

# Cattle versus carbon. 1. The tug of war begins

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## Introduction

Governments around the world are attempting to reduce the amount of greenhouse gases in the atmosphere. Australian beef producers can theoretically participate in a voluntary national carbon offsets scheme (Carbon Farming Initiative). The Climate Clever Beef project is assessing the business case for integrating carbon farming practices into beef businesses.

Can a beef business sequester carbon and reduce greenhouse gas emissions, is carbon farming an opportunity, a new income stream, or a distraction from productivity with no profitability or efficiency advantages.

## Methods

A Case Study site has been established on the 10,570 ha Oaklands property owned by the Dunne family, 80km south of Daringa, in central Queensland.

The case study will involve on-ground assessment of the pasture, land condition, woody vegetation, soil carbon and beef herd dynamics. Whole property modelling will be used to assess scenarios over time and space (see Cattle versus carbon. 2. Some battle plans).

The treatments being measured will utilise the current woody vegetation variation at the site: remnant box woodland, retained 10 year old box regrowth, recently cleared 10 year old box regrowth and completely cleared with Grastlan herbicide 10 years ago (Photo 1). For each vegetation type, two grazing treatments have been applied - continuously grazed and wet season spelled.

Utilising the existing woody vegetation differences will allow comparisons of soil and vegetation carbon to be made at the start of the project and vegetation carbon change and land condition over the three years of the project.

## Results and Discussion

Tree carbon assessments indicate that remnant woody vegetation contained 5-8 times more carbon than 10 year old woody regrowth indicating substantial scope for carbon storage by allowing regrowth vegetation to regrow (Fig. 1).

Pasture assessments in May 2013 six months after spelling began, indicated improved pasture biomass with a 6-month spell in the regrowth and recently cleared areas (Fig. 2) and a slight improvement in land condition.

Two herd scenarios have been initially evaluated (Table 1). The base herd scenario (current situation) has 1005 breeders mated and 68% weaning rate. The 2nd scenario involves having a lower stocking rate (896 breeders) and supplementing the cows for three months in the dry season increasing weaning rate to 75%.

Herd gross margin declined by 7% with reduced stocking rate even though gross margin per adult equivalent improved by 4%. The cost of supplement offset productivity gains. Reducing stocking rate by 10% reduced livestock emissions by 10%, however combined with providing supplement, herd emissions intensity improved by 8%.

## Next steps

Ongoing evaluations will assess the balance between profitability, emissions and land condition for a range of woody regrowth retention levels, stocking rate adjustments and supplementation.

## Acknowledgements

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## More information

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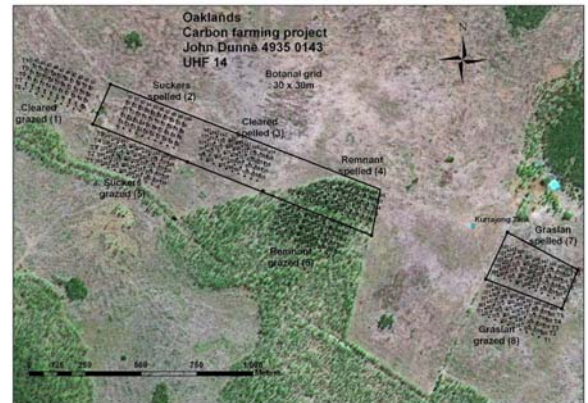


Photo 1: Trial site on Oaklands.

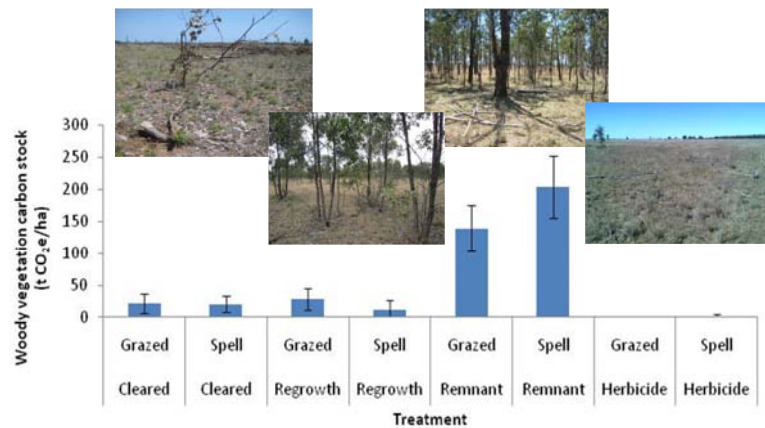


Fig. 1: Woody vegetation carbon stock and representative photos. Cleared plots were measured before chaining. Remnant woodland had 5-8 times more carbon than the box regrowth.

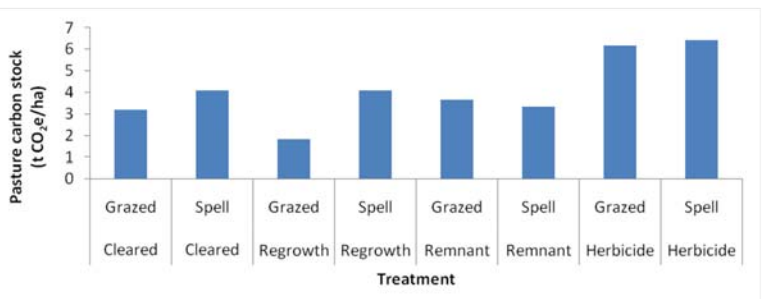


Fig. 2: Pasture biomass 6 months after establishment of treatments. The herbicide treatments were in a separate paddock and in better land condition. The regrowth and recently cleared areas had more carbon with spelling.

Table 1: Breedcow herd and greenhouse gas emissions data.

Scenario	GM/AE	GM herd	Herd emissions t CO <sub>2</sub> e	Emissions intensity t CO <sub>2</sub> e per t LW sold
Current Situation 1552 AE	\$125	\$194,000	2606	13.6
Reduce stocking rate by 10% increase weaning rates, supplement 4 months of year	\$130	\$182,000	2324	12.6