

## Soil texture test

The size of soil particles determines drainage, aeration, susceptibility to erosion, its capacity to hold water, and the speed at which organic matter breaks down. Gardeners notice the work it takes to obtain a good tilth on the soil. Plants are affected chemically when the size of the soil particles affects its capacity to exchange cations (CEC) and its pH buffering capacity.

Soil structure concerns how soil particles are aggregated together and can be improved or destroyed by management practices. The texture of a soil is not easily changed.

- Water drains more freely through sandy soils
- Clay soils hold more water for plants
- Heavy wet soil tends to stay cold for longer
- Well drained soil is well aerated with atmospheric air beneficial to roots
- Clay and silt are more susceptible to erosion by water and wind
- Sandy soil is quicker to break down organic matter due to high oxygen levels
- Cation exchange capacity is higher in clay and organic matter
- Soil with higher clay and organic content is better able to withstand changes in pH

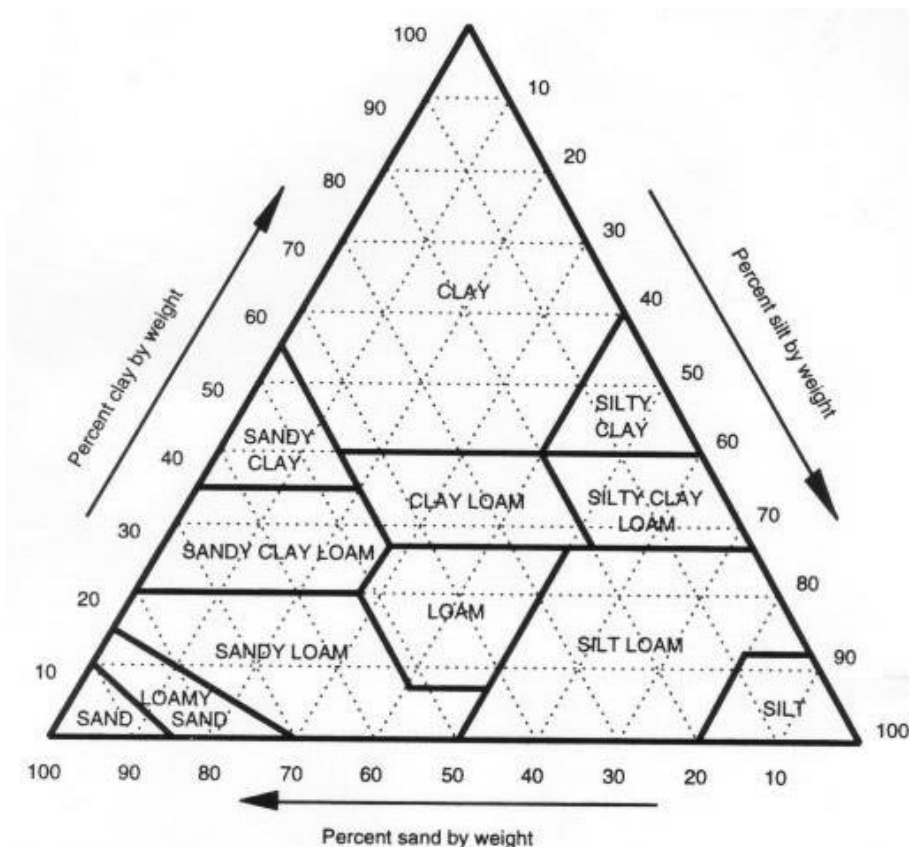
### Particle size

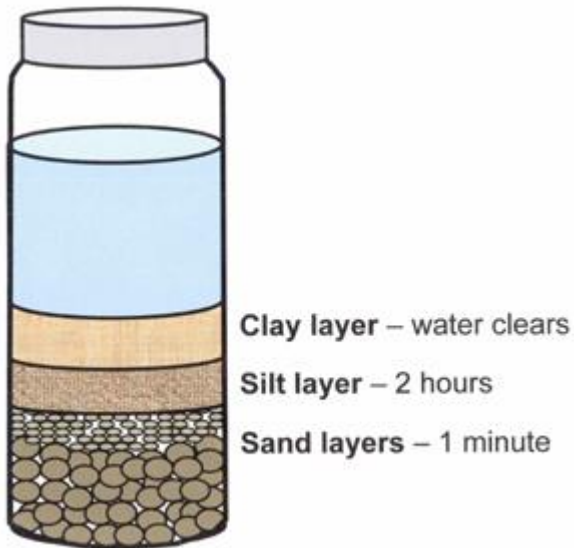
Over 2.00 mm gravel

0.05-2.00 mm sand

0.002-0.05 mm silt

Less than 0.002 mm clay





### Apparatus

A transparent, straight sided jar with lid  
 Soil sample  
 Water

### Method

Place the soil sample in the jar with twice its quantity of water  
 Replace lid and shake well for five minutes  
 Set the jar aside to stand

In due course distinct layers will appear, see picture  
 These layers are the different sizes of particles, largest at the bottom  
 Measure the thickness of each band to find the proportions of sand, silt and clay

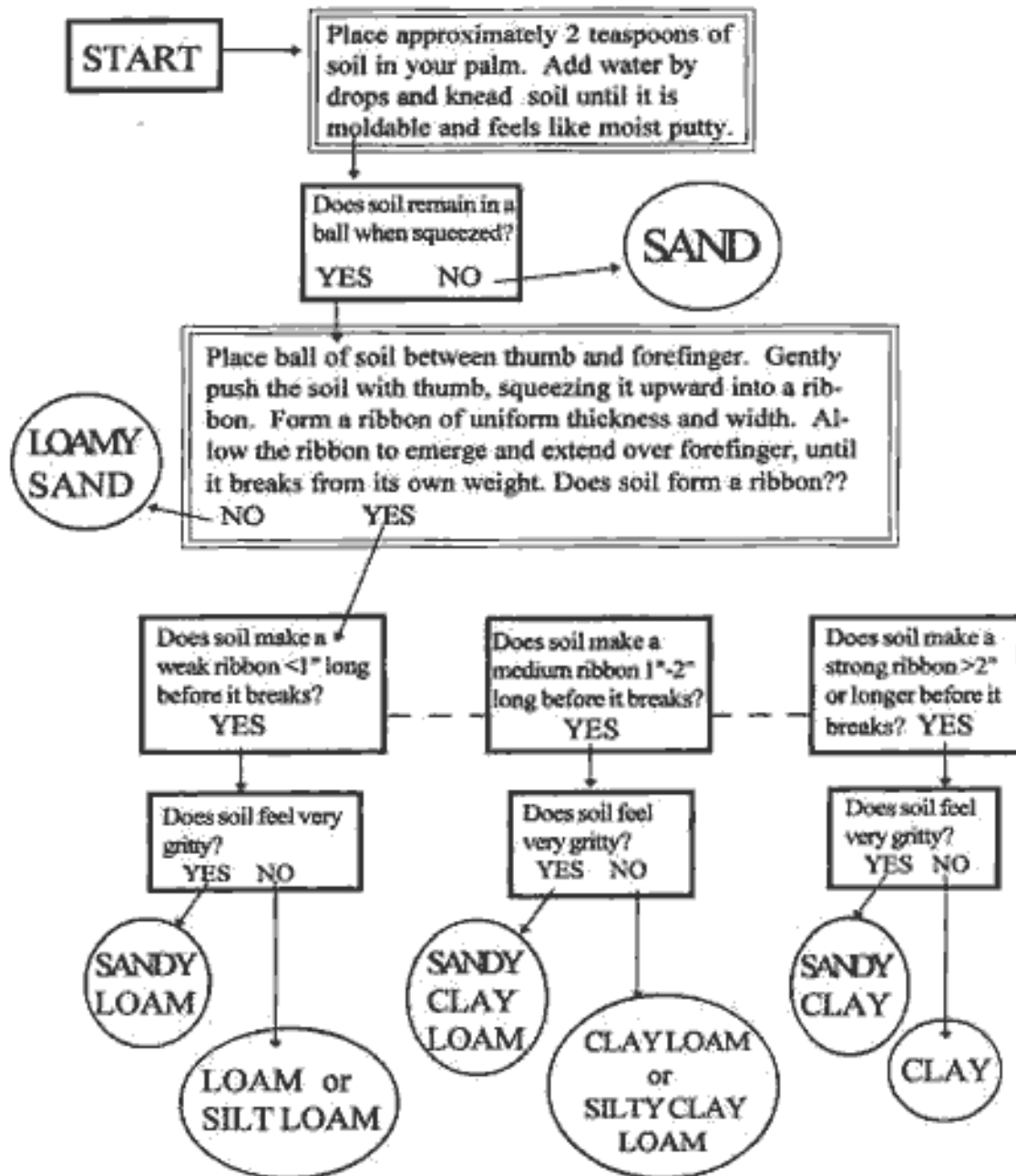
### Results

	mm	%
Clear water		-
Clay		
Silt		
Sand		
Total		100

Plot % results on the triangular chart to determine the soil texture

# Key to Soil Texture by Feel

Begin at the place marked "start" and follow the flow chart by answering the questions, until you identify the soil sample. Please note that soils having a high organic matter content may feel smoother (siltier) than they actually are.



Source: Adapted from WOW!: *The Wonders of Wetlands*, Environmental Concern Inc. The Earth Partnership Program, UW- Madison Arboretum, (608) 262-9925