

A Farmer's Guide to Collecting Soil Samples



Washington
State Department of
Agriculture



Why soil sample?

A laboratory soil analysis can provide data about the chemical, physical, and biological aspects of your soil. This information can help you make decisions for improved crop yield, crop quality, and environmental sustainability. Soil testing is frequently used to determine the appropriate—and not excessive—application rate for fertilizers, lime, or other soil amendments. Results may also be used for regulatory compliance, or to track changes in soil health and carbon sequestration over time.

When to soil sample?

Soil sampling can be conducted at any time during the year. However, it is recommended to sample at the beginning of the growing season, before field preparation (e.g., fertilizer application or seeding). For many crops, this is in the spring or fall. To monitor changes in your soils over time, samples should always be taken during the same season each year. To inform fertilizer decisions, you will need to sample at least annually. To track changes in organic matter or overall soil health, you may want to sample every 3-5 years instead.

TIP: For ease and accuracy, avoid sampling soils when they are very dry or very wet.

Where to soil sample?

Select the field or zone you are interested in. A zone can be a portion of a field that has a different management history, slope, cropping system, or soil series. You can view the soil series for a specific area using the Natural Resources Conservation Service [Web Soil Survey](#). Each field or zone may require a unique soil sample depending on your interests and goals.

Do you need this publication in an alternate format?
Contact WSDA at (360) 902-1976 or TTY Relay (800) 833-6388.

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How to soil sample

There are many ways to soil sample, though this guide covers the basics.

Required equipment:

- Soil probe (or shovel)
- Plastic bucket
- Sample bags
- Cooler with ice packs
- Cleaning rags

1. Gather your equipment. Clean all tools and buckets to avoid contaminating samples or spreading invasive species or disease.

TIP: A shovel can be used to collect soil, though a sampling probe will provide more accurate results. Probes can be borrowed from the [Conservation District](#) in your county.



2. To obtain a representative sample of your field or zone, many subsamples are required. To collect subsamples, randomly select 5 points in a W-shape across the field. **TIP:** Do not choose unusual areas or those with obvious disturbances. Avoid field corners, edges, former fence rows, areas with large rocks, or sections with atypical ponding. **TIP:** As you travel from point to point, move carefully to minimize disturbance to plants and soil, and to show proper respect to growers and their fields.

3. The soil depth you should sample will vary depending on your objectives. However, 12 inches is a common depth to learn more about crop nutrient demands. **TIP:** Use nail polish or an engraver to create a mark 12 inches from the tip of the probe. This will save time in the field, and ensure you push the probe to the same depth at each subsample. **TIP:** Before sampling, remove surface crop residues, grass, or organic debris. The depth measurement for the sample begins at the top of the soil horizon, immediately following any removed materials.

4. At each of the 5 points, collect 4-5 probes of soil within a 30-foot area. This will result in 20-25 unique subsamples mixed in the same bucket. **TIP:** This soil quantity will be enough for nutrient analysis, but check with your lab about the quantity required for other tests.

5. When all 20-25 cores have been taken across each of your 5 points, thoroughly mix the soil in your bucket and break up any clods. Avoid using your hands, especially if you are testing for sensitive biological measurements. Consider wearing gloves or using a shovel instead.

6. When soils are completely homogenized, fill a clean sample bag and label it with the information your lab has requested. **TIP:** Keep good records! Note which field each sample comes from, possibly using X-Y coordinates. Keep all sample and management data in one location on your computer, or in a notebook, so you can easily track changes over time.



7. Depending on the measurements you are requesting from the lab, you may need to keep samples cold. In the field, this will require a cooler with ice packs. Try to send cooled samples to the lab on the same day you extracted them. Otherwise, place samples in the refrigerator and send within 2-3 days.

8. When you finish sampling, or in-between fields, wipe down your bucket and tools to avoid cross-contamination or rust.

Visit our [WSDA Soil Health webpage](#) for more information, or email WaSHI@agr.wa.gov.

Additional resources:

- [WSDA soil sampling standard operating procedures, for more extensive soil health testing](#)
- [WSDA webinar for interpreting soil tests](#)
- [WSDA soil sampling instructional videos](#)
- [Washington State University soil testing resources](#)