



# New insights on the impact of sowing depth on canola establishment and seed bed conditions.



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Kenton Porker, Jackie Bucat, Matthew Nelson, Col McMaster, Andrew Ware, Brett Masters, Chloe Rout, Tom Jones, Rohan Brill, Rachael Whitworth, Maurie Street, Danielle Lannin-England, John Kirkegaard

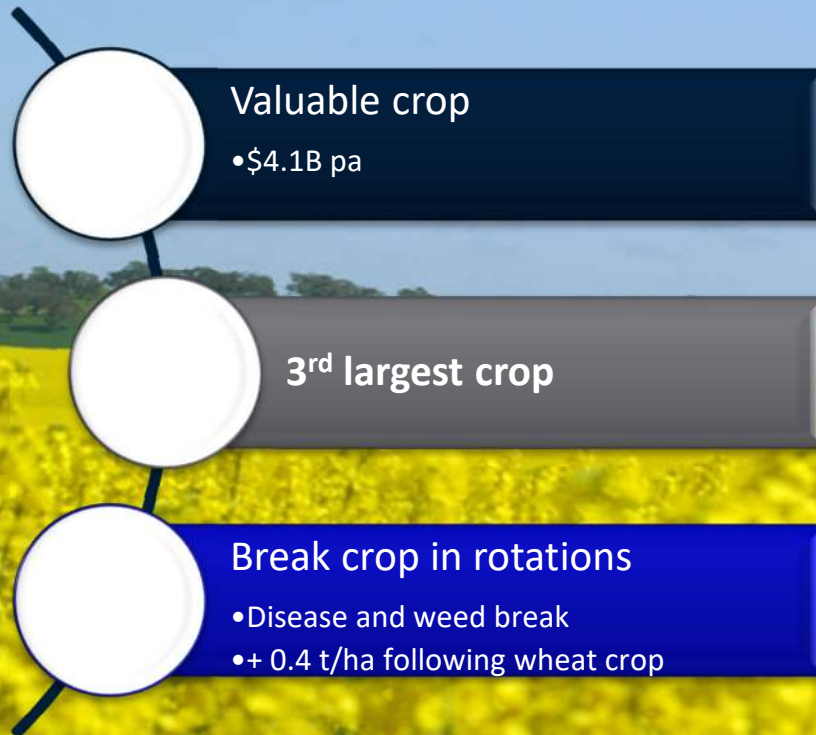
Australia's National Science Agency



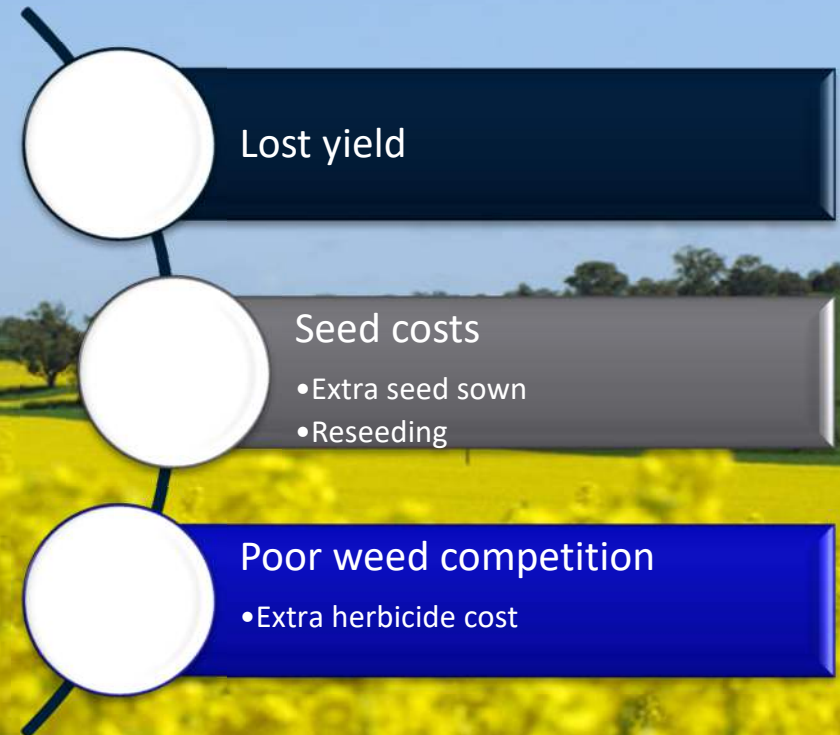
Reducing risks to canola establishment through an integrated understanding of genetics, management and environment.



## Important crop in Australia



## Establishment a weaknesses

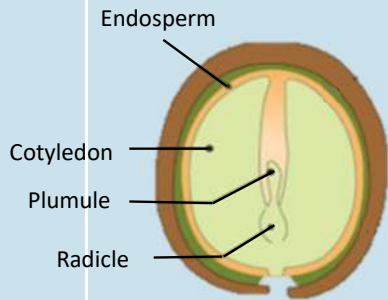




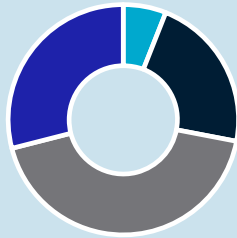
# It's tough to be a canola seed!

Canola

2-4 mg seed

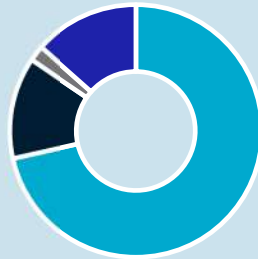
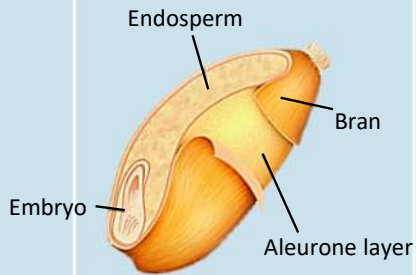


- Carbohydrate
- Protein
- Fat/oil
- Other



Wheat

35-50 mg seed





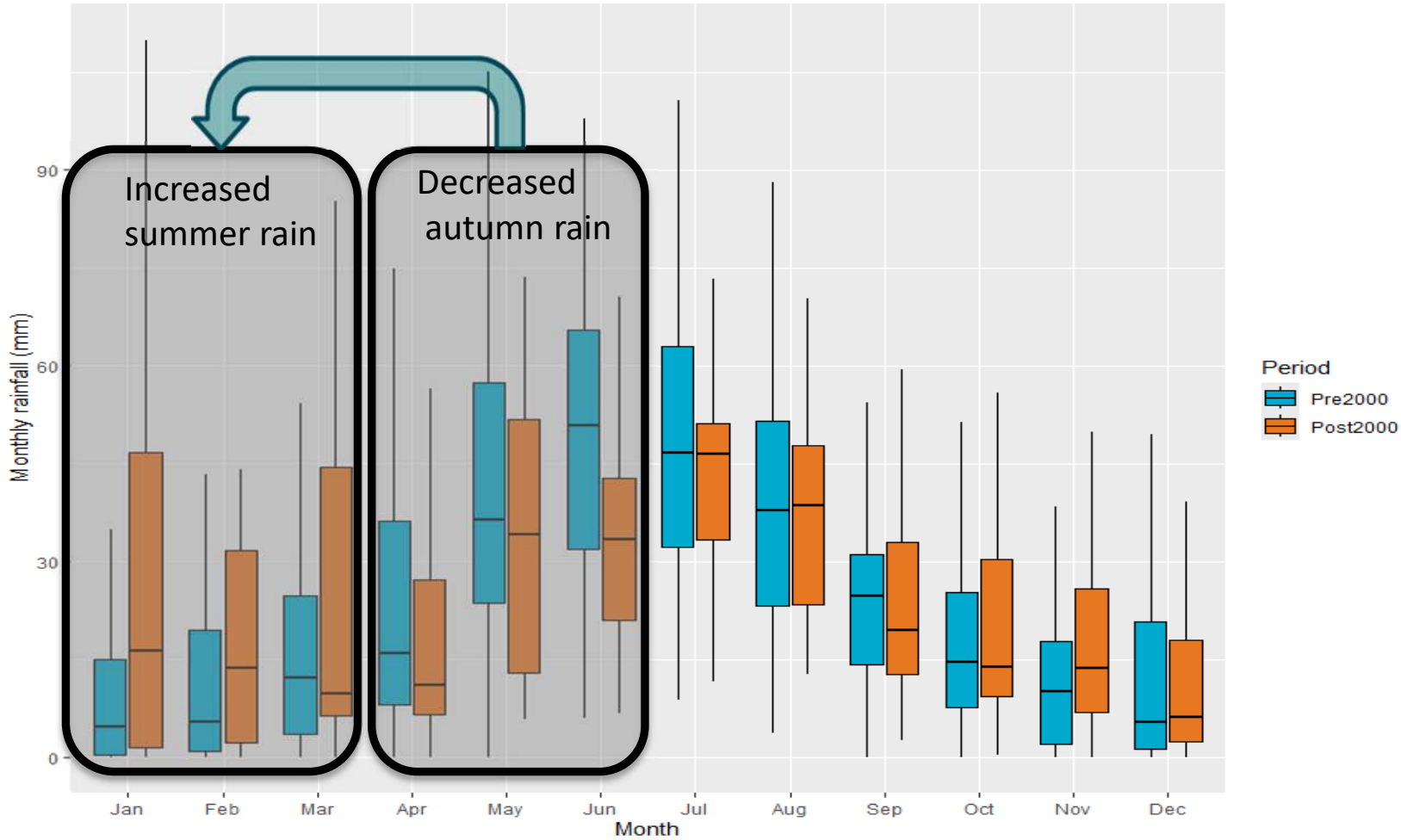
# It's tough to be a canola seed!

Canola is destined to lose the emergence race!





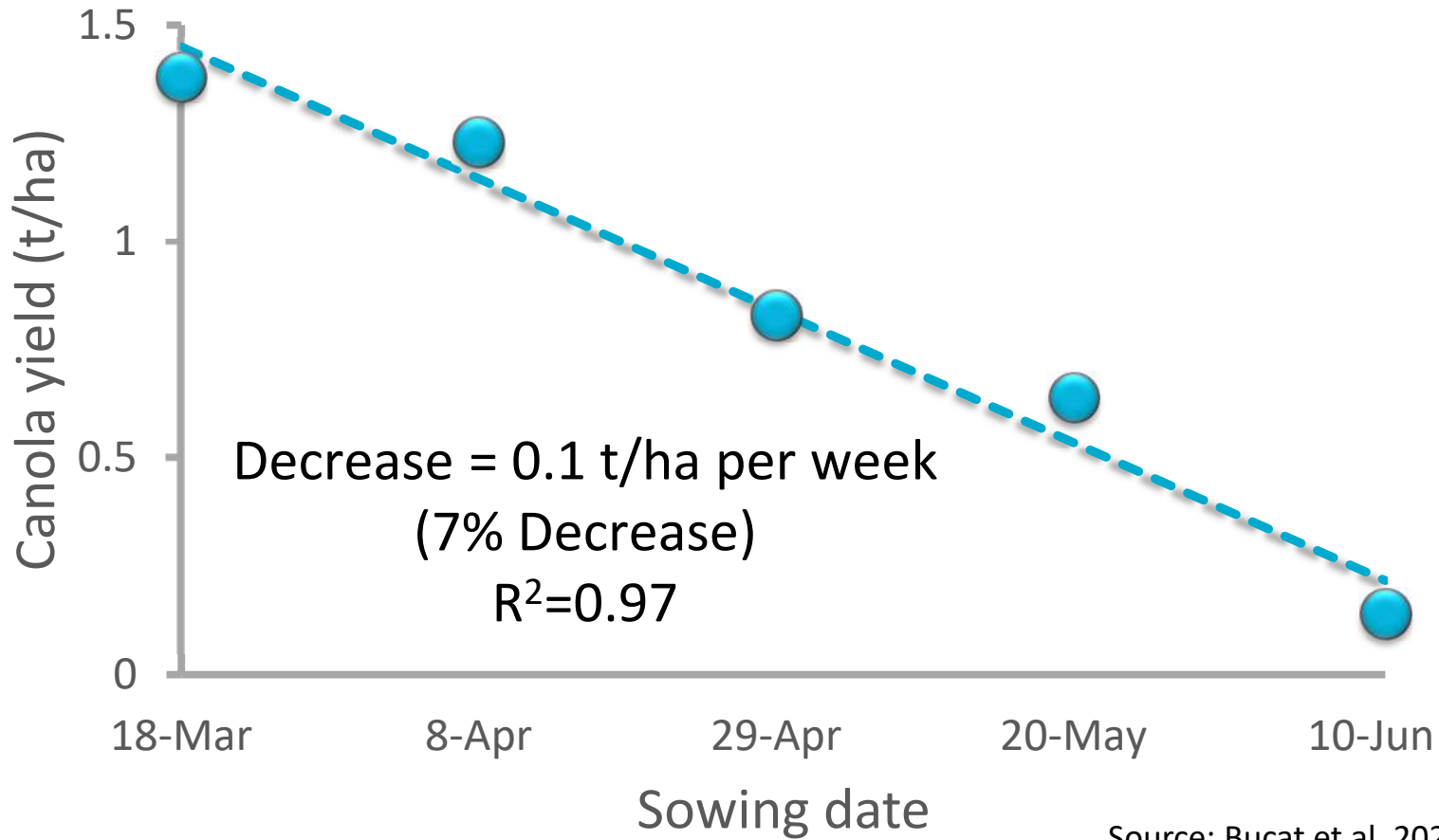
# Changing rainfall patterns (Merredin 1900-2023)





# Early sowing increases canola yield potential

## Mullewa 2019



Source: Bucat et al. 2021

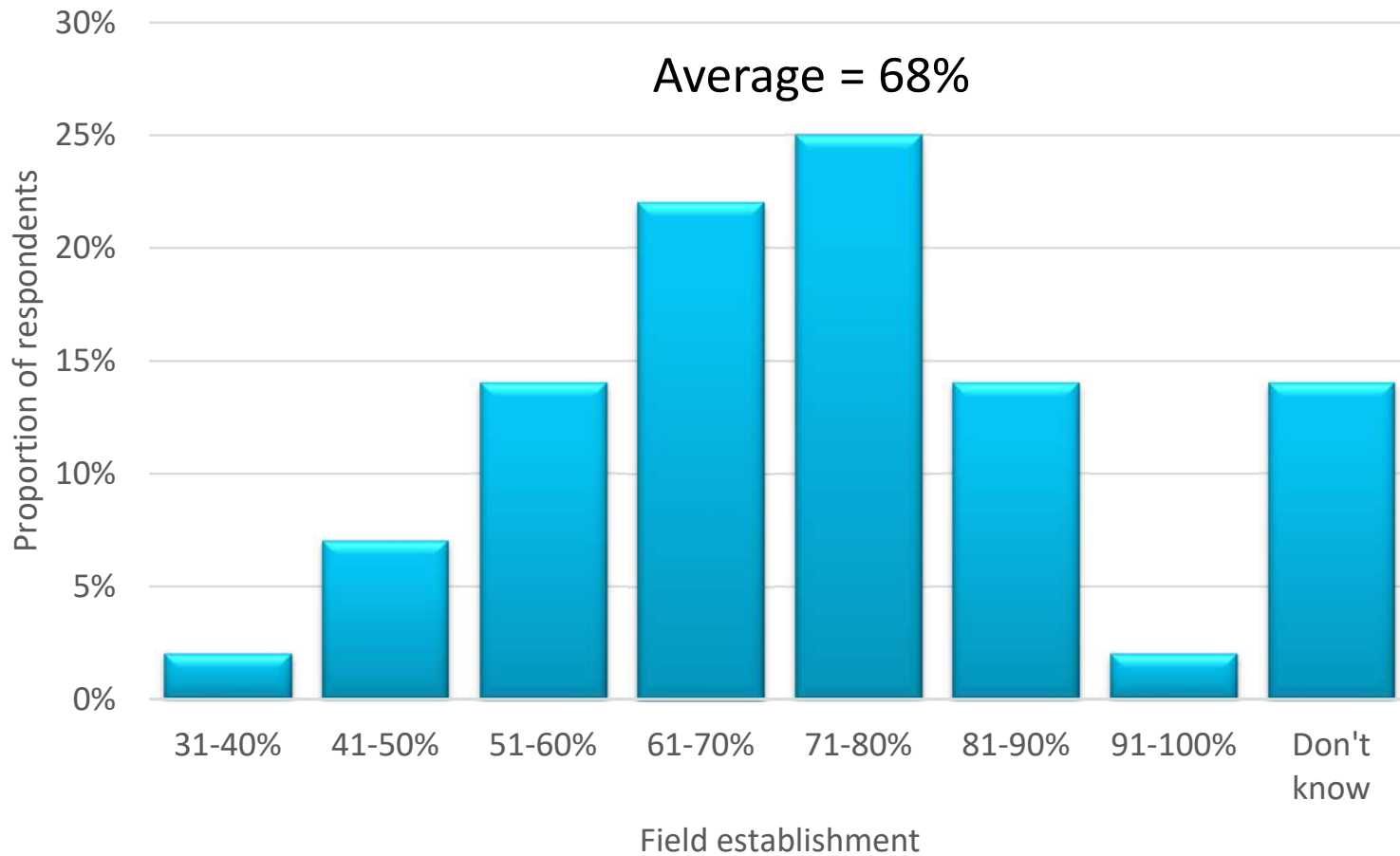




# Industry survey

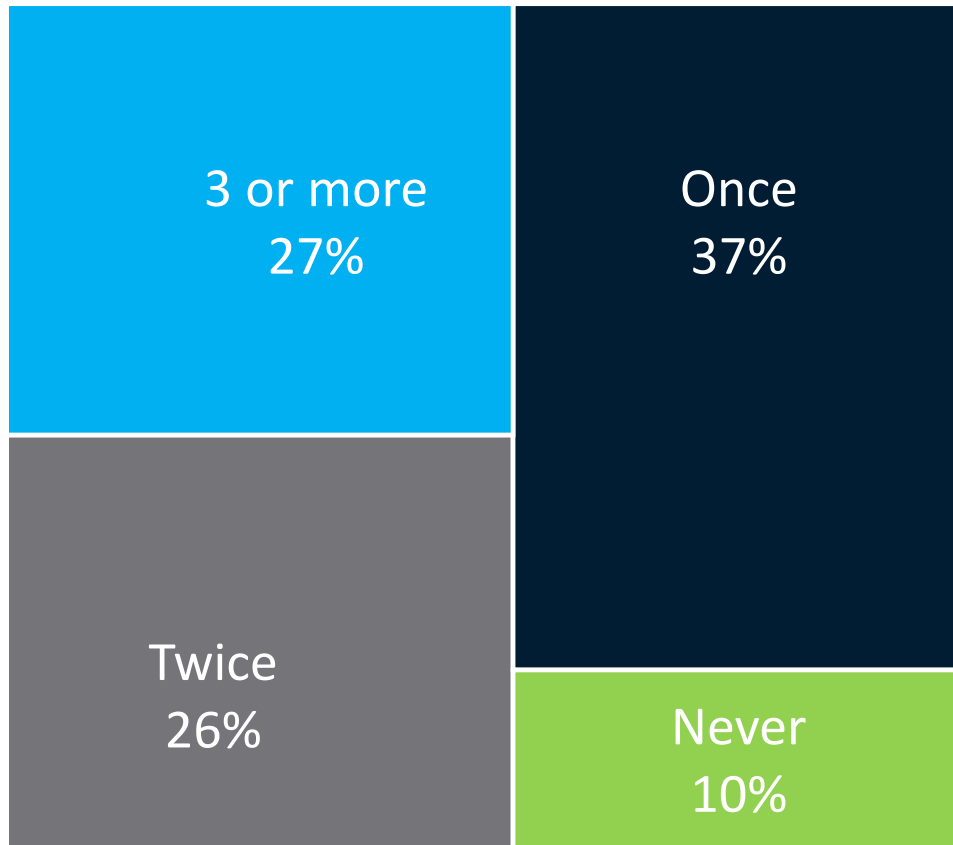


# Establishment success

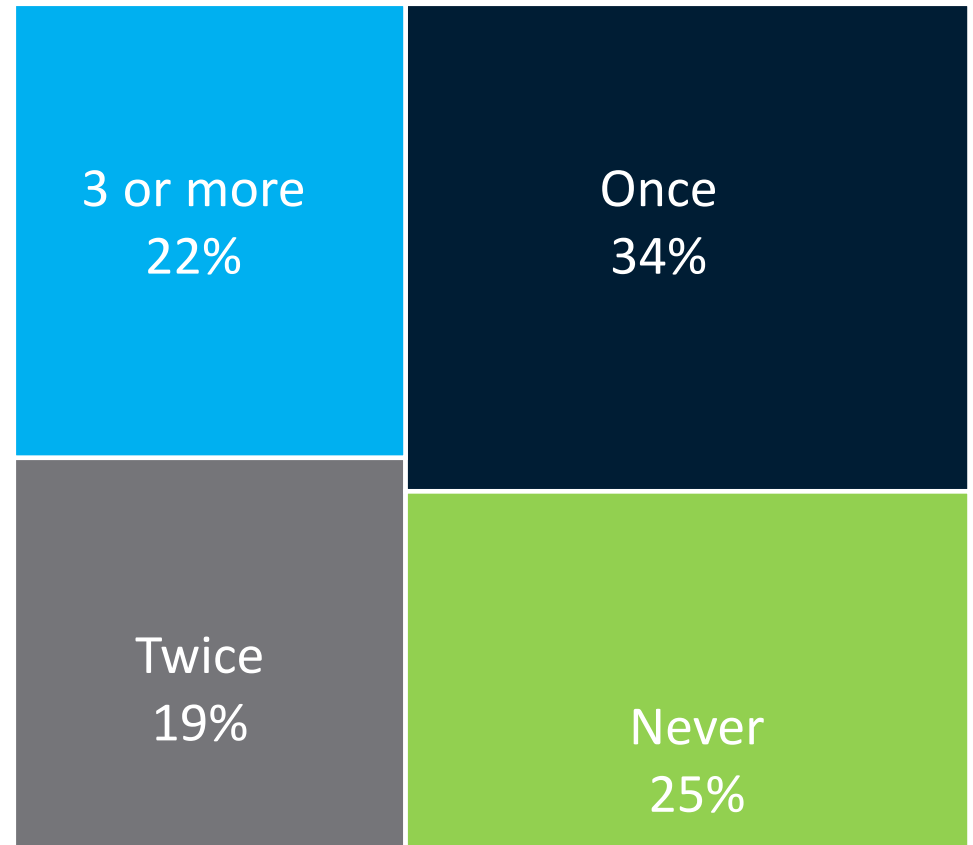


 Poor establishment in last 5 years

Not reseeded

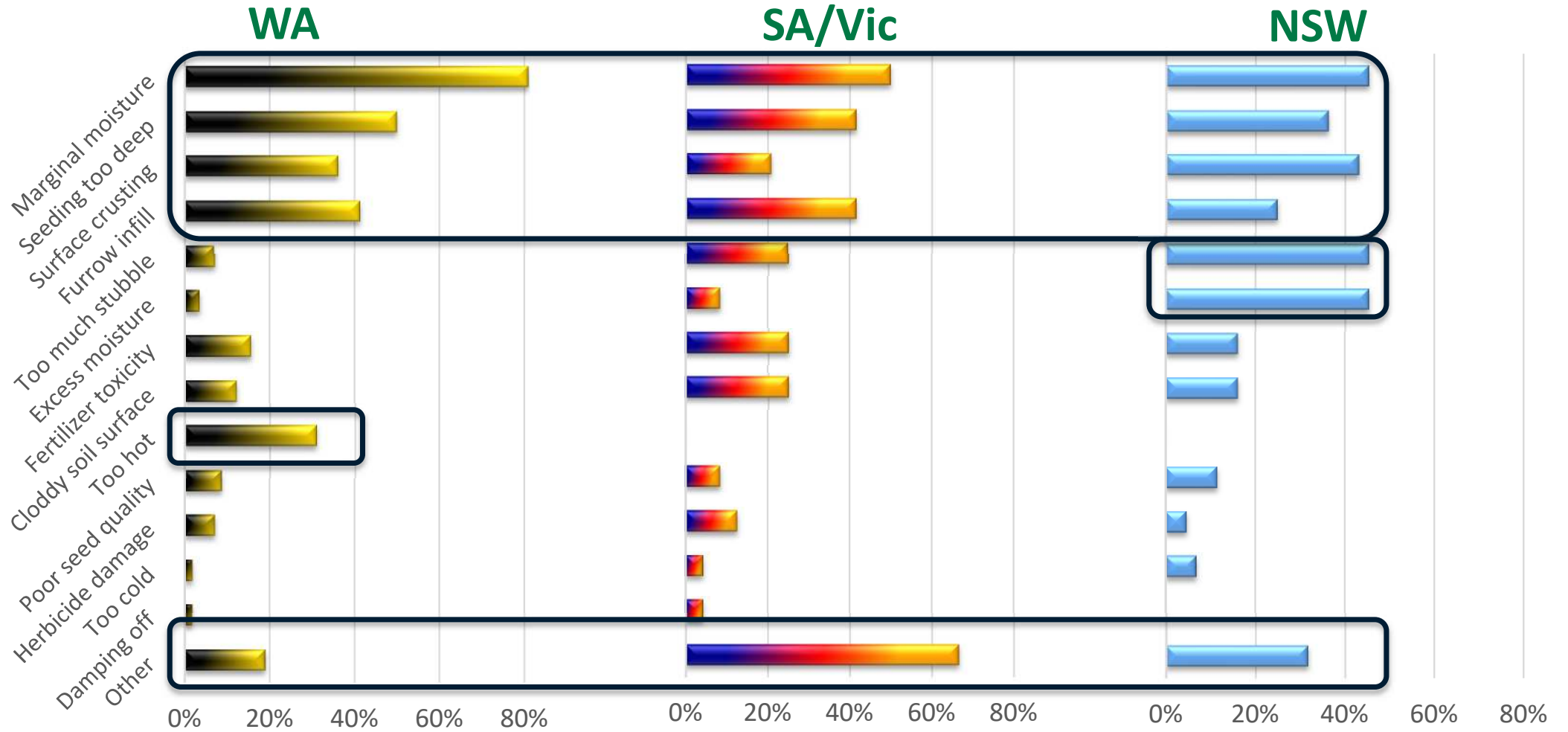


Reseeded



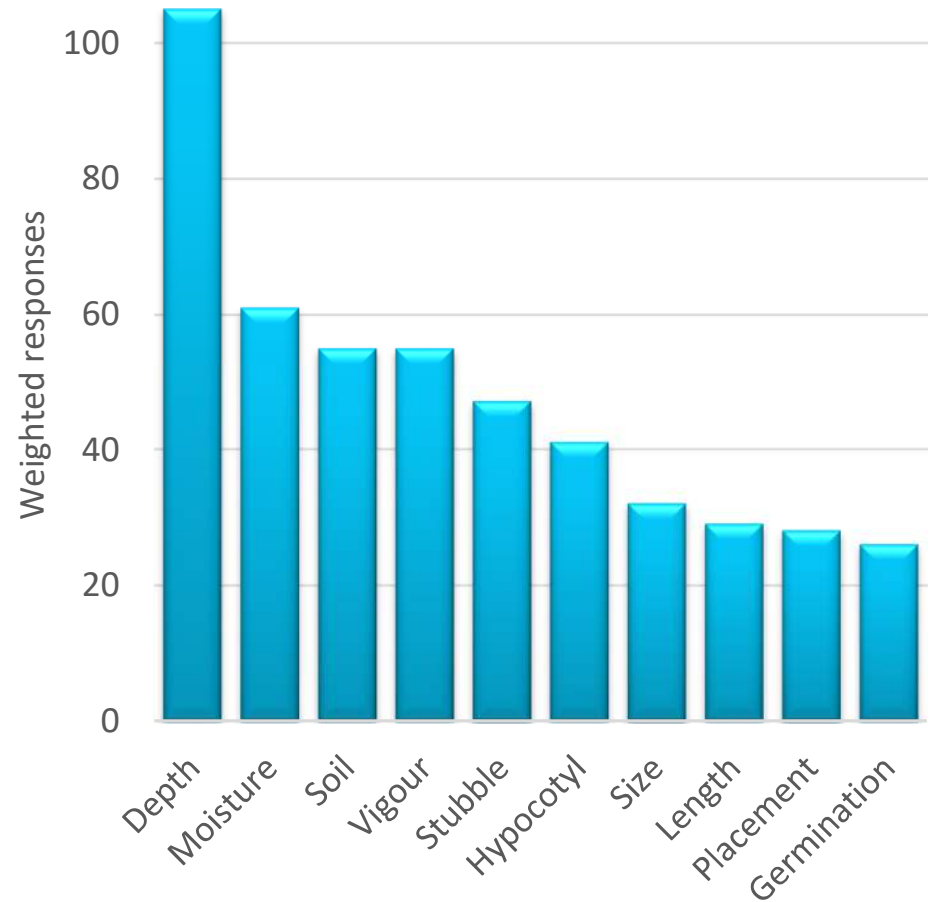
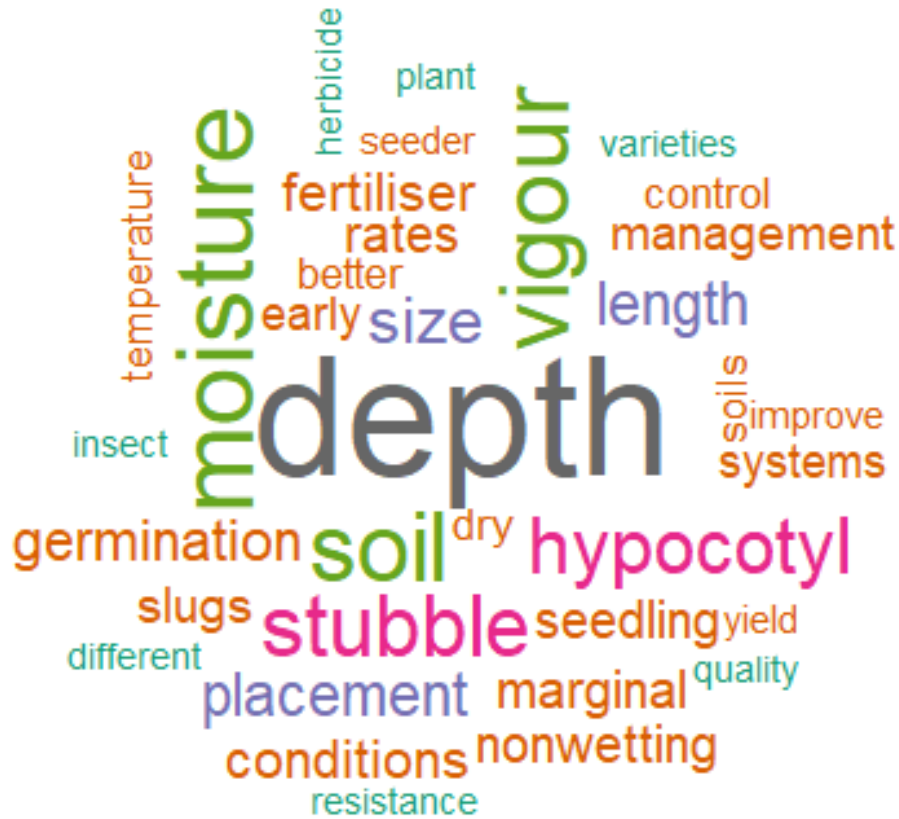


# Reasons for poor establishment





# Research priorities

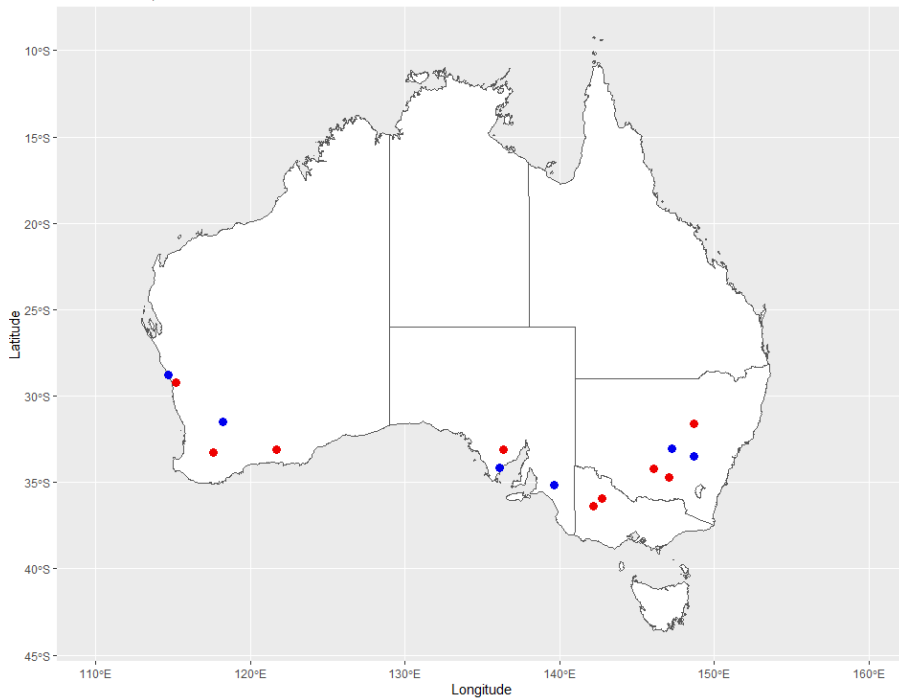




# Field emergence results



# 2023 Field trials

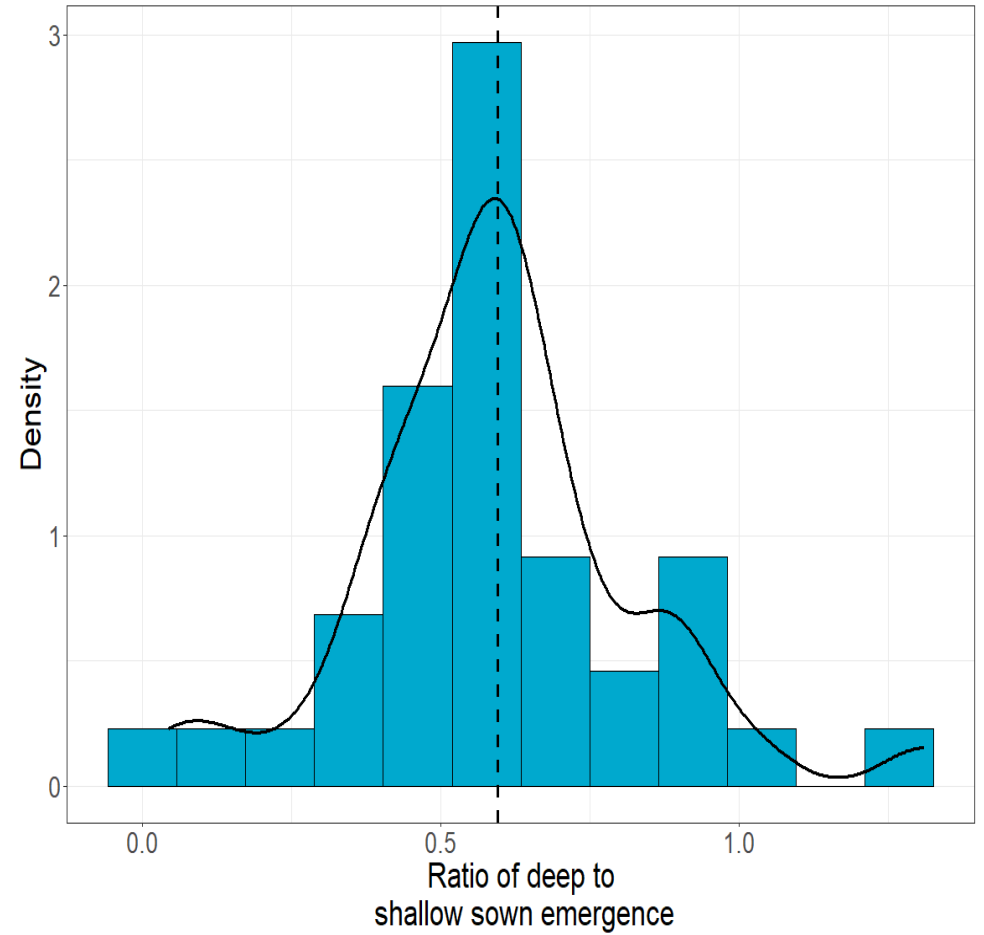
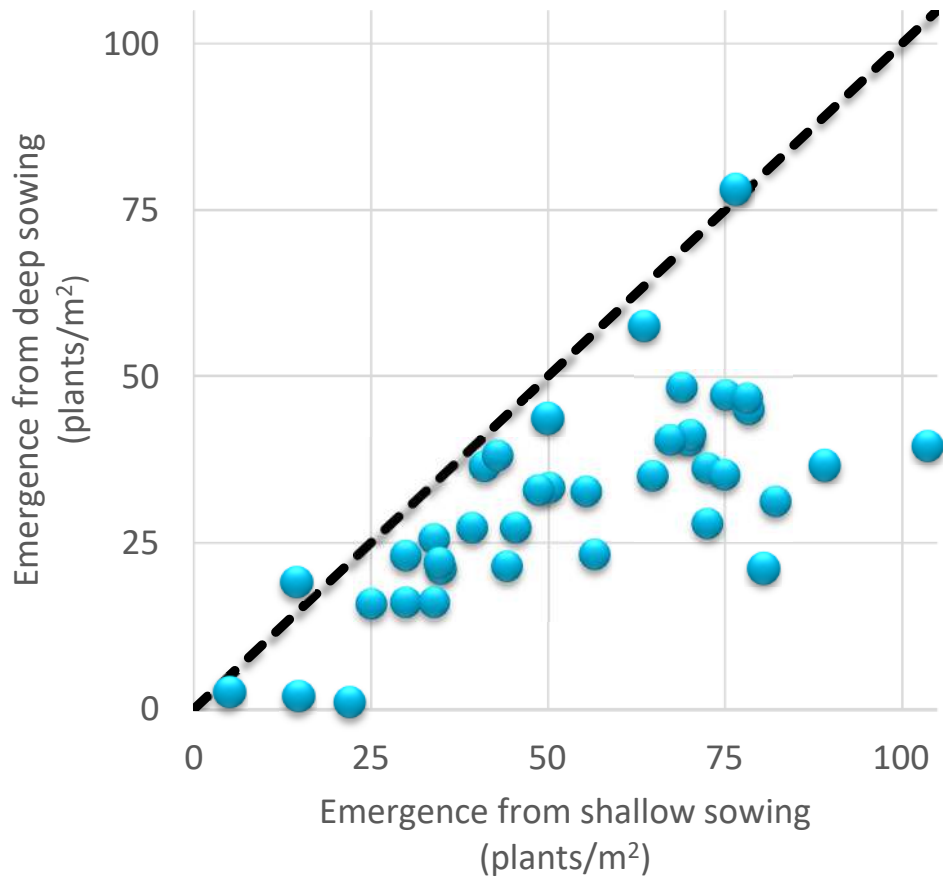


- Deep and shallow sowing compared across 15 sites
  - Shallow = 10-25mm
  - Deep = 35-50 mm
- 38 environments
  - Irrigation
  - Time of sowing
- Results averaged across other treatments
  - Variety, seed size , wetter, plant density, press wheel type





# Emergence from deep and shallow sowing

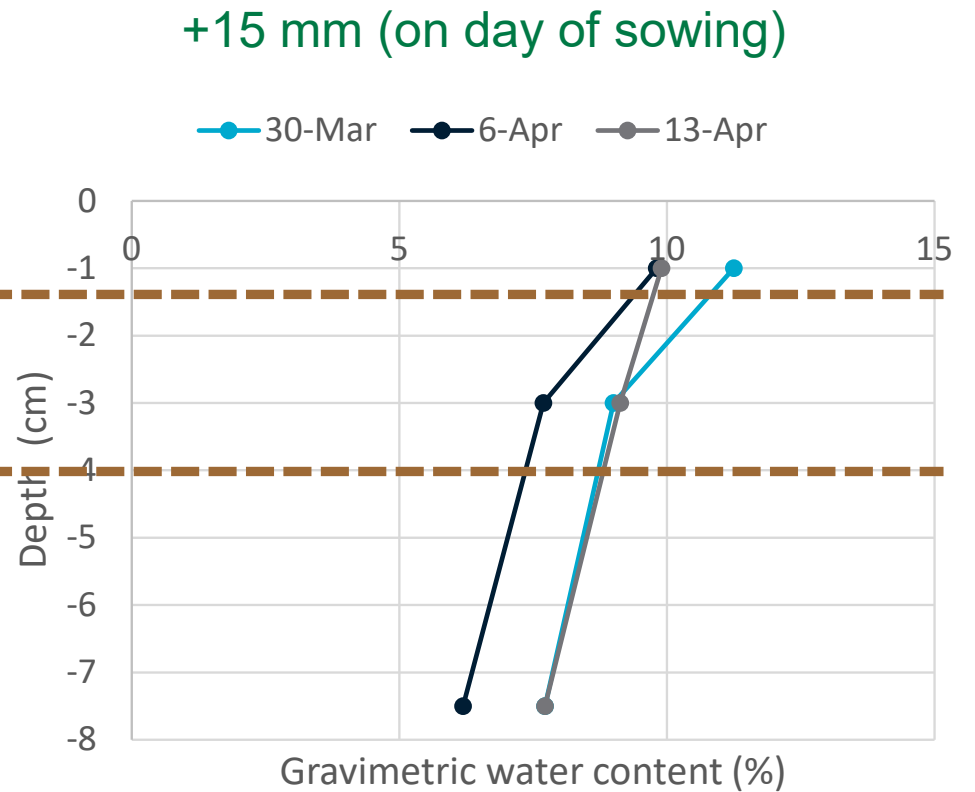
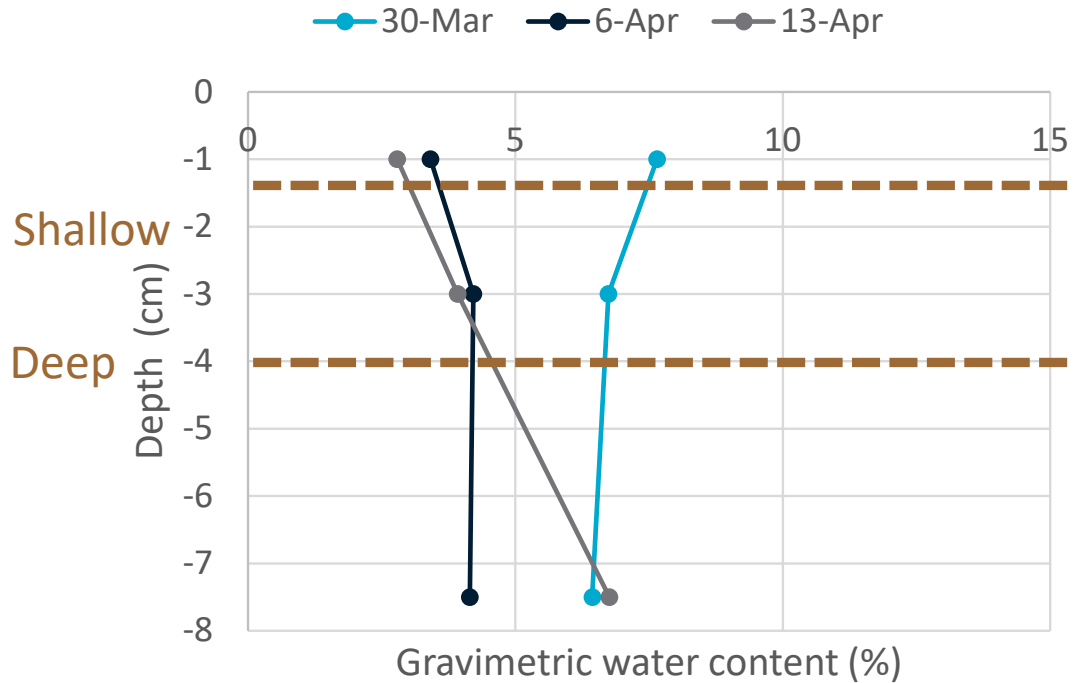




# Geraldton, WA soil moisture

+80 mm applied 23 March

+0 mm (on day of sowing)

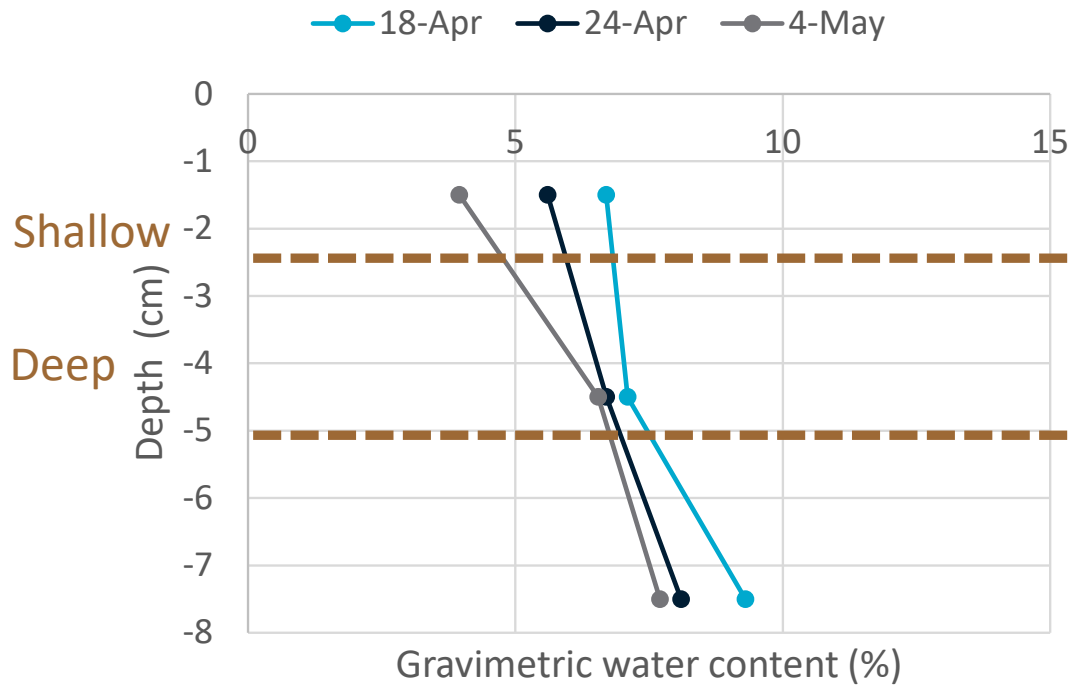




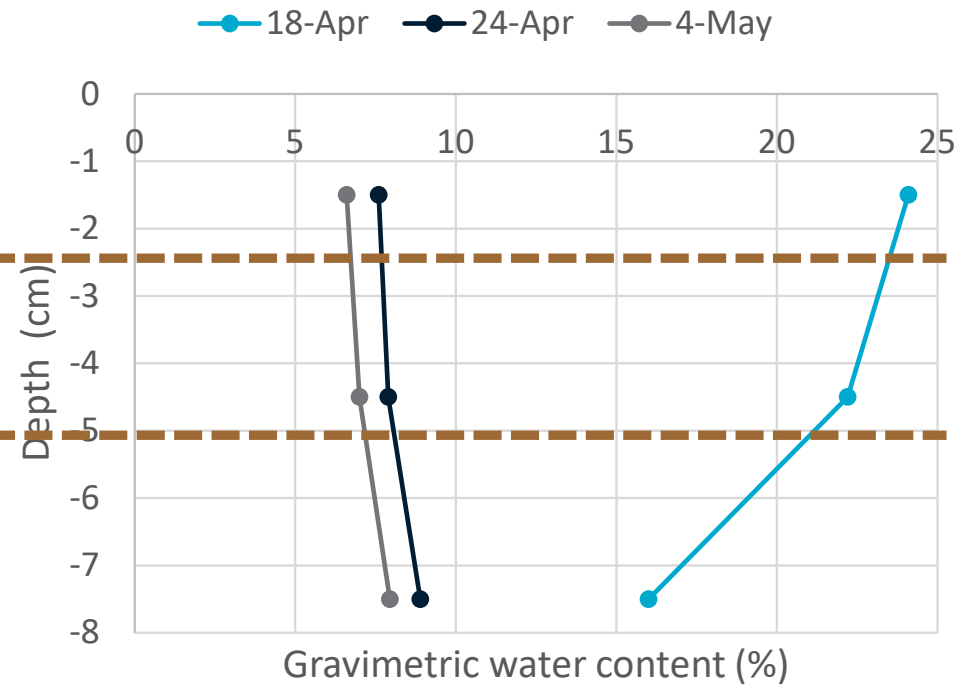
# Wynarka, SA soil moisture

18 April sowing

Rainfed

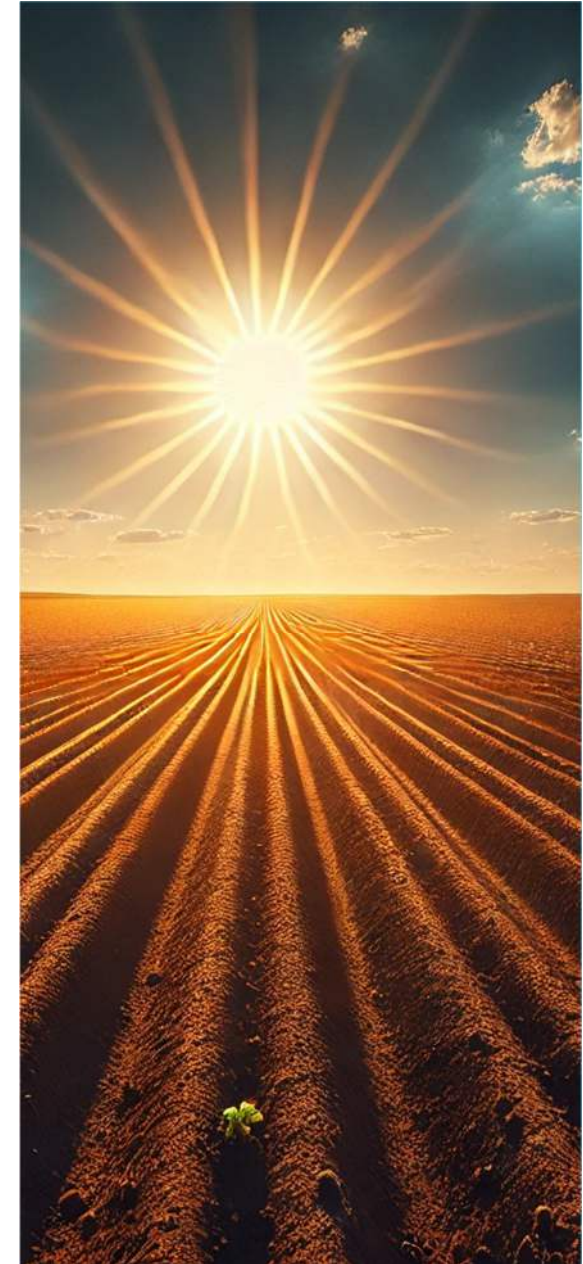
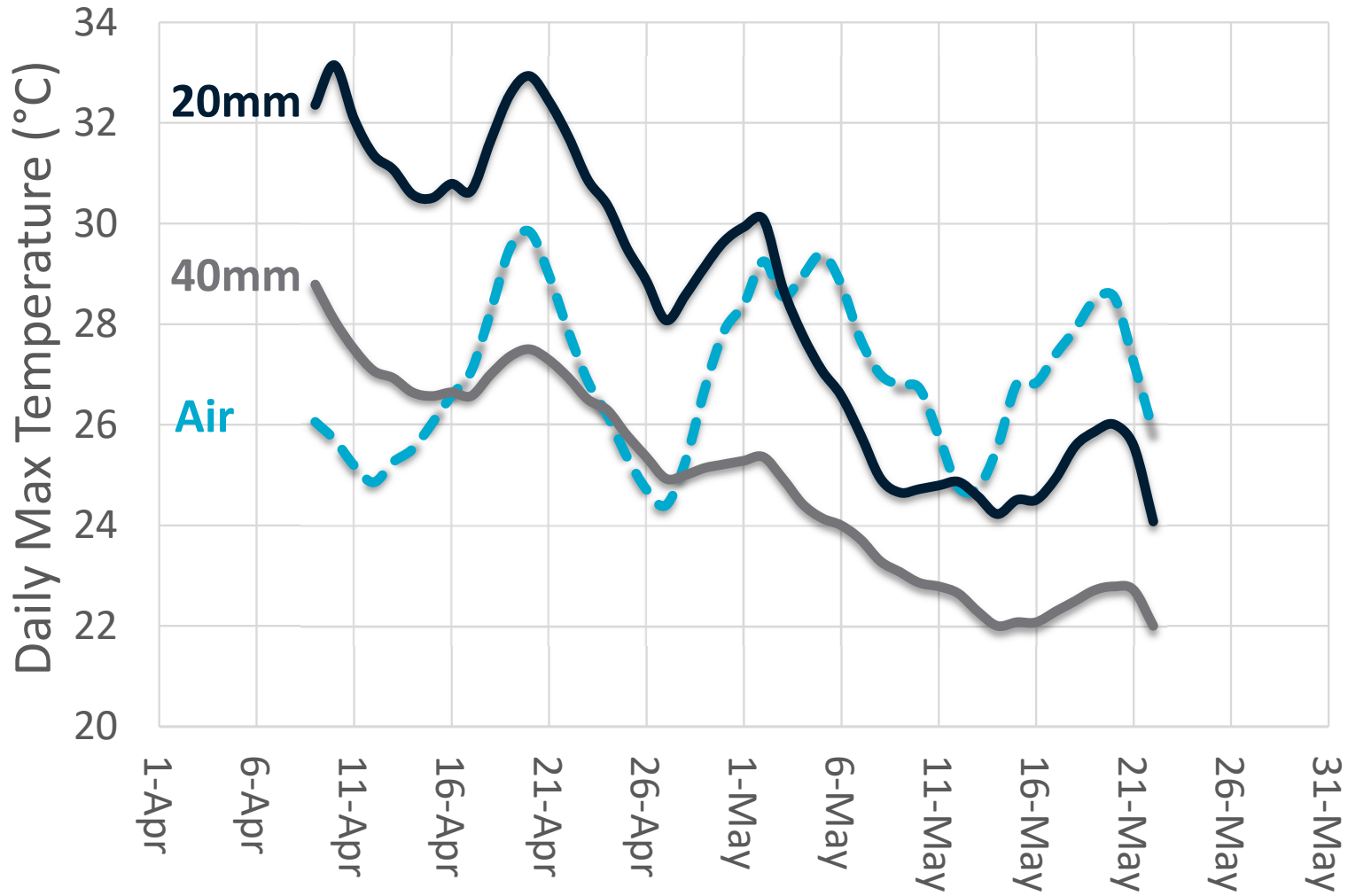


+15 mm (1 day before sowing)



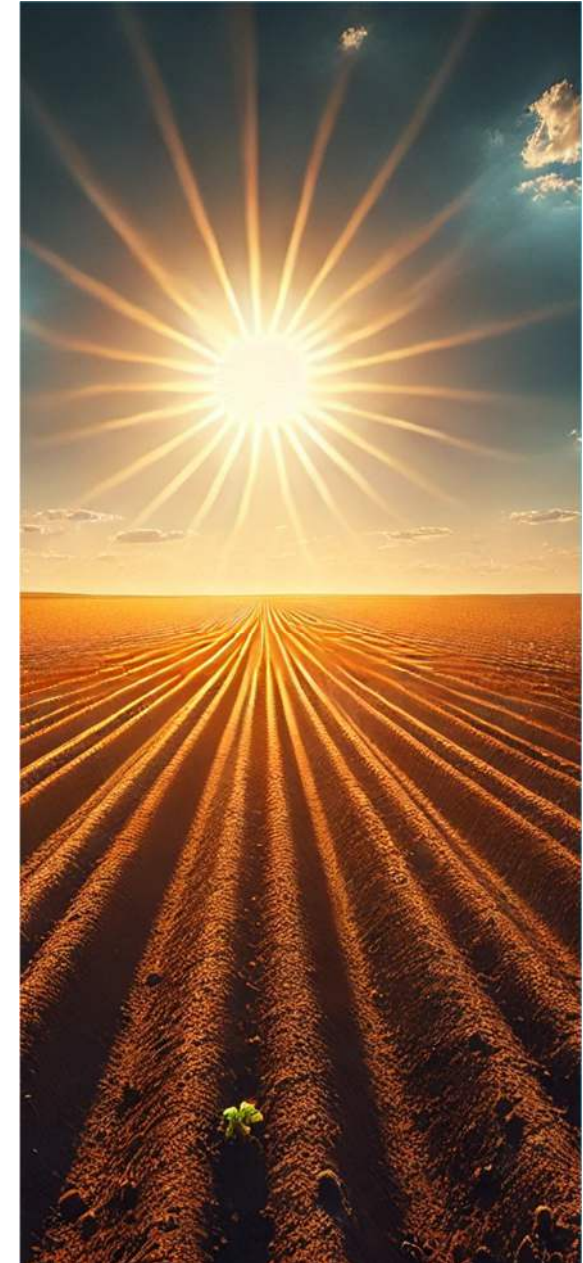
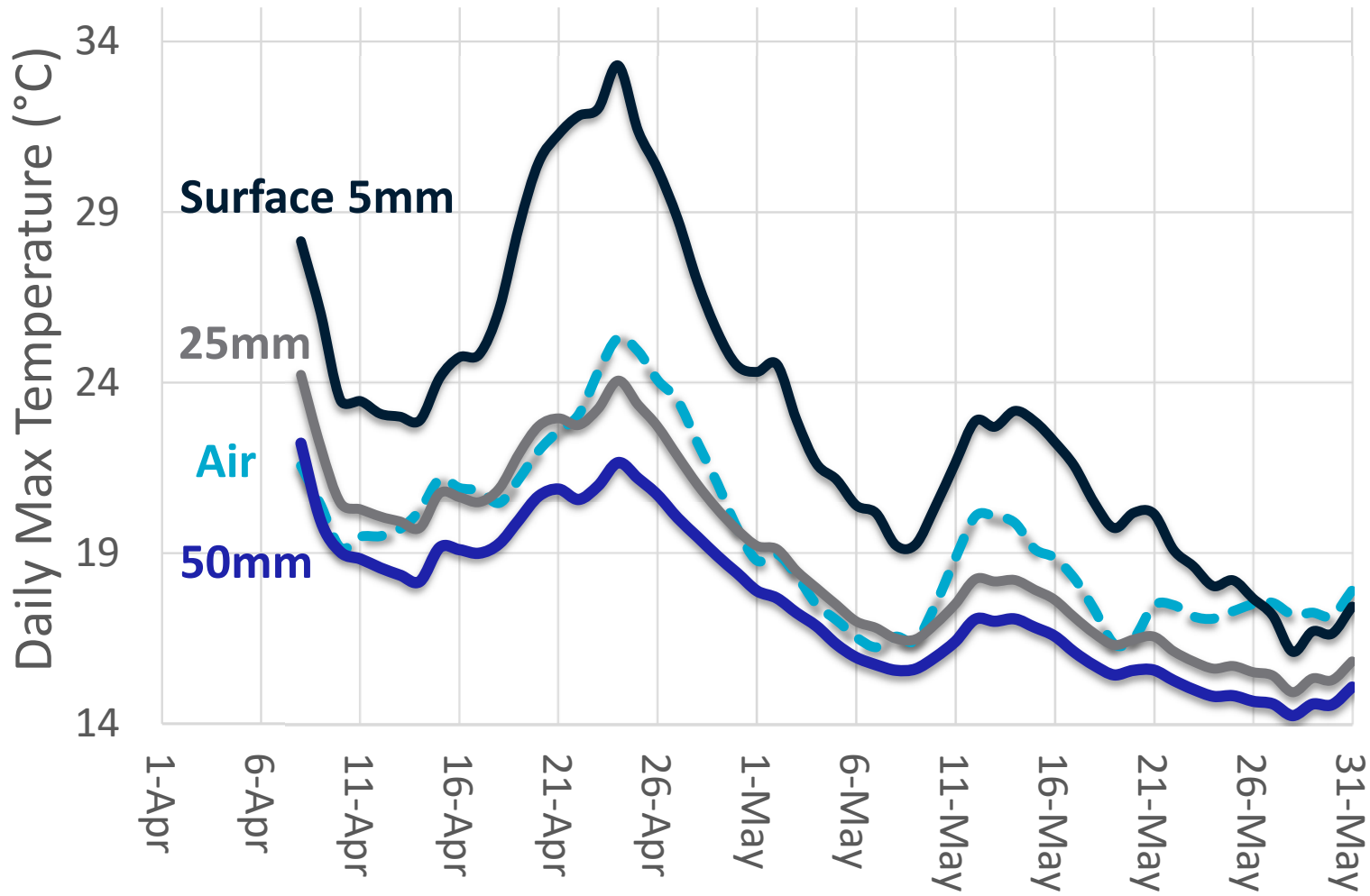


# Maximum air & soil temperatures Geraldton



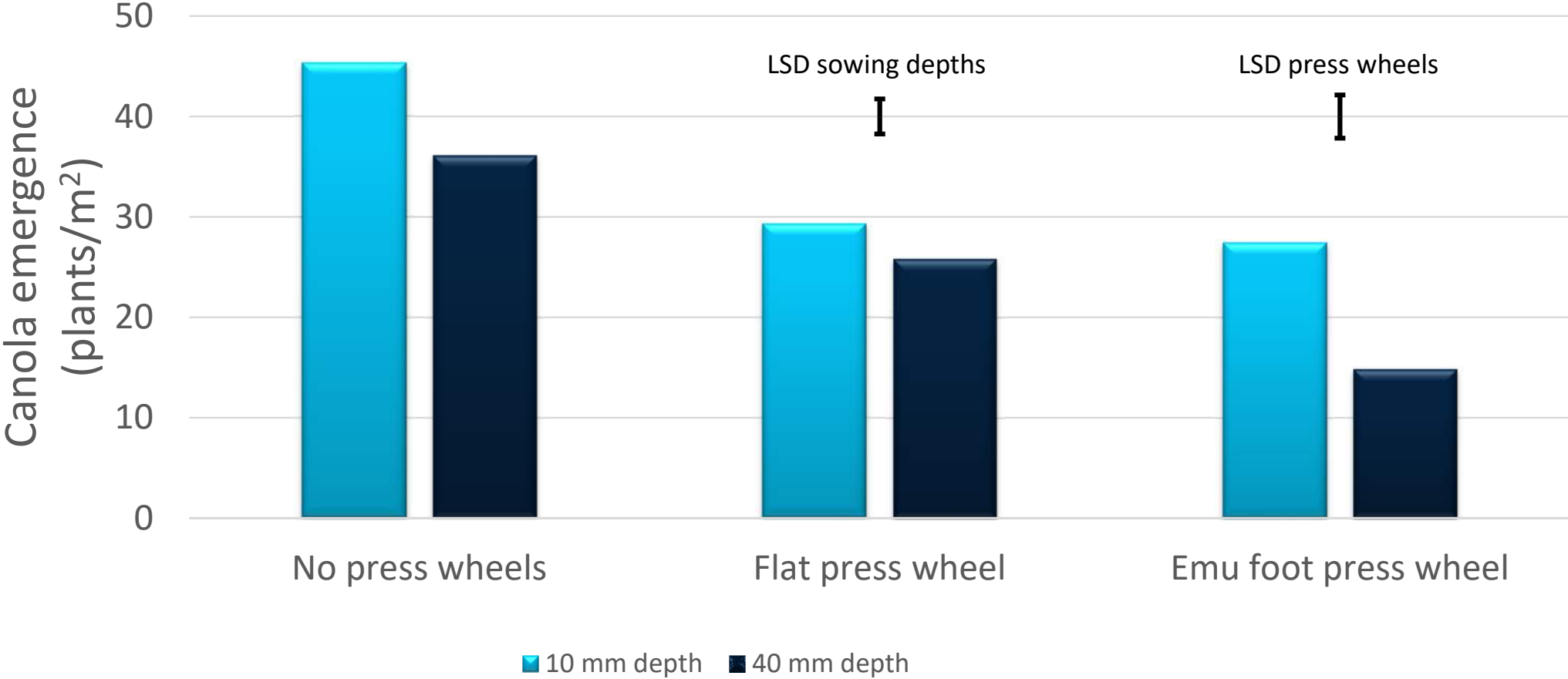


# Maximum air & soil temperatures Wynarka





# Press wheel and sowing depth at Griffiths





# Conclusions

- Sowing depth important
- Moisture and temperature are better deep
- BUT, emergence is better shallow
- Need management & varieties for deep sowing





# Acknowledgements

- GRDC for significant investment



- Research teams for excellent experimental work
- Host farmers
- Seed companies





# Thank you

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