

Healthy Soil & clean water =
Healthy Crops & Pasture =
Healthy Livestock & People



Soil Health:

- ▶ Structure
- ▶ Nutrients
- ▶ Biology

Many people find reading a soil test report is confusing. At SWEP we work hard to make them as easy to use as possible and these notes should also help clarify some common questions.

SWEP uses the Mikhail System of balanced soil management, which is based on 45 years of dedicated research on Australian soils and provides a reliable 4-step method for maintenance of both soil and plant health.

1. Cations first:

Pronounced "Cat-Irons" these are positively charged elements that affect the structure and friability of the soil, making them a major factor in determining the physical environment within which plants and other soil organisms survive.

The major cations are Calcium, Magnesium, Sodium, Potassium

and Hydrogen. Adjusting their relative proportions is the key to optimising the physical condition of the soil. The recommendations for Lime, Dolomite and Gypsum on the test report are recalculated to correct this "Cation Balance".

Of course, this process takes a little time and so it is best to keep it separate from fertiliser applications.

2. Nutrients later:

The nutrient recommendations are given in grams per square metre of the actual nutrient and so must first be converted into fertiliser (refer to Fact Sheet #6 for more information on this) and applied some 3 to six months after the cation balance corrections.

They also represent the requirements for one entire growing season and so do not necessarily need to be applied all at once. Nutrients like Nitrogen and Potassium in particular can be split between two or three applications if the requirements are large.

3. Biology after disturbances:

Soil organisms are highly sensitive to any disturbance in their environment. Most activities in the Garden will create some sort of disturbance, so whether you are cultivating, planting, weeding or fertilising, you should also be doing things to help minimise these disturbances.

The important point here is that, like a forest after bushfire, left alone, soil organisms can cope with most things by themselves. So if you haven't done a

Complete Soil Test to show what the appropriate actions are, then doing nothing is better than doing wrong things and creating even more disturbance.

However, if your Complete Soil Test recommended Kelp and Fish Emulsion (for example), then this can be applied as soon as you have finished any fertilising or other gardening, as a means of re-establishing the biological balance in the soil.

Application rates matter

SWEP recommendations are very precise and this is for a reason—the best results are achieved by doing what is required, but no more or less than this.

More is not always better and this is especially true for soil biology. Here, the majority of materials recommended are liquids and so the recommendations are given in millilitres per square metre (ml/sq.m). Our research has shown that the biological benefits of these materials occur at very particular application rates and only at these rates. The amount of water in which the required material is dissolved is not so important—only that the required amount is applied to the appropriate area.

For instance, after planting a tree you may water about one square metre around it. If the recommendation is for kelp at 2ml/sq.m then you should apply only 2ml of kelp to this area. If you then fertilise around an established tree covering about 10sq.m then you would apply 20ml to this area. Both could be applied in one or two watering cans full of water—it's the amount for the area that is important not the amount of water.

4. Monitoring changes

By re-testing every 12 months (at the same time of year) you can track any changes that occur over time. Once the cation balance has been corrected, soil biology will be very useful in early detection of unwanted changes in the soil.

If you have any other questions, please email us at: services@swep.com.au