

Profitability of liming

Re-Lime
Time to Lime

Bindi Bindi—a case study

Wheat yields in WA increase by 8–12% after the application of 1 or 2 t/ha of good quality lime, based on DAFWA data from hundreds of trial-years. The profitability of liming will differ according to individual circumstances and many factors need to be taken into account.

Market price of product Are grain and wool prices going to remain at current levels?

Gross margin of the paddock What are the potential profits from crops which can be grown when pH is non-limiting, compared to low pH constraining both yield and choice of crops/pastures in the rotation? Also consider the 'lime' cost of acidity caused by the rotation from nitrogen fertiliser leaching and product removal.

Increases in grain yield or pasture production as a result of liming are an indication that productivity has been lost. The pH targets* set by the Avon Catchment Council are designed to avoid losses due to soil acidity for most crops and pastures and to prevent acidification of the subsoil.

Asset value Liming improves land value.

Lime costs Lime WA Inc. product information sheets will assist in finding the best value-for-money lime. It is best to calculate the cost per tonne of 'neutralising value' delivered and spread (neutralising value indicates the capacity of lime to neutralise acid). A useful calculator can be found on the soil quality website www.soilquality.org.au

The pH of the soil profile, lime quality, soil type and farming system will determine the amount of lime required to raise the pH to the desired level. For example, clays are slower to acidify but require more lime to lift pH while sands have less capacity to resist pH change but amelioration requires less lime.

Time required to change pH The initial soil pH and soil type are important. Topsoil pH responds quickly to liming. Surface applied lime usually takes 4 to 7 years to treat acidity in the subsurface layers *provided that sufficient lime is applied to raise and maintain the topsoil pH above 5.5.*

Limes with a high proportion of fine particles increase pH quicker.

Liming interval Repeat applications of lime need to be determined by monitoring the change of the soil pH profile over time. The interval will usually be 3–7 years.

If liming is delayed:

- the problem will continue to worsen,
- the cost of amelioration will continue to increase, while
- the capacity to pay for those increased costs will decrease.



Harvesting the long-term farmer scale lime trial established in 1996 at Bindi Bindi

"We wanted to be sure that lime works. The past 11 years of this trial has shown us the benefits and we have limed most of the property based on these results,"
Mal & Justin King.

- Limesand applied 2 t/ha in 1996 @ \$44/ha (current \$75/ha)
- Cumulative benefit from 4 years of wheat \$200/ha
- Pasture biomass in 2005 was 70% higher

	Wheat yield t/ha		% yield increase	\$/ha benefit
	No lime	Lime		
1996	2.2	2.2	0	\$106 [#]
1998	1.6	1.8	11	
2004	2.5	3.2	22	
2007	2.6	2.9	10	\$107 ^{##}

Soil pH

The soil pH for the limed plots (2 t/ha lime in 1996) is now back to the pH levels of 1996 before liming, after having been above the topsoil target pH for many years, indicating that the applied lime has been completely used.

It is **Time to Re-Lime!**

[#] Using 2005 wheat prices and distributing the cost of the lime over 10 years at 8% interest. Benefits from increased pasture growth not included in analyses.

^{##} Using current prices.

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*The Avon Catchment Council has set a target pH_{CaCl2} of 5.5 for topsoils and 4.8 for subsurface soils in the Avon River Basin by 2020.

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