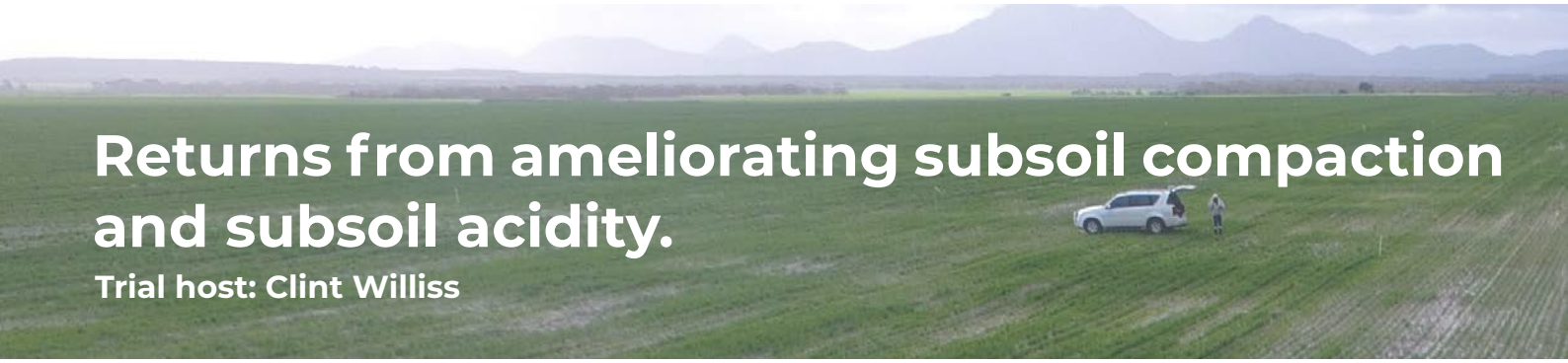

Returns from ameliorating subsoil compaction and subsoil acidity.

Trial host: Clint Williss

Key Messages

- **Ameliorating subsoil compaction and improving subsoil acidity improved barley grain yields by >1t/Ha at this trial site in 2019.**
- **In 2020 the site was sown to canola and all treatments yielded significantly better than the nil control, including the ripping alone, where no lime was applied. This yield response shows the value in ameliorating subsoil compaction.**
- **There was no benefit in using lime from the commercial pit (Boyanup) compared to farm sourced lime (Williss) when rates were adjusted to achieve the same neutralising value. However much higher rates of the farm source lime needed to be applied to achieve the same affect.**

Background

This trial was setup in 2019 to investigate the effect that ripping with inclusion plates had on moving surface applied lime into the acidic subsoil of a deep sandy duplex. The treatments also included the opportunity to test high rates of farm sourced lime against equivalent rates of commercial grade lime when accounting for neutralising value.

Treatments

Treatments included the following:

- Deep rip. nil Lime
- Deep rip + 5t/ha Boyanup lime
- Deep rip + 12t/ha Williss lime
- Nil rip + 5t/ha Boyanup lime
- Control- nil rip, nil lime

Results from the first year were reported in the 2019 Trials Review Book. In 2020 the site was sown to Canola with the yield data collected and results reported here.

Results and Discussion

All treatments yielded significantly more than the control plots (Table 1). From yield mapping it was determined that there was a ripping effect on yield increasing it by 320kg (2.46 t/ha) above the control (2.14 t/ha). Applying 5 t/ha of Boyanup lime without ripping resulted in an increase of 230kg (2.37 t/ha). The treatment of 5 t/ha of Boyanup lime then ripping with inclusion plates resulted in a total 370kg (2.51 t/ha) above the control plots. The use of the on-farm sourced lime resulted in a slightly higher yield than the commercial grade plots with 330kg above control at 2.47 t/ha. Yield variation in plots can be seen from Figures 1 and 2 looking at both years' yield maps.

Table 1: Average yields (t/ha) for canola (2020) at Willis' Lime ripping trial site.

Treatment	**Yield (t/ha)**	
Deep Rip. Nil Lime	2.46a	
Deep Rip + 5t/ha Boyanup Lime	2.51a	
Deep Rip + 12t/ha Willis Lime	2.47a	
Nil Rip + 5t/ha Boyanup Lime	2.37a	
Control- Nil Rip, Nil Lime	1.95b	
LSD P=0.10	**0.3**	**0.336**
Standard Deviation	**0.149**	**0.158**
CV	**6.42**	**6.71**
Replicate F	**0.001**	**0.091**
Replicate Prob(F)	**0.9816**	**0.7784**
Treatment F	**4.287**	**4.334**
Treatment Prob(F)	**0.068**	**0.0923**

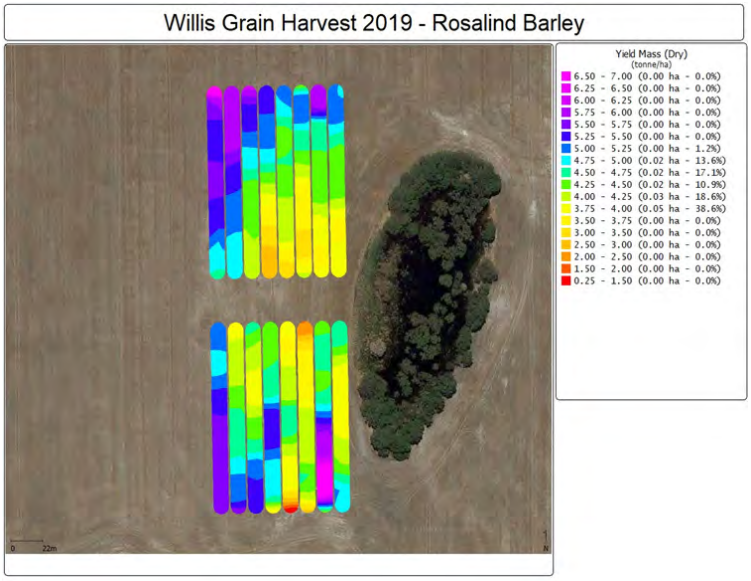

Figure 1: Yield map results from 2019 Rosalind Barley

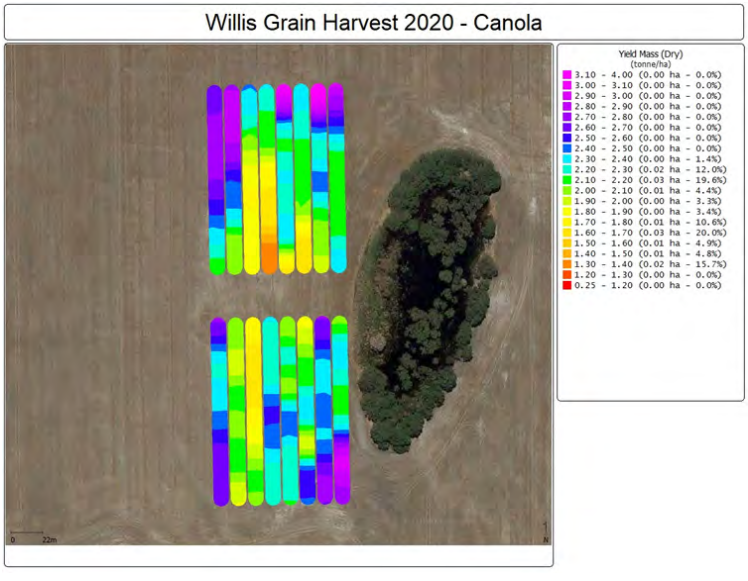

Figure 2: Yield map results from 2020 Canola