# VICKERY BROS.

THE FERTILISER PROFESSIONALS

# November Pamphlet 2022

## LIME...
## HOW RATES ARE CALCULATED.

Roger Gee

Firstly, have you had your soil sampled and tested?? Soil testing should be repeated every 3 – 4 years to detect changes in your soil, and allow for monitoring of adjustments to management practices.

Secondly, knowledge of your soil pH profile and acidification rates; that vary across the farm, will assist with effective soil acidity management. This in turn allows for the calculation of the cost of lost production and remediation.

A pH (CaCl2) range between 5 and 6 is considered ideal for most plants. Acid soils have a major effect on plant productivity once the soil pH (CaCl2) falls below 5.0

**pH 6.5 —** close to neutral — Optimum for many acid-sensitive plants. Some trace elements may become unavailable.

**pH 5.5 —** slightly acidic — Optimal balance of major nutrients and trace elements available for plant uptake.

**pH 5.0 —** moderately acidic — Below pH 4.8 aluminium (Al) can become toxic to plants, depending on soil type. Phosphorus combines with Al and may be less available to plants.

**pH 4.5 —** strongly acidic — Aluminium becomes soluble in toxic quantities. Manganese (Mn) becomes soluble and toxic to plants in some soils, depending on temperature and moisture conditions. Molybdenum (Mo) is less available. Soil bacterial activity is slowed down.

**pH 4.0 —** extremely acidic — Irreversible soil structural breakdown can occur.

Soil pH will influence both the availability of soil nutrients to plants and how the nutrients react with each other. Liming is the most economical method of ameliorating soil acidity. The amount of lime required will depend on the soil pH in the profile, lime quality, soil type, farming system and rainfall.

From your soil test data, we can build a pH map of the paddocks/farm, then using other data on the soil test with the type of farming system you run and rainfall, we can start the calculation.

The preferred and objective method, is to use other data shown on the soil test results, starting with the pH in Calcium Chloride (CaCl2), Aluminium toxicity (Exch. Al) & Cation Exchange Capacity CEC (mequiv/100gm). Then working from the latest research (Southern farming Systems 2019), we need to target a pH of 5.5 or above in (CaCl2) in the top 100mm of soil, and a pH of 5.0 (CaCl2) in the subsoil.


Our calculation is as follows:

Example 1: Targeting 5.5 CaCl2 – current pH of 4.7 CaCl2 = With a soil test CEC 6.0 refer to table, 1.2t/ha (from 4.7 to 5.2) + 0.8t/ha (from 5.2 to 5.5) = 2.0t/ha of lime.

Example 2: Targeting 5.5 CaCl2 – current pH of 5.1 CaCl2 = With a soil test CEC 7.7 refer to table, 1.1t/ha (from 5.2 to 5.5) = 1.1t/ha of lime.

Lime is assumed to have 95%-100% Neutralising Value (NV), fine particle sizing and low moisture content. Where lime is of a lower value, rates are adjusted up accordingly.

References: Liming & latest on soil pH management, SFS: Lisa Miller Jan2019
Soil Acidity – Fact Sheet: www.soilquality.org.au
Acid Soil Action – Pamphlet No.4 'Planning on Liming' NSW Agriculture

**LIME REQUIREMENT TABLE**

| ECEC (meq/100gm) | Lime required (t/ha) to lift the pH of the top 10 cm: from 4.0to 5.2 | from 4.3 to 5.2 | from 4.7to 5.2 | from 5.2 to 5.5 |
|---|---|---|---|---|
| 1 | 1.6 | 0.8* | 0.3* | 0.2 |
| 2 | 2.4 | 1.2 | 0.5* | 0.4 |
| 3 | 3.5 | 1.7 | 0.7* | 0.5 |
| 4 | 3.9 | 2.1 | 0.9* | 0.6 |
| 5 | 4.7 | 2.5 | 1.1* | 0.7 |
| 6 | 5.5 | 3.0 | 1.2 | 0.8 |
| 7 | 6.3 | 3.3 | 1.4 | 1.0 |
| 8 | 7.1 | 3.8 | 1.6 | 1.1 |
| 9 | 7.9 | 4.2 | 1.8 | 1.2 |
| 10 | 8.7 | 4.6 | 1.9 | 1.3 |
| 15 | 12.5 | 6.7 | 2.8 | 1.9 |

# SUMMER CROPS AT THE MILTON TRIAL SITE

## A COLLABORATION OF MEASURED TRIALS, OBSERVATIONS AND DEMONSTRATIONS BETWEEN THE VICKERY BROS AND MCDONALD RURAL SERVICES AGRONOMY TEAMS.

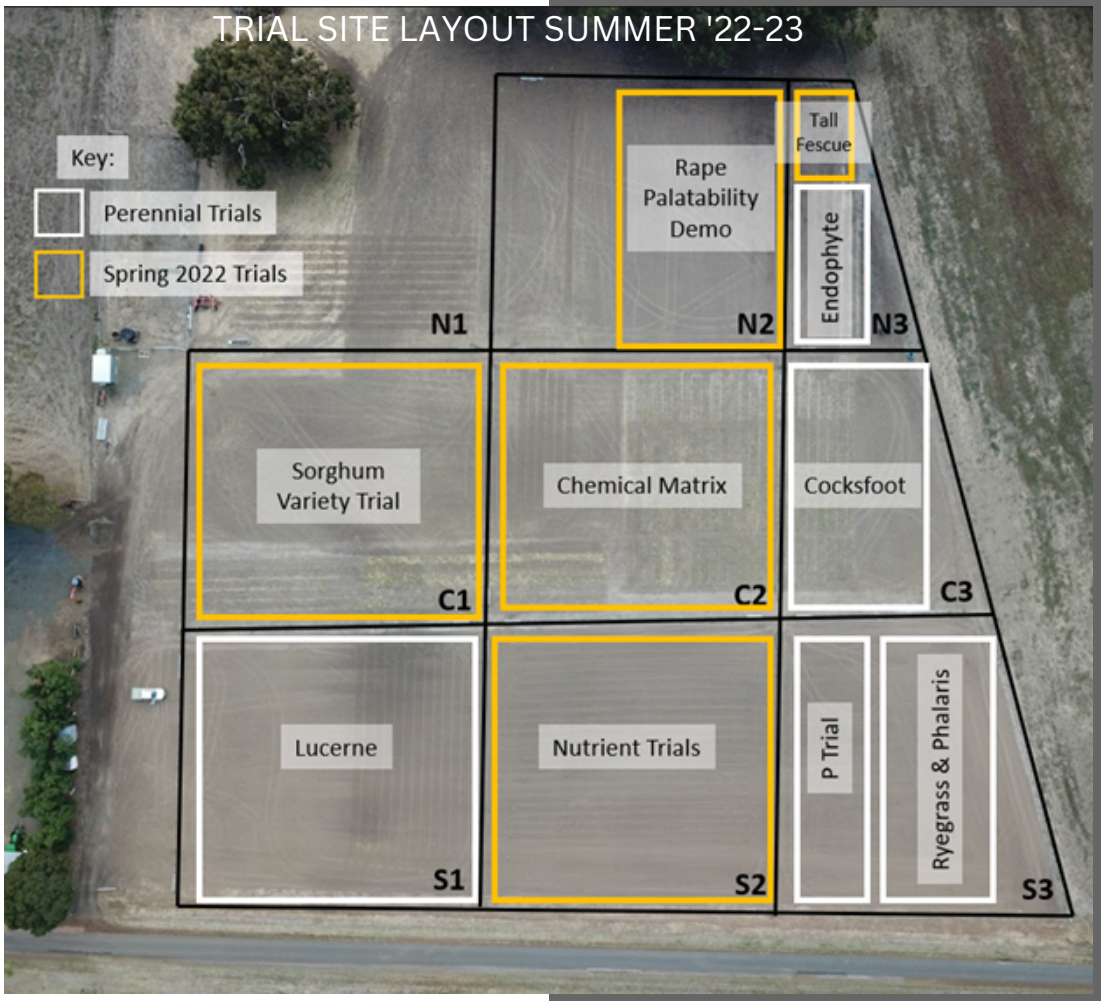
Alise Riley

It's that time of year again folks. It's time for summercrop sowing at the Milton Trial Site!

This year, we will be sowing 5 summercrop trials.

They are:

-Rape Nutrient Response Trials
-Sorghum Variety Trial
-Summercrop Chemical Matrix
-Rape Palatability Demonstration
-Tall Fescue Demonstration




Each trial will be assessed throughout this summer for a variety of traits relevant to the trial. Sowing has been delayed due to continuous rain, but follow us on Facebook, Instagram or Twitter @MiltonTrialSite to stay up to date with developments.

The site hosted a variety of trials this autumn, including an annual ryegrass FVI evaluation, chemical matrix, ProGibb and Nitrogen trials and a grass phenology trial. Preliminary results were presented at our field day in August.

Thank you to all who attended on the day.

Annual autumn trials have now been terminated, with a number of perennial trials still in the ground for at least another year. Measurements will continue to be taken on these trials before final results are presented in the future.

If you have any questions about these trials, or would like to have a look at what we are doing; don't hesitate to contact your Vickery Bros or McDonald Rural Services agronomist for more information.