

NATIONAL LIVESTOCK METHANE PROGRAM

PROJECT FACT SHEET

Understanding how the methane-producing microbes in livestock work

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About the project

This project is delivering a better understanding of the life-cycle of methanogens - the microbes responsible for producing methane in the rumen (stomach) of livestock.

Our current understanding of how methanogens operate in the rumen is limited. Knowing how methanogens work is crucial for developing strategies that can directly target and control their activity levels, and therefore control methane production.

This project is providing a detailed description of the diversity, physiology and biochemistry of key methanogens in northern Australian beef cattle grazing a range of tropical grasses and legumes.

Using a suite of novel approaches, researchers are sequencing the genomes of these methanogens to get a better understanding how the microbes survive, thrive and adapt to changes in their environment. This knowledge will help pinpoint why certain dietary interventions are successful in reducing methane output from cattle.

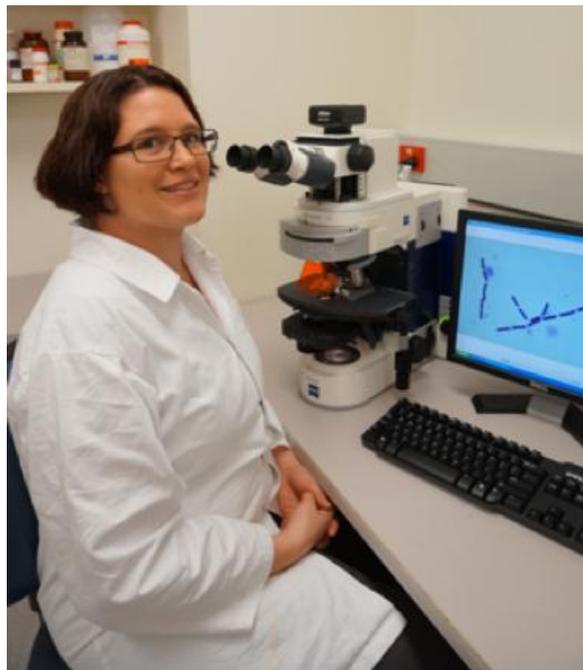
What does it mean for producers?

Knowledge from this project will help create opportunities to develop new feeding strategies that may assist producers lowering the methane emissions from their livestock while maintaining or enhancing productivity.

Data generated from the project may also assist in the development and validation of methodologies that producers may potentially use to claim credits under the Carbon Farming Initiative (CFI) and the future Emissions Reduction Fund (ERF).

Location(s):

The research is being undertaken at CSIRO sites at North Ryde, New South Wales; St Lucia, Queensland; Townsville, Queensland; and Belmont Research Station in Rockhampton, Queensland.



Lead researcher Dr Carly Rosewarne. Source: CSIRO

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.