



Ministry for Primary Industries  
Manatū Ahu Matua



# The Cool Sheep® Programme

## Reducing methane emissions in New Zealand's national sheep flock through genetic selection.

This ground-breaking project aims to give every sheep farmer in New Zealand the opportunity to use genetic selection as a tool to reduce greenhouse gas (GHG) emissions in their flock.

To achieve this, the programme is helping to identify and increase the availability of low methane rams in the breeding sector. In time, farmers will be able to use the credentials of low methane rams they buy and use to track the progress of their own flock.

Beef + Lamb New Zealand (B+LNZ) is leading the three-year programme, with support from the Ministry for Primary Industries through its Climate Emergency Response Fund (CERF).

B+LNZ is investing our time and expertise to provide tools for farmers to manage and reduce their ruminant methane emissions because a number of farmers have told us this is important to them. Participation in this programme is voluntary, and the response from many farmers has been enthusiastic.

[blnzgenetics.com/cool-sheep-programme](https://blnzgenetics.com/cool-sheep-programme)

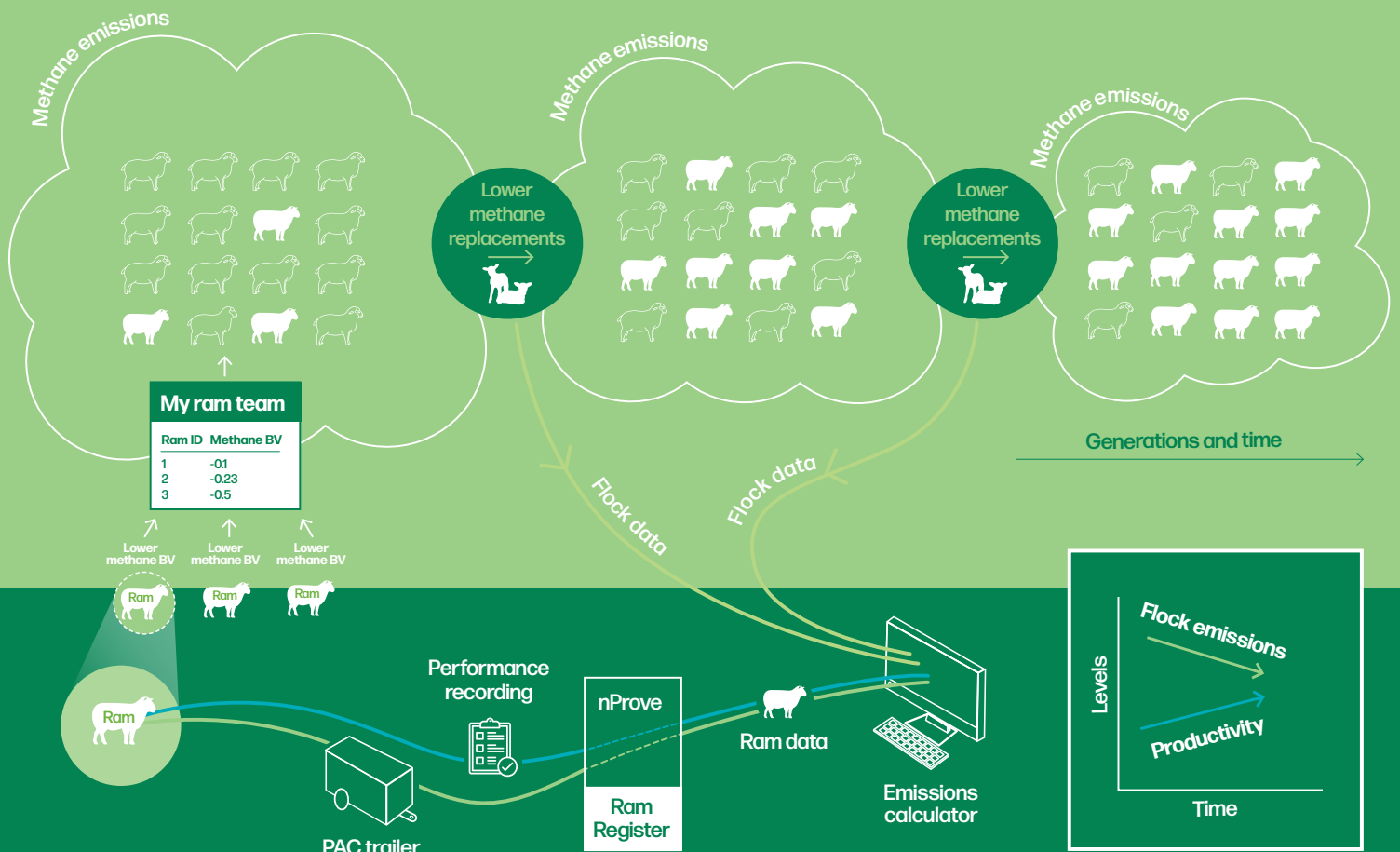
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## Breeding toward low methane sheep: demonstrating flock emission reduction

The Cool Sheep® Programme aims to put infrastructure in place within the New Zealand sheep industry to continue selecting for low methane genetics and reduce GHG emissions from the sheep sector even after the programme's funding ends.

At the bottom left corner of the diagram above, in the dark green section, we have ram breeders measuring emissions in their stud flocks through AgResearch Portable Accumulation Chamber (PAC) trailers. Using the New Zealand Genetic Evaluation (NZGE), B+LNZ Genetics delivers an Estimated Breeding Value (EBV) for methane to breeders to help them make selection decisions in their breeding programmes.

The three flocks shown in the top half of the diagram represent the commercial farmer who purchases low methane rams from a stud breeder measuring methane. Using these rams and their low methane progeny in the flock over time can reduce the overall emissions of their flock.

Through the Cool Sheep® Programme, B+LNZ Genetics is developing a system where farmers can log their ram purchases in nProve and receive an average EBV at flock level for their methane emissions. This Methane EBV, along with farm data, could potentially be used to demonstrate improvements in a farm's emissions profile over time.

This system is not limited to methane alone. Once established, B+LNZ Genetics can expand it to provide commercial farms average EBVs for other important production traits - like number of lambs born. This additional information will help farmers to make more informed genetic decisions when purchasing rams.



## Looking to the future

It is possible that in the future farmers will want to be able to demonstrate how they are managing their emissions. Currently, using low methane sheep is one of the few tools available to farmers.

New Zealand's red meat and wool exporters are telling B+LNZ that greenhouse gas production from farms is increasingly part of discussions with customers in their global markets. While there is a question mark around whether it will be possible to get a premium, being able to demonstrate progress is likely going to be important to maintain market position and access.

In time, the use of low methane rams in sheep flocks could be captured in the national GHG inventory.

### *How does this research relate to a potential price on emissions?*

B+LNZ's position is that there should be no price on agricultural emissions. We believe that if we are making progress in reducing our emissions, then there is no need for a price. In our view, using this technology is one way to avoid this.



**WATCH:** Last year, a webinar on using genetic selection to reduce methane emissions in New Zealand's sheep flocks was organised by the Cool Sheep® Programme and hosted by B+LNZ Genetics. It focused on harnessing the power of science and research to provide solutions and options in New Zealand's sheep breeding sector.

Scan the QR code to watch the video, or visit [bit.ly/low-methane-webinar](https://bit.ly/low-methane-webinar)

## Stud flocks: measuring methane in your flock

At least 5,000 methane measurements (phenotypes) of individual stud animals are collected every year by AgResearch using PAC trailers. These trailers enable accurate assessments of methane emissions from sheep.

The PAC data is combined with sheep genotyping to provide a Methane Breeding Value. The Cool Sheep® Programme covers the phenotyping measurement cost for eligible breeders and has budget for 5,000 animals across the country per year.



PAC Trailer (pictured) now includes a roof for sunshade.

### How it works

The one-visit process will measure a minimum of 168 eligible animals (14 sires) at a single site. This involves two days of testing, as the PAC trailer can measure 12 animals at a time and up to 7 of those groups daily.

To be eligible for Cool Sheep® Programme funding, the conditions required are:

- phenotyped animals must be genotyped\* and the genotype provided to B+LNZ Genetics for use in the national roll-out of the Methane Breeding Value.
- the flock must be recording for NZ Maternal Worth or NZ Terminal Worth (Reproduction, Survival, Lamb Growth, Adult Size).
- the flock must be recording or intending to record on SIL/nProve within one month of measuring.

*\*Minimum 15K SNP chip. Parentage-only genotyping is not sufficient. Flocks can be genotyped alongside the PAC measuring process, which can be discussed at booking time. Genotyping must be paid for by the breeder.*

Stud breeders interested in measuring methane emissions can find more information and an expression of interest form at: [www.methanebv.co.nz](http://www.methanebv.co.nz).



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