

A photograph showing two sheep standing in metal methane capture boxes. The sheep are positioned in adjacent stalls, with their heads and bodies visible through the metal bars. The background shows a grassy field and a fence.

Cross-sector collaboration in livestock research

THIS CASE STUDY IS ONE IN A SERIES DEVELOPED TO SHOWCASE OUTSTANDING EXAMPLES OF COLLABORATIVE ACTIVITY WITHIN THE AREA OF CLIMATE CHANGE RESEARCH, DEVELOPMENT AND EXTENSION IN THE AUSTRALIAN PRIMARY INDUSTRIES SECTOR.

BY THE REDUCING EMISSIONS FROM LIVESTOCK RESEARCH PROGRAM

Methane emissions from livestock agriculture represent 14% of global anthropogenic greenhouse gas emissions. With demand for protein, particularly from meat and milk, predicted to double by 2050, ruminant-based livestock agriculture will continue to be an important contributor to global greenhouse gas emissions.

The Reducing Emissions from Livestock Research Program (RELRP) recognises the abatement of methane emissions from livestock agriculture as an important environmental policy and food security issue in ensuring the long-term sustainability of livestock production.

Initiated by Meat & Livestock Australia (MLA) through the Australian Government's Climate Change Research Program, this national program brings together 12 research providers in a partnership that aims to maximise the benefit of Commonwealth, state and livestock industry investments.

RELRP's major objective is to deliver knowledge and technologies that will enable producers to breed and/or manage ruminants to significantly reduce methane emissions while maintaining livestock productivity. Given this broad and challenging remit, MLA recognised that the only feasible way of achieving the program's objective was to develop a consortium of research investors and providers.

*Pictured above:
methane capture boxes.*

RELRP is funded by the Australian Government Department of Agriculture, Fisheries and Forestry's Climate Change Research Program and MLA, with project support from the following collaborating organisations:

- Australian Farm Institute
- Australian Wool Innovation
- CSIRO
- Dairy Australia
- Department of Primary Industries Victoria
- Sheep Cooperative Research Centre
- South Australian Research and Development Institute
- University of Melbourne
- University of New England
- University of Queensland
- University of Western Australia
- University of Wollongong

The program is structured as a series of 39 basic and strategic-applied research projects. Governance of the program is provided by a Steering Committee representing all collaborators and investors. Collaboration is critical to the success of the program with all research partners participating in technical workshops and assisting each other with specialised research skills. Strong relationships based on the spirit of 'public good' rather than contractual obligations are a feature of the program.

The areas of research covered are diverse, and include quantifying ruminant methane emissions, investigating genetic approaches to emissions reductions, manipulating rumen function to achieve lower emissions, improving management of waste, developing farming systems for lower methane emissions, and effectively communicating the research to targeted primary producers.

To date, RELRP has delivered new knowledge and understanding of the feasibility of selecting and breeding low methane livestock (sheep and beef cattle); developed a range of nutritional and management strategies that can be adopted by the industry to reduce methane and nitrous oxide emissions; and identified key biochemical and metabolic pathways that can be manipulated in the future to reduce the overall production of methane in the rumen.

Outputs from the program include:

- the lodgement of a patent for an intra-ruminal device to measure methane;
- an estimate of heritability for the low methane trait in sheep, which may provide the basis for a 'Low Methane' Australian Sheep Breeding Value, a Carbon Farming Initiative (CFI) methodology for sheep breeding, and similar future work in cattle breeding;
- feed supplementation strategies that can achieve methane abatement in the range of 7–20%;
- identification of a number of new methodologies under the CFI legislation; and ongoing discussions with the Department of Agriculture, Fisheries and Forestry and the Department of Climate Change and Energy Efficiency about the use of these methodologies.

Beyond its success in developing research outputs of immediate and ongoing value to the industry, the program also demonstrates the efficiencies that can be achieved through research–industry–government collaboration.

FOR MORE INFORMATION

Tom Davison, RELRP Coordinator

Email: tdavison@mla.com.au

www.mla.com.au/Research-and-development/Research-programs-and-projects/Environment

CCRSPI is a collaborative response to the opportunities and challenges posed by climate change for Australian agriculture, fisheries and forestry. It is a joint initiative of the rural research and development corporations; the state and territory governments; the Australian Government Department of Agriculture, Fisheries and Forestry; and the CSIRO.