Slake Test

Used to measure how well the soil holds structure when introduced to water.

What you need:

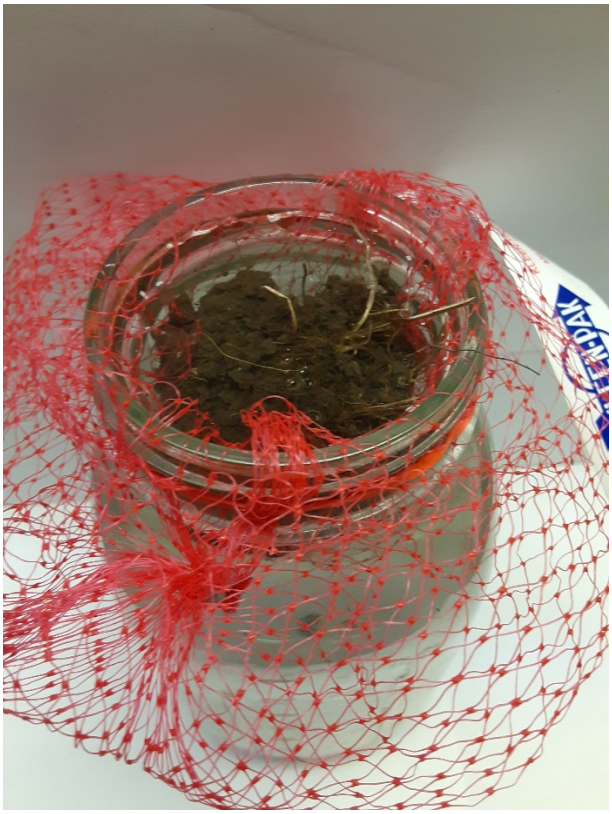
- Quart jar
- Rubber band
- Onion mesh bag

Directions:

- Fill Jar with water
- Use rubber band to hold the onion bag around the lip of the jar leaving the bag loose enough that the clump of soil will be completely submerged
- Place a clump of soil from your field in the bag so that it is completely submerged

Results:

Healthy soil will hold its structure. Big clumps may fall off, but they will still hold together and the water will remain mostly clear. For unhealthy soils, it will look like it is shedding particles inside the jar almost immediately. Most, if not all, of the original clump will be in a pile at the bottom of the jar and the water will turn brown or very cloudy during the slake test on unhealthy soil.



Infiltration Ring Test

Used to see how fast water infiltrates the soil to see how porous or compacted it is

What you need:

- Piece of 5-6” pipe (available at the LWCD office)
- Water bottle full of water
- Stop watch/ timer

Directions:

- Set pipe on the ground and push it down (it might take hammering on a 2x4 chunk of wood extended over the pipe to sink it) in the ground about 3 inches, then gently pat down the soil on the inside of the ring, so it’s all even.
- Pour entire water bottle into the pipe simulating a 1-inch rain and start the timer.
- End the timer when all water is soaked into the soil or just when the soil surface glistens.
- This can be repeated in the same spot to see how the soil will handle a second inch of rain or it can be moved to a different location to see what effects tillage, management or cover crops might have on infiltration rates.

Results:

The water will infiltrate quickly in a healthy soil. This test also shows helps show how much of that 1-inch rain is infiltrated (or can be used by the crop) compared to what is going to run off the field, possibly carrying away soil and nutrients with it.

Soil Compaction Test

Used to Measure how compacted your soils are or where the compaction layer exists.

What you need:

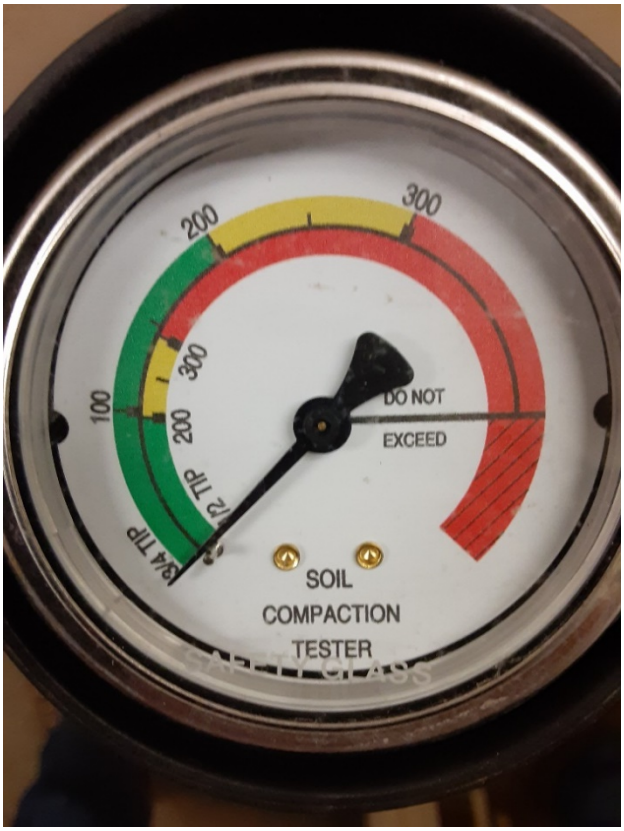
- Soil Penetrometer. (We have one in the LWCD office that you can borrow)

Directions:

- Push down on handles of Soil Penetrometer to push the pointed end into your soil and watch how far the needle goes across the gauge.

Results:

The needle should stay in the green part of the gauge (under 200 psi). If it gets into the yellow and red then your soil is compacted and roots will struggle to grow. Roots can't penetrate soil if the penetration resistance exceeds 300 psi and start to be inhibited at 200 psi.



Underwear Test

Used to see how active your soil biology is.

What you need:

- Cotton underwear
- Shovel
- Flag or marker of some sort

Directions:

- Dig a hole, lay the underwear in the hole so the elastic waistband is above the soil surface, and bury the underwear- lightly pack the soil back into the hole.
- Use the flag to mark where they are buried so you don't forget and can find them again.
- Keep them buried for 6 to 8 weeks
- Gently dig up the underwear and look at what is left!

Results:

The lesser amount of cotton left to the underwear, the more active your soil biology is (picture on left). The more that is left of the underwear and less holes means that you don't have very active biology in your soils (Right picture).