



Do It Yourself Testing: Soil Texture Test and Percolation Test

**WSU COWLITZ COUNTY
MASTER GARDENERS**

WASHINGTON STATE UNIVERSITY



Master Gardener Program



Please mute your microphones!

If you have a question during the slide presentation press and hold the space bar while you speak!

This will minimize feedback!



Words of Wisdom!

For a gardener, soil is where it all begins. Starting a garden without paying proper attention to soil permeability, texture, structure and nutrient content is a blueprint for failure. Not even the best plants, finest garden tools and most skilled gardening techniques can overcome the negative environment of poor soil.

The success of your garden depends on your SOIL, so don't treat it like DIRT!"

Topics Covered:

- ▶ Two easy DIY soil tests that go hand in hand with each other.
- ▶ Soil texture test.
- ▶ What does soil texture do for your garden?
- ▶ Soil percolation test.
- ▶ What does a soil percolation test do for the gardener?

Soil Texture Test:

The Soil Texture Test and Percolation Test go hand in hand with each other.

Identify Soil Texture:

- ✓ Collect sample from below the root zone.
- ✓ Sample should be representative of the gardening area.
- ✓ Sift to remove rocks and roots.



Soil Texture:

- ✓ Fill a one quart wide mouthed jar ½ way with your soil.
- ✓ Add 1 tablespoon powdered dishwashing detergent as a surfactant. This keeps the soil particles separate for a more accurate test.



Soil Texture:

- ✓ Fill the jar to the top, leaving approximately one inch of head room.
- ✓ Tighten lid so it won't leak.
- ✓ Shake the jar for approximately three minutes to thoroughly combine the soap, soil and water.



Soil Texture:

- ✓ Set the jar on a flat surface and allow it to settle for 24 hours.
- ✓ Mark and measure the levels of sand, silt and clay. Sand will be bottom layer, silt middle layer and clay top layer.



Soil Texture:

Measure total height and layer heights


$$\frac{\text{Layer Height}}{\text{Total Height}} = \text{Soil Percentage}$$

Total Height

Clay Height

Silt Height

Sand Height




For Example:

3" Total Height

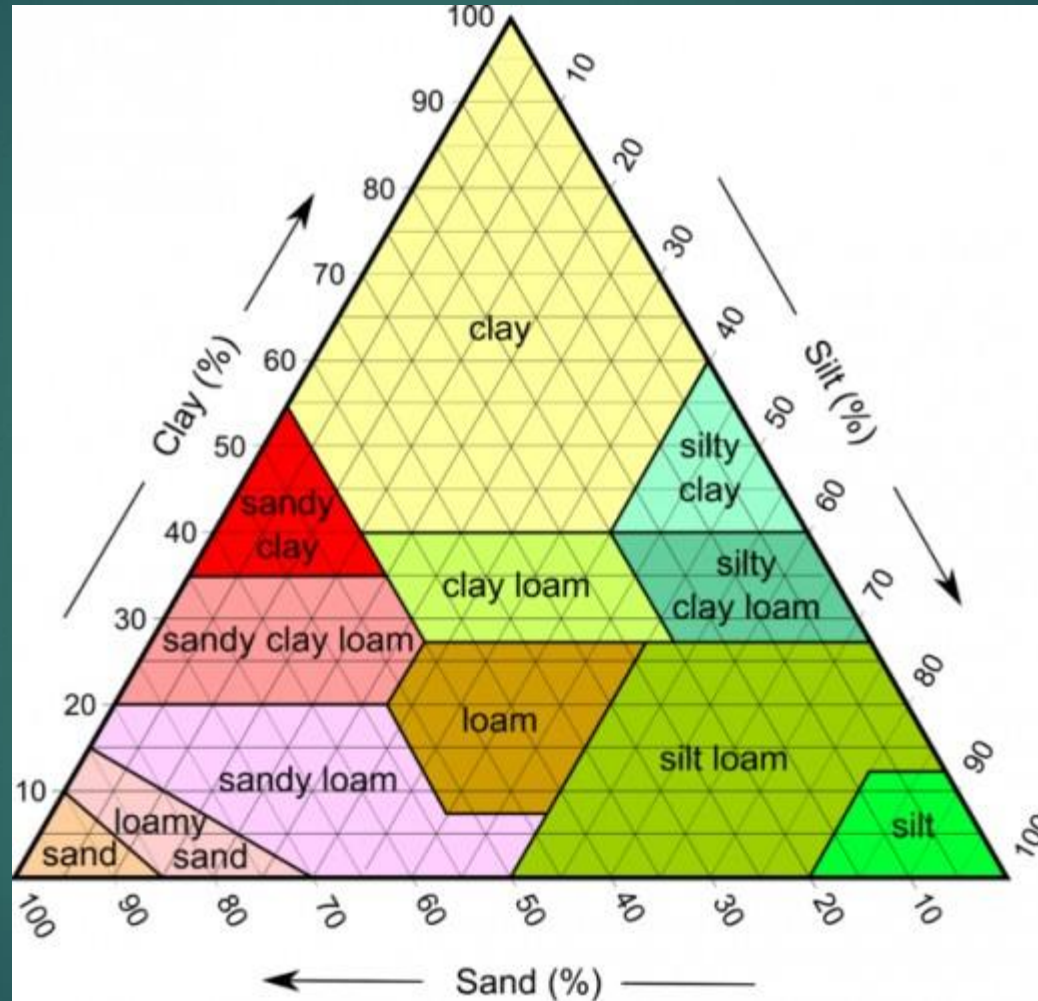
17% 1/2" Clay

66% 2" Silt

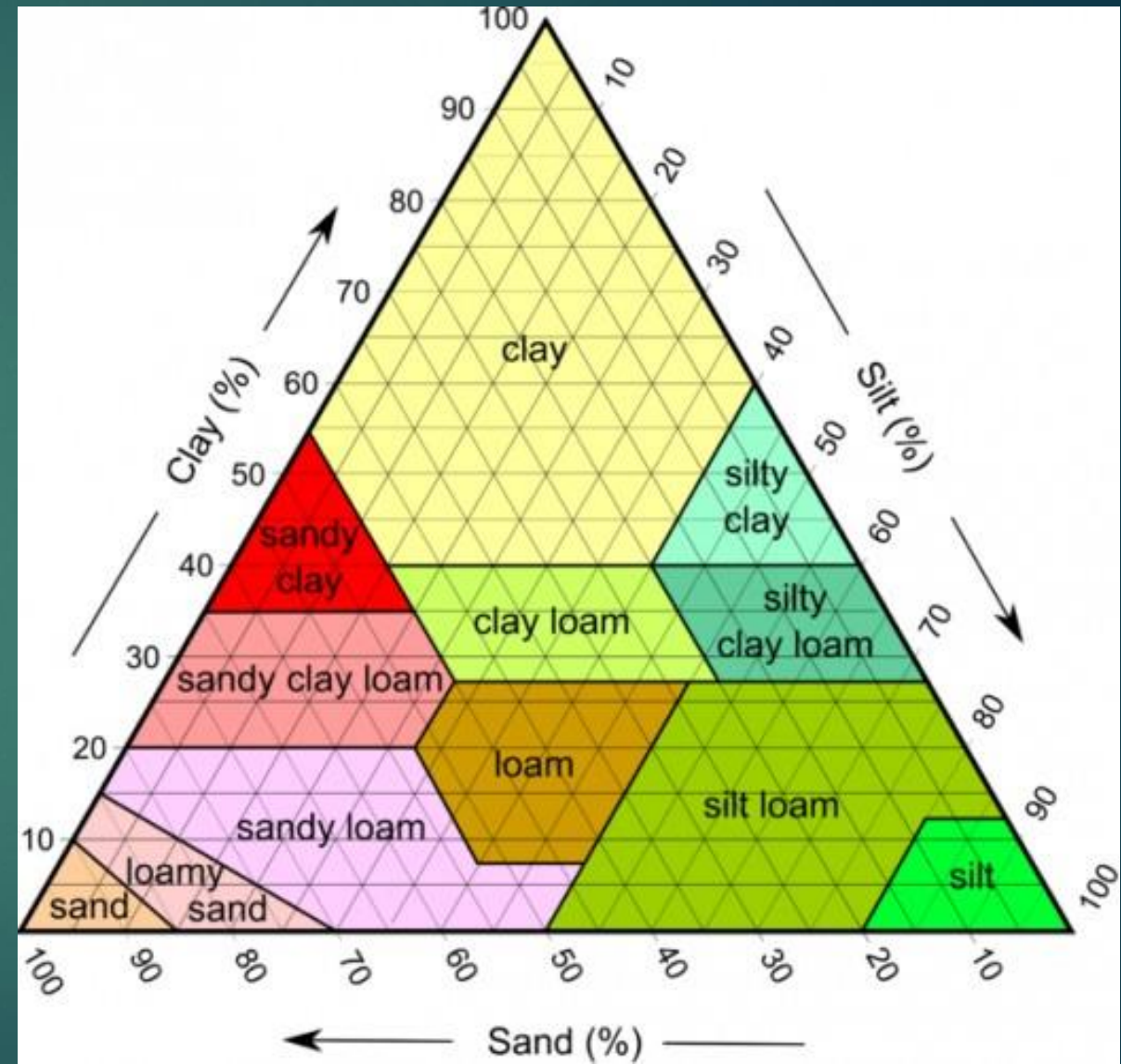
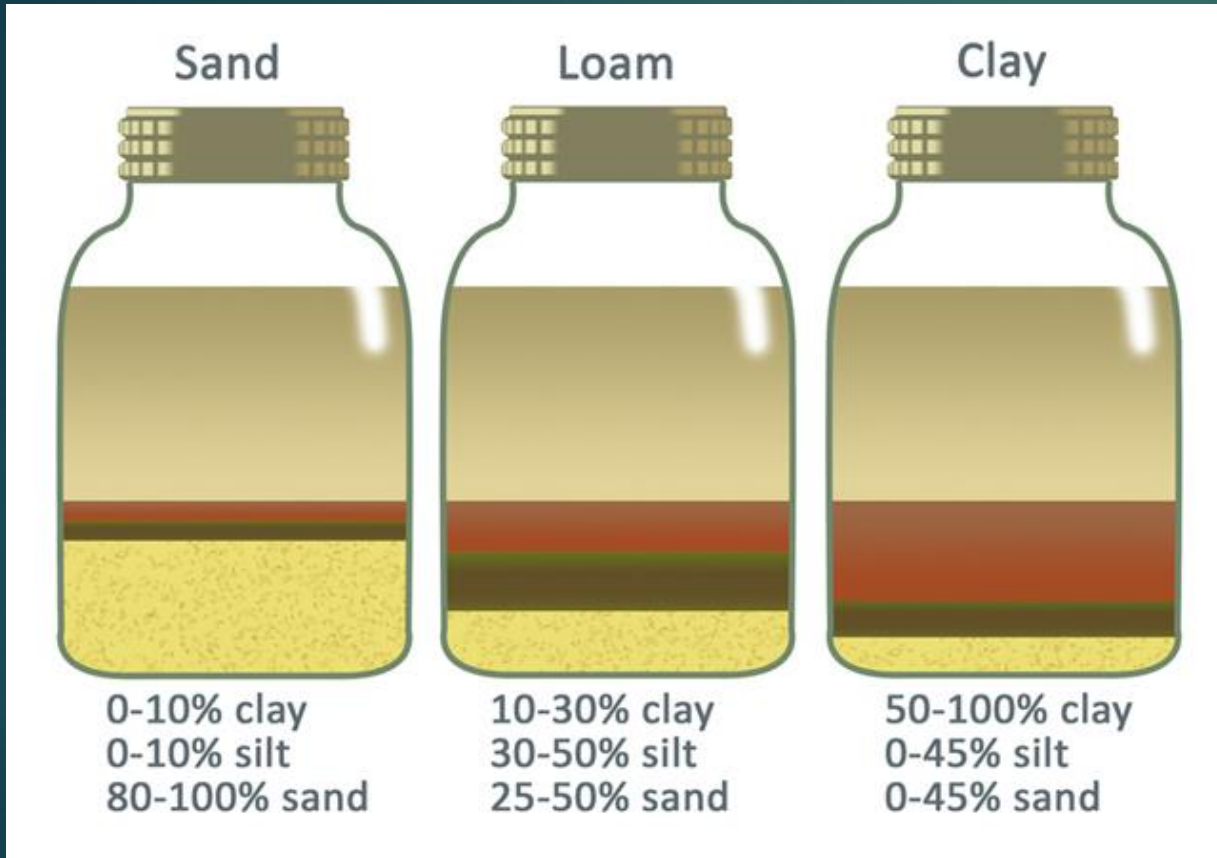
17% 1/2" Sand



Soil Triangle:



Using the Soil Triangle to Calculate Soil Texture:



Using the Soil Triangle:

Clay	Silt	Sand
35%	30%	35%

Clay Loam

10%	60%	30%
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Silt Loam

20%	35%	45%
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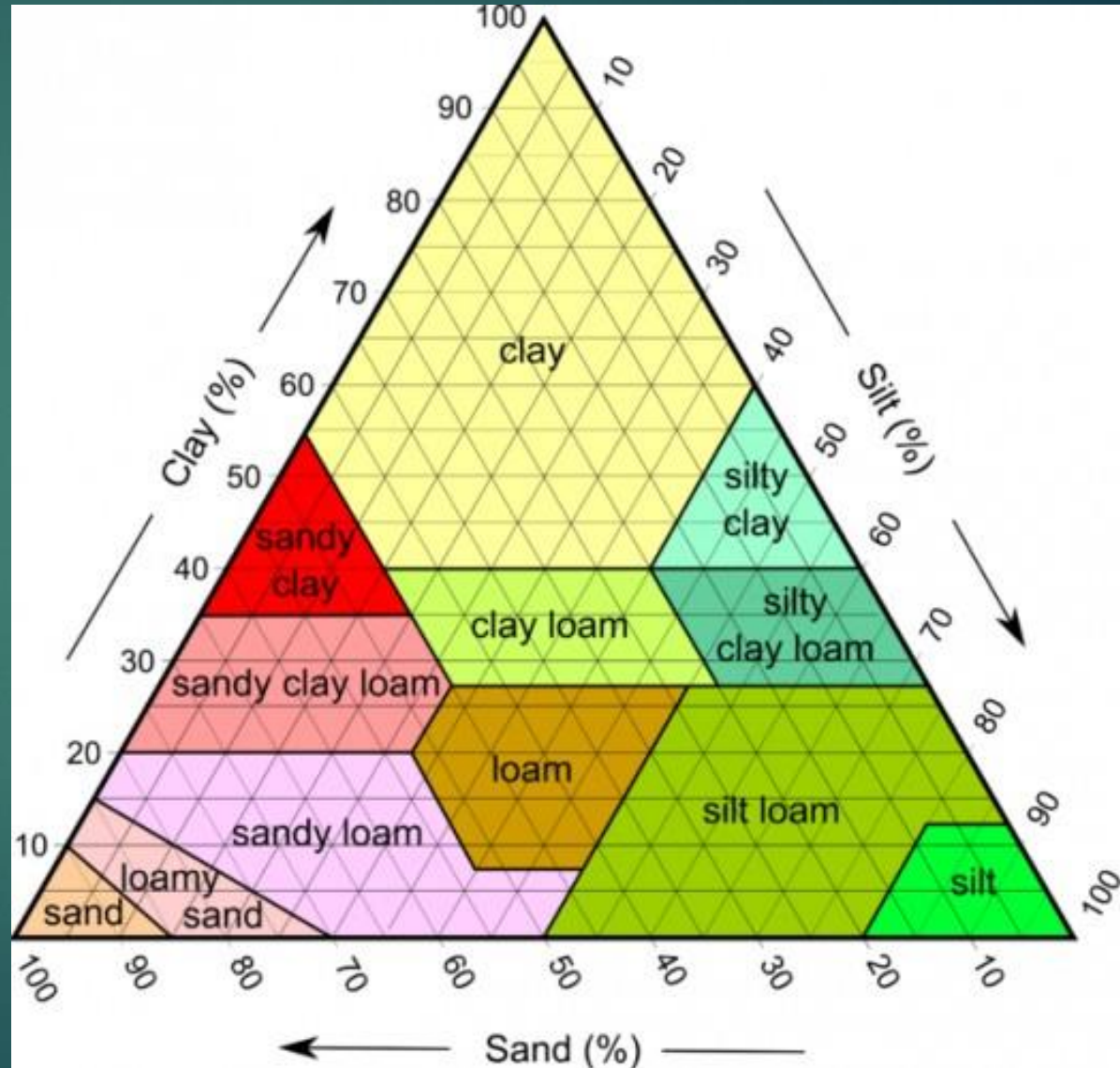
Loam

60%	20%	20%
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Clay

5%	90%	10%
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Silt



Next Easy DIY Test:

So once the texture is figured out another easy test to conduct is a Percolation (Perc) Test.

What Is and What Is the Purpose of a Percolation Test?

- ▶ A test that is conducted to give you an idea the drainage rate of your soil.
- ▶ This test gives the gardener an idea how often they need to water their garden or if you need to amend your soil.

Steps to Conduct a Percolation Test.

- Dig a hole approximately 1 foot diameter and 1 foot deep.



- Set the soil aside on a tarp or in a bucket.



Steps to Conduct a Percolation Test.

- Fill the hole with water, and allow to drain.
- Once drained immediately refill the hole with water and measure the depth of the water with a ruler.



Steps to Conduct a Percolation Test.

- 15 minutes later, measure the drop in water in inches.
- Multiply the number by 4 to calculate how much water drains in an hour.



What do the Results Mean?

- ▶ The ideal soil drainage is around 2" per hour, with readings between 1"- 3" generally OK for garden plants that have average drainage needs.
- ▶ If the rate is less than 1" per hour, your drainage is too slow, and you'll need to improve drainage or choose plants tolerant of wet soil.
- ▶ If drainage is more than 4" per hour, it's too fast, and you should consider choosing plants that tolerate dry conditions and "droughty" soils.

Addressing the Issues:

- ▶ 1. COMPOST, COMPOST, COMPOST! Incorporate compost and organic matter into the soil. Organic matter helps heavy clay soil to drain and helps coarse sandy soil to hold moisture, so it's a win-win no matter what your soil type!
- ▶ 2. Choose plants suited to your soil drainage.
- ▶ 3. Build raised beds for better control over the soil texture.

In Summary We Covered:

- ▶ Two easy DIY soil tests that go hand in hand with each other.
- ▶ Soil texture test.
- ▶ What does soil texture do for your garden?
- ▶ Soil percolation test.
- ▶ What does a soil percolation test do for the gardener?

QUESTIONS?



References:

<https://hgic.clemson.edu/factsheet/soil-texture-analysis-the-jar-test/>

<https://s3.wp.wsu.edu/uploads/sites/2076/2018/04/C221-DIY-Soil-Tests.pdf>

<http://pubs.cahnrs.wsu.edu/publications/wp-content/uploads/sites/2/publications/em063e.pdf>

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

Presented by the
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M - F, 9 a.m. - 12:30 p.m.

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9/29	Rose care—fall to winter
10/6	Growing Microgreens
10/13	Making a Rain Garden
10/20	Beginning Bonsai
10/27	Flower Arrangements for Fall
11/3	Fall and Winter House Plant Care
11/10	Winter Container Gardens
11/17	Garden Art Class – Make Something
11/24	Garden Art Class – Make Something

MG Workshops (Wednesday 6 P.M.)	
9/30	Spiders
10/7	Tips for New-to-PNW Gardeners
10/14	Best Plants for Fall Planting
10/21	Mole Control
10/28	Affordable Landscaping
11/4	Critter Control in the Garden
11/11	Home pests to watch for

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or contact

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