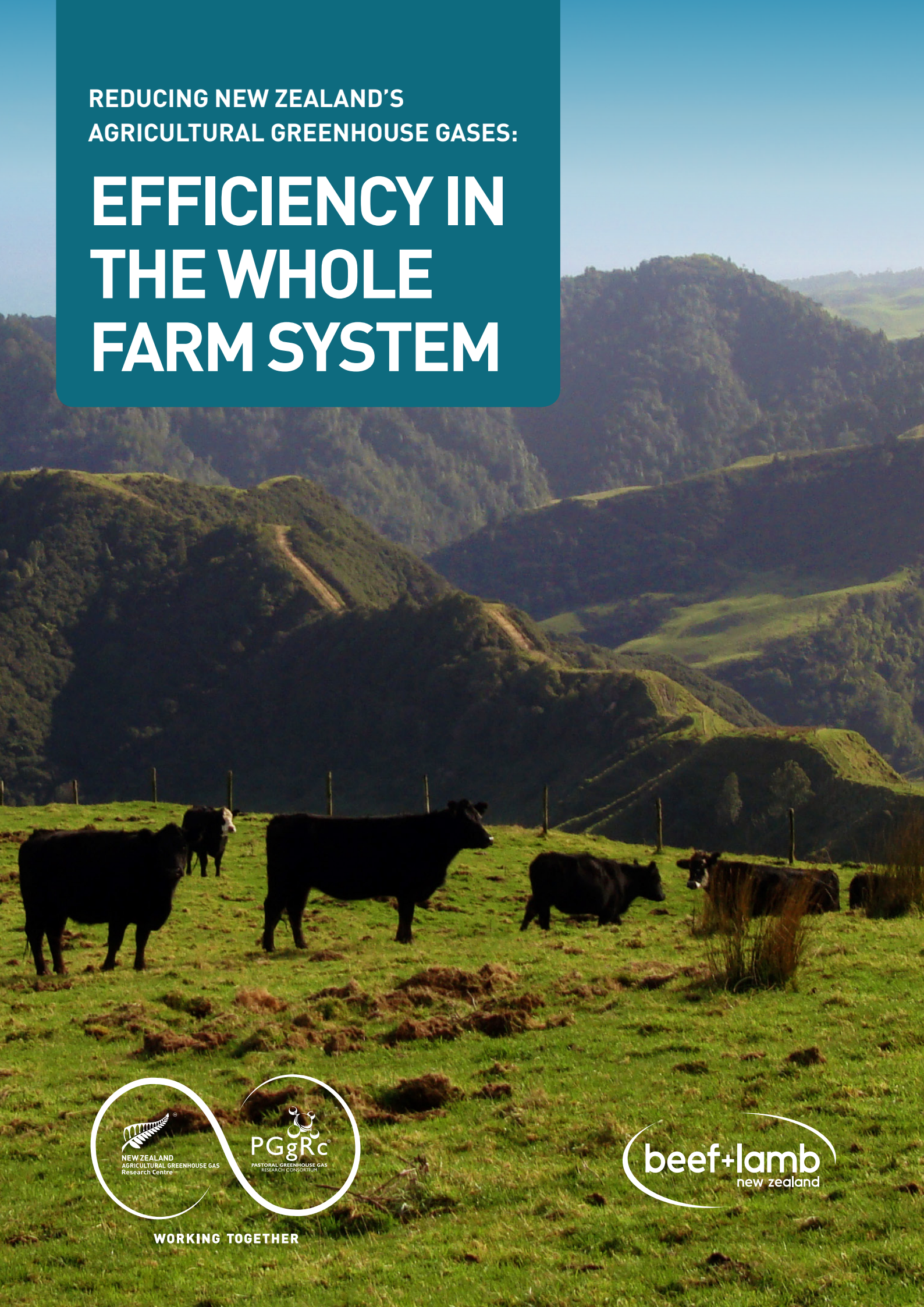
REDUCING NEW ZEALAND'S AGRICULTURAL GREENHOUSE GASES:

EFFICIENCY IN THE WHOLE FARM SYSTEM



NEW ZEALAND AGRICULTURAL GREENHOUSE GAS Research Centre

PGgRc PASTORAL GREENHOUSE GAS RESEARCH CONSORTIUM

WORKING TOGETHER

beef+lamb new zealand

EFFICIENCY IN THE WHOLE FARM SYSTEM

The New Zealand Sheep and Beef sector has delivered excellent productivity gains over the last 25 years. This increased efficiency has resulted in annual improvements in the intensity of greenhouse gas (GHG) emissions from the sector.

On-farm GHG emissions intensity – emissions per unit of product – of sheep and beef production has declined by more than twenty percent since 1990 based on the allocation of emissions in the NZ National Greenhouse Gas Inventory. With the sector facing challenges and pressures to its profitability and capacity to deliver to required environmental standards, it is important to recognise and understand farming systems that are exceeding economic and environmental standards and providing good social outcomes.

This industry and government partnership programme is seeking to identify how farmers can utilise existing and near to market practices and technologies to reduce the intensity of GHG emissions.

While the driver for improved GHG efficiency on farm is not currently a legislative one, it's important to realise that improved production efficiencies to date have happened without financial burden and within normal, highly productive farm systems.

Basically, the more efficient and productive the farm is, the more GHG efficient the farm is likely to be. The challenge for the sector is:

How can those efficiency and productivity gains be accelerated and shared more widely across the sector to improve overall performance?

THE RESEARCH

The New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) and the Pastoral Greenhouse Gas Research Consortium (PGgRc) research programme will showcase the improved efficiency of New Zealand sheep and beef farming systems and help farmers understand the benefit this has for GHG emissions.

The sheep and beef sector is engaged in a range of on-farm demonstration and monitoring activities which provide the opportunity to take this programme out on farm and into community groups. We will develop the NZAGRC-PGgRc programme on farms that are involved in monitoring of economic and environmental performance. We will connect with Beef + Lamb New Zealand (B+LNZ) which provides a unique opportunity to be part of their extension activities.

THE OBJECTIVES

Through this collaborative project we want to share information with New Zealand farmers:

- The New Zealand sheep and beef sector emissions intensity achievements on-farm
- Productivity, profitability and environmental options for success on-farm
- Technical resources for farmer use (through alignment with B+LNZ's Environmental Focus Farm extension programme).

RESEARCH PARTNERS

Onetai Station, a 14,000 ha property located in Coastal King Country, is a recently purchased property with some big farming challenges - weeds, pests, productive capability. The current owners purchased the property in 2014 and plan to develop the productive potential of the station whilst maintaining and improving its environmental integrity. Through fencing, stock water and pasture improvement, the farm is aiming to increase its wintering to 9000 SU over 3-5 years (currently, 5500 SU). The farm will open its gates annually to share their progress.

NZAGRC-PGgRc will use the Onetai Station to undertake measurement of animals, pasture performance and modelling to better understand New Zealand beef and sheep farming systems. The project will begin with a cost benefit analysis of production and environmental impacts of farm development and the associated greenhouse gas emissions. The key measurements will be taken for identified drivers of GHG efficiency like ewe and cow reproductive performance, stock weights and pasture cover profile.

Beef + Lamb New Zealand are developing a new initiative with a focus on environmental monitoring. Onetai Station is its first Environmental Focus Farm. The B+LNZ project will use Onetai to demonstrate long-term costs and benefits of farm development. The first step will be benchmarking to establish a 'start point' and the project focus will be defined in consultation with the farmer consortia. A Land and Environment Plan Level 2 (LEP2), Overseer Budget and Farmax model will be completed for the farm. Environmental Extension Manager Erica van Reenen says they will work with existing projects on the property to look at extension of environmental information including that from the Regional Council.

OTHER NEW ZEALAND GHG RESEARCH

The NZAGRC and PGgRc fund research into reducing methane emissions through low methane animals, low methane feeds, inhibition vaccine, and methane inhibitors. There is also funding for research into reducing nitrous oxide and nitrate leaching and increasing soil carbon sinks to absorb emissions. The integrated farm systems programme will run alongside this research.

WORKING TOGETHER

Read our overview factsheets:

- How are we getting there
- What we are doing
- How we measure emissions

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