

## Soil Health

All healthy life requires the foundation of healthy soil.

Here at the Discovery Garden we focus on soil health as an essential garden practice. Soil is alive with living organisms such as worms, insects, and microbiology. It is said that a tablespoon of healthy soil has more microbes in it than there are people on the planet! That is a lot of life teaming in the soil. All of that activity underground is essential to growing healthy plants and ultimately having a healthy environment to live in and enjoy.

Three primary practices build healthy soil here in the Discovery Garden: no-till planting, cover cropping, and composting.

- **No-till** gardening and farming simply means that plants are put in the ground with no large-scale turning up or over of the ground – the goal is to have minimal disruption of the ground before placing the seed or plant. By doing this, the ground is retaining the residue from past plants which helps keep that microbiology underground healthy. As soon as all that microbiology is cut into and turned over, it begins to die off, no longer offering the same nutrient and water retention capabilities that it is capable of when fully intact. A more holistic approach is to keep the ground intact as much as possible when planting.
- In the Discovery Garden **cover crops** are planted for the purpose of covering and enriching the soil rather than being harvested. Looking in the Uncommon Orchard, cover crops are sown to help retain moisture in the orchard, introduce certain essential mineral and chemicals to the ground through the roots of the growing plants, and keep a live root in the ground so that microbiology in the soil can grow and thrive. Live roots also help to break up soil compaction. The emerging understanding of the intricate function of roots and how they interact with other organisms and elements underground is fascinating. Links are offered below if you are interested in learning more about this developing understanding.
- **Composting**, sometimes called nature's way of recycling, is the natural process of organic matter decomposing. This decomposition, when aided by human hands, uses organic materials otherwise regarded as waste and produces nutrient-rich soil. Composting takes place here in the Discovery Garden and is used to replenish the soil in all planting beds. *(Learn more in the Composting Virtual Tour)*

Healthy soil even reduces the use of water because it retains more moisture and helps plants tolerate short term drought conditions. Building healthy soil reduces pests over time. Having healthy soil and planting in that soil can help reduce weeds because the desired plants will grow robust, often leaving little space for weeds to thrive. The Discovery Garden does not utilize any pesticides because they kill off the life in the soil, virtually erasing the life teaming underground and wiping out the ecosystem we are endeavoring to create within the Garden. Healthy soil practices lead to better plant production, larger and more beautiful plants, and support the biodiversity that is critical to thriving and beautiful garden.

## **Website Resources**

### Overview of Soil Health

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>

### Healthy Roots

<https://terrabiocotics.com/blogs/news/healthy-roots-make-all-the-difference>

<https://blogs.scientificamerican.com/lab-rat/underground-communities-the-plant-roots-that-collect-bacteria/>

<https://www.nature.com/scitable/knowledge/library/the-rhizosphere-roots-soil-and-67500617/>

## **Video Resources**

<https://www.youtube.com/watch?v=qodG4MJEqvQ>

<https://www.nrdc.org/stories/secret-weapon-healthier-soil>

<https://learningenglish.voanews.com/a/secrets-life-of-roots/2941221.html>

## **Books from MCPLD Collection**

Soil science for gardeners: working with nature to build soil health

Mycorrhizal planet: how symbiotic fungi work with roots to support plant health and build soil fertility

The no-till organic vegetable farm: How to Start and Run a Profitable Market Garden That Builds Health in Soil, Crops, and Communities