

LIKE most things in life, if you get your balance right, you operate at your best efficiency and therefore have more stamina.

Soil is no different. A Soil Stamina project being funded by government through Caring for Country, and auspiced through Network SW Consulting and Coleraine's Peter Francis Points Arboretum, aims to support farmers in their quest for sustainable agriculture in a changing climate, through better understanding of soil and what constitutes a healthy balance.

According to Network SW consultant Gill Fry, the project which is planned to run for three years, 'is important to the region because healthy soil is the backbone of sustainable, productive and profitable farming'.

Demonstration plots of 16ha, 14ha and 20ha have been established on farms at three different locations, where farmers are trained in getting the data from soil tests to scientifically back up any increased production from various soil improvement methods.

The sites are not trial plots but demonstration plots to show what works on a particular area and through scientific analysis, why that might be so.

A field day in March focused on methods developed by soil scientist, Edward (Ted) Mikhail and biological farming consultant, Peter Ham, for improving soils.

Mr Mikhail, who began his agricultural scientist career in Egypt before moving to Australia in 1967 and establishing SWEP (Soil, Water, Effluent, Plant) Analytical Laboratories in 1980, has always viewed soil as a living system.

This helped him develop the Mikhail System, which concentrates on balance in physical structure, plant nutrients and soil biology.

"Healthy balanced soils produce healthy balanced plants then give healthy balanced animals and humans," he said.

In his studies he found that, "There is a significant relationship between active bacteria and the cation exchange of soil and soil nutrient balance".

"All the plants need the same cation balance but different plants need different nutrients," he said.

This overall total balance of cations, nutrients and microbiology is the foundation for the Mikhail System, although the research never stops and the soil analysis base is drawn from countries all over the world.

After doing 37 different analyses on a soil sample, Mr Mikhail does not recommend a fertiliser plan to farmers, but looks at what minerals will re-balance the cations, nutrients and microbiology. Just like a human body, the soil has a skeleton (cations), muscles and tissues (nutrients) and microbiology (good and bad bacteria and microbes).

In the human skeleton the main players are calcium, phosphorus and magnesium, while in the soil the main players are calcium, magnesium, sodium, potassium and hydrogen; in the human muscle/tissues they are carbohydrate, protein, fat, vitamins and minerals, while in the soil they are nitrogen, phosphorus, potassium sulphur and trace elements; and in human microbiology there are good and bad bacteria that has to be in balance, while in the soil he found 5 groups of active bacteria controlling the microbiological system that needs to be in balance- these groups are; active fungi, active yeast, active lactic acid bacteria, active actinomycetes bacteria and active photosynthetic bacteria.

For each part of the soil, the minerals and bacteria have to be the right ratios, and then balanced as a whole.

Just as we use amendments such as Lime, Dolomite and Gypsum to balance the Soil cations, so we use bio active materials such as Kelp extract, molasses, worm leachate, fish emulsion, liquefied humate to balance the microbe activity.

Drawing the analogy with the human body again, Mr Mikhail said: “If I look after myself, I’ll be healthy and my immunity will be high.”

It is the same with soil: if it is balanced, it will be highly productive and the capacity will be greatly increased and sustainable, without fertiliser.

Mr Mikhail’s view to the fertiliser price increase, is a positive one, because it meant more farmers were looking for natural alternatives, such as composts to increase their productivity and quality. Peter Ham had a different take on how to improve soils to Mr Mikhail, saying that organic carbon played a huge role in soil health and the best way to get it was to grow it.

“We focus more on the biological side; you have to put it in a position where it can take care of itself,” Mr Ham said.

Encouraging biological activity through reducing synthetic fertilisers, adding biological inoculations and stimulants such as kelp and humic acid, meant you were supporting the soil system to balance its self.

This balancing process could support the build up of good microbes, unlock nutrients that had previously been inaccessible and accelerate the breakdown of decaying plant material adding humus to the soil.

Some of Mr Ham’s biological products will be used on the demonstration farms and Mr Mikhail’s SWEP Laboratories will be analysing the soil in the plots.

Field days looking at the sites and discussing the test results will be open to farmers across the district to learn and participate in improving soil structure and sustainable soil productivity.

The project is also documented on the website www.networksw.com.au.

Pics

EDWARD (Ted) Mikhail MSc, BSc Ag, developed the Mikhail System of soil balance, which was the first in the world to look at the balance between cations, nutrients and microbiology.

PETER Ham is a field consultant with LawrieCo Biological Farming and believes that if soil is put in a position of correct biology where it can look after itself, it will.