

PGgRC MBIE Partnership Programme (2012-2019) to develop new commercialisation-ready direct GHG mitigation tools for pastoral farmers.

PGgRC achievements as at 2013

Underpinning R&D from PGgRC

Mitigas standardised testing protocol, microbial community profiling tools

CH₄ emissions heritable in sheep

25% CH₄ emission reduction on rape brassica

Demonstrated immune response, two lead antigens, methanogen genomes

Pipeline for inhibitor identification, 40 lead inhibitors, methanogen genomes

New aligned PGgRC and NZAGRC CH₄ research program

1. OBJECTIVE ONE Animal Genomic Selection

Identify selectable markers for low emitting sheep, cattle 2012 - 2018

Understand basis of low CH₄ emission trait 2012 - 2015

Demonstrate production characteristics associated with low CH₄ 2012 - 2016

5. OBJECTIVE FIVE Systems Fit of Technologies and Extension

Sheep markers by 2016

Make markers available to breeders

2. OBJECTIVE TWO Low GHG Feeds

Verify GHG reduction with brassicas 2012 - 2013

Understand basis of low GHG feeds 2012 - 2013

Demonstrate low CH₄ from predicted feeds 2015 - 2016

Decision tools for low GHG feeds by 2017

Predict and verify low CH₄ feeds

3. OBJECTIVE THREE Methane Vaccine

Demonstrate antibody levels are sufficient to inhibit methanogens 2012 - 2014

Identify suitable antigens 2012 - 2015

Demonstrate effect in animals 2012 - 2015

Engage commercial partner by 2019

Produce vaccine with commercial partner

4. OBJECTIVE FOUR Methanogen Inhibitors

Identify suitable inhibitors using assays and in silico models 2012 - 2015

Demonstrate neutral or positive effects of methanogen inhibition

Demonstrate effect in animals 2013 - 2015

Engage commercial partner by 2017

Produce inhibitor with commercial partner

(Towards 2030 Framework, End user groups, CAG, commercial partners)

IMPACT:

Direct mitigation technologies being used on farms, reducing emissions by an average of 1.5% p.a. over what indirect mitigation provides.

