pH Changes That Last – Study proves fine lime has better long-term benefits than coarse lime

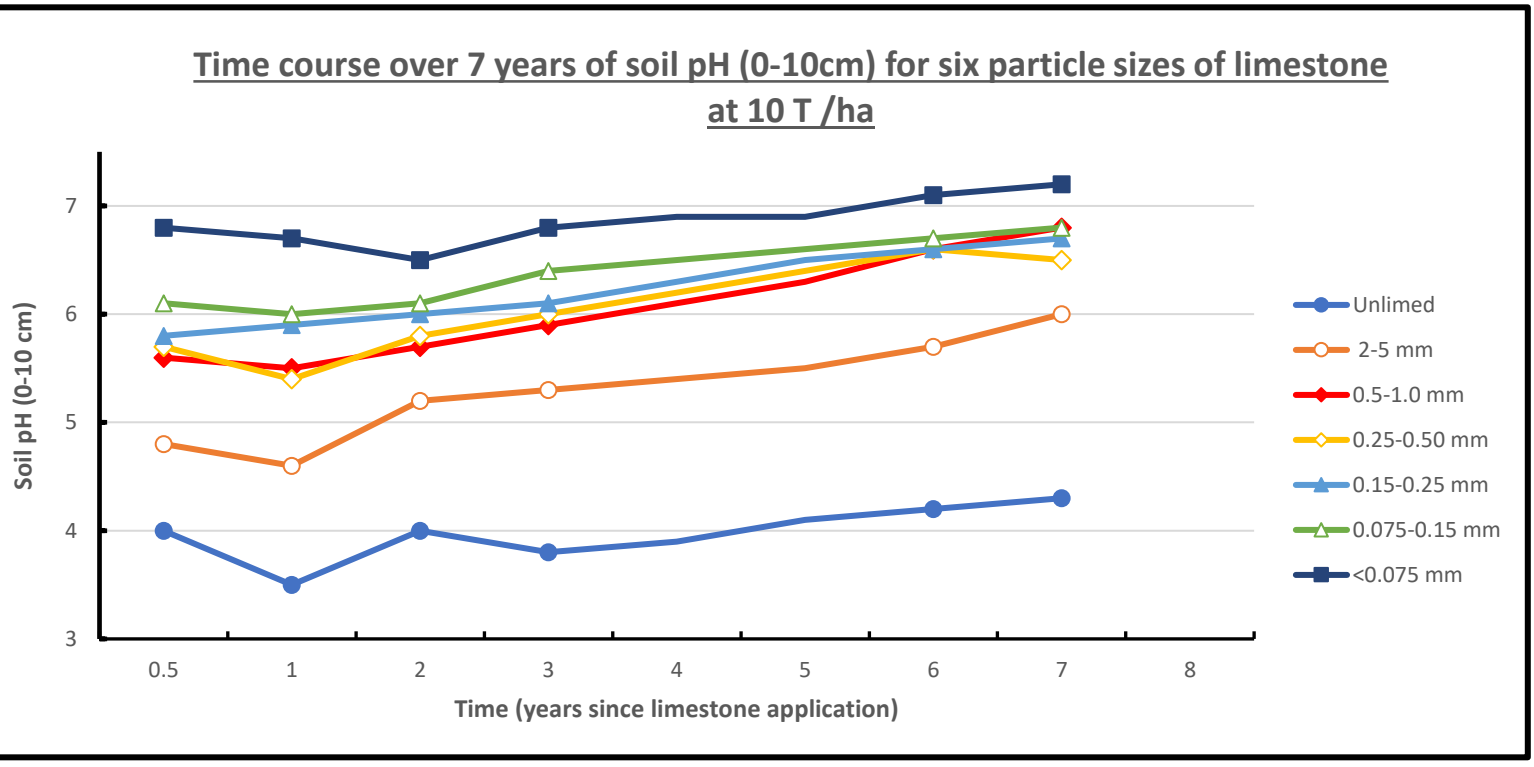
A 2020 research paper reports that fine lime achieved and maintained a higher pH increase over 8 years compared to coarse lime. The field trial, conducted in Wagga Wagga, debunked the myth that coarse lime is more effective for long term pH management.

*"Consistent with our hypothesis, finer particle sizes of limestone are the most effective means of achieving these benefits and **did not give way to lesser residual value compared with coarser limestone over 8 years**."* - Conyers *et al* (2020)

Key Takeaways

1) Applying coarse products in large amounts every 3 years +, may not keep up with rates of re-acidification. Applying smaller amounts of fine lime more often is much more effective.
2) Coarse lime tends to only amend pH in the top few cm's of soil, **whereas fine lime amends pH at depth as well.**
3) Fine lime achieves quicker and longer lasting results over several years.

"Despite the rapid and large increase in soil pH with finer particles, there was no less residual value in surface soil pH after 7 years or in grain yield in the 7th and 8th growing seasons compared with coarser particles" - Conyers *et al* (2020)



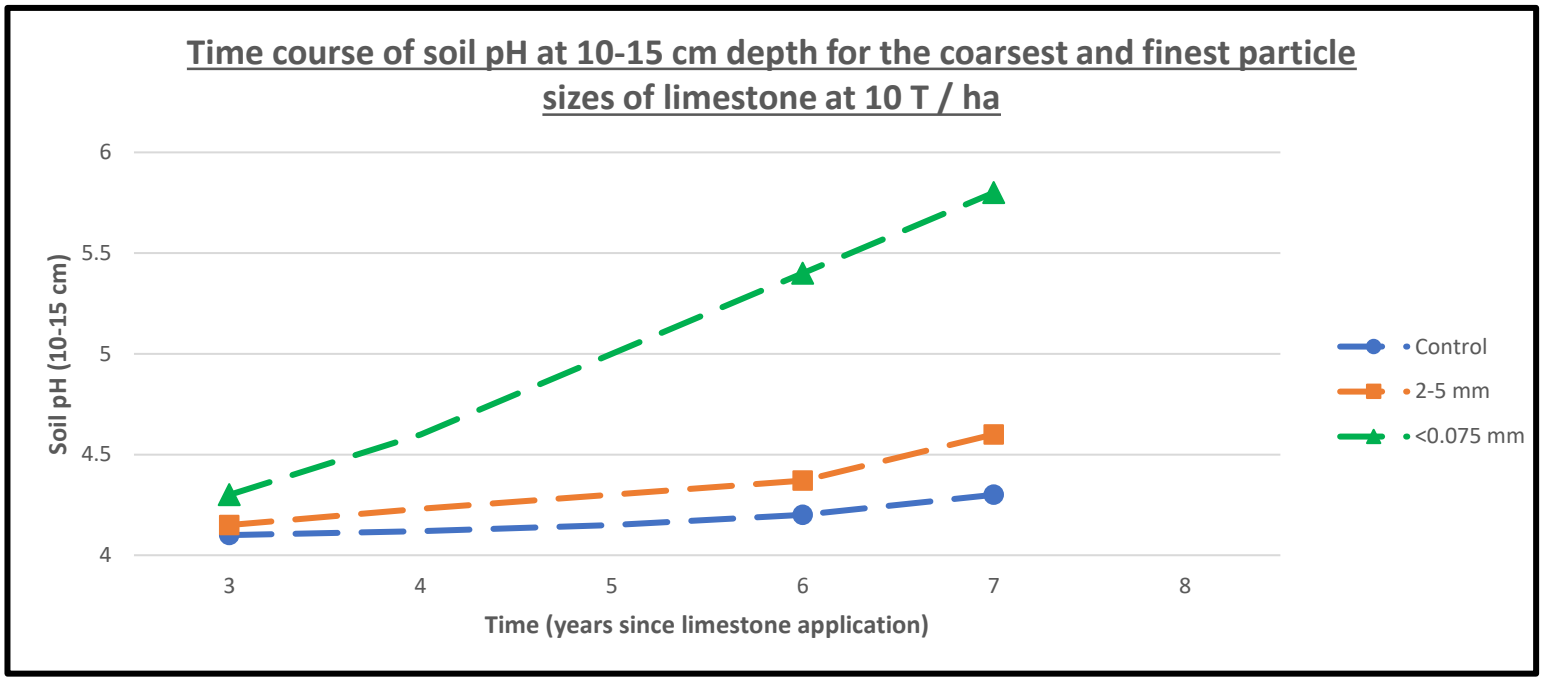
pH Changes Through the Entire Plant Root Zone

It was also shown that finer lime amends pH deeper and **more evenly through the soil profile (down to 20 cm). The coarser lime only amends the top few cm's.** The reason for this is twofold:

1) Quicker pH changes with fine lime on the surface allows lime to filter down into deeper soil layers.
2) The smaller lime particles will physically travel and spread further through the soil.

Even if coarser lime is incorporated at depth, it will not travel far from where it has been placed. This results in variations of pH across the plant root zone creating uneven fertiliser efficiency and uneven plant growth across the paddock.

*"…the amelioration of the subsurface is slow but significant and **the finest particle size was far more effective than the coarsest particle size**."* - Conyers *et al* (2020)



*"… **the reaction rate of coarse particles has to match the underlying re-acidification rate, or the soil will undergo net acidification."*** - Conyers *et al* (2020)

Essentially coarse lime takes so long to release you may not get anywhere with one application every 3 + years. It is vital that finer soil amendments are utilised and applied in smaller amounts more often to get ahead of soil re-acidification, otherwise you will continue to lose money every year through inefficient fertiliser use and yield loss.

Do things **smarter, faster, better** with Ozcal and OzcalMag granulated ultra-fine lime and dolomite. Ozcal and OzcalMag are high-quality granules that release limestone and dolomite particles that are 95% below 0.075 mm, upon contact with moisture.

Reference Research Paper:

Conyers, M.K., Scott, B.J., Whitten, M.G. (2020). *The reaction rate and residual value of particle size fractions of limestone in southern New South Wales.* Crop and Pasture Science, 2020, 71, 368-378