Willis Lime and Deep Rip Trial

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SCF staff have been busy harvesting trials over the past few weeks, with our lime incorporation trial at South Stirlings being one of the first. This trial was established last year to look at the effect that ripping with inclusion plates has on moving surface-applied lime into the acidic subsoil of a deep sand duplex. The treatments also included the opportunity to test high rates of farm-sourced lime against equivalent rates of commercial lime when accounting for the neutralising value. The treatment list and the 2020 canola yields and 2019 barley yields are summarised in the table below.

All treatments yielded significantly more than the control plots in 2020 at a confidence interval (CI) of 90%. However, at the scientific standard CI of 95%, the yields are not statistically different from the control, which is a similar result to what we saw in 2019. Simply put, it means that we are 90% confident that there is a significant difference between the yields of the treatments and the control, but we cannot be 95% confident that they are different. For the layman, 90% is a reasonable level of confidence, and I am sure that farmers reading this believe a 420kg/ha increase in canola yield would be useful to their business! Furthermore, the yield increase from the deep ripping and liming combined is 560kg/ha and 520kg/ha for the Boyanup and Willis (Farm-sourced) lime, respectively. Interestingly, the deep ripping without lime yielded the same as the deep ripping and lime treatments.

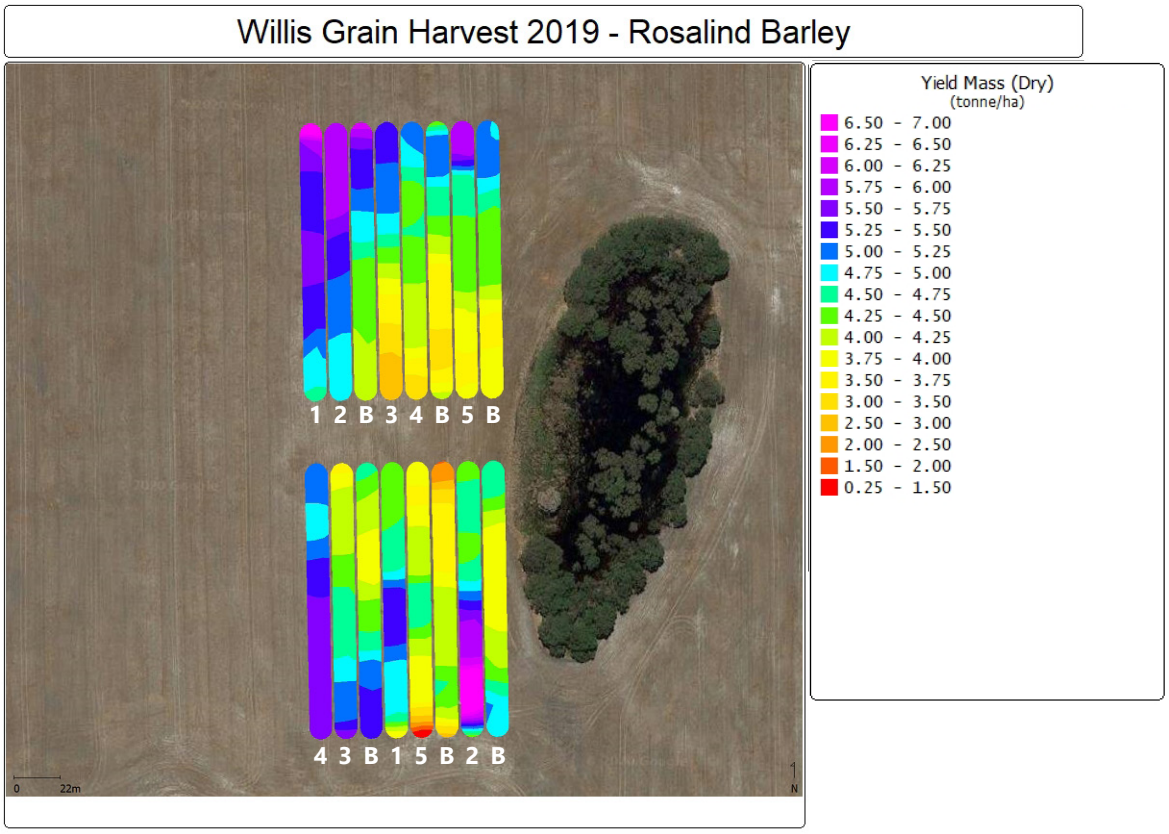
Grain samples from each treatment were collected but have not been analysed yet for oil content. Based on the results from the rest of the paddock, the oil percentage will be over 48% which means we are nudging $700/tonne for (CAN1) canola. For the sake of the exercise, we will use an on-farm canola price of $650/tonne to calculate the increased revenue per hectare from each treatment. See table one below for a summary.

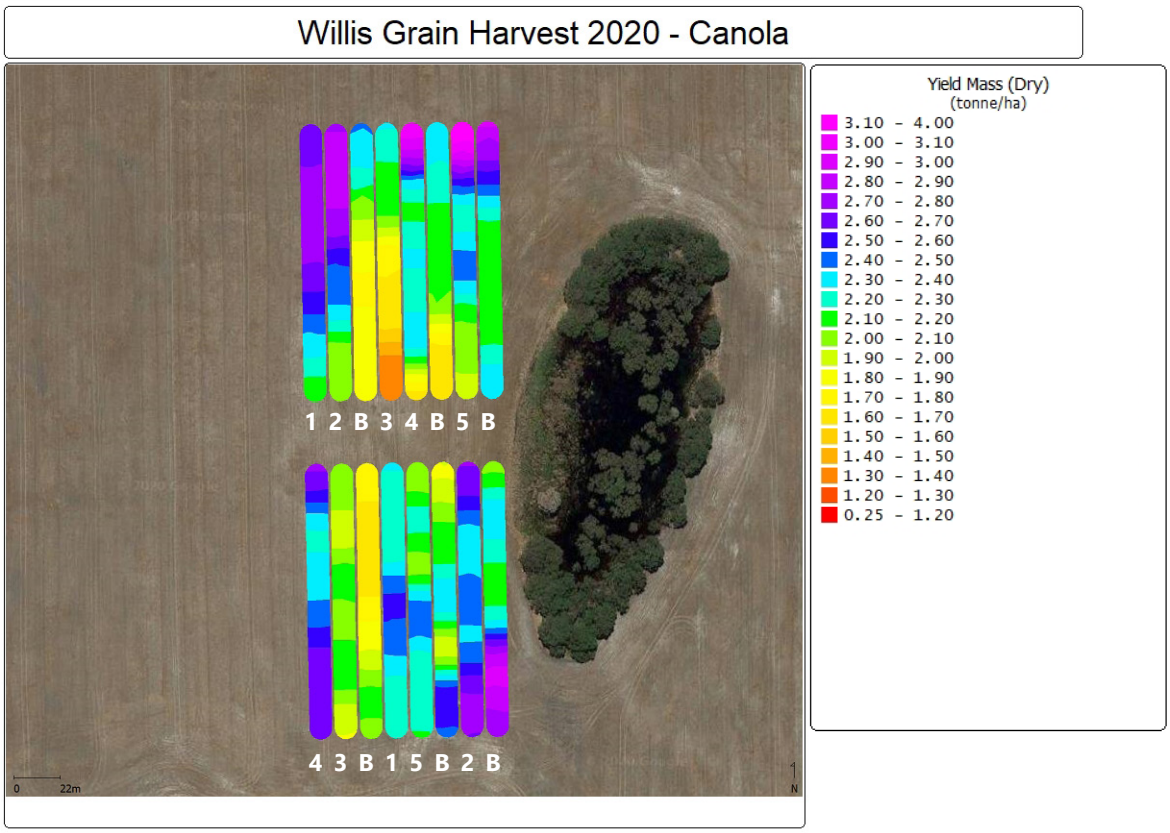
Conclusion

2020 was the second year of this trial, and the ripping and lime treatments have maintained yield advantages over the untreated control. This is a pleasing result for the Williss family after investing significant money in liming and deep ripping this paddock. Stirlings to Coast Farmers will continue to monitor this trial to determine the longevity of the yield improvements from deep ripping and lime treatments. A more comprehensive report will be included in the SCF 2020 Annual trial review booklet.

Table 1: Grain yields in tonnes per hectare (t/ha) from the South Stirlings Lime by Ripping trial hosted by the Williss family. The final column calculates the 2020 revenue per hectare based on a canola price of $650/tonne. Means followed by the same letter do not significantly differ (P = 0.05 or 0.10), LSD)

Treatments	2019 Barley Yield (t/ha)	2020 Canola Yield (t/ha)	2020 Canola Yield (t/ha)	2020 Canola Revenue ($)/ha	Increased 2020 Revenue ($)/ha compared to control
Confidence Interval	**95%**	**95%**	**90%**	**N/A**	**N/A**
Deep Rip. Nil Lime	4.93a	2.46a	2.46a	$1599	**+$331**
Deep Rip + 5t/ha Boyanup Lime	5.49a	2.51a	2.51a	$1632	**+$364**
Deep Rip + 12t/ha Willis Lime	5.23a	2.47a	2.47a	$1606	**+$338**
Nil Rip + 5t/ha Boyanup Lime	4.29a	2.37a	2.37a	$1540	**+$272**
Control- Nil Rip, Nil Lime	4.40a	1.95a	1.95b	$1268	**$0**





Figures 1 & 2: Yield mapping data collected for Rosalind barley in 2019 & 2020 to evaluate the effects of deep ripping, spreading commercial lime as well as on-farm sourced lime and combinations of liming and ripping. The colour scheme on the right indicates the yield value throughout each plot with treatment numbers in the figure corresponding to the relevant treatments in the table below.

Treatments	**Key**
Deep Rip + 12t/ha Willis Lime	1
Deep Rip + 5t/ha Boyanup Lime	2
Control- Nil Rip, Nil Lime	3
Deep Rip. Nil Lime	4
Nil Rip + 5t/ha Boyanup Lime	5
Buffer	B

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