

Agriculture sector emissions reduction pledge 2026–30



VICTORIA
Australia

Minister's foreword

Agriculture is vital to Victoria's economy. Victoria is Australia's largest food and fibre exporter by value, totalling \$20.1 billion in 2023–24. Agriculture is the bedrock of employment and prosperity for regional communities, and a key driver of Victoria's domestic economy, as Victorian farmers feed the nation and the world.

Right now, Victoria is experiencing widespread drought and dry conditions that are impacting farm businesses and farming communities. We've invested \$144 million to support farmers to manage through the current drought. With conditions including the driest on record in some parts of the state, the need for us to work together to build climate resilience and reduce emissions has never been clearer.

Nine out of 10 of Victoria's largest export markets have committed to net zero targets – including China Japan, New Zealand and Indonesia. Victoria's high trade exposure means it must keep pace with international expectations to maintain access to key markets.

We're committed to working proactively with industry so the sector can grow and thrive. Farmers are managing their businesses in a rapidly changing context. Alongside increasing market expectations to act on emissions, farmers face a changing climate, land use pressures, and market volatility. These create significant challenges but also generate opportunities.

Partnering with the agriculture industry, we've established a shared vision for a profitable and productive sector that takes ambitious action on climate change.

Over the five years of the 2021–25 agriculture sector emissions reduction pledge, we worked together with industry to deliver world leading research and strengthen sector capability and knowledge through new tools and support for farmers to reduce their on-farm emissions. Many farmers are already taking practical steps to reduce emissions and manage the impacts of a changing climate. Cost effective actions that are available now include energy efficiency, renewable energy, tree planting and measures to improve crop and livestock productivity.

This new pledge builds on the progress made to date and takes the next important steps. Government and industry will both need to take leadership, invest in and support technology development to shift the dial on agriculture emissions from livestock, fertiliser use and manure.

In support of this new pledge, we've made an initial new investment of \$6.1 million over two years to deliver world class research and position the state to fast-track the commercialisation of practical solutions. We will continue to build farmers' knowledge and skills and support more farmers to implement more solutions on farm. This pledge is an invitation for industry to join us in driving these efforts forward.

I welcome this opportunity to renew our commitment to work alongside farmers, industry, supply chains and the community to secure agriculture's place at the heart of Victoria's prosperous, net zero emissions future.



Hon. Ros Spence

Minister for Agriculture

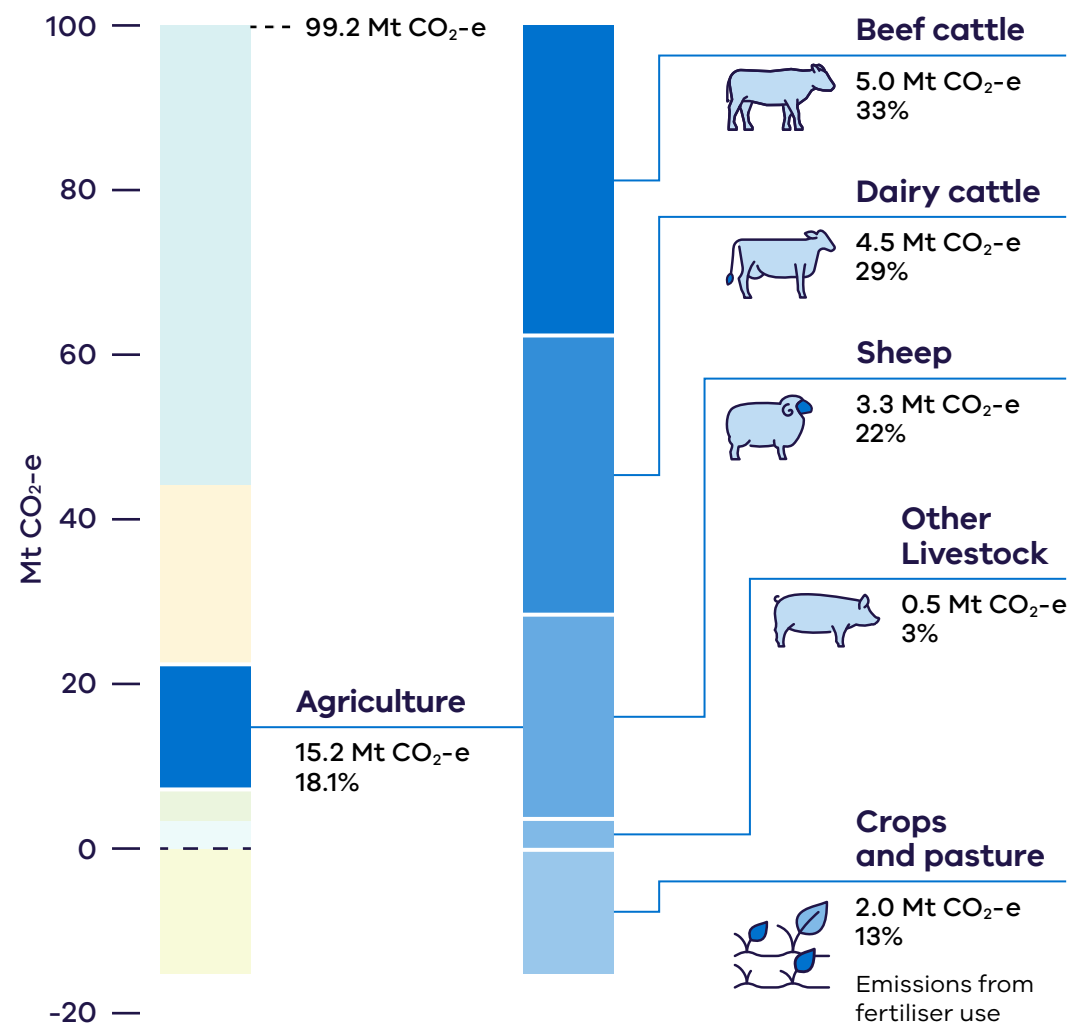
Overview of agriculture sector emissions

The agriculture sector contributed 18% (15.2 Mt CO₂-e)¹ of Victoria's total greenhouse gas emissions in 2023, making it the third-largest source of emissions in the state – behind electricity generation and transport.

Around 87% of agriculture sector emissions come from livestock, particularly beef and dairy cattle, and mainly from enteric fermentation and manure management. Cropping, pasture and horticulture systems produce most of the remaining agricultural emissions from soil management practices and the use of fertiliser.

Cows and sheep have gut microbes that help them to digest their food. Some of these microbes release methane, a greenhouse gas, in a process called enteric fermentation.

Agriculture sector emissions in Victoria in 2023



71% of agriculture emissions are from enteric fermentation and 8% from manure. In total, livestock produces about 87% of sector emissions.

¹ Victoria's 2023 Greenhouse Gas Report (to be published late 2025)

Figures represent latest emissions data from 2023. Numbers may not sum due to rounding.



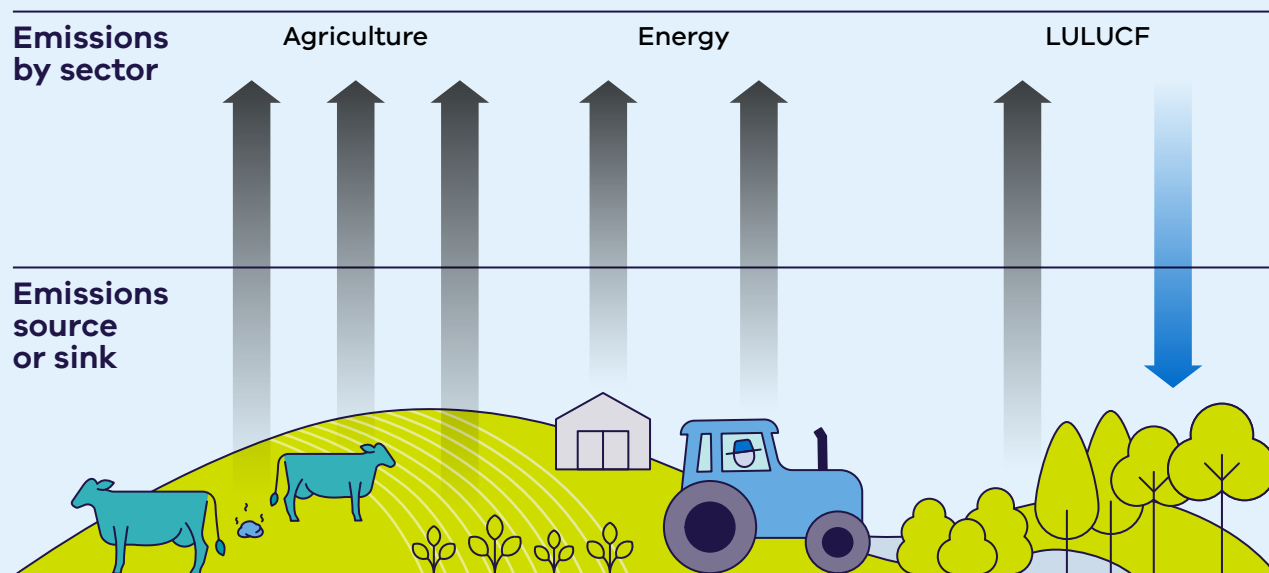
What makes up on-farm emissions

A range of different on-farm activities produce or absorb emissions.

The 2026–30 agriculture sector emissions reduction pledge focuses on emissions that result directly from agricultural production, in line with national and international frameworks.

Other sources of on-farm emissions include fuel use in on-farm vehicles and equipment, and electricity consumption. Trees, vegetation and soils on farms may either be a source of emissions or may absorb emissions, depending on their management and prevailing climate conditions.

In addition to the actions set out in this pledge, other sector pledges contain initiatives that will help farmers reduce their emissions. For example, on-farm tree planting programs are included in the 2026–30 land use, land use change and forestry (LULUCF) sector pledge, and the 2026–30 energy sector pledge includes support from the Victorian Energy Upgrades Program for on-farm energy efficiency and electrification.



Opportunities and challenges to reducing agriculture sector emissions

There is global recognition of the challenges in substantially reducing agricultural emissions, as high impact and cost-effective solutions are not yet readily available for farmers to adopt.

As markets and supply chain participants set specific emissions reduction targets and expectations, solutions will need to be found to protect and enhance the global competitiveness of Victorian farmers.

Existing technologies and good farm management practices can support modest emissions reduction from livestock, fertiliser, crop wastes, soils and manure management while improving productivity, profitability or providing other benefits.

Higher impact options are emerging to address Victoria's largest sources of agricultural emissions – livestock and fertilisers. These emerging technologies and practices could achieve more significant emissions reduction in the future but the majority are not yet commercially available.

For many of these options, further testing and trials are needed to ensure safety and efficacy. There are also significant barriers to adoption of many new technologies once they become available, including access to trusted information sources and cost-effectiveness for farm businesses.

We're supporting farmers to adopt existing low-emissions solutions now, while also taking action to accelerate research and streamline commercialisation of higher impact solutions as these become available.

The figure on the right shows the current development status of some key agricultural emissions reduction technologies and practices, noting readiness can differ significantly across agricultural commodities.

Development status and emissions reduction potential of some key technologies and practices

Categories	Emerging solutions	Ready for adoption
 Methane inhibitors/converters/feed additives	📈 Asparagopsis 📈 Synthetic bromoform additives 📈 Additive stacking 📈 Novel compound additives 📉 Essential oils 📉 Lipids 📉 Nitrate 📉 Probiotics	
 Livestock performance improvements	📈 Methane vaccine	📈 Liveweight monitoring 📈 High quality feed 📈 Reproduction efficiency 📈 Genetics for productivity 📈 Improved lifetime performance
 Low methane pasture feeds	📉 Novel mixed-pasture swards	📉 Herb/legume-based pasture systems
 Low-methane selective breeding	📈 Early-life programming 📈 Low-methane breeding values	📈 Sustainability Index for dairy cows
 Improved manure/effluent management	📈 Anaerobic waste treatment	📈 Best practice manure management
 Fertiliser innovations and cropping system improvements	📈 New N-fixing microbes 📈 Biochar 📈 Plant-based fertiliser 📉 Inhibitor/slow-release coated fertiliser 📈 Precision/predictive farming technologies	📉 Soil mapping and variable rate fertiliser 📈 Legume crop rotations 📈 No-till farming

Potential to reduce Victoria's agricultural emissions



Emissions reduction potential will vary by technology / practice based on specific application to farm system / industry, technology start year, and level of on-farm uptake

Achievements



\$20 million
invested

in actions that build the foundations for future emissions reductions through research, knowledge, capability and partnership building

16



partner organisations

committed to the Victorian Agriculture and Climate Change Statement – a shared industry-government vision for a profitable and productive sector that takes ambitious action on climate change.

World-leading research



15
research trials

into the efficacy and potency of approaches to reduce enteric fermentation emissions from dairy cattle, with promising results.

World first
full lactation study



in a grazing-based system to evaluate the longer-term mitigation potential of an Asparagopsis (algae) based product, showing sustained and significant mitigation throughout the full lactation cycle.



\$7.4 million
research co-funding

secured through co-investment and commercial partnerships.

On-farm action and capability



250
farmers engaged

through the On-farm Emissions Action Plan Pilot to estimate on-farm emissions, develop action plans and access grants to lower their emissions. 230 plans were delivered across dairy, beef, sheep, pig and poultry, grains and horticulture industries.



96%
of surveyed farmers

reporting they intend to make changes to reduce their on-farm emissions after participating in the On-farm Emissions Action Plan pilot.



208
members

of the On-Farm Emissions Community of Practice. This has fostered leadership, increased the number of farm emissions specialists with region and industry-specific knowledge, and improved sector capability more broadly.



1800+
annual climate related engagements

with farmers, supply chains, services providers and industry organisations, including workshops, farm walks, meetings and delivery of other information resources.

Emissions reduction pledge 2026–30

This agriculture sector pledge establishes the next steps for collaboration with industry towards a profitable and productive agricultural sector that is contributing to emissions reduction targets, and building toward a climate-resilient, net zero emissions economy in Victoria by 2045.

It reflects and builds upon the progress made by the sector over the last five years and the evolving context for climate action including:

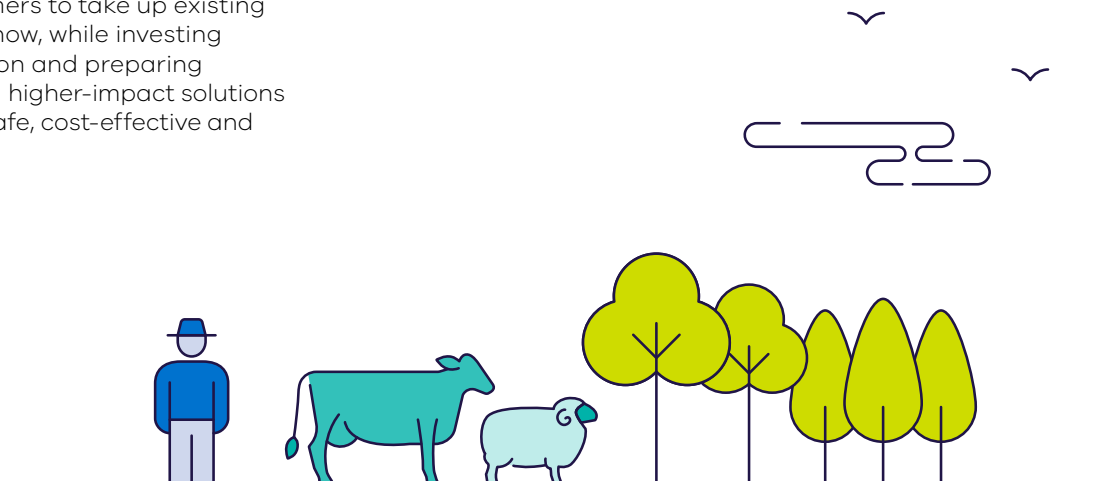
- the opportunities currently available to reduce agricultural emissions
- increased market expectations to report and act on emissions
- increased national policy action and research funding
- accelerating on-farm impacts of climate change.

Actions in this pledge will be critical enablers of future emissions reduction from the sector.

In the short term, Victorian Government action will focus on supporting farmers to take up existing technologies and practices now, while investing in research, commercialisation and preparing the sector to adopt emerging higher-impact solutions as soon as they are proven safe, cost-effective and readily available.

With continued action in the directions set in this pledge, the sector could potentially achieve an emissions reduction of 0.3 Mt CO₂-e in 2030. This is subject to new, effective technologies being available to farmers, with sufficient drivers for adoption, through the second half of the 2020s. It also assumes that the Victorian Government will continue to partner with other governments, industry and farmers to take action.

Leadership and action over the next five years and beyond will support Victorian farmers' continued productivity, profitability and competitiveness and help maintain international market access as trading partners and supply chains take steps towards their own net zero emissions targets.





Emissions reduction actions 2026–30

Deliver high priority research with a focus on solutions for livestock methane emissions

We'll lead new research into emissions reduction solutions, working with partners and building on Agriculture Victoria's world-leading outcomes from the last five years contributing to research progress globally.

New research aims to verify that new and emerging solutions are safe to use, effective in reducing emissions and can be deployed with confidence in Victorian farming systems. This will include:

- Leading dairy sector research, drawing on Agriculture Victoria's advanced expertise and capability, including:
 - Research into feed additives, manure additives, forage solutions and stacking of complementary solutions (e.g. additives and forages).
 - Delivering high value individual cow measurements of methane to boost the impact of DataGene's Sustainability Index for dairy cows. The Index supports selective breeding of dairy herds with lower emissions profiles while maintaining milk production quality, animal welfare and on-farm profitability.
 - Research into improvements to dairy feedbase management and genetic gains for enhanced productivity through [DairyBio](#) and [DairyFeedbase](#).
- Partnering with industry, commercial partners and other jurisdictions to progress methane mitigation research for other livestock farming systems, including as a founding partner of the 10-year, \$300 million [Zero Net Emissions Agriculture Cooperative Research Centre](#), Foundation for Food and Agriculture Research and the [Global Methane Hub](#). This approach leverages established specialist expertise, funding and projects led by partner organisations to directly benefit Victorian farmers.
- Contributing research towards promising emissions reduction solutions across all commodities, including:
 - Delivering research to achieve the integration of solar with agricultural production.
 - Research to increase understanding of nitrogen cycling and loss in grain growing regions. The data will be used to improve nitrogen forecast models that underpin adviser recommendations and predict greenhouse gas emissions.



Ellinbank SmartFarm

The Ellinbank SmartFarm in Gippsland is delivering world leading research and innovation to support carbon neutrality.

Since 2020, a range of innovative technologies and practices have been implemented on the 230-hectare pasture based dairy farm to showcase current and future emissions reduction options for the dairy industry. These include:

- Delivering a series of flagship research trials to reduce emissions from 450 dairy cows using methane inhibiting technologies including asparagopsis seaweed, essentials oils and probiotics. Trials have advanced scientific knowledge on the safety and efficacy of these products in a grazing-based system and potential delivery methods, with promising results.
- Powering the farm's operations with renewable energy through wind turbines, hydro, roof top solar with battery storage, a solar and battery powered water pump, and the use of electric farm side by side vehicles. The performance of these technologies can be monitored through the [Ellinbank SmartFarm Energy Dashboard](#).
- Improved manure management practices including through use of an anaerobic biodigester that generates energy and by-product that can be used as fertiliser.
- Establishing over eight hectares of trees and vegetation across 12 on-farm sites. Mixed-species environmental plantings along waterways are enhancing ecological function, and timber-belts, woodlots, and agroforestry plantings are providing shade and shelter for livestock and producing timber for on-farm use or sale.

Future plans at Ellinbank include continued research into methane mitigation and more solar, battery storage, and tree planting.



Accelerate commercialisation of innovative low emissions solutions as soon as they are proven safe, effective and are available

We'll partner with industry so Victorian farmers have access to cost-effective new solutions alongside or ahead of international competitors. This will address gaps in the solutions that are currently available and build on Victoria's dynamic agricultural innovation ecosystem, including:

- Developing a commercialisation framework for new emissions reduction technologies to fast-track their availability and secure sufficient, predictable supply. Objectives for the framework will be to find opportunities to cut red tape and establish supportive market conditions for solutions to be scaled up. The framework will clarify the role for government in supporting commercialisation.
- Investigating investment for emerging technologies through Agriculture Victoria Services and through other government business innovation funds.
- Continuing to offer research services to businesses to test the efficacy of different formulations and delivery methods for methane mitigation feed additives.

Continue building knowledge and skills across the sector and support uptake of solutions that benefit farm business productivity, reduce emissions and build climate resilience.

We'll continue to work in partnership with farmers, industry and supply chains to reduce on-farm emissions, while maintaining business productivity. This will include building science-backed, practical knowledge and resources, and working with a broad cohort of farmers to know and understand their emissions number and the co-benefits of emissions reduction. We'll build on the strong partnerships developed with industry and innovative farmers over the last five years to demonstrate and test new practices on-farm and help de-risk early adoption of emissions reduction solutions.

Government will take a multi-faceted approach to address adoption challenges across farming systems and technologies, including:

- Delivering targeted products and tools to help more farmers understand and act on their emissions, enhance productivity, and improve climate resilience, drawing on the data and insights from the first pledge.
- Partnering with industry, supply chains and the Zero Net Emissions Agriculture Cooperative Research Centre to deliver outreach and services that build sector-wide capability on reducing emissions and carbon farming.
- Facilitating peer-to-peer learning and networks, including targeted group events, training and providing technical expertise through the [Victorian Community of Practice for Farm Emissions Advisors](#).
- Collaborating with industry and the Zero Net Emissions Agriculture Cooperative Research Centre on local demonstrations that validate emissions reducing solutions, pilot innovative practices and technologies on-farm, and test options to address barriers to adoption.
- Advocating for the Australian Government to continue to fund outreach, following on from the two-year [Carbon Farming Outreach Program](#).
- Partnering with industry to develop further initiatives to support and incentivise uptake of solutions, including encouraging co-investment and advocating for Australian Government support.
- Continuing to engage with industry, supported by the [Victorian Agriculture and Climate Change Council](#) to ensure approaches meet the needs of farmers and identify emerging opportunities to increase climate action on-farm.

Collaborate with industry and other jurisdictions to develop standards and certifications that provide farmers with clarity and reward progress

We'll help to progress voluntary standards that provide guidance and assurance to farmers on safe and optimal use of priority solutions and allow easy and accurate estimation of emissions reduction. Trusted green credentials, aligned with requirements from international markets and traceability systems, will help farmers to access the growing global demand for low emissions food and fibre products and any associated market premiums. This includes:

- Supporting the development of robust national and broad-based standards, for emissions reduction solutions and on-farm practices, that align with Victorian Government objectives.
- Advocating to the Australian Government to provide industry with certainty, clear guidance and tools for emerging supply chain reporting requirements, including on-farm emissions reporting and climate-related financial disclosures.

On-Farm Emissions Action Plan Pilot



Farm businesses across the state are taking action to manage and reduce emissions. The examples provided below were part of the **On-Farm Action Plan Pilot**, which supported farmers to estimate their emissions, identify potential actions and then co-fund recommended actions. Pilot participants demonstrate the practical actions that can be taken now across industries, commodities, farm sizes and geographic regions. Further details and case studies can be found [here](#).

- In south-west Victoria, dairy farmers Bruce, Andrea and Jordan Vallance milk 850 cows on 516 ha. The Vallances have made the switch to solar coupled with thermal storage to cool milk at the time of milking. This reduces their energy emissions and their daily running costs. A key driver for the Vallances is to tap into growing consumer demand for high-quality, sustainable dairy products.

- In the Wimmera, Hugh Keam grows wheat, barley, canola, lentils and vetch for grazing, and runs two sheep flocks totalling 350 head. Hugh conducted soil conductivity mapping to assess variability across paddocks, gaining insights into water holding capacity and structural issues affecting yields. This has enabled Hugh to apply fertiliser at a variable rate at seeding time. More targeted application of fertiliser cuts overall use and reduces associated emissions. The soil mapping will also inform Hugh about prime locations for shelter belt planting to increase carbon sequestration in the future.
- At Banemore Farm in south-west Victoria, Jonathan and Jo Jenkin run a beef and sheep farming enterprise spanning 1,000 ha. The Jenkins already used many best practices to improve livestock production efficiency through stock management and genetic selection. Purchasing an Optiweigh system has allowed them to monitor real-time weight of cattle and go further to optimise growth rate and herd make up to improve emissions intensity. This adds to other emissions reducing actions across the farm including reduced urea use, installing solar powered water pumps and increasing woody vegetation in reserves and shelter belts for stock protection, agroforestry and carbon sequestration.



Industry-led climate action and collaboration with government

The Victorian Agriculture and Climate Change Statement is a shared vision between the Victorian Government, Victoria's agriculture sector, including Dairy Australia, Birchip Cropping Group, Woolworths, Meat and Livestock Australia, and the Victorian Farmers Federation, and the Victorian Agriculture and Climate Change Council (VACCC). Released in 2022, it says:

"We are committed to a profitable and productive agriculture sector that takes ambitious action on climate change. We are working together to accelerate climate change solutions, including taking steps to:

- Understand and reduce our emissions
- Adapt to climate risks, and
- Capture future opportunities"

Many farmers, leading industry groups and major businesses in the agribusiness supply chain are taking steps to reduce emissions:

- Agribusiness supply chain partners have committed to net zero emissions targets by 2050 or earlier including Coles, Woolworths, Metcash, ALDI, JBS and Lactalis.
- Industry peak bodies have also set climate action targets including National Farmers Federation, Dairy Australia and Australian Pork.
- Financial institutions are increasingly offering green finance products to incentivise and reward climate action. In partnership with the Clean Energy Finance Corporation, [NAB Australia](#) and [Rabobank](#) now offer discounted loans to agribusiness clients undertaking eligible emissions reduction projects on-farm. Rabobank has also partnered with Ruminati to pilot an on-farm emissions calculator for clients to measure and track emissions reduction progress.

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Acknowledgement of Country

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom have ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.

