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Suffering From P Fixation?

Many farmers are obsessed with the Olsen P levels of their soil. Listening to them, you get the impression that maintaining or elevating Olsen P is all one needs to know about the soil! Yet P is just one of many essential nutrients required by the growing plant!

The Olsen P test is helpful because it gives an indication of plant available P levels at the time of the soil test but care is required when interpreting this result. In some situations (neutral-alkaline pH) Olsen P under-estimates plant available P, while in others (acidic pH) it over-estimates these levels! Nor does it remain constant throughout the year i.e. the same paddock sampled at different times will give different Olsen P readings. Nor do low Olsen P readings necessarily indicate a problem i.e. in times of rapid plant growth, the Olsen P value can drop considerably: this is not because more P fertiliser is required but simply because the plant roots are taking lots of P out of the soil!

For reasons such as these, the Olsen P test result can be misleading. Of course, if P really is deficient, then additional P fertiliser may be necessary but adding more P above optimal levels will not yield a greater plant growth response!

Much of the P in NZ soils is present in organic form - often as much as 70%. This is released when soil organic matter decomposes. The Olsen P test gives no indication of how much P from this source can be made plant available. If soil biological activity is optimal, then significant amounts of the P requirement of plants can be supplied from this source.

For instance; assume levels of soil Total P measure 1000kg/ha and 50% of this is Organic P:

Inorganic P	=	500kg/ha
<u>Organic P</u>	=	<u>500kg/ha</u>
Total P	=	1000kg/ha

If say 5% of the Organic P is mineralised in the next 12 months, then the Organic P, which is not assessed by Olsen P, can release 25kg/ha of P for plant use! That's the equivalent of applying about 275kg/ha of Superphosphate!!

It makes no economic sense to add P fertiliser if it's not necessary. Soil fertility is more about getting the right balance of nutrients than being fixated on P alone. Therefore, first invest in good soil testing and find out if other nutrients may be limiting productivity! Then spend your fertiliser budget on improving overall soil fertility, not just on soil phosphate levels.