



Australian Government
Department of Agriculture



THE UNIVERSITY OF WESTERN AUSTRALIA



NATIONAL LIVESTOCK METHANE PROGRAM

PROJECT FACT SHEET

Unlocking the methane-reducing compounds in plants

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Funders	Department of Agriculture, The University of Western Australia, CSIRO, Meat & Livestock Australia
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About the project

Whilst a number of plants have been shown to reduce methane production in the stomach (rumen) when consumed by the livestock, scientists are still not clear about the precise extent of this action, or the mechanism by which it takes place. This project will answer many of these questions.

The project will aim to isolate and identify key plant compounds responsible for reducing methane in the rumen and the biological pathways by which they act by looking at plants already recognised as 'anti-methanogenic' (i.e. lowering methane production). The project has already identified a number of tannins, as well as compounds from *eremophila*, *biserrula* and *melaleuca* plant species that have been shown to reduce methane production in the rumen.

Once the compounds and their actions are known, it will become more feasible to apply them in livestock production systems to lower methane emission. It will also be easier and quicker to find other plants or substances that also contain those compounds, which will potentially offer greater selection of plants and additives for producers to use in their production systems.

What does it mean for producers?

Knowing the plant-based compounds that lower methane emission in livestock will lead to the identification of a potentially greater selection of plants and additives for producers to use in their production systems.

The scientific information generated may also help develop and validate methodologies that producers may potentially use to claim credits under the Carbon Farming Initiative (CFI) and the future Emissions Reduction Fund (ERF).

Location(s):

This research project is being undertaken at the CSIRO/UWA laboratories, Floreat, UWA Chemistry (Crawley), Perth and CSIRO in Brisbane.



Lead researcher Phil Vercoe inspects equipment used for testing the effects of anti-methanogenic compounds.

BACKGROUND FACTS ABOUT ...

The National Livestock Methane Program

The National Livestock Methane Program (NLMP) has been developed to provide producers with practical strategies and tools to help them lower methane emissions while increasing productivity and profitability.

The program consists of 16 research projects grouped into five streams including: measurement of methane, genetics, supplements, forages, and rumen microbiology. These projects commenced in mid-2012 and will run until May 2015.

The NLMP is funded by the Department of Agriculture. It is managed by MLA and receives support from 11 collaborating organisations. For more details on the projects and collaborators, please visit www.mla.com.au

The link between ruminant biology, methane and productivity

When cattle and sheep digest feed, between 2-10 per cent of the feed energy they consume is lost in the form of methane gas. This is caused by the activity of micro-organisms that naturally live in the animals' stomach (rumen) and assist with digestion.

The methane gas (CH₄) is belched out by the animal and into the atmosphere. Simply put, they are 'leaking' feed energy, rather than converting it to muscle. Scientists are working to reduce this loss of feed energy by developing treatments to lower methane emissions. Preliminary research results indicate that some treatments can reduce methane-related energy loss by more than 50 per cent.

Methane is also a potent greenhouse gas and in Australia about 10 per cent of all greenhouse gas emissions and two thirds of agricultural emissions come from methane produced by cattle and sheep. Knowledge and practices aimed at reducing methane emissions from livestock therefore serve the dual purpose of improving feed efficiency, productivity and farm income, while also helping lower Australia's greenhouse gas emissions.