



Toronto  
Green  
Community

## PREPARING SOIL

Soil health is an extremely important and interesting aspect of gardening that unfortunately sounds extremely useless and boring. The more you learn about how important healthy soil is for healthy plants, the more you realize that dirt is a dirty word, and that soil is much more than dirt: a complex combination of **clay, silt, sand, and organic matter**. Knowing what kind of soil you have before you plant lets you know what crops will thrive and which will need things added to the soil (**amendments**) in order to do their best. The ideal soil is rich and black, high in organic material, with lots of insects and microbes aerating it and making nutrients available to plants. Luckily, even highly degraded soil can be greatly improved by mixing in **compost**, which aerates and adds nutrients and life to any soil.

An easy way to tell a lot about your soil is to dig a hole about one foot wide and one foot deep. If it's relatively easy to dig, that means your soil has low **compaction**, and it will be easy for plants to grow strong roots. Then there are three simple tests you can do to figure out the composition of your soil:

1. Rub some dry soil between your fingers. The grainier it feels, the more sand in the soil
2. Squeeze a handful of moist soil in your palm so it forms a ball, then pass it between your hands. The longer it holds its shape, the higher the level of clay. If it crumbles immediately, you have little clay content
3. Roll moist soil into a thin cylinder shape. Squeeze soil tube to make into a ribbon. If the soil holds like a ribbon you have high clay content, if it flakes or peels, you have high silt content or alkaline soil. Soil acidity is measured on a pH scale which goes from 1 (acid) to 14 (alkaline). Most plants thrive at a pH of 7 (neutral), and most garden soil is around this level. Some plants, however, thrive in soil at one extreme or another, see the chart on reverse for details.

Soil also contains and transmits nutrients to your plants. The three major nutrients found in soil are Nitrogen (N) which helps build leaves, Phosphorus (P) which builds flowers and fruits, and Potassium (K) which strengthens roots. Box 2 outlines soil amendments that you may consider if certain problems present in your soil. These organic amendments are preferable to chemical fertilizers because they generally release nutrients slowly, at a rate plants can absorb, and help soil stay aerated and resilient.

If your crops show signs of deficiencies, remember that plants absorb nutrients when they take in water, so with inconsistent watering nutrient deficiencies can temporarily appear. Add compost and water consistently and they should return to normal. Adding compost is always a good practice it can prevent most plant problems and increase drainage and growth. You can either make it yourself or use city compost, which is provided free in neighbourhoods across Toronto on Community Environment Days – check online for when there is one in your area!

ACIDIC	ALKALINE
Bayberry	Asparagus
Blueberry	Bean
Butterfly Weed	Beet
Cardinal flower	Carnation
Lupine	Cauliflower
Lily	Cucumber
Marigold	Nasturtium
Raspberry	Onion
Sweet Potato	Squash
Watermelon	Sweet pea

NUTRIENT	DEFICIENCY SYMPTOMS	ORGANIC AMENDMENT
Nitrogen	Lower leaves yellow; overall plant growth light green in colour; plant stunted	Blood meal, composted coffee grounds, cottonseed meal, fish emulsion/meal
Phosphorus	Foliage has a reddish or purple hue or is abnormally dark green, growth stunted	Bonemeal, colloidal phosphate, rock phosphate
Potassium	Tips and edges of leaves turn yellow, then brown; stems weak	Granite meal, greensand, kelp meal, Sul-Po-Mag, wood ashes
Magnesium	Leaves turn pale in between veins; growth is stunted	Epsom salts, dolomitic limestone, Sul-Po-Mag
Calcium	Buds and young leaves die back at tips; fruit develops blossom end rot	Crushed eggshells, gypsum, dolomitic limestone, calcitic limestone

Sources: Children's Garden and exploring Toronto Programs Training and Resource Binder

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