WASHINGTON STATE UNIVERSITY
SPOKANE COUNTY EXTENSION
Master Gardener Program

222 N Havana
Spokane WA 99202
(509) 477-2181
http://extension.wsu.edu/Spokane
e-mail: mastergardener@spokanecounty.org

C220

SOIL TESTING OPTIONS

Gardening books, Master Gardeners, and online sources frequently recommend soil testing for gardens. There are many reasons for soil testing, a wide variety of soil testing laboratory types, multiple methods to test your soil, and an often even a more confusing array of soil test outcomes. Keeping your goal for soil testing firmly in mind, you select the test or tests that are the most informative, cost-effective, and least burdensome. The purpose of this handout is to guide selection of appropriate soils tests to meet your goals.

Soil tests are used to establish the baseline for healthy soil or address loss of plant vitality. Tests can be generally classified as follows and there is a fact sheet available for each:

1) Easy Do It Yourself (DIY),
2) Nutrient,
3) Environmental,
4) Soil Biology
5) Advanced.

The costs and methods of soil testing will depend on the reason the soil test is being undertaken, as well as the method or laboratory selected. Please refer to the specific tests and soil collection instructions provided in the links or by laboratories below for further details. If commercial tests are desired, we recommend selection of an accredited local laboratory. See advanced testing for further discussion.

Learn everything you can about your living soil, so that your dream garden will flourish and your plants will be healthy.

Pay close attention to the percentage of soil organic matter. Soil organic matter should measure 5%-10%, as it affects the pH, improves physical properties of sandy or clay soils, banks water to ameliorate drought, has the potential to mitigate for contaminants, and is the basis for the soil food web that supports life in the living soil.

For example, 1 pound of carbon in organic matter can hold up to 40 pounds of rainwater or other precipitation. Without the organic matter supplying carbon to the living soil, you have lifeless “dirt” that lacks soil health, fertility, and will not grow anything well.

What Soil Test Types or Combinations Will Help?

Soil Testing Goal(s)	Recommended Soil Test (Advise using all in order presented)
What is your goal in **establishing a baseline**? • For your information, • A move to a new area • Prior to developing a new garden site **Hint:** *determining a baseline will be of use if plants fail to grow optimally, to flag any potential toxic buildup of nutrients due to over-application of bagged or boxed fertilizer, or draw attention to indicators of low fertility.*	1) Easy DIY Soil Tests (C221) 2) Nutrient Soil Testing (C222)
Are you **worried about soil containing pathogenic microbes, heavy metals or other toxic chemicals**?	1) Environmental Soil Test (C223) tailored to any potential heavy metals, pathogenic microbes or toxic chemical that you expect (use background research to identify potential contaminants). 2) Nutrient Soil Test (C222) to screen for toxic levels of common nutrients. 3) Easy DIY Soil Tests (C221) can help inform mitigation strategy if needed
Is your goal to **assess soil health or quality** (e.g. to evaluate effectiveness of regenerative gardening or farming methods or to track improvements in soil health over time)? **Hint:** *Regenerative methods include deep mulch, conservation agriculture (no till plus cover crops and diverse rotations), organic agriculture, holistic grazing, permaculture, French Biointensive, biodynamics, etc.*	1) Easy DIY Soil Tests (C221) 2) Nutrient Soil Tests (C222)
Is **monitoring for biological activity** in the living soil your primary goal?	1) Easy DIY Soil Tests (C221) 2) Nutrient Soil Tests (C222) 3) Soil Biology Testing (C224)

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Is your goal to **maintain soil fertility by using commercial fertilizer**? If yes, we recommend answering the ancillary questions below. Do you rely on (bagged or boxed) organic or synthetic fertilizer as your sole source for maintaining soil fertility for your lawn or garden? If yes: Do you annually return any organic matter high in carbon to your soil (e.g., grass-mulching; compost; organic mulches i.e. leaves, pine needles, straw, manure; grazing rotations, no till combined with cover crop and diverse rotations; etc.)? If no: Would you like to know more about maintaining soil fertility sustainably through the annual additions of organic matter?	1) Soil Nutrient Tests (C222) -conduct regularly. -use the Soil Nutrient Tests to make sure what NOT to add as well as address any soil chemical deficiencies. 2) Easy DIY Soil Tests (C221) Consider using grasscycling, mulches or other sustainable methods for adding organic matter, high in carbon, to your living soils Grasscycling (C059); Guide to Mulches (C075) Learn more about how striving for 5% organic matter will improve soil fertility, response to drought, tilth, and other measures of soil quality and health.
Do you have a soil-testing question not yet addressed?	1) Consult a Master Gardener 2) See Advanced Soil Testing (C225)