

Lime, helping to improve farm productivity – the Veitch story

Simon began his liming program back in 2009. “It simply makes economic sense to lime. I want to increase my productivity and low pH is one limiting factor I can remove”, Simon explained.

Soil acidification affects productivity in a multiple of ways. Some nutrients become less available to the plants such as phosphorus, potassium, molybdenum and magnesium while others become more available to the extent that they can become toxic e.g. aluminum. Low pH also reduces the activity of many soil microbes that are important for nutrient cycling and it hinders rhizobias’ ability to fix nitrogen in clovers and legume crops.

Simon monitors his paddocks’ pH through a regular soil testing program. He has identified several ‘monitoring’ paddocks on each farm and tests these same paddocks every couple of years. “When I commenced the soil testing program I found most paddocks where in the low pH 4’s. I began a program to lime every paddock and have made liming part of my annual budget. My aim is to get all paddocks above pH 5 Simon added.

Liming not only helps to improve soil fertility by making applied nutrients more available to plants, it also encourages the growth of more productive pasture species. “I’ve noticed that the paddocks, once limed, grow more clover and there is less Gilford and Silver grass” Simon said.

Primary Industries and Regions SA (PIRSA) staff with assistance from the GRDC and Department of Environment, Water and Natural Resources (DEWNR), have developed three computerised decision support tools to assist landholders and advisers to make better decisions in treating soil acidity. They are:

- **AcidCost** - used to estimate the impact of acidification on production (i.e. the cost of not liming)
- **LimeCheque (Lime Sources Cost Comparison)** - a tool for calculating lime application rates for acidic soils and comparing the costs of lime from different suppliers
- **Maintenance Liming Rate Calculator** - a tool for calculating the replacement lime requirement to offset annual acidification and maintain the current pH of the soil.

All the tools can be found at <http://agex.org.au/project/soil-acidity/>

The farm facts

Operators: *Simon and Wayne Veitch*

Location: *Veitch’s Road, MacGillivray*

Size: *1,000 arable ha (including lease land)*

Crop rotation: *wheat, lupins, canola*

Livestock: *Merino sheep (wool),
beef cattle (Angus cross)*

Pastures: *sub clover and annual grasses, kikuyu and
puccinellia on salt flats.*

Soil Type: *ironstone soils.
Key soil issues are acidity, salinity and
non-wetting sands*

Average rainfall: *500mm*



Simon Veitch

Lime, helping to improve farm productivity – the Veitch story (cont.)

Simon used a paddock grazed by cattle to test the tools. The paddock, “Third Gate” currently has a $\text{pH}_{\text{CaCl}_2}$ of 4.5.

*The Acid Cost tool (FIGURE 1) calculated a loss in production in this paddock of \$28/ha/yr. This means if he doesn’t lime, Simon is holding potential production back by \$1,260/yr for the whole 45 ha paddock. Using *the Lime Cheque tool (FIGURE 2) Simon then calculated the cost to lime the paddock and bring the pH up to 5.2 was \$1,997. Within 2 years he has more than paid for the cost of the lime application but he will continue to reap the financial benefits of the lime application for possibly another 10 years.

*The Maintenance Liming Rate Calculator (FIGURE 3) enables you to work what is really driving acidity on your property and how much lime is required to maintain soil pH. In Simon’s case, leaching of nitrogen from his clover dominant pastures is predominantly driving acidification. Comparing 2016 (a good clover year) to 2015 (a poorer clover year) showed that the amount of lime required just to balance the acidification increased by almost 40%. “I know that in good years, when I grow more feed and the paddocks are more clover dominant, I can carry more stock. Putting out lime is a cost I’m more than happy to pay for to gain the increased productivity”. Simon concluded.

* NOTE: Examples of “Soil Acidity Tools” referred to in this case study, are found at the end of the Case Study section in this document.

Take Home Messages

- Select a few key paddocks and soil test them every few years to monitor soil pH levels
- Make lime a part of your annual farm budget
- Lime will increase pasture growth and feed quality.

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For further information contact

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