

Soil Health and Microbes

Soil texture by feel and volume

How can we tell the soil type in our area?

Materials

differently textured soils
dry soil samples
jars for soil samples
borax
rulers
beakers/cups of water
Guide to Soil Texture flow chart
Soil Textural Triangle

Procedure

1. Begin with one soil sample
2. Follow the steps on the flow chart diagram.
3. Refer to teacher demonstration to determine if your soil makes a ribbon.
4. Record your findings in the data table on the following page.
5. Rotate around the room to different samples. Rinse hands in between. Write down your guesses on the soil texture for each sample.
6. Crush or roll over a dry sample with a rolling pin. Using a flat bottomed jar, fill jar halfway with soil. Add a pinch of Borax in with the soil. Cap the jar and shake to mix. Add 100 ml of water to the jar (or more to fill the jar w/i an inch of the top). Cap the jar tightly. Shake vigorously for 3 minutes. Let sit for 2-3 days to allow the layers to settle out. Measure the height of the layers of soil. (Sand will be on the bottom, silt will be the center layer and clay will be the tiniest particles in the top layer.) Add all measurements together, total the amounts then determine the percentage of each by dividing the height of each layer by the total and multiplying by 100.
7. Record in the data table.
8. Use the soil texture triangle to determine the texture of the sample. Did it match your texture by feel determination?
9. Share results
 - Why does this matter?
 - How might these results affect growth of plants?
 - How can this information be used in the real world? Urban settings? Rural settings?

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Data Table

Soil	Texture by feel	Sand	Silt	Clay	Texture on triangle
Sample A		_____ cm _____ %	_____ cm _____ %	_____ cm _____ %	
Sample B		_____ cm _____ %	_____ cm _____ %	_____ cm _____ %	
Sample C		_____ cm _____ %	_____ cm _____ %	_____ cm _____ %	
Sample D		_____ cm _____ %	_____ cm _____ %	_____ cm _____ %	

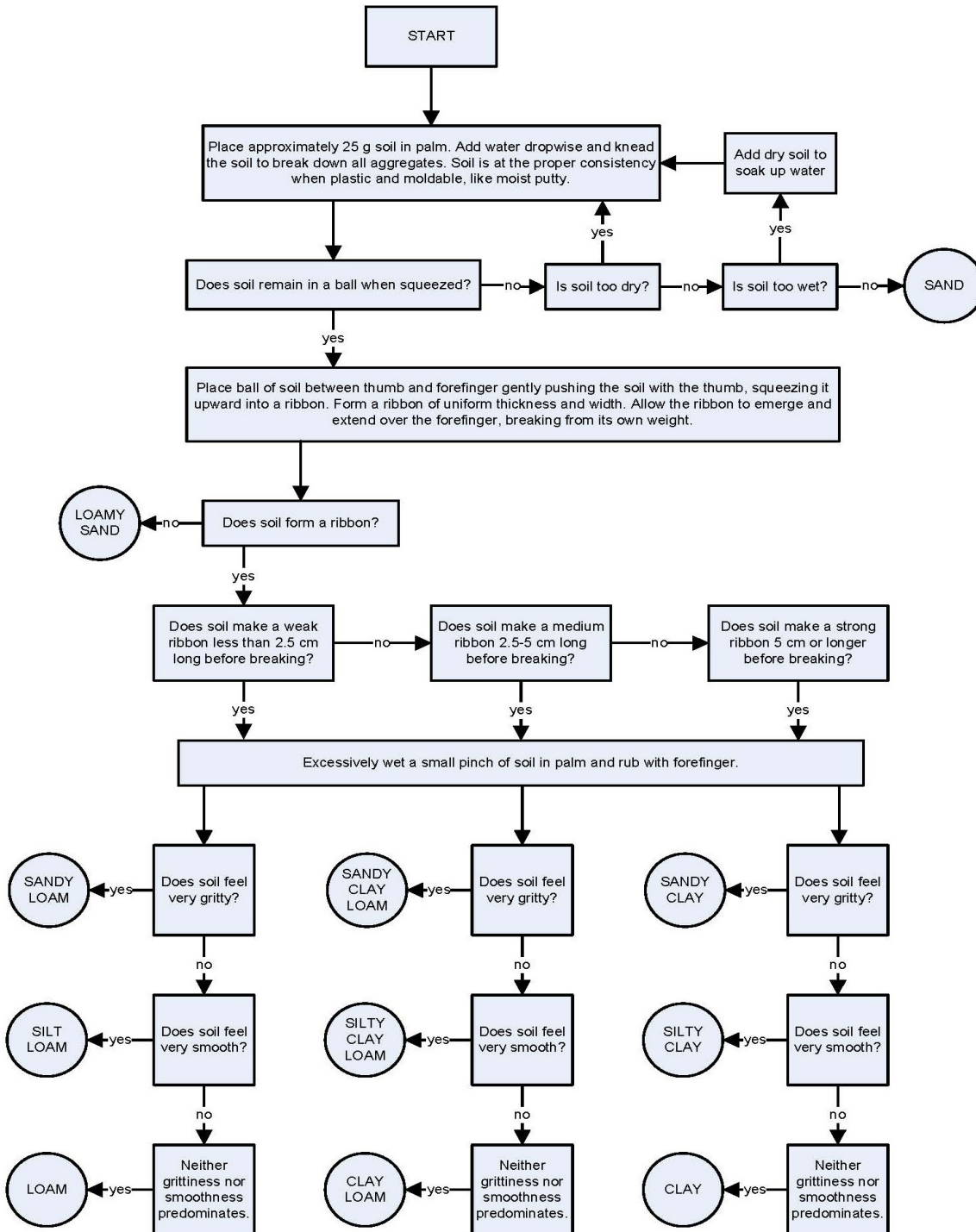
Extensions

Conduct simple experiments to determine which samples hold the most water, drain the best, etc.

Instead of providing soil samples, take the class on a field trip to gather soil samples and introduce them to the method of conducting a soil sample test in the field then bring back to the lab.

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Guide to Texture by Feel



Modified from S.J. Thien. 1979. A flow diagram for teaching texture by feel analysis. Journal of Agronomic Education. 8:54-55.

Soil Textural Triangle

