

Soil Health

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

Through the years agriculture, conservation and overall land management has gone through phases with each phase having it's buzzwords, promoters, detractors, research objectives - well, you get the point. Some promoters will always feel like they've just unleashed the silver bullet to cure all the planet's woes. Spoiler alert, none of them have! For the most part each phase has brought some improvements and certainly more tools for farmers, ranchers and land managers to consider and use. But no one is the cure all panacea that will work for everyone.

The newest buzzword is "soil health". Soil health is a broad category for a lot of different things that are actually quite important. Several weeks ago I started searching for a good definition of soil health. As I started looking at some of the top hits of an internet search (that yielded over 400 million hits in one second) I found some that were way out there and I mean way way out there! Others were very strictly restrictive and may work for certain soils in certain ecosystems. Some were so vague they didn't really say anything at all. Many definitions were tailored for a very specific form of agriculture, i.e. no-till, reduced till, organic, natural, etc.

Fortunately, I finally found one, in fact one of the top choices on my search, from my Natural Resources Conservation Service friends at USDA. Quoting now from their web site, "Soil health, also referred to as soil quality, is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans." They go on to point out that soil isn't just some sterile rooting medium but is rather a living functioning ecosystem of it's own.

Many people don't realize how alive soil is! There is so much life in the soil, much of it invisible to the naked eye. Bacteria, fungi, yeasts, and many other microbes make up a valuable part of the soil mass and we often only see hints of it. In 2009 I visited Mt. St. Helens. That volcano blew in 1980 and changed the landscape. I was there 29 years later and there were still just scattered plants starting to grow. To say that much of it looked like the landscape of a barren planet was an understatement. When that volcano erupted it flash fried all living things and then buried it under feet, tens of feet, of ash. There was instantly a sterile environment that even if a seed fell, that sterile medium was missing all those microbes that honestly make plant life possible. We can not underestimate the impact, the necessity of soil organisms!

In the end, defining soil health is fairly easy. Measuring it is another story however. There are microbes that we haven't even identified yet that are important, or we know they are there but we don't know what they do. We truly have so much we need to learn. Perhaps the best measure of soil health is by how well plants grow, by how productive the soil is, or by how sustainable the practices we use on it are. Soil health is likely something we measure indirectly.

Soil health can, and does, change over time. How we farm, how we garden, how we tend our lawn, can all impact that soil health. We can compact soil with heavy equipment. We can tear it up and turn it over with construction or recreation. The plants we grow on it, the nutrients we add to it, the organic matter we allow to develop in it, even the rainfall or irrigation it receives, are all things that can improve or hurt soil health. If you haven't yet heard about soil health, you eventually will. I doubt that we'll come up with a simple way of measuring soil health in my life time. But we need to remember that soil health isn't an end goal but an ongoing journey.