



## Soil reserves of nutrients.

Soil tests are typically done to 3 inches but plant roots go way deeper than that. The overall volume of nutrients increases the further you go down the soil profile but the concentration decreases. If we don't have good root growth down the profile then we can't take advantage of that.

Commercial soil tests rarely test all the different forms of a nutrient in the soil. For example Phosphorus exists in many forms in the soil in both organophosphates and inorganic-phosphates (such as  $p_2O_5$  measured by the olsen P resin P Bray test etc)). Only 1 inorganic phosphate is easy to test for. Thus we can get a warped idea of true soil reserves. For we are only measuring the reserve of one form of phosphate in the soil – the one that is economically cheap to measure. For example a Hill laboratory total soil reserves may indicate 1200kg/Ha, but if we included all the forms of phosphate available to the plant but not measured in this simple test then we may get a figure closer to 40,000kgP/Ha. "It is not well publicized that many soils may have 40-80 tons of P in the top 6 inches. [source - "Eco-farm an Acres USA primer"](#). More recently some NZ soil test (DHM Lab) services using hard extractions for phosphorus are indicating several thousand years supply of phosphorus in soil reserves. (20,000kg P/Ha and above are common) In addition most farmers have applied far more than maintenance rates because low levels of granular fertilizer simply didn't grow the dry matter. That's added to the build up of phosphorus in soil reserves.

The most important indicator for available P is plant growth and herbage tests. The soil nutrient account has a healthy balance in most cases but we've had no way of making a withdrawal from that account, no reliable way of making more nutrients available without adding it.

The trick is getting access to it. History tells us that a shotgun approach to increase soil biological activity doesn't always unlock these reserves. We have found a targeted approach produces more consistent results, but we still recommend regular soil testing to see how things are changing. Production monitoring and the soil test can then be used to make informed decisions about the requirement for capital and maintenance dressings. By incorporating our products into a fertilizer program we aim to create more choice for the farmer. Ultimately it's still the farmers decision, he or she is in control. We simply aim to create a greater range of possibilities to maintain or improve production and costs regardless of the international demand for fertilizer.

In areas where the cost effectiveness of traditional fertilizer is marginal, even at last year's prices, I believe having an alternative that works and is affordable is very important.