

SWEP FACT SHEET #5

What does this Soil Test Report Tell me?



When faced with page after page of numbers and jargon, how can you get out enough practical information so you can figure out what to do next?

In this Fact Sheet, we look at what is in a soil test report and what it all means. But this is a difficult thing to describe in the limited space of a Fact Sheet, so if you would like any further information, please call us on (03) 9701 6007.

The results of a soil test can be very off-putting. There are lots of numbers and heaps of technical 'Mumbo-Jumbo', but how do you work out what to do?

Too often, our expectations of a soil test are that it will only tell us to spend more than we can afford on fertilisers that don't seem to work as well as they once did.

In fact, a soil test should do much more. It should tell you about the 'health' of your soil, it should give you targets to work towards and not just how to achieve those targets, but without restricting your options. That is, it should let you get there under your own steam and with the resources you have available – not just "sign here and we'll send you the bill!"

Parts of a Soil Test Report

A few **Basic measures** are included in the report as a means of describing the sample and the basic nature of the soil. These include soil colour and texture, pH, EC or soluble salts, & Organic matter%. Mostly, these are of indirect importance to how you treat the soil. Which is not to say they are unimportant, only that they are mostly considered *relative* to other things. For example, organic matter is used to adjust some of the calculations and the safe salt level depends to some extent on the soil texture.

Plant Nutrients

These include Nitrogen, Phosphorus, Potassium and Sulphur. These are used to determine fertiliser recommendations and so must be considered in relation to the intended land-use. This means that a soil sample will return very different fertiliser requirements for Citrus than for Cotton, & so on.

Cations

Pronounced "Cat-Irons", these are also important plant nutrients, but are more important for their effects on soil structure and physical character. For more information on this part of the soil test report, see our Fact sheet on "Soil Balancing". It is common to find nutritional problems in the plant – related to Calcium, Magnesium or Potassium – in spite of adequate levels being present in the soil. This is because the relative proportions of these elements to each other are at least as important as how much of each is available.

Trace elements

These nutrients cause a lot of concern, but often for the wrong reason. They are essential elements that plants must have in the right proportions to do well, but they are not a "Cure-all" by themselves. Also, the levels on the soil test can change with things like pH. This means that you need to consider the recommendations in the light of the overall situation. For example, if the pH is below 5.7 you should focus on soil balancing first and re-test before adjusting trace elements. On the other hand, sandy soils with little nutrient holding ability may need them regardless of pH.

Calculations

Some of the results are produced by Calculations and this worries some people since not all laboratories will tell you if a figure is calculated or not, so the impression is that such figures are deceptive. It is true that some laboratories will use calculated figures *as if* they were actual test results and hope you will not find out, however, there are some things that need to be calculated and these are important things to know.

For example, we have already seen that the relative proportions of cations are important and these proportions are calculated. Such calculations include Exchangeable Sodium Percentage (ESP), Cation Exchange Capacity (CEC) and the Ca:Mg ratio, etc.

The important thing here is to know HOW they are calculated. Cation proportions must be calculated from figures in milli-equivalents NOT ppm and the CEC must include Hydrogen if the balance proportions are to be right.

Recommendations

The nutrient requirements are determined mainly on the basis of the Land use and Cation Exchange Capacity. This requirement is then adjusted according to the tested level in the soil, the level of soil balance and the leaching potential. The required amount of each nutrient on the report then needs to be converted to a fertiliser application.

For soil balancing, the amount of Calcium (&/or Magnesium) needed is worked out and recommendations for either Carbonate or Sulphate compounds are calculated. The most important thing when applying these recommendations is to ensure the use of high quality materials.

For more information on the material covered in this Fact Sheet, contact SWEP on (03) 9701 6007 or visit our website: www.swep.com.au