



LIFE IN THE SOIL: DIG DEEPER



Soil Stewardship Week April 28 – May 5, 2019

What is soil? This question is not as simple as one might think. If you ask a small child, you might hear that it is simply the dirt under your shoes. Ask a scientist and you might be enlightened with a brief lesson on the physical and chemical properties of soil. But if you ask a farmer, rancher, or a forest landowner you should get a different answer; **Soil is life.**

The existence and livelihood of all Texas agricultural producers starts in the soil. Indeed, it is their life. It is also reasonable to assume that soil is the foundation for all life. **Soil is the building block** for the grassland and forest ecosystems that allows for livestock operations, timber production, and wildlife habitat. Our food and fiber crops are grown in the soil, backyard and urban gardens are planted in the soil, and our homes and communities are built on top of the soil.

But something that is unfortunately overlooked by many people is soil biology. **Healthy soils are alive** with complex communities of bacteria, fungi, algae, protozoa, nematodes, plants, and animals. Sir Albert Howard summarized it best in his 1945 book, *The Soil and Health*:

“The soil is, as a matter of fact, full of live organisms. It is essential to conceive of it as something pulsating with life, not as a dead or inert mass. There could be no greater misconception than to regard the earth as dead: a handful of soil is teeming with life.”

Amazingly, there are more microorganisms in a teaspoon of healthy soil than there are people on Earth. As conservation stewards, we all should manage our lands for the life deep within our soil, not only for those above it. We need to remember the five principles of soil health:

- 1. Minimize Disturbance** – Ranchers utilize rotational grazing, farmers use high residue rotational crops and/or minimal or no-till systems where economically feasible, and foresters use Best Management Practices to protect the soil surface, balance wildlife populations with the carrying capacity of the land.
- 2. Armor the Surface** – Keep the soil covered with vegetation, preferably native vegetation, and control invasive species. This cools the soil, slows water runoff and promotes water infiltration. Armor on the soil is essential during periods of drought or flooding.
- 3. Year-Round Roots** – Having green plants year-round provides benefits from the plant roots, increases carbon in the soil, builds and recycles nutrients, attracts beneficial insects, provides physical protection from natural disturbances, and an opportunity to introduce grazers that bring so much biology to the system.
- 4. Diversity** – Mother Nature loves plant diversity. Cool and warm season grasses with a good mix of broadleaf plants and trees are desirable to create, use, and recycle the nutrients and habitats that plants and animals need to grow. Control unwanted invasive species as they can disrupt soil microbiology, ecosystem health, and water resources.
- 5. Integrate Livestock** – Including livestock provides beneficial biological inputs such as, urine, feces, saliva, hair, milk, and movement, that are important for healthy soils.

Many people might quickly dismiss the five principles of soil health for a variety of reasons. But in fact, these concepts are nothing new. Your local Soil and Water Conservation District (SWCD) has been assisting producers and promoting conservation practices that regenerates the soil and ecosystem health for almost 80 years. Remember that dirt is what was flying through the air during the days of the Dust Bowl, so don't treat your soil like dirt! Contact your local SWCD to help you develop a conservation plan for your operation, improve your soil's health, and learn ways to responsibly manage your natural resources.



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