

Quick- and Slow-Release Nitrogen Fertilizer: What's the Difference?

Fertilizers are applied to turfgrass lawns to provide supplemental nutrients that will help produce a reasonable amount of top growth, but not at the expense of root growth or carbohydrate storage. A good root system is the key factor to a healthy lawn.

The three main supplemental nutrients that compose a complete fertilizer are nitrogen (N), phosphorus (P) and potassium (K). There are two types of nitrogen fertilizers: slow-release and quick-release. It is important to know the pros and cons of both.

Quick-Release

Quick-release nitrogen fertilizers are useful because the nutrients are immediately available to the plants, and stimulate quick shoot growth and greening. Water-soluble nitrogen becomes available when it is dissolved in water, either through irrigation or rainfall.

However, quick-release fertilizers rapidly deteriorate from the soil through the leaching of nitrates. They last just two to four weeks and, if over applied, they can cause burning to the grass plant.

Slow-Release

There are several benefits of slow-release nitrogen fertilizers. They provide more uniform grass growth, and are less likely to burn the lawn or other plants. They can last six to eight weeks or longer so they do not need to be applied as frequently as fertilizers with quick-release nitrogen.

On the downside, nutrients are not immediately available to plants. They are generally more expensive per pound than quick-release fertilizers and may not work as well in cold soil.

They require heavier irrigation during periods of high temperatures and too much irrigation may speed-up the release of nutrients.

There are two types of slow-release fertilizers.

Organic Fertilizer

The first type is organic fertilizer. These fertilizers are made up of organic materials that must first be broken down by microbial activity before nutrients are available to the plants.

Thus, the nitrogen they contain is water-insoluble nitrogen. In general, organic fertilizers take a long time to release nutrients and these nutrients may not be available when the plant needs them. For organic fertilizers to be effective, the soil needs to be moist and warm enough to promote soil organism activity.

Slowly-Soluble or Coated Fertilizer

The other types of slow-release fertilizers are those that are slowly-soluble or coated. Slowly-soluble fertilizers and coated fertilizers (typically in pellet form) depend on soil moisture and temperature to release nutrients.

Although coated fertilizers may not be listed with water-insoluble nitrogen on the product label, they are slow-release. The entire nutrient content may be included within the fertilizer particle, providing slow-release (controlled release) for the entire



product. Nutrients are released over time, some lasting up to 12 months, so fewer applications are needed. They provide good color without excessive leaf growth, but nutrients may not be available when the plant needs them.

Most turf experts recommend that a lawn fertilizer have at least one-half of its nitrogen in one of the slow-release forms. Fertilizer application rates should be as low as possible, but will still produce a high quality lawn.

As with all fertilizer and control products, labels should be read, understood and followed explicitly.