



Australian Government
Department of Agriculture



NATIONAL LIVESTOCK METHANE PROGRAM

PROJECT FACT SHEET

Impact of leucaena feed systems on methane emissions and productivity in cattle

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About the project

Leucaena is a tropical and sub-tropical legume fodder crop that has been shown in laboratory studies to improve live weight gain and reduce methane emissions in cattle. This project will quantify, for the first time, the productivity gains and methane reductions achieved by using leucaena in commercial-scale cattle production systems. It will assess the effectiveness of both irrigated and non-irrigated leucaena systems and compare this against standard pasture systems for these regions.

The project will also monitor the microbial changes in the stomach (rumen) of cattle that underpin the reductions in methane at different levels of leucaena feeding. This information will assist current and future research groups to better understand the link between methane reduction and improved digestive efficiency in the rumen.

What does it mean for producers?

Producers will benefit by knowing the precise extent to which using leucaena can both increase productivity and reduce methane emissions in their production system. This is particularly important in northern Australia, where slow weight gain, high turn-off ages, and reliance on low quality forage diets are common.

The information produced by this project will help support the future development of leucaena feeding systems as a methodology that may allow producers to claim credits under the Carbon Farming Initiative (CFI) and the future Emissions Reduction Fund (ERF).

Location(s):

Research is being undertaken in two locations in northern and central Queensland:

1. Belmont Research Station, Etna Creek (near Rockhampton)
2. Brian Pastures, near Gayndah



A Brahman grazing on a Leucaena shrub. Source: DAFF,

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.