

HOW TO SAMPLE SOIL FOR TESTING

OSU Extension, Muskingum County

Soil samples can be analyzed for nutrient levels and pH for both agronomic and horticultural crops through the OSU Extension, Muskingum County Office.

Soils from the following agronomic crops can be analyzed:

- Alfalfa
- Corn and soybeans
- Legumes
- Small grains
- Grasses and pastureland

Soils from the following horticultural crops can be analyzed:

- Lawn and turf
- Commercial fruits
- Commercial vegetables
- Home garden, fruits and flowers
- Woodlot
- Landscape plants
- Christmas trees

Soil Sampling Techniques

1. Scrape off top debris or residue before sampling.
2. Sample cropland to plow depth.
3. Sample permanent pasture and lawn to a three-inch depth.
4. Sample a row crop field between the rows, thus avoiding fertilizer band areas.
5. Sampling is best done when soil moisture conditions are suitable for plowing.
6. In same field, sample separately light and dark colored soils and/or recently limed or unlimed areas.
7. Do not sample in dead furrows, turn rows, strips near trees, old fence rows, fertilizer or lime spill areas, or any other freak spots.
8. Tools needed: a clean plastic bucket, spade and knife, soil probe or an auger. A soil probe or an auger works best because it helps secure equal amounts of soil to a definite depth at the sampling site.

How to Get a Composite Soil Sample

Think of a "soil sample" as meaning the composite of several borings or spade slices from one distinct area. The word "area" here means the field or part of a field that represents each distinct kind of topography (upland as compared to bottomland), soil texture (silt loam as compared to sandy), soil organic matter (light colored as compared to dark colored), fertility status (as indicated by crop growth) and management unit (field or portion of field).

To get a representative soil sample, gather at least 15 cores and preferable 20 to 30 cores, if the soil has been recently limed and/or fertilized. Take each core to the same depth. Take the same volume of soil at each site. Take cores at random in a "zigzag" pattern over the area involved.

This procedure will minimize the effect of any one boring. For example, if 20 equal-size borings were taken in an area and one of them was, by chance, taken in an old fertilizer spill area, it would have very little effect on the results of the composite sample. However, if more soil has been taken at the fertilizer spill area than at any one of the other sites, then the larger volume of soil would influence the results of the composite sample.

Processing the Soil Sample

1. Break up clods or lumps, spread out and dry at room temperature. Caution: apply no artificial heating by stove or furnace for this can alter the sample for analysis.
2. When dry, **THOROUGHLY MIX** the soil sample, mildly crush, do not pulverize, (an old rolling pin works nicely) reducing the coarser granules to about the size of wheat grains or smaller.
3. Retain one pint from the original sample; place in a clean paper or plastic bag or other suitable container.
4. Label carefully to insure identification. Example: Field 1, Area A. It is a good plan to prepare a map or sketch of your farm/field layout, showing areas sampled. This will help keep an accurate record of your soil test reports.
5. Take the dry soil sample to **OSU Extension, Muskingum County Office, 225 Underwood Street in Zanesville**. The staff will assist you in filling out the necessary paperwork in order to process the sample. Be prepared to supply the office with the following information for agricultural crop samples: last crop planted, crops to be grown for the next three years and yield goals, acreage and field identification name or number.
6. The sample will be sent to the soil analysis laboratory at Penn State University. **Cost is \$10 per sample**. Pay when you bring the sample to the Extension Office.
7. **Expect 12-14 days to get a reply in the mail from Penn State** with your soil test results. The Extension Office will also get a copy of results. If you have questions, don't hesitate to call the Extension Office at 740-454-0144.

How Often and When to Test Soil

Test each field, garden or lawn every 3 to 4 years or once a crop rotation.

The ideal time to take soil samples is in the fall right after the crop has been harvested. Sampling the soil just prior to planting may not allow ample time to make plans for applying lime and fertilizer. Try to avoid having your soil tested in March/April, as these are the laboratory's peak load months. Soil samples may be collected anytime during the year that soil conditions are suitable for sampling. It is not necessary to wait until just prior to planting to get your soil tested. When high-value field crops are produces, soils should be tested for each crop. Annual sampling gives better information on changes in soil nutrient levels with different cropping systems or patterns, as well as allowing adjustments in the fertility requirements within a rotation.

What to Expect from a Soil Test

Soil tests provide information about the nutrient level of the soil and the recommended lime and fertilizers necessary to achieve the yield goal. In addition, educational comments for particular crops are provided on the final report form.

Agronomic results include soil nutrient levels of phosphorus, potassium, magnesium, zinc, copper, sulfur, and calcium. Also included are soil pH, cation exchange capacity (CEC) and percent saturation of the CEC of potassium, magnesium and calcium.

Lawn and garden results include soil nutrient levels of phosphate, potash, magnesium and calcium. Also included are soil pH, exchangeable cations, and percent saturation of the CEC.

Additional tests can be completed at an additional cost for organic matter, nitrate N, soluble salts and heavy metals.

Soil tests do not provide levels or presence of toxins such as gasoline or herbicides in the soil. Specific tests need to be conducted to detect such substances.

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June, 2005



