

A joint initiative of



Australian Government
Department of Agriculture,
Fisheries and Forestry



Reducing Emissions from Livestock Research Program

Demonstration projects for on-farm practical methane management strategies: Trevenna

UNE 'Trevenna' focusing on low and high intensity sheep grazing systems on the Northern Tablelands of New South Wales.

This project is one of four demonstration sites undertaken as part of the Reducing Emissions from Livestock Research Program.

The major objective of this national research program is to deliver knowledge and technologies to enable producers to breed and/or manage ruminants to significantly reduce methane emissions while maintaining livestock productivity for a viable agriculture industry.

The University of New England's (UNE) Trevenna Farm (Figure 1) is located immediately adjoining the main UNE campus, adjacent to the soil science, agronomy and animal science research centres. It is on a diverse geology/soil zone that offers both modest areas of low fertility shallow soils on the hills (cleared or lightly wooded), together with highly fertile creek flats.

The site is 36ha, that has been divided into 18 paddocks (~two ha each), nine with the hills and nine on the flats.

The site's aim is to build up integrated reference data of all major carbon flows (soil, animal, plant, air) in current and potential future grazing systems for the purpose of:

- Picturing the relative scale of components of carbon cycle and contribution to net farm emissions for farmers, scientists and policy makers.
- Provide on-farm data for comparison with national greenhouse accounts.
- Evaluating mitigation strategies and their economic impact.



View of Trevenna Farm – the fertile flats in the foreground and lightly woody hills in the background.

The program

The Reducing Emissions from Livestock Research Program is a national collaborative program focused on developing practical on-farm options for significantly reducing emissions from livestock while simultaneously increasing productivity. The research will develop more accurate data on emissions from sheep and cattle and the levels of mitigation achieved using a range of strategies.

The Reducing Emissions from Livestock Research Program is supported by funding from the Australian Government under its Climate Change Research Program.

Published by:

Meat & Livestock Australia,
Level 1, 165 Walker Street, North Sydney, NSW 2060
Ph: +61 2 9463 9333 Fax: +61 2 9463 9393
© Meat & Livestock Australia Limited 2011
ABN 39 081 678 364, Published March 2011
www.mla.com.au

Project objective

To demonstrate:

- The differences in methane production and productivity of high performance lamb production enterprises on high fertility soil compared to emissions and productivity of less intensive grazing systems on less productive pastures
- Techniques for estimating methane (eg GrazFeed™) and measuring methane (eg open-path infrared scanning technology).



First-cross lambs on the flats.

Progress

Trevenna Farm supports a replicated first-cross lamb production site across two years on landscapes supporting low intensity and high intensity grazing of Merino ewes seasonally joined to Border Leicester rams (Figure 2).

On farm data collection includes:

- soil samples
- pasture collection (green, dead, digestibility)
- botanical composition
- liveweights
- GPS satellite data
- measuring soil water availability
- measuring nitrous oxide emissions
- energy use

Estimates and analyses:

- estimates of methane from biophysical models and calculators. Initial results (Figure 2)
- life cycle analysis
- economic analysis
- open-path infrared scanning technology to measure methane emissions

	Green (t DM/ha)	Dead (t DM/ha)	DMI (kg)		Lambs		
			Ewes	Lambs	LWG (g/day)	CH ₄ (g) day	CH ₄ (g)/ kg LWG
Hills	0.5	5.60	1.90	0.34	223	43	190
Flats	2.1	0.06	2.20	0.29	305	45	150

From crop scanning and
pasture assessment data

Figure 2: Methane (CH₄) produced (g)/kg liveweight gain (LWG) on the hills and flats over a 24-hour period based on pasture available (GrazFeed™ Inputs and Outputs).

For more information contact:
Dr Malcolm McPhee
Industry & Investment NSW
Email: malcolm.mcphee@industry.nsw.gov.au
Prof. Roger Hegarty
University of New England
Email: roger.hegarty@une.edu.au

Supported by:

