RED MEAT ADVISORY COUNCIL

RED MEAT & LIVESTOCK INDUSTRY'S JOINT SUBMISSION

HOUSE STANDING COMMITTEE ON AGRICULTURE:

INQUIRY INTO FOOD SECURITY IN AUSTRALIA

DECEMBER 2022

INTRODUCTION

The Red Meat Advisory Council (RMAC) and its members welcome the opportunity to provide a submission to the House Standing Committee on Agriculture inquiry into food security in Australia. RMAC is Australia's only policy leadership and advisory forum made up of producers, lot feeders, processors, manufacturers, retailers and livestock exporters, representing the entire red meat supply chain from paddock to plate. RMAC members are the following prescribed industry representative bodies under the *Australian Meat and Live-stock Industry Act 1997*:

- Australian Livestock Exporters' Council,
- Australian Lot Feeders' Association,
- Australian Meat Industry Council,
- Cattle Australia,
- Sheep Producers Australia, and
- Goat Industry Council of Australia

The red meat and livestock industry's contribution to food security both within Australia and in importing countries cannot be overstated. Australia's red meat and livestock industry is comprised of more than 76,000 businesses and collectively services 25 million Australians and over 100 export destinations every day with safe, high quality and nutritious red meat. Approximately 428,000 people are employed in the industry, representing 1.7% of Australia's key industry total employment, and 29% of Australia's direct employment in agricultural production[1]. This demonstrates the foundational role the red meat and livestock sector plays in feeding our nation and supporting rural and regional communities.

However, the important role the red meat industry plays in underpinning Australia's food security has been hampered in recent years by ongoing workforce and input shortages, which have then been compounded by a series of external shocks, such as extreme weather events, surging energy markets or the pandemic. Ongoing supply chain frictions need to be addressed to bolster Australia's resilience to current and emerging risks.

AN INDUSTRY AND SUPPLY CHAIN OF NATIONAL SIGNIFICANCE

Production

Australia's red meat and livestock industry turnover totalled $67.7 billion in 2020-21. Livestock production (beef cattle and sheep farming, and feedlots) accounted for 52% or $35 billion of overall industry turnover, followed by processing (28% or $19.2 billion) and wholesale and retail sales (20% or $13.5 billion)[2].

There are approximately 24.4 million head of cattle, 68 million sheep and several million goats in Australia. While Australia accounts for a small proportion of the world's herd (1.5%) and flock (5%), it accounts for approximately 3% of global beef production and 6.7% of global sheepmeat production.

In 2021, Australian beef and veal production totalled 1.9 million tonnes cwt. Queensland accounted for 50% of total beef production, followed by NSW (20%), Victoria (20%), WA (5%), Tasmania (3%) and SA (2%). Sheepmeat production totalled 662,973 tonnes cwt in 2021. The majority of Australia's sheep population is located in NSW (36%), Victoria (23%), WA (19%) and SA (16%). Tasmania and Queensland each account for around 3% of the national flock.

Australia currently exports around 70% of all beef, sheep and goatmeat we produce, making us the largest exporter of sheep meat and goat meat to the world and the fourth largest beef and veal exporter (after Brazil, India and the US). For decades, Australia has remained a consistent supplier of high-quality red meat to the global market.

[1] MLA (2022). *The Australian red meat and livestock industry State of the Industry Report 2022*. https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/2879-mla-state-of-industry-report-2022_d6_low-res_spreads.pdf

[2] Ibid

Consumption

Australia's per capita beef and sheepmeat consumption continues to be one of the largest in the world. In 2021, Australian per capita consumption of beef was approximately 19.2kg (global average is 6.4kg) and the per capita consumption of sheepmeat was approximately 5.9kg (global average is 1.8kg) – which, on average, aligns with Australian Dietary Guidelines for a healthy diet. Red meat plays an important role in contributing to the vast majority of Australians' daily nutritional needs.

Exports

Red meat and livestock exports totalled A$17.1 billion in 2021-22. Japan was Australia's largest beef export market, followed by China, Korea and the United States. The United States was Australia's most valuable sheepmeat markets, closely followed by China, and a wide array of markets across Asia, the Middle East and Europe. The vast majority of Australian goatmeat exports (almost 70%) was shipped to the United States.

Live cattle exports totalled 615,000 head in 2021-22. Indonesia was Australia's largest market (57%), followed by China (15%) and Vietnam (15%). In 2021-22, Australian live sheep exports totalled 489,000 head.

KEY RISKS TO THE AVAILABILITY AND ACCESSIBILITY OF RED MEAT

Labour shortages creating bottlenecks

The Australian red meat and livestock industry cannot operate at capacity without a full complement of staff. While labour shortages in Australia were prevalent before the COVID-19 pandemic, the ongoing workforce crisis is hindering production capabilities. This not only impacts businesses where staff cannot be found – there's a flow-on effect along the meat supply chain to export and domestic markets and the consuming public in the form of reduced product variety and food price inflation. Australia is an expensive location to process livestock, with estimated labour costs in beef processing more than 60% higher than in the United States and more than double those in Brazil and Argentina[3]. With many other countries already benefitting from government subsidies, Australian exporters compete in an increasingly uneven playing field in global markets.

The post-farmgate meat supply chain is under-staffed to process the current number of livestock, let alone the projected increase in the years ahead. Forecast producer turnoff of livestock for processing in 2023-2025 is 15-35% above current numbers[4]. Already heavily constrained, the lack of people to adequately run processing establishments will act as a major bottleneck in the meat supply chain. This will impact Australian farmers in the form of depressed livestock prices and may continue to put upward pressure on food price inflation. Australian livestock production is heavily dependent on seasonal conditions and the availability of rainfall to drive pasture growth. As Australia faces an ever-changing climate, annual changes in livestock production will be equally as volatile. Having flexibility in the workforce to process fluctuating livestock numbers is required to match the cycle in the herd and flock.

A key driver of the current worker shortage is the lack of migration due to the impact of the COVID-19 pandemic. Temporary visa holders declined by 92% in between 2018-19 and 2020-21 (or from 351,000 to just 28,000 arrivals)[5]. This reduced pool of overseas arrivals, coupled with a wider stimulus-fuelled economic expansion and competition for people in other parts of the economy, meant there was a significant reduction of employment in the meat processing sector.

The food supply chain urgently requires a suite of tools, including suitable visa pathways for overseas workers, as well as measures to facilitate people in the country to take up work (e.g., lifting restrictions on worker rights for temporary migrants, and support to enable relocation to do the work). Key features of a suitable visa program to

[3] AMPC (2018). *Cost to Operate and Processing Cost Competitiveness: A Combined Report*. https://www.ampc.com.au/getmedia/cddf3a65-fac3-49a9-a0db-986bd25dfd1b/AMPC_CostToOperateAndProcessingCostCompetetitivness_FinalReport.pdf?ext=.pdf

[4] MLA (2022). *Industry projections 2022 Australian sheep – July update*. https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/sheep-projections/july-2022_mla-australian-sheep-industry-projections-update_130722.pdf; *MLA (2022). Industry projections 2022 Australian cattle – June update*. https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/cattle-projections/june-2022_australian-cattle-industry-projections_140622.pdf

[5] ABS (2021). *Overseas Migration 2020-21 financial year*. https://www.abs.gov.au/statistics/people/population/overseas-migration/latest-release

support the vitality and sustainability of Australia's largest agricultural sector would include:

- Streamlined application and administrative processes
- Access for employers throughout the supply chain
- Access to broad range of skill categories including low-skilled, semi-skilled, skilled, and trade qualified roles
- Suitable (long-term) duration of visas, incorporating pathways to permanent residency
- English language skills suitable to workplace and community needs

Production cost increases fuelling food price inflation

Australia is battling inflated input prices, which are in turn being passed along the supply chain and incorporated into retail meat prices. In September 2022, meat and seafood prices were 16% above September 2019 levels and beef prices were 31% higher. This compares to an 11% increase in the wider Consumer Price Index over the same period[6]. Food price inflation impacts the lowest-paid consumers the greatest and puts a healthy, balanced diet further out of reach.

Being a heavily export-oriented industry, it is critical that the red meat sector is cost competitive on a global basis to ensure Australia does not lose market share to other nations exporting red meat. For red meat producers, the major expenses (excluding the purchase of livestock) are:

- Labour/wages
- Fuel and energy
- Pasture improvements (seed and fertiliser)
- Feed purchases
- Interest repayments
- Insurance

All these major costs have increased over the last twelve months. In particular, the red meat industry is heavily reliant on fuel and energy, both on-farm and to transport livestock and meat products to feedlots, processors, and retailers, and to process animals and refrigerate meat products. While many processing plants are incorporating renewables into their energy mix, electricity and natural gas still account for a large share of processing costs. When fuel and energy prices rise, every aspect of production is impacted, adding costs along the supply chain, from producers through to the retail price of meat.

Biosecurity underpins food security

With Foot and Mouth Disease (FMD) and Lumpy Skin Disease (LSD) arriving in Indonesia earlier this year, Australia maintaining a disease-free status via adequate biosecurity measures must remain a top priority.

Even a minor and quickly controlled animal disease outbreak would come at significant cost due to the immediate closure of most export markets. ABARES recently estimated the cost of an FMD outbreak could equate to $80 billion, primarily due to the interruption to trade[7]. A disease outbreak would see the movement of meat and livestock within Australia restricted, potentially creating localised or even nation-wide shortages until cases are brought under control. Moreover, Australia would cease being able to supply many customers in export markets for an extended period of time, undermining food security in those countries too.

No other country's red meat production sector is as export exposed as Australia's, which means that a loss of access to export markets would have a devastating impact on producers, processors, the broader economy, and the ability to maintain operations at scale needed to supply the domestic market.

The resumption of trade post an outbreak would likely occur in a staggered fashion and will significantly depend on the context of the incursion, the chosen disease response, and market-by-market sensitivities. Taking every reasonable measure to prevent FMD or LSD from entering Australia and bolstering our capability to respond to a

[6] ABS (Sep-quarter-2022). *Consumer Price Index, Australia*, ABS Website, accessed 15 December 2022. https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/latest-release#cite-window1

[7] ABARES (2022). *Direct economic impacts of a foot-and-mouth (FMD) disease incursion in Australia, An update of ABARES 2013 estimate*. https://www.agriculture.gov.au/abares/research-topics/biosecurity/biosecurity-economics/fmd-update-of-2013-estimate

major disease incursion is critical to shoring up Australia's ability to reliably feed millions of people in Australia and abroad.

Natural disasters

Natural disasters such as fires, floods and severe drought remain an ever-present threat that can severely impact red meat livestock production and systems. These shocks are compounded by the limited flexibility already caused by ongoing workforce shortages and inflated costs along the supply chain.

When supply chains are functioning correctly, livestock and workforces can be balanced to match available capacity in response to a natural disaster. For instance, when a cyclone causes damage to a processing establishment in North Queensland, those animals can be trucked to southern plants for processing. However, if those southern plants face labour shortages and can't scale up and/or the cost of fuel makes trucking those animals a greater distance uneconomical, supply chains are unable to adequately adapt. If Australia lacks the supply chain resilience to manage natural disasters, which may become more common with climate change, food security will continue to be challenged.

GLOBAL FOOD SECURITY

The Australian red meat and live export industry is critical to the food security objectives of many countries across the globe. Australia is perceived as a reliable, safe, disease-free, and sustainable supplier of high-quality red meat and livestock to the global market. Australia is the largest exporter of sheepmeat, goatmeat, and seaborne livestock, and is consistently amongst the top-four suppliers of beef to the global market. In upholding global trade norms over decades, Australia has built a reputation as a trusted and reliable source of food, which was exemplified through our continued ability to feed millions of people throughout the COVID-19 pandemic.

The role of live exports

The reasons that Australian livestock are preferred by our trading partners are as diverse as the countries themselves. Indonesia and Northern Australia have a very close and complimentary economic relationship based on the live cattle trade. Bos Indicus cattle breeds thrive in Northern Australia, as they are bred to tolerate hot and humid conditions and are very drought tolerant. Indonesia has a burgeoning feedlot sector, based on ready access to labour and feed. These complimentary traits underpin a longstanding supply chain of great importance to Indonesian consumers and Northern Australian producers alike.

Australian consumers prefer beef sourced from different cattle breeds, more prevalent in the southern part of the country, whereas Bos Indicus breeds produce meat that is more suited to Indonesian palates and culinary preferences. Some low-income consumers, for example in Indonesia, do not have ready access to electricity or refrigeration. The live cattle trade out of Northern Australia does not compromise Australian domestic food security or access to red meat protein, in any way. If the live cattle supply chain did not exist, however, Indonesia would be forced to seek out more expensive protein options and the northern Australian cattle industry would be decimated. Furthermore, Australia's geopolitical relationship with one of our nearest neighbours would be more tenuous.

In Middle Eastern countries, many consumers perceive chilled or frozen meat products to be less fresh than meat purchased through wet markets. Many families in the Middle East do not purchase their red meat from supermarkets. These consumers prefer to select their own livestock and have it slaughtered in special facilities that allow them to observe an animal being slaughtered, meeting both their religious requirements and their perceptions of freshness. For these reasons, several Middle Eastern countries prefer to import livestock rather than chilled or frozen meat products. Frozen and chilled meat imports service different consumer segments in these countries. If the live sheep trade did not exist, it is highly likely that Western Australian sheep producers would exit the industry altogether or carry far less sheep. Australian consumers would not be significantly affected, but Western Australian sheep producers would suffer and Middle Eastern countries would seek out livestock from other countries, such as Romania, Spain and South Africa.

For other countries, such as China, there is a strong desire to build their own livestock herds to bolster food security and Australia's dairy cattle are prized for outstanding animal health and genetic characteristics.

The live export industry, with its complex and diverse drivers, plays a massive role in ensuring global food security. Indeed, Australia, has a responsibility to contribute to global stability by providing food security to our trading partners – this is squarely in our national interest and in no way compromises Australia's domestic food security. By giving Australian livestock producers more options, it likely enhances it.

The importance of Australian red meat exports

As well as supplying the domestic market, Australia is consistently a large supplier of red meat to the global market. Many importing countries, businesses and consumers have come to rely on Australia to meet their daily nutritional needs. Of Australia's top-ten beef export markets, five of them relied on Australia for more than 34% of their annual imports in 2021 and for some, such as Japan and Indonesia, this share exceeded 40%[8]. For sheepmeat, where Australia and New Zealand are the only major suppliers to the global market, this reliance is even more skewed, and we often supply the majority of imported sheepmeat in many countries around the world.[9] For instance, Australia supplied 78% and 85% of the imported sheepmeat and goatmeat, respectively, into the United States in 2021.

As Australian consumers typically prefer a select sub-set of cuts produced from a carcase, access to international markets where other products are in greater demand, allows processors to balance the carcase with what consumers want. This maximises the value of each an animal, value which flows back to the producer in the form of higher farm-gate prices. Hence, in expanding its production base, the red meat industry can grow products suited for both domestic consumption and export markets.

Over the last two decades, other red meat exporting countries have not been as reliable. Animal diseases, such as Bovine Spongiform Encephalopathy (BSE) and FMD, triggered the withdrawal of US and Brazilian beef from the global market during the 2000s, and Argentina has dabbled with export controls on beef, along with other agricultural products over the years, undermining its standing with trading partners.

By being a linchpin of food security overseas, Australia fosters a strong two-way, mutually beneficial trading relationship with importing countries. Moreover, our reputation as a steady and reliable exporter of red meat has gone hand in glove with increased affordable supply of premium imported food products into Australia, predicated on science-based risk assessments.

The world has witnessed the consequences of when mutual trust in the global food trade system collapses. When export controls made price spikes in 2007-2008 and 2010-2011 worse for import-reliant countries, this triggered social unrest and, in part, contributed to the Arab Spring. To avoid history repeating, Australia has demonstrated its leadership in fostering a resilient and stable global food trade system. During the early stages of the COVID-19 pandemic, Australia proactively committed to maintaining food trade as the world entered a period of uncertainty, by signing a joint statement with other World Trade Organization members[10]. This action demonstrates Australia's commitment to not only its own food security but also its ability to bolster global food security.

The ability to maintain access to international markets and to export the majority of red meat production underpins the sustainability of the sector, maintains the economies of scale to keep costs down and creates the right carcase balance to provide Australian consumers with the meat cuts they demand at a competitive price point. This means that food security for Australia is not in conflict with but, rather, complimentary to that of our trading partners.

[8] *2021 MLA global market snapshots Japan, Indonesia | Meat & Livestock Australia*. (n.d.). MLA Corporate. Retrieved December 5, 2022, from https://www.mla.com.au/news-and-events/industry-news/2021-mla-global-market-snapshots-released/

[9] Commission, A. T. and I. (n.d.). *Insight – Australian exporters to benefit from gro*. Www.austrade.gov.au. Retrieved December 13, 2022, from https://www.austrade.gov.au/news/insights/insight-australian-exporters-to-benefit-from-growing-global-appetite-for-sheepmeat#:~:text=China%20and%20the%20US%20are

[10] *G/AG/30 ; WT/GC/208*. (n.d.). Docs.wto.org. Retrieved December 13, 2022, from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=263337

NUTRITION SECURITY

Historically there has been a global focus on ending hunger to address poor nutrition in the aftermath of WWII. In the subsequent decades, a shift to food insecurity was adopted to better address the challenges of access to affordable food. Global public policy makers are now shifting focus to not just access to food but access to healthy, nourishing food to address modern health and equity challenges (i.e., quantity versus quality). Shifting focus from food insecurity to nutrition security embraces the aims of food security while acknowledging the health benefits of having access to affordable foods that promote well-being.

The prevalence of undernourishment globally reached 9.8% in 2021, with as many as 828 million people going hungry globally in 2021 (an increase of 150 million more people than in 2020). Almost 3.1 billion people globally are unable to afford a healthy diet and 149.2 million children under the age of five are affected by stunting. Meanwhile, 38.9 million children under the age of five globally are overweight. Inflation and soaring food prices further threaten access to healthy diets[11].

The rise of modern novel alternative proteins differs from many of the alternative products of the past in that they have largely benefited from the use of complex flavour enhancers, additives (including colours, flavours, buffers, preservatives, and crosslinking agents), added complex fats, and often high levels of sodium[12] [13]. Many of the health claims made on these products, when they are substantiated, are extrapolated from studies involving plant-based diets and not the actual nutritional profile of the alternative protein in question[14].

As Klurfeld[15] points out in his article *What is the role of meat in a healthy diet:*

> *"Red meat is a nutrient dense food that is an important source of complete protein with all essential amino acids, highly bioavailable iron, zinc, selenium, and B vitamins, especially vitamin B12 in the diet. Several of these nutrients are the most common shortfall nutrients in the world that could be alleviated by the consumption of only a few ounces of beef per week."*

Red meat contains high levels of protein, as well as essential micronutrients[16], such as zinc, iron, and vitamin B. Moreover, these micronutrients are present in a highly bioavailable form. It has been acknowledged by scientists that this is not the case with alternative proteins. When an animal or plant cell is broken down (which is the case in alternative proteins), the cell's fundamental biological structures are altered[17], and the cell no longer responds in the same way in our bodies.

There is little question that there is a lack of longitudinal research on the impacts to human health of eating alternative proteins[18]. There are significant research gaps on the nutritional, safety and acceptance of alternative proteins and there is a dire need for robust evidence to verify and substantiate the claims being made by alternative protein products and the long-term impact on those consuming them. Several short-term trials that are ongoing that have already raised some concerns around changes in bone mineral density[19]. As Tso and his colleagues point out:

---

[11] FAO. (2022). *The State of Food Security and Nutrition in the World 2022 | FAO | Food and Agriculture Organization of the United Nations*. Www.fao.org. https://www.fao.org/publications/sofi/2022/en/

[12] McClements, D. J., & Grossmann, L. (2021). A brief review of the science behind the design of healthy and sustainable plant-based foods. *Npj Science of Food*, *5*(1). https://doi.org/10.1038/s41538-021-00099-y

[13] *Are alternative proteins good for you? - EIT Food*. (n.d.). Www.eitfood.eu. https://www.eitfood.eu/blog/are-alternative-proteins-good-for-you

[14] Tso, R., Lim, A. J., & Forde, C. G. (2021). A Critical Appraisal of the Evidence Supporting Consumer Motivations for Alternative Proteins. *Foods*, *10*(1), 24. https://doi.org/10.3390/foods10010024

[15] Klurfeld, D. M. (2018). What is the role of meat in a healthy diet? *Animal Frontiers*, *8*(3), 5–10. https://doi.org/10.1093/af/vfy009

[16] McClements, D. J., & Grossmann, L. (2021). A brief review of the science behind the design of healthy and sustainable plant-based foods. *Npj Science of Food*, *5*(1). https://doi.org/10.1038/s41538-021-00099-y

[17] News, & Canada. (2019, August 7). *Vegan Beyond Meat burgers are just ultra-processed patties that can be bad for our health | National Post*. https://nationalpost.com/news/canada/beyond-meat-health-vegan-burger-plant-based

[18] Tso, R., Lim, A. J., & Forde, C. G. (2021). A Critical Appraisal of the Evidence Supporting Consumer Motivations for Alternative Proteins. *Foods*, *10*(1), 24. https://doi.org/10.3390/foods10010024

[19] Itkonen, S. T., Päivärinta, E., Pellinen, T., Viitakangas, H., Risteli, J., Erkkola, M., Lamberg-Allardt, C., & Pajari, A.-M. (2020). Partial Replacement of Animal Proteins with Plant Proteins for 12 Weeks Accelerates Bone Turnover Among Healthy Adults: A Randomized Clinical Trial. *The Journal of Nutrition*. https://doi.org/10.1093/jn/nxaa264

> *"More evidence is required to identify the nutrient gaps that are likely to emerge on plant-based diets that have reduced the consumption of animal products, to formulate meaningful recommendations that can provide both healthful and sustainable dietary behaviour in the future. In addition, while consumption of these novel proteins in small quantities pose little to no risk, it remains to be seen what impact a wholesale increase in intake will have on human health".*

There is a clear lack of standardised methods to analyse, evaluate, and compare the new structures and foods that have been created[20]. Misrepresenting these foods as beef products attempts to capitalise on the nutritional reputation and profile of red meat. However, research has shown that regardless of identical nutritional panel information, the nutritional profile of a conventional piece of beef is very different from an alternative protein and can differ by 90 per cent[21]. In his research, Hu and his colleagues state:

> *"The plant-based meat alternative and grass-fed beef studied in our work, have largely similar Nutrition Facts panels and may appear nutritionally interchangeable to consumers. Despite these apparent similarities based on Nutrition Facts panels, our metabolomics analysis found that metabolite abundance between the plant-based meat alternative and grass-fed beef differed by 90% (171 out of 190 profiled metabolites: p>0.05). Substantial differences in metabolites within various classes (e.g., amino acids, dipeptides, vitamins, phenols, tocopherols, odd-chain saturated and unsaturated fatty acids, antioxidants) indicate that these products should not be viewed as nutritionally interchangeable".*

Governments have a role in developing proactive policy to improve availability and affordability of healthy diets to enhance Australia's food security. Promotion of nutrient dense foods can assist in addressing this. The role that red meat plays in a healthy diet is critical and increasingly acknowledged by science.

CARBON NEUTRAL BY 2030

In 2017, the Australian red meat and livestock industry first outlined its commitment to be carbon neutral by 2030 (CN30). That means that by 2030, Australian beef, lamb, and goat production, including lot feeding and meat processing, will make no net release of greenhouse gas (GHG) emissions into the atmosphere.

We have since developed the CN30 Roadmap to provide a framework to guide investment in technologies and research that will foster productivity and grow profitability throughout the red meat supply chain as we reduce emissions.

Importantly, the Australian red meat industry is making great progress. The latest data from the National Greenhouse Gas Inventory shows the red meat industry has reduced sector emissions by 59.05% since the baseline year of 2005[22].

Our industry (via Meat & Livestock Australia) has already committed $140 million to the CN30 portfolio, with at least a further $150 million required to support rapid adoption and commercialisation efforts. Additional investment is required in the following areas:

- Rapid discovery, trial, and commercialisation of new novel compounds to compliment Asparagopsis seaweed and 3-nitrooxypropanol (3-NOP) as feed additive solutions.
- Regulatory confidence in animal, food safety and storage safety of existing and emerging methane-mitigating additives.
- Acceleration of delivery mechanisms for grazing systems.
- Incentivisation of emissions avoidance and carbon storage practice adoption on-farm.

[20] McClements, D. J., Weiss, J., Kinchla, A. J., Nolden, A. A., & Grossmann, L. (2021). Methods for Testing the Quality Attributes of Plant-Based Foods: Meat- and Processed-Meat Analogs. *Foods*, *10*(2), 260. https://doi.org/10.3390/foods10020260

[21] Hu, F. B., Otis, B. O., & McCarthy, G. (2019). Can Plant-Based Meat Alternatives Be Part of a Healthy and Sustainable Diet? *JAMA*, *322*(16), 1. https://doi.org/10.1001/jama.2019.13187

[22] *Greenhouse Gas Footprint of the Australian Red Meat Production and Processing Sectors 2019 | Meat & Livestock Australia*. (n.d.). MLA Corporate. Retrieved December 13, 2022, from https://www.mla.com.au/research-and-development/reports/2022/greenhouse-gas-footprint-of-the-australian-red-meat-production-and-processing-sectors-2019/

The red meat and livestock sector has carried a significant burden from environmental regulation in the past. Unfortunately, we continue to see negative headlines around red meat and livestock's impact on our environment, and not enough coverage of the positive, proactive steps our forward-thinking industry is taking.

Demonstrated commitment to environmental stewardship, through initiatives such as CN30, enables ongoing trust and support for the red meat and livestock industry. It underpins Australia's position as a responsible producer of high value, clean, safe and natural protein. Climate change is already impacting the industry. Ongoing, constructive policy is required to support mitigation and adaptation, while not undermining food security by creating inflexible regulations and adding unnecessary costs to supply chains.

CONCLUSION

RMAC and our members are striving to be a world-leading, sustainable and people-centred industry, delivering high value and high-quality products to Australia and the world. Australian red meat supports the nutritional security of millions of consumers around the world. However, the important role the red meat industry plays in underpinning Australia's food security has been hampered in recent years by ongoing workforce and input shortages, which have then been compounded by a series of external shocks, such as extreme weather events, surging energy markets or the pandemic.

Ongoing supply chain frictions need to be alleviated to bolster Australia's resilience to current and emerging risks. To address this, the Australian Government should develop a national food supply chain strategy that protects Australian consumers from ongoing global and domestic disruptions.