

# #03

## Beef/sheep enterprise, Bowna NSW

Net on-farm greenhouse  
gas (GHG) emissions

**1,686.12 t CO<sub>2</sub>-e**

(see Table 1 overleaf)

### Emission reduction options:

Tree plantings  
Remove autumn calving  
Move to sheep-only

*The landholder is  
already considering a  
move from cattle and  
sheep, to a sheep-only  
enterprise*

### PROPERTY SUMMARY

This is a 750 ha property in the Bowna area of southern New South Wales with an annual rainfall of 800mm. The main enterprise is beef cattle, as well as prime lambs and wool.

### STOCK

- 350 self-replacing, spring calving Angus cattle.
- 70 self-replacing, autumn calving Angus cattle.
- 550 autumn lambing first cross ewes.

### PASTURES

Paddocks consist of native pastures, annual grasses and sub-clover, with one lucerne paddock.

### FERTILISER APPLICATION

Fertiliser has not been applied for a number of years.

### FODDER PRODUCTION

Single lucerne paddock of 15 ha used for 2-3 cuts of hay per year (150 tonne).

### TREE PLANTINGS

Currently 4 ha (<1%) of the property has been revegetated.



## On-farm Greenhouse Gas Emissions Case Study Series

**TABLE 1. ANNUAL ON-FARM EMISSION SUMMARY**

Emissions	Current emissions (t CO <sub>2</sub> -e)
CO <sub>2</sub> - Carbon dioxide emissions from diesel & electricity usage	151.71
CH <sub>4</sub> - Enteric methane from livestock	1,363.10
CH <sub>4</sub> - Methane from livestock manure	0.25
N <sub>2</sub> O - Nitrous oxide from livestock dung & urine	136.85
N <sub>2</sub> O - Nitrous oxide from fertiliser; mainly urea	0
N <sub>2</sub> O - atmospheric deposition, leaching & volatilisation of nitrous oxide	186.77
Tree plantings (after 1990)	- 151.52
Carbon stored in wool	- 1.05
<b>Net on-farm GHG emission</b>	<b>1,686.12</b>

### EMISSION REDUCTION OPTIONS

#### Tree plantings

Increase tree plantings to 35 ha (4.7% of the property) to offset total GHG emissions by 65%, and reduce the net on-farm GHG emissions to 625.51 t CO<sub>2</sub>-e.

#### Remove autumn calving cows from the enterprise mix

The enterprise includes 70 autumn calving Angus cows which contribute 158.06 t CO<sub>2</sub>-e to the total farm GHG emissions. By removing these from the enterprise, there would be a decrease of 8.6% to total GHG emissions. The landholder had already been considering a move from cattle and sheep, to sheep-only.

#### Move to sheep-only enterprise

If the landholder switched to a sheep-only enterprise then there would be an approximate decrease of 70% in total GHG emissions, for a similar stocking rate. When this scenario was modelled in the calculator the net on-farm GHG emissions reduced to 499.48 t CO<sub>2</sub>-e. The landholder has already been considering this change in enterprise mix due to the recent dry springs.

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](http://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.

**This project has been supported through funding from the Australian Government.**

