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COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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Choosing a Soil Testing Laboratory

Soil testing provides key information about the fertility and nutrient availability of soil. Soil tests for biological and physical characteristics can provide a more complete picture of overall soil health. Gardeners, farmers, and landowners can benefit from soil testing recommendations to optimize nutrient management and prevent under- or over-application of lime and fertilizers. In Ohio, there are several laboratories to choose from, all of which offer a variety of soil tests. This resource lists labs in or near Ohio, along with important factors to consider when choosing a soil lab that is right for you.

Consistency. Consistency is key to tracking soil fertility or soil health over time. Using the same soil testing lab and analyses enables you to monitor changes over time to your soil. It's also important to use consistent sampling methods (soil depth, time of year, etc.).

Cost. Soil testing packages are competitively priced and although pricing is important, using cost alone as the selection criteria is a misguided approach. A quality lab will not cut corners and ensure there are qualified personnel to generate data and answer your questions. Most labs will offer bulk sample discounts.

Standard soil test package. Most labs offer a 'standard' soil testing package, that typically includes pH, cation exchange capacity (CEC), and availability nutrients such as P, K, Ca, and Mg. The standard package may also include total organic matter and micronutrients. Other tests may also be available, so be aware what all is included when comparing prices. Additional tests are often available for an added fee. Make sure the lab's standard package meets your needs or at least know the cost of adding extra tests.

Quality control measures. Soil-testing laboratories in Ohio are not regulated by state or federal agencies. However, laboratories can enroll in voluntary proficiency programs such as the North American Proficiency Testing (NAPT) or Agricultural Laboratory Proficiency (ALP) to ensure accuracy and precision through a third party. The gold standard for a lab is to be a certified member of the Agricultural Laboratory Testing Association which has strict standards. At a minimum, laboratories should be conducting internal self-evaluation measures such as standard checks or internal reviews.

Expertise on Staff. Any lab can generate numbers, but if you need help interpreting what these numbers mean, it's important that they have experienced agronomists or technicians on staff that can help provide context to walk you through your soil test report.

Methods of analysis. Standard soil testing methods and recommendations vary regionally. For Ohio soils, it is best to choose a lab that follows recommendations from The North Central Regional Research Committee (NCERA-13). This committee of university scientists has developed methods that are appropriate to soils in the Midwest and are used as the basis of fertilizer and lime recommendations.

Convenience. Soil testing should not be difficult; a good lab should help make it easy. Does someone pick up the phone when you call? Or will they return your email if you prefer to write? How do they bill or accept payments? How useful is their website?

Fertilizer and lime recommendations. Soil test reports can come with fertilizer and lime recommendations, but labs are not obligated to use university recommendations. What's the basis of the lab's recommendations? And will they provide vetted university recommendations upon request?

Data management system. Many labs have convenient websites where you can log into your account to generate sample submission forms, review results immediately when available and even go back numerous years to view previous results.

Turnaround time. Most labs will get you results back within a few days of receiving the soil. If getting data back quickly is essential to you, ask about typical or guaranteed turnaround times.

Quick Guide to Available Soil Test Abbreviations and Definitions

- *CEC* – cation exchange capacity – measures the amount of positively charged nutrients (such as Mg, Ca, K) that your soil can hold. Heavier soils have higher CEC values.
- *pH* – measures acidity and alkalinity of soil, key to nutrient availability.
- *Extractable nutrients* – P and K are most important, but labs often report Ca (calcium), Mg (magnesium), Na (sodium) Mn (manganese), Zn (zinc), B (boron), Cu (copper), Fe (iron), Al (aluminum), S (sulfur).
- *Heavy metals* – a possible concern on urban or reclaimed soils or areas where lead-based paint may have been used.
- *Nitrogen – Often not measured in standard soil package* since available nitrate is impacted by environmental factors. Some labs offer an estimated nitrogen release, or measure plant available forms NO_3 (nitrate) or NH_4 (ammonium).
- *Organic Matter* – usually total organic matter (or total carbon). Measures the natural materials in the soil which can provide numerous benefits including a slow-release nutrient reserve, decreased water stress, support for microbial and soil life, and protection from soil compaction.
- *Active organic matter (POXC)* – measures the portion of organic matter most likely to interact with plants and fertility.
- *Solvita test* – a test for soil respiration that measures soil biological activity.
- *Haney test* – a test of how hospitable your soil is for microbial life. Measures soil nutrients that are available to soil microbes, soil respiration (microbial breathing), water-soluble organic carbon, organic nitrogen, and C: N ratios, as well as NO_3, NH_4, and other key nutrients.
- *Bulk density, aggregate stability* – available laboratory tests for measuring soil structure and compaction.
- *Soil texture (or particle size analysis)* – measures the amount of sand, silt, and clay in your soil, which dictates soil type.

Soil Testing Labs in or near Ohio (listed alphabetically)

Laboratory	***Standard Test package****	***Available Soil Health Tests***
A&L –Great Lakes Laboratories 3505 Conestoga Drive / Fort Wayne, IN 46808 260-483-4759 | lab@algreatlakes.com http://www.algreatlakes.com/	pH, CEC, P, K, Ca, Mg, Organic Matter (OM)	*Bulk density, Soil texture, Solvita test*
Agri-Labs, Inc 915 Cardinal Court / Auburn, IN 46706 260-333-0618 https://www.agri-labsinc.com/	pH, CEC, P, K, Ca, Mg, fertilizer recommendations	*Organic Matter, Solvita test*
Brookside Laboratories, Inc. 200 White Mtn. Dr. / New Bremen, OH 45871 419-977-2766 https://www.blinc.com/	pH, CEC, P, K, Ca, Mg, Na, OM, Mn, Zn, B, Cu, Fe, Al, S, estimated N release	*Bulk density, C:N ratio, Haney test, Solvita test*
Calmar Soil Testing Labs 13 South State St / Westerville, OH 43081 614-523-1005 ohiolab@calmarlabs.com http://www.calmarlabs.com/	pH, P, K, Ca, Mg, OM, (Fertilizer recommendations for home and garden soils only.)	
Holmes Lab Inc. 3559 U.S. 62 / Millersburg, OH 44654-8834 330-893-2933 http://www.holmeslab.com/	pH, CEC, P, K, Ca, Mg, Na, OM, lime and fertilizer recommendations	*Soil texture analysis, Heavy metals*
Logan Labs 620 North Main Street / Lakeview, OH 43331 937-842-6100 or 1-888-494-SOIL loganreports@loganlabs.com http://www.loganlabs.com/	pH, CEC, P, K, Ca, Mg, Na, OM, S, B, Fe, Mn, Cu, Zn, Al	*Solvita test, Bulk density, Soil texture analysis*
Michigan State Soil & Plant Nutrient Laboratory 1066 Bogue Street, Room A81 East Lansing, MI 48824-1325 517-355-0218 | spnlab@msu.edu https://www.canr.msu.edu/spnl/	pH, CEC, P, K, Ca, Mg, lime requirement (OM and texture for lawn and garden samples)	*OM, Soil texture analysis*
Penn State Ag Analytical Services Laboratory Room 111 / University Park, PA 16802 814-863-0841 | aaslab@psu.edu http://www.aasl.psu.edu	pH, P, K, Ca, Mg, Cu, S, Zn, lime and fertilizer recommendations	*OM, Total C, Soil texture analysis, Heavy metals*
Spectrum Analytic 1087 Jamison Rd NW Washington Courthouse, OH 43160 800-321-1562 http://www.spectrumanalytic.com	pH, CEC, P, K, Ca, Mg, Organic Matter, lime and fertilizer recommendations	*Solvita test*
SureTech / Winfield United 7501 Miles Dr. / Indianapolis, IN 46231 317-243-1502 https://www.winfieldunited.com/research/suretech-laboratories	pH, CEC, P, K, Ca, Mg	*Aggregate stability, Soil texture analysis, OM, Active carbon*

Additional services. While some laboratories focus solely on soil testing, others offer additional tests that may be of use to your operation. Plant-tissue analysis can be used with soil testing to isolate fertility problems in the field. Farms using manures, composts, soilless mixes, nutrient solutions, or irrigation water should evaluate these inputs for their impact on fertility.

	Analyses Available			
Lab	Plant Tissue	Manure	Compost	Irr. Water
A&L	x	x		
Agri-Labs	x	x		
Brookside	x	x	x	x
Holmes	x	x	x	x
Logan	x			x
MSU			x	x
PSU	x	x	x	x
Spectrum	x	x	x	x
SureTech	x	x		x

Ask Around. Consult with county educators, other farmers, crop consultants. Additional time and effort spent in selecting a quality soil-testing laboratory will pay off. Don't assume the laboratory gives quality test results or has responsive customer service. Save yourself trouble by finding out for sure.

Disclaimers: Inclusion on this publication does not constitute an endorsement by Ohio State. Please check individual laboratories for updated information on tests offered, prices, and policies. This information was last reviewed on 10/31/2021.

Resources & References

Tri-State Fertilizer Recommendations for Corn, Soybeans, Wheat, and Alfalfa (pdf)
https://extensionpubs.osu.edu/search.php?search_query=974&section=product

Additional Fertility Resources from OSUE
https://agcrops.osu.edu/FertilityResources

Manure and Compost: Nitrogen Availability in Organic Production OSUE Fact Sheet ANR-34 https://ohioline.osu.edu/factsheet/anr-34

Special Topics

Midwest Vegetable Production Guide for Commercial Growers 2021
https://mdc.itap.purdue.edu/item.asp?Item_Number=ID-56

Midwest Home Fruit Production Guide: available for purchase at
https://extensionpubs.osu.edu/midwest-home-fruit-production-guide/