

Helping reduce beef's environmental footprint

Greenhouse gas emissions from livestock represent one of the beef industry's biggest challenges.

They not only have the potential to damage the industry's reputation in some markets, but increase the cost of production for many producers.

Meat & Livestock Australia (MLA) invests in climate change research, which includes measuring methane, nitrous oxide and ammonia from feedlots – an important step towards improving the current livestock emission accounting system.

Gases such as methane are a natural by-product of rumen fermentation that takes place within all cattle.

Gas emissions from livestock accounts for agriculture's largest contribution to what is known as 'the greenhouse effect' which has been linked to global warming.

Stated in a report released in October this year, the Bureau of Meteorology and the CSIRO, say that if global greenhouse gas emissions are not dramatically reduced Australia could be 9 degrees Fahrenheit hotter and 80% drier by 2070.

In 2003, the Australian Greenhouse Office (AGO) estimated that Australian livestock released 62 million tonnes of greenhouse gases into the atmosphere.

Working with the AGO, MLA has funded research at the University of Melbourne where scientists have accurately measured greenhouse gas (GHG) emissions from two feedlots; one in the north of the country and one in the south.

It is the first project in Australia and one of the first in the world.

The research aims to not only find a method to accurately measure and estimate emissions but to eventually develop ways of proving the industry can reduce its contribution to the greenhouse effect.

A combination of newly developed scientific models and measurements with laser and infrared technology, has been found to be reliably accurate in measuring gas emissions from beef cattle.

By using a beam of light of known frequency, scientists can measure how much of a particular gas is in the atmosphere by detecting how the light is altered as it passes through the air.

Placing the equipment in the right conditions at a feedlot, Associate Professor Deli Chen and his team can estimate how much of a certain gas is being released.

"The preliminary data is showing that on average in a beef feedlot an animal emits between 200 and 300 grams of greenhouse gases a day. This compares favourably with data from other countries," Prof Chen said.

Within the research team is animal expert Dr Julian Hill who is currently working through how diet, genetics, management practices and environment influence GHG emissions.

By finding links between certain practices in the beef industry and the amount of gas emitted, it is hoped that emissions can be reduced.

AT A GLANCE

- Greenhouse gas emissions from livestock is agriculture's largest contribution to what is known as 'the greenhouse effect' which has been linked to global warming.
- In 2003, the Australian Greenhouse Office estimated that Australian livestock released 62 million tonnes of greenhouse gases into the atmosphere.
- Australia is at the forefront of research looking into reducing greenhouse gas emissions from livestock.

Having a handle on the science and a reliable way of measuring greenhouse gas emissions is an important first step towards reducing the environmental footprint of the beef industry.

"You can only find ways to reduce greenhouse gases if you can reliably measure them" Prof Chen added.

Given the method has now been established, hard data can be placed on the feedlot production of beef.

Ultimately the beef industry is hoping to be able to place a figure on the amount of carbon that has been emitted per kilogram of beef produced, a term Prof Chen calls 'life-cycling analysis'.

In world terms, Australia is at the forefront of research looking into reducing the global footprint of the beef industry.

MORE INFORMATION

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Infrared technology and lasers are being used by University of Melbourne researchers to measure gas emissions from cattle.

