

Soil Health

Soil health is the capacity of soil to sustain plants, hold water, provide nutrients to the plants, and maintain soil microbes. In measuring soil health, some of the considerations are depth of topsoil, water infiltration, organic carbon content, nutrient content, and biological diversity of the soil microbes.

Iowa is well-known for its productive soils. Unfortunately those soils have become degraded. The United States Department of Agriculture estimates that Iowa loses 5.2 tons of topsoil per acre of cultivated cropland every year due to water erosion and 0.5 ton of topsoil per acre due to wind erosion.¹ Over half of Iowa's topsoil and over half of the organic material in the soil have been lost.² If we are to continue to be agriculturally productive, we need to improve our soil health. The good news is that there are solutions that can be implemented today.

Protecting and restoring soil health is an investment in our future

Sustainable farms must be ecologically sound and socially responsible as well as economically viable while also maintaining soil fertility for future generations, protecting water resources from pollution and treating livestock animals humanely. A sustainable agriculture system must also meet the basic needs of society - including consumers, farmers, and members of rural communities. A key feature of sustainable agriculture is that farms must not only meet the needs of the present but continue to be productive for generations to come.

- Protect soil by restoring organic matter and maintaining organic material in the soil, which increases the soil fertility.
- Use cover crops to protect the soil from erosion.
- Engage in no-till farming to reduce soil disturbances.
- Raise local foods because the farmer is closer to local consumers who share their commitment to caring for the land and taking care of the local environment.
- Encourage consumption of healthy foods by advocating for eating less processed food as well as more fresh fruits and vegetables.
- Include animal agriculture as part of an integrated system that returns nutrients to the land without polluting streams and endangering the health of the people who live and work in the area. It means removing animals from confinements (CAFOs).
- Adopt animal-raising techniques that include managed grazing, deep-bedding animals and composting manure. Raising animals on grass allows them to spread their own manure and harvest their own feed while reducing the amount of energy spent on farm equipment operation and the amount of greenhouse



Photo by Francis Thicke

¹ U.S. Department of Agriculture, "Summary Report: 2010 National Resources Inventory," Natural Resources Conservation Service, Washington, DC, and Center for Survey Statistics and Methodology, Iowa State University, Ames, Iowa, pages 88 and 101

² Francis Thicke, *A New Vision for Iowa Food and Agriculture*, Mulberry Knoll Books, 2010, page 8

gas emissions. Raising animals alternatively in deep-bedding reduces the release of greenhouse gas emissions into the atmosphere, along with creating litter that can be used as a soil amendment.

- Reduce the need for artificial chemicals - herbicides, pesticides, fungicides - applied to the land.
- Plant nitrogen-fixing crops to put nitrogen in the soil without using commercial fertilizers.
- Grow crops in a rotation that may include the planting of small grains, hay, fruits and vegetables, combined with strips of perennials. The strips of perennials provide cover on the land, build soil, provide wildlife habitat and reduce erosion from the fields.
- Use beneficial insects to reduce pests and pollinate crops.
- Farm the best, idle the rest. Some land simply should not be put into row crops.

Improving soil health is a win-win

Implementing solutions for restoring soil health and fertility solves many other problems:

- reduces use of pesticides and fertilizers
- restores soil microbes
- reduces nutrient requirements
- reduces flooding
- protects crops during droughts
- improves water quality
- prevents soil erosion
- restores stream buffers and wetlands
- restores wildlife habitat
- sequesters carbon and mitigates airborne greenhouse gases



So what's holding us back?

We need to begin implementing good policies. It means advocating good policies to decision-makers. All of these things can be done by people working together, including working together through government.

As we think about what the future holds, it is clear that more knowledgeable, thoughtful, caring people must be working, tending, and managing Iowa's farms, ensuring that soil health is restored to regenerate and sustain the productivity of Iowa agriculture. Restoring the viability of independent family farms will restore and sustain the viability of rural communities. This will require removing barriers to purchase land, including loans for beginning farmers, educational programs for all farmers, programs that support sustainable farming practices, and build markets for crops other than corn and soy. It also will require reconsidering and replacing government programs that force farmers into bigger and bigger operations.

It's long past due that agriculture be restored to healthy practices, that family farms and their surrounding communities be respected again, and that those engaged in full-time farming can make a living from their farms.

For more information, see The Iowa Chapter's report "Soil: Grounding Us in Transformative Systemic Change", [SoilPolicy \(sierraclub.org\)](http://SoilPolicy(sierraclub.org)), www.sierraclub.org/sites/www.sierraclub.org/files/sce/iowa-chapter/Ag-CAFOs/SoilPolicy.pdf