



Flower Press

A summary of the Aug. 4, 2015 program presented by Steve Andrews, Soils Scientist

“As gardeners, you need to be in the business of soil regeneration.”

From Steve Andrews, Soils Scientist

“Soil is the most complex biological material on planet Earth.

“If roots could talk, they’d say, “Think Soil!”

“Soil is an ecosystem consisting mainly of living organisms. That system works best when we don’t mess with it much.

“STOP TILLING! Work the soil less and feed it more.

“Compost, compost, compost! Then let the organisms move the material around. That’s how you fertilize. The organisms will do it. The less you move the soil around, the better.

“Soil organisms are more important than Osmocote and Miracle Grow.

“Compost will hold more water than the polymer products they are marketing to you.

“You need to know what’s in your compost. Like a good wine or cheese, compost needs to cure.

“Remove hardscape and replace it with something more permeable.

“As a gardener, your goal is zero runoff.

“Weeds have a purpose. They protect the soil and prevent erosion.

About Drought

“Drought is not new in California. What’s different is climate change.

“It is altering the soil ecosystem. As the microbial community in soils change, so does how soil functions. Some soils are at greater risk for extinction.

“Once a soil becomes extinct, that’s it. Gone are the unique physical, chemical and biological properties of that soil.

“Soil is formed through the process of pedogenesis. It takes 1,000 years to make topsoil. We’re losing topsoil 5 to 6 times faster than normal erosion.

“As gardeners you need to be in the business of soil regeneration.

“Deeply aerate your soil 2 to 4 times a year. Cover it with compost, which will go into the holes.

“El Niño will generate massive topsoil loss if you haven’t covered your bare ground. Plant a cover crop before the rain comes.

Organisms in 1 square meter of soil

10 trillion bacteria	50,000 springtails
100 billion fungi	10,000 rotifers
10 billion protozoa	5,000 insects/spiders
5 million nematodes	3,000 earthworms
100,000 mites	100 snails/slugs

Some Benefits

Bacteria & Actinomycetes (organism between a fungus and a bacteria) – fix nitrogen, kill pathogens, degrade pollutants, bind together sand, silt & clay

Bacteria – decompose organic matter, dissolve minerals

Protozoa – feed on bacteria and excrete nitrogen and nutrients in plant available form: “A biological fertilizer.”

Fungi – decompose wood and toxic organic chemicals, hold nutrients, receive carbon from plant roots and give back water and nutrients, critical in bio-remediation, easily damaged by tilling and gardening chemicals

Resources

Books

The Soil Will Save Us, by Kristin Ohlson

Know Soil, Know Life, by David L. Lindbo, Deb A. Kozlowski, Clay Robinson

Video Links

Secrets of the Soil

<https://www.youtube.com/watch?v=pwmqr3oo0Ms>

Soil Food Web: Invertebrates

<https://www.youtube.com/watch?v=XqRLVUtAAV8>

Extracting Soil Microfauna

<https://www.youtube.com/watch?v=TCenRcKbf7U>

Microbes to the Rescue

<http://www.uctv.tv/shows/Microbes-to-the-Rescue-Aindrila-Mukhopadhyay-Seven-Big-Ideas-25468>

Businesses

Earthfort Laboratories – for biological soil analysis
<http://earthfort.com/lab-services/>

Peaceful Valley Farm Supply – for cover crop seeds
<http://www.groworganic.com/search-&q=cover+crops&p=1>

Marin Soil Solutions – for organic gardening amendments 415-456-3300