How to get more from Your Soil Test

Many people who use soil tests to help in their decision-making process still find them a bit of a headache. While recognising the substantial benefits they get from soil testing, they dislike wrestling with pages full of numbers and technical terms.

One question often asked by SWEP clients is: “How much Lime do I use if the stuff available in my area is not 40% Calcium?” This arises because the quality of the product used is so important to the result you get. So the SWEP recommendation is based on the use of pure Calcium Carbonate (ie. 100% $CaCO_3$ = 40% Ca).

Of course, there are few readily available products that can match this quality standard, but Limes vary so much in Calcium content, there is really no other standard SWEP can apply.

In practical terms though, any Lime or Dolomite with an ENV (Effective Neutralising Value) of 70 or more, or A-grade Gypsum will be usually be sufficient to do the job at the rates recommended.

Nevertheless, materials vary in both quality and price, so making the right choice can be tricky. To help with this, SWEP has released a **Lime Calculator** that can be loaded onto your computer (requiring MS Excel 95 or higher). This simple tool lets you calculate the exact amount of any Lime, Dolomite or Gypsum product to meet the requirements from your soil test. It also gives an “Apples-for-Apples” comparison of different products. That is, it answers the question: Will the amount needed for one product end up costing more or less (per hectare) than the equivalent amount of another?

And where the soil test shows a need for both Lime and Dolomite, the calculator will adjust the amount of Dolomite for any Magnesium that may be present in the Lime you choose. This can also tell you if the lime by itself will be enough to provide the Magnesium needed.

Of course, Lime, Dolomite and Gypsum are needed to bring your soil to the optimum cation balance and achieving this can have substantial benefits for productivity and sustainability, but getting there is not always straightforward and it all depends of the quality of materials you use.

For example, let’s assume your soil test recommendation was for Lime at 2.2t/ha and you wanted to convert this to an application of either *“Supa Doopa Lime”* or *“Little Bottler Lime”*. You would first need to find out the prices and quality figures for these products. Let’s suppose they came out like this:

Product	$CaCO_3$%	ENV	Price/tonne
Supa Doopa lime	85%	76	$98
Little Bottler lime	72%	68	$87

By entering this information into the calculator (together with the SWEP recommendation details) the results would be:

Product	Amount to apply	Application cost
Supa Doopa lime	2.6 t/ha	$254.80/ha
Little Bottler lime	3.1 t/ha	$269.70/ha

The results show the effect of quality on both the amount needed to meet the soil test requirement and the application cost of the two products. But, given a limit of about 2.5 t/ha for a single surface application without irrigation, the *Little Bottler* product would also need to be split over 2 years – further increasing the cost (since the figures above do not include delivery and spreading costs).

It should be noted, however, that the calculator works best with recommendations from a SWEP soil test. The reason is that SWEP calculates the amounts of Lime, Dolomite or Gypsum needed to produce the optimum levels of exchangeable Calcium and Magnesium as proportions of the Cation Exchange Capacity (CEC). This means that the amount of Ca and Mg applied is the important consideration.

Other laboratories and advisers may give only a standardised lime recommendation that is sufficient to produce and significant change in the soil pH. For the latter type of recommendation, quality (while still important) involves only particle size and chemical purity (components of the ENV figure).

The Lime Calculator comes with detailed instructions for use and a series of typical examples to help get you started. It is available from SWEP Laboratories and can be downloaded FREE from their website: www.swep.com.au

For more information, you can contact SWEP on (03) 9701 6007.