Cattle versus carbon: 2. Some battle plans

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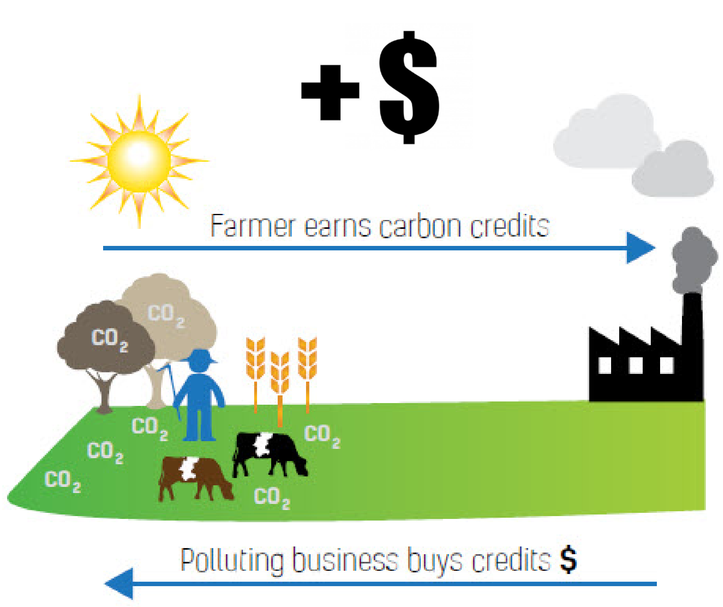
Cattle versus carbon

The Climate Clever Beef project is assessing the business case for the generation and sale of carbon credits (tonne of CO_2e) by cattle properties. Could it be economically viable to sell carbon credits to coal-fired power stations? Or, could cattle producers lose money by participating in carbon markets?



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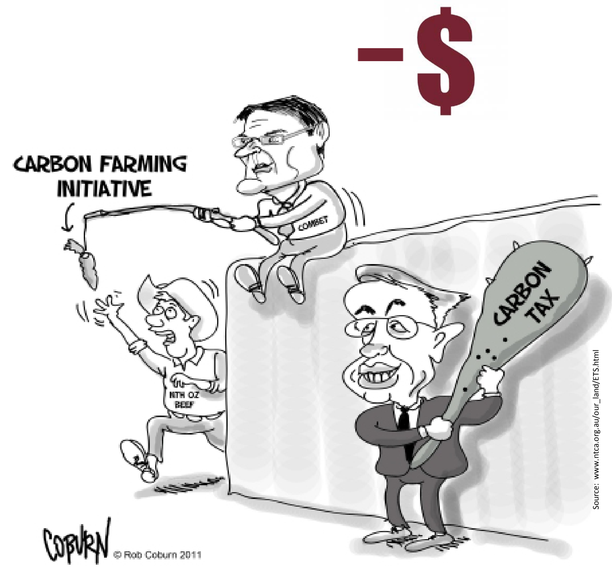

The battle ground and battle plans

The Oaklands property in central Queensland (see Cattle versus carbon: 1. The tug of war begins) is the arena where the cattle and carbon game is being played out. Currently, half the property is covered in regrowth of box, bulloak and narrow-leaved ironbark. Should the owners manage the regrowth for carbon credits, or should they manage it for beef production?

A number of management strategies are being assessed using pasture, cattle herd and economic models. Strategies range from a 100% focus on beef production (all regrowth pulled and burnt) to a 100% focus on production of carbon credits (all regrowth retained). The results of only one strategy are shown here. This poster compares the modelled outcomes over 20 years of running the property as it is now with those resulting from retaining 50% of the regrowth.

How is the battle proceeding?

Allowing 50% of regrowth to grow unhindered (no burns) over 20 years resulted in 15% more tree biomass compared to current management when mechanical clearing and fire was used to control all regrowth (Fig. 1). As fire was not used in the paddocks where regrowth was retained, pasture was not burnt, and this partially offset the decline in carrying capacity that occurred as tree biomass increased. Consequently, when 50% of regrowth was retained and not burnt, pasture biomass was similar to current management, and the cattle herd was only slightly lower (Fig. 1). Also, the paddocks in which regrowth was retained supported only 30% of the cattle herd.

The regrowth was retained for the purpose of accumulating carbon credits to sell to a polluter. Fig.2 shows the property accumulated over 150,000 carbon credits by retaining 50% of its regrowth and allowing it to grow for 20 years. If a carbon credit was worth $10, then the value of these credits is $1.6 million. If the 34,000 tonnes of CO_2e emitted as methane by cattle was accounted for, then the net value of the carbon credits would decline to $1.2 million. This compares with the accumulated gross margin for the herd of $4 million over 20 years.

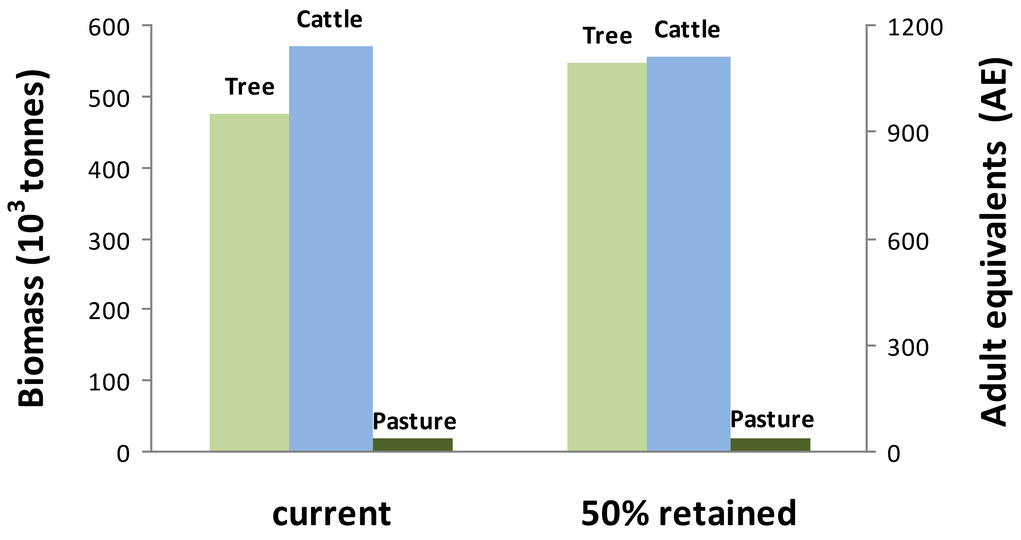

Fig. 1: Tree and pasture biomass accumulated over 20 years and cattle (AE) on the property as currently managed (current) and when 50% of the regrowth is retained (50% retained).

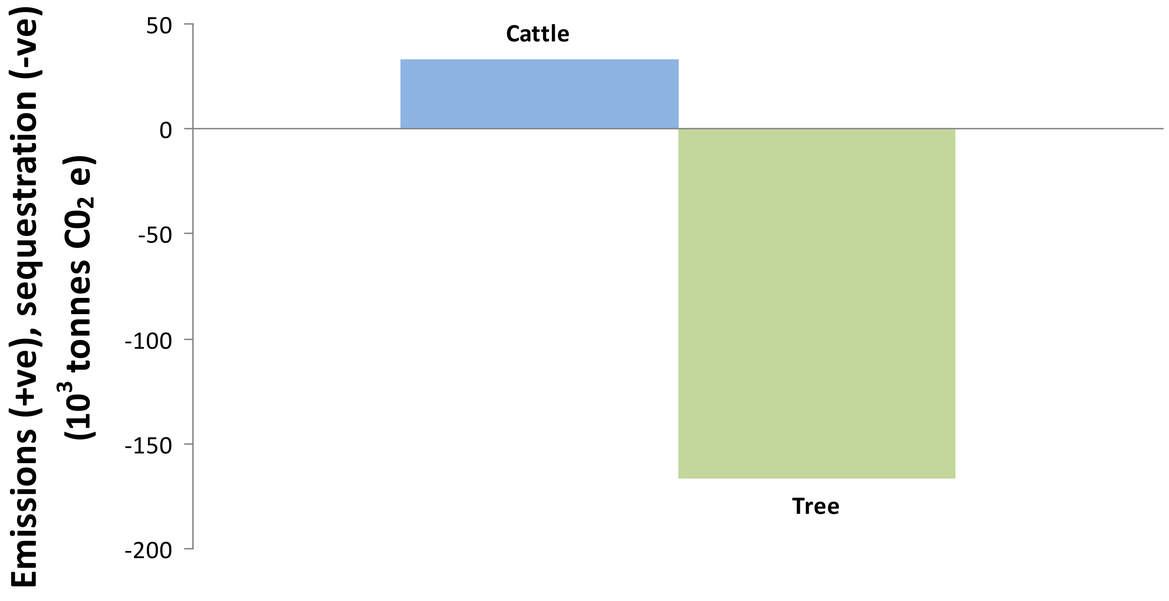

Fig. 2: Carbon (10^3 tonnes CO_2 e) emitted by the cattle herd as methane and carbon sequestered by the 50% of retained regrowth over 20 years.

Conclusions

Current carbon accounting processes and carbon prices within Australian and world carbon markets are highly uncertain, making it difficult to predict what a participating cattle property may gain or lose. The Climate Clever Beef project will continue to monitor developments in carbon markets and translate the consequences of these for cattle properties in north Australia. Watch this space!

More information

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