

# The Dirt About Soil

by Jolene Adams

## SOIL TEXTURE

### What kind of soil do you have?

So you have all those minerals and air spaces and water spaces ... but what 'kind' of soil do you have in your garden?

The texture of a soil refers to the size distribution of the mineral particles found in a representative sample of soil. Particles are normally grouped into three main classes: sand, silt, and clay.

### Clay

Clay is probably the most important type of mineral particle found in a soil. Despite their small size, clay particles have a very large surface area relative to their volume. This large surface is highly reactive and has the ability to attract and hold positively charged nutrient ions. These nutrients are then available to plant roots for nutrition. Clay particles are also somewhat flexible and plastic because of their lattice-like design. This feature allows clay particles to absorb water and other substances into their structure.

### Sand

Sands are loose and single-grained (that is, they don't clump together). They feel gritty to the touch and are not sticky. Each individual sand grain is of sufficient size that it can easily be seen and felt. Sands cannot be formed into a lump by squeezing when dry. When moist, sands will form a very weak lump, as if molded by the hand, that crumbles when touched.

### Silt

Silt contains a fine mix of sand and clay. Sand-sized particles, if present, are generally so small (either fine or very fine sand) that they are non-detectable to the fingers. Clay particles are present in such low percentages that little or no stickiness is imparted to the soil when moistened, but it instead feels smooth and rather silky when a moist handful is squeezed.

### Soil Sampling

1. Choose three locations in your yard and scrape the vegetation and other material from the soil surface.
2. Using a coffee can with a hole in the bottom (or similar) push the can into the surface of the soil. If necessary, wet the soil so that the can will go in easily. Stop when you can see some soil poking through the small hole in the

bottom of the can.

3. If it is difficult to push the can into the soil, place a piece of wood over the can and hit the wood with the hammer to spread the force of the hammer blow to all edges of the can at once.

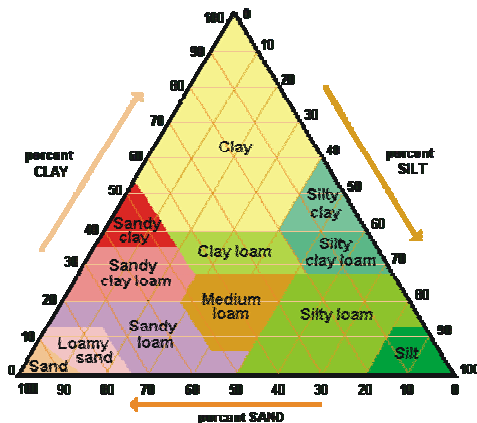
Mix the three samples together. Let them dry. Spoon about 1/3 of the mix into a quart jar with a lid. Add water to the 10 inches mark. Put the lid on and shake vigorously. Set the jar aside and wait three days.

### Figuring It Out

Put a ruler next to the jar and figure out how tall the column of water is (should be 10 inches). You will notice three distinct layers in the 'stuff' that has settled out. And a lot of fluffy stuff floating on top - that is organic matter.

Each layer will give you the relative percentage of sand, silt and clay. Sand is the heaviest and at the bottom, silt is next, clay is lightest and at the top.

So, if your jar of water is 10 inches tall, and the layers are 3 inches at the bottom (sand), 2 inches at the middle (silt), and 5 inches at the top (clay), you could figure out that you have 50% clay, 20% silt and 30% sand.



Using the soil pyramid, you would trace each ingredient down to a point where all three meet.

You have a 'clay' soil! Grab a handful - feel it. Dampen it and squeeze. Can it form a mud ball? Yep - you have a clay soil.