Climate Clever Beef

Finding the win-win

Contact: steven.bray@daf.qld.gov.au
www.futurebeef.com.au

Australian Government
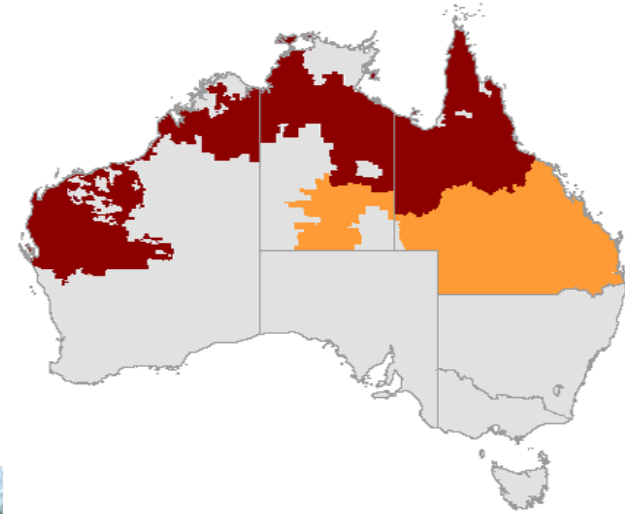
Queensland Government

Northern Territory Government

Regional Group Collaboration
- Fitzroy Basin Association
- Queensland Murray-Darling Committee
- Desert Channels Qld
- Northern Gulf Resource Management Group

Northern beef impact

- Aust. beef industry 7th largest in world.

- Nth ~14 million head, ~250 million ha land use

There will be impacts

- Water quality (e.g. sediment on Great Barrier Reef)

- Land condition

- Greenhouse gas emissions

- Tree clearing

- Biodiversity

- Animal welfare

Cattle at Oaklands, Duaringa

Northern beef problems

- Climate variability
- Productivity
- Profitability
- Declining terms of trade
- Debt
- Succession
- Market volatility
- Public perception
- Government intervention

Pasture growth highly variable

Management change needs to be carefully considered to ensure appropriate profitability and environmental outcomes at the individual business scale
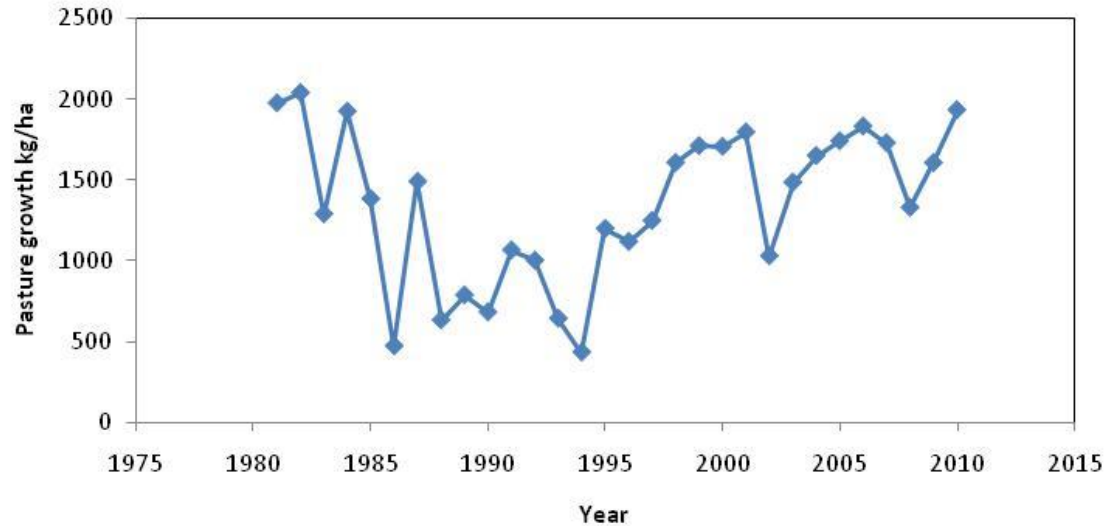
The exceptional collaborative team

Northern Gulf

- Joe Rolfe, Bernie English, Kiri Broad, Emma Hegarty, Rebecca Gunther, Tim McGrath

Mitchell grass and Channel Country

- David Phelps, Ian Houston

Maranoa Balonne

- Kiri Broad, Tim Emery, Roger Sneath

Fitzroy

- Steven Bray, Byrony Daniels, Rebecca Gowen
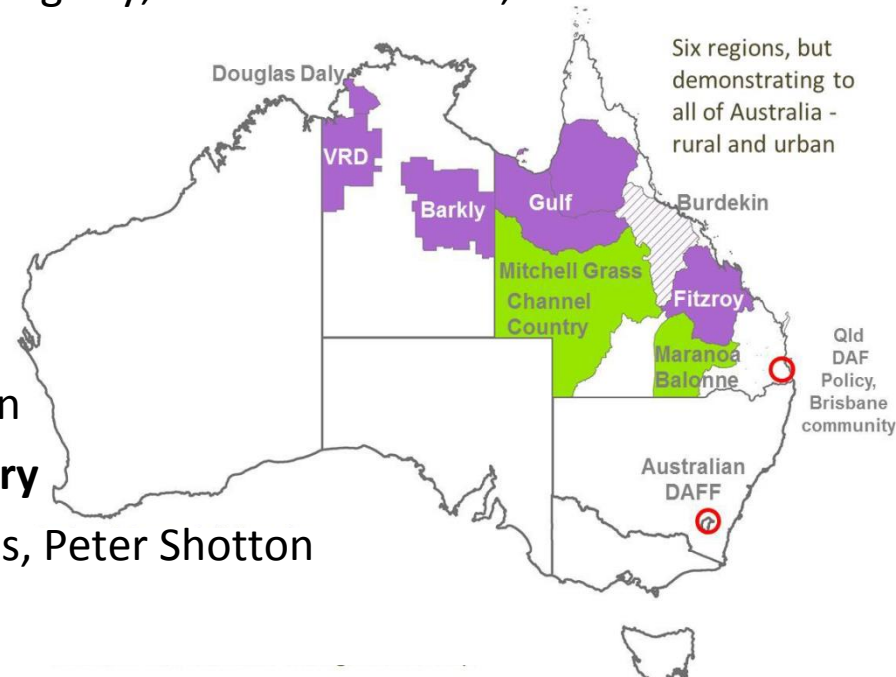
VRD, Barkly and Douglas Daly Northern Territory

- Dionne Walsh, Robyn Cowley, David Ffoulkes, Peter Shotton

Modelling

- Giselle Whish, Lester Pahl

Project Reviewer

- Mick Quirk

Regional Group Collaboration
- Fitzroy Basin Association
- Queensland Murray-Darling Committee
- Desert Channels Qld
- Northern Gulf Resource Management Group

How the project was run

- Regional teams with some autonomy
- Yearly get-togethers
  - Project planning, team building and learning
  - Showcase regional activities and issues
  - Expensive, require a time commitment, but worth it

Stylo selection trial site
Northern Gulf Get-together

Rick Britton
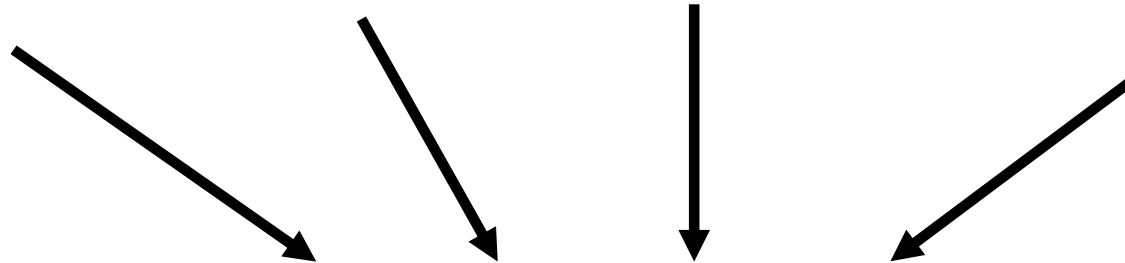and family

Where did the method come from?

FutureBeef

$avannaPlan   CQ Beef   Northern Grazing Systems

Research projects
-NT fire research
-Soil carbon
-Livestock methane
-Woody vegetation
-Grazing trials
-Herd management

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Collaboration projects
-Regrowth soil carbon
-Pasture rundown
-CSIRO S. Eady, methane
-NT fire research
-LWG baseline project
-Southern Gulf rehab
-Spelling strategies
-Remote sensing
-Tools, FarmGas, Breedcow
-Beef$ense

Northern Grazing Carbon Farming
Integrating production and GHG outcomes 1. & 2.

Other Projects e.g.
-Grazing BMP
-Policy
-FutureBeef
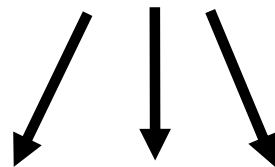
Where to next???
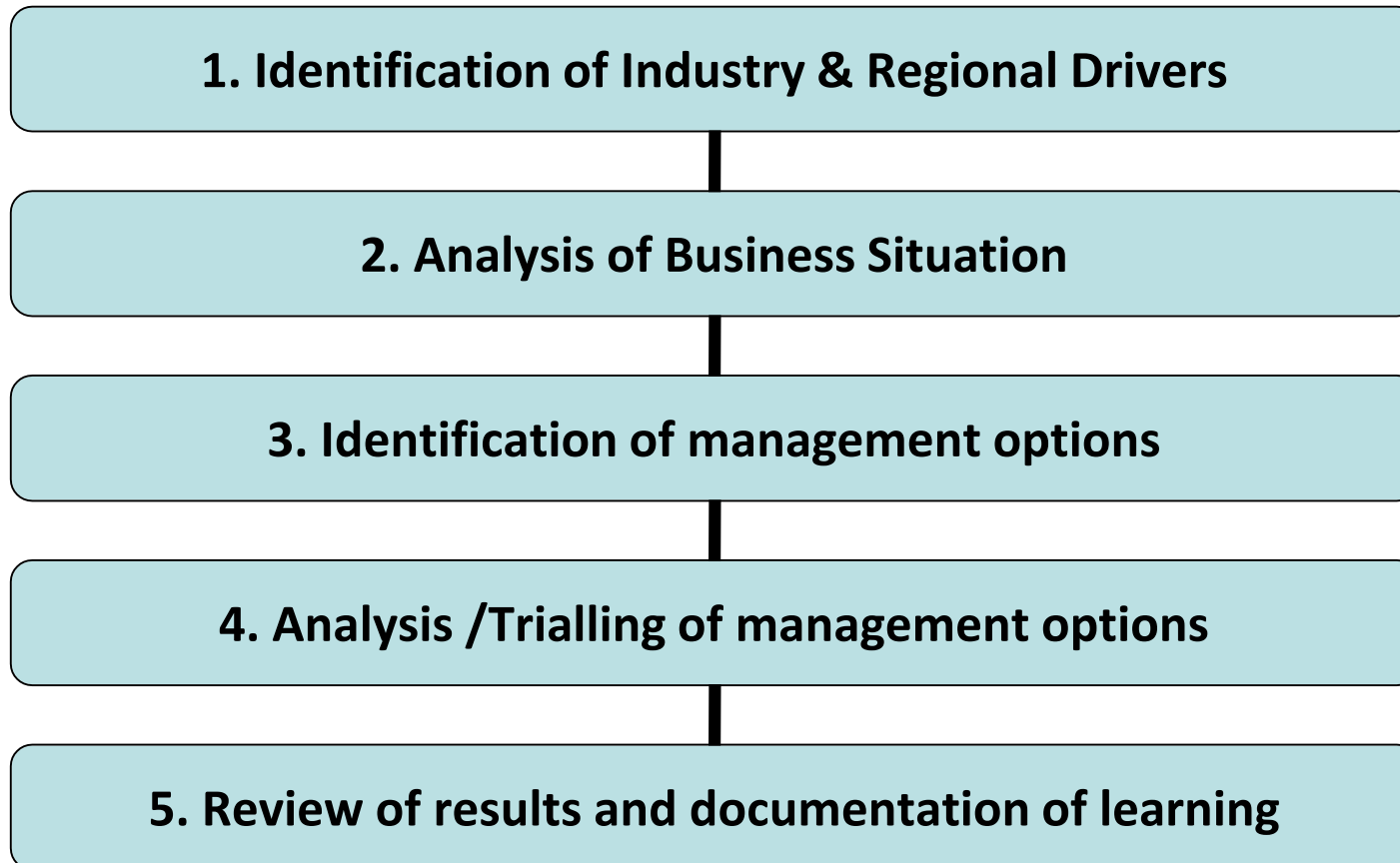
Climate Clever Beef project

FutureBeef

- What impact will 'Carbon Farming' options have on the business?

- Focus on improving business efficiency and profitability
  - livestock methane, soil carbon and regrowth

- Find the win-win and encourage practice change

- Funding enabled one-on-one and small group work

- 6 regions, 35 businesses

- Link to other projects
  - Spelling strategies
  - Wambiana
  - Pasture rundown
  - Soil carbon

Clarke Creek, CQ

Framework – Climate Clever Beef

Framework to systematically assess which management options are likely to have the best outcomes for a beef business and increase likelihood of practice change.

1. Identification of Industry & Regional Drivers

2. Analysis of Business Situation

3. Identification of management options

4. Analysis /Trialling of management options

5. Review of results and documentation of learning

Extension reach

- Practice change demonstrated by 78 people from 35 businesses managing more than 1,272,000 ha and 132,000 cattle

- Project findings communicated to over 2,600 people and 1,100 businesses

- 67 field days and industry events

- 90 publications (documented legacy)
  - The Rangeland Journal special issue
  - Case studies on the Climate Clever Beef webpage

Summary

- An enthusiastic, collaborative team is an great asset
- Incorporating business analysis and on-property trialling into the personalised adoption pathway was a powerful way to increase the likelihood of uptake of alternate management options and technologies for long term practice change.
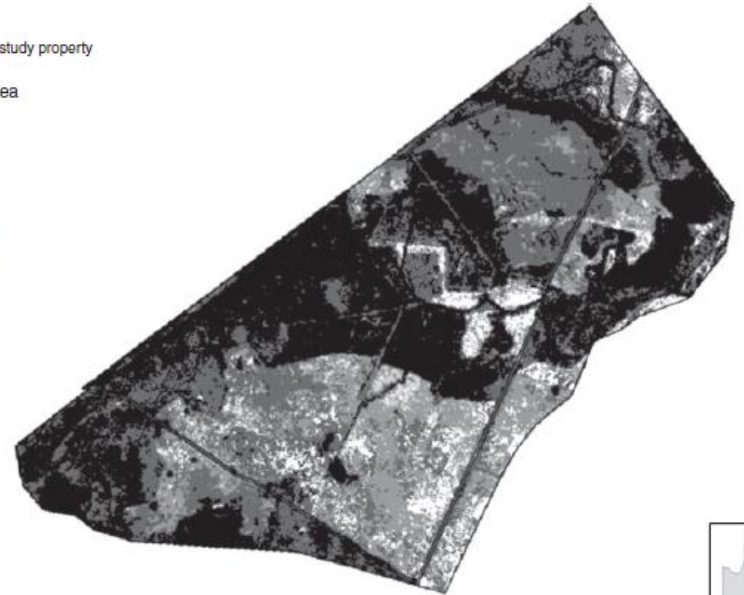
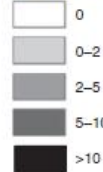- Questions?

Cattle at Carrum, Julia creek

Carbon farming case study

Oaklands

- Livestock methane

- Regrowth carbon

- Pasture carbon

- Soil carbon

- Potential for carbon income through the Australian Government's Emission Reduction Fund (ERF)

Legend
Case study property

Tree basal area
- 0
- 0–2
- 2–5
- 5–10
- >10

N

Industry growth dilemma

Infrastructure development and pasture development
- Increased carrying capacity = increased total emissions
- Goal is to improve emissions intensity (emissions per t liveweight sold)

Emissions saving

Productivity improvement

Time
Herd size
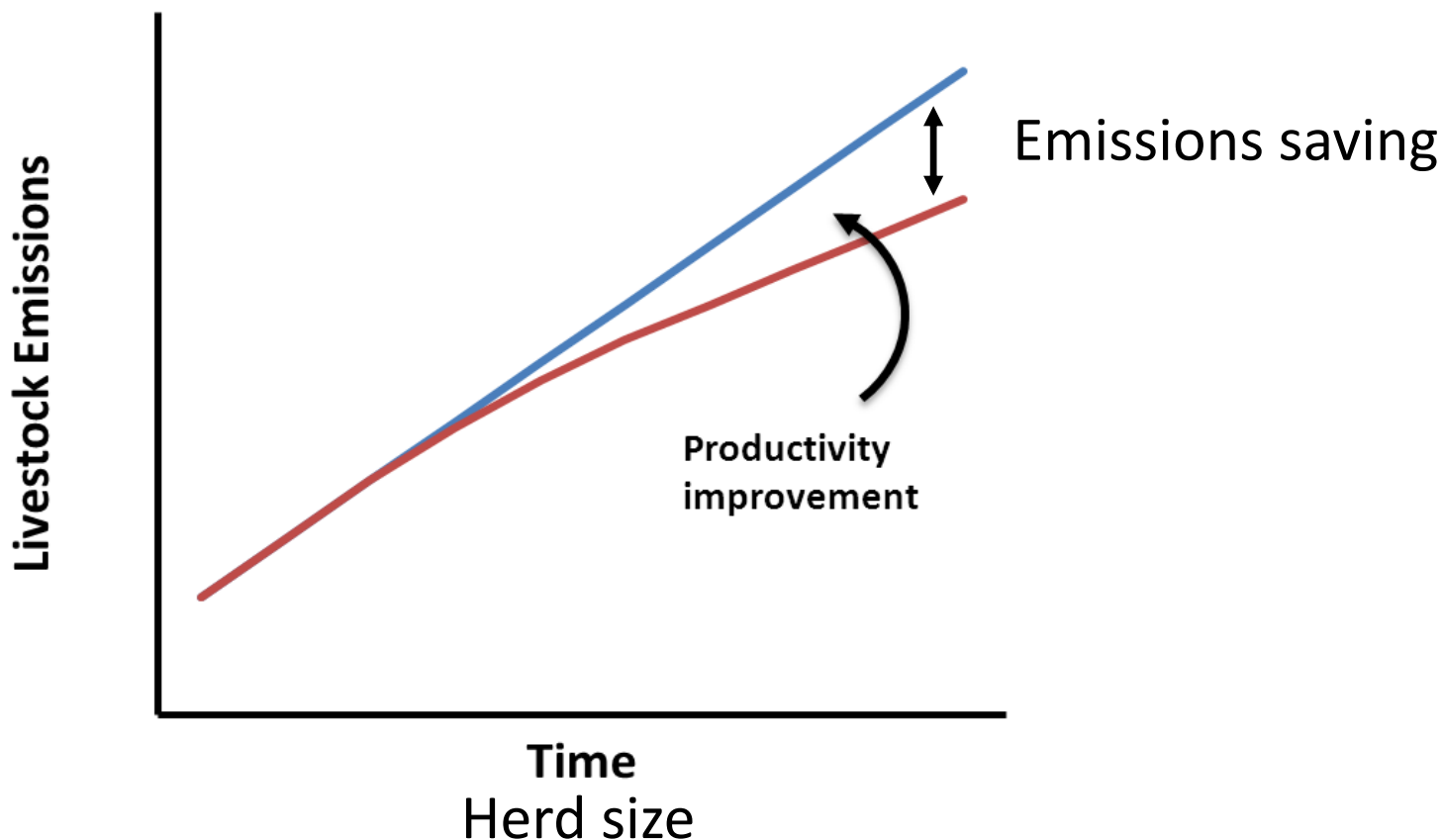
Carbon farming on Oaklands

Situation (discussed with the Dunne family)
15-year-old Box regrowth, C land condition, cattle productivity less than desired

Linked in with Mimosa landcare group

Objective
Understand impact of regrowth retention and pasture spelling on livestock profitability, carbon stocks and potential for carbon farming

Dunne family at Oaklands

Carbon farming on Oaklands

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What we did

– Breedcow Dynama analysis on herd, ID options

– Research site, tree clearing treatments and pasture spelling

– Measured trees, pasture, soil carbon

– Bioeconomic modelling to evaluate regrowth management and pasture spelling at the whole-property scale

– Breeder management days, support to attend EDGE courses

– Field day, Beef week tour, Landcare group presentations

– Case study, conference and journal paper

Oaklands – Livestock

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Scenario	GM/AE	GM herd	Herd emissions (t CO_2e)	Emissions intensity (t CO_2e per t LW sold)
Current Situation 1,552 AE	$125	$194,000	2,606	13.6 (191 t LW)
Reduce stocking rate by 10% increase weaning rates, supplement 4 months of year	$130	$182,000	2,324	12.6 (184 t LW)

Project scale is an issue (300 tCO_2e = $3000)
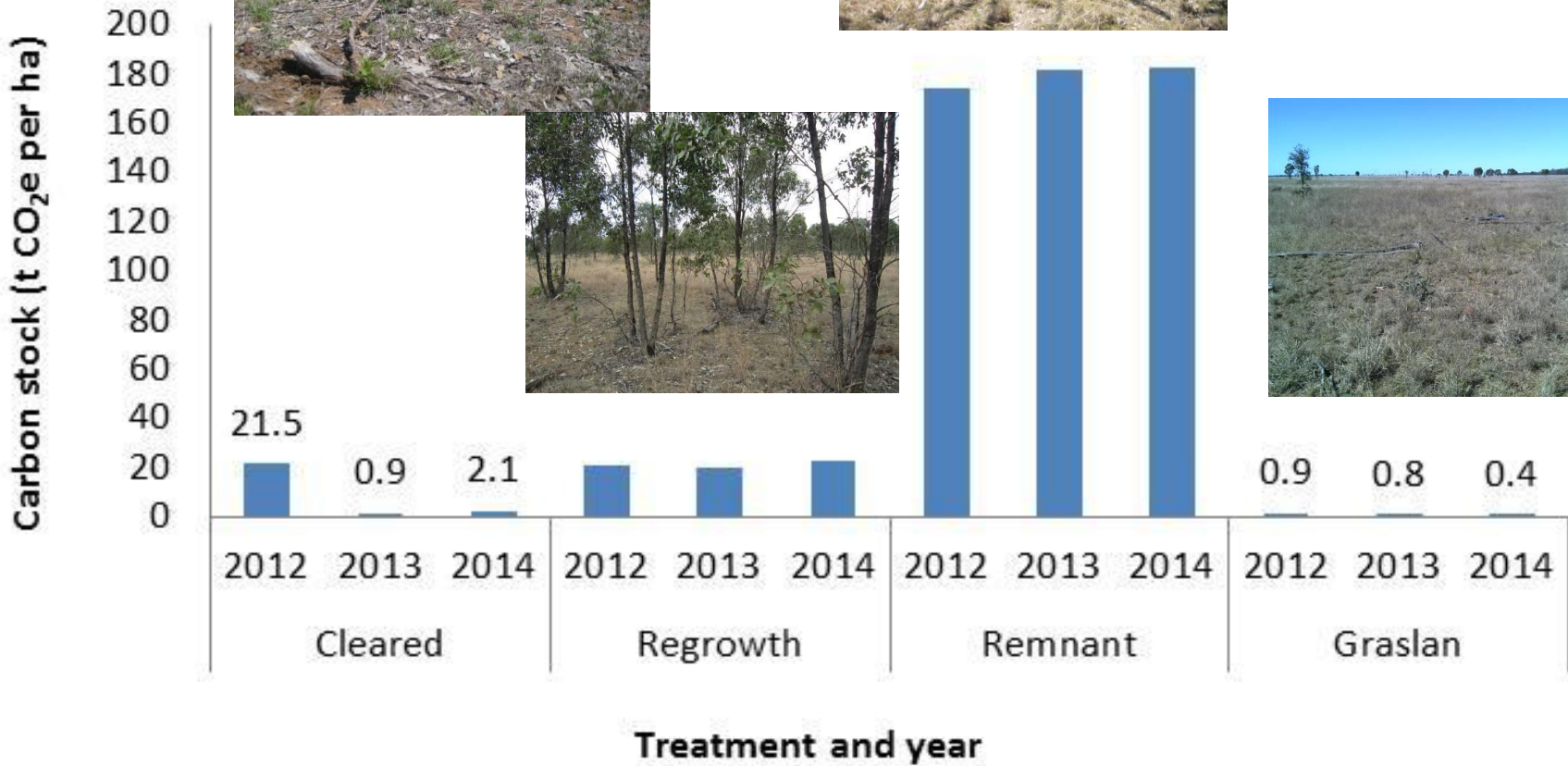
What did the Landholder do:
- Lowered stocking rate to improve land condition and breeder performance
- Improved herd recording
- Built a laneway to split paddock and improve labour efficiency

Oaklands - Trees

Daniels and Bray

5-8 times more carbon in the remnant woodland vegetation

Oaklands - Regrowth management

Whish, Pahl and Bray 2016

- 100%, 75%, 50%, 25% or 0% of regrowth retained
- As more regrowth was retained, the cattle herd declined: 1200 AE to 900 AE
  Cattle are still a significant income

- Regrowth was valued at ~$2M over 20 years (at $10 t CO_2e) increasing accumulated total gross margin by 50% over business-as -usual

- Breakeven carbon price $3 per t CO_2e on this eucalypt land type
- Cost and benefits will vary as markets evolve, as carbon prices change, as tree growth rates vary, and with the amount of regrowth retained

What did the Landholder do?
Pulled regrowth in improve pasture,
but allows future regrowth options

Oaklands - Pasture

Jones and Johnstone

FutureBeef

Treatment	Change in yield (kg/DM)
Recently cleared and grazed	920.0
Recently cleared and spelled	2324.6
Remnant and grazed	-316.4
Remnant and spelled	54.3

3 t CO_2e/ha more

-0.2 t CO_2e/ha Little change

- Pasture condition is improving slowly with spelling and clearing
- More pasture equals more carbon, drought resilience, reef water quality, leasehold land condition, per head productivity
- Potential win-win

What did the Landholder do: reduced stocking rates and is watching/considering spelling, participating in spelling modelling exercise
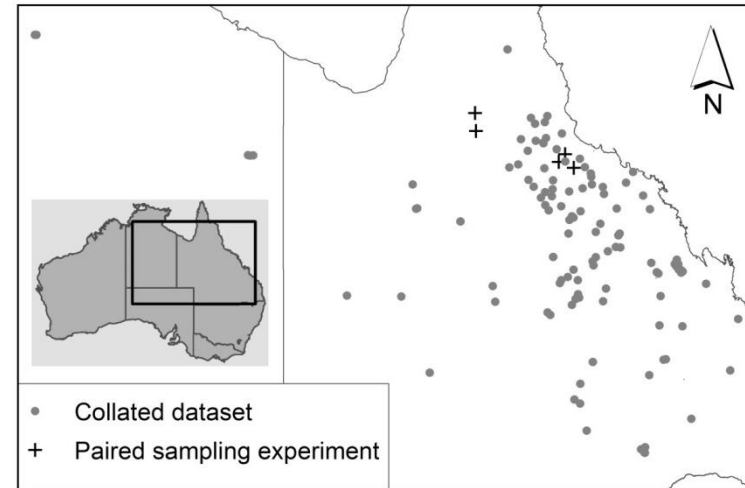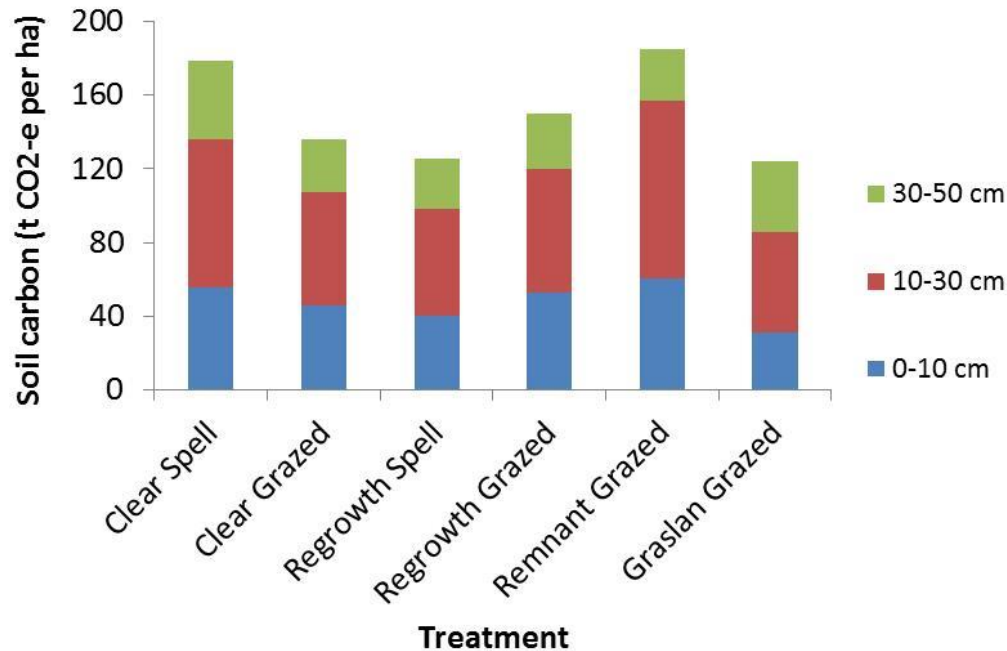
Oaklands – Soil carbon

Diane Allen DSITI

FutureBeef

- No consistent trends
- Supports findings from 329 sites

What did the Landholder do:
Knows to be wary of 'carbon baggers' promoting soil carbon sequestration projects

Conclusion

- Will reduction in greenhouse gas emissions be achieved
  - Regrowth may provide options, but cattle trade-off
  - Improving herd efficiency and GHG intensity should be a goal for all beef businesses Win-win
  - Improving pasture condition and biomass has benefits but currently no potential for carbon income Win-win?
  - Soil carbon is highly variable and inconsistent, high risk

- Process used in Climate Clever Beef utilising business analysis was successful in achieving practice change
- Industry demonstrating it is doing something about greenhouse gas emissions

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Other case studies and reports are available on Climate Clever Beef webpage.

Questions?

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