

Soil Sampling Protocol for Soil Organic Matter Analysis

WHAT DO I NEED?

Be sure to bring materials with you when heading to the field for soil sampling.

As shown in the figure on the right, these materials include:

1. Two plastic buckets (one for soil sample and one for supplies)
2. Soil sample bags: one-gallon freezer storage bags (or soil sample bags); one bag per sample
3. One clipboard and papers for recording
4. Permanent marker and/or pen
5. A straight shovel (sharpshooter or drain spade style) OR a soil probe.



WHEN TO TAKE SAMPLES?

Take initial baseline samples before implementing any HSP management practices. Then, take samples near the same time of year for each subsequent sampling event. This will help ensure the most accurate estimates of soil carbon gains over time. Do not take samples immediately after heavy rainfall or irrigation events, or after applications of manure or compost, etc.

WHERE TO SAMPLE?

It is up to each producer to determine the size of the land area they would like to monitor. To the producer's best knowledge, all soil samples should come from the same uniform soil, as well as uniform management history and yields as determined by the producer.

Example: Mark an area of size 30 by 30 feet in the field as your sampling unit. Take composite soil samples from 9-10 locations. Sampling locations may be selected by:

- Walking in a zig-zag pattern; or,
- Divide the field into 9 grids of 10 feet by 10 feet each and collect one sample from each grid.

Additionally, if sampling from a row-cropping or orchard system, consider which area(s) are of most interest (i.e. row vs. inter-row areas).

Do NOT to take samples from feedlots, compost piles, fences, roads, depressions, areas with high salinity or consistently high moisture content.

HOW TO TAKE A SOIL SAMPLE?

1. Expose the bare mineral soil by removing live vegetation, litter, duff or crop residue. If the site is covered with vegetation, trim it close to the soil surface (A)
2. Use the shovel to dig a small hole to 8" deep. From the side of the hole, take a vertical rectangular slice of soil 8" deep and about 2" thick (B).
3. Remove any extra soil to ensure that the sample is the **same width** at the top and bottom of the slice so that it is not biased with more soil from the surface compared to the subsurface (C)
4. Place sample into clean bucket.
5. Go to the next location and repeat the steps 1-4.
6. Finish all 9 sampling locations.
7. Gently mix soils in the bucket and collect 6 cups of well-mixed soils (or no less than 1 lb.) in the sample bag labeled with the APN, sampling date, and farm name (D).



SEND SOIL SAMPLES TO A SOIL TESTING LABORATORY

Before you send your soil samples for analysis, ensure that the laboratory uses University of California test methods which are proven on California farms by the University. Contact the soil analytical laboratory that you need testing results on soil organic matter content.

CDFA recommends the laboratories at the following websites for tests conducted for the 2017 Healthy Soils Program:

- Selected Plant and Soil Laboratories in Northern and Central California
<http://cesonoma.ucanr.edu/files/27431.pdf>.
- UC Cooperative Extension el Dorado County List of Laboratories for Tissue/Soil/Water Agricultural Analysis <http://cecentralsierra.ucanr.org/files/115331.pdf>.
- UC ANR Soils Testing Laboratories for Home Gardeners
<http://ccmg.ucanr.edu/files/51308.pdf>.

If you know your soils are **calcareous soils** (soils with a significant amount of calcium carbonate), please make sure that the laboratory you are using to test your soil samples are aware of your soil type and able to accommodate for the analysis.