

Soil Versus Leaf Analyses

Some of our laboratories acknowledge that soil testing peat has problems because of the lightness and variations in peat densities, but, as I have written, results from mineral soils are not much better. The following example from a good and astute farmer shows this. The trouble is that until farmers take pasture samples and compare them with soil samples and what is actually happening on their farms, they don't realise this. Sheep and beef farmer Phil Taylor on 311 ha in 160 paddocks at Ngaroma, wrote this on Graze-L, a world-wide Internet forum of 1,000 grazing farmers.

For more than a decade I had believed the fertiliser science "conventional wisdom" perpetrated by our major research establishments. Fertiliser science is very complex, and not feeling competent in it I always took advice - from the most credible consultants, I might add. None of these consultants would give any advice without a soil test. So I have spent a lot of money over the years with labs.

Invariably the advice was, "More P, some K, and N out of season to fill the gaps. The pH was 5.8, so there is no need for lime."

Using these recommendations I had spent as much money (\$30,000 pa) on fertilisers in the previous 12 years as it would have cost me to buy the 1,000 acres next door, and all for little benefit.

The result was few to no earthworms, 40 to 50 mm root bound thatch breeding Facial Eczema spores, little to no growth in the winter and early spring, and areas of inert lifeless soil, evidenced by green urine patches running down the hill sides rather than soaking in.

After application, pastures would receive a boost then the farm would go into a lull which was as though the environment had been poisoned. Animal health problems haunted me. I had nitrate poisoning in my cattle, ill thrift in the autumn, copper deficiency problems, not enough selenium absorption, and poor sodium intake by the cattle, in spite of the fact that sodium levels appeared to be ok in the soil.

The same advice continued. More and more P, based on the recommendations from soil tests (Olsen P was 26). There had to be an end to this sort of ill advised expenditure. The cost of the fertiliser was bad enough, but the loss from sub-clinical health problems in my cattle was probably the greatest cost.

After being totally confused about fertilisers on my Taupo ash soils, at a meeting in 1992 with Vaughan Jones, I explained my problems. He visited our farm, saw the thatch, Yorkshire fog, small and few clovers and animal health problems, took pasture samples and recommended lime and magnesium. \$15,000 dollars worth went on.

The fertiliser recommended was no more expensive than previously. After two years of applications based on Sechura reactive phosphate, boro and salt, animal health problems almost ceased, earthworm activity increased, dung patches disappeared quickly, grazing was much more even, thatch started disappearing, roots penetrated the soil to 225 mm or more, the old contrasting green urine and dung patches in the early spring don't show up because all is greener, and without the use of N. Clovers are making more N, giving the whole farm a green look which makes it stand out. During the 3 years of the beef downturn I have not applied any fertiliser, and yet I still have 17 su per ha, and everything goes away prime, cattle in 18 months (except for a handful) and lambs at around 17 kg. Feeding Solmin mineral mix through the drinking water has helped with animal health, growth and finishing.

All elements, including manganese, which used to be toxically high (385 ppm caused by low calcium and using superphosphate), are now in the medium to high level and balanced, according to recent pasture and soil tests I took out of interest. How can this be happening with no fertiliser for two years? The conclusions I have come to are that soil tests are not to be believed and there has been a catalytic response from Vaughan's correct lime aiming for 0.9% calcium and fertiliser recommendations. Pastures were mostly Yorkshire fog and moss. Now there is more ryegrass and clover.

The fertiliser mixes varied slightly each year, depending on the leaf analyses, and were about 450 kg/ha in total, of the best reactive phosphate with salt, boron, cobalt, and Selcote Ultra.

Vaughan Jones is a very well respected consultant here in the Waikato. I know a number of farmers who have made a large amount of money using his advice.

Phil Taylor, Ngaroma.