

# Setting New Zealand's post-2020 climate change target

## Submission form

The Government is seeking views on New Zealand's post-2020 climate change contribution under the United Nations Framework Convention on Climate Change (UNFCCC).

You can have your say by making a submission using this form or using the online tool available at [www.mfe.govt.nz/more/consultations](http://www.mfe.govt.nz/more/consultations).

For more information about this consultation:

- Read our [Consultation on New Zealand's post-2020 international climate change contribution web page](#)
- Read our discussion document: [New Zealand's Climate Change Target: Our contribution to the new international climate change agreement](#)

**Submissions close at 5.00pm on Wednesday 3 June 2015.**

## Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website [www.mfe.govt.nz](http://www.mfe.govt.nz). Unless you clearly specify otherwise in your submission, we will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission and, in particular, which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this consultation under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this consultation.

Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

## Questions to guide your feedback

Your submission may address any aspect of the discussion document, but we would appreciate you paying particular attention to the questions posed throughout and listed in this form. You may answer some or all of the questions. To ensure your point of view is clearly understood, you should explain your rationale and provide supporting evidence where appropriate.

### Contact information

|                              |                                      |
|------------------------------|--------------------------------------|
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### Objectives for the contribution

**1a. We have set the following three objectives for our contribution:**

- **it is seen as a fair and ambitious contribution – both by international and domestic audiences**
- **costs and impacts on society are managed appropriately**
- **it must guide New Zealand over the long term in the global transition to a low emissions world.**

**Do you agree with these objectives for our contribution?**

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**1b. What is most important to you?**

It must guide NZ over the long term.

**What would be a fair contribution for New Zealand?**

**2. What do you think the nature of New Zealand's emissions and economy means for the level of target that we set?**

The Association of Biological Farmers think we should pause for thought and reflect upon how we consider methane from livestock.

Nature functions as an interrelated whole with patterns of complex self renewing relationships, rather than through interconnecting parts like some complicated machine. Methane is not so much an exhaust product in biological systems but an energy source for methanotropic soil-living microbes. These microbes can only contribute to biodiversity, nutrient cycling and overall vitality. They remove 1 billion tonnes of carbon from the atmosphere annually (Brady 2002, pg 536). On the other hand urea, a commonly used fertilizer, compromises methanotropic activity, effectively limiting the ability of our soils to sequester carbon from the atmosphere..

It is hard to accept that ruminants which have been on earth for tens of millions of years before the advent of man can now be responsible for anthropogenic global warming. In fact ice core evaluations show that prior to industrialisation atmospheric methane levels were stable at an average 600 parts per billion by volume (ppbv), for 650,000 years. Since industrialisation it has increased rapidly to now be at 1700ppbv. ((*Pearman et al. 1986; Pearman and Frazer 1988; Lelieveld et al. 1993*). Since the beginning of industrialisation the vast herds of wild ruminants have been decimated. Whilst there is no way of knowing just how many of these big these herds there were or whether there are as many ruminants alive today as then, what we can be reasonably sure about is that it is highly improbable that the ruminants we have today can account for the 250% increase.

This apparent focus on livestock methane simply ignores biological complexity in that virtually all biomass recycling is characterised by the presence of some methane. In this context all ruminants are simply biomass recyclers. If the same biomass were not grazed, the same microbes found in the rumen would be found in the soil. That biomass will eventually rot and produce methane. Excluding forestry and other biological components from the

sum seems arbitrary and political rather than from any compelling ecological reason. Methane production is ubiquitous and perfectly natural in all biological systems.

With livestock emissions removed, the profile of NZ greenhouse gas emissions will look very different and more in line with those of other countries.

Land degradation leading to loss of soil carbon and loss of biodiversity is where agriculture's contribution is much more significant.

Carbon accounting is a hugely complex area to get right, reflected in part by the very large variability in measurements being reported. This makes policy based on averages risky as the unintended consequence is that there is no incentive to improve. Because of this complexity there is huge variability in measurements in carbon accounting.

According to Dr Christine Jones, (PhD), one of the reasons our soils are not functioning like they used to is the **over-use** of urea, and artificially produced inorganic nitrogen. A suggestion is to go to [www.amazingcarbon.com](http://www.amazingcarbon.com) for the paper entitled NITROGEN, THE DOUBLE-EDGED SWORD, July 2014, by Dr Jones. Cut and paste or control/click this link to go to the paper on line.

[http://www.amazingcarbon.com/PDF/JONES%20%27Nitrogen%27%20\(21July14\).pdf](http://www.amazingcarbon.com/PDF/JONES%20%27Nitrogen%27%20(21July14).pdf)

She writes, 'The application of high rates of inorganic nitrogen in agricultural systems has had many unintended negative consequences for soil function and environmental health. Data from North America's longest running field experiment on the impacts of farm production methods on soil quality have revealed that high nitrogen inputs deplete soil carbon, impair soil water-holding capacity—and ironically, also deplete soil N (Khan et al. 2007, Larson 2007).'

## How will our contribution affect New Zealanders?

- 3. What level of cost is appropriate for New Zealand to reduce its greenhouse gas emissions? For example, what do you think would be a reasonable impact on annual household consumption?**

With methane removed the costs will be significantly different from those shown.

With a changed profile there is unlikely to be a need for government to purchase credits which should free up funds for investment in land regeneration and repair, renewable energy and zero emission transport technologies.

What about a positive for farmers and growers in all this?

How do we incentivize to increase soil carbon in farmed soils?

Dr Jones, mentioned above, also writes, 'When inorganic nitrogen is provided, the supply of carbon to associative nitrogen-fixing microbes is inhibited, resulting in carbon-depleted soils.

'Reduced carbon-flows impact a vast network of microbial communities, restricting the availability of essential minerals, trace elements, vitamins and hormones required for plant tolerance to environmental stresses such as frost and drought and resistance to insects and disease. Lowered micronutrient densities in plants also translate into reduced nutritional value of food.

'Ideally, land management practices – and any amendments used in agriculture – should enhance the photosynthetic rate and increase the flow of carbon to soil, by supporting plant-associated microbial communities'.

*Perhaps then this is how we incentivise farmers – by encouraging this change and putting measures in place to measure brix levels and organic matter percentage (increase) in our soils? And maybe home gardeners too could benefit if they prove the same?*

**4. Of the opportunities for New Zealand to reduce its emissions (as outlined on page 15 of the discussion document), which do you think are the most likely to occur, or be most important for New Zealand?**

Soil sequestration along with greater biodiversity.

Soil fertility and drought resilience is closely correlated with active soil carbon.

Land management strategies to promote greater methanotropic soil living microbes, enabling increased carbon sequestration, particularly with regards to the more stable carbon lower in the soil profile. This approach also has the added benefit of improving whole landscape functions of water and mineral cycles. River flows will be more resilient to floods and droughts because soils become more of a sponge than a plate. Healthy ecosystems are miserly, leaching is symptomatic of soil degradation. The more carbon there is in a soil the less nitrate and other pollutants leach downstream.

Mixed woodlots would have significant benefits, including the stabilisation of the landscape, increasing agricultural productivity through the better use of land for the production, among other things, of timber, shelter, shade, forage, nectar etc., as well as increasing the biodiversity and with it the ability of the environment to sustainably sequester atmospheric carbon. Trees are great climate moderators and are key to any discussion about future resilience. Permaculture studies show that up to 20 percent of grazing land could be in trees without any loss in production.

Thriving mixed woodlots would tend to lead to more employment opportunities in rural communities. This contrasts with plantation forestry which tends to leave ghost towns.

Simply measure and monitor soil organic matter levels.

## Summary

### 5. How should New Zealand take into account the future uncertainties of technologies and costs when setting its target?

We should be mindful of what other countries are doing: but going full steam ahead with sequestering soil carbon and developing a biodiverse rural landscape builds both natural fertility and resilience.

The quantity of carbon taken out of the atmosphere by increasing soil carbon by 1 percent globally virtually solves the problem. Farmers anywhere in the world can and do achieve this figure. It is a question of changing how we manage our farms before looking to any technological fix.

## Other comments

### 6. Is there any further information you wish the Government to consider? Please explain.

The biggest risk to the sustainability and productivity of New Zealand and global food production is desertification and land degradation. Worldwide this accounts for 5 billion hectares of the world's grasslands alone. Currently we are compensating for this through the increased use of expensive fertilisers and machinery, whose manufacture and use themselves contribute greatly and unnecessarily to the release of carbon into the atmosphere.

There is ample evidence that simple management techniques which are not reliant on artificial fertilizers and heavy machinery, not only improve soil fertility and thus reverse this degradation, but overtime allow farmers to increase the quality of what they produce and by doing so increase its value.

For example, if the management of livestock mimics the grazing patterns of the great herds of the past, then desertification and degradation of the land can be reversed. Examples of this can be found across New Zealand and is hardly surprising as this is how the most fertile, species-diverse ecosystems on earth developed (grassland NOT forests). For the countries which are actively encouraging the protection and restoration of such ecosystems, beef cattle are seen as an important tool to be valued and encouraged. These countries are unlikely to ever support taxing them. Indeed why would they, if their very presence and the way in which they are managed actually build fertility and enable the soil to sequester carbon?

If we in New Zealand are serious about raising the value of agricultural production in a sustainable and profitable manner then the introduction of a carbon tax on agriculture and livestock in particular is counter-productive and will result in New

Zealand putting itself at a large competitive disadvantage for which there is no ecological rationale.

## When your submission is complete

Email your completed submission to [climate.contribution@mfe.govt.nz](mailto:climate.contribution@mfe.govt.nz) or post to Climate Change Contribution Consultation, Ministry for the Environment, PO Box 10362, Wellington 6143.

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