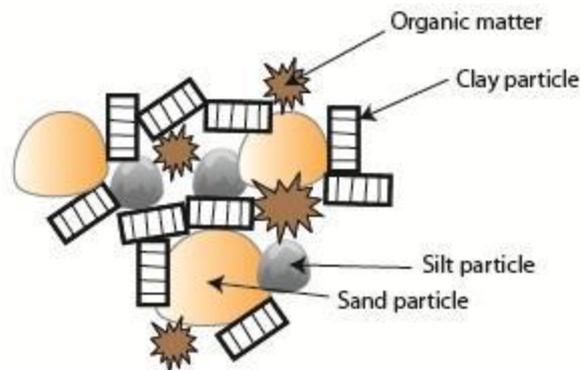


# Getting to Know Your Garden Soil



## Soil structure & pH

Soil structure refers to the way soil particles (sand, silt and clay) group together to form aggregates (or peds) and how they are arranged with pore spaces between them. Aggregates (or peds) are 'glued' together by organic matter and secretions from living organisms.



Some soils resemble a large, solid, featureless mass and have little or no structure. For example, very sandy soils have no structure because sand grains do not cling together. A well-structured soil breaks up easily into peds with a definite shape and size.

Good structure is important, as it allows water to soak into the soil and excess water to drain away. It also allows air movement through the soil.

### Structure influences:

- Water entry into the soil
- Runoff of water
- Permeability (ease of movement) of water and air in the soil
- Root penetration
- Seedling emergence
- Resistance to erosion
- Workability
- Drainage

## Check your soil's pH

Soil pH is quick and easy to measure using commercially available field pH kits (available at gardening stores, usually for \$15–20). Make sure the soil you test is representative of your garden. Do multiple tests of the surface soil and the deeper subsoil. To use a pH test kit, place half a teaspoon of soil on a plate, add enough liquid dye to just saturate the sample. Sprinkle on the white powder (barium sulphate) and let the colour develop. The colour is compared with the test card to estimate pH. Record the pH for each sample of soil tested.

Garden soils are nearly always acidic due to fertiliser usage, watering and biomass removal. Alkaline garden soils are uncommon. The flowers of hydrangea plants change colour, depending on the soil pH. *Hydrangea macrophylla* produce blue flowers in acid soils and produce red and pink flowers in alkaline soils.

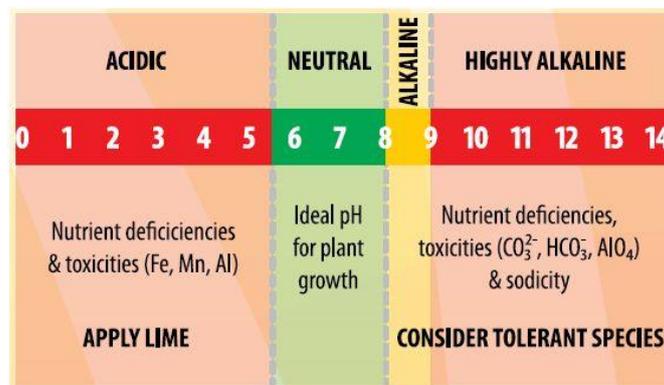
### Raise soil pH

If your soil is acid and you want to raise the pH, you can apply lime (calcium carbonate) or dolomite (calcium and magnesium carbonate) to the soil surface. Dig it in wherever possible.

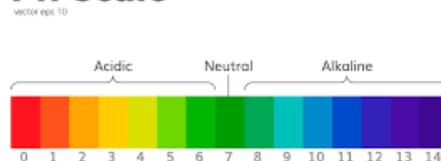
### Lower soil pH

If the soil pH is above 8.4, it's usually going to be too expensive to try and lower the pH so you're better off planting alkaline tolerant plants. You can however lower the pH of soils that have a pH of about 8 or less by adding elemental sulphur, iron sulphate or peat.

When trying to change soil pH, the amount of ameliorant needed will depend on the soil texture and how much you want to change the pH. It won't work immediately—allow a couple of months to one year. Measure pH every couple of months to check your soil's progress. It's better to add small amounts frequently, than one large amount to start off with.



### Ph Scale



## Increase your soil's organic matter levels

Soil organic matter influences soil functions and properties and is a vital indicator of soil health as it:

- Provides energy for soil microorganisms, nutrient storage and supply (especially nitrogen, phosphorus and sulfur)
- Improves soil structure as well as the soils' ability to hold water and resist acidification.

Organic matter can come in many forms e.g. compost, vermicomposts (from worms), poultry and other animal manure, mushroom composts, green manure crop, lawn clippings, kitchen scraps, straw, sawdust, seaweed etc. Materials will differ in their nitrogen content, salt level and pH so take these into consideration when using them.