

WHY do we lime our paddocks?

We generally use two types of lime, dolomitic or else calcitic lime. Both of these are highly effective at ameliorating acidity in soil.

When soil lacks magnesium dolomitic lime is used, this lime contains both CaCO_3 and MgCO_3 and therefore supplies the soil with Mg that will then correct the required Ca:Mg ratio. Ca is also added to soil when dolomitic lime is applied. Calcitic lime on the other hand only has Ca and is more commonly used unless Mg is required.

The finer the lime has been ground the sooner it would break down in the soil solution and the quicker it would react to lower the acidity. Likewise the closer the contact between the lime and soil particles the faster the reaction. A fine particle size does not mean that less lime is needed to correct soil acidity, it just reacts more quickly.

More coarse forms of lime still do the job of altering pH it may just take a lot longer.

A mix of different particle sizes can therefore continue neutralizing the soil over a longer period.

When acidity is at a critical level it would be more efficient to use the finer product.

Lime works to neutralize acidity by the calcium carbonate reacting in the soil to release calcium ions that replace H^+ and Al^{3+} ions adhered to soil colloids. These H^+ and Al^{3+} ions then bind with OH^- that neutralizes them, Aluminium oxides in the soil solution can then be leached from the profile.

- Lime corrects problems caused by acidity reduces Al and other metal toxicities.
- Stimulates microbial activity soil health begins with a suitable pH
- Improves availability of essential nutrients it is therefore not a good idea to try and make savings by not liming as it might cost a lot more in the long term.
- Supplies Ca and Mg for plants.
- Improves soil physical condition clay particles flocculate and the structure of the soil improves.

For the best result in correcting acid soils lime at the recommended rate should be broadcast and incorporated.

The closer the contact between lime and soil particles the more effective the neutralizing action will be. Soil that is managed and kept at a 5.5pH in the topsoil also has an effect on the subsoil acidity i.e. the sub soil receives a benefit from the topsoil being treated .

Placing lime banded, in small amounts at planting or banded on the surface of ratoons has very little effect on correcting soil acidity throughout the entire rooting zone, and zero effect on subsoil.

The immediate surrounding area is neutralized creating a pot effect that limit roots from growing into the whole soil profile where it has access to the water and nutrients that is retained throughout. Should acidity however not be an issue, banding lime products may be a way of neutralizing the acidifying effects of fertiliser and supplementing Calcium.

When lime is recommended i.e. 1:5 water pH of less than 5.5 a broadcast and incorporated lime application is the only way to go. Banded applications cannot be used as a substitute to ameliorate an acid soil.