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He Pou a Rangi – Climate Change Commission  
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## **DairyNZ submission to He Pou a Rangi – Climate Change Commission**

DairyNZ welcomes the opportunity to provide feedback to He Pou a Rangi Climate Change Commission (the Commission) on:

- Advice on the fourth emissions budget (2036-2040)
- Review of the 2050 emissions target
- Review of inclusion of emissions from international shipping and aviation in the 2050 target

### **Executive Summary**

DairyNZ is committed to dairy farming playing its part in transitioning to a low emissions economy alongside the rest of Aotearoa New Zealand. Our work covers research, economic and farm systems analysis, and extension to support the sector to improve its efficiency and profitability, build resilience to a changing climate, and reduce its emissions.

DairyNZ disagrees with the Commission's findings on significant change in global action, technology availability, and scientific understanding that are then relied on to support an initial recommendation of a more ambitious 2050 emissions reduction target.

DairyNZ considers the Commission's demonstration pathway for the fourth emissions budget is unrealistic. We urge a more cautious approach in making assumptions and judgments about methane reductions in 2036-2040 and beyond.

DairyNZ does not support inclusion of international shipping and aviation emissions in the 2050 target. We seek greater analysis from the Commission on the implications for the agricultural sector as a major exporter if these emissions were to be included.

In the Commission's advice to Government, DairyNZ calls for caution in assuming:

- The level of methane-reducing technologies that might be available to New Zealand farmers in the future, until more robust evidence is available.
- That the national dairy herd can be reduced by 20% while holding production and revenue constant at today's levels out to 2040.
- That an increase in New Zealand's target can somehow compensate for a shortfall in global mitigation efforts.
- That understanding the warming effects of emissions reductions is not relevant or helpful in considering what is fair and equitable in setting long-term climate targets.
- Impacts on rural communities of increasing the ambition of the 2050 emissions target.

We offer to work with the Commission to resolve these issues.

## Introduction

1. DairyNZ is the industry-good organisation representing all 11,000 of New Zealand's dairy farmers. We seek to progress a positive future for New Zealand dairy farming through enhanced sustainability, profitability, and competitiveness. The dairy sector employs almost 55,000 people, generates \$25.7b in export earnings, and comprises one third of all goods revenue.
2. DairyNZ is committed to dairy farming playing its part in transitioning to a low-emissions economy alongside the rest of New Zealand. We have extension and engagement programmes supporting the dairy sector to farm more efficiently and profitability, with fewer emissions. Our scientists are actively involved in research projects exploring emerging mitigation technologies and their potential application to New Zealand dairy farms.

## Draft advice on the fourth emissions budget (2036-2040)

3. The Commission's reference scenario for the fourth emissions budget finds that current policies, coupled with improvements in productivity, fewer livestock and more land use change will only achieve a 13% reduction in methane emissions by 2050. This is well short of the 24-47% range that is currently legislated for.
4. Instead of adopting a conservative approach, as would be appropriate for this current 'direction of travel', the Commission has proposed a more heroic demonstration pathway for 2036-2040. It believes this pathway is feasible and could achieve the lower end of the methane target by the late 2030s, with a 39% reduction in methane possible by 2050 (see screenshot on page 4 of our submission).
5. DairyNZ believes a low emissions future is possible. However, we consider the Commission's pathway is unrealistic. We urge the Commission to take a more cautious approach in making assumptions and judgments about methane reductions in 2036-2040 and beyond.

## *Farm system and land use change*

6. We can see how the Commission may have arrived at its projections of herd size and land area for 2036-2040 by analysing recent historical trends. However, this does not take account of any shifts in policy direction and regulatory settings e.g. in response to the Government's ambition to double export value in the next decade.<sup>1</sup>
7. We also disagree with the Commission's judgment that this level of reduction in herd size and land area can occur while production and revenue are maintained at today's levels. This type of modelling assumes that many other levers are held constant, for example milk price payout and other market conditions. Our analysis shows that the Commission's scenario would result in a 7-11% decline in milk solid production and a similar decline in revenue.
8. To avoid this decline, the Commission has assumed a 25% increase in average per cow production by 2040. We disagree. This is not simple to achieve at this scale and would require a substantial increase in animal dry matter intake (DMI), plus improvements to animal genetic gain. This could also lead to increased intensity of production in some areas.

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<sup>1</sup> [Forecasts show mid-to-long term optimism for food and fibre sector | Beehive.govt.nz](https://www.beehive.govt.nz/forecasts-show-mid-to-long-term-optimism-for-food-and-fibre-sector)

9. We note that methane emissions from the remaining herd would increase, negating some of the reductions achieved by having a smaller national herd. We acknowledge that this could change if cost-effective mitigation technologies were available. However, for the Commission's forecast 36% reduction in methane to be accurate, methane per cow would need to drop significantly – beyond what published research suggests might be possible with technologies like inhibitors.
10. Regarding revenue, this depends heavily on trends in milk payout and production, which are difficult to forecast out to 2036-2040. Claims that revenue will remain constant at today's levels are not reassuring in a climate of rising production costs. In fact, this would erode current profit margins and weaken the sector economically.
11. Additionally, the barriers to farmers implementing system or land use changes are well-documented.<sup>2</sup> Without meaningful and sustained investment in extension services that are coordinated across the sector, the changes assumed by the Commission could be very challenging for farmers. The Commission has previously acknowledged this and should emphasise it in its final advice on the fourth emissions budget.

### *Methane-reducing technologies*

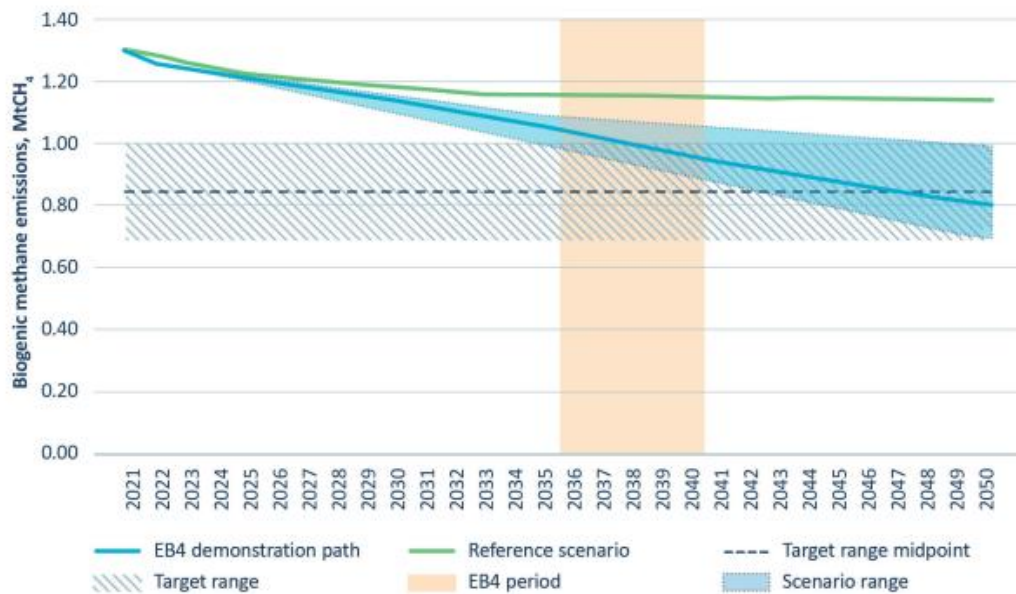
12. The Commission's draft advice is confused and overly optimistic in its assertions of the availability and uptake of methane-reducing technologies in 2036-2040.
13. The Commission cites the 2023 AgriBusiness Group 'Report on agricultural greenhouse gas mitigation technologies'<sup>3</sup> as evidence that "further reductions in biogenic methane could be feasible by the fourth emissions budget period, primarily through adoption of new methane reducing technologies in agriculture" (page 49, *Draft Advice on Aotearoa New Zealand's fourth emissions budget*). The technologies listed are methane vaccines, inhibitors, and adoption of breeding for low-methane livestock.
14. While the Commission then confusingly discounts inhibitors (page 73 of its draft advice) from the demonstration pathway for the fourth emissions budget, it goes on to assume there are 'general' methane-reducing technologies available that will reduce emissions by 4 MtCO<sub>2</sub>e in 2036-2040 (page 99). This, coupled with assumptions about farm system change and land use change, are then used to justify tighter settings for the fourth emissions budget period. Figure 3.10 in the Commission's draft advice (see screenshot on page 4 of this submission) suggests that the lower end of the methane target range could be achieved by the late 2030s, with as much as a 39% reduction achieved by 2050.

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<sup>2</sup> For example, [the 2017 AgFirst 'Analysis of drivers and barriers to land use change' report to MPI](#) in 2017, [the 2021 AgFirst 'Barriers to Diversification' report to the Our Land and Water National Science Challenge](#), and [the 2024 'Going with the grain: changing land uses to fit a changing landscape' report from the Parliamentary Commissioner for the Environment](#).

<sup>3</sup> AgriBusiness Group. (2023). [Report on agricultural greenhouse gas mitigation technologies](#).

Figure 3.10: The EB4 demonstration path to 2050 for biogenic methane



Source: Commission analysis

15. DairyNZ agrees that some technology may be available in 2036-2040. As noted above, DairyNZ is actively involved in research pursuing these outcomes. However, there are currently **no significant technologies to reduce methane emissions from New Zealand pastoral farms** and the evidence for what might be possible in 2036-2040 is not yet strong enough to support the Commission’s optimism.
16. The AgriBusiness Group report clearly states that technologies like vaccines and inhibitors are still at early stages of development. It identifies considerable barriers to technology availability and uptake in pastoral systems and cites low confidence in the estimates of efficacy (see pages 29 and 32 of the AgriBusiness Group report).
17. Consequently, the Commission should take a very conservative approach to any assumptions made regarding such technologies until there is peer-reviewed, published evidence regarding their effectiveness in New Zealand pastoral systems.
18. Efficacy, for example, may be impacted by ruminal adaptation – there is published and unpublished data indicating this occurs after just 5-10 weeks. There may also be reduced mitigation effect caused at different times during the year, for example, by animals grazing large quantities of fresh forages. Caution must also be taken with assumptions made regarding response rates at the herd level, which is different to an individual animal response. This also applies to assumptions made regarding bolus treatments, e.g. loss of bolus, interactions with other bolus treatments, sustained response etc.
19. We are aware that the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) is undertaking work to assess the potential of various technologies at present. We encourage the Commission to draw on that in finalizing its advice to Government, as well as revisiting and more appropriately accounting for the cautions stated in the AgriBusiness Group report.

## Review of the 2050 emissions reduction target

### *Aotearoa New Zealand's contribution to global efforts to limit warming to 1.5°C*

20. DairyNZ believes it is essential for New Zealand's climate policy to be informed by the realities of our international context. The consultation document makes clear that the world is heading for warming above the goals of the Zero Carbon Act and the Paris Agreement, even in a best-case scenario where all current international climate targets and domestic net zero pledges are met. This was reinforced in a recent survey of IPCC scientists.<sup>4</sup> New Zealand is no exception to this trajectory – the projections relied upon show that we are not on track to achieve our current 2050 targets.
21. DairyNZ therefore challenges the Commission's assumption that strengthening New Zealand's targets would be a reasonable response within this context, or that it could effectively compensate for a shortfall in global mitigation efforts. New Zealand is a small actor and cannot unilaterally prevent the adverse effects of climate change. We believe there is an important role for the Commission to provide informed advice that reflects the realities of New Zealand's global contribution, whilst balancing to the growing need to increase our resilience to the impacts of climate change at home.

### *Global action*

22. DairyNZ disagrees with the Commission's finding of significant change in global action based on a political call that New Zealand ought to be a global climate leader. The assertion that New Zealand should increase its levels of ambition has been based, unjustifiably, on international burden sharing concepts that neither relate to our national circumstances as a global food exporter and our geographic isolation, nor contribute to the necessary domestic conversation on distribution of effort.
23. Comparisons with other countries' reduction targets, particularly to justify an increase in our domestic ambition, should also be treated with caution. The different mix of economic sectors and abatement costs and potentials in different countries means that comparing economy-wide emissions reductions is a poor measure of effort and leadership.

### *Scientific understanding of climate change*

24. It is disappointing that the Commission has dismissed a greater understanding of the impact of short-lived and long-lived emissions on warming as an inconsequential 'nuance'. We note the report for the Parliamentary Commissioner for the Environment that investigated these impacts.<sup>5</sup> DairyNZ supports an assessment of pragmatic pathways to achieve climate neutrality in New Zealand. The consultation document actively precludes such an analysis, given its self-imposed constraint for increased ambition.
25. Evidence commissioned by DairyNZ, Federated Farmers and Beef+Lamb NZ shows that even under the current targets, New Zealand's economy-wide contribution to warming would peak in

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<sup>4</sup> [World's top climate scientists expect global heating to blast past 1.5C target | Climate crisis | The Guardian](#), May 2024

<sup>5</sup> Reisinger, A. (2018). [The contribution of methane emissions from New Zealand livestock to global warming – report to the Parliamentary Commissioner for the Environment](#).

the 2030s and then reverse back to 2022 or 2027 levels of warming by 2050.<sup>6</sup> We believe this world-leading potential for climate neutrality should be embraced, not dismissed.

26. Understanding the warming effects of emissions reductions will help inform the questions we need to be asking as a country around equity, effectiveness, and fairness among sectors. A balanced assessment requires transparency of assumptions and trade-offs. A suggestion that methane emitters should be responsible for the ongoing warming impact of their previous actions must be applied equally to fossil fuel emitters. The asymmetrical view of responsibility for legacy warming that the Commission takes does not underpin a balanced assessment.
27. DairyNZ looks forward to considering the findings of the independent review of agricultural biogenic methane science and targets which will explore the concept of warming neutrality.

#### *Technological availability*

28. DairyNZ disagrees with the finding of significant change to technological availability based on overly optimistic assumptions made on mitigation technology availability. The indicative finding of an increased methane reduction target relies on the assumed availability of methane inhibitors which, as noted in paragraphs 15-19 above, are not currently commercially available or suitable for use in New Zealand's pastoral systems.
29. This assumption is inconsistently applied across the Commission's consultation. Notably, methane inhibitors are excluded from the demonstration path for the fourth emissions budget because they are expected to be less effective in our pastoral systems and a bolus is not expected to be commercially available before 2039.

#### **Review of whether emissions from international shipping and aviation should be included in the 2050 target**

30. As previously stated to the Commission, DairyNZ does not support the inclusion of international shipping and aviation emissions in New Zealand's domestic target.<sup>7</sup> Keeping them out of New Zealand's domestic target recognizes the global nature and unique challenges of these emissions, aligns with international agreements, and maintains economic viability.
31. DairyNZ believes these emissions are best dealt with via a global approach, recognizing their unique challenges. It is important that their treatment uses internationally consistent and scientifically credible methods, noting that dairy processors make use of footprinting and life cycle analysis based on global accounting methodologies.
32. If international emissions were added to New Zealand's target, further analysis would be urgently required to understand the impact on the agricultural sector as a major exporter<sup>8</sup> and any flow-on effects to farmers and rural communities.<sup>9</sup> This is noticeably lacking in the Commission's discussion document.

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<sup>6</sup> [DairyNZ, Beef+Lamb New Zealand and Federated Farmers joint evidence submission to the Climate Change Commission](#), September 2023

<sup>7</sup> Ibid.

<sup>8</sup> Sense Partners. (2023). [Solid foundations: Dairy's economic contribution to New Zealand](#).

<sup>9</sup> [Making policies that work for rural communities | NZ Government \(mpi.govt.nz\)](#)

33. The Commission should also assess the impact on dairy businesses owned by Māori entities, which exported \$207 million in 2021, marking a 35% increase since 2020. Māori agribusinesses own around \$4.9 billion in assets in the dairy sector.<sup>10</sup>
34. Also lacking is any comment from the Commission on the effect of land use change on rural communities if a target permits international shipping and aviation emissions to be offset entirely by tree planting, rather than reduction of gross emissions.

**SUBMISSION ENDS**

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<sup>10</sup> See reference in footnote 8.