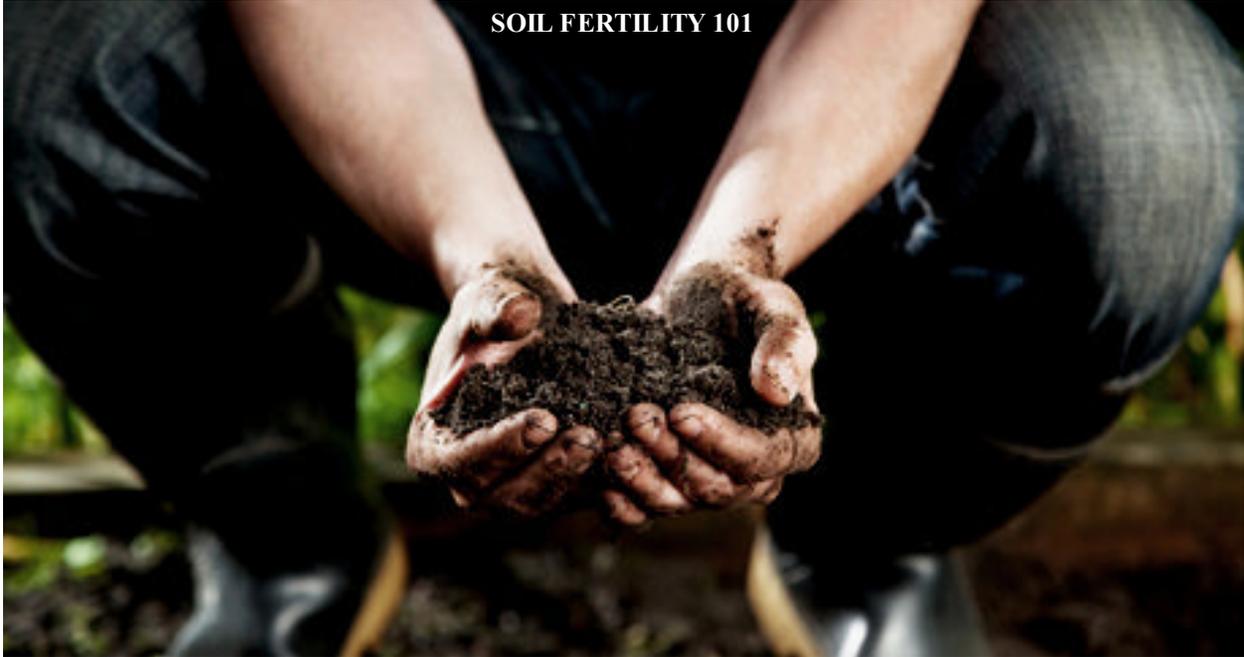


SOIL FERTILITY 101



Just as a good foundation is necessary to support a building, good soil is necessary to build a successful garden. All soil is not alike. It differs in texture, fertility, and balance.

Texture

At one extreme is beach sand, with grains so large you can see the individual particles. Water runs right through it. Not much grows in sand. In direct sun, it gets so hot you can hardly walk on it in bare feet.

At the other extreme is clay, such as the red and gray clay found in many parts of the country. Clay is made up of tiny particles that turn into a goeey mess when wet and something like cracked brick when dry. It is slow to warm up in spring and water stands on it, meaning gardeners with clay soil get a late start in spring.

Every gardener wants loam, which is a mixture of particle sizes. It holds water and is easy to work.

All soils have one thing in common. You can improve them by adding large amounts of organic matter, that is, material that was once alive. Leaves, grass clippings, manure, and vegetable wastes from your kitchen are examples. These are best for the soil if they are mixed together and broken down into soil-like particles in a simple and natural process called composting.

Turned into the soil, organic matter breaks up clay particles. In sandy soils, it binds the grains together and retains moisture and fertility.

Fertility

Under the ground, the roots of plants are busy with their own unique processes that turn materials in the soil into growth, flowers, and fruit. Light and water are essential for this process.

In the soil, plants particularly need supplies of:

Nitrogen, for green leafy growth;

Phosphorus, for strong roots and healthy fruit and seed formation; and

Potassium, for vigorous growth and disease resistance.

When you buy fertilizer, you will see a series of three numbers on the bag, something like 5-10-10. They stand for the percentages of nitrogen, phosphorous, and potassium in the bag. Vegetables and flower fertilizers are blends like 5-10-10 or 10-10-10. Lawn fertilizers have a higher first number because lawns need more nitrogen to promote foliage growth. Too much nitrogen in vegetable garden soil can promote the growth of foliage instead of the crop you want.

Chemical Balance

People are most comfortable when the temperature is in a certain range ? 65° to 75° F. Plants do best when the soil is in a range between being acid and alkaline. Instead of being expressed as degrees Fahrenheit, soil balance is expressed as pH to measure its acidity or alkalinity. Most plants do best in a range of 6.5 to 7.5 pH. The pH scale goes from 0 (acid) to 14 (alkaline), so most plants like to be in the middle.

There are exceptions. Plants like azaleas, blueberries, and heath like more acidic soil.

In the eastern United States and the Pacific Northwest, the soil tends to be too acidic for best plant growth. People there add ground limestone (or dolomitic limestone) to the soil or spread it on lawns to balance the soil. Adding lime saves money because it is inexpensive compared to fertilizers. In acid soils, the nutrients in fertilizer can be "locked up" and not available to your lawn and garden, so it pays to balance the soil first.

In the West and Southwest, soils tend to be alkaline. Sulphur is added or spread to bring them into balance.

Testing your soil

You can do a simple soil test yourself or have a more complete one done by a private lab or cooperative extension service at your state university. It is one of the most important things you can do to be a successful gardener.

A simple test kit, available from your garden center, will show you the pH balance. Often this is litmus paper, which turns color during the test and allows you to match your test with a color scale.

Your garden center may also have kits that allow you take several soil samples from around your yard, send them off, and receive a report on pH and fertility...a guide to the need for nitrogen, phosphorus, and potassium.

Remember, in gardening everything is based on healthy soil. The more you know about your soil, the more successful you will be.

Article in Home Depot website