

The Soil Test Cheat Sheet

Test first. Spend second.

When plants die in the same spot, the cause is often the soil, not you. These five home tests and one lab test show what is wrong before you spend a dollar on products. Start with the table, run the test that matches your problem, and write the result in the log on page 2.

Which test do you need?

If you see this	Run this	Your effort
Plants die or turn yellow in the same spot	pH fizz test , then a lab test	10 minutes, then mail-in
Water pools or a spot stays soggy	Drainage test	10 minutes, plus waiting
Soil is hard to dig, or the lawn is thin	Screwdriver test	2 minutes
Soil feels lifeless, with few worms	Shovel and worm count	10 minutes
Not sure if your soil is sandy or clay	Jar test	10 minutes, plus settling
About to buy lime, sod, or build a new bed	Lab test (page 2)	Mail-in, about 3 weeks

Step 1. Five home tests

1. pH fizz test

Tells you: acidic or alkaline. Not a number.

- Scoop 2 tablespoons of soil from 4 inches down into each of two cups.
- Cup A:** pour in ½ cup vinegar. Fizz means **alkaline**.
- Cup B:** add water to make mud, then ½ cup baking soda. Fizz means **acidic**.
- No fizz in either? Probably close to neutral.

Use a lab test for the real pH number before you add lime or sulfur.

2. Drainage test

Tells you: how fast water leaves the spot.

- Dig a hole 12 inches deep and 4 to 12 inches wide. Skip very wet soil.
- Fill it with water. Let it drain. This can take hours.
- Refill it. After 15 minutes, measure how far the water dropped. Multiply by 4 for inches per hour.

1 to 3 in/hr: good. **Under 1:** poor. **Over 4:** very fast.

3. Screwdriver test

Tells you: compaction, or shallow roots.

- Soak the spot and wait a day. Soil should be moist, not dry or muddy.
- Push a long screwdriver straight down.
- Hard to push, or it stops in the first 2 to 3 inches? Suspect compaction or a shallow root zone.

Dry soil always resists. Test after a good soaking.

4. Shovel and worm count

Tells you: how alive and organic the soil is.

- Dig a block about 12 inches square and 8 to 12 inches deep.
- Put it on a tarp. Break it apart by hand.
- Count the worms. When soil is moist, 8 to 10 or more is a common benchmark for healthy soil.

Few worms is a clue, not a diagnosis. Compare with your other results.

5. Jar test (soil texture)

Tells you: how much sand, silt, and clay you have.

- Fill a jar one third full with sifted soil. Add water and shake hard.
- Set it down. Sand settles in about **1 minute**, silt in about **2 hours**, clay in about **48 hours**.
- Measure each layer and work out its share of the total.

Mostly sand: drains fast, add compost.

Mostly clay: drains slowly, aerate and add compost.

Step 2. Send a lab sample (the number that matters)

1. **Find your lab.** Search "[your state] extension soil test" or use the [USDA partner directory](#).

2. **Collect.** Take 6 to 15 small scoops across one area in a zigzag. Go 3 to 4 inches deep for lawns and about 6 inches for gardens. Remove roots, thatch, and stones.

3. **Mix and dry.** Combine the scoops in a clean plastic bucket. Air-dry if wet. Bag 1 to 2 cups, as your lab asks.

4. **Label and ask.** One sample per area (lawn, vegetable bed, shrubs). Sample a problem spot separately. Tell the lab what you plan to grow.

Good to know

- Skip very wet soil. Fall is a fine time to sample.
- Fees vary by state. Many labs charge roughly \$15 to \$50.
- Allow about 3 weeks for results.
- Follow your own lab's directions first. They differ.

Read your pH

Very acidic
below 5.5

Acidic
5.5 to 6.0

Sweet spot for most lawns and vegetables
6.0 to 7.0

Slightly high
7.0 to 7.5

Alkaline
above 7.5

Blueberries and rhododendrons like 4.5 to 5.5.

Kimberly's yard: pH 5.2. That was too acidic for almost everything she had planted. Fertilizer alone does not fix pH. A lab report tells you how much lime your soil needs.

What to do with your results

Result	Likely fix	Be careful
pH below 6.0	Lime. Use the amount on your lab report.	Too much lime pushes pH too high. Lime takes months to work.
pH above 7.5	Elemental sulfur, as the lab recommends.	Acid-loving plants need exact rates.
Drains under 1 in/hr	Work 2 to 4 inches of compost into the top 6 to 12 inches. Break up hardpan. Consider raised beds or wet-tolerant plants.	More mulch will not fix standing water.
Drains over 4 in/hr	Add compost to hold water. Choose drought-tolerant plants.	Sandy soil also loses nutrients faster.
Compacted or few worms	Core aerate lawns (early fall for cool-season grass). Add compost, mulch leaves, plant cover crops in beds.	Aerate before you fertilize or seed.

Why fall works: lime and compost need months to react, so fall gives them a head start. Hold nitrogen and potassium on garden beds until spring, because they wash out over winter. Lawns follow their own fall feeding plan.

Your soil log

Date	Spot	pH	Drain (in/hr)	Screwdriver	Worms	What I will do

Sources: Drainage test and rates: [Iowa State Extension](#). Sampling: [UNH Extension](#) and [Cornell Cooperative Extension](#). pH ranges and lime or sulfur: [UVM Extension](#). Home tests and fall timing: [DIY Soil Test for Under \\$10](#) and [6 Signs Your Soil Needs Amending Before Winter](#). General guidance only. Your state extension lab's instructions come first.