

(Mis)Conceptions about Soil Health

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Unless you are involved in agriculture in Indiana, you may not have heard the term “soil health.” We are fortunate to live in a state where so many farmers are focusing on the improvement of our soils, and are adopting the model that healthy soils mean good things for their crops, their wallets and the natural resources which sustain both.

Still, not every farmer sees the benefits of building soil health. There are some misconceptions about soil health as a goal which may give the impression that it does not apply to them. For instance, some growers still ask, “if I put nutrients in my soil, then isn’t my soil healthy?”

While putting nutrients on the ground does allow for greater nutrient availability to plants, it does not improve the soil’s *inherent ability to function*. Soil health is not just about how much Nitrogen, Phosphorus or Potassium is available to a crop, but how well the soil **as an ecosystem** exchanges those nutrients, how well it allows water (and nutrients and air) to infiltrate below the surface of the ground, and how much water holding capacity lies within the soil’s structure.

An excellent gauge of all these abilities is the *organic matter* in the soil. This is ultimately a measure of carbon in the soil. Some soils have more and some have less, but there’s a lot more to it than that. When carbon levels in the soil rise, it means ~~that~~ things are living ~~and~~ metabolizing there. Bacteria, insects, earthworms and fungi all play specific roles in helping nutrient exchange and availability for plant roots to tap into, and the more, the better!

Building organic matter also allows pores (or holes) in the soil to hold their structure, which means more water can flow through the soil, and more water fills those pores. Another way to say all this is “better infiltration and greater water-holding capacity leads to better water availability to the crop.” The improved infiltration also results in less runoff, less soil loss and reduced flooding.

If all this is true, then why isn’t everyone doing it? There’s no quick answer to this. First and foremost, there is little formal research on soil health. A search of academic journals quickly shows ~~that~~ the term “soil health” is just that—a term. However, the important role of organic matter in a soil’s capacity to sustain crops is well known by ag researchers.

While this lack of research data on soil health may seem like a small hurdle to those who see the readily visible and practical benefits from building soil health, it’s a flag to individuals who want to “see the numbers” before exploring the issue. So as conservationists, we should be asking the question differently. For example, “If given the choice between soil with low organic matter and soil with high organic matter, which one would you choose?” I don’t think a single person would pick the first choice. This same argument can be made for other issues that compromise soil health and long term sustainability (such as soil compaction and soil erosion).

Ultimately, soil health is not about conservation program enrollment. It's not about participation in cropping initiatives. Healthy soil is the result of a system of conservation cropping practices, such as no-till and a cover crop regimen. These are all tools (excellent ones, at that) which will help to reach the goal of building soil organic matter which is inherently good for production, the economy and the environment.

Bottom line—building soil health comes about through the *process* involved in building organic matter--keeping living plants in the soil as long as possible and keeping the soil surface covered with residue year round.

For more information on soil health, contact members of the Indiana Conservation Partnership, a collaboration of eight groups supporting on-the-ground agricultural and urban conservation practices across the state. They can be found at the ICP website: <http://www.iaswcd.org/icp/index.html> and their cooperative program, the Conservation Cropping Systems Initiative at: <http://www.iaswcd.org/CCSI/ccsi.html>.