

*Yard and Garden – 10-27-2012 - Ted Griess / Extension Horticulture Assistant*

Those in the homebuilding business know that a house must be built on a solid foundation if it is to last. Similarly, gardeners realize that a garden must be built on a solid foundation, or it, too, will collapse. Rather than a foundation comprised of concrete and steel, a garden's solid foundation is healthy soil. After another demanding growing season, most soils are exhausted and need their foundations rebuilt.

The basic composition of soil is inorganic, fragmented rock; organic matter; water and air.

Roughly fifty percent of soil is rock. The rock has been disintegrated by the influences of nature and other chemical and biological forces. The particle size of these fragmented rocks determines the soil type. For example, sand is composed of large particles; whereas, silt contains medium-sized pieces, and clay soils have very small fragments. The ratio of sand, silt and clay particles determines the texture of soil, the nutrients available and the soil's ability to drain.

Organic matter is comprised of the partially decomposed remains of plant life and tiny, often microscopic, soil organisms including bacteria, fungi, protozoa, nematodes and insects. Although organic matter occupies a smaller portion of soil compared with fragmented rock, it is essential for healthy soil. As the assorted microorganisms feed on the decaying matter, they convert it to nutrients and disease-suppressing compounds needed for plants to grow. Collectively, the organic matter greatly influences the nutrient value of the soil and aids in its ability to hold water and air —each essential attributes of healthy soil and successful plants.

By the close of the growing season, exhausted soils are common. Their healthy foundations begin to crumble. Autumn is an ideal time to repair. Rebuilding a soil's firm foundation calls for adding more organic matter.



The best method is to incorporate compost (decayed organic matter) into the soil; however, if compost is not readily available, adding raw organic matter is the next best thing. Presently, nature's best and most readily available raw organic matter is leaves. This year, think twice before you rake up those fallen leaves and haul them to the landfill. Consider their benefits.

Fallen leaves are packed with trace minerals. They are a

perfect source of carbon to balance the nitrogen in a compost pile. Leaves added directly to the garden feed earthworms and beneficial microbes. Adding leaves to heavy soils lighten them and help soils retain moisture. Leaves also make attractive mulch for the flower border.

Shredded leaves work better. Shredding a leaf into numerous smaller pieces increases the surface area upon which microbes feed. Shredded leaves are less apt to compact, allowing water and air to more easily penetrate the soil. If one does not have a leaf shredder, running over the leaves a number of times with the lawnmower works well. Finely shredded leaves can be left on the lawn, sprinkled over a flower border or added to the vegetable garden.

When adding shredded leaves to the vegetable garden, I recommend immediately tilling them in rather than allowing them to lie on the surface of the soil throughout the winter months. Before tilling, add some slow-release nitrogen fertilizer. Dead leaves are high in carbon and need the nitrogen to hasten decomposition. After tilling, water the garden thoroughly.

Autumn has arrived and with it an opportune time to rebuild exhausted soils. Once again, it is a perfect time to firm up your soil's foundation and to improve its health. To accomplish this much needed task, all one has to do is utilize one of nature's most readily available, raw-organic materials —leaves.