

**Soil Is Not Just a Dirty Word:
Exploring the Mysteries of Managing Soil Biology**

by Steven Zien

Where he comes from (Sacramento) they do “River Friendly Landscaping”. It is watershed oriented. They begin at the headwaters and work their way downstream. This work focuses on ecosystems as well as ecosystems. Here in Maryland, turf grass is the biggest crop. Maintaining it requires 80 million pounds of nitrogen per year; 10 to 17% of the N reaching the Chesapeake Bay comes from urban landscapes.

Soil Food Web

A rhizosphere is the area around a plant root. Roots produce exudates that feed soil microorganisms that are beneficial to the plant. The microorganisms release plant growth hormones. Think of these beneficial microorganisms as a work force that you can manage. The carbon stored in the soil by exudates and decomposing roots can help counteract the accumulation of CO₂ in the atmosphere.

People try to amend soil texture, instead amend the soil structure. This creates pore spaces of various sizes appropriate for air, water, and microorganism habitat.

Soil Food Web Components and Their Roles

The soil food web includes many kinds of organisms, each with a unique role.

Understanding these roles helps you to build the soil food web.

- Algae
- Bacteria
- Actinobacteria
- Fungi
- Endophytes
- Mycorrhizal
- Protozoa
- Nematodes
- Arthropods
- Earthworms

Detrimental Practices

- import topsoil
- till
- don't amend soil by adding wood chips
- use high-salt, soluble fertilizers
- put native plants in biologically sterile subsoils

Beneficial Practices

- Collect small soil samples from sites with healthy soil food webs and use those samples to inoculate other soils
- Use low-salt, water insoluble, organic fertilizers
- Apply organic amendments to the soil's surface
- Have your soil tested by a lab that offers understandable reports

Don't feed the plants, feed the soil.

Resources recommended by the presenter:

Teaming with Microbes (book)

Dr. Elaine Ingram's website SoilFoodWeb.com

His radio show streams from FarmerFred.com

Handouts:

- Characteristics of Nitrogen Fertilizers
- The Poop Loop
- Soil Analysis: The Key to Pest Free Plants
- Use a Soil Probe to Conserve Irrigation Water
- Know Your Soil Texture