

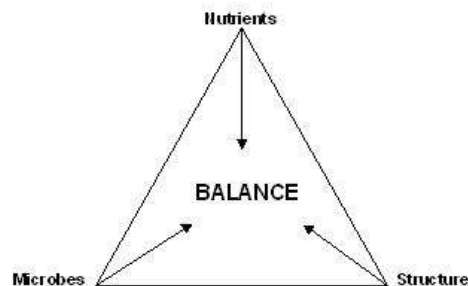
Soil Biology at Last!

Research by SWEP Analytical Laboratories has succeeded in uncovering the link between soil biology and soil test results. At last it is possible to see what effect farm management decisions can have on the life in the soil and develop ways to protect it.

In the past, many people have tried to develop an understanding of how soil biology works, but without success. Now, the breakthrough has come as a result of trying to better understand the nature of 'balance' in soil and the inter-relationships between the components of soil function, rather than biology alone.

This approach is not new. In fact it has been the focus of more than 40 years work by SWEP founder and Managing Director, Ted's Mikhail. Using this concept of 'Soil Balance', he has been able to show that there is indeed a 'Balance' relationship between certain key indicator groups of soil micro-organisms, but this stable and sustainable condition is only reached after the physical and chemical properties of the soil have also been balanced. Unless viewed in this context, the results of biological tests are simply meaningless.

Ted's Balance concept (now called "The Mikhail System") treats soil as a "Living System" that is made up of three functional components – Cation balance (as this influences the physical nature of the soil), balanced plant nutrition and soil biology. Each of these



components needs to be managed in a balanced way and then balanced with each other if true sustainability is to be achieved.

"I believe in treating the soil as a living system," Ted says. "The health of this system has similar requirements to those of healthy people. For example, it is important to have good strong bones and for this you need Calcium, Magnesium, Sodium and Phosphorus – in the right proportions. In a similar way, strong, healthy soil needs Calcium, Magnesium, Sodium, Potassium and Hydrogen – **in the right proportions.**"

Likewise with plant nutrition (in contrast to the usual system of using the soil as a nutrient sponge for plants – filling it up to 'Luxury' levels with a few major elements, squeezing it dry and filling it up again), Ted has developed a system of balanced plant nutrition that adjusts the levels of all essential nutrients in the soil to a point where they are sufficient to provide the needs of a specific Land Use through the period of its growing season. This system has proved successful in maintaining high levels of productivity without the need to maintain luxury levels of soil fertility.

It is also important to understand why the Mikhail System places such an emphasis on achieving BOTH cation and nutrient balance in the soil. "Without a good skeleton, a man or woman cannot grow strong muscles. But they need more than just strong bones; they also require carbohydrates, protein and fat – in the right proportions. So too with plants, the main nutrients are N, P, K – **in the right proportions!**"

"But healthy people need more than just 'Carbs', Protein and Fat – they also require certain amounts of minerals and vitamins. Plants are no different and they need the right balance of Trace Elements for good productivity."

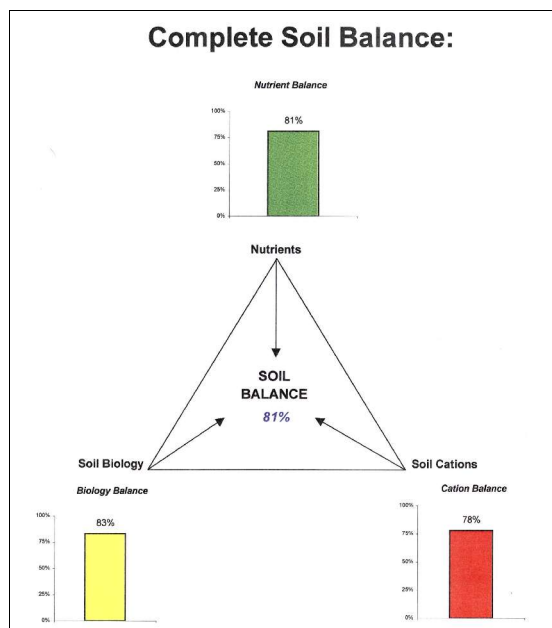
So too with soil biology, Ted also likens the situation to that with other living organisms – including people. “Healthy people do not live in sterile bubbles”, he says. “We all need the right balance of ‘good bacteria’ in our digestive systems and on our skin to help us make the most of available nourishment and help ward off infection. I have always believed that the same would be true in soil and now our research has proved it.”

Another breakthrough from the SWEP research has been in establishing a link between the active populations of the five indicator groups of micro-organisms (Fungi, Yeast, Photosynthetic Bacteria, Lactic acid Bacteria and Actinomycetes) in well-balanced soils and the Adjusted Cation Exchange Capacity.

This has permitted SWEP to develop and release a “**Complete Soil Balance Analysis**” that includes both laboratory results and soil management recommendations for each of the three important soil function components.

The new soil test includes 31 laboratory tests and 29 calculated results divided between the three sections covering Soil cations, Plant nutrition and Soil biology. The results are presented in a 9-page report that includes a separate set of recommendations for each of the three balance components and 4 pages of explanatory notes. The tests also include both Total Phosphorus and Total Nitrogen as standard inclusions (options with the Standard Soil Analysis).

But perhaps the most useful part of the new report is on page 2, which gives a graphical estimate of the level of balance for each component and the soil as a whole.



The introductory price for the Complete Soil Balance Analysis will be \$300 per sample (plus GST). This makes the new service significantly cheaper than other ‘biology-only’ tests presently available – while providing much, much more!

For more information, please contact SWEP on (03) 9701 6007 or email services@swep.com.au