

Soil health beyond the microbes

Dustin Sawyer for *Progressive Forage*

AT A GLANCE

Soil health is a balancing act between all systems of nature, meaning proper soil management goes beyond the field boundary.

The University of Wisconsin – Stevens Point has one of the best colleges of natural resources in the world. I know that because I earned my degree in soil science there. The success of this college can be boiled down to a single word: cooperation. The professors there know that we, as a people, cannot understand natural resources if we don't understand nature, and that we can't understand nature unless we understand cooperation.

Part of the curriculum is a six-week-long intensive summer camp of sorts where natural resources students are immersed in the forest of northern Wisconsin. Here, the students are made to work closely with one another across the spectrum of natural resources disciplines. That means a soil student will not be grouped with other soil students but instead be grouped with a forestry student, a wildlife ecology student and a

fishery student.

The idea behind this is simple and remarkably effective: nature is nothing but the cooperation of several intricate systems. In order to fully understand natural resources, students must be able to cooperate with, and speak the language of, people who study these systems. Forestry students can better understand why certain trees grow where they do if they better understand the soil that feeds the trees and provides the anchor for their roots.

Perhaps the best example of the cooperation and interconnectedness of nature's systems is the nitrogen cycle. Here, in one diagram, one can find depicted the interactions of air, water, plants, soil, fungi, animals, insects and bacteria as they all work together in the cycling of the nitrogen atom.

For a person who understands the cooperation that's found in nature, the idea of soil health is intuitive. Just like the larger, broader system of nature, soil is a complicated ecosystem that thrives on diversity and cooperation. When people talk about soil health, though, the discussion usually focuses on what's below the surface: the microbes and things that cannot be seen. It's less common to think of soil health in terms of wildlife that visit the area or which native plants are thriving, but it's all connected, and these are good indicators of the overall health of the ecosystem.

In fact, when surveying an area, soil scientists are taught to pay particular attention to the vegetation and wildlife signs they may see. These indicators provide input and help to provide a complete picture of the role the soil plays in that environment. A good survey of what they see above the surface of the soil will often tell soil scientists exactly what to expect below the surface – even before their trusty spade takes their first stab at the earth.

All of this interconnectedness and cooperation means that the importance of soil health doesn't, and shouldn't, end at the boundaries of the field. The soil is a cooperative part of the larger ecosystem, and thus, it may be more

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Having a thriving ecosystem surrounding a field is a sign of a healthy and productive soil.



Planting non-production areas into more diverse and native plants will help improve the diversity of wildlife that visit.

effective to think of “ecosystem health” in some cases.

Diversity is important, whether it’s found in an active field, a hedgerow or a field that is out of production for a time. Planting non-production areas into more diverse and native plants will help to improve the diversity of wildlife that visit, which will increase the diversity of insects, which will increase the diversity of birds, and so on.

It’s often overlooked, but these non-production areas can be just as important to focus on as production fields. Importantly, with the right kind of management, these areas can become excellent habitat and draw in game species. To that point, some conservation clubs, like Pheasants Forever, have begun to offer agronomy services that help farmers manage their production and non-production land in better harmony with nature.

Whether trying to manage soil health above the surface or below, there is one idea in common: it all

centers on plants. Cover crops take center stage in production fields, but in non-production areas, perennial prairie plants really get to shine. Bringing native plants into these areas will provide the preferred food and shelter of native wildlife and encourage them to move in.

Having a thriving ecosystem surrounding a field is a sign of a healthy and productive soil, but it’s not just for show. The benefits of having a healthy ecosystem can range from better water infiltration to reduced pest pressure and ultimately lead to better yield. As an added benefit, helping the land support game species can allow the land to provide recreation as well as forage. 🌿🐾



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