



Your Soil Test Report Simplified A Guide for Homeowners

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Introduction

Virginia Cooperative Extension recommends soil testing about every 3 years to keep track of changes in the soil. The Soil Test Report is sometimes confusing to clients without a background in soils. This aims to help consumers understand the parts of the soil test and provides best management practices for improving soil fertility and soil health.

The Soil Test Report

Results from the Top Row

LAB TEST				
Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)
Result	104	54	2235	531
Rating	H+	L	VH	VH

Figure 1. From the Soil Test Report form.

Phosphorous (P), potassium (K), calcium (Ca) and magnesium (Mg) are rated from very high (VH) to low (L). Generally, it's not recommended to add a nutrient if it is H (High) or higher.

T RESULTS (see Note 1)

Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
0.8	10.0	0.5	14.2	0.3	
SUFF	SUFF	SUFF	SUFF	SUFF	

Figure 2. From the Soil Test Report form.

Zinc (Zn), manganese (Mn), copper (CU), iron (Fe) and boron (B) are rated as sufficient or insufficient.

Any corrections of the above nutrients are reflected in the **Fertilizer Recommendation** and/or **Lime Recommendation**.

Soluble salts (S.Salts) is not part of the routine test. It is used to assess soils where excessive fertilization has led to a buildup of salts that is harmful to plants.

Results from the Bottom Row

Analysis	Soil pH	Buffer Index	Est.-CEC (meq/100g)
Result	6.4	6.28	8.5

Figure 3. From the Soil Test Report form.

Soil pH is a measure of acidity/alkalinity. Most plants prefer a pH between 5.8 and 6.8. If you need to correct your pH for the crop you have specified on the test, this is reflected in Lime Recommendation. Occasionally a Sulfur Recommendation is recommended for certain crops if the pH is too high.

Buffer Index is a measure of how easily the soil's pH can be changed. This is used for making the Lime Recommendation.

Estimate Cation Exchange Capacity (Est. CEC) is the ability to hold certain nutrients against leaching. The higher the number the better. This is useful for tracking improvements to soil over time.

Acidity, base saturation, calcium saturation, magnesium saturation and potassium saturation aren't important in most lawn and landscape situations.

Organic Matter is not part of the routine test. It is expressed as the percentage by weight of organic matter in the sample. Higher is generally better. Typical Virginia soils run 0.5-2.5%. Garden soils are typically higher because of the amount of organic matter usually added to them.

Report Recommendations

Lime is given in pounds per 100 or 1000 sf, depending on the crop. It is important that you measure the area you need to amend so you can apply the correct amount. The amount of lime you add is for the life of the soil test (3 years). Lime should not be applied annually.

Fertilizer for typical lawn and landscape crops are given in ratios of nitrogen, phosphorous and potassium (NPK). The amounts are typically in the documents accompanying your soil test report. These are expressed in pounds per 100 or 1000 sf, depending on the crop. It is important that you measure the area that you will fertilize to apply the correct fertilizer rate. Fertilizer is typically applied annually.

Established trees, shrubs and other perennials usually don't need fertilizer annually. Turf often requires at least one annual application of nitrogen. If you need clarification, contact your local Extension office.

Best Management Practices for Improving Soils and Soil Health

Adjust the pH as Needed

If the pH is outside your plant's comfort zone it will be hard for the plant to uptake nutrients. Only add lime if the Soil Test Report recommends it.

Measure Your Lawn and Garden Beds

In order to apply fertilizer and lime at the correct rate, you need to know the area you'll be applying it to. Remember to measure the lawn and garden beds separately as they have different needs.

Apply Fertilizer Correctly

Applying fertilizer at the recommended rate, at the best time of year will benefit the plant's ability to utilize it and makes for a healthier plant.

Add Compost Regularly

Compost provides organic matter to the soil and fuels the below ground ecosystem. This helps to improve soil structure, the ability of the soil to handle water and nutrient cycling.

For garden beds, apply a 5-gallon bucketful per 100 sf annually or every time you till.

Leave Your Lawn Clippings

Leaving the clipping on the lawn adds organic matter to the soil. A year's worth of clippings also

recycles about 0.5-1 pound of nitrogen annually, reducing the amount of fertilizer you need to apply to the lawn.

Minimize Tillage

Tillage (plowing, rototilling, etc.) can disturb the soil ecosystem, damage soil structure and increase the risk of erosion. If tillage is needed, this is a good time to incorporate compost.

Increase Plant Diversity

Increasing diversity by mixing plant species helps mimic a more natural system and increase the diversity of beneficial soil organisms. Adding white clover to your lawn and planting bulbs with perennials are examples.

Keep the Soil Covered

Bare soil is vulnerable to erosion from wind and water. Covering bare soil with mulch, ground covers or cover crops protects your soil.

Use Cover Crops Where Practical

Cover crops are simply crops grown when the soil would otherwise be bare. In the home garden, this is typically over winter. Any plant can serve as a cover crop, but often a winter grain, daikon radish or an annual clover are used. Another advantage of using cover crops is that they allow you to harvest solar energy year-round. Their living plant roots, in turn, supply nutrient to beneficial soil organisms in the ground.

Addition Information

To get a copy of your recent soil test report, for questions or more information, contact your local Virginia Cooperative Extension office or go to <https://ext.vt.edu>.

References

Maguire, R., and Heckendorn, S. Soil Test Note 1. VCE Publication 452-701.

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