



Water Repellency

How do you deal with it ?

Nigel Wilhelm, SARDI

One option is to get rid of it

AMELIORATION



The other option is to make the
best of it

MITIGATION

**Recent trials on Eyre Peninsula
have investigated mitigation
options**

Recent trials on the EP

Wangary, 2011-2014

- What does agronomy do to water repellency and crop production
- Extremely unproductive and repellent site



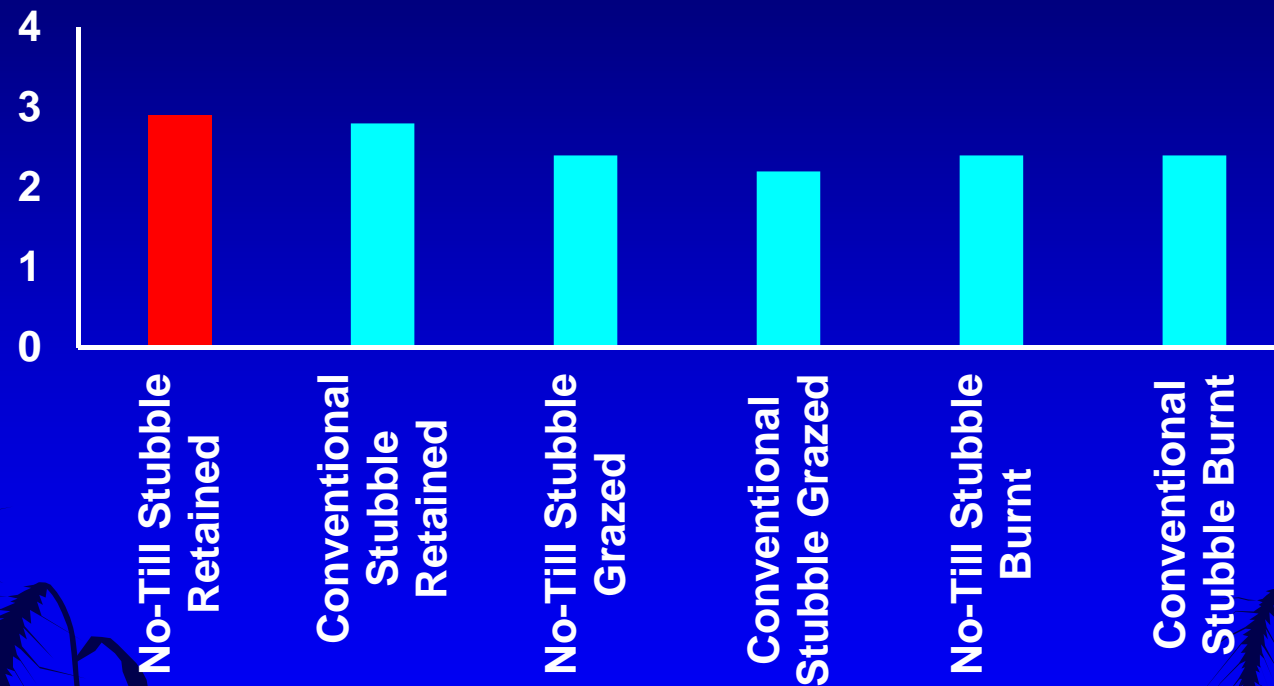


Wangary

- NT vs Min Till
 - “Manual” inter-row seeding
- Stubble Management:
 - Retained
 - Grazed (over summer)
 - Burnt

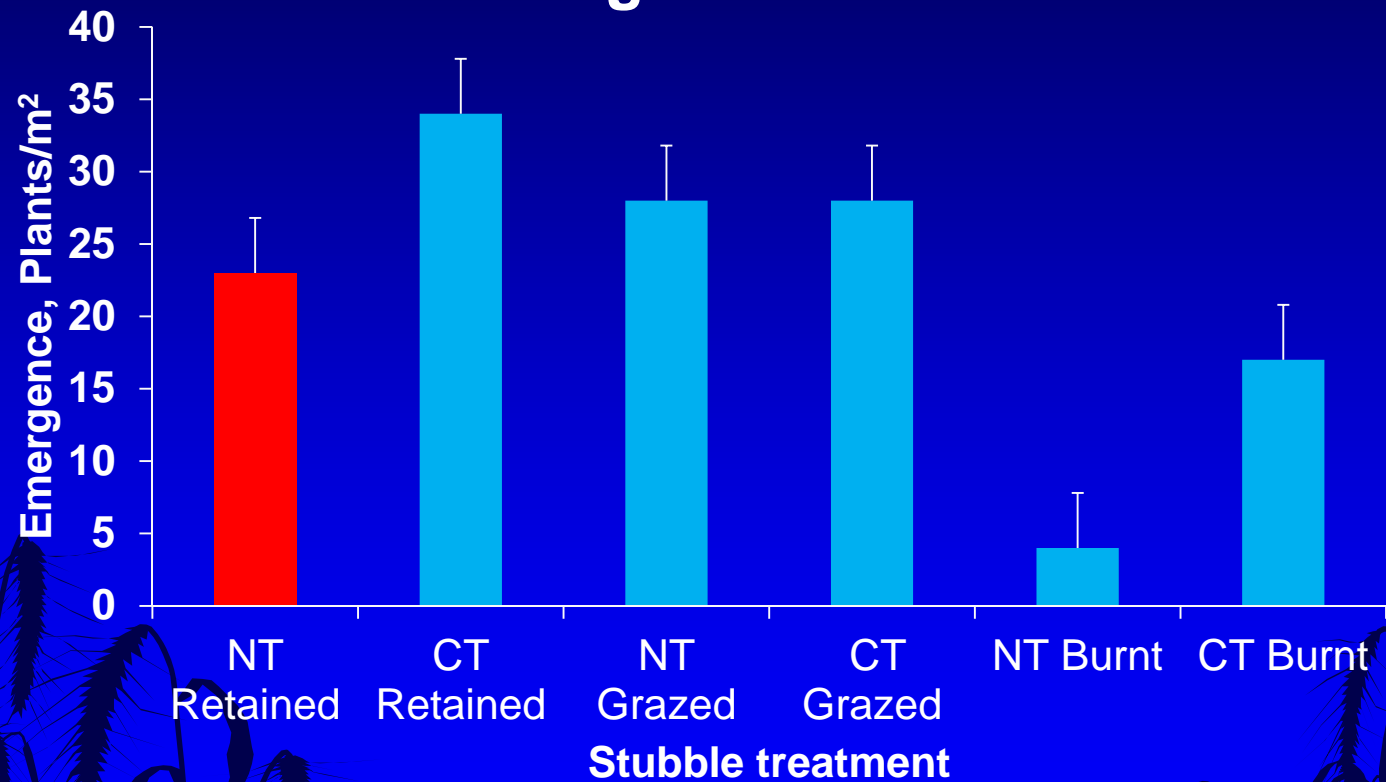
Wangary

MED in 0-5 cm, 2013



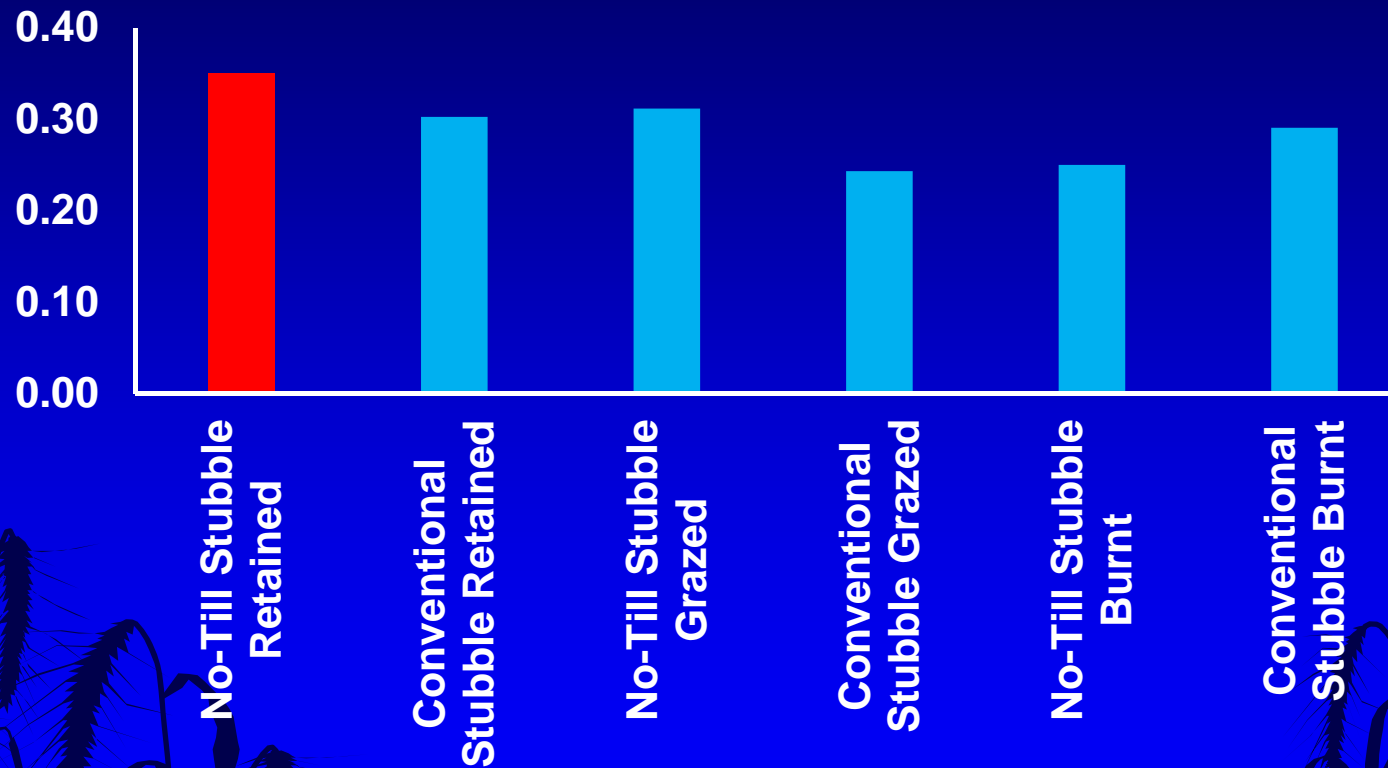
Wangary

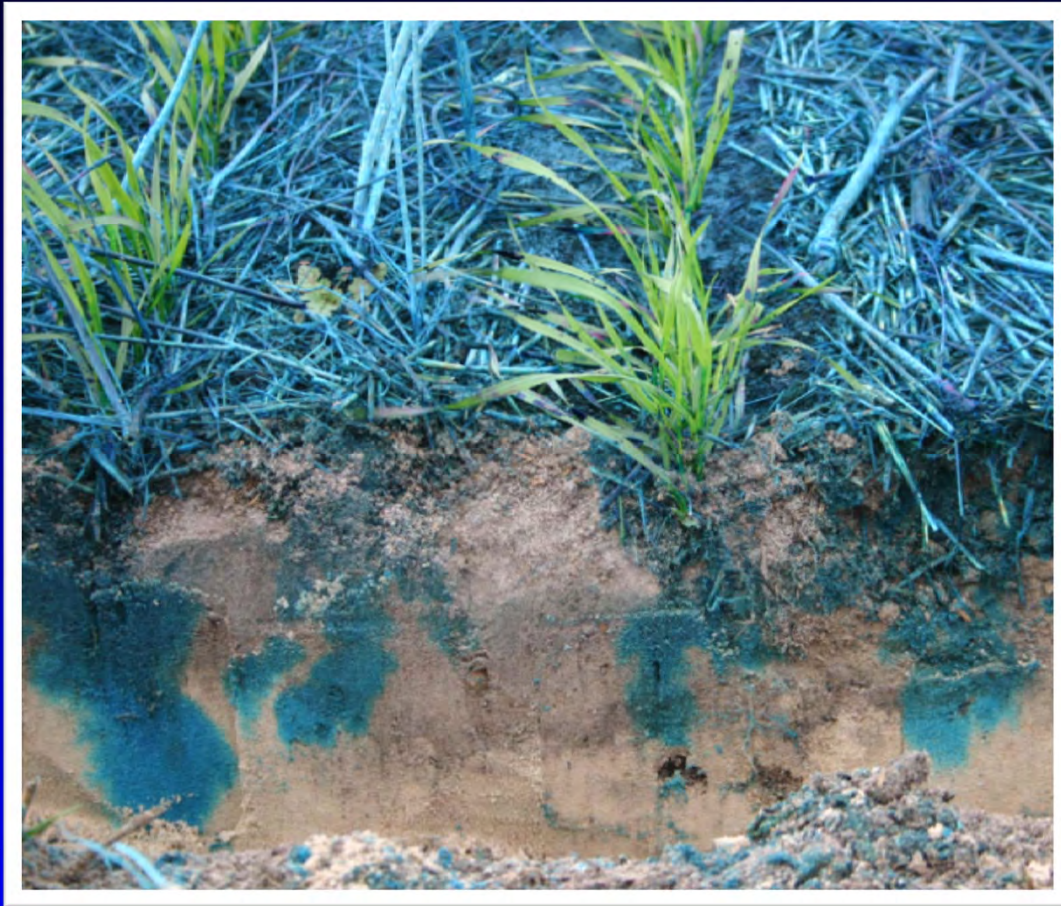
Emergence 2011



Wangary

Barley yield in 2014 (t/ha)





July 2011 Zero-till – Infiltration down new & old rows

Wangary

- Stubble retained with NT best of a poor bunch, but not by much
- **Despite** being the worst for water repellency
- Similar to trends in WA, even though their repellency tends to be not as severe
- “Conventional” agronomy effects small

Recent trials on the EP

Wharminda, 2015-2019

- Will near-row seeding improve establishment and yields ?
- Will wetting agents improve establishment and yields ?



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Government of South Australia
Primary Industries and Resources SA

Wharminda

- **Dry and Wet seeding**
 - Near-row and Inter-row seeding
 - Kaolinite Clay (rotary hoed)
 - Rotary Hoeing alone
 - Two pass seeding
 - Wetting Agents

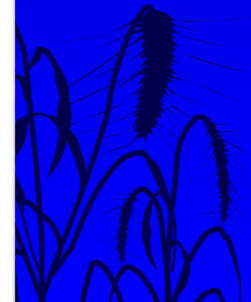
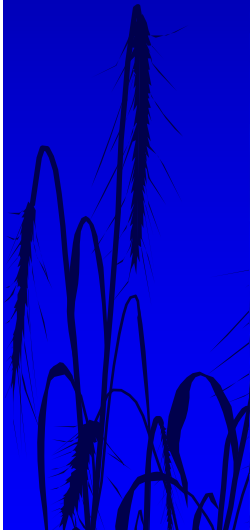
Wharminda – Dry Seeding



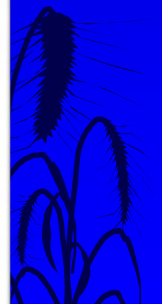
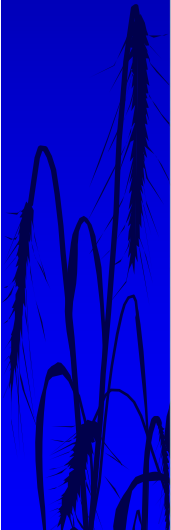




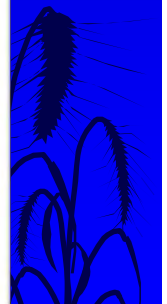
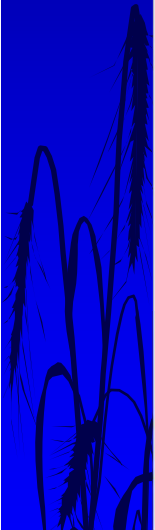
Wharminda



Wharminda



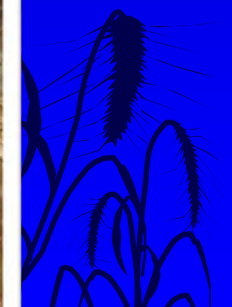
Wharminda



Wharminda



Wharminda



Wharminda

- **Wetting Agents in the seed row increased establishment**
- **Near-row seeding does work but not convincing at Wharminda**
- **Rotary-hoeing worked, and then didn't**
- **Double pass seeding worked OK but no better**
- **Dry seeding worse than wet seeding (MED and plant numbers)**
- **Plant numbers not translating to yields very often**

Water repellent sands

- Plant numbers often does not solve productivity
- New Horizons
- GRDC – Sandy Soils
- Murlong – Hentschke's