

# Don't Treat Your Soil Like Dirt

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## Soil Life

Soil is a living system and habitat to an array of organisms and plant roots. How we treat the soil determines the success of the plantings. It may not be that we have such bad soil, but that we have treated the soil badly.

## Understanding Garden Soil

Many home gardeners assume their soil will need drastic help or that they'll need to buy new topsoil to grow anything well. But it's very likely the soil just needs the right care and may actually be better than what you can buy. So, take a good look first. Turn over a shovelful and grab a handful. Good garden soil will be crumbly and easy to dig, have a sweet earthy aroma, and be a medium shade of brown. If it is really hard to dig, doesn't hold together in small clumps, smells sour, or is ghostly pale in color, then some proper amendment will be in order.

What's the best thing to do? It will depend on soil qualities and what you are growing. Consider a lab test for good data on soil type, organic matter content, pH, and nutrient levels to guide what, if any, amendments are needed. This is especially valuable for large new plantings and when plants have been failing.

## You Can Learn a Lot from a Handful of Soil

**Texture:** A pinch of damp clay soil will feel smooth between your fingers; sandy soil feels gritty. Texture **is** the percentage of sand, silt, and clay particles. Clay soils keep a tight grip on moisture and are generally more fertile than sandy soils. Sandy soil has lower nutrient and moisture holding capacity. Loamy soils strike a balance between the two, with good drainage as well as nutrient and moisture holding capacity. Soil texture is not readily changed. (Soil texture by feel: [https://puyallup.wsu.edu/soils/video\\_soiltexture/.](https://puyallup.wsu.edu/soils/video_soiltexture/))

**Structure:** Does your sample look crumbly and chunky? This is a clue to the structure - how well soil particles stick together in small clumps (aggregates) and how porous it is. Good porosity translates to good drainage and oxygen supply. Soil structure can be changed for better or worse. Things that damage structure include over-tilling, over watering, working soil when it is wet, high foot traffic, and heavy equipment.

**Organic matter:** Color gives you an idea of soil organic matter content. Very pale color points to an absence of organic matter. Higher levels show up as darker hues. The good news is that both clay and sandy soil can be improved and maintained with modest annual applications of organic amendments and/or mulch. Organic matter and its associated soil organisms provide the "glue" that holds soil particles together and contributes to good structure, fertility, and moisture holding capacity.

**Biology:** A productive soil system depends on a diverse community of organisms. The majority of beneficial soil organisms are invisible, or nearly so, to the naked eye. Sightings of larger organisms can give an indication of biological activity – springtails, earthworms, centipedes, millipedes, sowbugs, ants, ground beetles and the like. (Soil biology video: [Bioturbation](#) ). The seasonal appearance of mushrooms indicate subterranean fungal mycelium is at work, with some types forming mycorrhizal associations with plant roots. Mole activity is also an indicator of good soil biology.

Soil organisms all require air, moisture, and food sources to function. They are harmed by soil compaction, moisture extremes, soil disturbance, and in some cases, from applied products.

## Important Soil Care Practices

### Limit soil disturbance.

- Double digging and extensive roto-tilling are out and surface treatments are in.
- Don't work or stomp around on wet ground.

### Mulch well and feed the soil builders.

- Course-textured woody organic mulch is one of the best ways to maintain good soil and healthy plants. It will protect against soil compaction and erosion, improve water penetration, hold moisture in, and suppress weed growth. Weeds are much easier to pull from the well-conditioned soil beneath good mulch.
- Decomposing mulch acts as a slow-release fertilizer while replenishing soil organic matter. Coarse organic mulch supports a variety of beneficial insects, worms, and fungi which in turn contribute good conditions for root growth.
- Start as local as your own backyard. Composted leaves (leaf mold) and worm compost are among some of the richest materials available. "Chop and drop" small dead branches and stems to cycle them directly into the mulch layer.
- Woody mulch or leaf mold 2 to 4-inches deep is effective for weed suppression and moisture retention. Expect to replenish every 2 to 3 years.
- Keep some pieces of larger wood (cut branches or small logs) amid the mulch layer to improve wildlife habitat and plant health.
- Stay away from fabric weed barriers and fine bark. Both can interfere with water infiltration, depress soil organic matter, and suppress beneficial soil organisms.

### Apply compost and organic amendments in moderation.

- Screened composts and amendments that have a fine soil-like texture can be turned in or laid on top at an inch or less thick.
- Fertile amendments have a mix of composted manures and aged sawdust or wood shavings. These are good for soil that lack organic matter and for growing "heavy feeders" like vegetable and flower gardens. The nutrient content will be listed and they can take the place of fertilizer. You'll often see terms like "soil conditioner" on the label.
- Nutrient rich amendments provide a strong boost to soil biology and are a good choice for restoring depleted, problem soils.

- Beware of overloading the soil with compost, as it can lead to a host of problems. If your soil is as dark as coffee grounds, it already has more than it can handle. Stick with a woody mulch and hold off on the compost for a while.

**Water deeply and infrequently.**

- By alternating between wet to slightly dry condition, the resulting shrink and swell cycle helps maintain soil structure and porosity, especially for clay soil types.
- Constant moisture and excessive drying are both destructive to soil structure and soil building organisms.

**Apply garden products with care.**

- Excess nutrients and pesticides can impact soil biology and the environment.
- Read the labels and use only what’s needed at the correct rates.

## Resources

USDA Natural Resources Conservation Service - [Soil Health](#)

King Conservation District Soil Testing - <https://kingcd.org/programs/better-soils/healthy-soil/>

WSU Soil info and links to regional soil test labs: <https://puyllup.wsu.edu/soils/soils/>

WSU Publications – PDF downloads at <https://pubs.extension.wsu.edu/extension-publications>

EM063E A Home Gardener’s Guide to Soils and Fertilizers

EB1784E Backyard Composting

FS123E Organic Soil Amendments in Yards and Gardens: How Much is Enough?

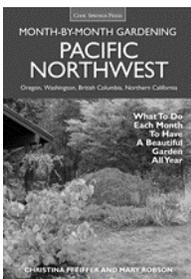
FS147E Biochar: A Gardener's Primer

FS160E Using Arborist Wood Chips as Landscape Mulch

FS269E A Gardener’s Primer to Mycorrhizae

*How to Have a Green Thumb without an Aching Back*: a new method of mulch gardening by Ruth Stout, 1955. Simon & Schuster.

*The Hidden Half of Nature* by David R. Montgomery & Anne Biklé, 2016. W.W. Norton, N.Y.



*Pacific Northwest Month-by-Month Gardening* | Cool Springs Press

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