



## Home Lawn Fertilization

Well-managed lawns are pleasing to look at, increase property values, and provide recreation space. Proper fertilizer practices aids in reaching these goals. Such lawns provide substantial environmental benefits such as reducing soil erosion, increasing water infiltration, and decreasing storm water runoff. Other "green" benefits include carbon capturing and cooling of the local environment. Just like people, lawns need a balanced diet, too. If you fertilize them too much, too little or the wrong kind of fertilizer, they are less healthy. With lawns, when you fertilize is critical, too. (Fall is better than spring.)

As a part of a comprehensive maintenance strategy, lawn fertilization may minimize pesticide applications used in controlling weeds and other pest problems. The following information derives from current research regarding lawn fertilization.

A soil test will tell you how much (if any) phosphorus (P) and potassium (K) fertilizer your lawn requires. Contact Cornell Cooperative Extension for more information. If tests indicate that no P or K is needed, use nitrogen fertilizer sources that contain little or no P and K.

### Fertilizer Timing and rates

Fertilization based on recommendations resulting from a soil nutrient analysis. This test measures the nutrients present and suggests fertilization with those that are deficient.

**Focus on fall.** If phosphorus and potassium levels are adequate in the soil, nitrogen (N) is the most important nutrient for grass growth. Understanding how grass grows is important when making decisions about how much and when to apply nitrogen fertilizer.

For most low-maintenance lawns, a single application in fall from Mid September to Mid October is sufficient. Apply 1 pound of nitrogen per 1,000 square feet. (1 lb. N/1,000 ft.<sup>2</sup>). Use a fertilizer that is about 70 percent slow-release nitrogen.

For higher maintenance lawns, similar applications can be made around Labor Day and/or Memorial Day. Avoid early-spring applications. Research shows that these applications do not really enhance spring green-up compared with late-fall applications. (Neglected lawns or sods thinned by winterkill may benefit from .5 lb. N/1,000 ft.<sup>2</sup> after the soil has thawed and drained but before the grass greens up.) At least 50 to 75 percent of the nitrogen applied to any lawn should come between the months of August and November.

Fertilizing healthy lawn in spring just increases top growth (and mowing chores) at the expense of root growth. This lush, succulent growth encouraged by spring fertilization makes the plant more susceptible to insects and diseases. Plants with smaller roots are also more vulnerable to drought later in the season.

Lawns that did not receive fall fertilizer applications or have suffered from winter injury may benefit from spring nitrogen applications. But wait until soil temperatures have warmed to at least 55 F before applying.

**Water it in.** Water your lawn with a quarter to a half inch after spreading fertilizer to get the material into the ground where it can be used by plants.

**Consider the source.** Most synthetic lawn fertilizers contain at least 40% slow-release nitrogen. Slow-release N becomes available to the plant over a period of time depending on soil moisture, temperature and microbial activity. The balance of the N is water soluble nitrogen, which is readily available for plant uptake.

In addition to supplying N over a longer period of time, slow-release nitrogen sources have a lower risk of burning plants and a lower potential to pollute water than water-soluble N sources. The tradeoff is that slow-release N is usually more expensive.

Natural organic fertilizers supply nitrogen in complex organic forms that are not immediately available to plants. They require warm, moist soils for microbial activity to release N. Natural organic fertilizers are well-suited for applications during warm summer months when the potential for burning plants with high-salt synthetic fertilizers is higher.

Lawns grown on mostly sandy soils should rely more on slow-release nitrogen to reduce the possibility of N leaching out of the root zone. Research shows that on most soils with some silt and clay, nitrogen leaching from lawns is a rare.

**Consider different needs.** High-traffic areas usually require more fertilizer than low-traffic areas. Different species of grass have different needs, too. Kentucky bluegrass, for example, requires more nitrogen than fine leaf fescues, perennial rye or turf-type tall fescue.

If bluegrass doesn't get enough N, it is less competitive against weeds and pests. If fine leaf fescues (which normally grow slowly) get too much N, they produce lush, weak growth that is susceptible to pests.

**Apply with care.** The whole idea is to get the right amount on the lawn and none in our streams and lakes. Rotary spreaders cover a wide swath. But they also hurl fertilizer into streets and driveways where the next rain carries it into our waterways. A drop spreader may take a little longer, but it puts the fertilizer exactly where you want it. Use care loading spreaders. Sweep up spills before they become a pollution problem.

Nitrogen is the nutrient, needed in the greatest quantity. It is the first number in a fertilizer analysis which gives the ratio of nitrogen:phosphorous:potassium (N:P:K). Adequate nitrogen is necessary for vigorous growth and for a rich green color. Sources of nitrogen are highly variable. Some are quickly available and provide a quick response in color and growth. Others become available slowly (called slow release). Generally, it is best that about 70% slow release nitrogen. Returning clippings provides a portion of the nitrogen budget for lawns.

Mature lawns (those over 10 years) are likely naturally recycling nutrients and may not require additional fertilizer applications. A soil test aids in this determination.

The nutrient needed in the second greatest quantity is potassium. Adequate potassium is present in many soils. Too often, this nutrient is neglected because it does not give an immediate response like the green-up after applying nitrogen. It is, however, just as critical. This essential nutrient promotes turf tolerance to environmental stress, like drought and winter desiccation, and is very important in enhancing disease resistance. The most common source is potash. Fall potassium applications increase incidence of snow mold the following spring and also promotes dandelion growth.

The third macro nutrient found in most lawn fertilizers is phosphorous. It is the middle number in the fertilizer analysis (N:P:K). While established turf requires more of this nutrient, there are generally adequate amounts in most soils. This fact and the turf plant's efficiency in absorbing phosphorous from the soil minimize the need for adding more through fertilization. Without a soil test report indicating the need for phosphorus, none maybe applied.

The NYS Dishwater Detergent and Nutrient Runoff Law, fertilizer provision became effective January 1, 2012. These provisions include:

- Use of phosphorus-containing fertilizers on lawns is restricted. Use of products with 0.67 or lower is not restricted; products with a number higher than 0.67 may be used only if a new lawn is being established or if a soil test indicates that it is necessary. (Contact Cornell Cooperative Extension for soil testing information.)
- Application of any fertilizer on lawns is prohibited between December 1<sup>st</sup> and April 1<sup>st</sup>.
- Application of any fertilizer on lawns within 20 feet of a water body is restricted.
- Retailers must display phosphorus-containing lawn fertilizers separately from phosphorus-free lawn fertilizers. They must also post signs notifying customers of the terms of the law.

Generally, lawns need only nitrogen fertilizer. Grass clipping naturally contains phosphorus and potassium that is recycled when returning clippings to the lawn, instead of collecting them. Returning clippings provides as much as 30% of the nitrogen budget annually and help the environment.