The Dirt on Soil

Soil is a living community, requiring a balance of components. Soil has microorganisms, nutrients, minerals, water and oxygen. All of these elements contribute to healthy plant growth. Good soil means healthier, higher quality plants, more productive crops and flowers that bloom more abundantly and produce larger, longer-lasting blooms. Attention to your soil is the best way to make your plants look their best. It's easy to find out the quality of your soil - and it's easy to improve it.

There are three different types of soil. Consider the list below to determine yours. If you are still unsure, a soil test can be conducted. A soil test form can be obtained from your county Extension office, or go to [http://uwlab.soils.wisc.edu](http://uwlab.soils.wisc.edu).

Clay soils have the smallest particles that hold together in a tight mass. If your soil sticks to your shovel, or if it becomes rock hard and refuses to absorb water when dry, you've got mostly clay soil, which can be hard for roots to penetrate.

Sandy soils have the largest particles that barely hold together at all. If water endlessly seeps into your soil, or if it is very easy to dig when wet or dry, you have mostly sand - which is often not very fertile.

Loam is a general word for near-perfect soil that has lots of organic matter, enough sand to be easy to dig in, but sufficient clay to provide fertility and solid anchoring for plants.

It is also important to determine whether you have drainage problems or not. Some plants, such as certain culinary herbs, will eventually die if their roots stay too wet. To evaluate drainage conditions, dig a hole one foot deep. Fill the hole with water. If it drains away in an hour you have great drainage. If it takes a day you have slow drainage. If it sits overnight or longer, you have poor drainage. If you have poor drainage, add more organic material and try the drainage test again.
The pH scale indicates acidity or alkalinity. A soil with a pH number below 7 is acid, while one with a pH above 7 is alkaline. Garden plants typically grow best in neutral or slightly acid soil and you need not be concerned with pH unless your soil is one extreme or the other.

Acid soils are all soils that test lower than pH 7.0, which includes most soils east of the Mississippi River. In reality, most of these soils do not have significant acidity problems. Soils with pH levels below 6.0 may need special treatment or plant selection. Plants that will do well in acidic soil include Azaleas, Camellias, Rhododendrons, Blueberries and Japanese Maples.

Lime, available in either ground or powdered form, is often suggested to raise pH levels. Ground limestone is the slightly less potent of the two and raises pH more slowly. The amount needed depends on the soil texture (more is needed for clay than for sandy soil, for example). Or try adding your old coffee grounds to acid-loving plants.

Alkaline soils often occur in arid regions that receive less than 25 inches of rain per year. The majority of the soils west of the Missouri River are alkaline. Many plants popular for water-wise gardens do well in alkaline soil. Lilacs are one example of a plant that thrives in alkaline soil; lavender, dianthus and clematis also perform well.

To lower pH, ferrous sulfate and aluminum sulfate are often recommended. Ferrous sulfate, which also adds iron to the soil, is of the most help to plants that show yellow leaves as well as overall poor health. You'll also lower the pH of alkaline soil over time by regularly applying organic amendments such as compost.