

Time of Deep Ripping

Aim: Assess the benefits and possible crop damage effects of deep-ripping post-seeding.

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Location: Liebe Main Trial Site, West Buntine



Background: The benefits to deep ripping on sandplain soils is well established. However, getting an opportunity to deep-rip is rare in the low-medium rainfall zones. With time of sowing being so critical in this area, delaying sowing to deep-rip can often negate any deep-ripping benefits. This trial was designed to see how late into the growing season a crop could be deep-ripped without having a negative effect on yield.

Trial Details:

Plot size and replication	20m x 1.8, 3 replicates
Soil type	Sand over Gravel, pH 5.1
Sowing date	17 th June
Conditions at sowing	Good soil moisture
Machinery	Plot seeder, Nichols tynes to a depth of 10 cm, press wheels
Seeding rate	75 kg/ha
Fertiliser	At Sowing: 100 kg/ha K-gold, 50 kg/ha Urea 22 nd August 40 kg/ ha Urea
Herbicides and Insecticides	Pre-Seeding: 1L Glyphosate 17 th June: 1 L/ha Trifluralin, 25 g/ha Trisulfuron
Paddock History	2003 = Lupins, 2002 = Wheat, 2001= Wheat

Treatments:

Plots were deep ripped to 35-45cm at the following stages of crop development:

No-ripping

At sowing

Coleoptile emergence

Prior to shoot emergence

1 Leaf

2 Leaf

3 Leaf

4 Leaf

5 Leaf

Results:

There were some very strong visual effects in this trial, with all deep-ripping treatments up to 3-leaf looking to be less nitrogen stressed than the control. The ripping tynes of the deep ripper did not always run between plant rows. As a result on certain rows there was a lot of damage. Where the ripper ran between rows crop damage was minimum up to the 5-leaf stage.

Protein levels increase up to the 1 leaf stage of deep ripping before dropping until the 4-leaf state. There was also a significant increase in protein in the 5-leaf treatment.

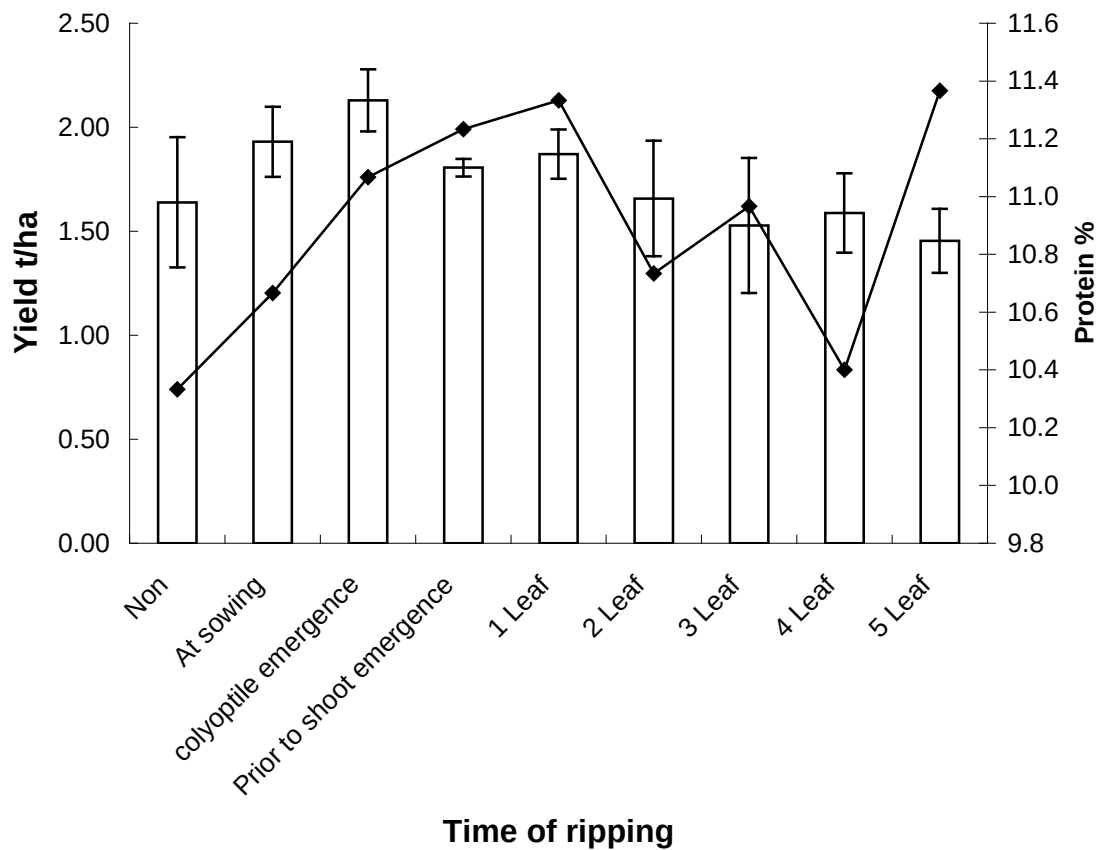


Figure 1. Yield (mean $\pm$ SE, Bars) and Protein (line) of Wyalkatchem wheat in response to a number of timings of deep ripping.

Summary:

- This trial illustrated that there can be some significant benefits to deep ripping post sowing.
- If ripper tyres were matched to run between rows with GPS guidance crop damage would have been significantly reduced and as a result yield benefits would be increased.
- Further work needs to be done; however these results are very promising in environments where getting a chance to deep-rip before sowing is rare.
- The increase in protein for the majority of treatments compared to the control would have been in response to plants roots having an increased ability to move down the soil profile and access nitrogen.
- The high protein in the 5-leaf treatment may have been a sampling error.

Technically reviewed by: Dr Paul Blackwell, Dept of Agriculture WA