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Lawn Fertilization

Fertility of the home lawn is one of those mystical subjects that has been pondered, discussed, argued about, and misunderstood since (speaking from a suburban point of view) the dawn of time. The mystery can be solved by applying a few simple principles that will take the guesswork out of fertilization and provide for a healthier and more resilient stand of turf.

Why is Fertilizer Important?

Most complete fertilizers are made up of nitrogen, phosphorous, and potassium. Nitrogen (N) is necessary for shoot growth, phosphorous (P) for root growth, and potassium (K) for thick plant cell walls and cuticle, which is the outer "skin" of the grass.

When you purchase fertilizer, three numbers appear in sequence on the bag, e.g., 10-10-10. These numbers give the relative percentages of N-P-K in the fertilizer mix. Nitrogen will always represent the first number, phosphorous the second, and potassium the third. Nitrogen and potassium are usually present in the greatest quantities in fertilizer products because they leach out of soil quickly.

Over fertilization can be as, or more dangerous, to the health of the lawn as too little fertilization. Just as overeating can cause serious health problems in humans, overdoing nitrogen applications, or applying fertilizer at the wrong times, will likewise affect the grass by stimulating lush growth at inappropriate times. This growth leads to thin cuticles, thatch build-up and succulent growth which are very inviting to disease and insects.

Too little fertilizer will also lead to disease and insect problems by decreasing resistance to opportunistic pathogens and insects and by reducing turf vigor and resilience to heavy use. So, how do we apply fertilizer that is "just right?"

Correct Fertilization and Soil pH are Dependent on Each Other

The pH of the soil is critical to determining how many nutrients are available to the grass. The optimum pH range for soil supporting the growth of turfgrass is between 6.2 and 6.8. The pH is like a bank teller who decides how much a plant can withdraw from its nutrient "account," which also happens to depend on other deposits in this "bank."

Soil pH affects and is influenced by the composition of the soil, the microbes living in the soil, and the climate. A low pH, for example, indicating acidic soil, will tie phosphorous to other soil elements so that it is unavailable for roots.

Aluminum, iron, copper and manganese may become toxic at low pH levels since there is little phosphorous for them to bind with. Microorganisms are inhibited at low pH which means that complex nitrogen will not be converted by them to simple nitrogen for plant use. Potassium leaches quickly at low pH. Calcium and magnesium may also be deficient at low pH; these elements are critical for production of plant food reserves, and help maintain pH in a neutral soil. Even the soil structure is affected by low pH: silt and clay do not cling together in acid soils causing slow water penetration and reduced fine turf growth. Adverse effects are also seen in soil fertility when the pH is too high.

Therefore, prior to fertilization in the spring, a soil test to determine pH is critical. Without one, even the proper amount of fertilizer applied at the correct time may not satisfy the needs of the turf. A complete soil nutrient analysis should be performed and then repeated every 5-6 years. *(see Home Grounds Fact Sheet A-1-0 soil testing)*

When to Fertilize and How Much?

Lawns should be fertilized 2 to possibly 3 times a year depending on grass type and desired results. The optimum times to fertilize a lawn are late May (around Memorial Day) and early September (around Labor Day). Apply one (1) pound of actual nitrogen per thousand square feet per application for a total of two (2) pounds of actual nitrogen per thousand square feet per year. You will sometimes see the recommendation written as 1#N/1000sq.ft./application. Use a slow or controlled release fertilizer. Early spring applications at full rate are not usually recommended as this can result in excessive shoot growth at the expense of root growth.

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