

Kay Harrison
New Zealand Climate Change Ambassador
Ministry of Foreign Affairs and Trade
WELLINGTON

30 August 2021

SUBMISSION TO THE MINISTRY OF FOREIGN AFFAIRS AND TRADE: CONSULTATION ON NEW ZEALAND'S APPROACH TO THE 2021 INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS

Dear Kay

You have asked for stakeholder views on outcomes for COP26 in Glasgow, November 2021. Specifically, you have asked:

- **What negotiation outcomes should New Zealand prioritise at COP26?**
- **Are there specific considerations we should take account of in responding to the issues being negotiated this year?**

DairyNZ is the industry good organisation representing all 11,000 of New Zealand's dairy farmers. **Our purpose is to provide a better future for farmers by enhancing their profitability, sustainability, and competitiveness.** The dairy sector employs 50,000 people, generates \$20b in export earnings, and comprises one third of all goods revenue. In 2018, we produced 25% less emissions per kg milk solids than if we had not invested in developing science to make more dairy farming more efficient.

DairyNZ is committed to dairy farming playing its part in transitioning to a low-emissions economy alongside the rest of New Zealand and supporting the delivery of the Zero Carbon Act. We have active programmes to support farmers as they transition to lower greenhouse gas emissions.

The following views relate to progressing actions on agriculture and climate change internationally.

As we begin to implement pricing for biological emissions from 2025 for agriculture in New Zealand, it is important that New Zealand dairy farmers know that other nations are also making serious efforts to reduce their own agricultural greenhouse gases.

New Zealand's dairy sector is committed to remaining the most efficient producer of low emissions milk in the world. Our focus as a sector is sustaining our success, as consumers and communities increasingly seek sustainably produced food.

New Zealand dairy farmers' hard work and investment over decades has contributed to this world-leading status. Our grass-based, outdoor grazing system is unique globally and is critical to our success.

The following issues should be advocated by the New Zealand delegation at COP26. We also wish to see New Zealand's negotiating mandate strengthened to include these issues as a matter of priority.

Advocate for split gas approach to targets

The New Zealand Government took a genuinely world-leading approach when it legislated for a split gas approach to the emissions reduction targets in the Climate Change Response (Zero Carbon) Amendment Act 2019. This innovative approach to emissions reduction targets should be followed by taking the same split-gas approach to emission budgets domestically and internationally.

DairyNZ recommends that New Zealand's split gas approach be promoted at COP26 as a means of assisting other parties to address the same issues alternative metrics are designed to resolve. This approach should be taken while also progressing work on promoting more fit-for-purpose alternative metrics (such as CGTP and GWP*).

A split gas approach recognises the science understanding of the difference between short and long-lived gases. If warming is the issue and stabilisation of temperatures at safe levels is the goal, then unbundling short and long-lived greenhouse gases helps to better define their ongoing contribution to warming and the tracking of those emissions against the temperature goal over time.

Strengthen New Zealand's negotiating mandate to pursue better understanding and recognition of alternative GHG metrics

We request that the mandate regarding greenhouse gas metrics be strengthened and that New Zealand's COP26 negotiators be empowered to take a leadership position on the issue. Metrics should be reframed towards being one part of the broader issue of *'estimating the warming impact of short-lived GHGs'*.

Moving away from the widespread use of GWP100 when referring to biogenic methane is an issue larger than transparency, as not doing so risks distorting GHG mitigation pathways by parties to the Paris Agreement.

GWP100 works well for comparing nitrous oxide and carbon dioxide, which remain in the atmosphere for 121 and 5-200,000 years respectively. It is very difficult to calculate the exact lifetime of a molecule of carbon dioxide, but it is treated as a long-lived stock gas.¹ Methane however only lasts in the atmosphere for 12 years and the GWP100 metric does not accurately consider this shorter lifetime. The inaccuracy of GWP100

¹ Allen, Myles R., Vicente R. Barros, John Broome, Wolfgang Cramer, Renate Christ, John A. Church, Leon Clarke et al. "IPCC fifth assessment synthesis report-climate change 2014 synthesis report." (2014). Pp.103.

when used to determine the warming impact of short-lived emissions such as methane is widely accepted and noted in various sources, including by the IPCC in its latest Sixth Assessment Report (AR6):

“The choice of emission metric affects the quantification of net zero GHG emissions and therefore the resulting temperature outcome after net zero emissions are achieved. In general, achieving net zero CO₂ emissions and declining non-CO₂ radiative forcing would be sufficient to prevent additional human-caused warming. Reaching net zero GHG emissions as quantified by GWP-100 typically results in global temperatures that peak and then decline after net zero GHGs emissions are achieved, though this outcome depends on the relative sequencing of mitigation of short-lived and long-lived species. In contrast, reaching net zero GHG emissions when quantified using new emission metrics such as CGTP or GWP would lead to approximate temperature stabilization (high confidence) {7.6.2}”²*

“By comparison expressing methane emissions as CO₂ equivalent emissions using GWP-100 overstates the effect of constant methane emissions on global surface temperature by a factor of 3-4 over a 20-year time horizon (Lynch et al., 2020, their Figure 5), while understating the effect of any new methane emission source by a factor of 4-5 over the 20 years following the introduction of the new source (Lynch et al., 2020, their Figure 4).”³

It is appropriate that Governments either adopt a more fit-for-purpose metric or split out reduction targets for short- and long-lived emissions. The IPCC sixth assessment report (AR6) supports either approach being taken:

“In summary, new emission metric approaches such as GWP and CGTP are designed to relate emission changes in short-lived greenhouse gases to emissions of CO₂ as they better account for the different physical behaviours of short and long-lived gases. Through scaling the corresponding cumulative CO₂ equivalent emissions by the TCRE, the GSAT response from emissions over time of an aggregated set of gases can be estimated. Using either these new approaches, or treating short and long-lived GHG emission pathways separately, can improve the quantification of the contribution of emissions to global warming within a cumulative emission framework, compared to approaches that aggregate emissions of GHGs using standard CO₂ equivalent emission metrics.”⁴*

Showcase New Zealand Agriculture’s domestic policy Partnership for GHG’s

DairyNZ is a partner and signatory to *He Waka Eke Noa*. This is a Primary Sector Climate Change Commitment with Government and iwi/Māori. Through *He Waka Eke Noa*, partner organisations are working to develop a framework by 2025 that will equip

² IPCC AR6, chapter 7 pp 123.

³ IPCC AR6, chapter 7 pp 123.

⁴ AR6, Chapter 7, pp. 124.

farmers and growers with both skills and tools to reduce their on-farm agricultural greenhouse gas emissions and to adapt to climate change.

He Waka Eke Noa presents a framework for farmer-driven action that could be used internationally by other nations seeing to address their own agricultural greenhouse gas emissions.

As a part of *He Waka Eke Noa*, farming organisations are committed to developing an appropriate pricing mechanism for agricultural emissions (biogenic methane and nitrous oxide). This appears unique, globally.

It is therefore critical that other nations understand New Zealand's approach and are held accountable for their own actions. We are aware that some nations are paying their farmers to reduce their greenhouse gas emissions by repurposing existing subsidies. We expect the Ministry of Foreign Affairs and Trade to bring the issues of trade and the environment together – especially as we look to negotiate new trade deals.

Showcase New Zealand Agriculture's continued Research and Development efforts

New Zealand continues to pursue research and development of agricultural greenhouse gas emissions. The Ministry of Foreign Affairs and Trade, the Ministry for Primary Industries and the Ministry for the Environment should highlight New Zealand's research and development efforts, including our coordination of the Global Research Alliance.

DairyNZ leads some research programmes and is partnering with others. This includes research into different farm system options, such as feed types and use, improved fertiliser and effluent use, and options for on-farm sequestration of carbon.

DairyNZ is also carrying out farm systems research with companies that are developing products to reduce greenhouse gas (GHG) emissions. The research will ensure the products are suitable for New Zealand pasture-based systems and help achieve our GHG targets. Our aim is to ensure the most relevant products are available for our farmers sooner.

DairyNZ is leading a Low-N Livestock programme, which aims to reduce greenhouse gas emissions, reduce nitrogen (N) leaching to improve our waterways, and help farmers meet regulatory requirements.

DairyNZ invests in climate change emissions reduction research, through the Pastoral Greenhouse Gas Research Consortium, and works closely with the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC). Research underway that DairyNZ is involved in partnership with PGgRc and/or NZAGRC includes:

Methanogen Vaccine - This work aims to reduce total ruminant methane emissions by at least 30 percent. The vaccine forms antibodies to attack methane producing microbes called methanogens. It is currently at the laboratory testing stage.

Methanogen Inhibitors - This research is investigating feeding substances to ruminant animals to reduce methanogen activity. Overseas trials have shown significant (e.g., 20 percent) reductions in methane emissions from cows consuming methane inhibitory products currently in research and development programmes. The substances and delivery mechanisms need to be tested in New Zealand's pasture-based systems to understand potential benefits here.

Selective breeding (low methane animals) - Research has confirmed that there is a potential genetic basis for reducing methane emissions in dairy cows, beef cattle and sheep. Lower emitting animals have a different rumen environment which produces less methane per unit of feed eaten. Breeding for this trait could result in a potential reduction of between three and eight percent per year over a 20-year timeframe.

Low methane forages - Research is underway to investigate forages which can reduce methane emissions and nitrogen losses. Identifying and validating these feeds will mean recommended feeding regimes can be developed based on current and new feeding options – for use in different farm systems. The work includes exploring potential methane reductions from feeding plantain.

Reducing nitrous oxide and leaching - Research is underway to develop new and support existing technologies to develop on-farm management options to help reduce nitrous oxide emissions.

On-farm delivery of methane inhibitors project - DairyNZ is supporting a project with NZAGRC and other partners to investigate delivery mechanisms for feeding methane inhibitors to dairy cows. The methane inhibitors currently in development are only effective while they are in the rumen, so the research is looking at how best to deliver the inhibitors to animals in a grazing situation. The aim is to find practical, cost-effective farmer friendly solutions to use feed additives or rumen inhibitors in pasture-based systems.

Genetics research - DairyNZ is involved in research led and funded by NZAGRC looking to breed low-methane cows. NZAGRC is currently funding a programme to identify bulls from CRV and LIC that produce less methane per unit of feed eaten. The next stage will be to investigate the performance of their progeny. Genetic selection for low methane yielding animals has already been successful in sheep, such that a flock has been generated that produces 10 percent less methane per unit feed eaten, than other sheep.

SUBMISSION ENDS

Thank you once again for the opportunity to comment on the negotiation outcomes for New Zealand to prioritise at COP26 and the considerations the Government should consider.

Please do not hesitate to contact DairyNZ if you have any questions regarding this submission or require any additional information. We would appreciate meeting with you to discuss further. Contact details for this submission are Roger Lincoln, Principal Policy Advisor: 0272756091 or Roger.Lincoln@DairyNZ.co.nz.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jenny Cameron', with a large, stylized initial 'J'.

Jenny Cameron
General Manager, Responsible Dairy
DairyNZ