information on your grass type, refer to the NC State TurfFiles [Maintenance Calendars](#). Use a complete N-P-K turf-grade fertilizer that provides about 1 pound

of nitrogen per 1,000 sq ft or the amount recommended on your soil test. The fertilizer should have a 3-1-2 or 4-1-2 analysis (for example, 12-4-8 or 16-4-8), and one-fourth to one-half of the nitrogen should be a slow-release form.

*For vegetatively planted warm-season grasses:* Fertilize throughout the first growing season to encourage faster spread. Every three to four weeks during the growing season, add 0.5 to 1 pound of nitrogen per 1,000 sq ft until the plants have completely covered the desired lawn area.

*To help reduce turf loss:* Avoid high nitrogen fertilization of cool-season grasses in the late spring or summer and of warm-season grasses in the fall or winter.

### **Established Lawns**

A soil test should be made at least every two to three years to determine the amounts of lime, phosphorus, and potassium needed by your established lawn. A complete fertilizer with an N-P-K ratio of 4:1:2 or 4:1:3 can be used in lieu of a soil test, but it is a poor substitute.

Determine the amount of fertilizer, ratio of nutrients or fertilizer elements, and time of application based on the grasses being grown. See [Carolina Lawns](#), Table 6a, b, or c, depending on your region (pages 18 and 19), to determine the amount of nitrogen fertilizer to apply and the time of application.

**Cool season grasses.** Avoid any nitrogen fertilization of cool-season grasses, such as tall fescue, after the February application until September for the central piedmont.

If one additional application of nitrogen is made between these dates to improve the color, the rate should not exceed 0.5 pound of nitrogen per 1,000 square feet. This nitrogen should be applied in the central piedmont no later than April 15 (two weeks earlier in the coastal plain and two weeks later in the mountains). This application will not improve the longevity of tall fescue but will enhance its green color.

The application of high rates or repeated low rates of nitrogen to cool-season grasses in the spring or summer greatly increases the severity of brown patch (*Rhizoctonia* species), which can kill the grass and should be avoided. If spring or summer nitrogen applications, or both, are applied to tall fescue, fungicide applications may be necessary to reduce disease symptoms.

**Warm-season grasses.** Avoid fall or winter applications of nitrogen to reduce winter injury.

**Lime.** Most soils in North Carolina are acidic and often require the application of lime to sweeten the soil. For most turfgrasses, except centipedegrass, soil pH should be between 6.5 and 7.0 for optimum nutrient availability. Centipedegrass requires more acidic soil with a pH close to 5.5. Lime may be put on any time during the year. Winter is usually best, however, because there

is less traffic. Gentle winter rains minimize runoff, and alternate freezing and thawing help incorporate lime into the soil.

Fertilizers and lime should be applied uniformly with a centrifugal (rotary) or drop-type spreader. Apply half the fertilizer in one direction and the other half moving at right angles to the first pass to ensure uniform coverage.

If higher nitrogen fertilization is applied, there may be a greater occurrence of diseases.

### **How to Determine Fertilizer Requirements**

*To apply 1 pound of nitrogen per 1,000 sq ft:*

Divide 100 by the first number on the fertilizer bag to determine the amount of product to be used per 1,000 sq ft.

Example: A 16-4-8 fertilizer. 100 divided by 16 equals 6.25. Therefore, 6.25 pounds of fertilizer per 1,000 square feet will deliver 1 pound of nitrogen.

*To apply 0.5 pound of nitrogen per 1,000 sq ft:*

Divide 50 by the first number on the fertilizer bag to determine the amount of product to be used per 1,000 sq ft.

Example: A 10-10-10 fertilizer. 50 divided by 10 equals 5. Therefore, 5 pounds of fertilizer per 1,000 sq ft will deliver 0.5 pound of nitrogen.

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