



## — Soil Fertility Note 8 — A Homeowner's Guide to Fertilizer

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N.C. Department of Agriculture and Consumer Services

Web site: [www.ncagr.gov/agronomi](http://www.ncagr.gov/agronomi)

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### Understanding the Fertilizer Label

All fertilizer labels have three, prominently displayed, bold numbers (Figure 1). These numbers indicate the percentage by weight of nitrogen (N), available phosphate ( $P_2O_5$ ) and soluble potash ( $K_2O$ ), in that order. This designation, known as the fertilizer grade, is a national standard.

A bag of 10-10-10 fertilizer contains 10 percent nitrogen, 10 percent phosphate and 10 percent potash. The three components of the fertilizer grade are referred to as the primary nutrients (N-P-K). The percentage of each element displayed on the label is guaranteed by a statement of analysis.

Fertilizer grades are made by mixing two or more nutrient sources together to form a blend, hence the term "mixed fertilizers." Blends contain particles of

more than one color. Manufacturers produce various grades, often depending on the target crop.

Single element fertilizer sources are also available for each primary nutrient. Nitrogen sources include ammonium nitrate (34-0-0), urea nitrogen (46-0-0), sodium nitrate (16-0-0) and liquid nitrogen (30-0-0). Phosphate is provided as 0-46-0 and potash as 0-0-60 or 0-0-50.

### Calculating Nutrient Content

To calculate the pounds of nitrogen in a 50-lb bag of 10-10-10 fertilizer, multiply 50 by 0.10. Use the same procedure for calculating the amounts of phosphate and potash. A 50-lb bag of 10-10-10 contains a total of 15 lb of nutrients: 5 lb nitrogen, 5 lb phosphate and 5 lb potash. The remaining weight is filler, usually sand or granular limestone.

### Selecting a Fertilizer Grade

The most reliable way to select an appropriate fertilizer grade is to have your soil tested. The soil test report will recommend a fertilizer grade appropriate for the intended crop. The report is accompanied by a management note that provide guidelines for supplementing nitrogen for lawn and garden crops.

Typical grades recommended for lawns and gardens include 5-10-5, 5-10-10, 10-10-10, 8-0-24 and 6-6-18. When phosphorus and potassium levels are high in the soil, only nitrogen is recommended, usually at a rate of 1 lb/1000 ft<sup>2</sup>.

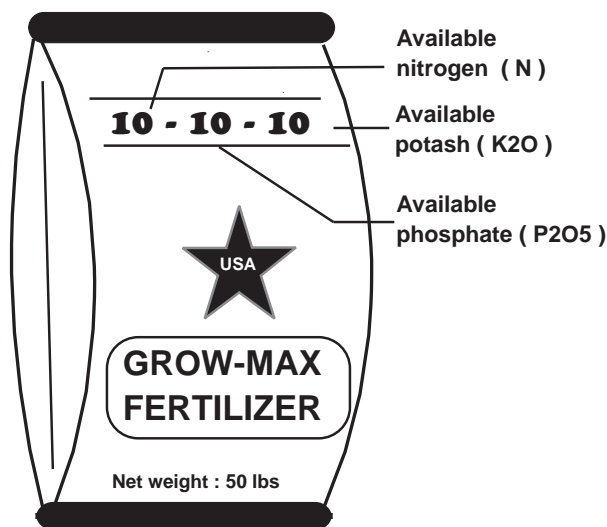
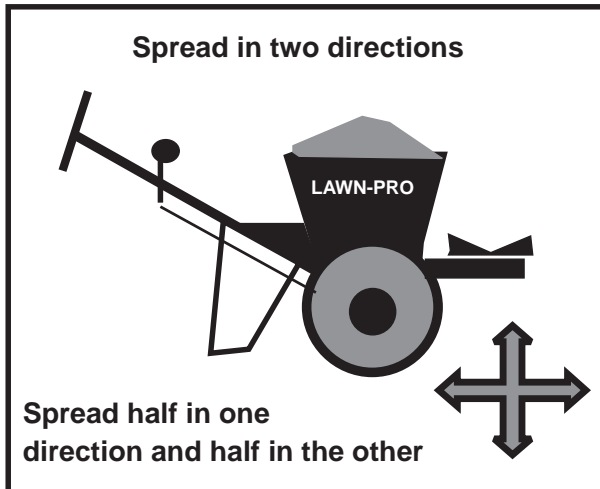


Figure 1. A typical label on a fertilizer bag.



**Figure 2. Fertilizer and lime spread pattern.**

## **Spreading Fertilizer**

To ensure uniform lawn color and growth, spread fertilizer evenly. Cyclone spreaders generally provide the best results. Make sure spread patterns overlap. Apply half the material in one direction and the remainder in the opposite direction (Figure 2). Break up fertilizer clumps to facilitate even flow through the spreader.

If you have questions regarding which grade of fertilizer to use or its rate of application, contact your local agricultural advisor or the Agronomic Division in Raleigh.

**Questions or comments should be directed to the Soil Testing Section of the NCDA&CS Agronomic Division. Information on soil testing, nematode assay, and plant/waste/solution/media analyses is also available from the Division.**

**Steve Troxler, Commissioner of Agriculture**