



# Soil amelioration – Timing of ripping

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Stirlings to Coast Farmers has just completed the first year of a trial assessing the effectiveness of deep ripping post-seeding as an amelioration technique in the Albany Port Zone. This trial is part of GRDC’s investment in soil amelioration strategies to improve the soil quality of WA.

A farm-scale trial was implemented to measure the effectiveness of the post-seeding ripping treatments (1 week after, three weeks after, six weeks after) against the standard pre-seeding ripping treatment and untreated control (UTC). Although all four ripping treatments effectively reduced soil compaction, the post-seeding ripping treatments had a significant negative impact on plant growth.

## PLANT ESTABLISHMENT AND BIOMASS

All three post-seeding ripping treatments caused a burial effect that reduced plant numbers and plant biomass when measured 11 days after the 6-week ripping treatment was applied. The reduction in both plants per m2 and dry matter per m2 is seen across all three post-seeding treatments, whilst the pre-seeding ripping treatment performed better than the UTC (figure 1). This highlights the physical damage that the deep ripping post-seeding causes. Interestingly the one-week post-seeding rip reduced plant numbers but had greater biomass. This shows the ability of the crop to recover after ripping if the plants do not die.

## YIELDS

All three post-seeding ripping treatments negatively impacted barley yields. Whilst the pre-seeding ripping treatments performed better than the untreated control. The yield penalty resulting from the three weeks after and six weeks after seeding treatments was 1.5t/ha compared to pre-seeding deep ripping, whilst the one-week post-seeding treatment yielded similar to the untreated control. Interestingly the final yields mirror the GS25 dry matter measurements, which suggest that it is the initial mechanical damage caused by the post-seeding ripping that limits yields rather than plant symptoms or stressors that arose from the in-season ripping.

## CONCLUSION

Deep ripping post-seeding was effective in reducing soil strength and alleviating compaction. Still, the resulting in-season yield penalty was too costly to warrant the adoption of post-seeding ripping. Given the multi-year lifespan of ripping, the long-term economic benefits of post seeding ripping could still be realised over the efficacy period of the ripping.

## IMPORTANT NOTE

In this trial, the deep ripping was completed with inclusion plates still on the machine. Inclusion plates would have increased the level of soil disturbance, and therefore this trial would need repeating without the inclusion plates to assess the impacts in that scenario.

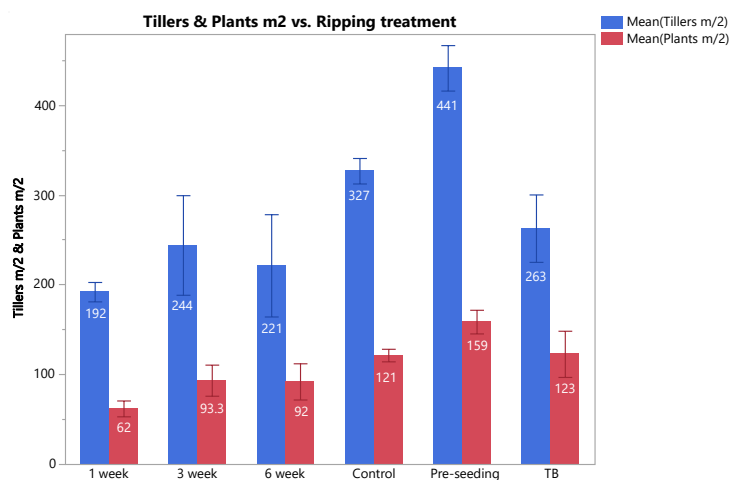


Figure 1: Graph shows the average plants and tillers per m2, in response to each ripping treatment at GS24.

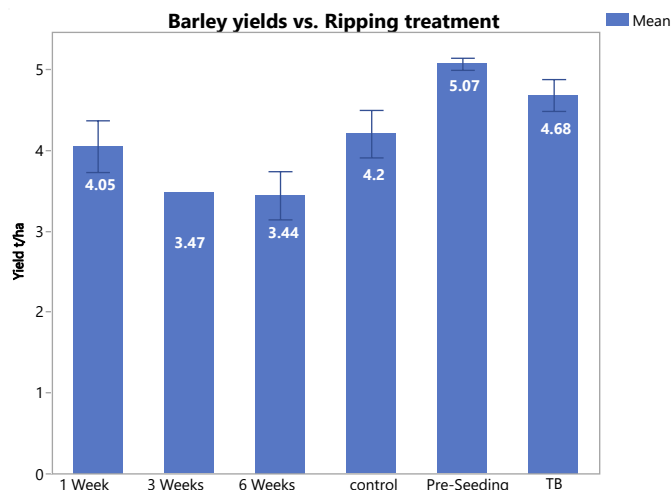


Figure 2: Average yields t/ha recorded via yield monitor for each ripping treatment

## ACKNOWLEDGEMENT

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