

SOIL HEALTH IN PRACTICE FOR ORGANIC PRODUCTION SYSTEMS

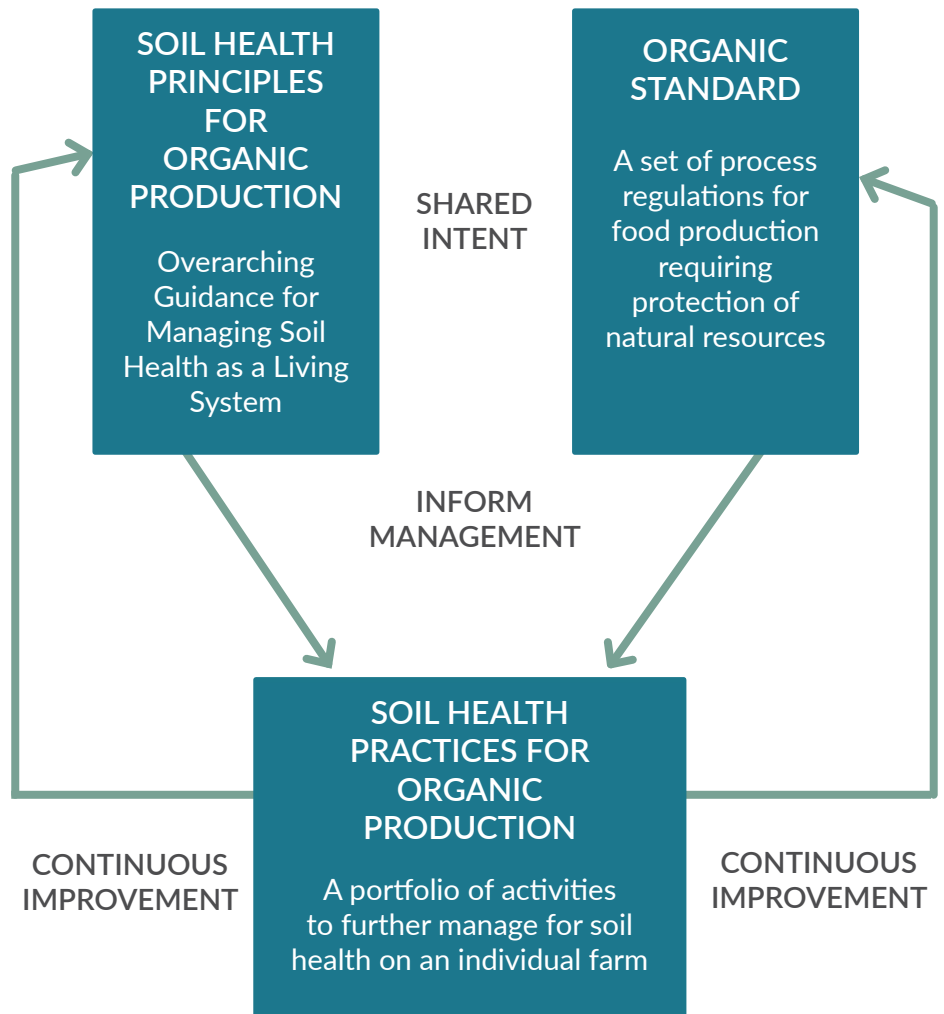
OUR APPROACH

What do soil health principles look like in practice? The answer is as diverse as Iroquois Valley's farmland investments and our farmers. While there is a large suite of practices that support soil health, on our farms practices are rarely implemented as single activities, nor as a checklist or a recipe.

Soil Health Practices are adapted to the diverse set of operations our farmers manage, including grain and vegetable crop production, livestock, agroforestry, and perennial systems. How practices are implemented depend on the region, soil type, natural resources and overall organic system on any specific farm. Our farmers 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.

This document provides a crosswalk where individual soil health practices, link to sections in the National Organic Standard and, nest under soil health principles.

FRAMEWORK FOR THE PRACTICES



SOIL HEALTH PRACTICES FOR ORGANIC PRODUCTION

ORGANIC STANDARD	PRACTICE	DESCRIPTION	PRINCIPLES
<p>A crop rotation in some form, including sod or cover, catch and green manure crops, is required.</p> <p>7 CFR § 205.205</p>	Crop Rotation	Rotating crops each year adds biological diversity to the soil and can help diminish fertilizer and pesticide needs. Implementation could be adding wheat to a corn and soy rotation, or more complex, with a fourth or fifth crop added to the sequence.	<ul style="list-style-type: none"> ○ Maximizing Plant Diversity
	Cover Crops	Planting cover crops right before or after harvest of a grain or vegetable crops. Cover crops include forbs, legumes and grasses. Legumes can be used as 'green manure' to reduce fertilizer needs.	<ul style="list-style-type: none"> ○ Maximizing Plant Diversity ○ Providing Soil Cover ○ Continuous Living Roots
	Strip cropping	Growing wide strips of crops alternating across one field is another way to add diversity. Crops may include row crops, small grains or forage for grazing animals.	<ul style="list-style-type: none"> ○ Maximizing Plant Diversity ○ Integrating Livestock
<p>Perennials can be used instead of crop rotations to introduce diversity.</p> <p>7 CFR § 205.2 See: Crop Rotation</p>	Alley Cropping	Trees or shrubs planted in rows, with another crop produced in 'alleys' in between. Farmers can employ alley cropping to add diversity in a perennial system.	<ul style="list-style-type: none"> ○ Maximizing Plant Diversity ○ Continuous Living Roots
	Contour Farming	Perennials are planted in strips on sloped land to reduce erosion. Crops are cultivated in-between.	<ul style="list-style-type: none"> ○ Maximizing Plant Diversity ○ Continuous Living Roots
<p>Tillage and cultivation must be practiced in a way that improves soil and minimizes erosion.</p> <p>7 CFR § 205.203 (a)</p>	Reduced Till	Using tillage methods that minimize disturbance such as vertical tillage, chiseling, disking and mulch tillage. Plant residues should be left on the field to increase organic matter.	<ul style="list-style-type: none"> ○ Appropriate use of tillage ○ Providing Soil Cover
	No-Till	Ending usage of tillage and leaving crop residue on the field provides soil cover. An organic farmer could use a roller-crimper or subsoiling cover crops instead of tillage. Plant residues should be left on the field to increase organic matter.	<ul style="list-style-type: none"> ○ Appropriate use of tillage ○ Providing Soil Cover
	Mulching	Applying plant residues to fields provides soil cover.	<ul style="list-style-type: none"> ○ Providing Soil Cover

SOIL HEALTH PRACTICES FOR ORGANIC PRODUCTION (CONT.)

ORGANIC STANDARD	PRACTICE	DESCRIPTION	PRINCIPLES
<p>Producers are required to maintain or improve SOM in a way that does not contaminate the environment.</p> <p>7 CFR § 205.203 (c)</p>	Compost	Managing the decomposition of excess organic materials to be used as a soil amendment.	<ul style="list-style-type: none"> ○ Eliminating Chemical Disturbance
	Nutrient Management	When using organic amendments, managing the amount, source, placement and timing of nutrients with the aim of reducing runoff. Organic amendments tend to be slow releasing and without synthetic chemicals. Nutrient management can also be done with the aim of reducing inputs overall.	<ul style="list-style-type: none"> ○ Eliminating Chemical Disturbance
	Manure Management	Storing manure from organic livestock to be used as an alternative to synthetic fertilizers.	<ul style="list-style-type: none"> ○ Eliminating Chemical Disturbance ○ Integrating Livestock
	Pest Management	Controlling pest populations without the use of synthetic pesticides through prevention, avoidance, monitoring, and suppression. Methods may include developing habitat for natural enemies and using predatory insects.	<ul style="list-style-type: none"> ○ Eliminating Chemical Disturbance
<p>Organic livestock should have access to quality pasture throughout the grazing season.</p> <p>7 CFR § 205.237 (c) (2)</p>	Forage	Planting species intended to be grazed by livestock. Forages could be pastures or crops grown in between the main production crop to introduce diversity (see Strip cropping).	<ul style="list-style-type: none"> ○ Integrating Livestock
	Rotational Grazing	Grazing animals are moved from one paddock to another, allowing time for forages and their root systems to recover.	<ul style="list-style-type: none"> ○ Integrating Livestock ○ Appropriate Biological Disturbance
	Silvopasture	Planting trees and forages in one field adds diversity to a field and allows for the integration of livestock.	<ul style="list-style-type: none"> ○ Integrating Livestock ○ Maximizing Plant Diversity
	Range	Planting perennials or other plants that do not require upkeep, which can be used for grazing. Perennials have the benefit of deep root systems and the potential to sequester carbon.	<ul style="list-style-type: none"> ○ Integrating Livestock ○ Continuous Living Roots

SOIL HEALTH PRACTICES FOR ORGANIC PRODUCTION (CONT.)

ORGANIC STANDARD	PRACTICE	DESCRIPTION	PRINCIPLES
<p>Have defined buffer zones to prevent the unintended application of prohibited substances.</p> <p>7 CFR § 205.202 (c)</p>	<p>Edge of field plantings</p>	<p>Planting of windbreaks and other forms of tree or shrub establishment at the edge of field that serves both to prevent drift of pesticides and to some extent reduce erosion.</p>	<ul style="list-style-type: none"> ○ Eliminating Chemical Disturbance ○ Continuous Living Roots
<p>Organic producers must maintain or improve the natural resources of the operation, including soil quality.</p> <p>7 CFR § 205.200</p>	<p>Shifting sensitive areas out of intensive production</p>	<p>Shifting sensitive areas into production systems with continuous living roots like pasture or agroforestry, or when necessary, taking lands out of production.</p>	<ul style="list-style-type: none"> ○ Continuous Living Roots

ACKNOWLEDGMENTS

These Soil Health Practices were created by referencing the USDA's [National Organic Farming Handbook](#), specifically by reviewing the practices listed in Table 1. Integral NRCS Conservation Activities for Organic Systems and retrieving the most relevant practices for soil health management. This list, combined with trends from EQIP Practice data from 2016-2018 shared by Lindsay Haines of NRCS informed practice selection. Iroquois Valley also drew on the [National Organic Standards](#), NRCS [Conservation Practice Standards](#) and [other resources](#). Iroquois Valley practice guidance includes common soil health practices for Organic farmers and is not intended to be exhaustive.

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