

# HOW TO SAMPLE SOIL FOR TESTING

## OSU EXTENSION, MUSKINGUM COUNTY

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

<p>Soils from the following <b>agronomic</b> crops can be analyzed:</p> <ul style="list-style-type: none"> <li>• Alfalfa</li> <li>• Corn and soybeans</li> <li>• Legumes</li> <li>• Small grains</li> <li>• Grasses</li> <li>• Hay fields</li> <li>• Pasture</li> </ul>	<p>Soils from the following <b>horticultural</b> crops can be analyzed:</p> <ul style="list-style-type: none"> <li>• Lawn and turf</li> <li>• Commercial fruits</li> <li>• Commercial vegetables</li> <li>• Home garden, fruits and flowers</li> <li>• Woodlots</li> <li>• Landscape plants</li> <li>• Christmas trees</li> <li>• Wildlife food plots</li> </ul>
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### 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. Do not sample in dead furrows, turn rows, strips near trees, old fence rows, fertilizer or lime spill areas, or any other freak spots.
6. 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 preferably 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

- **Obtain soil mailing kit from OSU Extension Muskingum County Office, 225 Underwood Street in Zanesville.** The cost is \$9. The staff will assist you in filling out the necessary paperwork in order to process the sample. Be prepared to supply 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.
- 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.
- When dry, **THOROUGHLY MIX** the soil sample. Mildly crush, do not pulverize; reduce the coarser granules to about the size of wheat grains or smaller.
- Retain one pint from the original sample; **place in the clear plastic bag provided in the soil mailing kit.** Note serial number on the mailing pouch, on the clear sample bag, and on the top left corner of paperwork must match.
- **Complete paperwork provided in soil mailing kit.** Information you must provide on the form for agronomic crops:
  1. Contact information
  2. Field ID
  3. Number of acres
  4. Soil series name (if known)
  5. Plow depth
  6. Previous year’s crop (if legume)
  7. Next three years of cropping (crop codes on back side of form)
- **Place soil sample bag and paperwork into self-addressed soil mailing pouch. Drop off at mailing location with correct postage.**

- 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 produced, 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.

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.

*Developed by: Mark Mechling, Ohio State University Extension, Emeriti; 2005*

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