

SOIL HEALTH PRINCIPLES FOR ORGANIC PRODUCTION SYSTEMS

OUR APPROACH

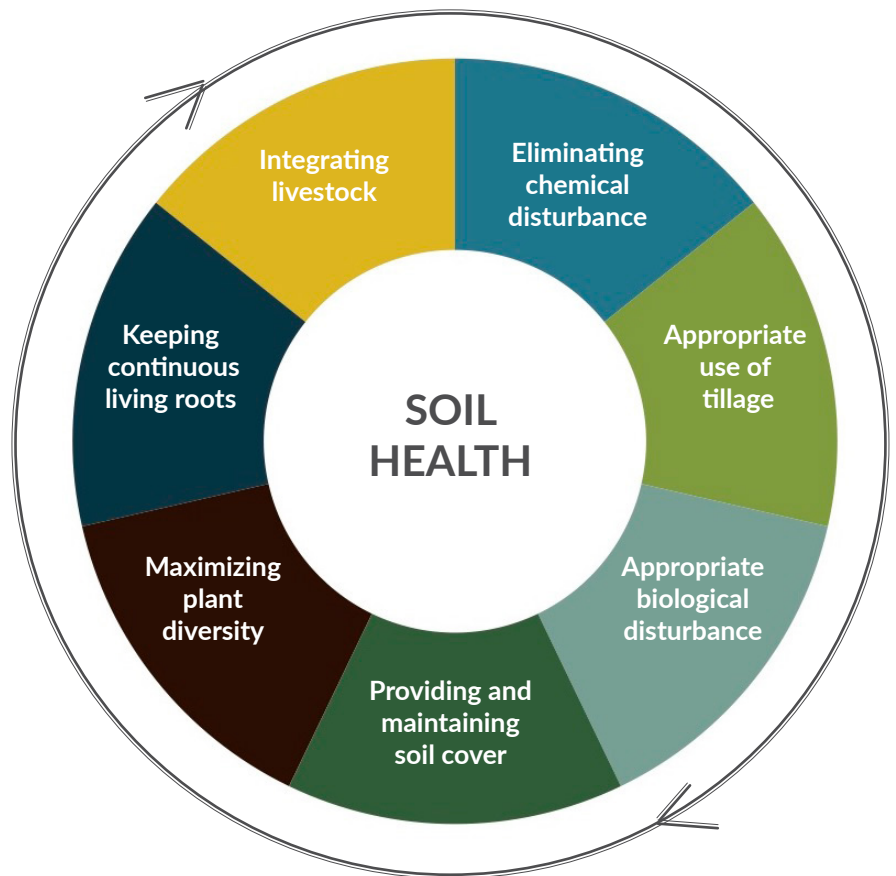
Iroquois Valley works with organic and transitioning farmers because of their commitment to the environment and human health. The USDA Organic Standard requires that a certified operation must work to maintain or improve natural resources, including soil. Iroquois Valley's farmers use natural processes and materials to manage their operations closer to how a natural system would. Our farmers use the shared intent of greater soil health captured in both the Organic Standard and the Soil Health Principles for Organic Production to guide their management decisions.

Iroquois Valley's certified organic farmer partners know that soil is a living system that is integral to their operation. They use the knowledge gained from one season to inform management decisions for the next, cumulatively leading to greater soil health over time. Our farmers see soil health as a continuous improvement process and part of an overall system of management, not as a checklist of practices. The exact portfolio of practices implemented will vary from farm to farm as do soil types and the natural resources vary from place to place.

UNDERSTANDING SOIL HEALTH

Iroquois Valley takes a systems-based approach to soil health, recognizing that soil health principles work together to maintain and improve soil function, and aims for continuous improvement over time. We work with a diverse set of farms, from grains production to agroforestry, and our soil health principles were developed to be adapted to each.

Iroquois Valley's operations strive to improve soil health through seven principles:



THE PRINCIPLES

Organic farmers implementing these soil health principles together over time can help restore and maintain soil health. Through managing under these soil health principles in concert with Organic production standards, Iroquois Valley farmers create farming systems that build soil, maintain or increases productivity, reduces nutrient pollution and improve resilience over time.

ELIMINATING CHEMICAL DISTURBANCE

Keeps the soil food web functioning. Pesticides have been shown to decrease microbial diversity in soil, and synthetic fertilizers result in lower microbial diversity over manure. Healthy microbial communities improve soil aggregation, soil fertility, and crop productivity. Limiting chemical disturbance by either using only organic inputs instead or working to eliminate inputs overall avoids disrupting the soil food web. Organic and transitioning farmers' commitment to using natural materials to mimic the environment and eliminating chemical disturbance is what sets this approach apart.

APPROPRIATE USE OF TILLAGE

Maintains soil structure in the short term and improves soil productivity in the long term. Tillage is a tool often used in organic systems to manage weeds in the absence of pesticides. Reduced tillage, when implemented thoughtfully with other soil health principles, can improve soil in the long term. Excessive physical disturbance compacts soil and increases soil erosion over time.

Therefore, methods, the number of passes, and timing should be selected with soil health in mind. Reducing disturbance can increase soil organic matter and improve soil aggregation by allowing the organic substances that hold surface soil particles together to build.

APPROPRIATE BIOLOGICAL DISTURBANCE

Refers to grazing in such a way that roots do not get truncated. Livestock management should be practiced in a way that guards against extended soil disturbance, such as rotational grazing between grass and cover crops. Allowing crops or grasses to regrow after grazing increases carbon dioxide capture.

PROVIDING AND MAINTAINING SOIL COVER

Protects and regulates soil function. Forage, crop residue and other practices guard soil against wind and water erosion and lessen compaction due to rainfall. Keeping soil covered maintains soil moisture and soil temperature, preserving biological activity. Cover limits available sunlight, which can suppress weed growth while providing habitat.

MAXIMIZING PLANT DIVERSITY

Both within a field or across a rotation mimics natural diversity and can help restore soil function. Incorporating diverse rotations and using cover crops avoids depleting soils of nutrients while improving resistance to pests and diseases. Diversity improves soil food web function, which in turn improves infiltration and nutrient cycling, overall improving soil's resilience to extreme weather.

KEEPING CONTINUOUS LIVING ROOTS

Reduces runoff and maintains healthy soil biological activity. Root systems improve soil infiltration and provide a food source to bacteria and fungi. Cover crops and perennials tend to have deeply rooted systems and could increase soil organic matter, leading to improvements in soil structure and stability. Cover crops can contribute carbon and nitrogen to the soil, and with careful species selection, improve nutrient management.

INTEGRATING LIVESTOCK

Can be a useful tool in nutrient and weed management. Grazing recycles nutrients on the farm as livestock convert high carbon crop residue, cover crops, or weeds into low carbon organic material.