

A call to (f)arms



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Australia's farms are a bedrock of the country's economy and often at the forefront of sectoral innovation globally. Their role will evolve in the decades to come to meet the challenges of a warming world but also to grasp the wealth of opportunities that will arise.

Introduction

We're all familiar with the notion of an Australia 'riding on the sheep's back', a nod to the keystone role wool – but also farming in general – played in Australia's postwar economic boom. While regional economies have since diversified with the expansion of mining, our agricultural sector has continued to power ahead.

The future will present its share of challenges as weather patterns change. It will also throw up fresh growth opportunities for those ready to tap farmers' most reliable resource: a tried and tested ability to innovate to meet the market.

Farmers have long been suppliers of vital services with their food and fibre output. Those services will increasingly be supplemented by new, essential ones – from supporting our energy transition to aiding biodiversity and capturing carbon. These will combine to futureproof our regional communities for generations to come.

Farmers on the frontline

Weather-watching has always been standard business for Australian farmers, exposed as they are to our famously variable rainfall. While experiences will vary by location, most will concur with the long-term readings from the Bureau of Meteorology (BoM).

For those farming productive districts in Australia's south-west and south-east regions, the record of recent decades has generally been one of declines in rain and run-off against a backdrop of rising temperatures (Bureau of Meteorology & CSIRO, 2024).

Individual months, seasons and years regularly set records – both at a local or state level, but also nationally and globally – for warmth, at a pace far exceeding cold-weather records. Devastating events, such as the 2019–20 Black Summer bushfires or the yet-to-be-broken drought across areas of South Australia and Victoria, have scientists and those living off the land studying signs of the fingerprints of climate change.

The Government's recently released first National Climate Change Assessment (NCRA) (Australia's Climate Service, 2025) adds to the biennial BoM and CSIRO State of the Climate (Bureau of Meteorology & CSIRO, 2024) reports to identify the trends and emerging risks for primary producers.

For 'primary industries and food', the former assessed the current level of risk as 'medium-high', noting the impacts on soil moisture and crop yields of extreme heat and shifting rainfall. For now, these challenges 'are largely being managed in the current climate', the assessment found for cropping and horticulture.

Still, the costs are mounting. By one government measure, average annual broadacre profits have fallen 23%, or around \$29,200 per farm, with croppers tallying even larger losses. The changing climate has also increased income volatility. Farmers for Climate Action report 93% of farmers have faced at least one extreme weather event in the past three years, and 74% report experiencing unusual rainfall.

For 2050, the NCRA reports the climate risk rating rising to 'high-very high'. Water insecurity tops the major concerns for some regional communities, with farm output and livelihoods on the line.

To be clear, these projections don't need to become the reality. Efforts by Australia and other nations to cut greenhouse gas emissions will help arrest and even avoid such costly changes.

Call to (f)arms

Resilience, of course, goes with the territory when it comes to farming in this country. It's what farmers have adopted as part of their key performance indicators down the years – long before such corporate counters became commonplace.

Our primary producers have responded to each challenge – whether by creating new markets or deploying new techniques and technology to tackle altered environments. We should have every

“Farmers are central to Australia’s economy, innovating to meet climate challenges while creating food, fibre, energy, and carbon opportunities.”

confidence they will do so again, provided the signals are clear and consistent.

We recognise the vital importance of our regions in providing the food and fibre that keep us fed and clothed. The surplus output that becomes lucrative exports also support the national economy and those of our trading partners, with the value rising almost year on year.

Our farmers no doubt understand they need to adjust their own practices to meet the climatic changes head-on. They are increasingly aware the essential services they provide from our enormous – by world standards – farm estate now extend to energy and carbon farming.

The energy we harvest from our skies in the form of solar and wind power, or from our rivers in the form of hydropower offer our farmers new sources of income, diversifying the flow of funds to see out harder times. Bioenergy, too, provides increasing prospects to replace methane gas in a variety of industrial heat processes.

Regional economies and the cities can create new businesses based on nature's abundance of renewable energy in all its forms. Few if any other nations can rival Australia on these scores.

Likewise, farmers can tap a growing market for carbon and biodiversity credits, reflecting the scope of the bush to draw down carbon dioxide on the one hand, and also restore important wildlife habitats and corridors on the other.

Soil recharged with carbon and a landscape regenerating windbreaks and other spinoffs by nurturing nature can be more than a farmer's friend.

“Regional communities and farmers together can harness technology, renewable energy, and carbon farming to build resilient, profitable, and sustainable landscapes.”

These measures can serve as valuable allies to bolster farms’ ability to cope with the more variable weather we anticipate.

Farmers’ acute understanding of their own property’s needs and their financial fortunes should, of course, be the primary determination. Where possible, individual choice must be paramount.

All sectors play a role

Our regional communities have always played an outsized role in our national life. Honour rolls–adorned monuments hold pride of place in towns and hamlets around the country, marking the bravery of service personnel over generations. Armies of volunteers, too, stand ready to defend regional communities from bushfires, storms and other threats, and help rapid recoveries.

When it comes to contributing to national efforts to reduce greenhouse gas emissions, regional Australia won’t shirk making its contribution either. Indeed, in 2024 alone, the land sector was a net sink of greenhouse gas emissions to the tune of 74 million tonnes of carbon dioxide-equivalent (MT CO₂-e), according to government inventory data.

Since 2005, the sector has been responsible for 91% of the national emissions reduction as it shifted from a net emitter to a carbon sink.

The Climate Change Authority’s 2035 *Targets Advice* (2025) shows how a growing land sector carbon sink can contribute to Australia’s emissions reduction targets, with the right policies and actions in place. Its relative contribution, though, will shrink as other segments of the economy – from energy to resources and industry – step up their efforts to decarbonise.

The agriculture sector can play a role here too. The sector, which includes farming, fisheries and forestry, resulted in about 87 MT CO₂-e, or about 19% of the national emissions total, last year (excluding fuel use).

Livestock emissions make up more than half of agricultural emissions, with the remainder primarily resulting from fertiliser and manure.

Opening the farm gates

Farmers are already making some inroads by adopting technologies to cut emissions, such as through improved herd and pasture management.

Under the Australian Carbon Credits Unit Scheme, farms have, since 2012, generated a total of 2.8 million credits – each representing one tonne of CO₂-e – for some 50 projects to sequester carbon or reduce methane from livestock.

The Authority’s 2024 *Sector Pathways Review* (Department of Climate Change, Energy, the Environment and Water, 2025) and recent targets advice outlined other tracks towards lower emissions, as did the Government’s Net Zero Plan (Climate Change Authority, 2024) and the Agriculture and Land Sector Plan (Department of Agriculture, Fisheries and Forestry, 2025).

New and anticipated technologies will offer the agricultural sector increasingly cost-effective ways to cut carbon while improving the farmgate bottom line.

Feed supplements, for instance, already offer ways to curb methane emissions in our feedlots and dairies, and new delivery systems will provide options for pasture-raised livestock too. Improved herd genetics and slower release or nitrification-inhibiting fertilisers will also help, contingent on more research investment to reduce costs.

The electrification of vehicle fleets will eventually extend to farming too, as automakers launch more hybrid and fully electric ute models and even tractors. Owners will enjoy lower maintenance and operating costs, particularly if they generate their own energy, as so many farmers already do.

The digitisation of the economy has already extended to many farming practices, and the pace is only likely to

accelerate. Digital agriculture will increase accuracy and efficiency through automated data collection, enabling enhanced monitoring and strengthened verification. This reduces uncertainty, cuts costs and provides near-real-time insights for greater productivity. Access to high-resolution satellite and other data sources will ensure agriculture will also ride a rising technological tide, harnessing the potential of every paddock.

Dauntless and determined

So, what sort of future for the farm sector do we want in 2050 and beyond?

How about one that is even more profitable, resilient and thriving as regional Australia exploits its panoply of potential to supply increasing quantities of food, fibre, energy and even carbon credits to domestic markets and the globe?

One that embeds and fosters healthy ecosystems, providing natural sustainability while shoring up resilience to counter shifts in climate.

And one that builds on a rich heritage of innovating to boost on-farm productivity, supporting strong, vibrant communities.

We have the tools, and we have the will. The future is there for our taking, so let's get on with it!

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About the author

Matt Kean was appointed as Chair of the Climate Change Authority on 5 August 2024 for a term of five years. He was the NSW Member for Hornsby from 2011 until 2 August 2024.

Mr Kean was most recently the NSW Government Shadow Minister for Health. He was Deputy Leader of the NSW Liberal Party from August 2022 until March 2023. Throughout his 13-year political career, Mr Kean also held the ministries of Innovation and Better Regulation, Treasury, Energy and Environment.

As Treasurer and Energy Minister of NSW, Mr Kean championed climate action that is in the best interests of households and businesses. In 2020, he delivered the Electricity Infrastructure Roadmap, a 20-year plan for NSW's energy infrastructure. The roadmap spurs private investment in renewable energy while reducing emissions and power bills for the people of NSW.

Mr Kean commenced in the role of Director, Regulatory Affairs and Strategic Partnerships at Wollemi Capital on 15 August 2024. ▲



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