



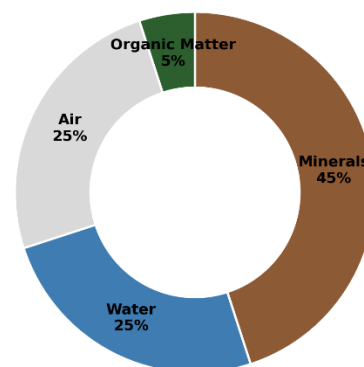
Healthy Soil

Building the Foundation for a Thriving Garden

What Is Healthy Soil?

- A living system: 45% minerals, 25% water, 25% air, 5% organic matter.
- Organic matter fuels ALL biological activity.
- Soil texture (sand/silt/clay) affects drainage, aeration, and nutrient holding.

What Makes Up Healthy Soil

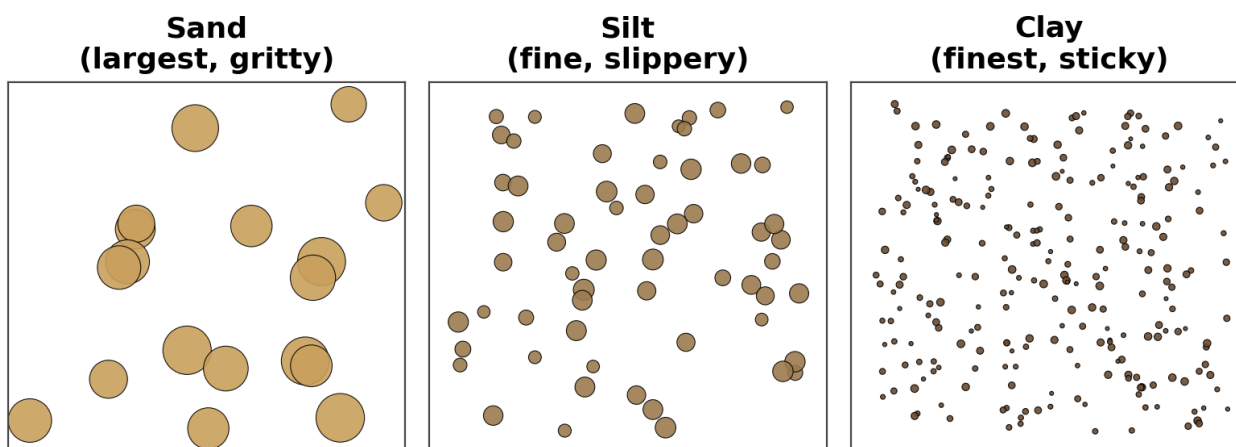


The Soil Food Web - Life Under Your Feet

- 1 teaspoon of healthy garden soil contains 1 billion bacteria.
- Bacteria and fungi break down organic matter.
- Earthworms: nature's tillers.
- Mycorrhizal fungi extend plant root systems, improving water and nutrient uptake.
- Predators (nematodes, beetles, mites) keep the system in balance.

Soil Classification

- **Sand** — largest grains, easily seen, feels gritty.
- **Silt** — fine grain, hard to see the individual grains, feels slippery.
- **Clay** — finest grain, cannot see the individual clay particles, feels sticky.



Knowing your soil texture helps you make better garden decisions.

Signs of Healthy Soil

- **Color** — dark brown to black.
- **Structure** — crumbles easily.
- **Smell** — that clean, earthy scent.
- **Life** — earthworms, pill bugs.
- **Drainage** — absorbs water readily; puddles drain within an hour.
- **Plants** — vigorous growth with deep green color.

Warning Signs

- **Compaction** — hard to dig, water pools on surface.
- **Color** — pale gray or yellowish.
- **Odor** — a sulfur or rotten-egg smell.
- **Crust** — hardens between waterings.
- **Weeds** — some weeds thrive in compacted, nutrient-poor soil.
- **Plants** — stunted growth and yellowing leaves despite regular fertilizing.

Soil Testing - Is It Necessary?

- For most gardeners: probably not — healthy soil practices solve most problems.
- Test after a wildfire.
- Test after a chemical spill, flooding from industrial areas, or on older properties.
- Test for persistent, unexplained plant failure despite good practices.

Commercial labs or self-test kits from garden centers.

Building Healthy Soil

- Compost is a great amendment for both clay AND sandy soils.
- Mix compost into top 6–12 inches before planting.
- Side-dress established plants.
- Compost improves drainage (clay) and water-holding (sand).
- Avoid over-relying on synthetic fertilizers.

Mulch - The Soil Protector

- Apply 3–4 inches; keep mulch 2 inches away from plant stems; re-apply as it breaks down through the season.
- **Best mulch for vegetables** — straw (excellent, light, easy to work with); fine bark or coco coir (good moisture retention); wood chips (great for pathways between beds).
- Reduces soil surface temperature by up to 15°F.
- Retains moisture — reduces watering by 25–50%.
- Suppresses weeds.
- Feeds soil biology.

Raised Beds & Containers

- Ideal for gardens with limited soil or poor native soil.
- Fill with: 60% quality topsoil + 30% compost + 10% perlite.
- Avoid pure potting mix in large raised beds — it dries out quickly.
- Replenish with 1–2 inches of compost each season.
- Container: refresh or replace every 2–3 years.

What NOT To Do

- DON'T till repeatedly.
- DON'T leave soil bare.
- DON'T over-water.
- DON'T over-fertilize with synthetics — damages microbial life, causes salt buildup.
- DON'T use broad-spectrum pesticides near soil — they kill beneficial organisms.
- DON'T walk on garden beds — compaction is the #1 enemy.

Key Takeaways

- Healthy soil is alive — protect the food web by minimizing disturbance.
- You can diagnose soil health with your eyes, nose, and a screwdriver.
- Compost and mulch are your best tools — use them generously and consistently.
- Soil testing is rarely needed for home gardeners — but is warranted after fire, flood, or chemical events.
- Local challenges (clay, salinity, caliche, fire ash) all respond to organic matter.



Keep a Garden Record

- Track what and when you add to your soil — compost, amendments, mulch.
- Note soil texture, color, and drainage each season to spot changes in structure.
- Jot down what's growing well (or struggling) in different beds — plant performance is one of the best long-term soil clues.
- Revisit past entries each season to spot patterns before deciding whether testing or amendments are needed.

Any system works: notebook, phone, sticky note on the seed packet. The best garden journal is the one you'll actually use.

Resources & Questions

- Soil: ucanr.edu/sites/soils/Soils_for_Homes_-_Gardens/
- Handbook for Beginners: ucanr.edu/sites/ccmg/files/292083.pdf
- Soil: marinmg.ucanr.edu/BASICS/SOIL_813/
- Container Gardening Soil: productionhortucce.squarespace.com/blog/optimizingnutrientmanagement

Free Master Gardener Help Desk: mgventura@ucanr.edu

Upcoming classes: ucanr.edu/sites/VCMG

Learn more about the Ventura County Master Gardener using this QR to visit the website.

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