

NATIONAL LIVESTOCK METHANE PROGRAM

PROJECT FACT SHEET

Determining the safe and effective use of nitrates to lower methane emissions from livestock

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About the project

The provision of nitrogen for the growth of rumen (stomach) microbes is increasingly recognised as a crucial element for sound ruminant nutrition. Recent research has shown that nitrate supplements can reduce rumen methane emissions as well as provide valuable nitrogen for livestock.

This project will advance the science behind the use of nitrate supplements to mitigate methane, so it becomes a safe, sure and commercially favourable strategy among Australian livestock producers.

Researchers will investigate the physiological pathways leading to nitrate reduction in the rumen of cattle and sheep fed nitrate supplements. They will establish the parameters for the safe use of nitrate, as well as assessing the impact on productivity and methane reduction.

The findings will help determine the optimum strategies for using nitrate supplements safely and effectively.

What does it mean for producers?

Adoption of this research means producers will have greater confidence using nitrate supplements in their production systems. This in turn will assist lowering methane emissions while maintaining or improving productivity.

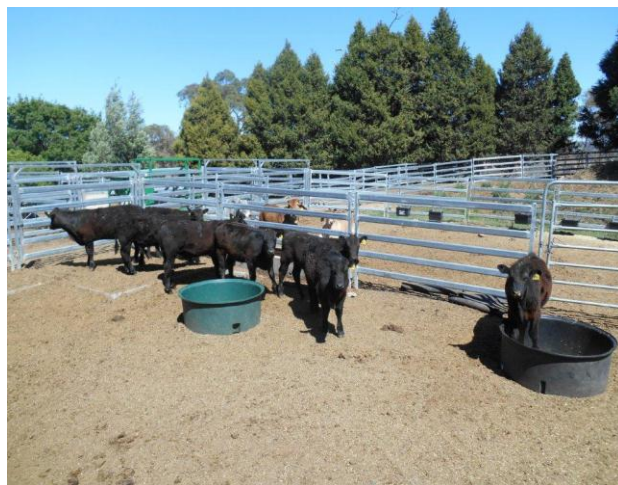
The data is also being used to develop a methodology by which producers may be entitled to claim carbon credits under the Carbon Farming Initiative (CFI) and the future Emissions Reduction Fund (ERF).

Location(s):

Research is being undertaken at UNE in Armidale, NSW.



*Samples of rumen fluid being prepared for analysis.
Source: UNE*



Weaner steers adapting to diet prior to allocation in nitrate supplementation study. Source: UNE

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.