Building Healthy Soil
By Amanda Brashear, UCCE Master Gardener of Amador County

This month let's look under our feet to see how our home gardens and landscapes can benefit from building healthy soil.

One teaspoon of healthy soil has more microorganisms than there are people on Earth. Source: USDA Natural Resources Conservation Service.

What is Healthy Soil?
Soil is much more than just dirt. It is a complex mix of minerals, fungi, bacteria, and other organisms that are living, dead, and decaying. While dirt is something unwanted that we wash away, healthy soil is teeming with life. Building healthy soil means encouraging soil microorganisms that will in turn support our plants.

You can encourage microorganisms and improve soil health by 1) adding organic mulch and compost, 2) preventing over-fertilization, 3) growing a cover crop, and 4) preventing erosion and compaction.

Soil microorganisms create soil organic matter (or humus). It is what's left over after organic materials are broken down through decomposition by our microbial friends. The result is a dark mixture with the ability to retain moisture, increase air space, improve plants' ability to take up nutrients, prevent erosion, and even sequester carbon. Soil organic matter is black gold to gardeners, and our goal is to create more to make gardens more productive.

Add Mulch and Compost
How can we increase soil organic matter? We start with organic material. Mulches, such as shredded bark, grass clippings, leaves, or even newspapers are great additions to garden soils. Apply two or more inches of mulch to reduce water loss, moderate soil temperatures, increase biological activity, and reduce plant stress. Further, organic mulches eventually break down (with the help of microbes) to form organic matter and build healthy soil. Note, inorganic mulches such as gravel, plastic, or rubber do not have the same soil building benefits.

Adding compost is another great way to build healthy soil in the garden and lawn. Compost is organic material that had a head start decomposing. It can be mixed into soil as an amendment or placed atop the soil around your plants. Top dress turf areas with ⅛ to ½ inch layer of compost to build healthy soil for lawns.

Master Gardener Linda Gunvalson's July article, *Why Not Let it Rot?*, has more details on the importance of compost and methods for making it (https://ucanr.edu/sites/Amador_County_MGs/Garden_Articles/).

Fertilize Adequately, Not Excessively
University of California recommends fertilizing gardens to support healthy plant growth with moderate amounts of nitrogen and phosphorous. However, take care not to over fertilize, as too much can kill the beneficial microbes we are trying to encourage. Remember: healthy soil is alive. Use of slow-release fertilizers is best.

Grow a Cover Crop

Why not try a cover crop this year? Cover crops (or green manure) are grown in gardens that are not actively growing crops. The roots of cover crops store carbon and feed microbes with sugars, prevent soil from washing away in rains, and create space for air and water. The shoots of cover crops provide shade for the surface to reduce water loss.

Some cover crops have the added benefit of hosting nitrogen fixing bacteria in the roots, eventually making nitrogen available for plants to use. These crops include crimson clover, fava beans, hairy vetch, and alfalfa. Some gardeners choose an edible cover crop, such as fava beans.

Tread Lightly

Prevent erosion and compaction in your garden to maintain good structure. Good soil structure is the desirable physical quality of crumbly soil that aids in air and water movement in soil. Soil structure can take many years to form and requires assistance from our soil microorganism friends. Aim to reduce or eliminate tilling, as this practice breaks down soil structure.

Soils are especially prone to compaction and erosion when wet. This rainy season use caution during periods of saturation, especially for clayey soils. Cover crops can help reduce compaction and prevent erosion too.

Figure 1Cover crops such as the clover mix pictured here help build healthy soil. Source: Chuck A. Ingels, UCCE Sacramento.

Learn More About Building Healthy Soil

UCCE Master Gardeners of Amador County will present *Building Healthy Soils*, a public education class on September 21, 2019 from 9:00 AM to 12:00 PM at the GSA Building, 12200-B Airport Road in Jackson. Handouts will be available. The class is free and open to the public. Reservations are not required.

For more information about our public education classes and activities, go to our UCCE Master Gardeners of Amador County website at http://ucanr.edu/mgamador. UCCE Master Gardeners of Amador County are available to answer home gardening questions Tuesday through Thursday, 10:00 a.m. to noon, by calling (209) 223-6838. Walk-ins are welcome at our office, located at 12200-B Airport Rd. in Jackson. You can also find us on Facebook.