
1.6 t/ha
3.5 t/ha

Department of Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Protect
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Inert mineral mulches improve yield on alkaline-sodic-saline soil

Wayne Parker, David Hall, Glen Riethmuller, Chad Reynolds, Ed Barrett-Lennard, Geoff Anderson

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

Take Home

Deep ripping these soils ineffective

Gypsum applied no yield benefit

Gravel mulching averaged 54% yield increase

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Sodicity

high sodium content
>6% of cations

pH (water)

alkaline
>8.4

Penetrometer Resistance

>2.5 MPa

Transient salinity

>0.3 dS/m

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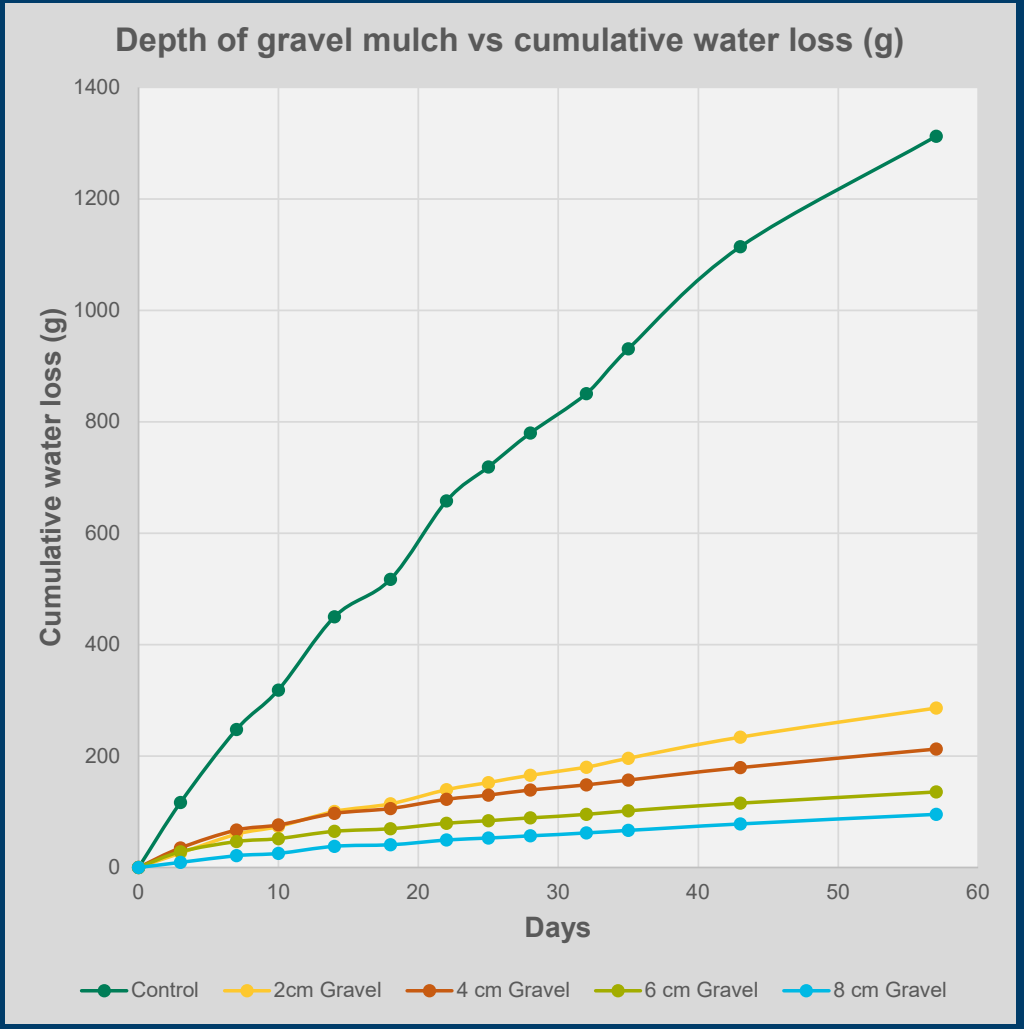

Control

66% reduction

2 cm

Source: D. Hall DPIRD

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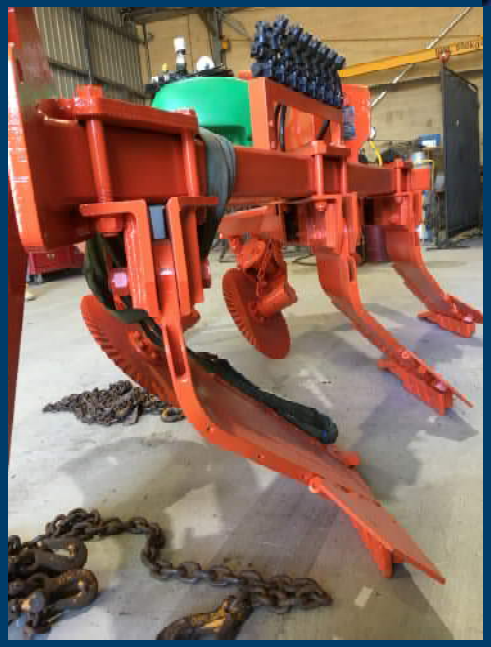
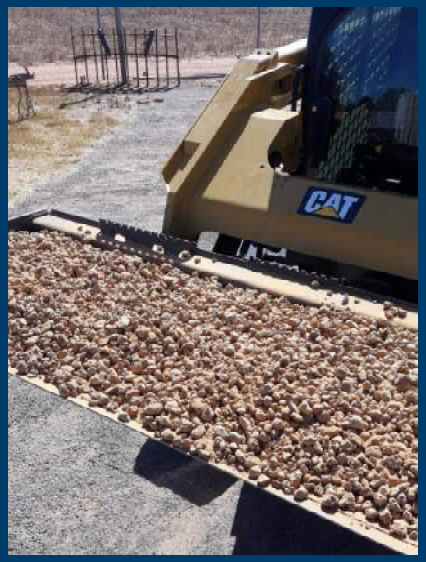
Treatments

- Paraplow rip
- Gypsum
  - Surface 3t/ha
  - Furrow 50-100kg/ha
- Gravel mulch





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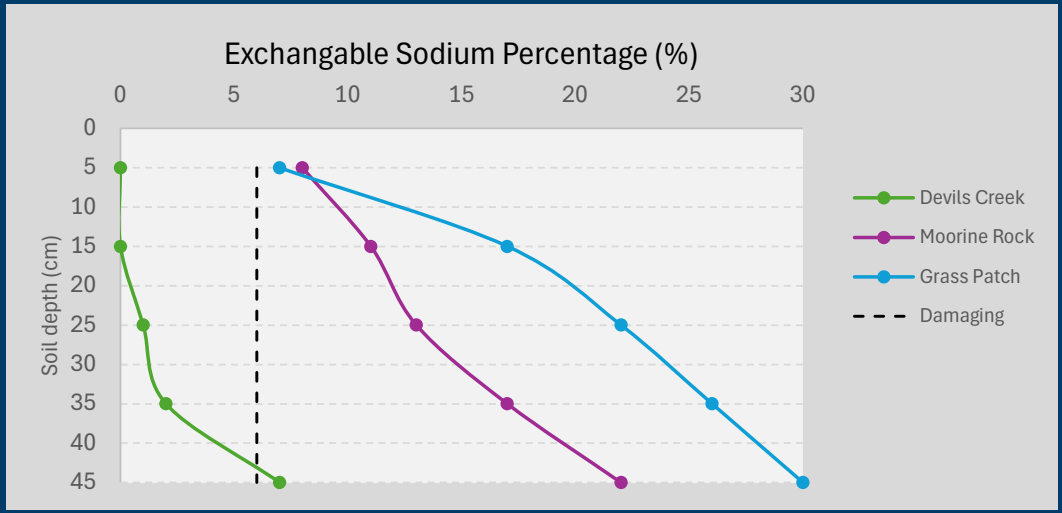
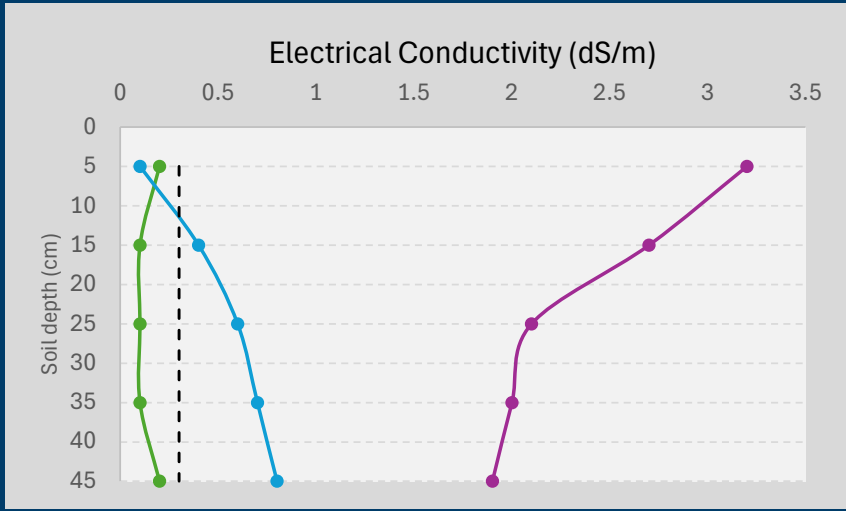
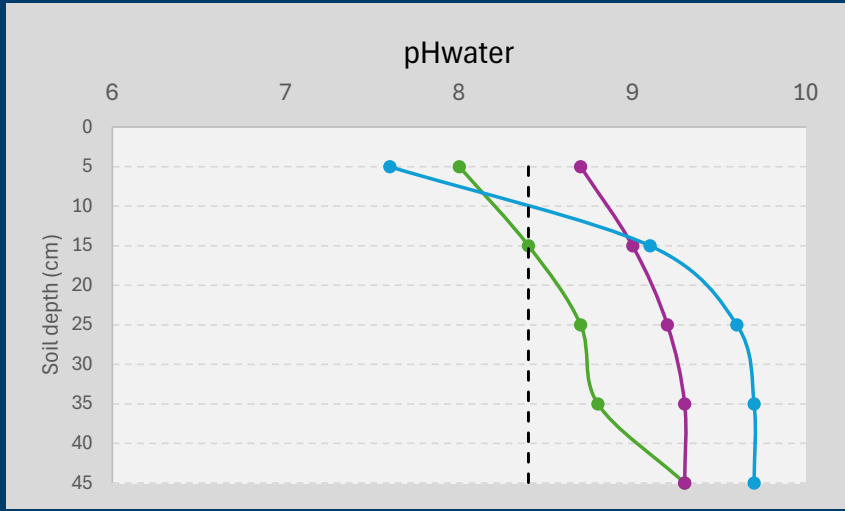
Soil Constraints







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Control

Gravel Mulch

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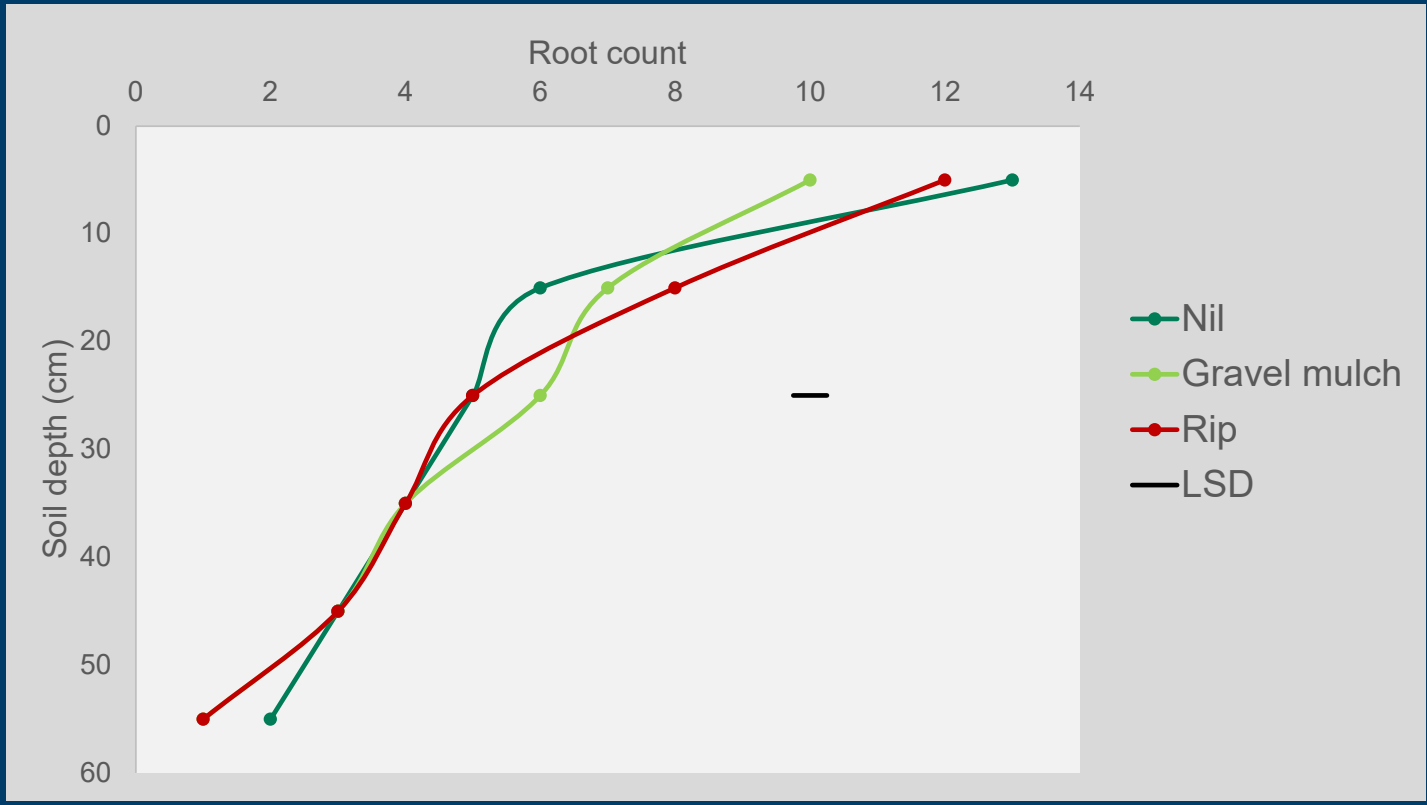
Core Root Break Devils Creek



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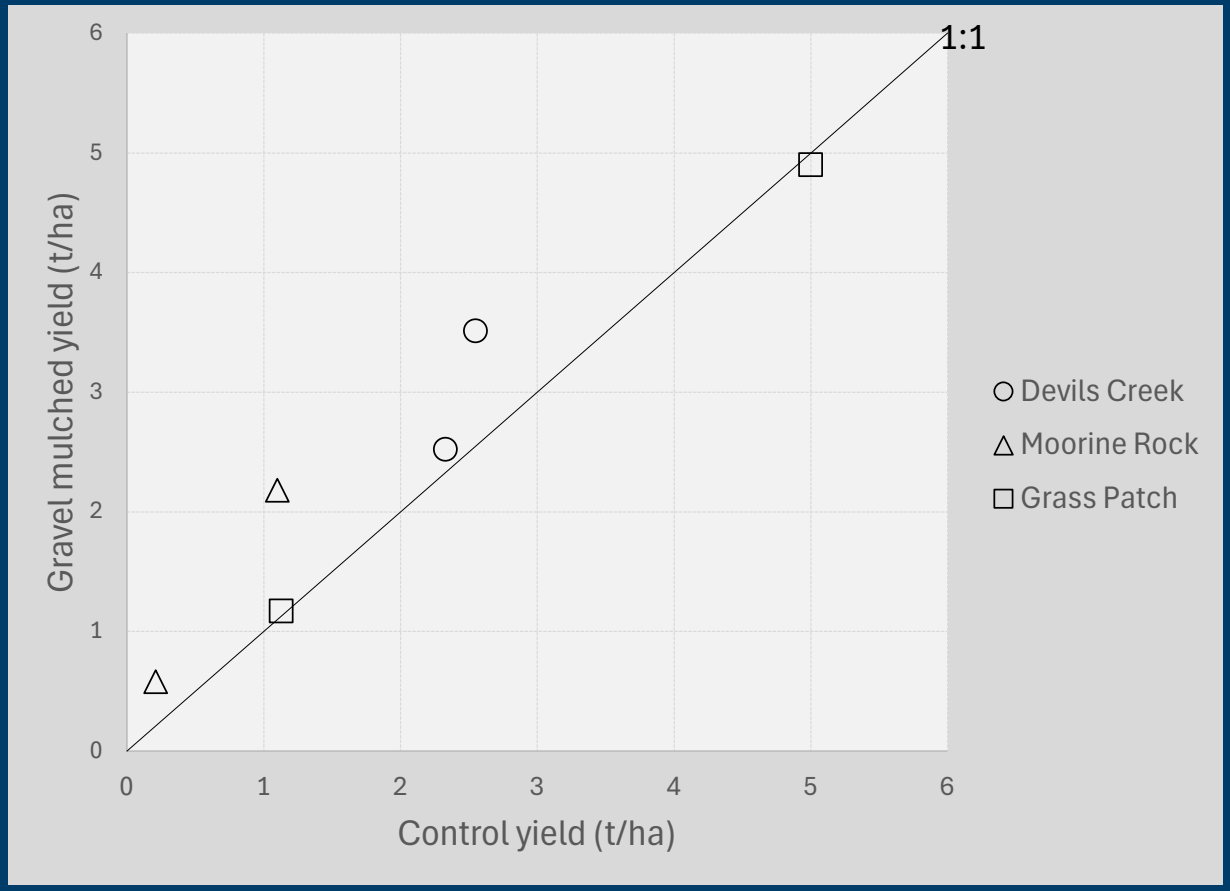
Yield



Increase of an average 54%

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Future required understanding

- Paddock surface evaporation
- Value of stubble
- % Sand in surface


Source: Kanchana Wickramarachchi

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Gravel Bulk Density = 2.2

Depth of 3cm

660t/ha

$6/t spread

$3960/ha

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