

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

10 May 2023

**COP28 DUBAI - SUBMISSION TO THE MINISTRY OF FOREIGN AFFAIRS
AND TRADE: CONSULTATION ON NEW ZEALAND'S APPROACH TO
THE 2023 INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS**

Dear Kay

You have asked for stakeholder views on outcomes for COP28 in Dubai, November 2023.

You have asked New Zealanders about what is important to them and how we want to be represented on the world stage when it comes to climate change.

You have stated that this feedback will inform advice to Ministers to help MFAT better advocate for New Zealand values and interests at international climate change negotiations.

- DairyNZ emphasises its commitment to sustainability and to better report and manage its greenhouse gas emissions in the dairy sector, while also promoting New Zealand dairy as a sustainably produced food.
- We believe New Zealand should advocate for a split gas approach to emissions reduction targets, which separates short and long-lived gases – as indicated by the IPCC.
- We believe New Zealand should also seek a better understanding and recognition of alternative greenhouse gas metrics to accurately estimate the warming impact of short-lived GHGs – as indicated by the IPCC.
- We highlight the importance of other nations making serious efforts to reduce agricultural greenhouse gases as the New Zealand Government considers pricing for biological emissions from 2025.
- DairyNZ requests that New Zealand's negotiating mandate be strengthened to prioritise these issues.
- We also request a copy of New Zealand's negotiating mandate as it relates to agriculture and associated issues e.g. GHG metrics. This is particularly important to understand not only for core UNFCCC meetings but also IPCC, FAO etc, where New Zealand representatives are involved in advocating New Zealand's positions.

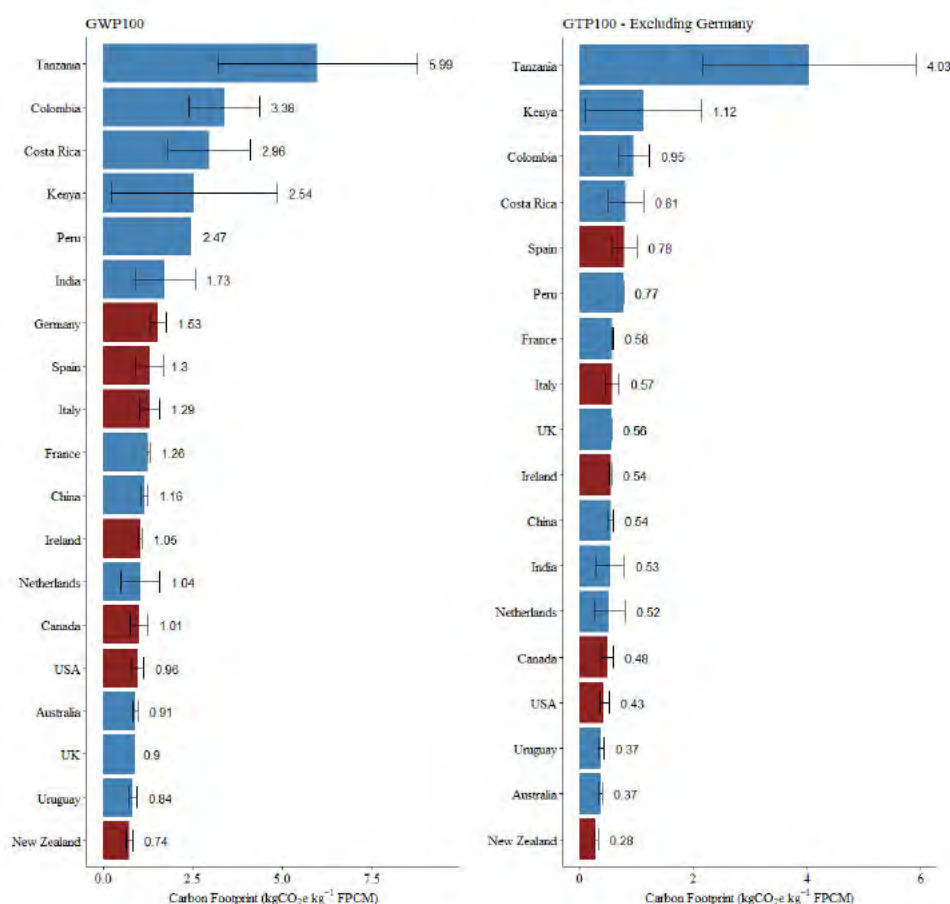
DairyNZ is the industry good organisation representing all 11,000 of New Zealand's dairy farmers. Our purpose is to provide a better future for farmers by enhancing their profitability, sustainability, and competitiveness. The dairy sector employs 50,000 people, generates \$20b in export earnings, and 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. 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 the Government begins to implement its 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 world¹. See table below:



¹ [Mapping the carbon footprint of milk production from cattle: A systematic review - Journal of Dairy Science](#)

Our focus as a sector is sustaining our success, as consumers and communities increasingly seek sustainably produced food. The sector makes an important contribution to enhancing global food security. We believe New Zealand's status as the most efficient producer of low emissions milk in the world should be promoted at COP28.

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 COP28. 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 a consistent split-gas approach to emission budgets domestically and internationally.

DairyNZ recommends that New Zealand's split gas approach be promoted at COP28 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 more accurately track those emissions against the temperature goal over time.

Advocate for difference between fossil methane and biogenic methane

We welcome the increased international attention on methane reduction through the Global Methane Pledge at COP26, which calls for voluntary actions to contribute towards a 30% reduction in global methane emissions by 2030. As a signatory to the Pledge, and as a frontrunner in agricultural emissions research, New Zealand is in a unique position to advocate for a difference between fossil methane and biogenic methane sources in this forum.

While the global methane pledge does not require all countries to meet the 30 per cent target individually, its principal focus and opportunity is the low hanging fruit of plugging oil and gas methane leaks.

Biogenic methane sources its carbon from the atmosphere through photosynthesis, as part of the carbon cycle. While the warming effect is calculated as part of New Zealand's inventory while it is methane, this rapidly decays into carbon dioxide and

back into the carbon cycle. This is why New Zealand adopted a split-gas approach to biogenic methane.

We note that signatories to the Pledge commit to continuously improve the accuracy, transparency, consistency, comparability, and completeness of national greenhouse gas inventory reporting under the UNFCCC and Paris Agreement, and to provide greater transparency in key sectors. Differentiating between biogenic and fossil sources would be a critical step to realise this objective.

DairyNZ asks that the Government notes and continues to clarify these points whenever 'methane' emissions are discussed internationally.

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 COP28 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 hundreds if not thousands of 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.² 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 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

² 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.

using new emission metrics such as CGTP or GWP would lead to approximate temperature stabilization (high confidence) {7.6.2}”³*

“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).”⁴

It is appropriate that Governments acknowledge this fact and 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.”⁵*

New Zealand’s domestic policy response and what others are doing

He Waka Eke Noa delivered a credible policy package to Government for levy pricing and its redistribution back to farmers to incentivise behaviour, actions and solutions whilst maintaining the profitability of the sector.

We are aware that some nations are paying their farmers to reduce their greenhouse gas emissions by repurposing existing subsidies e.g. the European Commission has recently approved a Dutch scheme totalling €1.5 billion to buy out Dutch farmers.⁶

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.

A recent report⁷ for the Climate Change Commission that looked at our export competitors’ actions and targets for agricultural emissions found that:

³ IPCC AR6, chapter 7 pp 123.

⁴ IPCC AR6, chapter 7 pp 123.

⁵ AR6, Chapter 7, pp. 124.

⁶ [Dutch farmers could be paid to close their livestock farms under new scheme](#)

⁷ [Final-AERU Literature-Review -CCC.pdf \(climatecommission.govt.nz\)](#)

- The primary policy goals of the examined nations are economy-wide emissions targets as part of their commitments under the Paris agreement signed at COP 21.
- Economy-wide net zero emissions targets are in place for Australia; Chile; European Union countries; the US, and the UK by 2050, and in China by 2060.
- While some of these agreements include reduction targets for different sector groupings of the economy, goals for agriculture are not specified. For example, the EU member states have emissions targets for their non-ETS sectors, which includes the agriculture sector but does not imply that any reduction must come from agriculture specifically.
- Outside of the Paris agreements some countries have government targets or strategies for emissions reductions for agriculture, such as the Irish government's Ag Climatise policy or the UK's 'agricultural Transition Plan 2021-2024'. These strategies outline broad areas of action in terms of change of agricultural systems and investment into technologies and farmer supports, but do not highlight policy restrictions for agricultural emissions or practices.

On the last point above, we also note that Ireland has a simultaneous target to increase their dairy herd, milk output, and land dedicated to agriculture, a strategy that may conflict with their emissions reduction targets.

Overall, it appears that very few countries, if any, have set a biogenic methane target aside from New Zealand. This is important context for any United Nation discussion and negotiation regarding agricultural greenhouse gas emissions.

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.

In Budget 2022 the Government allocated nearly \$339 million to accelerate the development of high-impact technologies and practices to reduce agricultural greenhouse gas emissions, including the establishment of the new Centre for Climate Action on Agricultural Emissions⁸. This investment is an order of magnitude greater than previous investments and should help coordinate and accelerate efforts to find technological solutions.

⁸ [Partnership to reduce agricultural emissions | Beehive.govt.nz](https://www.beehive.govt.nz/partnership-to-reduce-agricultural-emissions)

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 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 COP28 and the issues 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 ^{s9(2)(a)} Principal Policy Advisor: ^{s9(2)(a)}

Yours sincerely

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DairyNZ