



CHEM RIGHT LABORATORIES, INC.

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How to Sample Soil

Materials needed

A soil sample probe or auger, paper bags, water proof marker, a clean plastic pail and trowel or other tool for mixing sample.

When to sample

The best time to sample is when you can take the time to do a good job, when you can make visual judgments on dividing the field into uniform sampling areas, and during the times of the year for which soil tests are calibrated. Ideally, the best time would be either after harvest and before fall fertilization or before spring fertilization. Do not sample shortly after a lime, fertilizer, or manure application or when the soil is excessively wet.

Selecting sampling areas within a field

Each sample should represent a uniform soil area with similar past management. It is recommended that each sample represent 10 acres or less.

Sampling using a grid pattern or zone sampling

Samples can be collected using a systematic grid sampling approach. Grid sampling is useful when little is known about soils or past management in a field, for precise location of collected samples, and for computer mapping of soil test results. A disadvantage of a grid sampling pattern is that non-representative field areas may be sampled. Also, sampling costs can be high with small grid sizes. No one grid size best fits all fields, but a suggested minimum size is one sample per 2.5 acres. Samples can be collected by taking cores from the entire area of each grid cell or by taking samples from a small area usually at the center of the cell (grid-point sampling).

Grid sampling is most appropriate for flat fields with consistent soils. Zone sampling is more appropriate for sampling fields with different slopes and soil types. Using a soil map divide up fields and portions of fields by soil types and slopes. The randomly sample those different sections. Depending on the terrain a sample might represent 1 to 10 acres.

Collecting a representative sample

Take 10-20 cores or borings per area of interest and place all soil in a plastic bucket. A large number of cores is helpful to represent the sampled area because of small-scale variation typically found in fields. This number of cores per sample is recommended for both zone and grid sampling. Because this number of cores will not fit in a sample bag, place these soil cores in a clean plastic pail and mix thoroughly. After

mixing, fill the sample bag one-half to two-thirds full. Make certain to label sample bags with field and sample area information.

For zone sampling approaches, or to represent the entire area of a grid cell, take separate cores in a random zigzag pattern from each sampling area. For grid-point sampling, take the cores in a random pattern from the area of the identified sample point, which should be at least 50 feet in diameter. Use equal diameter cores or borings, and collect all to the same depth.

Sampling depth

Interpretation of P, K, and Zn soil-test values and nutrient recommendations are based on soil samples collected from a 6-inch depth. Use this sample depth in all tillage systems and for pastures when sampling for P, K, Zn, organic matter, pH, and buffer pH. Samples to monitor surface pH should also be collected from the top 2 to 3 inches in no-till fields and pastures where a shallower sample represents the soil depth that is differentially affected by surface application of nitrogen (N) fertilizers, manure, and limestone.

For ridge tillage systems, samples should be taken from the ridge and in about equal proportions from the top and shoulders using a 6-inch depth. Collecting cores from the valleys will result in low soil-test values, which over-estimates P and K fertilization needs. When P and K fertilizers have been banded into the ridge center or shoulders for recent crops, at least 20 cores should be collected.

Sending samples for testing

- Check that each sample bag clearly identifies the field and sample area with a unique number.
- Make certain sample bags are securely closed.
- Samples should be sent to CRL soon after they are taken. Keep samples out of intense heat and in a cool location if stored for any length of time.
- Fill out the laboratory information sheet as completely as possible for all samples.