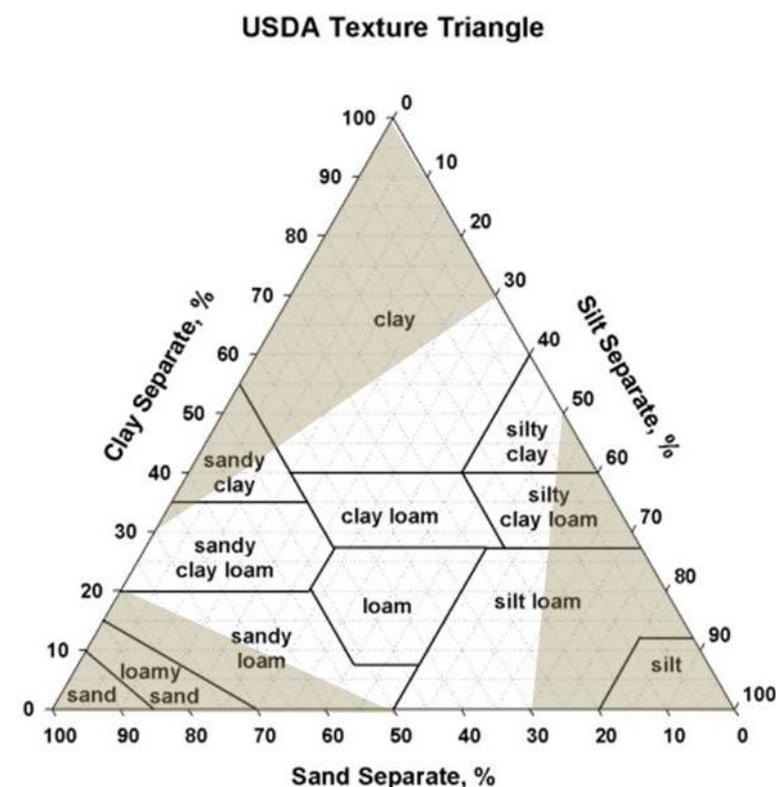


Do-it-yourself Soil Tests

You don't need to spend money on expensive soil tests. Here's how to do it yourself for (nearly) free! The advantage of DIY is you can repeat your soil tests as often as you wish, on as many samples as you need to.

TEXTURE TEST:

Take a scoop of soil and drop it into a jar of water. Combine, shake vigorously, let settle undisturbed for 24 hours. Measure the resulting layers with a ruler, and determine each layer's percentage of the whole (yikes, math!). For example, a 1" layer of clay compared to a 5" layer of total soil material indicates you have 1/5 clay, or 20%. Locate the percentage of each attribute



Plus 5-10% organic matter

on the triangle diagram. The point where the three variables meet tells you the type of soil you have.

In the version of the USDA texture triangle at left, the area shown in white is "good garden soil" according to Lowenfels & Lewis.

Common recommendation is that your soil should have 5-10% organic matter.



pH / ACIDITY TEST:

This article tells how to test soil Acidity/Alkalinity without a test kit

http://frugalliving.about.com/od/gardening/h/Soil_Test.htm

In contrast to the recommendations in most garden books, here in Los Angeles we face a continual task of adding *more* acid to the soil.

DRAINAGE TEST:

(a.k.a. Percolation test)

Dig a hole 18" deep, 6" wide. Fill it with water. Observe how long it takes to be absorbed. If water drains out of the hole within 3 hours, you have fast drainage. 4 - 6 hours is ideal. more than 8 hours is slow draining soil.

TEST FOR SOIL LIFE:

Healthy garden soil is ALIVE.

"One teaspoon of compost may contain: 1 billion invisible bacteria (20,000 to 30,000 species of them), 400 to 900 feet of fungal hyphae (thread-like structures), 10,000 to 50,000 protozoa, and 30 to 300 nematodes. Then there are algae and slime molds, and arthropods ("insects" or "bugs"), both visible and microscopic." --paraphrased from Lowenfels & Lewis, *Teaming with Microbes*

"A noticeable worm population is a clear sign of a healthy food web community. It means organic matter, bacteria, fungi, protozoa, and nematodes – all necessary to support a worm population – are in place." -- Lowenfels & Lewis

Here's a Do-it-yourself Berlese funnel technique for extracting and counting the organisms in your soil sample

<http://www.cals.ncsu.edu/course/ent591k/berlese.html>

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www.EnviroChangeMakers.org

TEST FOR HEAVY METALS & LEAD:

Cannot be done at home. Cheap version (approx \$10-20 via mail) is available from the University of Massachusetts <http://www.umass.edu/soiltest/>

TEST YOUR SOIL WITH PLANTS:

Weeds are not the problem; they are the symptoms of problems. - Anonymous

Your weeds can potentially tell you a lot about your soil. By observing the most common weeds on your property, and knowing a bit about those weed plants, you might learn how your soil is doing, and what it might need.

Clover, for instance, is a leguminous plant. Legumes help capture nitrogen from the air. Nature grows what she needs: when you see clover as a persistent volunteer, it is a strong indicator that particular patch of soil craves nitrogen.

The familiar dandelion, by contrast, might tell you that there is a high availability of nitrogen. It also might say that your soil is heavy and recently cultivated, that it also has a moderately high level of raw organic matter, low calcium levels, high potassium and magnesium, and – if plants are stunted – low phosphorus.

Use a good local nature guide, such as Tom Whitson's *Weeds of the West*, to identify your most persistent weeds. Skip over the weeds that make only an occasional appearance; the valuable clues are in the plants that are your ongoing challenges. Then follow up with resources such as John Beeby's "Test Your Soil with Plants" to break the code and understand what your weeds are telling you.

Chickweed (*Stellaria media*) grows lush and plentiful in fertile soil. Thus a "chickweed problem" in your vegetable garden may be a good thing – telling you your garden soil is really fertile, rich in organic matter and high in nitrogen. It might indicate that your soil is alkaline, moist, and perhaps poorly drained. (Meanwhile, all that chickweed is edible, medicinal, and great chicken fodder.)

Nightshade potentially says low calcium, low phosphates, very high potash, very high magnesium, low humus levels, low soil porosity, anaerobic soils, hard sticky soils, and high levels of aluminum.

Field mustard (*Brassica nigra*), quack grass (*Agropyron repens*), morning glories, and pineapple weed (*Matricaria suaveolens*) could show you hardpan or a hard crust.

As you learn the art of reading your weeds, the plants may tell you things no chemical soil test ever could.

Realize that your soil is not uniform across the entirety of your property. Soil test services understand this -- most will ask you to take samples from multiple places around your garden and combine them for the test. Unless you run multiple parallel soil tests, you'll never know which specific patches within your garden are overfertilized and which are too lean.

By careful observation you might unlock the nuances of your garden. By reading your weeds, you could discover that chickweed likes one particular corner of your garden, while lanceleaf plantain likes another. Your weeds may help you identify which patches need more soil-building attention.

Excerpt from "The Secrets of Soil Building," by Joanne Poyourow

Analysis of weeds is compiled from John Beeby, "Test Your Soil With Plants" (April 1997. Publication available through Bountiful Gardens catalog); Nikki Phipps <http://www.gardeningknowhow.com>; Susan Sides, Mother Earth News <http://www.motherearthnews.com/Organic-Gardening/1987-07-01/Good-Weeds.aspx>; "Weeds and Why They Grow", by Jay L. McCamon quoted at <http://blog.calciumproducts.com/posts/weed-control-starts-now.cfm>

Soil Building

1. Take care of your soil life – provide food, water, air, shelter and protection.

FOOD: Use compost – fold it into your soil. Meanwhile, start making your own homemade compost.

SHELTER: Use mulch like a "quilt" on top of your garden bed.

WATER: Prevent runoff and erosion. Infiltrate rainwater. Irrigate long, slow, and deep.

AIR: Keep your feet on the paths to avoid compacting your growing beds.

PROTECTION: Quit the chemicals – *all* of them.

2. Plant legumes (peas, beans) to capture nitrogen.
3. Rotate your crops to break the chain of soil-borne pests and nutrient depletion.
4. Consider growing green manures and carbon crops to provide raw material for your compost pile.
5. Compost everything you possibly can and build homegrown soil populations.

Feed your soil.

*Your soil feeds your plants
and your plants feed you.*

-- Paraphrased from John Jeavons

"The Secrets of Soil Building" booklet is available here <http://www.etsy.com/shop/EnviroChangeMakers>

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