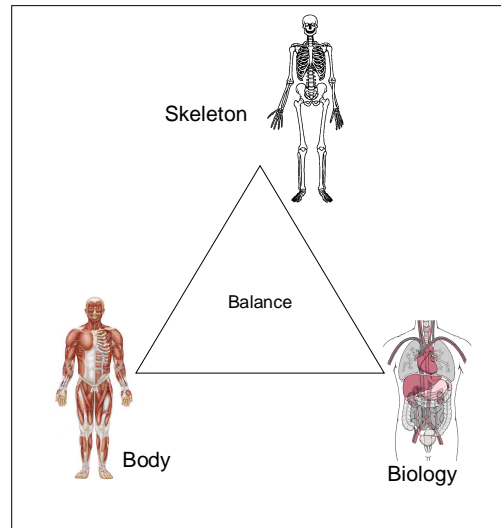
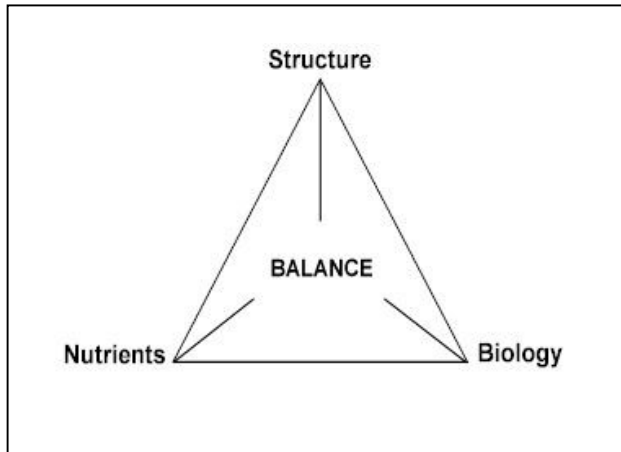


SWEP FACT SHEET #11

“Balance”

Founding Principle of the Mikhail System

The assertion that healthy soil gives healthy produce and, thereby, improved Human Health is the founding principle that lies at the heart of the Mikhail System.



SWEP clients are interested vitally in sustainability, profitability and in quality production – not simply productivity for productivity sake! For this reason, our recommendations are ***NOT*** based on the calibration of specific test results to fertiliser responses from simplified field trials. Instead, we focus on soil function and plant metabolism for a more holistic view encompassing the balances between the integrated components of natural systems. In essence this is what ***the Mikhail System*** is all about.

In a sense, soils are not so different to people and we can see three components in their make-up, which can determine the nature of their requirements.

The most important part of the human body is the Skeleton, because it gives the body structure and strength. Likewise, the Cation Exchange system can be called the Skeleton of the soil. In the same way that healthy bones have a balance of Calcium, Magnesium and Phosphorus, so the soil requires a balance of Calcium, Magnesium, Sodium, Potassium and Hydrogen.

In people, if bones lack the proper balance of Calcium, Magnesium and Phosphorus, they become brittle and break easily. Likewise, a soil that lacks proper cation balance can be more easily damaged by farming practices such as cultivation or irrigation.

Strong bones permit the development of strong muscles, which themselves require a balance of Carbohydrates, Protein and Fat. Similarly, soils (and the plants that are dependent upon them) need a balance of major nutrients (N, P, K, S).

The balance of various Food Groups will vary with size and vigour. A child will need more carbs and protein than an adult who is no longer growing; an athlete will need carbs and fat for energy; and a body builder will need more protein to develop muscle mass. The major nutrient balance of plants also varies in a similar way. For example, leafy vegetables will need more Nitrogen, while root vegetables will have a higher requirement for Phosphorus.

Of course we all need more than just carbs, protein and fat. A healthy diet also has a balance of essential vitamins & minerals. Likewise, plants require a balance of trace nutrients. Without these, their growth is sickly and stunted.

Last, but by no means least, is Biology. We know that a healthy person needs a balance of “Good Bacteria” both within their digestive tract and on their skin. This helps with nutrient absorption and disease resistance. The same is true in soil. Here many organisms produce suppressive compounds to limit the growth of potential pathogens and plant roots establish symbiotic relationships to gain greater access to nutrients & moisture.

However, having each of these components in balance is not enough – they must be in balance with each other. For example, there would be no point growing a large and powerful skeleton without the muscles to move it and strong muscles attached to weak bones would be equally disastrous.

Interestingly, while biology requires nutrients, the microbial balance of both people and soils is actually more dependent on balance in the skeleton! A large skeleton occupies a larger body and its requirements for nutrients and disease prevention will be greater. On the other hand a person with a smaller skeleton but an overly heavy build will also have the same need, but will need more than a balance of “Good Bacteria” to provide it. They will require ever increasing levels of medication to cure the health problems that arise.

We see situations like this in farming when we over-feed with NPK and plants become more susceptible to pests, diseases and weeds. The soil-plant system can no longer cope and we must resort to more and more chemical cures to maintain production.

Further Reading:

Fact Sheet #4 – ***What is Balanced Soil?***

Soil Function Datasheet #7 – ***What is Balanced Plant Nutrition?***

To find out more about the Mikhail System, please contact us on (03) 9701 6007, or email: services@swep.com.au

For more information on the material covered in this Fact Sheet, contact SWEP on (03) 9701 6007 or talk with your local SWEP Agent.

Produce Quality Summary:

1. The Cation exchange system is like the Skeleton of the body, it provides the structure upon which everything else is constructed.
2. Just as bones need a balance of Ca, Mg & P, the soil skeleton needs a balance of Ca, Mg, Na, K & H.
3. Strong bones let you develop strong muscles and to do this requires a balanced diet from various Food Groups, as well as vitamins and minerals. Similarly, healthy crops need a balance of N, P, K, S and trace elements that is appropriate to the age and vigour of the crop.
4. The size of the skeleton also determines the need for development of organs and their internal biology. Likewise the size of the soil skeleton determines the characteristics of biology balance in the soil – needed for absorption of nutrients and disease resistance.
5. Each component has its own balance needs and each must be in balance with the others.