

How to Build a Sweatless Soil Sampler?

Soil testing is an important tool for crop nutrient management. It tells you what nutrients are needed and how much fertilizer to apply. However, soil testing requires soil sampling, and that can be very hard, especially when the soil is dry or rocky.

The Sweatless Soil Sampler designed by OSU Soil, Water and Forage Analytical Laboratory (SSS, shown in Figure 1) reduces the amount of work and time needed to take a soil core. This makes it easier to take more cores per sample and gives you a composite sample that better represents your field. The SSS also makes it easier to mix your soil plugs in the bucket since they are already broken into small pieces.



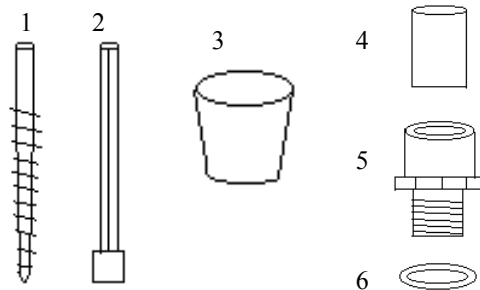
Figure 1. The sweatless soil sampler developed by the Soil, Water and Forage Analytical Laboratory at Oklahoma State University.

When compared to a conventional soil probe the SSS has many advantages. The SSS works very well in hard compacted soils such as pastures and lawns, where it is difficult to take a sample with a conventional soil probe when the soil is dry. The SSS also works well in sandy soils where the conventional soil probe has difficulty retrieving the soil core. Another advantage to using the SSS is that unlike the tip of conventional soil probes the bit will not quickly dull.

The SSS is easy to make and parts are relatively inexpensive to purchase. The sampler was designed so that anyone would be able to purchase parts from most local hardware stores and assemble the sampler at home. It is also suggested that operators make any modifications to the sampler to make it more user friendly. This allows for the sampler to be used in many different situations.

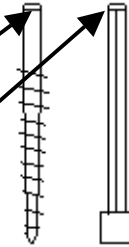
Parts:

1. Long Ship Auger $\frac{3}{4}$ " dia., 17-18" length
2. 12-16" Hole Saw Extension
3. Good quality bucket
4. 1 $\frac{1}{2}$ " length $\frac{3}{4}$ " dia PVC schedule 40 pipe
5. $\frac{3}{4}$ " male threaded adapter
6. Conduit nut (metal)



Procedures:

1. Cut hole in bucket(3) to fit threaded end of threaded PVC coupler
2. Glue PVC pipe(4) into threaded PVC coupler(5)
3. Insert threaded end of coupler(5) into hole and secure to bucket with conduit nut(6).
4. To put the extension and auger together it may be necessary to grind down the end of the auger.
5. Use a drill with the size of the end of the extension.
6. A flapper can be mounted on the bottom of the bucket to prevent it from spinning by stepping on it while drilling.
7. Follow normal procedures to collect a representative soil sample with adequate number of cores, and the right depth.



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