

Soil and Soil Amendments Guide

Learn about different soil types and the amendments you can add to improve the structure, drainage and moisture retention of your soil.

Types of Soil

There are three primary types of soil, determined by the amount of clay, silt or sand particles present.

- **Clay soil** contains a high percentage of clay and silt. The particles are small and cling together, holding water and nutrients well. However, clay soil is susceptible to compaction, which can make it difficult for the moisture and nutrients to reach plant roots and for roots to penetrate the soil. You can identify clay soil by its stick, slippery feel and its tendency to cling to garden tools.
- **Sandy soil** is composed of larger, coarser particles. It drains quickly, but it isn't effective at holding moisture and nutrients. This type of soil feels rough and doesn't hold together well.
- **Loam** has a good balance of clay, silt, sand and organic material. It's the best type of soil for gardening, providing drainage and retention of moisture and nutrients. Loam holds its shape when you squeeze it lightly and is easier to dig than other types.

The soil in your landscape will likely not be ideal initially, but soil amendments can help improve it, allowing your plants to thrive.

Soil Amendments

Soil amendments improve the physical nature of soil. They reduce compaction, aerating the soil to allow water and nutrients to more easily move through it and reach plant roots. Some soil amendments also add nutrients to the soil and help retain moisture.

Common organic soil amendments are listed below:

- **Sphagnum peat moss** absorbs water, slowly releasing it for use by plant roots. It lightens clay soil, providing aeration, and adds mass to sandy soil, helping prevent the leaching of nutrients. Don't confuse sphagnum peat moss with decorative sphagnum moss, which is primarily a floral design product.

- **Humus** consists of decayed organic matter. It improves fertility and aeration and helps soil hold moisture.
- **Composted manure** is an odorless farm byproduct. In addition to improving aeration and moisture retention, it enriches the soil. Dehydrated manure is a similar product that contains less moisture.
- **Mushroom compost** is a mixture of straw, peat moss and other organic components, formulated for use in commercial mushroom production. The mixture is used for one round of growing and then packaged as an amendment for the home garden.
- **Topsoil** is commercially produced compost that's usually partially decomposed. Because of its rough texture, use topsoil in the yard or mixed with other products, and not as a potting soil.

You can also find inorganic soil amendments:

- **Lime** raises soil pH, reducing acidity.
- **Sulfur** lowers soil pH, increasing acidity.
- **Gypsum** improves aeration of compacted soil, helping it drain more efficiently.
- **Perlite** improves aeration and drainage.
- **Vermiculite** improves moisture retention and aeration.
- **Builder's sand** is coarse sand that can improve soil drainage.

Many gardeners choose to make their own soil amendment by composting.

Packages Soil

In addition to amendments for your existing soil, you can find packaged soil that helps you get the best results from your plants. Ready-to-use soil is designed to provide good water retention while allowing proper drainage. Potting mix is the best choice for potting or repotting. It should contain organic matter as well as elements for aeration and moisture retention, such as perlite and vermiculite. Charcoal may also be an ingredient. Some potting mixes contain fertilizer. You can find mixes designed for specific plants, including African violets, orchids and cacti. All-inclusive soil mixed contain various blends of premium potting mix, fertilizer, pest control and water retention elements. These mixes are excellent for container gardens and planting beds.

Caution: When using soil amendments or packaged soil, follow package directions regarding proper clothing, protective equipment, application procedures and safety precautions.