

How to Read Your Soil

A Homeowner's Guide to Soil Function

RegenerativeLawnandGarden.com

You don't need a laboratory to know whether your soil is healthy. The soil itself tells you — if you know what to look for. Most homeowners judge their lawn by how it looks on the surface, but appearance can be misleading. A lawn can look acceptable while the soil beneath it is struggling, kept alive by regular fertilizer, frequent watering, and ongoing intervention.

A truly healthy lawn is one where the soil is doing most of the work. Learning to read your soil is one of the most useful skills you can develop as a homeowner.

1. Water Infiltration — What Happens When It Rains?

Water behavior is one of the first and most visible signs of soil function. Watch what happens during and after a moderate rainstorm.

Well-Functioning Soil	Poorly Functioning Soil
Absorbs rainfall quickly	Puddles form quickly, even in light rain
Minimal puddles after storms	Water runs off rather than soaking in
Stays moist longer during dry periods	Surface dries out fast after rain stops

If your lawn puddles easily or sheds water during normal rainfall, the soil has lost some of its ability to absorb and store water.

2. Root Depth — How Deep Are Your Roots?

Use a small trowel or soil probe to pull a plug of turf and examine how far roots extend into the soil. Deep roots access water and nutrients from a larger volume of soil, making grass far more resilient during heat and drought.

Root Depth	What It Means
4–8 inches or deeper	Well-functioning soil
2–3 inches	Compaction or limited biological activity
Less than 2 inches	Significant soil function problems

If your lawn goes brown quickly during dry spells, shallow roots are often part of the reason.

3. Earthworm Activity — Nature's Soil Engineers

Earthworms improve soil structure, create channels for water and air, and accelerate breakdown of organic material into plant-available nutrients. To assess earthworm populations, dig a section approximately one foot square and six inches deep. Count what you find. Spring and fall are the best times to check.

Earthworms per sq. ft.	Soil Condition
0–2	Poor biological activity
3–5	Fair
5–10	Good
10–20	Excellent
20+	Highly active, very functional soil

4. Soil Structure — What Does Your Soil Feel Like?

Dig a hole about six inches square and six inches deep and take a handful of soil. The difference between healthy and degraded soil is usually apparent within seconds.

Healthy Soil	Degraded Soil
Crumbles easily in your hand	Forms hard, dense clods
Visible pores and channels	Compact, heavy, no air space
Roots penetrate with little resistance	Roots terminate early or avoid it

5. Organic Matter — The Foundation of Soil Function

Organic matter improves nearly every aspect of soil function — water retention, nutrient availability, biological activity, and physical structure. Measure it with a standard soil test, available through university extension services or private labs.

Organic Matter %	Soil Function
Less than 2%	Low — significant limitations
2–4%	Moderate — room for improvement
4–6%	Good — soil is functioning well
Greater than 6%	Excellent — highly productive soil

Many suburban lawns fall in the 1–3% range, particularly in newer developments where topsoil was removed during construction. Even modest increases produce noticeable improvements.

6. Biological Activity — Is the Soil Recycling?

A healthy soil is a living system. Signs of healthy biological activity include:

- Earthworms and beetles present when you dig
- Visible fungal threads (fine white strands) in decomposing material
- Grass clippings and leaves that break down and disappear naturally
- A fresh, earthy smell when soil is disturbed — produced by soil bacteria (geosmin)

If leaves and clippings barely decompose, or your soil smells flat or sour, the biological community may be depleted. This can be reversed by adding organic matter, reducing chemical inputs, and minimizing soil disturbance.

7. Nutrient Recycling — How Much Are You Feeding Your Lawn?

Ask yourself two questions:

- Does your lawn need frequent fertilizer applications to maintain its color?
- Does it fade or yellow quickly when fertilizer is withheld?

A well-functioning soil recycles nutrients continuously through biological activity. Heavy dependence on fertilizer often reflects a nutrient recycling problem — not a nutrient shortage. Adding more fertilizer treats the symptom without addressing the cause.

8. Drought Resilience — How Does Your Lawn Handle Stress?

Lawns rooted in healthy soil stay green longer during dry periods, recover faster when rain returns, and require less supplemental irrigation. Drought resilience is often attributed to grass variety — but soil function is the larger factor. A drought-tolerant grass in compacted, depleted soil will still struggle. The same grass in deep, biologically active soil will perform substantially better.

A Simple Soil Function Scorecard

- ☐ Water soaks in quickly after rainfall
- ☐ Few or no puddles form after moderate rain
- ☐ Earthworms are present when you dig
- ☐ Soil crumbles easily when handled

- Roots extend deeper than four inches
- Leaves and clippings decompose naturally over time
- The lawn holds its color during short dry periods
- Fertilizer need has remained stable or decreased over time

3–4 checks: Significant room for improvement. Start with organic matter and biological activity.

5–6 checks: Moderate function. Your soil is working but has real potential to do more.

7–8 checks: Strong function. Your soil is doing most of the heavy lifting on its own.

*The ultimate measure of a healthy lawn isn't how it looks on a given day.
It's how much of the work the soil is doing on its own.*

A well-functioning soil captures water after rain, holds it through dry spells, feeds plant roots through natural nutrient cycling, and supports a biological community that keeps the whole system running. Over time, a regenerative approach means less fertilizer, less irrigation, and less intervention — not because you're neglecting your lawn, but because the soil beneath it has recovered enough to take care of itself.