



# Whole Orchard Recycling Australian Experience

Nigel Fleming and Paul Petrie  
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# Why measure C?

C Accounting

Emission reduction

Sequestration

Neutrality

C Function

Productivity



Government  
of South Australia

Department of Primary  
Industries and Regions



# Definitions

**Carbon neutral and Net zero** are the balance between emitting carbon and absorbing carbon emissions from carbon sinks.

*BUT Net Zero has a focus on first reducing GHG emissions and off-setting the emissions that can't be avoided*

**Insetting vs offsetting** – using verified carbon credits to reduce C account or footprint

Bought external = offsetting, Internally sourced = insetting

# Trial establishment

Existing orchard pulled and chipped February 2022



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# Trial establishment

Ground to pass a 50mm screen



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SARDI



SOUTH AUSTRALIAN  
RESEARCH AND  
DEVELOPMENT  
INSTITUTE



# Trial establishment

Spread prior to mounding



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# Trial plan

Recycled almond trees



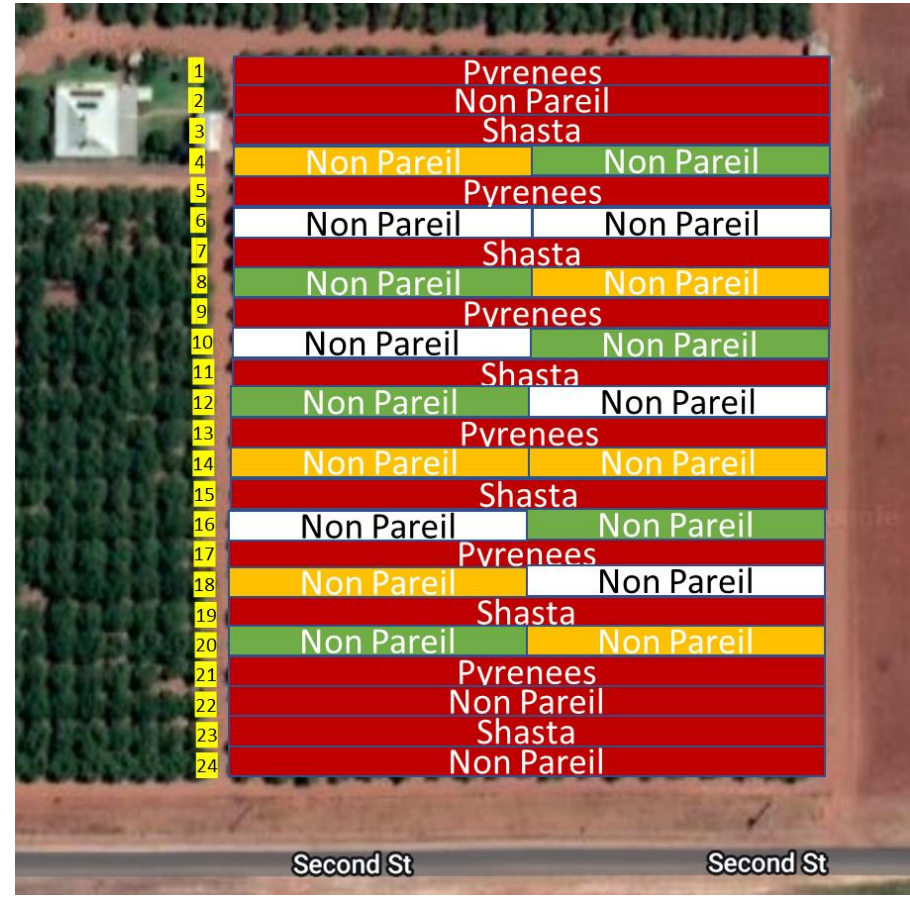
Almond hull compost



No compost (control)



Buffer recycled almond trees



# Trial establishment

Trees planted August 2022



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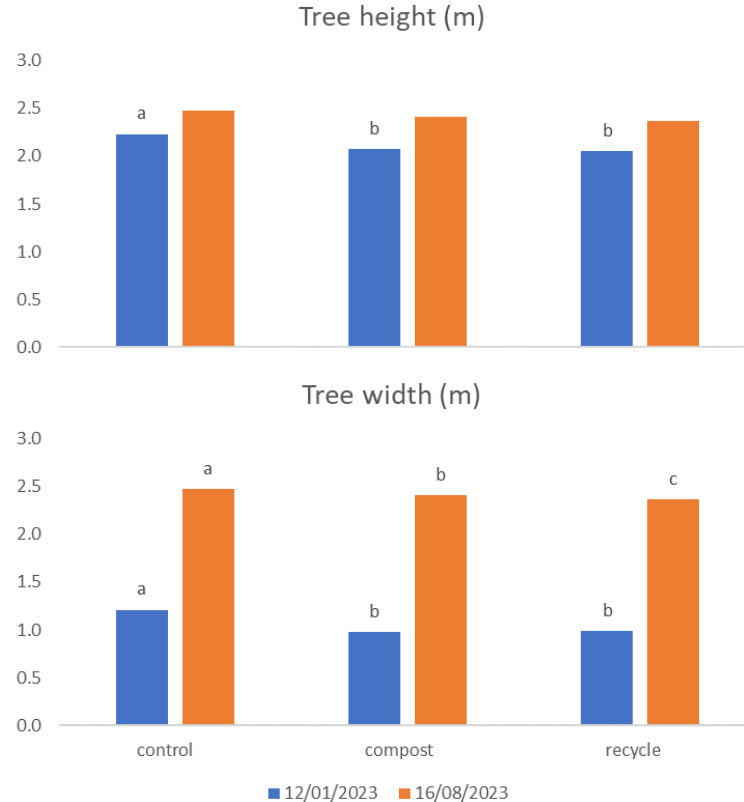


# Regular sampling

- Soil moisture
- Soil water solution
- Greenhouse gases
- Soil sampling
  - Carbon
  - Nutrition



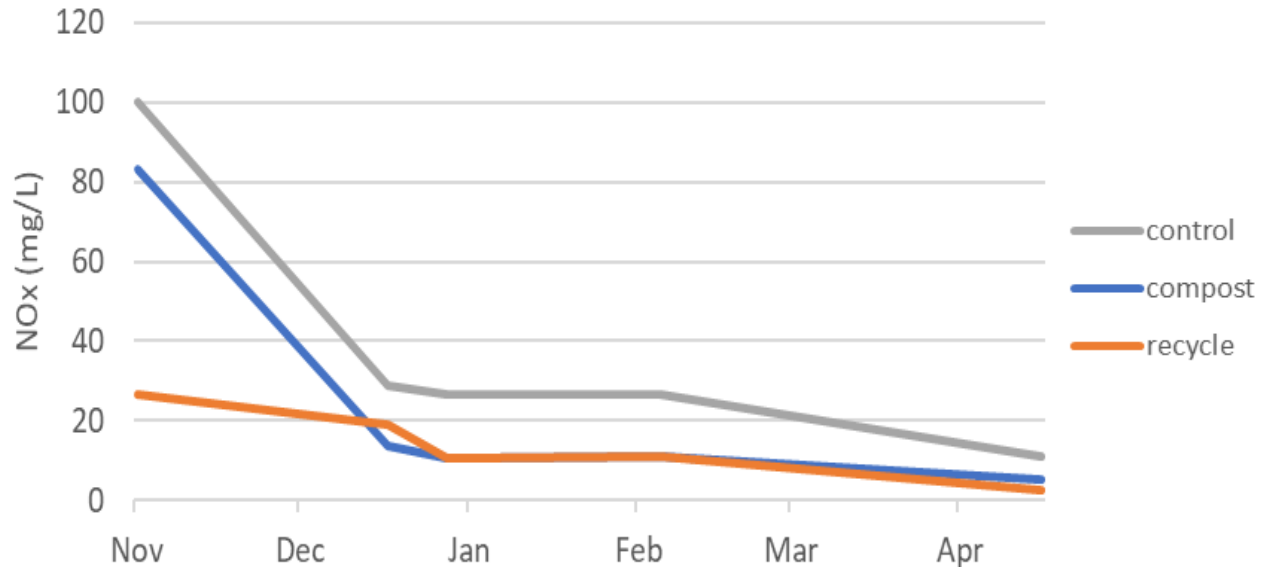
# Tree growth



- Control trees a (very) little larger

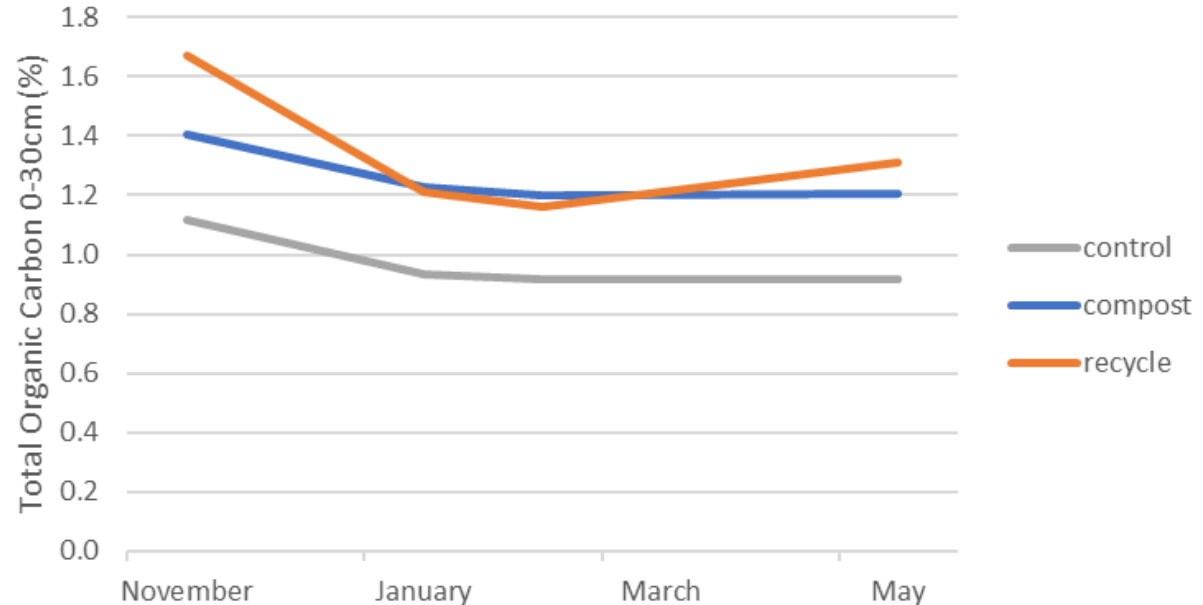
# Soil water nitrate 2033-23

- Compost and tree recycling reduced soil water nitrate
- All leaf nitrate above 2.5% in February 2023



# Soil carbon 2033-23

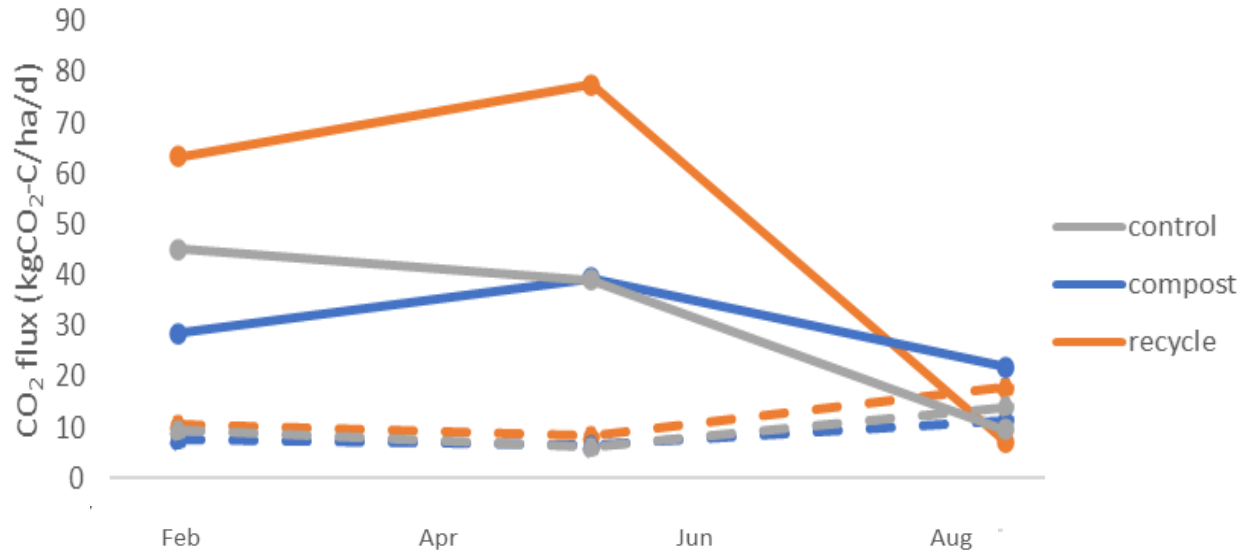
- Compost and tree recycling increased soil carbon





# Soil CO<sub>2</sub> flux 2023-23

- Compost and tree recycling reduced soil water nitrate



# Trial in its early stages

- Second leaf
- Long term project
- Similar treatments at ACE
  - 50t/ha organic matter at panting
  - Longer term soil carbon trends
  - Nigel will present on this



# Acknowledgments

**Hort  
Innovation**

