Maintenance liming paddock examples

- Using an alkalinity removal (or acidification) factor to estimate required lime is a simple way to start to understand lime maintenance rates.
- However, within a paddock there are different soil types which will influence soil pH change.
- Routine soil sampling to depth is required to monitor soil pH change and make sure it does not go below target levels.
- Understanding paddock soil types and their different requirements to maintain soil pH to above target levels ensures that your investment in lime generates the best return.

The iLime app

iLime is a decision tool to assist liming decisions.

Users are able to specify crop, fertiliser and soil characteristics specific to their farm. Different lime sources, rates of application and timing may be compared to estimate the optimum economic return for your paddock.

Yield, soil pH, soil aluminium and cash flow responses are displayed for lime strategies compared to not applying lime, allowing a long-term strategic view to liming decisions made today.

AVAILABLE ON THE App Store

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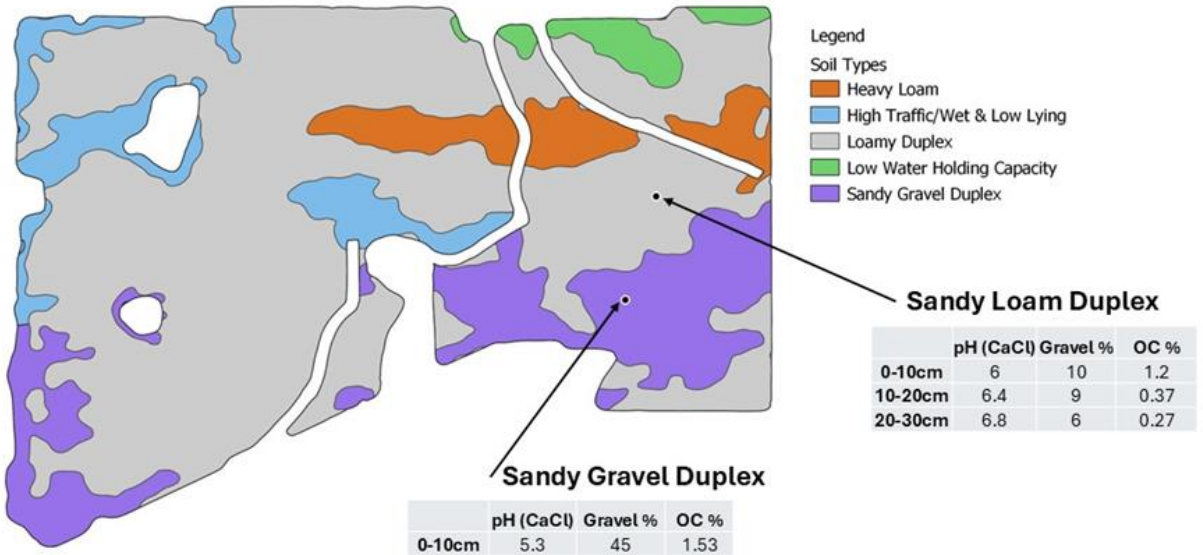
Soil type

Soil type is an important consideration. Understanding the different soil types within the paddock and routinely checking the soil pH to depth through soil testing is important to monitor change and inform management strategies.

Here we look at a paddock soil type map (Figure 1) and yield maps from three high production years, 2020 wheat, 2021 canola and 2022 wheat (Figure 2). The soil type and yield maps allow us to understand how grain removal changes across different soil types.



	pH (CaCl)	Gravel %	OC %
0-10cm	6	10	1.2
10-20cm	6.4	9	0.37
20-30cm	6.8	6	0.27

	pH (CaCl)	Gravel %	OC %
0-10cm	5.3	45	1.53
10-20cm	5.4	45	0.3
20-30cm	5.4	63	0.3

Figure 1. Paddock soil type map overlayed with 0-30cm soil test results for soil pH, gravel and OC displayed.

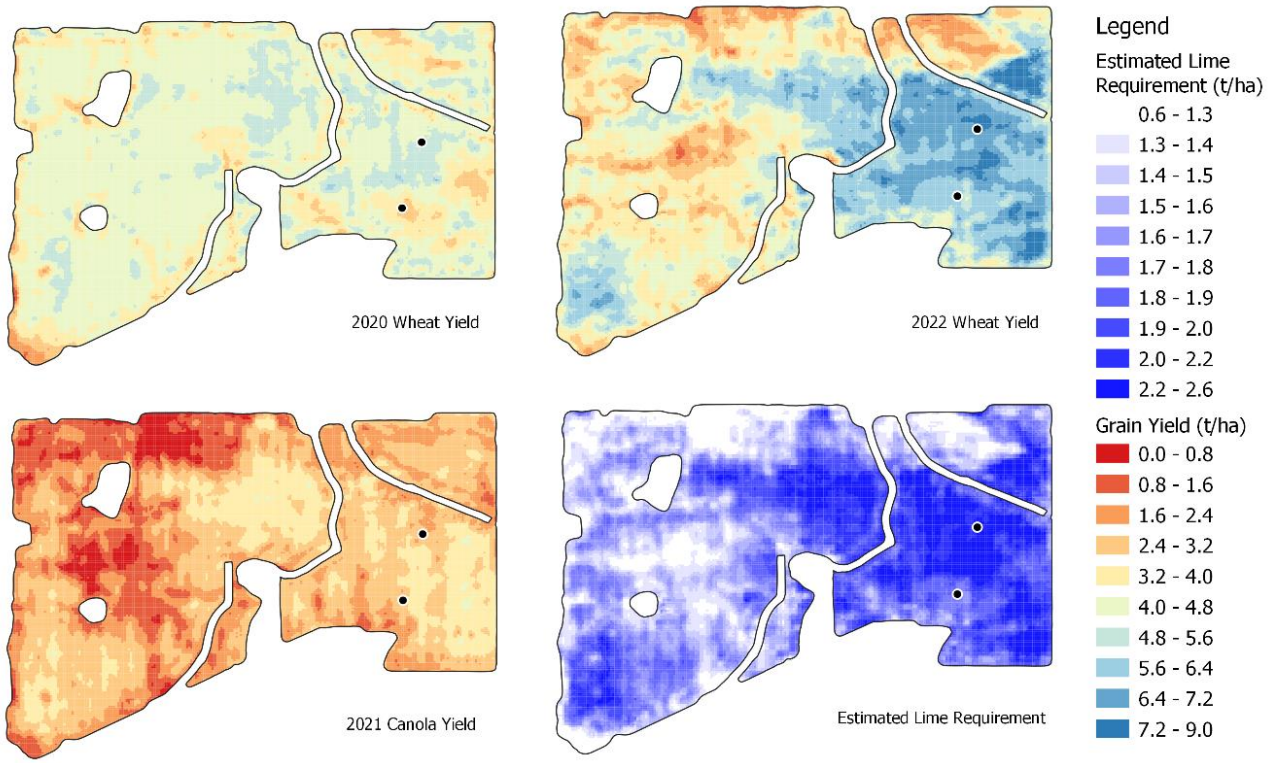
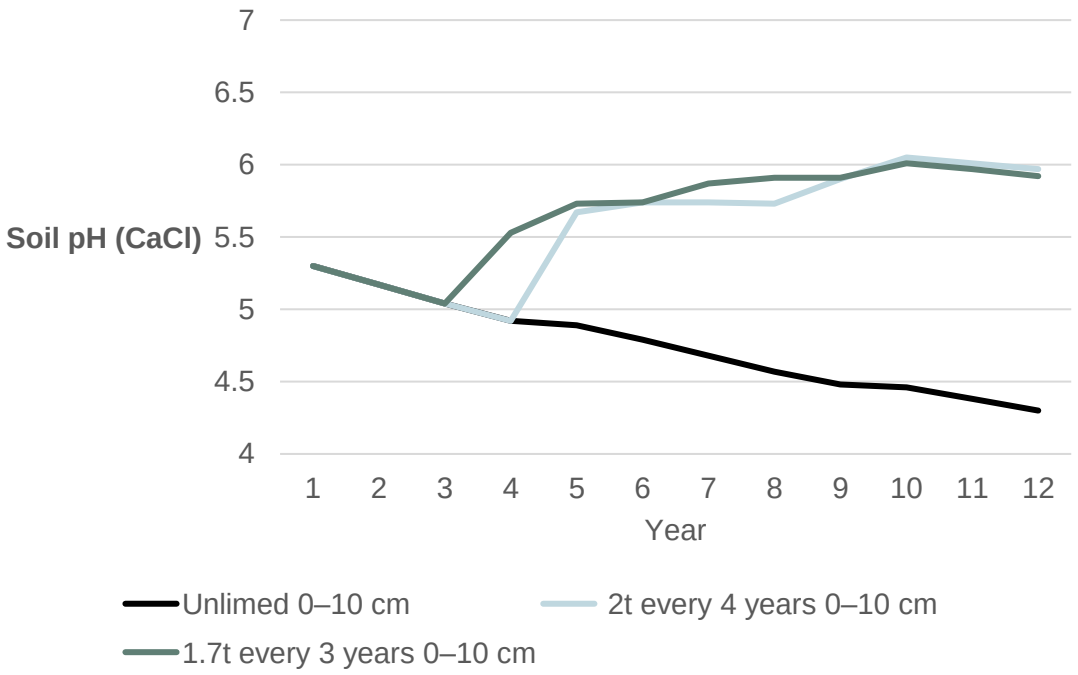


Figure 2. 2020-2022 yield maps along with a 3-year estimated lime requirement map. Lime requirement was estimated by multiplying crop yield by an alkalinity removal factor of 0.15/t for wheat and canola and then added together.

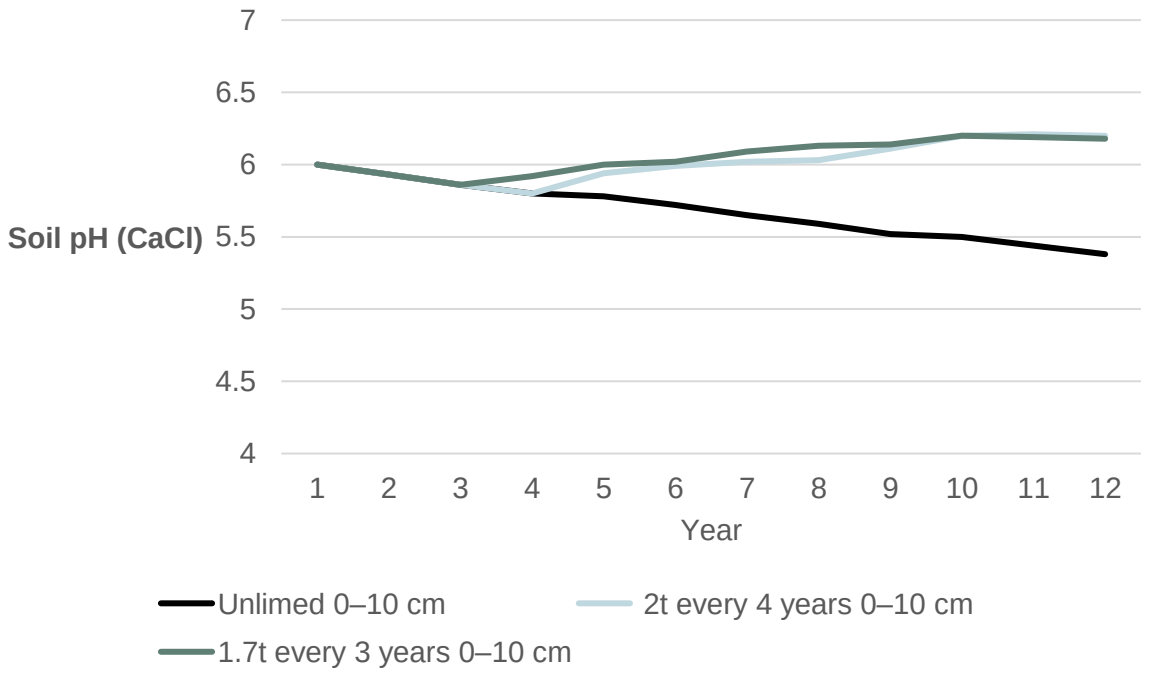
The two soil types were entered into iLime and compared over a longer period. A five-year crop rotation of wheat, canola, wheat, pasture and wheat was used. This five-year rotation was repeated for 12 years with two different liming strategies, 1.7 t/ha every 3 years to replace the average removal and 2 t/ha every 4 years, allowing more time between applications.

Topsoil (0-10cm)

Sandy gravel duplex



Sandy loam duplex



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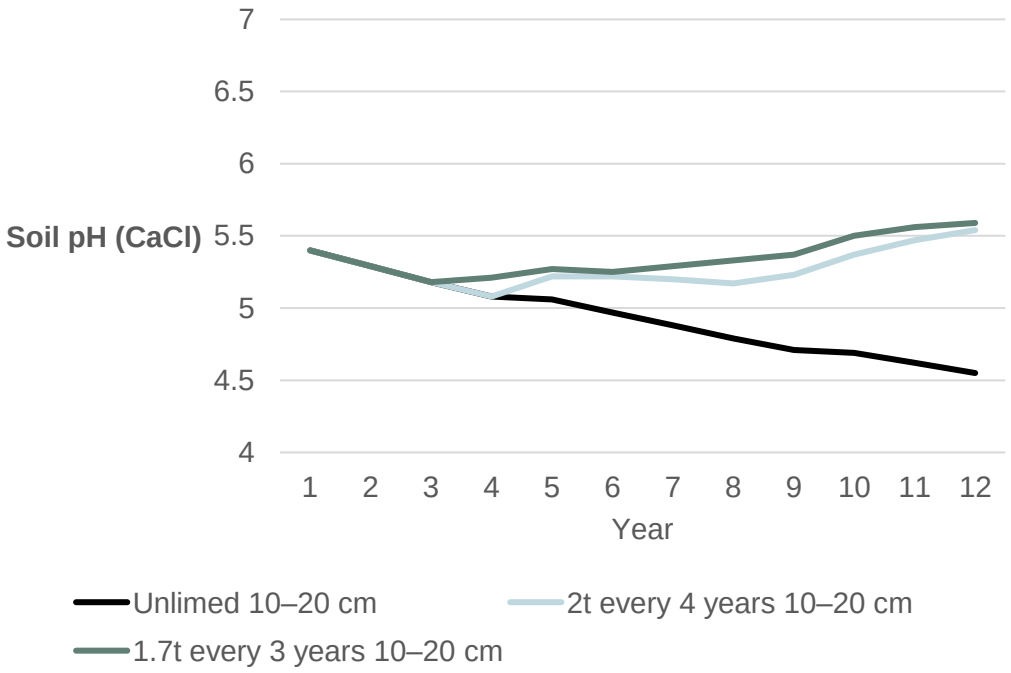
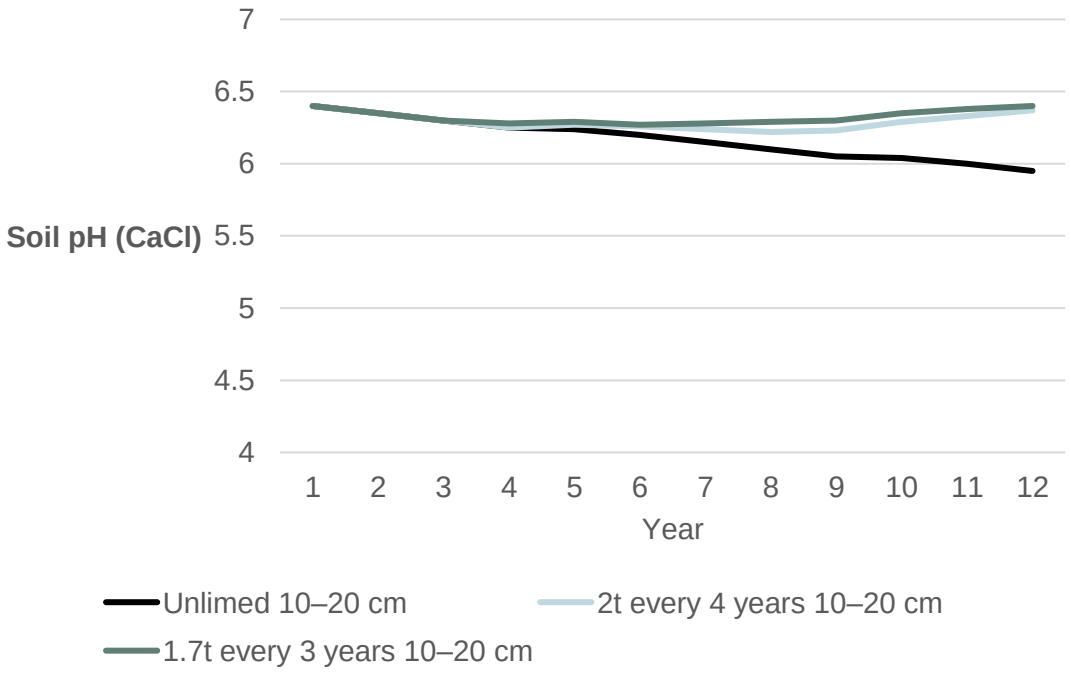
Midsoil (10-20cm)

Sandy gravel duplex



Sandy loam duplex



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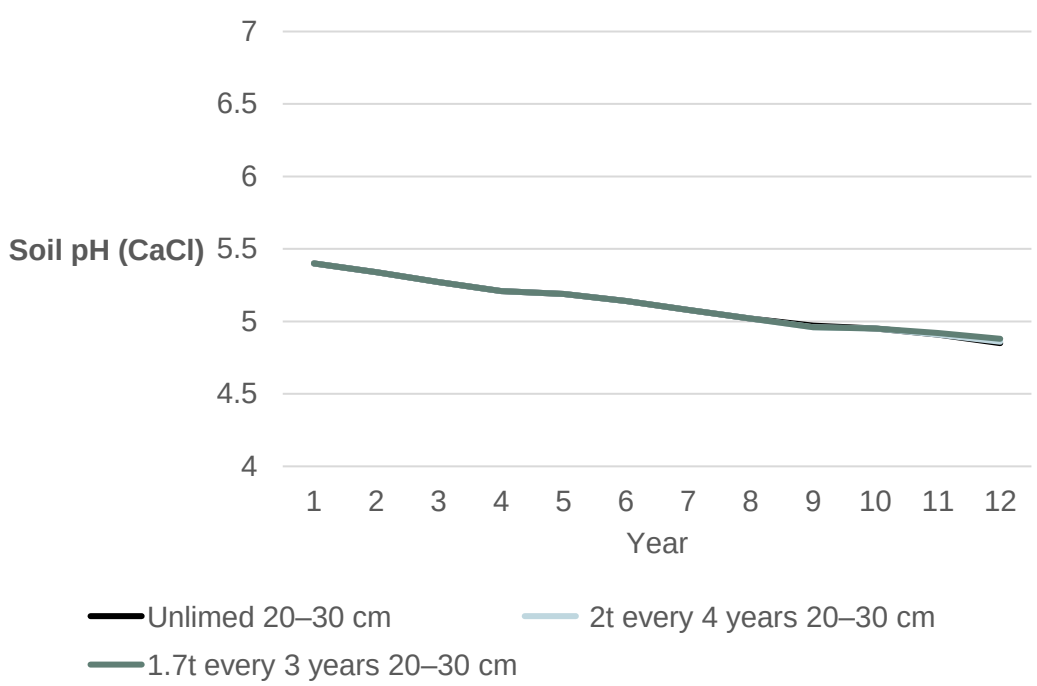
Subsoil (20-30cm)

Sandy gravel duplex



Sandy loam duplex