



DIY SOIL TESTING vs. LAB PROFESSIONALS

The importance of soil health to us and Our Plant Earth is up there with Bees to Agriculture, water to fish, and Oxygen to human life. Without bees' certain crops would not get pollinated and yield vast harvests. Without good soil there would be no crops for bees to pollinate. No bees. No crops. No more Almonds, in that order. Hence, we must consider the importance of good soil health, and its dependence on several scientific factors. These factors can be found in the results of Soil Testing. Besides nutrients and pH levels, microbes are indeed a critical factor to soil health. Soil testing can provide the information needed to treat and maintain good soil health.

Prior to the mid 1800's, for more consistent soil health, crop rotation was the common practice to help maintain healthy soil. In 1845 we find record of the first soil tests, a written essay on soil fertility by an Englishman named Daubeny. By the early 1900's more in-depth research on soil began. By the 1940's soil analysis becomes a prominent scientific area of study in Agriculture.

Today, with genetic modification and nano technology, the science of Soil Testing has changed with the times, growing into a Big Industry. Instead of us taking samples to the Big Lab and waiting for results, farmers and growers alike can test your soil On the Spot. The Future is now soil testing has gone microbial and mobile. Hundred-acre farms can be tested in practically a nano second, (a guess at best). That's Ripple Effect's cliff notes version on the History of soil testing.

There are many types of soil tests in the biochemistry world, also called soil analysis. Most common soil test is 'plant-available concentrations' which test for the nutrient and pH levels in your soil sample(s). Top three Major Nutrients tested for are Nitrogen (N), Phosphorus (P), and Potassium (K).

Secondary nutrients include Sulphur, Magnesium, and Calcium. Minor nutrients are iron, manganese, copper to name three. Common soil contaminants include arsenic, lead, barium, cadmium, and mercury.

What Soil Tests Can Measure?

You can get a soil test to measure just about any compound or mineral in your soil including organic matter, total salts, macro-nutrients, micro-nutrients, contaminants, and soil pH level. But very few of these are likely to be included in a basic lawn and garden soil test that labs offer.

Be sure to read the lab's description of what's included with your test, because it varies from lab to lab. The ones that are nearly always included are marked with an asterisk.

Nitrogen may be the most important nutrient in your soil, but it doesn't stay in the soil, so a lab won't be able to measure it with a basic soil test.

General

- pH*
- Electrical conductivity (total salts) mS/cm
- Organic matter (% dry) *

Micro-nutrients

- Calcium (Ca)
- Copper (Cu)
- Boron (B)
- Iron (Fe)
- Manganese (Mn)
- Magnesium (Mg)
- Sulphur (S)
- Zinc (Zn)

Macro-nutrients (NPK)

- Nitrogen (N)
- Phosphorus (P)*
- Potassium (K)*

Contaminants

- Aluminium (Al)
- Arsenic (As)
- Barium (Ba)
- Cadmium (Cd)
- Lead (Pb)
- Mercury (Hg)

Note From Before 'plant-available concentrations'.

That was highlighted because this is what is given in a laboratory test. It supplies you with the nutrients which are available for the plant's uptake. This however, does not mean that the nutrients are not in your soil. *So why if the required element is in the soil is it not available for the plant to take up?* As an example of this, lets look at the farming sector. Each year you see the advertisements on TV for Agricultural Lime for a farmer's soil. Does this mean that the lime which is applied each year is all used up? Well no, not at all. It means the soil biology is not present in the soil to make it available to the plants, and that is not tested for. There is no mention of the biology that the sample contained, only the mineral components, perhaps the particle size break down will be included in a "complete" soil analysis you will also get "micronutrient" lists.

The report will also tell you what to do to get that point we call “normal” but it will again only be mineral additions, pH adjustment amendments and perhaps particle size amendment, all based on what is considered to be “normal, friable, land”.

Good soil health is contingent upon knowing these nutrient factors along with microbial influences like dead plant compost, to earthworms eating and doing their business in your soil. All of which can affect the cycling process in soil, good or bad. Soil testing reveals how much of what is in your soil and below the root zone, which offers important data to help determine how to maintain your soil. Texture, pH, acidity, organic matter, density, and microbiology are all important factors (properties) to a good soil profile. One factor off could mean crop failure.

Bottom Line.

Realistically you are not going to get your soil numbers accurately from a home test. It will however, give you an indicator of your soil health. As for lab testing, that is not much better as laboratories, in general, do not take soil biology into account. So, what do you do? My suggestion is getting a laboratory assessment done. Below I will include a list of the better laboratories here in Australia. Use the results as a guide line only being fully aware of the limitations of these tests. The best indicator is the amount of soil life you have in your soils and that is only able to be measured by the use of a microscope, or by being aware of the worm population you have in your soils as these little creatures will not be present in soils which have been rendered dead by chemical fertilisers, pesticides, fungicides and herbicides. It will take 3 years, give or take, to rid your soils of these chemicals so you will need patience also.

GOOD LUCK

AUSTRALIAN TESTING LABORATORIES :-

Soil Foodweb, NSW Australia- Chris Ellery

Agpath Laboratory, VIC Australia - Dr Mary Cole

EAL, Lismore Australia - Graham Lancaster

(Sources):

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