

Gardening 101 – Lesson One – Soil

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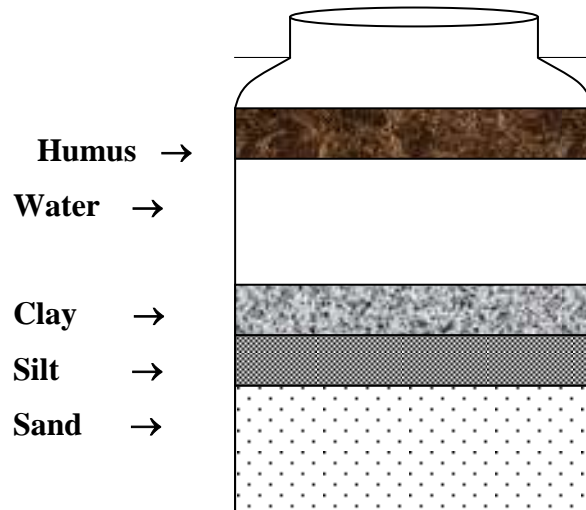
It all begins with your soil. If you want to have a healthy, beautiful garden, you have to make sure that your plants are growing in soil which will give them the nutrients and water they need. So the first lesson to be learned is how to analyze and improve the soil in your garden. Another reason for starting with the soil is that it's much easier to improve soil before doing any planting than after you've put in a lot of plants.

Soil is generally composed of clay, silt, sand, and humus. In addition, there will be bacteria, minerals, animals such as worms and insects, and air.

Sand will let water run through quickly (gardeners call this good drainage) but will provide little stability for large plants and not many nutrients. Clay is full of nutrients but tends to collect water, rotting out roots and making it difficult to dig in. It's tough for plant roots to penetrate clay. Humus is organic matter, such as decayed leaves or other plants, and it imparts nutrients and texture to soil. Silt contributes to a good soil texture. The best soil to garden in is a mixture which will allow good drainage, provide food to growing plants, and be easy to dig.

So it's important to find out what you have in your garden. There are a couple of ways of analyzing soil which you can do at home. It's not a bad idea to test various parts of your property because you may have different soils in different areas.

Method 1. Get a clean, clear empty quart-size jar with a lid. Fill it about 2/3 full with water and add soil from your garden. Leave some room to let you shake it all up. Shake vigorously and then let it sit until the soil settled to the bottom. (If you have a a lot of clay, this may take a day or two.) You should end up with several pretty distinct layers. The top layer will be humus, floating on a layer of water. The next down will be clay; the next will be silt and the bottom layer will be sand.



Take a look at the relative depth of the layers. If there's a lot of sand and little clay, silt, or humus, you probably have sandy soil (good drainage, quick to warm in the spring but lacking nutrition for plants). If they're pretty evenly layered, you have sandy, sandy clay, or clay loam (all of these are good!). If you can see a deep layer of clay, you have clay soil (full of nutrients but tough to work and penetrate; tends to get waterlogged and is slow to warm up in the spring).

Method 2. Go out into the garden, maybe a day or two after it's rained or has been watered. Grab a handful of soil and compress it in your fist. Then take a look at what you've got. If the ball of soil falls apart easily, it's predominately sand. Rub a bit between your finger and thumb. If you feel a lot of grit, it's sand. If the ball of soil is a little gritty and stays in a loose ball, it's likely sandy loam (good). If it forms a ball which you can squeeze into a cylinder shape but the soil still feels a little gritty, it's sandy clay loam (congratulations – this is the best!) or clay loam (still good). If you can form a cylinder and then can bend it, you've got clay.

The other thing you'll want to access is the general health of the soil. Again, pick up a handful but this time, just smell it. It should smell good, kind of earthy. If it's sour smelling, there's a problem. If it doesn't smell like much at all, there's a different problem. Also check the colour; very light or very dark both indicate that your soil will need improvement.

While you're out in the yard grabbing handfuls of dirt, keep your eye open for worms. The more worms you find the better because earthworms do more to improve soils than practically anything else. They aerate dirt and keep it light and their castings provide excellent nutrition to the soil.

Even if you have almost pure sand or pure clay, you can still improve your soil – with a little work! What you need to do is add what's missing. With clay soils (over 30% clay), you'll want to add sand and organic matter but be forewarned, it's tough to dig this into clay so use whatever tools will break the clay into clods before you try to add anything. In extreme cases, you may have to create a new layer of sand above the clay and topped with soil. Because many plants have deep roots, make sure the sand and soil will be deep enough to accommodate them.

Sandy soils (over 50% sand) will need clay and humus added – lots and lots of humus so get ready to dig and mix.

If your soil smells sour, it's probably too alkaline so add peat (and organic material – adding humus always improves any soil). If there's little smell, your soil may be dead and, again, will need organic material added to provide nutrients.

Are you getting confused? Here's a table to simplify things.

Situation	Problem	What to do.
Sandy soil	Lack of nutrients	Add clay and organic material
Clay soil	Too heavy, may become waterlogged, hard for roots to penetrate	Add organic material
Sour smell	Too alkaline	Add peat and organic material
No smell	Dead or exhausted soil	Add lots of organic material
Soil light in colour	Probably too sandy	Add clay, some black earth and organic material
Soil solid black or dark brown	Probably too dense, waterlogged and slow to warm up	Add sand

If you have to amend your soil, you can order improvements either by the bag (for really small gardens) or by the truckload. If you're ordering soil to be delivered by truck, you specify how many square yards you want.

For a beginner, it's easier to rely on experts rather than to try to figure out what kind and how much soil you'll need. Estimate your current soil content (see above) and measure the area you want to improve (garden beds, lawn, tree/shrub plot). Then contact a soil professional and have a discussion. Note that a lawn might require different soil than a perennial flower bed, for example. Specify that you want screened soil (to make sure as many weeds, etc. as possible have been removed).

Here are a few good places to go:

Artistic Landscape Design
2079 Bank Street
(613) 733-8220
www.artisticlandscape.on.ca

Pyper's Perfect Soil
(613) 822-2599
www.perfectsoil.com

Greely Sand & Gravel Ltd.
1971 Old Prescott Road
(613) 821-3003
www.greelysand.com

Next Lesson: Analyzing Your Garden