



Pastoral Greenhouse Gas Research Consortium (PGGRC)

Submission on He Pou a Rangi / Climate Change Commission – 2021 Draft Advice for Consultation 28 March 2021

Executive Summary:

We SUPPORT the creation of a long-term plan for funding research and development towards reducing biological emissions in partnership with industry, government and science providers and **REQUEST** that this be completed by December 2021

In addition

We SUPPORT the creation of a clear regulatory pathway for supporting our technological mitigations and that this is urgently addressed no later than December 2021.

Introduction

The PGGRC is a long-standing commitment by the pastoral sector to address agricultural GHG emissions, while ensuring New Zealand's economic wealth is not compromised.

The current PGGRC shareholders are: Fonterra; Beef+Lamb New Zealand; DairyNZ; Deer Industry NZ; AgResearch; Fertiliser Association; PAMU Landcorp farming; and PGG Wrightson Seeds. Associate members of the PGGRC are the Ministry for Primary Industries (MPI), the Ministry for Business Innovation and Employment (MBIE), the National Institute of Water and Atmosphere (NIWA) and the New Zealand Agricultural Greenhouse gas Research Center (NZAGRC).

Since 2003, the PGGRC in partnership with Government, has invested and directed around \$85 million in scientific research to develop and deliver cost-effective emissions mitigation options for livestock farmers. Government matching funding of the PGGRC has been through MBIE's Partnerships fund, and latterly from the MBIE Strategic Science Investment Fund (SSIF).

At an operational level, the PGGRC works towards achieving its goal of practical mitigation solutions that will work on-farm, by focusing on the creation and development of intellectual property (IP) relating to greenhouse gas reducing technologies and practices. We are also working with a range of commercial parties in taking our innovations (and theirs) through to delivery.

Solutions discovered and developed by PGGRC are likely to have future global application and appeal. As many other countries also reduce their CO₂ emissions from fossil fuels, their profiles will begin to look more like New Zealand's i.e. with a larger share of total emissions being biological emissions from food production. The PGGRC is a founding member of the NZAGRC.

Several of the shareholding organisations are also direct partners to He Waka Eke Noa and the contribution to the PGGRC from them has been regarded as part of their commitment to that partnership with government to reduce agricultural emissions.

The PGGRC has a unique and comprehensive understanding of the challenges that need to be overcome to deliver technological mitigation opportunities to our livestock farmers.

1. A long-term innovation plan

4d Review current arrangements and develop a long-term plan for targeted research and development of technologies (including evaluating the role of emerging technologies such as genetic engineering) and practices to reduce biogenic emissions from agriculture.

And its associated deliverable;

Government to have, by 31 December 2022, developed a long-term plan for funding research and development to support reductions in biological emissions from agriculture.

We have chosen to focus on this recommendation recognising that our livestock sector shareholders will be providing more comprehensive commentary on the wider aspects of the draft advice on addressing Aotearoa's agricultural emissions. The consortium supports the submissions from these shareholders.

Submission Detail

We fully support the initiative of a long-term plan that takes a comprehensive approach and commit to work with government to develop and deliver this. We would make the following observations regarding this recommendation.

Efficiency and livestock reductions will not provide a long-term solution for GHG emission reduction.

While we accept that enhanced efficiency is a critical part of livestock business development that contributes towards reducing emissions it does not guarantee a reduction in feed consumed (the main driver of emissions from ruminants) across the industry and that technologies to reduce methane and nitrous oxide production from the amount of feed eaten (de-coupling of emissions) have to be found **and** delivered. That work has made significant progress, but further acceleration is required, to provide our farm systems with greater flexibility to reduce GHG emissions in future.

Our temperate climate and fertile soils provide Aotearoa with the basis for year round grazing which is the cornerstone of our efficient pasture based farm systems. These have and are being continually optimised within and across years to balance livestock and pasture management by our farmers. That task is complex and multifactored, and required in all livestock sectors, seeking a balancing of all biological factors at play; it is that farmer skill and these factors that keeps our costs low and makes us competitive internationally.

This also makes it challenging to find solutions for biogenic emissions where they must fit in with the core focus of the business of harnessing sunlight through pastures and livestock to deliver world class milk, meat and fibre. It is too simplistic and can be challenging on many farms to simply reduce numbers, or to move towards best management practice (BMP) as the farm systems are balanced to make the best of variable seasonal production and manage the climate risks of drought and stormy or wet periods. Further to this although the livestock industries significantly support the achievement of BMP through their activities, there will be varying capacity/ capability/ financial ability across farmers to readily achieve this.

Build on from a solid base, with enduring arrangements.

There has been a sustained focus on identifying, developing, and incorporating these mitigation technologies into our farm systems since 2003 through the Crown and PGGRC programmes and any future investment must continue building on that progress to date.

Internationally we stand clearly as one of the active countries in this research space, we remain significant globally, with the most comprehensive approach across ruminant livestock production. Critically for our farmers, we maintain a strong focus on delivering options for grazing systems. Our efforts and our science expertise are well recognised internationally for both methane and nitrous oxide and across several research organisations. If we are not investing in these developments, there is no guarantee that any other country will be doing that with our farming systems specific focus.

Other mitigation options have and will continue to appear globally, and perhaps at a faster rate into the future. Some of these will have application to our farms, but we must retain the ability to test and validate them for our NZ conditions; we do not receive subsidies and must produce high quality products for our discerning markets from naturally grazed pastures, with generally low levels of feed supplements. However, we need to allow scope to incorporate other non-NZ origin innovations to be evaluated and if applicable adopted.

We support the call for continued and additional investment. Further to this, we reinforce that there is a plan developed that covers-off all aspects from invention through to delivery and that all players are involved in developing this plan spanning the whole continuum from science through to delivery for our farming systems.

The long-term plan should be developed through a comprehensive team approach that draws on expertise and focus from science, industry and government in equal measure, ultimately focused on delivering opportunity to farm businesses that are the source of these emissions. There must be buy-in and an ongoing engagement of this plan that ensures its fulfilled.

This all-team approach is a critical success factor for the effective impact of the long-term plan; without all parties buying in and supporting the process for this, the outcomes will be less than optimal. Government and Industry must act collaboratively to achieve the best outcome, recognising that buy in must also bring with it, commitment from all players to support the plans activities and delivery.

Plan Scope.

The PGGRC has developed a mitigation solution profile process that identifies the aspects required to meet the technology innovation requirements throughout the innovation to delivery continuum, It should deliver;

- Mitigation solutions that are scientifically valid, can count in the national Inventory and are able to be practically used in current and future farm systems.
- Product quality that is not impacted and if possible enhanced to ensure that all market requirements are met.
- Opportunities are developed to enhance the path to market for partners and also for adoption enhancement.
- Understanding of the economic aspects; the cost of the innovation and its delivery, and carbon impact captures and how that would be reflected in any emission pricing system.

Although the majority of current funding is necessarily focussed on the science development of options to overcome the biological challenges, this may not always be the limiting step and a plan must include enhancement to all aspects of the pathway to delivery and look to create partnership to support that.

Therefore, the investment supporting a long-term plan should be a mixture of activities and resources to deliver the opportunities to the farming systems we operate in Aotearoa, building on the current Crown and sector investments and offering flexible instruments for co-funding and resourcing with industry, commercial delivery agents and international partners. The time frame for investment should reflect the long term required to develop, prove and roll out these mitigation options, for example (5-10 year horizons), recognising that mitigation solutions may require science investment beyond that period until they are fully proven.

The plan could also incorporate the thinking about alternative farm systems, noted in the He Pou a Rangi draft advice recommendation. Any additional activity in this space must also meet the criteria of the technology innovation requirements outlined above throughout the continuum. This may lead to an increase in the complexity of the scope but nevertheless should be canvassed within the long-term plan as an area that needs to be considered.

Funding

We have not defined a specific level of funding required in our response; currently direct funding for mitigation research through PGGRC, NZAGRC, GRA and GHG inventory improvements is around \$25m pa. Significantly more investment will be required to deliver solutions, e.g. A methane inhibitor delivered as a feed additive is estimated to require at least \$50m USD over 4-5 years once it has shown proof of function to be delivered into the market.

Rather we recommend that in developing the long-term plan a comprehensive ‘all required activity’ innovative approach with clear goals should be developed and realistically costed. Then consideration on how the long-term plan activity can be resourced be it through government, industry, commercial or other participation, can be worked out reflecting the nature of the activity required. It is likely in supporting this plan to success will require a range of investments and include infrastructure and the funding support will need to reflect this.

Governance; making it happen.

Thought should be given to having effective governance arrangements for the long-term plan that ensures it endures through to delivery of the plans outcomes, i.e. mitigation and management options that have application for our livestock farming systems.

This governance body must align with broader He Waka Eke Noa activities but needs to have the gravitas and ability to influence the investment and activity needed to deliver the plan and should draw on both government Industry and commercial delivery expertise to do that.

Comment on the Deliverable timing.

We recommend that Government see this as an urgent requirement and provide resource and commitment to get this activity underway and endeavour to complete the development of the plan by 31 December 2021, thereby providing a clear basis for funding to support the delivery of the long-term plan to commence in 2022.

We make that recommendation recognising that aspects of the plan are already developed through plans being followed by the NZAGRC and PGGRC, the development that He Waka Eke Noa is making with its workstreams and through our working with initiatives within MPI



to accelerate this area;

We believe across the industry and Government there is commitment to make this happen as soon as possible.

2. Alignment with regulatory systems

And its associated deliverable;

Government to have, by 31 December 2022, reviewed and amended processes and regulatory regimes for new emissions reducing technologies and practices.

In parallel to developing a long-term plan to reduce biogenic emissions from agriculture we agree that a clear regulatory pathway also needs to be developed. This will ensure we can respond with data to the requirements of that regulatory pathway within the research programmes; ultimately shortening the time to delivery for mitigations.

It can't be understated how important this regulatory clarity is for the development of mitigation solutions. The suspension of Dicyanamide (DCD) as a nitrous oxide mitigation is a clear example where lack of understanding of regulatory barriers slowed our ability to reduce biogenic GHG emissions for agriculture. We need to learn from this.

We consider that the alignment of the regulatory system is an urgent activity that should be completed as soon as possible as a lack of clarity in this regard is a major limitation to the speedy incorporation of technologies. Therefore, we would suggest that delivery of the regulatory regimes and processes should be completed as soon as possible and certainly by the 31 December 2021.