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Living soil: Everything about fertile ground

Knowing your ground, its quality and type, is a crucial factor for all successful gardeners. You need to understand the food web of your soil and its many interactions.

Here are some tools that will help you in your garden:



First step: Counting earthworms

Earthworms are the best indicator for finding out the quality of your soil. If there are many, then that's excellent news! Earthworms are the world's most potent fertilizers as they produce precious humus, which is a superfood for plants.

The best time to count your worms is when it rains. Earthworms don't appear at the surface when it is dry, as their delicate skin can't handle drought.

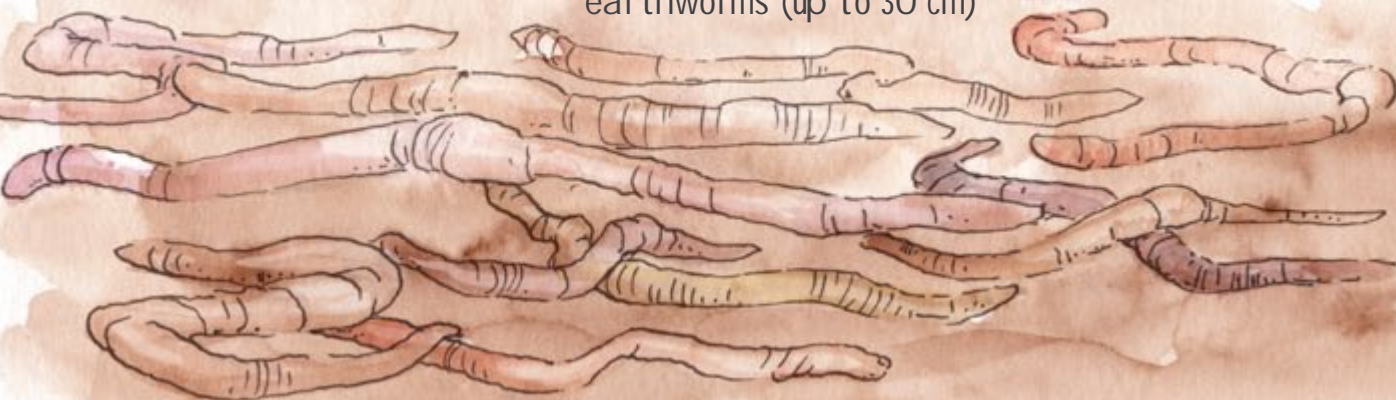
First remove the grass, then take a spade and dig up an area measuring about 12 inches (30 centimeters) square. You will find all sorts of living creatures in there.



Worldwide there are about 3000 different species of earthworm.

Earthworm droppings can be found at the surface or in soil cavities. These excretions – and even the slime that covers earthworms – supply food for microorganisms.

earthworms (up to 30 cm)



woodlice (1,6 cm)



collembolans (1-2 mm)



Put the soil from your spade on a plate, then count the worms and their eggs.

less than 80

Your soil needs treatment to improve their proliferation.

around 150

A reasonable soil, fertile enough to grow most veggies and herbs.

250 or more
your soil is very good indeed!



Additionally, in a healthy piece of soil you will find around 300 woodlice, 50,000 collembolans and millions of ciliates. There are also algae, fungus and bacteria living there, but you would need a microscope to see these. All these living creatures help make the soil fertile.

Smelling

The smell of your soil gives you important hints about its quality. A fresh smell of wood indicates healthy soil. Forest soil has the richest microbiological content.

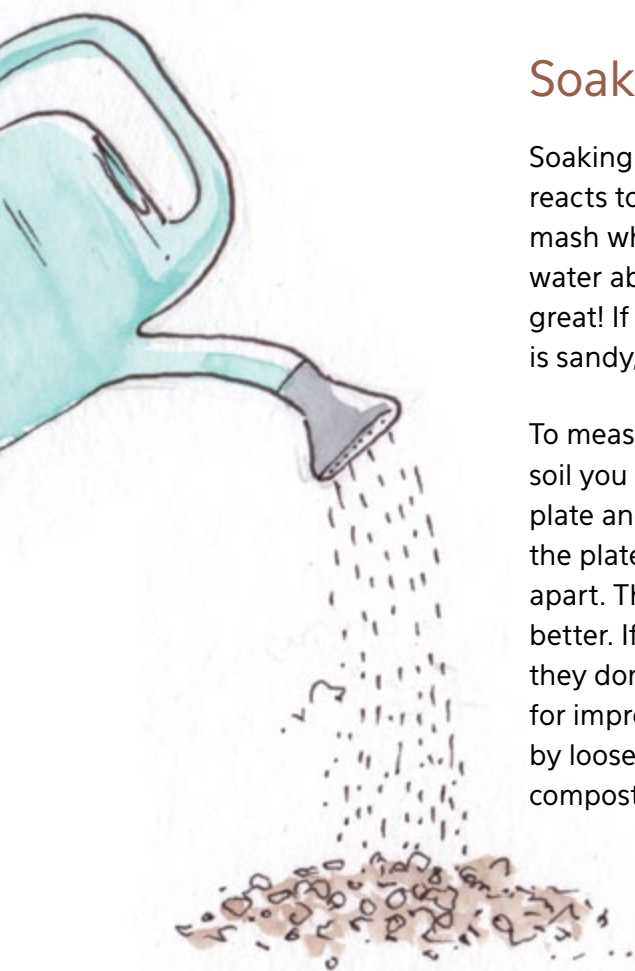
If your soil is black or smells of rotten eggs, this indicates that its decay processes are not running well and that it needs special treatment. In this case, your soil needs immediate loosening and fertilizing with the right compost.



Soaking

Soaking your soil will show how it reacts to rain. If it forms a kind of mash when exposed to water, the water absorbance of yours soil is great! If it contains small stones and is sandy, its water levels are too low.

To measure the water stability of your soil you simply put a handful of it on a plate and add some water. Now shake the plate until the lumps of earth break apart. The less lumps you have, the better. If there are a lot of lumps and they don't dissolve quickly, there is need for improvement. This is best achieved by loosening the soil, adding the right compost and fertilizing organically.

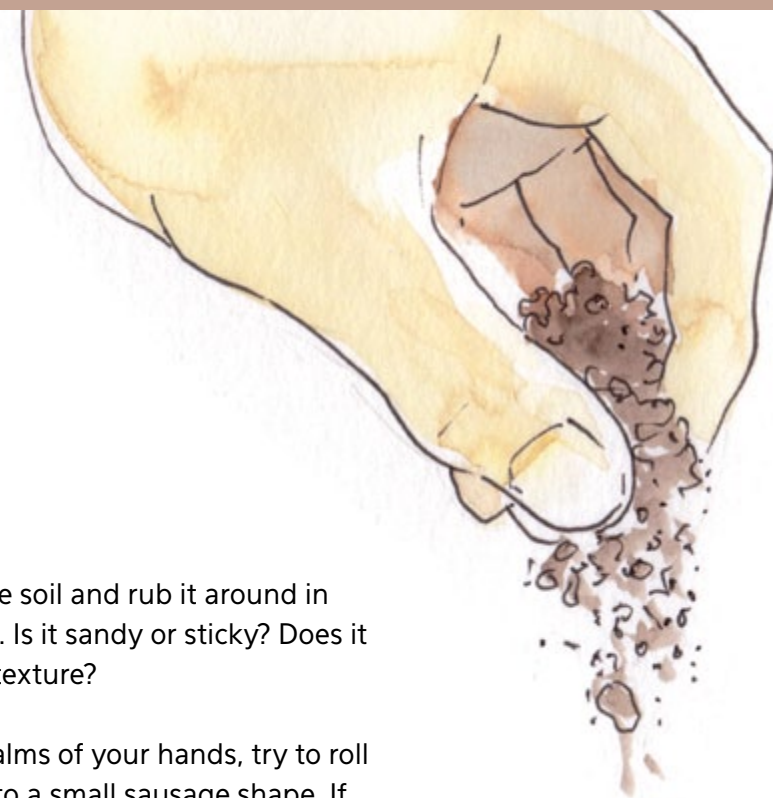


Feeling

Pick up some soil and rub it around in your fingers. Is it sandy or sticky? Does it have a fine texture?

Using the palms of your hands, try to roll some soil into a small sausage shape. If you are able to do this easily, your soil is rich in clay. If your soil won't form this shape easily, it is of a sandy kind.

Both sorts have their own advantages when planting different types of plants. For example, a water-loving plant will always prefer a soil that is rich in clay.



Soil is a highly complex living organism and its quality influences whether or not your plants flourish. So the more you know about your soil, the better.

How to recognize and understand your soil

There are four major types of soil. The quality of each of them depends on climate, human and geographical influences.

1. Sandy gravel (river sand)

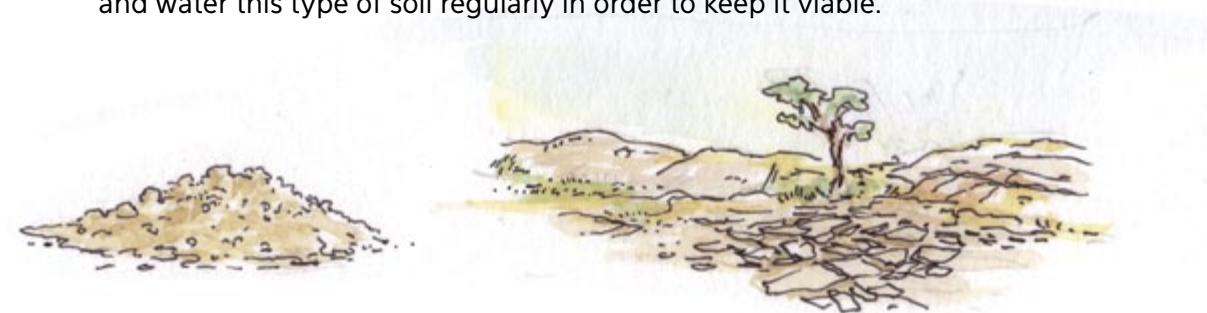
This soil is loose and easy to work with. It retains warmth easily, so you can start loosening it in early spring. Its storage capacity for water is poor, but if you add the right compost it can be managed. This type of soil is found near rivers.



2. Limestone soil

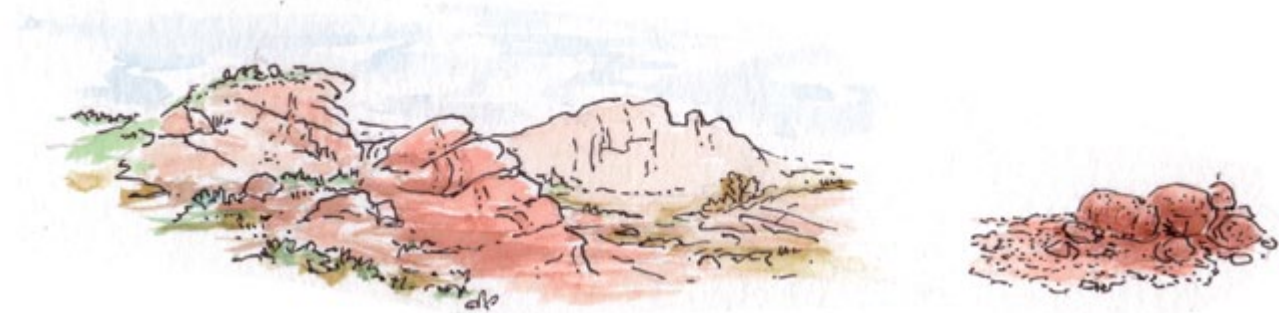
This soil can be identified through its light color. It sticks to the fingers and has a tendency to be lumpy when dry.

It warms up more slowly than other soils. In spring it is dry on top but moist underneath. During summer you have to loosen and water this type of soil regularly in order to keep it viable.



3. Brownstone

This soil is of a reddish-brown color. It varies in its clay-to-sand ratio. The higher the clay content, the better the soil can store moisture. But this also makes it denser and heavier to work with. You often find this type of soil close to mountains.



4. Loess

This is the best and most fertile type of soil. It is full of earthworms and supportive bacteria. It also contains a lot of humus, which is the most powerful organic fertilizer.

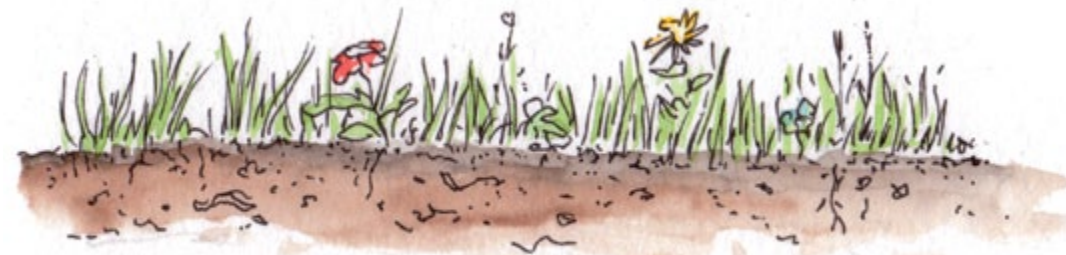
Loess has perfect water-storing abilities and doesn't get too wet, or overly dry, too quickly. It is often to be found on hillsides. If there is exceptional natural vegetation on your land, it is very possible that there is a high content of loess.



Natural vegetation – learn about your soil by analyzing natural vegetation...

Here is a table showing which plants grow best in which types of soil, as well as what you need to do to improve your soil's quality. The plants shown here can be grown on all continents of the world, so the table below can serve as a general guideline.

| Condition | Natural plants | What to do |
|----------------------|---|---|
| Nitrogen-rich | Nettle, Ashweed, gallant soldier, spurge, Chinese cress, cleaver, saltbush, chickweed, boar thistle | Fertilize with the shredded plants that grow there, and plant potatoes to absorb nitrogen |
| Nitrogen-low | Pigweed, hemp-nettle, stonecrop, vetch, carrot | Add compost and plant legumes such as peas and spinach |
| Wet | Dock, thistle, meadowsweet, bitter cress | Add compost and sand |
| Dry | Chamomile, geranium, plantain, pink heronsbill, oxeye daisy | Add compost and mulch |
| Shady | Ashweed, ground ivy, common wood sorrel | Choose matching plants such as pieplant, wild strawberries or wild raspberries |
| Acidic | Mint, Chamomile, clover, willow herb, sorrel | Chalk |
| Alkaline | Mustard, pansies, common foxglove, flax weed, sage, chickweed, geranium | Add wetland soil to lower pH levels |
| Dense | Mint, horsetail, coltsfoot, plantain | Grow lucerne once per year. Its roots are very deep and will loosen the soil |
| Waterlogged | Boar thistle, plantain, silverweed, buttercup, wild rye | Grow lucerne once per year. This will help to absorb moisture |
| Sandy | Heather, pine, poppy, mullein, spurge, chickweed | Add compost and mulch |



Humus and compost

Humus is the stable, long-lasting remnant of decaying organic matter. It improves the soil structure and increases water retention. Its nutritive qualities include trace elements and several important organic acids. Humus acts as a veritable storehouse for plant nutrients, something that is especially important if you have soils that are sandy, dry or low in nitrogen.

Compost is organic matter that is in a purposeful state of partial decomposition. That "purposeful" part is important. Dead stuff on the ground is not compost, it's just decaying organic matter.

It is the controlled, or semi-controlled, conditions that make matter become compost. There are two different types.

Immature compost is compost that has not undergone enough decomposition to be of maximal benefit. It is primarily still in the bacterial stage of decomposition.

Mature compost is compost that has decomposed to the point of maximal usefulness.

The next chapter is all about how we build our own compost heap. The right way!

