Holbrook Landcare Network

carbon farming and your business

On-farm Greenhouse Gas Emissions Case Study Series

#04 Beef enterprise, Holbrook NSW

Net on-farm greenhouse gas (GHG) emissions

4,590.21 t CO_2-e

(see Table 1 overleaf)

Emission reduction options:

Tree plantings

As expected from a wholly cattle grazing enterprise, GHG emissions are dominated by enteric methane production

PROPERTY SUMMARY

This is a 4,400 ha property, in the Holbrook area of southern New South Wales with an annual rainfall of 750mm. The main enterprise of the property is beef cattle, with current management adhering to Holistic Resource Management principles.

STOCK

- 2,000 self-replacing, spring calving Hereford cows.
- Plus carrying about 685 cattle on agistment.

PASTURES

Most paddocks are a mix of phalaris, sub-clover and native grasses and managed to maintain 100% ground cover.

FERTILISER APPLICATION

No fertiliser, herbicides, pesticides or drenches are used.

FODDER PRODUCTION

No fodder is made or brought in to the property.

TREE PLANTINGS

Currently 40 ha (<1%) of the property has been revegetated.

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TABLE 1. ANNUAL ON-FARM EMISSION SUMMARY

Emissions	Current emissions (t CO_2-e)
CO_2 - Carbon dioxide emissions from diesel & electricity usage	20.51
CH_4 - Enteric methane from livestock	4,906.00
CH_4 - Methane from livestock manure	0.83
N_2O - Nitrous oxide from livestock dung & urine	497.57
N_2O - Nitrous oxide from fertiliser; mainly urea	0
N_2O - atmospheric deposition, leaching & volatilisation of nitrous oxide	680.44
Tree plantings (after 1990)	- 1,515.15
Net on-farm GHG emission	**4,590.21 t CO_2-e**

MODELLED EMISSION REDUCTION OPTIONS

Tree plantings

The property currently has 40 ha of tree plantings, which is less than 1% of the property area. If the landholder increased tree plantings to 80 ha (1.8% of the property) it would offset the total GHG emissions by 50%, reducing the net GHG emissions to 3,075.06 t CO_2-e**.**

ADDITIONAL OPTIONS

Dietary supplement

Research has indicated that using natural compounds such as tannins, fats and oils can reduce methane emissions by 15-20% when used as a dietary supplement, and provides the animal with energy and protein[1]. Supplementing the beef herd's diet with such an additive inhibits micro-organism activity in the rumen could reduce methane emissions and could lead to better feed utilisation in cattle.

References

1. DAFWA. (2013). Carbon farming factsheet - reducing methane emissions from beef cattle using feed additives. *Department of Agriculture and Food, Western Australia*. Retrieved from www.agric.wa.gov.au/climate-change/carbon-farming-factsheet-reducing-methane-emissions-beef-cattle-using-feed-addtives

The GHG emissions have been calculated by inputting the figures provided by the landholder into the Greenhouse Accounting Framework (GAF) calculators from www.greenhouse.unimelb.edu.au/Tools.htm.These figures and options only take into account actual on-farm emissions, and do not take into account any off-farm GHG emissions.

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