

Compost and Organic Matter

Building Healthier Soil



LEARNING CENTER

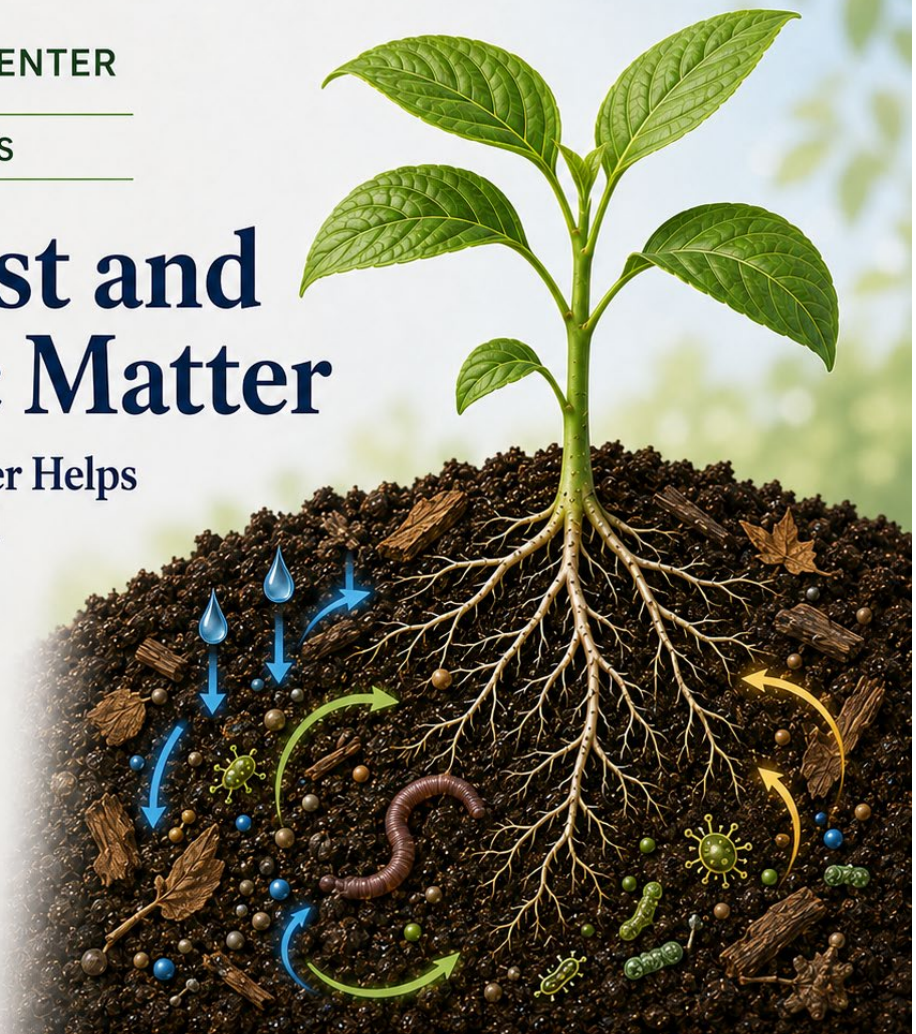
GROWING TIPS

Compost and Organic Matter

How Organic Matter Helps
Build Healthier Soil



COMPOST BUILDS SOIL.
ORGANIC MATTER
SUPPORTS GROWTH.



**BUILDS
ORGANIC MATTER**

Supports soil
structure and
nutrient cycling



**IMPROVES SOIL
STRUCTURE**

Promotes airflow,
drainage, and
root growth



**HELPS MANAGE
MOISTURE**

Supports water
infiltration and
retention



**SUPPORTS SOIL
BIOLOGY**

Feeds the living
system beneath
the surface

Healthy plants begin with healthy soil. While fertilizers supply nutrients needed for plant growth, the physical and biological condition of the soil also plays a major role in how effectively plants can access those nutrients.

One of the most practical ways to improve soil over time is through the addition and management of organic matter. Compost, crop residues, plant material, organic mulches and other naturally derived materials can all contribute to a healthier soil environment.

What Is Soil Organic Matter?

Soil organic matter consists of materials that originated from living organisms and are undergoing various stages of decomposition. This includes plant residues, roots, microorganisms, compost and more stable organic compounds that may remain in the soil for extended periods.

Organic matter represents only a portion of most soils, but it can have a significant influence on soil performance. It contributes to nutrient retention, soil structure, water management and biological activity.

Maintaining organic matter is an ongoing process. Soil organisms continually break organic materials down, releasing nutrients and transforming them into forms that become part of the soil system.

How Compost Supports Healthy Soil

Compost is decomposed organic material that has been biologically stabilized for use as a soil amendment. Properly prepared compost can add organic matter while improving several important soil characteristics.

Improved Soil Structure

Organic matter helps soil particles form stable aggregates. This creates pore spaces that allow air and water to move through the soil more effectively while giving plant roots room to grow.

In heavy or compacted soils, compost can improve aeration and drainage. In lighter sandy soils, organic matter can help increase the soil's ability to retain moisture and nutrients.

Better Water Management

Soils with healthy levels of organic matter generally have an improved ability to absorb and retain water.

This can help reduce runoff while keeping more moisture available within the root zone. Better soil structure also improves infiltration, allowing rainfall and irrigation water to enter the soil rather than simply moving across its surface.

Improved Nutrient Retention and Cycling

Organic matter contributes to a soil's ability to hold nutrients and make them available to plants over time.

As organic materials decompose, soil microorganisms participate in nutrient cycling. Rather than viewing soil simply as a material that anchors roots, it is more useful to think of healthy soil as a living system in which biological activity continually influences nutrient availability.

Compost Is a Soil Amendment, Not a Complete Fertility Program

Compost can contain valuable plant nutrients, but its nutrient content varies considerably depending on the materials from which it was produced and the composting process used.

For that reason, compost should not automatically be considered a replacement for a balanced fertility program.

Plant nutrient requirements may exceed what compost can provide, particularly during periods of vigorous growth or crop production. A soil test can help identify nutrient needs and determine whether additional fertilizer is appropriate.

Compost and fertilizer therefore perform related but different functions. Compost is particularly valuable for improving soil condition and contributing organic matter, while fertilizers can be used to provide specific nutrients in quantities appropriate for the crop.

More Compost Is Not Always Better

Because compost is beneficial, it can be tempting to assume that applying more will always produce better soil. That is not necessarily the case.

Repeated heavy applications, particularly of manure-based composts, can result in excessive accumulation of nutrients such as phosphorus. Nutrient imbalances can develop even in soil that appears rich and productive.

The objective should be to build and maintain healthy soil, not simply to maximize its organic matter content.

Soil testing is especially valuable in gardens, fields or planting areas where compost and fertilizers have been applied regularly over several years.

Organic Matter Comes From More Than Compost

Compost is only one component of organic matter management.

Other practices can help continually return organic material to the soil, including:

- Leaving appropriate crop residues in place
- Using organic mulches
- Growing cover crops
- Maintaining living roots whenever practical
- Returning composted plant material to the soil
- Reducing unnecessary soil disturbance

Organic mulches such as leaves, straw, wood products and compost gradually decompose and contribute organic matter. Cover crops and living roots can also support soil organisms and provide additional organic material as plants grow and decompose.

Think Beyond a Single Growing Season

Building healthy soil is rarely accomplished with a single application of compost or fertilizer.

Organic matter is continually being added, transformed and consumed within the soil. Maintaining it requires an ongoing approach that combines good soil management with appropriate nutrient management.

Over time, practices that protect soil structure, maintain organic inputs and support biological activity can create a more resilient growing environment.

The goal is not simply to feed the plant growing today. It is to maintain a soil system capable of supporting healthy plant growth season after season.

Disclaimer: This material is provided for general educational purposes only. Growing conditions, soil characteristics, crop requirements, application rates, and regulatory requirements vary. Always follow product label directions as well as all governmental and safety regulations or recommendations, and consult appropriate agronomic, regulatory, or crop-management professionals when making site-specific fertilizer or soil-management decisions.

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