

Optimise ultra fine lime experiment at Scargill comparing five different Optimise treatments with Aglime and nil lime

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Objective

1. To trial Optimise at relatively low applications rates and measure response by means of soil tests.
2. To determine the effectiveness of Optimise on the soil, in particular soil pH, aluminum levels and calcium.

Treatments

Treatments applied consisted of the following:

1. nil (control)
2. Aglime at 2500 kg/ha
3. Optimise ultra fine lime pellets at 125 kg/ha
4. Optimise ultra fine lime pellets at 250 kg/ha
5. Optimise ultra fine lime pellets at 500 kg/ha
6. Optimise ultra fine lime pellets plus RPR at 250 kg/ha
7. Optimise ultra fine lime pellets plus Sulphur at 250 kg/ha

All treatments were applied using a motorised small plot fertiliser spreader. Plot size was 1.4 by 8 m. The treatments were replicated 4 times in a randomised complete block design.

The soil pH at the beginning of the experiment was 5.4 and Olsen P values averaged 32 mg/L. Soil pH was measured in each plot on 6 June, 16 August, 14 October 12 December, 2005, 28 February, 23 May, 7 November, 2006 and on 10 May 2007.

Results

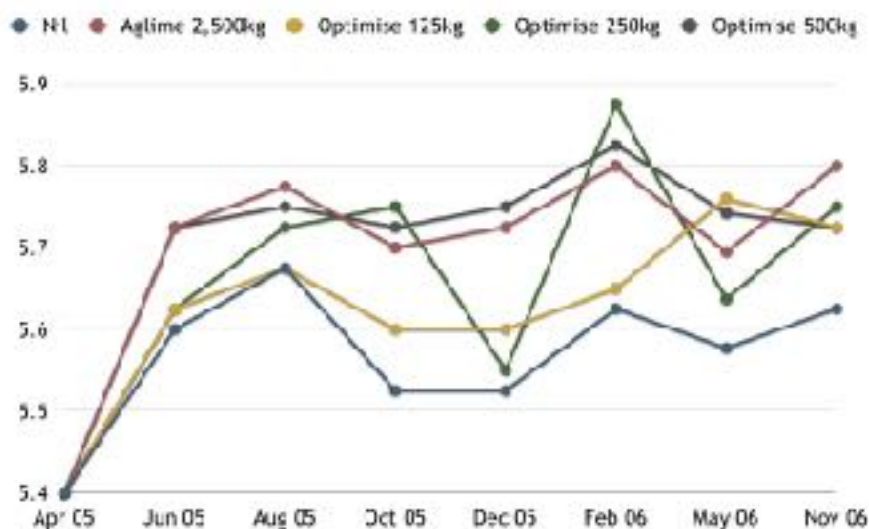
At this trial site after six months, showed both Optimise ultra-fine lime at 250 and 500 kg/ha gave similar soil pH values to 2500 kg/ha of aglime.

Discussion

The effect that lime has on soils is markedly affected by the fineness of the particles, and the hardness of the rock used.. Brady (1974) said that the finer the particles of lime, the more rapidly they go into solution and the more rapid will be the rate of reaction. The results presented here do at least partially support this. Soil pH changes did not appear until 14 October, about 6 months after application. However, to obtain a similar shift in soil pH as that which occurred with 2.5 t of Aglime/ha required only 250 to 500 kg of Optimise fine lime/ha. Agricultural lime usually consists of a range of particle sizes and can be derived from rock of varying hardness which can affect reactivity. Any comparison between agricultural lime and Optimise fine lime will be affected by the quality of agricultural lime used as the control.

OPTIMISE TRIAL WITH DR B MCKENZIE, LINCOLN UNIVERSITY

Mean pH Response Over Time



This trial demonstrate the equivalent effect of Optimise compared to aglime at varying rates under controlled plot design (i.e. accurately hand applied with minimal environmental disturbances). Site, soil and weather events show a blended effect on test results. This trial shows that a nil application caused a rise in pH also.

The impact on pH by applying Optimise at 250kg/ha shows an equivalent response to 2.5T of aglime - despite other biological factors affecting the results from all trial plots.