SUBMISSION

16th January 2024

Nadia Bouhafs

Department of Agriculture, Fisheries and Forestry

70 Northbourne Avenue

Canberra ACT 2601

Via email: nadia.bouhafs@aff.gov.au

Dear Nadia,

Re: Agriculture, Land, and Emissions Discussion Paper

Cattle Australia (CA) is the peak industry body representing the interests of more than 52,000 Australian grassfed beef cattle producers. Cattle Australia provides clear leadership and direction for the grassfed beef cattle industry by developing and driving contemporary policy, guiding research, development and adoption, marketing investment for the sector, and advocates on matters important to the Australian beef industry.

Introduction

CA welcomes the opportunity to provide strategic comment to further shape the direction of the Government's proposed Agriculture, Land and Emissions plan to guide Australia's 2050 net-zero ambition. We thank the Department for their proactive and continuing engagement with industry on this important topic. CA has carefully reviewed and considered the questions raised in the Agriculture, Land and Emissions Discussion Paper. The CA Submission gives general recommendations and further on detailed answers to the 10 questions from the Discussion Paper.

CA recognises that agriculture and especially grass-fed beef producers are already playing an integral part of the solution to the changes in climate, as our members are the custodians to almost 80 percent of Australia's agricultural land which is over 50 percent of Australia's total landmass. In 2022, Australia produced 1.9 million tonnes of beef and veal protein, with the average recommended daily protein intake being 50 grams. The Australian beef industry has made a leading contribution to combat further global warming and with the right support in coming years will achieve the state of climate neutral having no additional impact on global temperature rise.[1]

To ensure a profitable and resilient future for the beef industry, CA supports an industry driven pathway, with support from government to enable producers to access the advice, technology, innovations, and incentives they need to minimize the negative and optimize the positive impact of beef production on the climate while maintaining healthy landscapes and profitable, resilient businesses. We support a balanced approach that acknowledges the role our producers play in global and regional food security in managing our Australian landscapes, the cyclical nature of biogenic methane, and consequences of future planning on the social and economic prosperity of the rural and remote communities in which our farmers and their families live and work.

[1] https://www.mla.com.au/contentassets/4d56dd39729e446195dce9b75d393c08/b.cch.2301-pathways-to-climate-neutrality-for-the-australian-red-meat-industry.pdf

General recommendations

Cattle Australia makes the following general recommendations to government, for Australia's beef producers to continue to play a key role in sustainable food production. Additional background information and research for each general recommendation is included in this submission at **Annexure A**.

1. **Collaboratively establish an industry driven pathway.**

   With support from government enable producers to access the advice, technology, innovations and incentives they need to minimize the negative and optimize the positive impact of beef production on the climate. Prescriptive regulation of emissions reduction and reporting from the beef industry must not be supported. Targets, if needed, must be led by industry and voluntary to make meaningful progress.

2. **Consider key role in global and regional food security, nutritional security and the societal role of meat.**

   For Australia's producers to continue to play a key role in both sustainable food production, this needs to be considered when defining the right government support and policy settings.

3. **Investment by the beef industry to reduce emissions has been substantial and successful, refocus on other commodities is needed.**

   The investment from the Australian beef industry in reducing emissions has been sustainable and acknowledged globally. This type of investment and commitment to emissions reduction and production efficiencies is required by other commodities and economies to ensure no singular industry is undertaking burdensome effort beyond that it is required.

4. **Single focus on absolute emissions reduction under the current CO2e accounting frameworks is detrimental for the beef industry.**

   Emerging science changes the perception that livestock are large emitters and therefore must be accounted for differently in the future. Methane emissions from livestock are part of a biogenic cycle. They have a different impact on global temperature rise than emissions from fossil fuels which persist in the atmosphere for thousands of years and are inherently linked with storage within soil and vegetation.

5. **The grass-fed beef industry will become climate neutral, having no additional impact on global temperature rise (global warming).**

   The beef industry is an important part of the solution to stabilize global warming. Considering the cyclical short-lived nature of biogenic methane, emission targets for the grass-fed cattle industry that strive to net zero should be avoided and alternative 'better' metrics introduced. Future targets need to stimulate optimizing positive impact on the climate, not detrimental to profitability and productivity of our sector.

6. **Support the Dublin Declaration signed by thousands of scientists worldwide.**

   '*Livestock systems must progress based on the highest scientific standards. They are too precious to society to become the victim of simplification, reductionism or zealotry (fanaticism).'* [2]

7. **Manage what we have better, before aiming for more.**

   Before further landmass and marine areas are converted for conservation purposes, the management of National Parks needs serious review to stop loss of biodiversity and carbon emissions caused by bushfires.

Specific recommendations to the questions from the DAFF Agriculture, Land and Emissions Discussion Paper:

Cattle Australia makes the following recommendations to government in response to the specific questions contained in the discussion paper. Additional background information and research for each specific recommendation is included in this submission at **Annexure B**.

[2] https://www.dublin-declaration.org/

1. That the Government continue to invest in initiatives that engage producers to access the support, technology, innovations and incentives they need to minimize the negative and optimize the positive impact of the beef industry on the climate, maintain balanced ecosystems and work within the natural carbon cycle.

2. Continuous improvement of emissions and sequestration measuring and accounting technologies through investments and innovations and technologies, to enhance data capacity and accuracy in results. Tools to baseline currently have an error range of 20%.

3. Greater support of extension and adoption activities and programs to support producer awareness, knowledge and practice change (increase productivity and profitability by implementing best land management practices).

4. That the government support industry to deliver public education initiatives to explain the role and impact of agriculture on the climate and combat misinformation about livestock production in this context.

5. Create and activate further methodologies that allow for insetting (including avoided emissions) and benchmarking within the supply chains that reward land managers for persevering and enhancing biodiversity and ecosystems on-farm.

6. Report on the emissions from the red meat sector using the Global Warming Potential Star (GWP*) and other suitable metrics alongside GWP100, that are identified to better reflect the true impact of methane emissions on the climate and our national greenhouse gas accounts.

In conclusion

In July 2023 ABARES released an international comparisons report on sustainability and agri-environmental indicators. A key finding was that even with the CO2e accounting methodology, Australia's emissions intensities are below average for cattle compared to other major developed producers and exporters countries, and Australia has reduced agricultural emissions more than most other developed countries in the last 30 years[3].

The sector has taken the lead and made significant investment in research, development, and adoption to minimize the negative impacts on the climate, more than any other sector. There is still so much potential, acknowledging the cyclical short-lived nature of biogenic methane, combined with the right government support, the beef industry is on its way to become climate neutral, having no additional impact on global temperature rise (global warming).

There is a real opportunity here for government, with industry, to further drive the positive impact of beef production in Australia on the climate while considering the importance of food security, nutritional security, and the societal role of meat.

CA looks forward to continuing to assist DAFF with this important consultation process. If there are any queries about this submission, please do not hesitate to contact our office on 1300 653 038 or email ca@cattleaustralia.com.au

[3] https://www.agriculture.gov.au/abares/products/insights/environmental-sustainability-and-agri-environmental-indicators

Yours sincerely,

Dr Chris Parker

Chief Executive Officer

Cattle Australia

Appendix A - General Recommendations

Please see below additional background information and research for each general recommendation made by Cattle Australia.

Collaboratively establish an industry driven pathway

Support from government is needed to enable producers to access the advice, technology, innovations and incentives they need to minimize the negative and optimize the positive impact of beef production on the climate. The support must not be in the form of prescriptive regulation of emissions reduction and reporting from the beef industry. Targets, if needed, must be led by industry and voluntary to make meaningful progress. Government investments and incentives to be effective need to focus on improving productivity efficiencies, resilience and profitability within grass-fed beef producers' businesses. Singular focus on emission reduction measures, land and water resource usage comparison with alternate proteins, and/or using the current CO2e accounting frameworks without considering the cyclical nature of biogenic methane are counterproductive.

Global and regional food security, nutritional security and the societal role of meat

Australia's beef industry has 28.8 million head of cattle and over 52,000 businesses. The total value of cattle production is $23.2 billion. Around 192,000 people are directly employed in the red meat industry, including primary production, processing and retail. Australia exports between 70% - 75% of all beef we produce, making us the fourth largest beef (and veal) exporter (after Brazil, India, and the US). In 2022, Australian beef exports totalled 854,000 tonnes shipped weight. The value of total beef (and veal exports) in 2022 was A$10.4 billion and Australian live cattle exports totalled 602,000 head exported A$1.15 billion.

For decades, Australia has remained a consistent supplier of high-quality beef to the global market and domestic market, supporting human health by providing safe and nutritious food while increasing the prosperity of rural and regional communities. Australian beef provides 12 essential nutrients important for good health: good source of protein, iron, zinc, and vitamin B12, omega-3, selenium, magnesium, phosphorus, and vitamins B2, B3, B5 and B6[4].

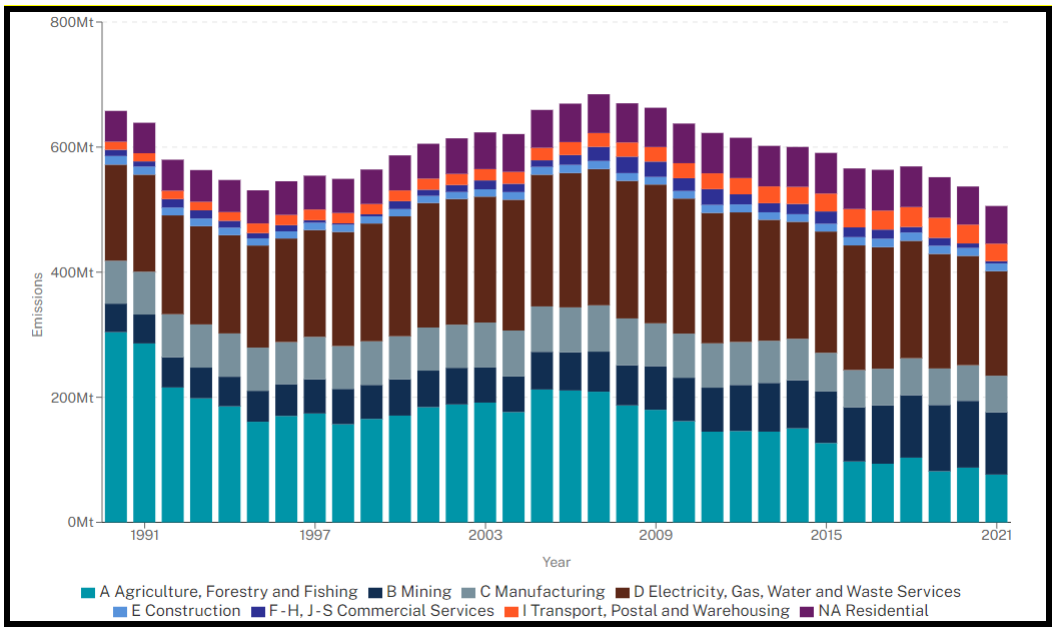
Global policies around climate and markets need to recognise sustainable agriculture to ensure we build food security and avoid creation of trade barriers around environmental credentials. And any emissions reduction approach for the beef sector needs serious consideration given the importance of the beef industry to food security, nutritional security, the environmental benefits, and societal role that beef production delivers to rural, regional, and remote communities; particularly in the event a national food plan is developed as recommended by the House of Representatives Standing Committee on Agriculture in its report dated November 2023.

Investment by the beef industry to reduce emissions has been substantial and successful, refocus on other commodities is needed

CA understands that all sectors of the economy have a responsibility to take action to minimise their impact on the climate. As an industry operating in a global marketplace, our industry policy, and national policy must keep pace with that of our global competitors and the expectations of our consumers. The beef industry has been leading the way by supporting the Australian red meat industry goal to be carbon neutral by 2030 (known as CN30) as announced in 2017. It has driven investment into research, development and adoption initiatives to reduce industry emissions and send a clear signal to consumers about our industry's commitment to climate action. Industry, with MLA, has been working closely to ensure the beef industry has a sustainable, low emissions future that is profitable, productive and rewards producers for the land stewardship they undertake.

[4] MLA Healthy Meals website: https://www.mlahealthymeals.com.au/

Beef producers, through levies, have invested over $140 million since 2017 to progress the CN30 target and has plans to invest a further $150 million in the development and adoption of new technologies in coming years.



Australia's emissions by economic sector[5]

As demonstrated in the figure above since 1990, emissions attributable to the agriculture, forestry and fishing industries have declined by 70.4% (or 217.1 Mt CO2-e. CA recognises that under the current Australia's National Greenhouse Gas Inventory (NGGI) accounting framework the red meat industry has been assigned approximately 10% of Australia's total greenhouse gas (GHG) emissions and about two-thirds of these emissions are derived from cattle. Methane stemming from cattle's natural digestion process is the beef industry's main contribution to GHG emissions. Agriculture is the source of only about half of the methane recorded in NGGI. The remaining methane emissions come from energy, mining and waste sectors. CA stresses the importance of acknowledging and appropriately accounting for the cyclical nature of biogenic methane that is attributable to beef production.

Considering that scientists globally have shown that the impact of emissions from beef production on global temperature rise is already very minimal, the economic, social and environmental costs associated with pressuring our producers to reduce their emissions over and beyond a climate neutral position needs to be considered carefully.

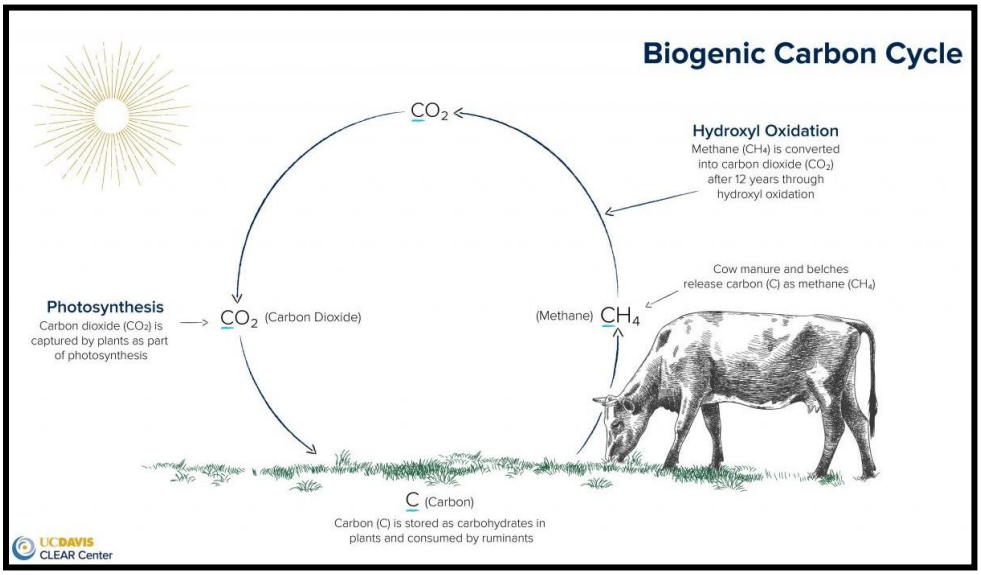
Single focus on absolute emissions reduction is detrimental for the beef industry

As stated above under the current National Greenhouse Gas Inventory accounting framework the red meat industry has been assigned approximately 10% of Australia's total greenhouse gas (GHG) emissions and about two-thirds of these emissions are derived from cattle.

Methane stemming from cattle's natural digestion process is the beef industry's main contribution to GHG emissions. The methane emitted through this process is part of the biogenic carbon cycle, which focuses on the ability of plants to absorb and sequester carbon. Plants have the unique ability to remove carbon dioxide (CO2) from the atmosphere and deposit that carbon into plant leaves, roots, and stems while oxygen is released back

[5] https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-accounts-2020/national-inventory-by-economic-sector-annual-emissions

into the atmosphere. This process is known as photosynthesis, and is central to the biogenic carbon cycle, where carbon is primarily converted to cellulose, indigestible to humans, but cattle love it. Cattle produce protein and nutrients, such as iron and zinc, from eating grass that ferments in their stomachs prior to digestion. This process produces methane and high-quality fertiliser.



Source: Clarity and Leadership for Environmental Awareness and Research at UC Davis[6].

Methane is often cited in the media as an environmental hazard, therefore vilifying the beef industry. However, momentum is growing globally, scientists agree, and more people start to recognize that unlike the emissions produced from burning fossil fuels, methane from cattle is a short-life cycle greenhouse gas that is reabsorbed into the environment on a 12-year biogenic carbon cycle. It turns into carbon dioxide, a key ingredient as said before, that grass and trees absorb through the process of photosynthesis to create energy and oxygen.

There is a global shift in how we consider methane emitted by livestock and how it is accounted for. It is part of a natural cycle and associated emissions are not an accumulative, one-way street. Our understanding and related perception of beef cattle production is changing from being regarded as a net emitting sector to one that is part of the climate solution.

Additional detail on what this means and how our understanding of methane emitted by livestock is changing:

- Cellulose happens to be the most abundant organic compound in the world, particularly found on marginal lands, which are places where grains and other human palatable crops cannot grow. The agricultural sector covers appr. 60% of the land area of Australia, with >90% of that (419 Mha) being used for low-density grazing of natural vegetation.

- The conventional metrics used for reporting emissions in CO2 equivalents can be misleading when applied to methane emissions, particularly when these are being reduced.[7] CA understands that at a global and national level, the method used for measuring the contribution of different GHGs to global warming is GWP100 which uses an estimate of equivalency to carbon dioxide on a 100-year basis to account for the warming caused by short-lived GHGs. GWP100 is widely acknowledged by scientists to have shortcomings in measuring the warming contribution of short-lived GHG emissions such as biogenic methane. There are a

[6] https://clear.ucdavis.edu/explainers/biogenic-carbon-cycle-and-cattle

[7] Allen M., Lynch J., Cain M., Frame D. 2022. 'Oxford Martin Programme on Climate Pollutants', available at: Pollutantshttps://www.oxfordmartin.ox.ac.uk/downloads/reports/ClimateMetricsforRuminentLivestock_Brief_July2022_FINAL.pdf

range of more suitable metrics for reporting on methane emissions8 identified as GWP*, Radiative Forcing Footprint and several other more accurate metrics.

- Expressing methane emissions as CO2 equivalent emissions using GWP100 overstates the effect of constant methane emissions on global surface temperature by a factor of 3-4, 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[9].

- CA understands that GHG accounting is agreed globally through the Intergovernmental Panel on Climate Change (IPCC). The IPCC has acknowledged that, 'The choice of emission metric and time horizon depends on type of application and policy context; hence, no single metric is optimal for all policy goals. All metrics have shortcomings, and choices contain value judgments.' CA understands that the Paris Agreement requires (18/CMA.1, in Article 13 of the Paris Agreement annex) that countries must report using GWP100 and can report supplemental information using other metrics such as GWP* or Radiative Forcing Footprint.

- Further to this, recent studies have concluded that if the assessment of progress towards a temperature limit of 1.5°C above pre-industrial temperature is the aim, then a metric which acts as a proxy for contribution to temperature will be needed to accurately represent CH_4.[10]

The cattle industry has been exploring alternative climate metrics (such as GWP*) and the concept of climate neutrality for several years, believing that the short-lived nature of biogenic methane and its natural cycle much be acknowledged in climate discussions.

CA spoke with Professor Myles Allen, the physicist behind net zero, amongst others. There is a link to a video of the presentation here: https://www.youtube.com/watch?v=r2-koYj_p7A . Key messages CA adopted, and likes to discuss further with government are:

- Cattle Australia recognises the findings of new scientific report 'Pathways to climate neutrality for the Australian red meat industry', by Dr Brad Ridoutt of CSIRO (see footnote 1 page 1).

- Cattle Australia recognises that anthropogenic methane emissions from beef production are part of a natural cycle and have a different impact on global temperature rise than emissions from fossil fuels which persist in the atmosphere for thousands of years.

- It would be very legitimate and useful for countries to start reporting the actual warming impact of their emissions (using a metric like GWP*) in their country reports to the IPCC. This would align with the objectives of the Paris Agreement to keep warming below 1.5 degrees and is an opportunity for Australia to lead the way.

- Where GWP100 must be used, government policy should not require emissions from beef production to reach a state of net zero emissions as this would be requiring the industry to go beyond climate stabilisation and at a significant cost.

- Cattle Australia supports a target to be climate neutral* by 2028, a point at which emissions from the beef industry will have no additional impact on global temperature rise. The term 'climate neutral' or 'climate neutrality', is based on IPPC science, and is well aligned with the climate stabilisation goal of the Paris

[8] Ridoutt B., and Mayberry D. 2021. Assessment of climate metrics for the Australian red meat industry., CSIRO, MLA., available at: b.cch.2117-final-report.pdf (mla.com.au).

[9] IPCC 6th Assessment Report, 2021, Chapter 7, Explanation: J. Lynch *et al* (2020), *Environ. Res. Lett.* **15** 044023 https://iopscience.iop.org/article/10.1088/1748-9326/ab6d7e

[10] Cain M., Jenkins S., Allen M., Lynch J., Frame J., Macey A. and Peters G. 2022 'Methane and the Paris Agreement temperature goals', Phil. Trans. R. Soc. A. available at: https://royalsocietypublishing.org/doi/10.1098/rsta.2020.0456

Agreement. It is measured using scientifically sound metrics that account for the short-lived nature of methane such as Radiative Forcing Footprint and Global Warming Potential-star (GWP*).

- Cattle Australia supports the development of a clear pathway to climate neutrality* for the grass-fed beef industry that focuses grass-fed levy investment on initiatives that will help the beef industry reach climate neutrality by 2028.

Support the Dublin Declaration

In October 2022, a meeting of scientists on 'The societal role of meat' was held in Dublin. The agenda raised evidence-based discussions about the roles of meat in diet and health, a sustainable environment and society and economics and culture. The result was the Dublin Declaration[11] now signed by more than one thousand scientists. In May 2023 CSIRO published a paper on the societal role of meat and the Dublin Declaration with an Australian perspective. This provides analysis of the false paradox between plant and animal sourced foods as they both have a role in a sustainable food supply.[12]

The CSIRO paper highlights that public debate around complex societal challenges is often conducted without a strong quantitative base, often leading to substandard outcomes in understanding, legislation, and behaviour change. This has been most prominent in Europe, but also other western countries, with calls from special interest groups and popular media to reduce meat consumption, especially from ruminants, to reduce global warming.[13] Calls for consumers to reduce meat consumption to reduce their carbon footprint are simplistic, ideological and do not consider the societal, nutritional and environmental benefits of ruminant production in a sustainable food system.

Manage what we have better, before aiming for more

The management of Australian National Parks and conservation areas needs serious review to limit bushfire emissions and halt associated biodiversity loss. Whilst emissions measurement and increasing regulation apply to agriculture, annual bushfire emissions are not accounted for under the NGGI and are referred to as being part of "Fast Carbon Cycles"; biological processes including photosynthesis, plant respiration and decomposition. Over the past decade Australia has emitted approximately 485 million tonnes of CO2 per annum according to the European Union's Copernicus Atmosphere Monitoring Service, which is a similar amount to Australia's annual anthropogenic emissions.

CA seeks recognition and further research into the role that grass-fed livestock play in influencing annual Fast Carbon Cycle emissions and/or sequestration. Livestock play a critical part in protecting native flora and fauna across our vast forests and grasslands through biomass management and associated fuel load reduction in the context of recent large bushfires, many of which have centred around National Parks. CA urges government to work closely with the grass-fed cattle sector to generate better outcomes for our conservation areas, reducing emissions and protecting our biodiversity.

It should be noted that native animals such as macropods may emit similar amounts of methane as cattle on a feed intake basis[14]. This is important in the context of Australia's plans to continue to expand National Parks. In many instances the removal of domestic animals and their associated anthropogenic emissions footprint in line with greater areas set aside for conservation does not equate to a net emissions reduction.

[11] The Dublin Declaration is available at: https://www.dublin-declaration.org/
[12] Pethick D., Bryden W., Mann N., Masters D., Lean I. 2023. 'The societal role of meat: the Dublin Declaration with an Australian perspective', *Animal Production Science,* CSIRO, available at: https://www.publish.csiro.au/AN/pdf/AN23061
[13] Pethick D., Bryden W., Mann N., Masters D., Lean I. 2023. 'The societal role of meat: the Dublin Declaration with an Australian perspective', *Animal Production Science,* CSIRO, available at: https://www.publish.csiro.au/AN/pdf/AN23061
[14] https://ro.uow.edu.au/cgi/viewcontent.cgi?article=4744&context=smhpapers

APPENDIX B - Responses to Specific Discussion Paper Questions

Please see below Cattle Australia's detailed answers to the questions from the DAFF Agriculture, Land and Emissions Discussion Paper.

The higher ambition:

1. **What are the opportunities to reduce emissions and build carbon stores in agriculture and the land? What are the main barriers to action?**

   a) Opportunities to reduce emissions and build carbon stores:

      i. Ongoing support for initiatives to increase productivity without a singular focus on reducing emissions.

      ii. The sector needs better estimates of sequestration potentials so that we can start talking about what actual potential is and how best to achieve these outcomes.

      iii. Greater data sets to support the science and long-term monitoring/research of carbon sequestration in soil under different climatic conditions and management. This could include better technology and methodologies to measure carbon in a landscape to a depth of 30cm to provide land holders with stronger baselining data as well as ongoing monitoring that supports natural capital.

      iv. Insetting programs established by the government e.g., accounting for sequestration of vegetation.

   b) Barriers to action:

      i. Baselining tools using Co2 equivalency methodology are a barrier to user adoption. No producers want to be told they have a supposed huge emissions problem that will never be economically addressed.

      ii. Fragmentation of similar work/lack of coordination and intellectual property ownership.

      iii. Complexity of measuring natural capital, current valuation methodologies and tools and measures appropriate to do so.

      iv. Methane inhibiting technologies have no clear incentives due to high implementation costs with no productivity gains and unreliable market indicators for sustainability credentials.

      v. Limited options to renewable electricity opportunities on-farm, large up-front costs to do so.

2. **How can we progress emission reduction efforts whilst also building resilience and adapting to climate change?**

   a) A core part of Government's Sectoral Plan must be ensuring that beef producers receive the financial and technical support necessary to enable them to deliver the environmental stewardship expected by the market and community, whilst remaining profitable and resilient.

   b) That government consider that to support Australia's global commitments, global issues such as food and nutritional security and the societal role of meat must be considered and balanced with the need to set, track, and achieve Australia's emissions reduction targets.

   c) Emissions reductions from the beef industry need to be considered in a holistic cyclical context which includes consideration for the importance of the broader nature positive objectives being set at industry, national and global levels.

d) Improved coordination of R&D activities aiming to develop new emissions reduction technologies as part of natural carbon cycles, with focus on improving production efficiencies and sustainable land management practices.

Building on existing effort and knowledge

3. Are there initiatives or innovative programs underway that could be applied or expanded on at a national scale?

a) CA requests to join the ongoing development and investment of the Net Zero CRC; a multi-stakeholder approach to transitioning Australian agriculture to net-zero, healthy, resilient, and profitable food systems by 2040. It models the progress of all the agricultural sectors, incorporating all avenues of emissions reduction and sequestration. Ensure better enablement of individual businesses and organisations to be observers of the CRC and its research findings without the requirement of being a paying partner. Note: considering this submission, the name 'Net Zero' does not suit its purpose.

b) CA is engaged with the Australian Beef Sustainability Framework, the Global Roundtable for Sustainable Beef and consequently the Global Agenda for Sustainable Livestock.

4. How can the Australian Government bring together existing effort and new initiatives into one coordinated plan?

a) Establish a steering committee with key stakeholders like Cattle Australia to conduct an analysis of all the bodies and associated activities being conducted nationally and internationally. Identify duplications and barriers to collaboration to ensure that investment prioritisation is in line with a sectoral plan and is achievable for the sector based on its resources and investment.

b) Clear sectoral roadmaps to 2050 that have critical review points to ensure that each industry is contributing accordingly, and data is up-to date to ensure a credible review and performance analysis process.

c) Create platforms and incentives for land managers to provide information on their natural capital and emissions data for utilisation within their supply chain to meet ESG requirements.

Opportunities to reduce emissions

5. What are the most important options to be further adopted or supported, looking in the short and the longer-term?

a) Prioritise development of Emissions Reduction Fund (ERF) Methodologies that encourage adoption of feed supplements and other technology to reduce livestock emissions.

b) Rectify the inconsistencies in ERF methodologies regarding credits for Savanna burning but not crediting eligibility for grazing/managing grasslands rather than leaving the grasslands to be burnt and release nitrous oxide and methane. Carbon dioxide emissions are not included in Savanna burning methodologies due to the assumption that an equivalent amount is removed from the atmosphere through vegetation regrowth. This needs to be similarly accounted for in that when ruminants are grazing the availability for gases to be released through burning is largely reduced.

c) Supporting adoption of methane reducing feed additives through incentives that reduce the cost of products, so producers can make a return on their investment; and continuing to fund research work to identify adoptable delivery methods for feed supplements in grass-fed production systems.

d) Finalising Climate Active's Draft Accounting for Sequestration of Farm Trees methodology. This will give beef producers more options to reduce emissions in their supply chains and should be prioritised.

e) Implementing the Nature Repair Market and prioritising the development of methodologies for agricultural land holders to deliver and receive payment for ongoing land and biodiversity stewardship to increase their business resilience.

f) Promote sustainable vegetation management, considering the vast diversity in bioregions and landscapes. Enable producers to access advise, technology, innovations and incentives for instance in the areas of groundcover, legumes and revegetation/tree planting.

g) Increase adoption efforts for fire management methods - Savanna burning in Northern Australia.

h) Increased breeding and widespread adoption of dung beetles.

i) Increased adoption of herd management methods e.g., selecting for low methane genetics.

j) Increased adoption of legumes such as Leucaena and desmanthus.

6. What are the practical solutions to increase uptake?

a) Drive engagement by ensuring recognition of beef producers for the vital role they play in caring for Australia's landscapes, managing vegetation, minimising invasive pests and weeds and building healthy soils and watercourses.

b) Acknowledgement and adjustment for the cyclical nature of biogenic methane emissions.

c) Increased awareness and communications around industry progress and strategic global alignment.

d) That the government support industry to deliver public education initiatives to explain the role and impact of agriculture on the climate and combat misinformation about livestock production in this context.

e) Demonstrate value proposition for practice change on-farm.

f) Incentivise producers for practice change by creating further methodologies that allow for insetting within the supply chains that reward land managers for preserving and enhancing biodiversity and ecosystems on-farm.

g) Auditing and routine calibration of industry emissions and baselining calculators/tools. The existing calculators lack the sophistication to manage multi-commodity properties and businesses.

h) The creation of a free to use beef decarbonisation pathway calculator for producers to scenario test the different options to understand their best investment opportunities for emissions reduction.

Developing emissions pathways

7. How do you see the agriculture and land sectors contributing over the medium and longer-term? What are the opportunities to deliver emission reductions in parallel with wider goals?

Please see the CA Submission above.

Supporting and enabling change

8. How can the Australian Government better support agriculture and land sectors to:

a) drive innovation,

i. IP ownership largely influences commercialisation and consequently adoption. Solutions are required that can reward ideas/start up activities, and then enable rapid progress to viable commercialisation.

ii. More rapid patent review, equitable royalty agreements and appropriate purchase prices.

iii. Ensure producers and land managers are involved in proof of concept testing to ensure ideas and innovations are viable at the primary production level from the onset.

b) build capacity,

i. Greater support of extension and adoption activities and programs to support producer awareness, knowledge and practice change.

ii. Grants to assist producers with upfront costs associated with implementing practice changes on farm. For example, grants to develop business cases, or to purchase supplies and pay for advisory services to implement new practices on-farm.

iii. Funding access to on-farm advisory services e.g., to assist with on-farm carbon accounting.

iv. Subsidised adoption of new technologies that reduce emissions and/or build carbon stores e.g., government to contribute 50% of costs of on-farm tree plantings or solar panel costs.

c) ensure the system enables emissions reductions?

i. Standardised/approved methodologies for verifying emissions reduction, need to improve measurement and accounting software technology.

ii. Continued investment into innovations and technologies to enhance measuring capacity and accuracy. Tools to calculate baselines currently have an error range of 20%, which doesn't drive user confidence and engagement, thus stifling progress and benchmarking.

iii. The creation of a methodology for measuring natural capital into the asset class on the balance sheet.

iv. Report on the emissions from the red meat sector using the Global Warming Potential Star (GWP*) and GWP100 and other suitable metrics that are identified to better reflect the true impact of methane emissions on the climate and our national greenhouse gas accounts

9. What new initiatives could the Australian Government design that would support emissions reduction and carbon storage in agriculture and land and help ensure a productive, profitable, resilient and sustainable future for the sectors?

a) Research into soil treatments that encourage biological activity and plant growth leading to greater opportunities for soil carbon sequestration.

b) Further research into deep rooted plants and legumes for carbon sequestration benefits as well as beef production co-benefits e.g., feed conversion efficiencies etc.

10. A consistent and trusted approach for assessing and reporting emissions is often raised as a barrier to reducing emissions. Is there a role for the Australian Government in addressing this concern, and how can producers and land managers be supported?

a) Requirement for published standards for assessing and reporting emissions.

b) Develop a test/proxy data set that can be used to validate new methodologies/software for calculation. This would be accessible through the IPCCC website and used by the IPCCC when updating and recalibrating their metrics that underpin the Greenhouse Accounting Frameworks. All systems should return the same result for this data set to demonstrate they comply with standards.

c) A potential review of the National Greenhouse and Energy Reporting (NGER) - CA is concerned that reviewing the NGER Act could be the first step towards regulating agricultural emissions in Australia with lowering of reporting thresholds on the table. If the lowering of thresholds made it mandatory to report methane emissions from beef production businesses the costs to individual producers would be significant with accurate accounting and reporting of on farm emissions still a difficult, uncertain and technical process. This would require producers to access expertise at a significant cost to their businesses. This will be a substantial compliance burden impacting on the sustainability of beef businesses that support our rural and remote communities.

d) Government adopt a more accurate metric such as GWP* or Radiative Forcing Footprint to account for biogenic methane emissions. Where GWP100 must be used, Government policy should not require emissions from beef production to reach a state of net zero emissions as this would be requiring the industry to go beyond climate stabilisation at a significant cost both financially and production wise.

11. What skills, knowledge and capabilities do you think producers and land managers need to implement change? What information and data would help them make decisions about emissions reductions and sustainable land management in the short and longer-term?

e) Greater awareness of data input requirements and ability to document, store, and use these to demonstrate baseline performance and improvement over time.

f) Cost benefit analysis of new technologies, ability to generate ACCUs, market/supply chain incentives would help producers make decisions about adoption emissions reduction in the short and long term. Caution needs to be applied regarding penalties for demonstrating poor performance due to external factors (climate) that can influence this.

g) Encourage market driven strategies for land managers to use within their supply chains that are required to report on their ESG position, ensuring that producers are supported with the financial implications of collecting this data.

h) Ongoing support for producers to access tools and increase their carbon literacy from trusted, independent sources and see local examples of what can work in their region/production system e.g., local demonstration/focus farms.