



Department of  
Agriculture and Food



**GRDC** Grains Research &  
Development Corporation  
Your GRDC working with you

# Long-term responses to soil amelioration – benefits will last more than 10 years!

Stephen Davies

25<sup>th</sup> Feb 2015



2015  
International  
Year of Soils



# 1991 Car of the Year

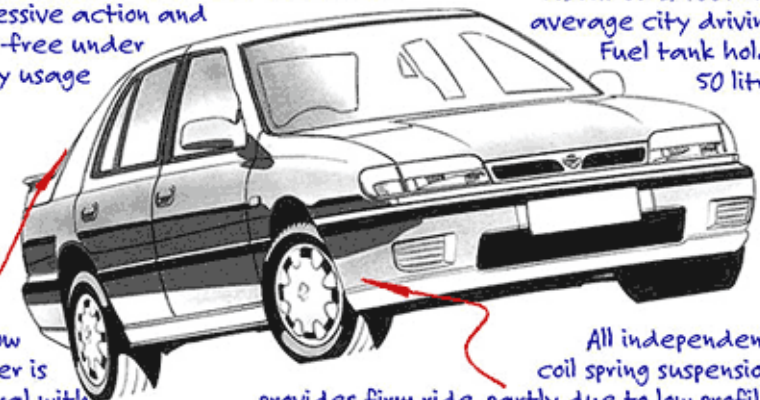


- N14 Nissan Pulsar Q
- Aussie-built
- 2L SR20DE
- 0-100 in 8.8s (claimed)
- ~350,000 km

Impressive brakes with power-assisted front ventilated and rear solid discs. Progressive action and fade-free under heavy usage

Expect fuel consumption of about 8.5L/100km in average city driving. Fuel tank holds 50 litres

Rear window washer is integral with wiper arm



All independent coil spring suspension provides firm ride, partly due to low profile tyres, but comfortable. Handling is excellent

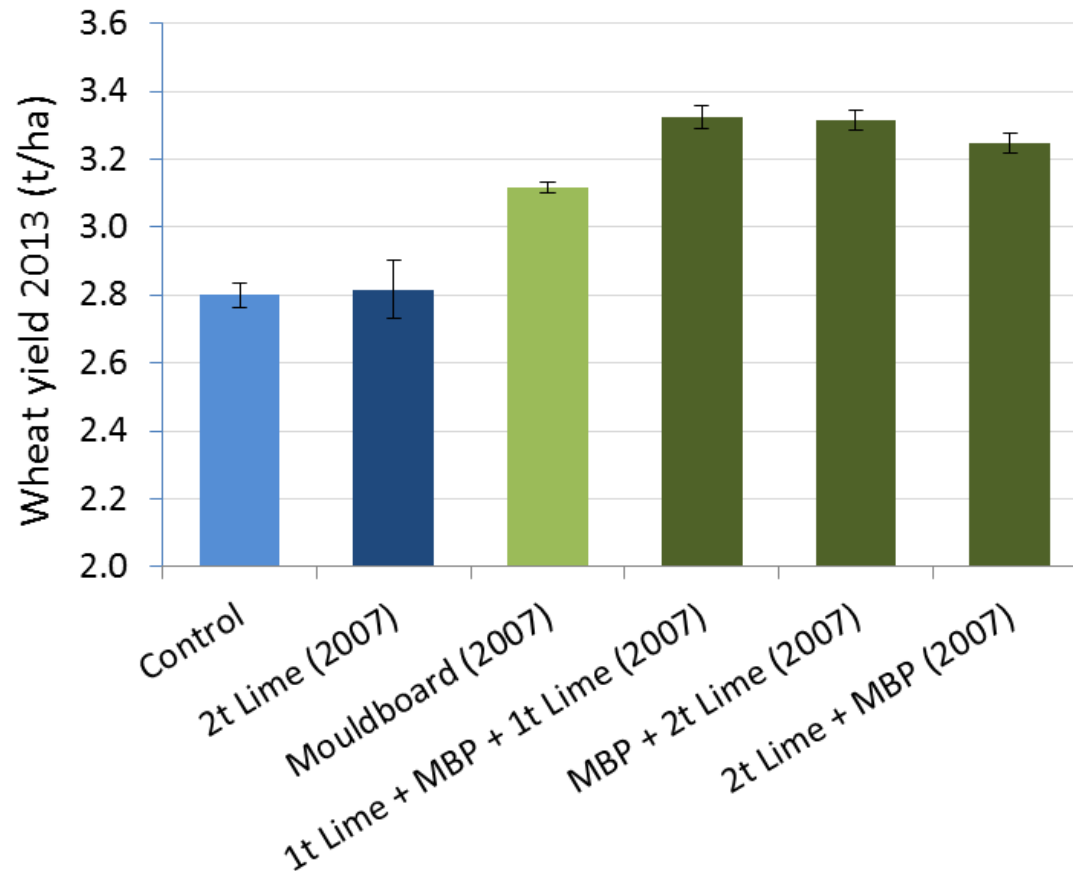
# Treatments 2007

- Untreated
- Surface lime 2 t/ha
- Mouldboard plough @25cm
- 2t Lime + MBP
- MBP + 2t Lime
- 1t Lime + MBP + 1t Lime

Peter Newman  
(IWM Guru)



# Wheat grain yield 2013 season



## Also:

- Grain yield MBP 11%
- Grain yield MBP + Lime 18%
- Grain protein 1-1.5% higher
- Screenings 0.5-1.0% lower
- Kernel weight 1-3 mg heavier

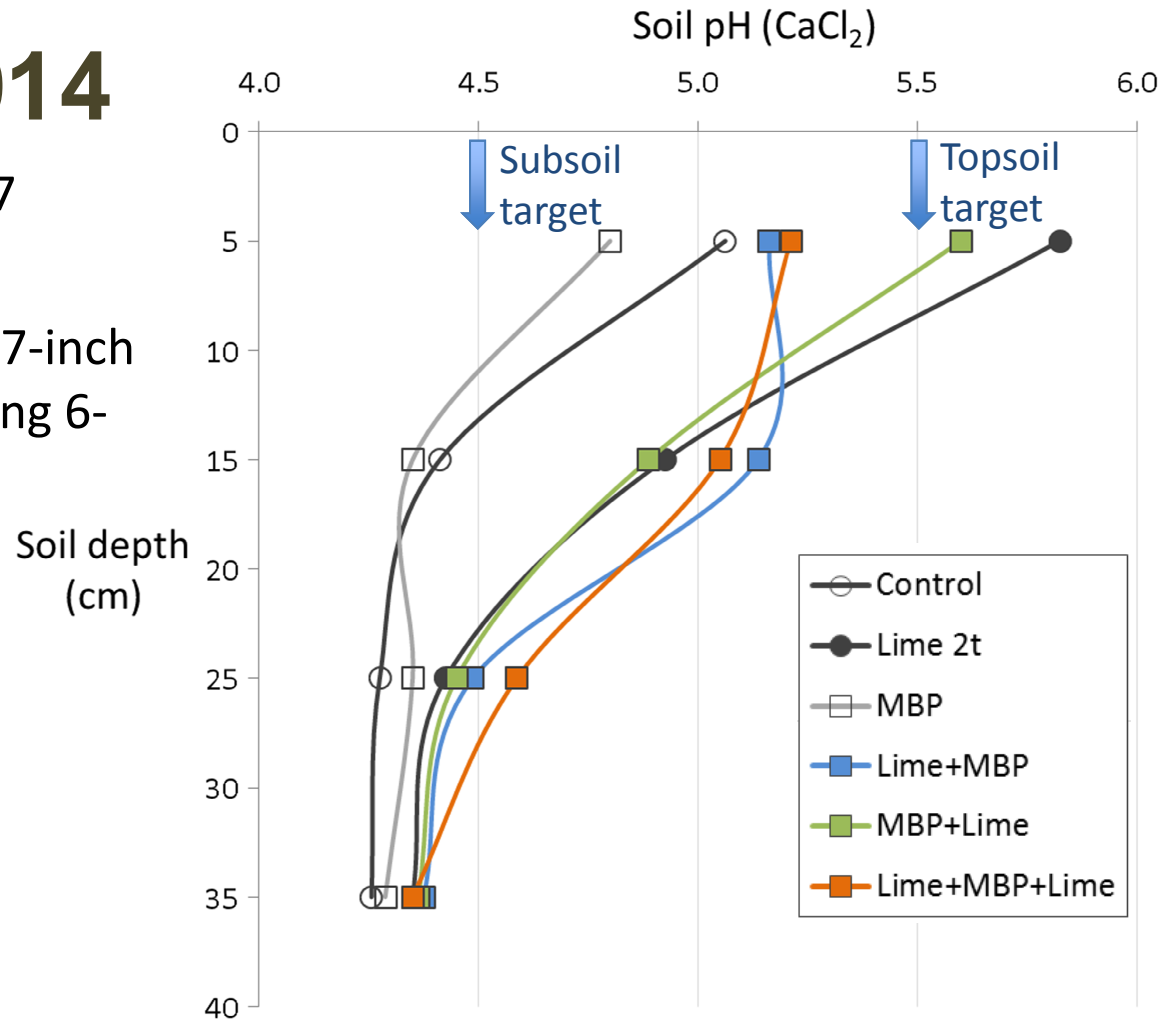




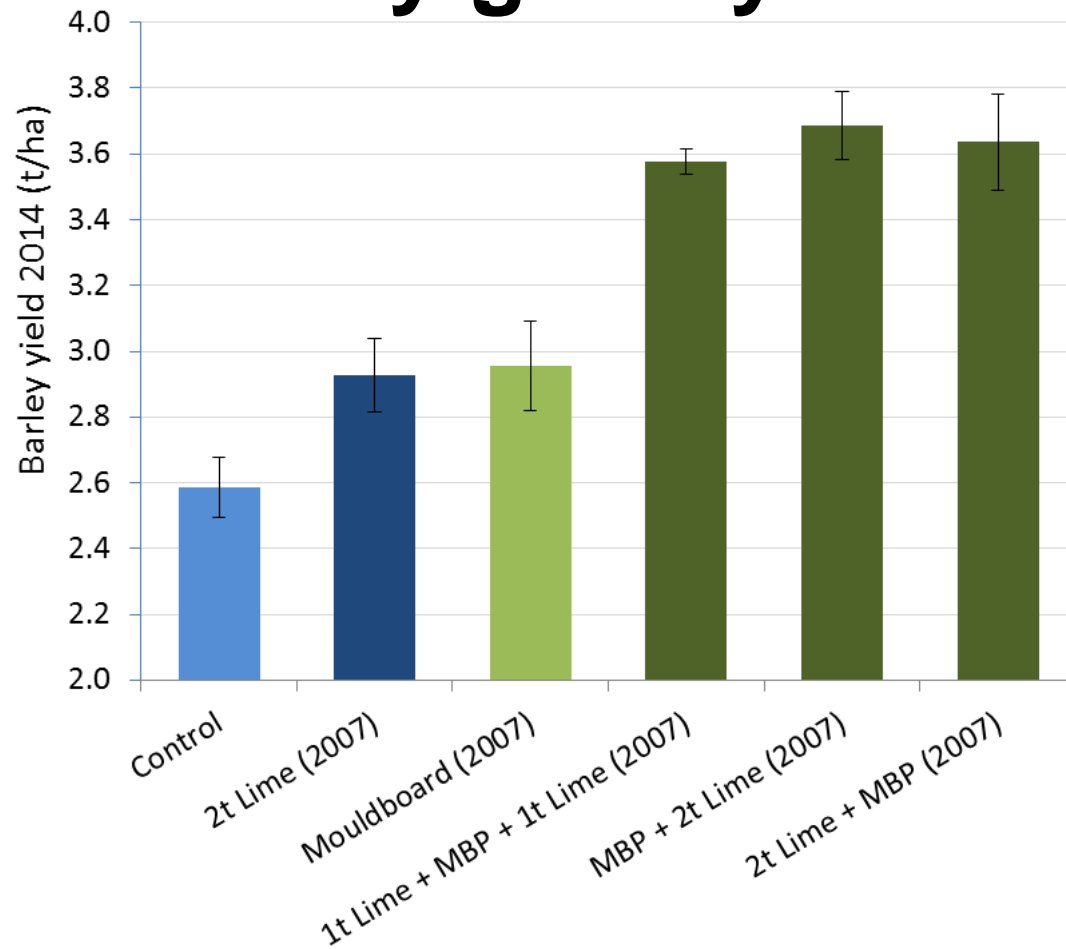


# Soil pH 2014

- Limed once in 2007
- 2 t/ha limesand
- Knife point seeder 7-inch row spacing, working 6-inches deep



# Barley grain yield 2014 season



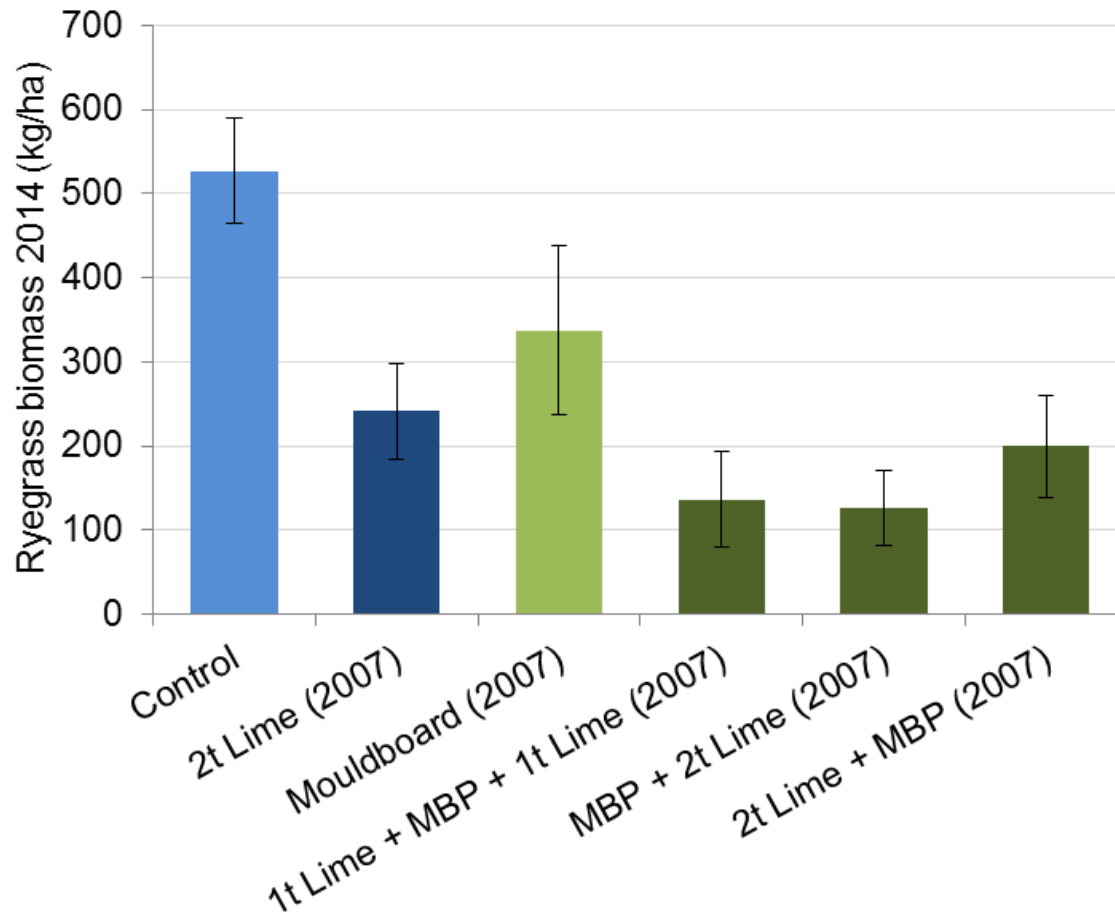
**Whole site deep ripped 2014**

## **Grain yield response:**

- MBP or Lime 12%
- MBP & Lime 38%
- Paddock average 3.1 t/ha



# Ryegrass biomass 2014



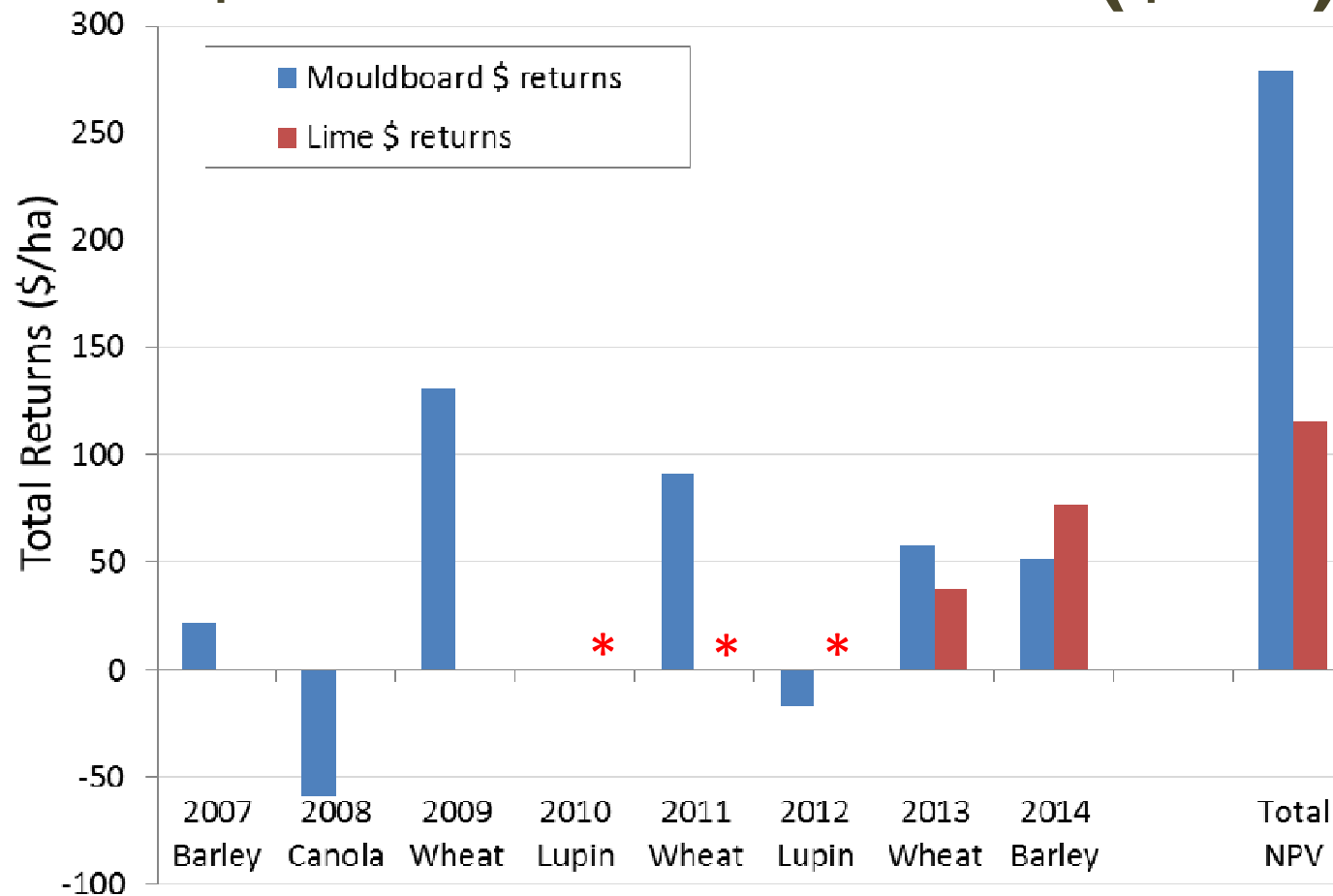
## Ryegrass biomass change:

- Surface Lime 54%
- Mouldboard plough 36%
- MBP + Lime 75%





# Net \$ returns cf. control (\$/ha)



10 years?

Yep...

and not over yet...



# Implications

1. Soil test to  $\geq 40$  cm
2. Comprehensive soil analyses (pH, P & K)
3. Apply lime - even if undecided about incorporation
4. Test methods – impacts & issues
5. Line up wheels - plan
6. Determine seeding method, rotation & weed control
7. Be aware of deep remnant compaction

***Fix the top... Line things up... Fix the bottom***





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# Questions?

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GRDC Soil Constraints West Initiative

DAW00204 & 244 Soil water repellence

LIE00008 Systems approach to soil management

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