Soil texture

How is soil texture determined?

Materials

- 500 ml of soil (a flower bed will work if digging under the mulch layer)
- 100 ml graduated cylinder
- Borax
- Parafilm (or plastic wrap)

Instructions

Day 1: Prepare soil columns

1. Add 50 ml of soil and a pinch of Borax to a 100 ml graduated cylinder.
2. Add water up to 100 ml in the cylinder.
3. Cover the top of the cylinder with parafilm and shake vigorously to mix the water throughout the soil, then let sit overnight.

Day 2

4. Examine the graduated cylinder you prepared day 1.
5. Measure the heights of the layers of soil sediment in the column. (The largest particles are sand and should be on the bottom; the middle sized particles are silt and should be in the middle; the smallest particles are clay and should be on the top.)
6. Add the three measures together, then divide each by the total to find the percentage. (The total may not equal 50, due to settling, floating humus or organic material that will not be included.)
7. Use the percentages to determine soil texture using the USDA soil texture triangle to the right.
8. Follow the directions on the soil texture flow chart (on the following page) to determine the soil texture of your sample by feel.
Soil Texture By Feel Flow Chart

Place approximately two teaspoons of soil in your palm. Add a few drops of water and knead soil to break down all the aggregates. Soil is at proper consistency when it feels plastic and moldable, like moist putty.

Does the soil remain in a ball when squeezed?
- No → Is the soil too dry?
- Yes → Add dry soil to soak up water

Add dry soil to soak up water
- Yes → Is the soil too wet?
- No → Sand

Place ball of soil between thumb and forefinger, gently pushing the soil with your thumb, squeezing it upward into a ribbon. Form a ribbon of uniform thickness and width. Allow the ribbon to emerge and extend over forefinger, breaking from its own weight. Does the soil form a ribbon?

Does soil make a weak ribbon < 1" long before it breaks?
- No → Does soil make a medium ribbon 1-2" long before it breaks?
- Yes → Loamy Sand

Does soil make a medium ribbon 1-2" long before it breaks?
- No → Does soil make a strong ribbon > 2" long before it breaks?
- Yes →

Excessively wet a small pinch of soil in your palm and rub it with your forefinger.

Does soil feel very gritty?
- Yes → Sandy Loam
- No → Neither gritty nor smooth?
  - Yes → Sandy Clay Loam
  - No → Loam

Does soil feel very gritty?
- Yes → Sandy Clay
- No → Neither gritty nor smooth?
  - Yes → Clay Loam
  - No → Clay

Does soil feel very smooth?
- Yes → Loam
- No → Silt Loam

Does soil feel very smooth?
- Yes → Silty Clay Loam
- No → Silty Clay

Source: Oregon State University Extension Service