

# Soil Health

## SOIL: A BRIEF OVERVIEW

- The single most valuable investment in your home landscape is soil improvement—healthy soil means healthy, productive, beautiful plants!
- Soil that is healthy is loose, nutritious (and thereby, fertile), well-drained and has the ability to retain needed moisture and nutrients.
  - Growing healthy soil is as simple as adding compost and other organic amendments.
  - Compost is dark in color and is nearly odorless. It is a mixture of decaying plant and animal wastes (living and dead organic material), which support a very intricate web of life teeming within soil.
- Poor soil has little organic matter, worms or microbial activity. Ornamental plants attempting to live in such conditions are vulnerable to pests and disease; whereas, weeds THRIVE!
- Alternatively, healthy soil is comprised of minerals, water, air, organic matter, worms and billions of microbes.
  - Microbes are microscopic organisms such as bacteria, fungi, protozoa and nematodes.
  - Generally speaking, microbial activity decomposes soil and converts it to nutrients usable by plants. Because all living things need energy to survive, the soil web of life is an eat-and-be-eaten world; simply stated, the “good bugs” all need one another in order to survive.
- Worms also have an invaluable role in growing healthy soil. They eat organic matter as they tunnel through the soil, endlessly searching for food. As they tunnel, they leave behind “castings,” or excrement. Tunneling aerates (ventilates) soil, improving drainage capacity and texture. Deposited castings are comprised of bacteria, nitrogen, magnesium and phosphorous—all vital components of the soil web.
- Active, healthy soil is a place where plants are anchored. Furthermore, their roots gain access to the essentials: oxygen, water and nutrients that have settled in the pockets of air between mineral and organic particles. Fourteen of the seventeen nutrients mandatory for plant development and health are obtained in soil. The remaining three, carbon, oxygen, and hydrogen are delivered via air and water.

## BENEFITS OF HEALTHY SOIL

- Healthy productive plants!
  - Larger crop yield (i.e. food)
  - Curb appeal and increased real estate value
  - More of the plants you do want and less of those you don't (weeds)
- A healthier ecosystem within your yard
- Plants that have greatly increased resistance to pests and diseases
- Less work in the garden (weeding, watering, tending to sick plants)
- A lower water bill
  - Soil is able to efficiently use supplemental water you provide
  - Less water runoff due to the soil's storage ability
- Increase in overall water quality in streams and rivers, resulting from decreased runoff from garden beds

## THINGS THAT DAMAGE SOIL

**Chemicals**—Whenever possible, use organic products and FOLLOW THE PACKAGE DIRECTIONS. Prevent problems rather than attempt to ‘fix’ them.

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**Over-watering**—not only does too much water prevent air from reaching plant roots, it also increases chances of diseases affliction.

**Over-fertilizing**—too much fertilizer actually causes stress to plants. Use slow-release, organic products such as Dr. Earth. Think of this as feeding your soil *and thereby* your plants. One metaphor would be giving the soil a salad for dinner instead of a candy bar—sustained nutrition versus a quick snack full of empty calories.

**Compaction**—soil particles that are tightly bound together suffocate the delicate soil web of life. Consequently, plants are unable to obtain mandatory nutrients or grow healthy, deep roots.

## WHAT YOU CAN DO TO GROW HEALTHY SOIL

**Add compost!** Products such as Black Forest, Soil Soup and Bumper Crop make simple work of soil amendment. Making your own compost is far less daunting than it may seem—read our information sheet entitled 'Composting' for instructions about how to get started.

**Mulch**—add a thick layer of aged bark, grass clippings, leaves, etc. on top of the soil to reduce evaporation of water, prevent weed growth and insulate plants. Over time, organic mulch breaks down and becomes part of the soil structure.

**Plant a cover crop** in beds (or areas of beds) that are currently unused. Not only do cover crops suppress weeds, they also fix nitrogen, add organic matter, improve soil texture, decrease run off (soil absorbs water more readily), and suppress soil pests & diseases. Should you choose, cover crops can also be lightly tilled up and added to compost piles (GREAT source of nitrogen!). See our information sheet titled 'Cover Crops' for additional reading.

**Avoid compacting** soil by not walking in your garden beds (this includes pets, too!). Instead, add stepping stones or paths for easier access.

**Minimize tilling**—including the use of rototillers. Remember: there is an extremely intricate web of life in *every bit* of garden soil. Optimally, in order for microbes, worms, and other soil critters to live productively and healthfully, they (like us) need their home to remain as undisturbed as possible.

**Rotate crops**—when growing vegetables in your garden, rotate the area in which they are grown. Different nutrients are taken out of the soil by different plants, so switching a crop's location will yield healthier soil and plants—and more productive crops!