

Laura Agricultural Bureau Lime Trial

Progress Report – June 2016

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Introduction

Up until recently, Nutrilime[®], that was a cheap and good quality lime was used throughout the N&Y NRM region. This was a by-product from the soda ash manufacturing from Adelaide however, due to the closure of the factory, this is no longer available. Landholders throughout the region have now been considering other options. Two relatively new lime products in the region are dolomite from Kulpara and lime dust from the Clare Quarry. The Laura Agricultural Bureau established a lime trial in 2015 with funding from the N&Y NRM Board to evaluate the effectiveness of these and other lime products.

Method

The site is located 9 km north-west of Wirrabara on Section 349 Hundred Wongyarra. The soil is a sandy loam over a medium clay. The surface (0-10 cm) pH is 4.32 (CaCl₂) and the sub-surface (10-20 cm) pH is 4.75 (CaCl₂). The extractable aluminium was 5 mg/kg in the surface and 1 mg/kg in the sub-surface.

The trial was a randomised complete block design. The products included Clare Quarry lime, Kulpara dolomite, Angaston Penlime[®] and Nutrilime[®]. The products were applied at a normal rate of 3 t/ha and a higher rate of 6 t/ha. The neutralising value (NV) of the lime products were analysed and the rates of lime were applied to achieve 100% NV (Table 1). Sulphur was added to the trial to increase soil acidification and to see what effect this would have on crop yields. A spare plot was left for future treatments. The trial was replicated four times (Figure 2).

The products were applied by hand on the 22 April 2015. The site was sown by the farmer to wheat (Mace) on the 4th May 2015 and will be sown to barley in 2016 and faba beans in 2017.



Figure 1: The lime was applied by hand on 22 April 2015

Table 1: Rates of product applied.

Lime product	Rate (t/ha)	NV (%)	Actual rate (t/ha) applied to achieve 100% NV
Angaston Penlime®	3	96	3.6
Angaston penlime®	6	96	7.2
Clare Quarry	3	65	4.6
Clare Quarry lime	6	65	9.2
Kulpara dolomite	3	100	3.0
Kulpara dolomite	6	100	6.0
Nutriline®	3	96	3.1
Nutriline®	6	96	6.2

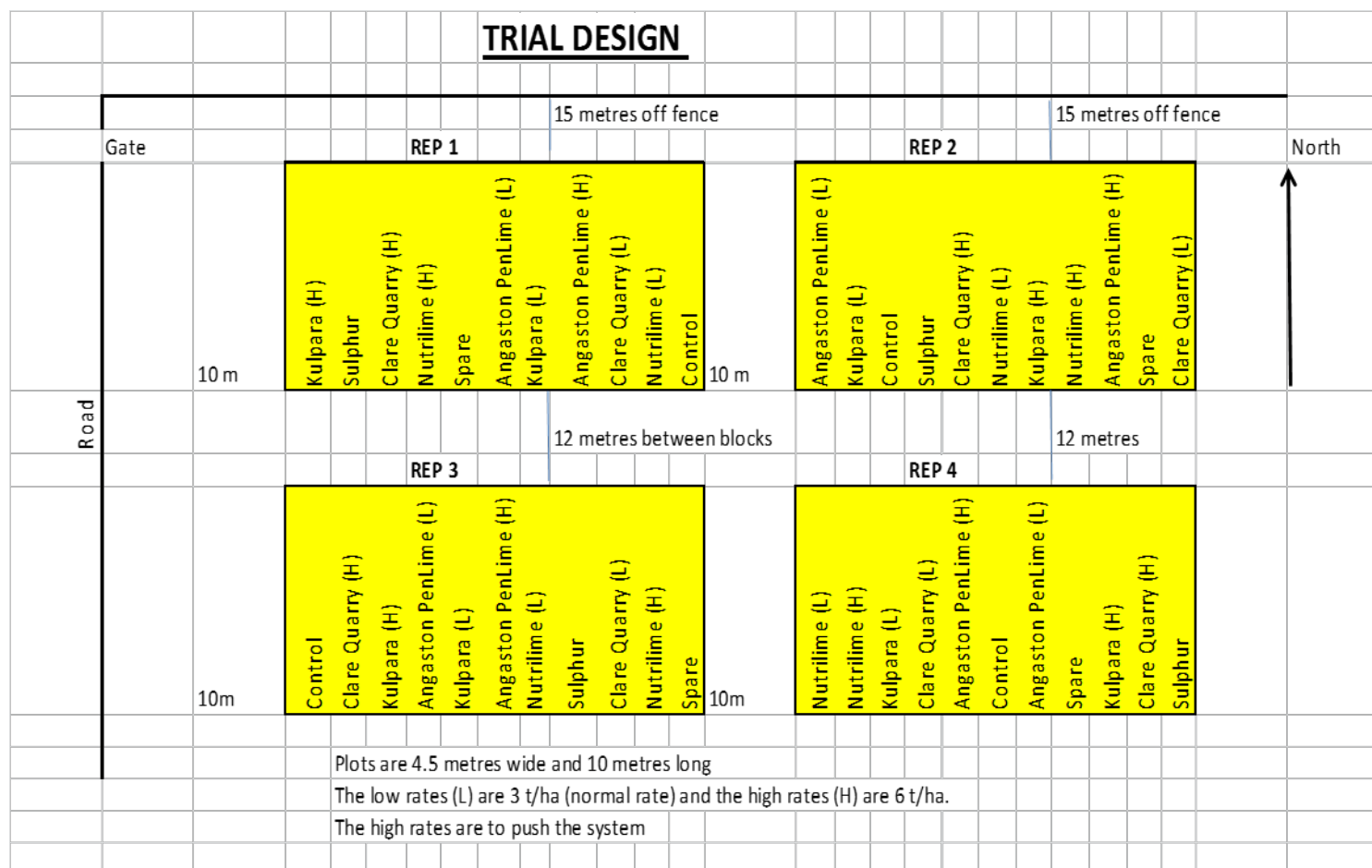


Figure 2: Trial design

Results

The results are shown graphically in Figure 3.

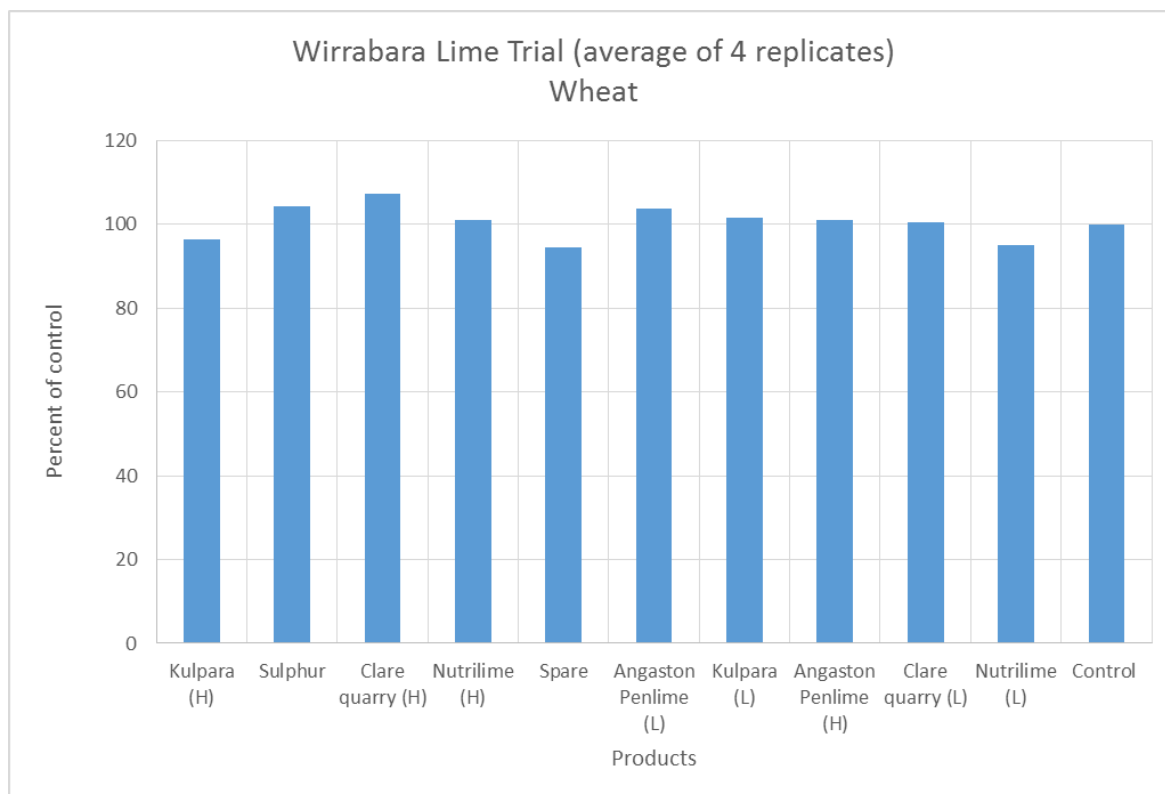


Figure 3: Results of the trial

Statistical analysis showed that there was no significant differences between treatments. The Clare Quarry (H) treatment had the highest yield in relation to the control but there was no significant differences between the control or the spare plot.

Discussion

As expected there were no significant differences between treatments. Lime moves very slowly down the soil profile (about 2.5 cm / year) and generally takes 18 months or up to two years to be effective.

The site will be sown to barley in 2016 and to faba beans in 2017. Barley is moderately sensitive to acid soils and beans are sensitive to acid soils.

Acknowledgment

Craig Woolford is kindly acknowledged for allowing the trial on his property.

Christian Preuss, formerly PIRSA Rural Solutions SA for assistance with layout of trial and spreading of lime.