

# The Dirt on Soil Amendments

Your customers are going to be looking for recommendations — here are the basics on soil amendments and fertilizer.

**N**ow that summer is here and the gardening season is in full swing, your customers will start asking about fertilizers and soil amendments to grow their best gardens. In order to suggest to them the right soil amendment, they should first have their soil tested — either from take home soil test kits you offer, or by sending samples to your local Extension office.

Here are some basic terms your staff should know when discussing soil amendments and fertilizer.

## Soil Amendments

Soil amendments modify the soil structure as they decompose, allowing it to absorb and retain water and nutrients more efficiently. Soil-borne insects, worms, fungi and other organisms help decompose organic material, but require energy from available nitrogen in the soil to do so. For this reason, the soil must often be augmented with nitrogen when undecomposed (not composted) organic amendments are applied. Many products classified as natural organic fertilizers are also organic soil amendments.

Organic soil amendments include hay, straw, peat moss, leaf mold and sawdust. Gypsum is an example of a nonorganic amendment added to soil to improve water infiltration on high-sodium soils.

## Fertilizer

Synthetic fertilizers are chemically manufactured materials containing one or more of the primary nutrients necessary for plant growth: nitrogen, phosphorus and potassium.

Natural organic fertilizers are derived from either plant or animal products containing a significant quantity of one or more of the primary nutrients necessary for plant growth: nitrogen, phosphorus and potassium. Nutrient content must be labeled on the package. Most natural organic fertilizers also provide significant quantities of organic matter, so they can also be classified as soil amendments.

Natural organic fertilizers include manures, sewage sludge and bone meal.

## Quick-Release Fertilizers

Quick-release fertilizers, also known as “fast-acting” fertilizers, are water-soluble chemicals that once applied are readily available to the plant. If properly applied, plants green up quickly.

However, if too much is applied, quick-release fertilizers have a tendency to burn turf. These materials are easily leached with rain or over-irrigation and require frequent application. They are the least expensive fertilizers and are always synthetic products.

Quick-release fertilizers include ammonium nitrate, ammonium sulfate, calcium nitrate and urea.

## Slow-Release Fertilizers

Slow-release fertilizers, sometimes called water-insoluble types, release nitrogen over time. They are often applied at higher rates and less frequently than quick-release formulas. The initial response of turf is slower than quick-release types but these materials continue to provide nutrients over a period of eight to 10 weeks or more. They will not burn the turf even if applied at high rates and are not prone to leaching. These products are a little more expensive and include certain synthetic fertilizer products and all-natural organic fertilizers.

Slow-release fertilizers include sulfur-coated urea, urea formaldehyde, isobutylidene diurea (IBDU) and organic fertilizers.

## Slow Release-Quick Release Mixtures

Some fertilizers are formulated with both water-insoluble (slow-release) and water-soluble (quick-release) nitrogen. Plants green up quickly and continue to receive nutrients over a period of time. For the most effective product, at least one-fourth of the nitrogen should be in the water-insoluble, or slow-release, form. 🌱

**Source: Agriculture and Natural Resources, University of California**