

May 11, 2016



unlock the  
SECRETS  
IN THE SOIL

What's Going on Beneath the Surface of Your Soil?

By Robin Stanley

UCCE Master Gardener of El Dorado County

We've seen welcome El Nino winter and spring rains, so perhaps nurseries are busier as people unleash their pent up gardening energy and eagerly replant beds that perhaps haven't been planted for a few years. However, your soil might have some surprises for you.

In a casual conversation with a fellow Master Gardener last year, she mentioned the effect that leaving your garden beds unplanted, and un-watered because of the drought, could be having on the beneficial microorganisms in the soil. I really hadn't thought about it much, nor did I remember reading about it. But I was surprised when I had difficulty finding much research on the topic, particularly current research done in California. Much of the information for this article came from a thorough article written by Bob Kremer for the University of Missouri Extension in 2012.

It turns out that based on Kremer's research, although those critters that break down organic material and improve your soil can have some pretty creative adaptations that can help them to survive drought, even so, the overall population will diminish, particularly in the face of repeated droughts. They are also dependent on temperatures, so the winter rains we did have don't benefit them as much as spring rains and summer irrigation.

So what kind of organisms are we talking about? In their 2012 gardening calendar, Placer County Master Gardeners explained it this way: "Bacteria and fungi in the soil play a major role in plant health. Earthworm secretions help stimulate plant growth. Invertebrates and vertebrates of all sizes contribute to soil quality, structure, fertility and the ability to hold water."

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In a short drought, earthworms are able to dig deeper in the soil to reach damp soil. Even though nematodes and microscopic protozoa will not be at work, they can lay eggs that won't hatch until temperature and moisture content in the soil returns to an adequate level. This means that in the long term, the underground populations may rebound. They also have adaptations that may allow them to survive, but go inactive, during droughts. And the kind of plants in beds that had reduced irrigation can matter, also. According to Casey terHorst, from CSU Northridge, "When microbes were growing in wet soil, they were reasonably happy and weren't affected very much by the type of plant growing next to them. But in dry soil, microbes were stressed out, and only those ones who get along with the plant are able to survive."

How will this reduced population of healthy soil microorganisms in the short term affect your garden? After our extended drought, you may find that organic material has not broken down and the soil will be more compacted than normal. At the Sherwood Demonstration Garden, the Children's Garden chairperson planted a winter cover crop to improve fertility and soil texture. Unfortunately, she soon discovered that the hungry birds had eaten every single seedling, so even attempts to increase fertility with a cover crop might have been futile. Kremer described a pasture where the addition of composted horse manure and hay improved the soil fertility adequately to allow a decent pasture to get reestablished. Just be aware that your typical spring garden preparation may need to be supplemented, especially this year. Your soil will probably also need nitrogen.

Most articles I found when researching this topic were fairly technical, with a narrow focus. The most important take away is to be aware that things may have changed in your garden if you have skipped planting for a year or more. If this is the case in your garden, consider using organic compost along with a dose of patience to restore soil to a healthy balance.

Join UCCE Master Gardeners and Master Food Preservers of El Dorado County today for a class on Culinary Herbs and Spices -- from Garden to Gourmet. Learn how easy herbs are to grow, preserve and use in cooking. The free class is from 9:00 a.m. to noon at the Cameron Park Community Center, 2502 Country Club Drive in Cameron Park.

On Saturday, May 14<sup>th</sup> is a free Master Gardener class on Edible Landscaping. Picking fresh produce from your yard doesn't just mean going to the vegetable garden -- edible landscapes are becoming popular. Planting an edible landscape means plants around your home will be edible fruits, foliage, or roots; learn what landscape plants can look and taste good. Class is from 9:00 a.m. to noon at the Government Center Hearing Room, Building C, 2850 Fairlane Court in Placerville.

This Saturday Master Gardener Barry Wold will be in the Sherwood Demonstration Garden to teach vegetable gardening through the seasons. Planting, thinning and pest control will be addressed, as well as getting your questions answered. Weather permitting at the Sherwood Demonstration Garden, 10 a.m. to noon, behind Folsom Lake College El Dorado Center, 6699 Campus Drive in Placerville.

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Master Gardeners wish to thank everyone who purchased plants at the April 23<sup>rd</sup> spring plant sale; proceeds from the sale are re-invested into the Sherwood Demonstration Garden which is open to the public from 10:00 a.m. to 2:00 p.m. Wednesday, Friday, and Saturday.

UCCE Master Gardeners are available to answer home gardening questions at local Farmer's Markets, and Tuesday through Friday, 9:00 a.m. to noon, by calling (530) 621-5512. Walk-ins are welcome at our office, located at 311 Fair Lane in Placerville. For more information about our public education classes and activities, go to our UCCE Master Gardeners of El Dorado County website at <http://mgeldorado.ucanr.edu>. Sign up to receive our online notices and e-newsletter at <http://mgeldorado.ucanr.edu/mgenews/>. You can also find us on Facebook.