Agriculture and the Emissions Trading Scheme – how do we enable farmers to respond?
Friday 14th September 2018

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Overview of New Zealand's position

- Our Government is committed to supporting global action on climate change. Due to New Zealand's emissions profile, we are in a unique position to be a global leader on emissions reductions and adaptation in the agricultural sector.

- Our Prime Minister Jacinda Ardern has called climate change the 'nuclear free moment of this generation'.

- Recent international agreements – the Paris Climate Agreement and the 2030 Sustainable Development Goals are reflections of the global community's attitude towards addressing climate change.

- We are working to provide the right research, tools, frameworks and policies that will enable enable farmers to reduce their on-farm emissions and switch to more sustainable land-use practices. This work helps to ensure our products have the environmental credentials and status needed to sustainably add value to the sector.

- Our belief is that we need to reduce agricultural emissions, while maintaining strong economies and productive and resilient sectors capable of meeting the food demand of an exponentially growing world population.

- Another 2.3 billion people will join the global population by 2050, and the increasing food demand means we will need to produce more food in the next 50 years, than in the past 500.

- Agriculture contributes to climate change, producing about 12% of global greenhouse gas emissions, and is heavily effected by climate change with more extreme weather events, unpredictable yields and variable productivity in both crop and livestock sectors.

- New Zealand is making a significant investment in research and development to identify options to reduce agricultural emissions, in New Zealand and internationally.

- We have just celebrated Sustainable Land Management and Climate Change Plan of Action. SLMACC was established to help New Zealand meet international greenhouse gas reduction goals, maintain profitable and sustainable agriculture and forestry sectors, and address the lack of

information on the impacts, implications and adaptations needed in the face of a changing climate.

- In the decade since its inception we have funded over 150 projects with $50 million of Government funding – some with returns 10 times the original public investment.

- As a Government we have stated clearly that we want clean water and a low emissions economy and we are working through these challenges carefully and pragmatically and with the farming sector, whose efforts in these areas are strong and a story worth sharing.

- Our work is not just about preservation, but wise utilisation of our natural resources and understanding how to best match land-use to different production types and regions.

- New Zealand has long held the view that more can be achieved through collaboration than alone. It is what inspired us to lead the establishment of the Global Research Alliance in 2009. The GRA's aim is to bring countries together to find ways to grow more food without growing greenhouse gas emissions. It achieves this by increasing international cooperation, collaboration and investment in public and private research throughout its 50-member countries.

- New Zealand has invested $65million over the past 9 years to support the GRA to accelerate and expand global research in livestock, soils and measurement. We've paid particular attention to the need to build capability globally having provided education and training to dozens of early-career scientists in developing countries.

- In the livestock sector we've found promising leads. Working with others, we've measured thousands of animals and have been able to identify some that emit lower levels of methane.

- We've screened hundreds of thousands of chemical compounds and isolated a handful that have large potential to reduce emissions. We're undertaking world-leading research to try to develop a vaccine to reduce methane from livestock.

- We've carried out a global survey of ruminant animals including sheep, cattle, deer, goats, buffalo and even giraffes, and we discovered that the same groups of microorganisms dominate in nearly all rumens across a wide variety of species and animal diets.

- This study involved more than 140 scientists from 73 organisations in 34 countries. This important finding gives us some confidence that the technical solutions we're developing can be used globally.

- We're making good progress but there's more to be done.

- There have been a number of programmes covering the range of climate change elements that have been put in place to address the needs of the primary sector.

- These include:

SLMACC (Slam-Ack)

- The Sustainable Land Management and Climate Change Plan of Action (SLMACC) was established under the previous Labour government in 2007 and administered by MPI.

- SLMACC projects have provided a significant knowledge base on climate change and have delivered real changes and practical options for farmers on the ground. One example is how effective farm management can cut back on farm greenhouse gas omissions. This research showed that farms that were managed to have lower emissions intensities tended to also be more profitable and achieved greater feed conversion efficiencies. This research is now being expanded through a range of other programs to cover total emissions reductions.

Research and Development

- Government funded research is progressing important work into current and future opportunities for the agricultural sector to reduce emissions. These aim to find practical, efficient and sustainable solutions that farmers can integrate into their on-site systems.

- The government supports a substantial domestic research programme through the New Zealand Agricultural Greenhouse Gas Research Centre, which addresses 'public good' research, and through the Pastoral Greenhouse Gas Research Consortium (jointly funded by government and industry), which focuses on 'industry good' research and commercialisation.

- New Zealand also leads international efforts through the Global Research Alliance on Agricultural Greenhouse Cases, established in 2009 to promote increases in global investment in research to develop practices and technologies to reduce emissions from food production.

- There has been steady progress on the science both internationally and domestically, but no 'silver bullet' to reduce greenhouse gases from animals has yet been identified.

- New Zealand's domestic research has focussed on four principle areas of investigation:
    - Methane from ruminant digestion;
    - Nitrous oxide from ruminant manure
    - Soil carbon sequestration; and

  - Integrated farming systems
  - The research on methane from ruminant digestion has focused on four avenues:
    - Breeding animals for lower emissions. This has been proven in sheep and is now being extended to dairy cattle;
    - Development of methanogen inhibitors, methanogens being the methane producing organisms in the remen. A small number of inhibitors have been tested in animals and have reduced emissions to varying degrees;
    - Development of a methane vaccine which could be used in sheep and cattle; and
    - Identification of plants with inhibitory effect. A forage brassica has been shown to lower methane.

- The research on nitorous oxide has focussed on:
  - Developing an understanding on what affects nitorous oxide emissions rates, for example wet compacted soils lead to higher emissions rates;
  - Management approaches to reduce nitrous oxide, for example efficient nitrogen fertiliser use;
  - Looking into the effects of different plants on emissions; and
  - New natural inhibitors. These have been identified and are currently being tested for their effectiveness.

- Research work on integrates farming systems to date has mostly focused on modelling different practices, with only limited work done on real farms. Integration of the lessons learned into real farming systems is therefore important moving forward.

Vision for a transition to sustainable land use

- We see reducing NZs agricultural greenhouse gas emissions as an important and necessary step towards this government's vision for a productive, sustainable and inclusive economy.

- Achieving this will require a just transition to more sustainable land use. Farmers are facing demands to lower their greenhouse gas emissions, and improve water quality, biodiversity, biosecurity and animal welfare outcomes.

- To ensure these objectives are aligned, approaches and tools such as a 'One Farm Plan' and Overseer and being developed and improved.

- There are opportunities in this for famers and producers as well. An intensive, volume-driven growth model has created both economic and environmental sustainability concerns. Continuing to grow wealth this way is no longer viable. By focussing instead on proving our strong environmental credentials, we can add value to our products and ensure their premium status. By diversifying and adding value, we can also boost our resilience and lessen exposure to swings from commodity prices.

Where is the Government going on its Zero Carbon Act?

- The Government recently completed public consultation on the Zero Carbon Bill. We were pleased to receive a good response through attendance at the workshops and the high number of submissions. The sectors have had significant engagement with officials during this process, which has enabled them to be part of the conversation and to put forward their views.

- Former Chief Scientist to the Prime Minister', Sir Peter Gluckman released a report earlier this week which sits alongside a growing base of information and advice, including 15,000 submissions, which the Government is using to draft the Zero Carbon Bill.' It makes the point 'The obligation on farmers should not be disproportionate relative either to their international competitors or other sectors.'

- The Government is looking to make decisions soon on what form the 2050 target is going to take. This Zero Carbon Bill is planned to be enacted into legislation in 2019.

- Getting the 2050 target right will be important. We recognise the need for this target to be something that everybody can get behind, live with and work towards its achievement together.

- We are also looking for an enduring consensus on this target to provide the certainty that the sectors have been asking for. With this Act we aim to be clear, honest and fair to farmers about what will be expected of them in the future.

- Everybody has a role to play in meeting these future targets. We need to work with farmers and the sectors to share best practice and support farmers through this transition.

Agriculture in the New Zealand Emissions Trading Scheme (NZ ETS)

- Through the Zero Carbon Act, the Government will also establish an independent Climate Change Commission (the Commission) in 2019 to advise the Government on climate change issues. To enable the timely delivery of climate change priorities the Government has set up an Interim Climate Change Committee (the Committee) as a precursor to the proposed independent Commission.

- One of the Committee's primary deliverables is to provide analysis on how surrender obligations could best be arranged if agricultural methane and nitrous oxide emissions enter into the NZ ETS.

- The Committee will deliver evidence and analysis on the full range of policy options to reduce emissions from the agriculture sector. This will include, but is not limited to, the pricing of agricultural emissions in the NZ ETS.

- In providing their analysis and recommendations, the Committee will consider the Government's objective for a just transition.

Independant reports

- I've outlined several Government initatives to address how we are working with the agricultural sector to ensure that we are leading the world on reducing emissions. However, it's also timely to mention that in the past week, three independent reports have been produced that consider agricultura emissions. The three reports agree that methane should be treated according to its short lived nature.

- The Productivity Commission report recommends that all long lived gases should be covered by the ETS. Biogenic methane should be included in a separate emissions pricing mechanism (or a dual gas ETS) that recognises its different atmospheric properties compared with long lived gases.

- The Parliamentary Commissioner for the Environment report finds that a reduction of 10% to 22% by 2050 would be required for New Zealand's biogenic methane to cause no further warming of the atmosphere, with the majority of the reductions having to happen by 2030.

- Professor Sir Peter Gluckman's report notes that "while methane emissions from agriculture cannot, and need not be, reduced to zero, reducing global methane emissions quickly will impact the peak warming temperature and the rate at which CO2 emissions need to be reduced."

- These reports are important and our Government is listening to what our experts are saying.

Conclusion

- In short, the heart of our Government's economic plan is to help New Zealand become a more productive, more sustainable, and more inclusive economy in which all New Zealanders can thrive.

- To be more productive we need to work smarter and produce more with what we have.

- To be sustainable, we must meet the needs of the present without compromising our ability to do so in the future.

- And we need to ensure that nobody misses out on the benefits of economic growth.